



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### Organize Cognofile

#### **11-1021.00 General and Operations Managers Senior level position assuming education and experience prerequisite**

Plan, direct, or coordinate the operations of companies or public and private sector organizations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Includes owners and managers who head small business establishments whose duties are primarily managerial.

#### **11-3011.00 Administrative Services Managers Senior level position assuming education and experience prerequisite**

Coordinates activities of clerical and administrative personnel in establishment or organization. Prepares and reviews operational reports and schedules to ensure accuracy and efficiency. Formulates budgetary reports. Hires and terminates clerical and administrative personnel. Conducts classes to teach procedures to staff. Recommends cost saving methods, such as supply changes and disposal of records to improve efficiency of department. Analyzes internal processes and plans or implements procedural and policy changes to improve operations.

#### **11-3031.02 Financial Managers, Branch or Department Senior level position assuming education and experience prerequisite**

Directs and coordinates activities of workers engaged in conducting credit investigations and collecting delinquent accounts of customers. Plans, directs, and coordinates risk and insurance programs of establishment to control risks and losses. Manages branch or office of financial institution. Directs and coordinates activities to implement institution policies, procedures, and practices concerning granting or extending lines of credit and loans. Prepares financial and regulatory reports required by law, regulations, and board of directors. Analyzes and classifies risks as to frequency and financial impact of risk on company. Selects appropriate technique to minimize loss, such as avoidance and loss prevention and reduction. Prepares operational and risk reports for management analysis. Directs floor operations of brokerage firm engaged in buying and selling securities at exchange. Establishes procedures for custody and control of assets, records, loan collateral, and securities to ensure safekeeping. Evaluates effectiveness of current collection policies and procedures. Directs insurance negotiations, selects insurance brokers and carriers, and places insurance. Evaluates data pertaining to costs to plan budget. Reviews collection reports to ascertain status of collections and balances outstanding. Monitors order flow and transactions that brokerage firm executes on floor of exchange. Reviews reports of securities transactions and price lists to analyze market conditions. Establishes credit limitations on customer account. Examines, evaluates, and processes loan applications. Submits delinquent accounts to attorney or outside agency for collection.

#### **11-3061.00 Purchasing Managers Senior level position assuming education and experience prerequisite**

Directs and coordinates activities of personnel engaged in buying, selling, and distributing materials, equipment, machinery, and supplies. Develops and implements office, operations, and systems instructions, policies, and procedures. Conducts inventory and directs buyers in purchase of products, materials, and supplies. Determines merchandise costs and formulates and coordinates merchandising policies and activities to ensure profit. Represents company in formulating policies and negotiating contracts with suppliers. Prepares, reviews, and processes requisitions and purchase orders for supplies and equipment. Analyzes market and delivery systems to determine present and future material availability. Prepares report regarding market conditions and merchandise costs.

#### **11-3071.01 Transportation Managers Senior level position assuming education and experience prerequisite**

Directs and coordinates, through subordinates, activities of operations department to obtain use of equipment, facilities, and human resources. Participates in union contract negotiations and settlement of grievances. Negotiates and authorizes contracts with equipment and materials suppliers. Oversees procurement process, including research and testing of equipment, vendor contacts, and approval of requisitions. Inspects or oversees repairs and maintenance to equipment, vehicles, and facilities to enforce standards for safety, efficiency, cleanliness, and appearance. Acts as organization representative before commissions or regulatory bodies during hearings, such as to increase rates and change routes and schedules. Oversees workers assigning tariff classifications, and preparing billing according to mode of transportation and destination of shipment. Oversees process of investigation and response to customer or shipper complaints relating to operations department. Recommends or authorizes capital expenditures for acquisition of new equipment or property to increase efficiency and services of operations department. Enforces compliance of operation personnel with administrative policies, procedures, safety rules, and government regulations. Reviews transportation schedules, worker assignments and routes to ensure compliance with standards for personnel selection, safety, and union contract terms.

Conducts investigations in cooperation with government agencies to determine cause of transportation accidents and to improve safety procedures. Prepares management recommendations, such as need for increasing fares, tariffs, or expansion or changes to existing schedules. Oversees activities relating to dispatching, routing, and tracking transportation vehicles, such as aircraft and railroad cars. Analyzes expenditures, and other financial reports to develop plans, policies, and budgets for increasing profits and improving services. Confers and cooperates with management and other in formulating and implementing administrative, operational and customer relations, policies and procedures.

**11-3071.02 Storage and Distribution Managers Senior level position assuming education and experience prerequisite**

Establishes standard and emergency operating procedures for receiving, handling, storing, shipping, or salvaging products or materials. Examines products or materials to estimate quantities or weight and type of container required for storage or transport. Interacts with customers or shippers to solicit new business, answer questions about services offered or required, and investigate complaints. Prepares or directs preparation of correspondence, reports, and operations, maintenance, and safety manuals. Schedules air or surface pickup, delivery, or distribution of products or materials. Interviews, selects, and trains warehouse and supervisory personnel. Examines invoices and shipping manifests for conformity to tariff and customs regulations and contacts customs officials to effect release of shipments. Reviews invoices, work orders, consumption reports, and demand forecasts to estimate peak delivery periods and issue work assignments. Supervises the activities of worker engaged in receiving, storing, testing, and shipping products or materials. Inspects physical condition of warehouse and equipment and prepares work orders for testing, maintenance, or repair. Develops and implements plans for facility modification or expansion, such as equipment purchase or changes in space allocation or structural design. Negotiates contracts, settlements, and freight-handling agreements to resolve problems between foreign and domestic shippers. Plans, develops, and implements warehouse safety and security programs and activities. Confers with department heads to coordinate warehouse activities, such as production, sales, records control, and purchasing.

**11-9012.00 Farmers and Ranchers Entry – Mid – Senior level position assuming education and experience prerequisite**

Harvests crops and collects specialty products, such as royal jelly from queen bee cells and honey from honeycombs. Sets up and operates farm machinery to till soil, plant, prune, fertilize, apply herbicides and pesticides, and haul harvested crops. Inspects growing environment to maintain optimum growing or breeding conditions. Determines kind and quantity of crops or livestock to be raised, according to market conditions, weather, and farm size. Breeds and raises stock, such as animals, poultry, honeybees, or earthworms. Arranges with buyers for sale and shipment of crops. Hires and directs workers engaged in planting, cultivating, irrigating, harvesting, and marketing crops and raising livestock. Assembles, positions, and secures structures, such as trellises or beehives, using hand tools. Lubricates, adjusts, and makes minor repairs on farm equipment, using oilcan, grease gun, and hand tools. Grades and packages crop for marketing. Maintains employee and financial records. Demonstrates and explains farm work techniques and safety regulations to workers. Installs irrigation systems and irrigates fields. Selects and purchases supplies and equipment, such as seed, tree stock, fertilizers, farm machinery, implements, livestock, and feed. Destroys diseased or superfluous crops, such as queen bee cells, bee colonies, parasites, and vermin. Plans harvesting considering ripeness and maturity of crop and weather conditions. Grows out of season crops in greenhouse or early crops in cold-frame bed, or buds and grafts plant stock.

**11-9021.00 Construction Managers Senior level position assuming education and experience prerequisite**

Plans, organizes, and directs activities concerned with construction and maintenance of structures, facilities, and systems. Investigates reports of damage at construction sites to ensure proper procedures are being carried out. Dispatches workers to construction sites to work on specified project. Formulates reports concerning such areas as work progress, costs, and scheduling. Studies job specifications to plan and approve construction of project. Directs and supervises workers on construction site to ensure project meets specifications. Contracts workers to perform construction work in accordance with specifications. Interprets and explains plans and contract terms to administrative staff, workers, and clients. Requisitions supplies and materials to complete construction project. Inspects and reviews construction work, repair projects, and reports to ensure work conforms to specifications. Confers with supervisory personnel to discuss such matters as work procedures, complaints, and construction problems.

**11-9041.00 Engineering Managers Senior level position assuming education and experience prerequisite**

Establishes procedures, and directs testing, operation, maintenance, and repair of transmitter equipment. Evaluates contract proposals, directs negotiation of research contracts, and prepares bids and contracts. Plans and directs installation, maintenance, testing, and repair of facilities and equipment. Directs, reviews, and approves product design and changes, and directs testing. Plans, coordinates, and directs engineering project, organizes and assigns staff, and directs integration of technical activities with products. Plans and directs oil field development, gas and oil production, and



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geothermal drilling. Analyzes technology, resource needs, and market demand, and confers with management, production, and marketing staff to plan and assess feasibility of project. Plans, directs, and coordinates survey work with activities of other staff, certifies survey work, and writes land legal descriptions. Administers highway planning, construction, and maintenance, and reviews and recommends or approves contracts and cost estimates. Directs engineering of water control, treatment, and distribution projects. Confers with and prepares reports for officials and speaks to public to solicit support.

### **13-1021.00 Purchasing Agents and Buyers, Farm Products Mid – Senior level position assuming education and experience prerequisite**

Negotiates contracts with farmers for production or purchase of agricultural products such as milk, grains, and Christmas trees. Inspects and tests crops or other farm products to determine quality and to detect evidence of disease or insect damage. Maintains records of business transactions. Estimates production possibilities by surveying property and studying factors such as history of crop rotation, soil fertility, and irrigation facilities. Writes articles for publication. Coordinates and directs activities of workers engaged in cutting, transporting, storing, or milling products and in maintaining records. Advises farm groups and growers on land preparation and livestock care to maximize quantity and quality of production. Plans and arranges for transportation for crops, milk, or other products to dairy or processing facility. Arranges sales, loans, or financing for supplies, such as equipment, seed, feed, fertilizer, and chemicals. Reviews orders and determines product types and quantities required to meet demand.

### **13-1031.01 Claims Examiners, Property and Casualty Insurance Mid – Senior level position assuming education and experience prerequisite**

Analyzes data used in settling claim to determine its validity in payment of claims. Reports overpayments, underpayments, and other irregularities. Confers with legal counsel on claims requiring litigation.

### **13-1031.02 Insurance Adjusters, Examiners, and Investigators Mid – Senior level position assuming education and experience prerequisite**

Investigates and assesses damage to property. Collects evidence to support contested claims in court. Communicates with former associates to verify employment record and to obtain background information regarding persons or businesses applying for credit. Prepares report of findings of investigation. Obtains credit information from banks and other credit services. Refers questionable claims to investigator or claims adjuster for investigation or settlement. Examines claims form and other records to determine insurance coverage. Interviews or corresponds with claimant and witnesses, consults police and hospital records, and inspects property damage to determine extent of liability. Analyzes information gathered by investigation and reports findings and recommendations. Examines titles to property to determine validity and acts as company agent in transactions with property owners. Negotiates claim settlements and recommends litigation when settlement cannot be negotiated. Interviews or corresponds with agents and claimants to correct errors or omissions and to investigate questionable entries.

### **13-1032.00 Insurance Appraisers, Auto Damage Mid – Senior level position assuming education and experience prerequisite**

Estimates parts and labor to repair damage, using standard automotive labor and parts-cost manuals and knowledge of automotive repair. Prepares insurance forms to indicate repair-cost estimates and recommendations. Evaluates practicality of repair as opposed to payment of market value of vehicle before accident. Arranges to have damage appraised by another appraiser to resolve disagreement with shop on repair cost. Determines salvage value on total-loss vehicle. Reviews repair-cost estimates with automobile-repair shop to secure agreement on cost of repairs. Examines damaged vehicle to determine extent of structural, body, mechanical, electrical, or interior damage.

### **13-1041.01 Environmental Compliance Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects solid waste disposal and treatment facilities, wastewater treatment facilities, or other watercourses or sites for conformance with regulations. Conducts field-tests and collects samples for laboratory analysis. Inspects establishments to ensure that handling, storage, and disposal of fertilizers, pesticides, and other hazardous chemicals conform to regulations. Investigates complaints and suspected violations concerning illegal dumping, pollution, pesticides, product quality, or labeling laws. Interviews individuals to determine nature of suspected violations and to obtain evidence of violation. Conducts research on hazardous waste management projects to determine magnitude of disposal problem treatment, and disposal alternatives and costs. Examines permits, licenses, applications, and records to ensure compliance with licensing requirements. Assists in development of spill prevention programs and hazardous waste rules and regulations, and recommends corrective action in event of hazardous spill. Prepares, organizes, and maintains records to document activities, recommend action, provide reference materials, and prepare technical and evidentiary

reports. Evaluates label information for accuracy and conformance to regulatory requirements. Studies laws and statutes to determine nature of code violation and type of action to be taken. Advises individuals and groups concerning pollution control regulations, inspection and investigation findings, and encourages voluntary action to correct problems or issues citations for violations. Reviews and evaluates applications for registration of products containing dangerous materials or pollution control discharge permits.

**13-1041.02 Licensing Examiners and Inspectors Mid – Senior level position assuming education and experience prerequisite**

Evaluates applications, records, and documents to determine relevant eligibility information or liability incurred. Administers oral, written, road, or flight test to determine applicant's eligibility for licensing. Determines eligibility or liability and approves or disallows application or license. Provides information, and answers questions of individuals or groups concerning licensing, permit, or passport regulations. Warns violators of infractions or penalties. Prepares correspondence to inform concerned parties of decisions made and appeal rights. Prepares reports of activities, evaluations, recommendations, and decisions. Confers with officials, technical, or professional specialists and interviews individuals to obtain information or clarify facts. Issues licenses to individuals meeting standards. Visits establishments to determine that valid licenses and permits are displayed and that licensing standards are being upheld. Scores tests and rates ability of applicant through observation of equipment operation and control.

**13-1041.05 Pressure Vessel Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects drawings, designs, and specifications for piping, boilers, and other vessels. Inspects gas mains to determine that rate of flow, pressure, location, construction, or installation conform to standards. Calculates allowable limits of pressure, strength, and stresses. Performs standard tests to verify condition of equipment and calibration of meters and gauges using test equipment and hand tools. Evaluates factors such as materials used, safety devices, regulators, construction quality, riveting, welding, pitting, corrosion, cracking, and safety valve operation. Recommends or orders actions to correct violations of legal requirements or to eliminate unsafe conditions. Witnesses acceptance and installation tests. Examines permits and inspection records to determine that inspection schedule and remedial actions conform to procedures and regulations. Investigates accidents to determine causes and to develop methods of preventing recurrences. Confers with engineers, manufacturers, contractors, owners, and operators concerning problems in construction, operation, and repair. Keeps records and prepares reports of inspections and investigations for administrative or legal authorities.

**13-1051.00 Cost Estimators Mid – Senior level position assuming education and experience prerequisite**

Analyzes blueprints, specifications, proposals, and other documentation, to prepare time, cost, and labor estimates. Prepares estimates used for management purposes, such as planning, organizing, and scheduling work. Prepares estimates for selecting vendors or subcontractors, and determining cost effectiveness. Reviews data to determine material and labor requirements, and prepares itemized list. Prepares time, cost, and labor estimates for products, projects, or services, applying specialized methodologies, techniques, or processes. Conducts special studies to develop and establish standard hour and related cost data or to effect cost reduction. Computes cost factors used for preparing estimates for management and determining cost effectiveness. Consults with clients, vendors, or other individuals to discuss and formulate estimates and resolve issues.

**13-2011.01 Accountants Mid – Senior level position assuming education and experience prerequisite**

Analyzes operations, trends, costs, revenues, financial commitments, and obligations incurred, to project future revenues and expenses, using computer. Predicts revenues and expenditures, and submits reports to management. Surveys establishment operations to ascertain accounting needs. Computes taxes owed, ensures compliance with tax payment, reporting, and other tax requirements, and represents establishment before taxing authority. Directs activities of workers performing accounting and bookkeeping tasks. Adapts accounting and record keeping functions to current technology of computerized accounting systems. Appraises, evaluates, and inventories real property and equipment, and records description, value, location, and other information. Prepares forms and manuals for workers performing accounting and bookkeeping tasks. Audits contracts, and prepares reports to substantiate transactions prior to settlement. Establishes table of accounts, and assigns entries to proper accounts. Develops, implements, modifies, and documents budgeting, cost, general, property, and tax accounting systems. Develops, maintains, and analyzes budgets, and prepares periodic reports comparing budgeted costs to actual costs. Analyzes records of financial transactions to determine accuracy and completeness of entries, using computer. Reports finances of establishment to management, and advises management about resource utilization, tax strategies, and assumptions underlying budget forecasts. Prepares balance sheet, profit and loss statement, amortization and depreciation schedules, and other financial reports, using calculator or computer.

**13-2011.02 Auditors Mid – Senior level position assuming education and experience prerequisite**

Reviews data about material assets, net worth, liabilities, capital stock, surplus, income, and expenditures. Reports to management about asset utilization and audit results, and recommends changes in operations and financial activities. Analyzes data for deficient controls, duplicated effort, extravagance, fraud, or non-compliance with laws, regulations, and management policies. Examines payroll and personnel records to determine worker's compensation coverage. Verifies journal and ledger entries by examining inventory. Examines records, tax returns, and related documents pertaining to settlement of decedent's estate. Directs activities of personnel engaged in filing, recording, compiling and transmitting financial records. Supervises auditing of establishments, and determines scope of investigation required. Examines records and interviews workers to ensure recording of transactions and compliance with laws and regulations. Evaluates taxpayer finances to determine tax liability, using knowledge of interest and discount, annuities, valuation of stocks and bonds, and amortization valuation of depletable assets. Confers with company officials about financial and regulatory matters. Audits records to determine unemployment insurance premiums, liabilities, and compliance with tax laws. Reviews taxpayer accounts, and conducts audits on-site, by correspondence, or by summoning taxpayer to office. Inspects cash on hand, notes receivable and payable, negotiable securities, and canceled checks. Analyzes annual reports, financial statements, and other records, using accepted accounting and statistical procedures, to determine financial condition. Inspects account books and system for efficiency, effectiveness, and use of accepted accounting procedures to record transactions.

**13-2021.01 Assessors Mid – Senior level position assuming education and experience prerequisite**

Appraises real and personal property, such as aircraft, marine craft, buildings, and land to determine fair value. Inspects property, considering factors such as market value, location, and building or replacement costs, to determine appraisal value. Writes and submits appraisal and tax reports for public record. Interprets property laws, formulates operational policies, and directs assessment office activities. Assesses and computes taxes according to prescribed tax tables and schedules.

**13-2021.02 Appraisers, Real Estate Mid – Senior level position assuming education and experience prerequisite**

Considers such factors as depreciation, value comparison of similar property, and income potential, when computing final estimation of property value. Photographs interiors and exteriors of property to assist in estimating property value, to substantiate finding, and to complete appraisal. Inspects property for construction, condition, and functional design and takes property measurements. Interviews persons familiar with property and immediate surroundings, such as contractors, homeowners, and other realtors to obtain pertinent information. Searches public records for transactions, such as sales, leases, and assessments. Prepares written report, utilizing data collected, and submits report to corroborate value established. Considers location and trends or impending changes that could influence future value of property.

**13-2071.00 Loan Counselors Mid – Senior level position assuming education and experience prerequisite**

Analyzes applicant's financial status, credit, and property evaluation to determine feasibility of granting loan. Petitions court to transfer title and deeds of collateral to bank. Submits application to credit analyst for verification and recommendation. Supervises loan personnel. Negotiates payment arrangements with customers for delinquent loan balance. Arranges for maintenance and liquidation of delinquent property. Analyzes potential loan markets to develop prospects for loans. Confers with underwriters to aid in resolving mortgage application problems. Refers loan-to-loan committee for approval. Contacts applicant or creditors to resolve questions regarding application information. Ensures loan agreements are complete and accurate according to policy. Computes payment schedule. Interviews applicant and request specified information for loan application. Approves loan within specified limits.

**13-2072.00 Loan Officers Mid – Senior level position assuming education and experience prerequisite**

Analyzes applicant's financial status, credit, and property evaluation to determine feasibility of granting loan. Ensures loan agreements are complete and accurate according to policy. Submits application to credit analyst for verification and recommendation. Confers with underwriters to aid in resolving mortgage application problems. Arranges for maintenance and liquidation of delinquent property. Analyzes potential loan markets to develop prospects for loans. Supervises loan personnel. Negotiates payment arrangements with customers for delinquent loan balance. Petitions court to transfer title and deeds of collateral to bank. Computes payment schedule. Contacts applicant or creditors to resolve questions regarding application information. Approves loan within specified limits. Interviews applicant and requests specified information for loan application. Refers loan-to-loan committee for approval.

**13-2081.00 Tax Examiners, Collectors, and Revenue Agents Mid – Senior level position assuming education and experience prerequisite**

Examines and analyzes tax assets and liabilities to determine resolution of delinquent tax problems. Recommends criminal prosecutions and civil penalties. Serves as member of regional appeals board to reexamine unresolved issues in terms of relevant laws and regulations. Participates in informal appeals hearings on contested cases from other agents. Confers with taxpayer or representative to explain issues involved and applicability of pertinent tax laws and regulations. Directs service of legal documents, such as subpoenas, warrants, notices of assessment and garnishments. Conducts independent field audits and investigations of federal income tax returns to verify or amend tax liabilities. Examines selected tax returns to determine nature and extent of audits to be performed. Selects appropriate remedy, such as partial-payment agreement, offer of compromise, or seizure and sale of property. Secures taxpayer's agreement to discharge tax assessment or submits contested determination to other administrative or judicial conferees for appeals hearings. Analyzes accounting books and records to determine appropriateness of accounting methods employed and compliance with statutory provisions. Investigates legal instruments, other documents, financial transactions, operation methods, and industry practices to assess inclusiveness of accounting records and tax returns.

**13-2082.00 Tax Preparers Entry – Mid – Senior level position assuming education and experience prerequisite**

Reviews financial records, such as income statements and documentation of expenditures to determine forms needed to prepare return. Consults tax law handbook or bulletins to determine procedure for preparation of atypical returns. Verifies totals on forms prepared by others to detect errors in arithmetic or procedure, as needed. Calculates form preparation fee according to complexity of return and amount of time required to prepare forms. Interviews client to obtain additional information on taxable income and deductible expenses and allowances. Computes taxes owed, using adding machine or personal computer, and completes entries on forms, following tax form instructions and tax tables.

**15-1021.00 Computer Programmers Entry – Mid – Senior level position assuming education and experience prerequisite**

Analyzes, reviews, and rewrites programs, using workflow chart and diagram, applying knowledge of computer capabilities, subject matter, and symbolic logic. Resolves symbolic formulations, prepares flow charts and block diagrams, and encodes resultant equations for processing. Prepares or receives detailed workflow chart and diagram to illustrate sequence of steps to describe input, output, and logical operation. Revises or directs revision of existing programs to increase operating efficiency or adapt to new requirements. Compiles and writes documentation of program development and subsequent revisions. Trains subordinates in programming and program coding. Assigns, coordinates, and reviews work and activities of programming personnel. Assists computer operators or system analysts to resolve problems in running computer program. Collaborates with computer manufacturers and other users to develop new programming methods. Prepares records and reports. Writes instructions to guide operating personnel during production runs. Consults with managerial and engineering and technical personnel to clarify program intent, identify problems, and suggest changes. Develops programs from workflow charts or diagrams, considering computer storage capacity, speed, and intended use of output data. Converts detailed logical flow chart to language that can be processed by computer.

**15-1041.00 Computer Support Specialists Mid – Senior level position assuming education and experience prerequisite**

Installs and performs minor repairs to hardware, software, and peripheral equipment, following design or installation specifications. Reads technical manuals, confers with users, and conducts computer diagnostics to determine nature of problems and provide technical assistance. Enters commands and observes system functioning to verify correct operations and detect errors. Prepares evaluations of software and hardware, and submits recommendations to management for review. Tests and monitors software, hardware, and peripheral equipment to evaluate use, effectiveness, and adequacy of product for user. Inspects equipment and reads order sheets to prepare for delivery to users. Supervises and coordinates workers engaged in problem solving, monitoring, and installing data communication equipment and software. Reads trade magazines and technical manuals, and attends conferences and seminars to maintain knowledge of hardware and software. Conducts office automation feasibility studies, including workflow analysis, space design, and cost comparison analysis. Maintains record of daily data communication transactions, problems, and remedial action taken and installation activities. Refers major hardware or software problems or defective products to vendors or technicians for service. Develops training materials and procedures, and conducts training programs. Confers with staff, users, and management to determine requirements for new systems or modifications.

**15-1061.00 Database Administrators Mid – Senior level position assuming education and experience prerequisite**

Writes logical and physical database descriptions including location, space, access method, and security. Codes database descriptions and specifies identifiers of database to management system or directs others in coding descriptions. Tests, corrects errors, and modifies changes to programs or to database. Develops data model describing

data elements and how they are used, following procedures using pen, template or computer software. Establishes and calculates optimum values for database parameters, using manuals and calculator. Reviews project request describing database user needs, estimating time and cost required to accomplish project. Directs programmers and analysts to make changes to database management system. Selects and enters codes to monitor database performance and to create production database. Trains users and answers questions. Specifies user and user access levels for each segment of database. Revises company definition of data as defined in data dictionary. Confers with coworkers to determine scope and limitations of projects. Reviews procedures in database management system manuals for making changes to database. Reviews workflow charts developed by programmer analyst to understand tasks computer will perform, such as updating records.

**17-1021.00 Cartographers and Photogrammetrists Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares mosaic prints, contour maps, Cognofile sheets, and related cartographic material applying mastery of photogrammetric techniques and principles. Determines and defines production specifications, such as projection, scale, size, and colors of map product. Identifies, scales, and orients geodetic points, elevations, and other planimetric or topographic features, applying standard math formulas. Studies legal records to establish boundaries of local, national and international properties. Develops design concept of map product. Analyzes survey data, source maps and photos, computer or automated mapping products, and other records to determine location and name of features. Travels over photographed area to observe, identify, record and verify all features shown and not shown in photograph. Determines guidelines for source material to be used, such as maps, automated mapping products, photographic survey data, and place names. Revises existing maps and charts and corrects maps in various stages of compilation.

**17-1022.00 Surveyors Entry – Mid level position assuming education and experience prerequisite**

Plans ground surveys designed to establish baselines, elevations, and other geodetic measurements. Determines photographic equipment to be used, altitude from which to photograph terrain, and directs aerial surveys of specified geographical area. Surveys water bodies to determine navigable channels and to secure data for construction of breakwaters, piers, and other marine structures. Analyzes survey objectives and specifications, utilizing knowledge of survey uses. Prepares survey proposal or directs one of more phases of survey proposal preparation. Drafts or directs others to draft maps of survey data. Determines appropriate and economical methods and procedures for establishing survey control. Coordinates findings with work of engineering and architectural personnel, clients, and others concerned with project. Computes data necessary for driving and connecting underground passages, underground storage, and volume of underground deposits. Keeps accurate notes, records, and sketches to describe and certify work performed. Takes instrument readings of sun or stars and calculates longitude and latitude to determine specific area location. Studies weight, shape, size, and mass of earth, and variations in earth's gravitational field, using astronomic observations and complex computation. Estimates cost of survey. Locates and marks sites selected for geophysical prospecting activities, such as locating petroleum or mineral products. Conducts research in surveying and mapping methods using knowledge of techniques of photogrammetric map compilation, electronic data processing, and flight and control planning. Computes geodetic measurements and interprets survey data to determine position, shape, and elevations of geomorphic and topographic features. Prepares charts and tables and makes precise determinations of elevations and records other characteristics of terrain. Establishes fixed points for use in making maps, using geodetic and engineering instruments.

**17-2111.02 Fire Prevention and Protection Engineers Entry – Mid – Senior level position assuming education and experience prerequisite**

Determines fire causes and methods of fire prevention. Designs fire detection equipment, alarm systems, fire extinguishing devices and systems, or structural components protection. Recommends and advises on use of fire detection equipment, extinguishing devices, or methods to alleviate conditions conducive to fire. Advises and plans for prevention of destruction by fire, wind, water, or other causes of damage. Evaluates fire departments and laws and regulations affecting fire prevention or fire safety. Organizes and trains personnel to carry out fire protection programs. Conducts research on fire retardants and fire safety of materials and devices to determine cause and methods of fire prevention. Studies buildings to evaluate fire prevention factors, resistance of construction, contents, water supply and delivery, and exits.

**17-2112.00 Industrial Engineers Entry – Mid – Senior level position assuming education and experience prerequisite**

Analyzes statistical data and product specifications to determine standards and establish quality and reliability objectives of finished product. Develops manufacturing methods, labor utilization standards, and cost analysis systems to promote efficient staff and facility utilization. Plans and establishes sequence of operations to fabricate and assemble parts or

products and to promote efficient utilization of resources. Studies operations sequence, material flow, functional statements, organization charts, and project information to determine worker functions and responsibilities. Applies statistical methods and performs mathematical calculations to determine manufacturing processes, staff requirements, and production standards. Communicates with management and user personnel to develop production and design standards. Estimates production cost and effect of product design changes for management review, action, and control. Recommends methods for improving utilization of personnel, material, and utilities. Schedules deliveries based on production forecasts, material substitutions, storage and handling facilities, and maintenance requirements. Confers with vendors, staff, and management personnel regarding purchases, procedures, product specifications, manufacturing capabilities, and project status. Evaluates precision and accuracy of production and testing equipment and engineering drawings to formulate corrective action plan. Implements methods and procedures for disposition of discrepant material and defective or damaged parts, and assesses cost and responsibility. Regulates and alters workflow schedules according to established manufacturing sequences and lead times to expedite production problems. Records or oversees recording of information to ensure currency of engineering drawings and documentation of production problems. Directs workers engaged in product measurement, inspection, and testing activities to ensure quality control and reliability. Completes production reports, purchase orders, and material, tool, and equipment lists. Coordinates quality control objectives and activities to resolve production problems, maximize product reliability, and minimize cost. Formulates sampling procedures and designs and develops forms and instructions for recording, evaluating, and reporting quality and reliability data. Reviews production schedules, engineering specifications, orders, and related information to obtain knowledge of manufacturing methods, procedures, and activities. Drafts and designs layout of equipment, materials, and workspace to illustrate maximum efficiency using drafting tools and computer.

**17-3011.01 Architectural Drafters Entry – Mid level position assuming education and experience prerequisite**

Draws rough and detailed scale plans, to scale, for foundations, buildings, and structures, according to specifications. Lays out schematics and wiring diagrams used to erect, install, and repair establishment cable and electrical systems, using computer equipment. Drafts and corrects topographical maps to represent geological stratigraphy mineral deposits, and pipeline systems, using survey data and aerial photographs. Traces copies of plans and drawings, using transparent paper or cloth, ink, pencil, and standard drafting instruments for reproduction purposes. Builds landscape models, using data provided by landscape architect. Calculates heat loss and gain of buildings and structures to determine required equipment specifications, following standard procedures. Develops diagrams for construction, fabrication, and installation of equipment, structures, components, and systems, using field documents and specifications. Prepares colored drawings of landscape and interior designs for presentation to client. Lays out and plans interior room arrangements for commercial buildings, and draws charts, forms, and records, using computer assisted equipment.

**17-3011.02 Civil Drafters Entry – Mid level position assuming education and experience prerequisite**

Draws maps, diagrams, and Cognofiles, using cross sections and surveys, to represent elevations, topographical contours, subsurface formations and structures. Identifies symbols located on topographical surveys to denote geological and geophysical formations or oil field installations. Reviews rough sketches, drawings, specifications, and other engineering data received from civil engineer. Calculates excavation tonnage and prepares graphs and fill hauling diagrams used in earth moving operations. Accompanies field survey crew to locate grading markers or to collect data required to revise construction drawings. Correlates, interprets, and modifies data obtained from topographical surveys, well logs, and geophysical prospecting reports. Computes and represents characteristics and dimensions of borehole, such as depth, degree, and direction of inclination. Finishes and duplicates drawings, according to required mediums and specifications for reproduction using blueprinting, photographing, or other duplicating methods. Drafts plans and detailed drawings for structures, installations, and construction projects, such as highways, sewage disposal systems, and dikes. Plots boreholes for oil and gas wells from photographic subsurface survey recordings and other data, using computer assisted drafting equipment.

**17-3012.01 Electronic Drafters Entry – Mid level position assuming education and experience prerequisite**

Drafts detail and assembly drawings and designs of electromechanical equipment and related data processing systems. Examines electronic schematics and analyzes logic diagrams and design documents to plan layout of printed circuit board components and circuitry. Reviews blueprints to determine customer requirements and consults with assembler regarding schematics, wiring procedures, and conductor paths. Compares logic element configuration on display screen with engineering schematics and calculates figures to convert, redesign, and modify element. Supervises and coordinates work activities of workers engaged in drafting, designing layouts, assembling, and testing printed circuit boards. Locates files relating to specified design projection database library, loads program into computer, and records completed job data. Reviews work orders and procedural manuals and confers with vendors and design staff to resolve problems and modify design. Keys and programs specified commands and engineering specifications into computer system to change functions and test final layout. Examines and verifies master layout for electrical and mechanical accuracy.



Compiles data, computes quantities, and prepares cost estimates to determine equipment needs, and requisitions materials a required. Generates computer tapes of final layout design to produce layered photo masks and photo plotting design onto film. Selects drill size to drill test head, according to test design and specifications, and submits guide layout to designated department. Copies drawings of printed circuit board fabrication, using print machine or blueprinting procedure. Consults with engineers to discuss and interpret design concepts, and determine requirements of detailed working drawings. Creates master layout of design components and circuitry and printed circuit boards, according to specifications, and utilizing computer-assisted equipment. Plots electrical test points on layout sheet, using pencil, and draws schematics to wire test fixture heads to frame.

**17-3012.02 Electrical Drafters Entry – Mid level position assuming education and experience prerequisite**

Drafts working drawing, wiring diagrams, wiring connections or cross section of underground cables, as required for instructions to installation crew. Draws master sketch-showing relation of proposed installation to existing facilities. Reviews completed construction drawings and cost estimates for accuracy and conformity to standards and regulations. Visits site of proposed installation and draws rough sketch of location. Studies work order request to determine type of service, such as lighting or power, demanded by installation. Confers with engineering staff and other personnel to resolve problems. Estimates labor and material costs for installation of electrical equipment and distribution systems. Takes measurements, such as distances to be spanned by wire and cable, which affect installation and arrangement of equipment. Drafts sketches to scale.

**17-3013.00 Mechanical Drafters Entry – Mid level position assuming education and experience prerequisite**

Develops detailed design drawings and specifications for mechanical equipment, dies/tools, and controls, according to engineering sketches and design proposals. Draws freehand sketches of designs and traces finished drawings onto designated paper for reproduction of blueprints. Shades or colors drawings to clarify and emphasize details and dimensions and eliminate background, using ink, crayon, airbrush, and overlays. Reviews and analyzes specifications, sketches, engineering drawings, ideas, and related design data to determine factors affecting component designs. Positions instructions and comments onto drawings and illustrates and describes installation and maintenance details. Directs work activities of detailer and confers with staff and supervisors to resolve design or other problems. Coordinates and works in conjunction with other workers to design, layout, or detail components and systems. Confers with customer representatives to review schematics and answer questions pertaining to installation of systems. Compiles and analyzes test data to determine effect of machine design on various factors, such as temperature and pressure. Measures machine set-up and parts during production to ensure compliance with design specifications, using precision measuring instruments. Observes set-up and gauges during programmed machine or equipment trial run to verify conformance of signals and systems to specifications. Modifies and revises designs to correct operating deficiencies or to reduce production problems. Computes mathematical formulas to develop and design detailed specifications for components or machinery, using computer-assisted equipment. Lays out, draws, and reproduces illustrations for reference manuals and technical publications to describe operation and maintenance of mechanical systems. Designs scale of full size blueprints of specialty items, such as furniture and automobile body or chassis components. Lays out and draws schematic, orthographic, or angle views to depict functional relationships of components, assemblies, systems, and machines.

**17-3021.00 Aerospace Engineering and Operations Technicians Entry – Mid level position assuming education and experience prerequisite**

Determines data required, plans data acquisition operations, and sets up required data acquisition, test, and measurement equipment. Tests aircraft systems under simulated operational conditions, using test instrumentation and equipment, to determine design or fabrication parameters. Constructs and maintains test facilities for aircraft parts and systems, according to specifications, using hand tools, power tools, and test instruments. Records and interprets test data on parts, assemblies, and mechanisms, and confers with engineering personnel regarding test procedures and results. Inputs commands and data into computer systems to modify programs for specific test requirements or for equipment maintenance and calibration. Fabricates and installs parts and systems to be tested in test equipment, using hand tools, power tools, and test instruments. Discusses test data requirements and results with other personnel, determines data required, and calculates and modifies test parameters or equipment. Sets up, operates, maintains, and monitors computer systems and devises for data acquisition and analysis to detect malfunctions. Inspects, diagnoses, maintains, and operates test setup and equipment to detect malfunctions, and adjusts, repairs, or replaces faulty components.

**17-3023.01 Electronics Engineering Technicians Entry – Mid level position assuming education and experience prerequisite**

Reads blueprints, wiring diagrams, schematic drawings, and engineering instructions for assembling electronics units, applying knowledge of electronic theory and components. Assembles circuitry or electronic components, according to engineering instructions, technical manuals, and knowledge of electronics using hand tools and power tools. Fabricates parts, such as coils, terminal boards, and chassis, using bench lathes, drills, or other machine tools. Tests electronics unit, using standard test equipment, to evaluate performance and determine needs for adjustments. Designs basic circuitry and sketches for design documentation, as directed by engineers, using drafting instruments and computer aided design equipment. Assists engineers in development of testing techniques, laboratory equipment, and circuitry or installation specifications, by writing reports and recording data. Adjusts and replaces defective or improperly functioning circuitry and electronics components, using hand tools and soldering iron.

**17-3023.02 Calibration and Instrumentation Technicians Entry – Mid level position assuming education and experience prerequisite**

Plans sequence of testing and calibration program for instruments and equipment according to blueprints, schematics, technical manuals, and other specifications. Modifies performance and operation of component parts and circuitry to specifications, using test equipment and precision instruments. Selects sensing, telemetering, and recording instrumentation and circuitry. Sets up test equipment and conducts tests on performance and reliability of mechanical, structural, or electromechanical equipment. Disassembles and reassembles instruments and equipment, using hand tools, and inspects instruments and equipment for defects. Analyzes and converts test data, using mathematical formulas, and reports results and proposed modifications. Confers with engineers, supervisor, and other technical workers to assist with equipment installation, maintenance, and repair techniques. Performs preventative and corrective maintenance of test apparatus and peripheral equipment. Sketches plans for developing jigs, fixtures, instruments, and related nonstandard apparatus.

**17-3023.03 Electrical Engineering Technicians Entry – Mid level position assuming education and experience prerequisite**

Sets up and operates test equipment to evaluate performance of developmental parts, assemblies, or systems under simulated operating conditions. Plans method and sequence of operations for testing and developing experimental electronic and electrical equipment. Modifies electrical prototypes, parts, assemblies, and systems to correct functional deviations. Assembles electrical and electronic systems and prototypes according to engineering data and knowledge of electrical principles, using hand tools and measuring instruments. Draws diagrams and writes engineering specifications to clarify design details and functional criteria of experimental electronics units. Maintains and repairs testing equipment. Collaborates with electrical engineer and other personnel to solve developmental problems. Analyzes and interprets test information.

**17-3024.00 Electro-Mechanical Technicians Entry – Mid level position assuming education and experience prerequisite**

Operates metalworking machines to fabricate housings, jigs, fittings, and fixtures. Aligns, fits, and assembles component parts, using hand tools, power tools, fixtures, templates, and microscope. Installs electrical and electronic parts and hardware in housing or assembly, using soldering equipment and hand tools. Tests performance of electromechanical assembly, using test instruments such as oscilloscope, electronic voltmeter, and bridge. Analyzes and records test results and prepares written documentation. Reads blueprints, schematics, diagrams, and technical orders to determine method and sequence of assembly. Inspects parts for surface defects. Verifies dimensions and clearances of parts to ensure conformance to specifications, using precision measuring instruments. Repairs, reworks, and calibrates assemblies to meet operational specifications and tolerance.

**17-3025.00 Environmental Engineering Technicians Entry – Mid level position assuming education and experience prerequisite**

Apply theory and principles of environmental engineering to modify, test and operate equipment and devices used in the prevention, control, and remediation of environmental pollution, including waste treatment and site remediation. May assist in the development of environmental pollution remediation devices under direction of engineer.

**17-3026.00 Industrial Engineering Technicians Entry – Mid level position assuming education and experience prerequisite**

Studies time, motion, methods, and speed involved in maintenance, production, and other operations to establish standard production rate and improve efficiency. Prepares charts, graphs, and diagrams to illustrate workflow, routing, floor layouts, material handling, and machine utilization. Observes workers operating equipment or performing tasks to

determine time involved and fatigue rate, using timing devices. Recommends revision to method of operation, material handling, equipment layout, or other changes to increase production or improve standards. Observes worker using equipment to verify that equipment is being operated and maintained according to quality assurance standards. Evaluates data and writes reports to validate or indicate deviations from existing standards. Prepares graphs or charts or data or enters data into computer for analysis. Aids in planning work assignments in accordance with worker performance, machine capacity, production schedules, and anticipated delays. Selects products for tests at specified stages in production process, and tests products for performance characteristics and adherence to specifications. Compiles and evaluates statistical data to determine and maintain quality and reliability of products. Reads worker logs, product processing sheets, and specification sheets, to verify that records adhere to quality assurance specifications. Interprets engineering drawings, schematic diagrams, or formulas and confers with management or engineering staff to determine quality or production standards to achieve optimum quality within limits of equipment capability. Recommends modifications to existing quality or production standards to achieve optimum quality within limits of equipment capability. Records test data, applying statistical quality control procedures.

**17-3027.00 Mechanical Engineering Technicians Entry – Mid level position assuming education and experience prerequisite**

Reviews project instructions and blueprints to ascertain test specifications, procedures, objectives, and tests nature of technical problems, such as redesign. Tests equipment, using test devices attached to generator, voltage regulator, or other electrical parts, such as generators or spark plugs. Analyzes test results in relation to design or rated specifications and test objectives and modifies or adjusts equipment to meet specifications. Estimates cost factors, including labor and material for purchased and fabricated parts and costs for assembly, testing, and installing. Inspects lines and figures for clarity and returns erroneous drawings to designer for correction. Prepares parts sketches and writes work orders and purchase requests to be furnished by outside contractors. Reads dials and meters to determine amperage, voltage, electrical out and input at specific operating temperature to analyze parts performance. Operates drill press, grinders, engine lathe, or other machines to modify parts tested or to fabricate experimental parts for testing. Evaluates tool-drawing designs by measuring drawing dimensions and comparing with original specifications for form and function, using engineering skills. Confers with technicians and submits reports of test results to engineering department and recommends design or material changes. Records test procedures and results, numerical and graphical data, and recommendations for changes in product or test methods. Drafts detail drawing or sketch for drafting room completion or to request parts fabrication by machine, sheet or wood shops. Calculates required capacities for equipment of proposed system to obtain specified performance and submits data to engineering personnel for approval. Discusses changes in design, method of manufacture and assembly, and drafting techniques and procedures with staff and coordinates corrections. Reviews project instructions and specifications to identify, modify and plan requirements fabrication, assembly and testing. Sets up prototype test results. Sets up and conducts tests of complete units and components under operational conditions to investigate proposals for improving equipment performance. Devises, fabricates, and assembles new or modified mechanical components for products, such as industrial machinery or equipment, and measuring instruments.

**17-3031.01 Surveying Technicians Entry – Mid level position assuming education and experience prerequisite**

Obtains land survey data, such as angles, elevations, points, and contours, using electronic distance measuring equipment and other surveying instruments. Compiles notes, sketches, and records of survey data obtained and work performed. Directs work of subordinate members of party, performing surveying duties not requiring licensure.

**17-3031.02 Mapping Technicians Entry – Mid level position assuming education and experience prerequisite**

Computes and measures scaled distances between reference points to establish exact relative position of adjoining prints. Forms three-dimensional image of aerial photographs taken from different locations, using mathematical and aides and plotting instruments. Verifies identification of topographical features and accuracy of contour lines by comparison with aerial photographs, old maps, and other reference materials. Supervises and coordinates activities of workers engaged in drafting maps or in production of blueprints, photostats, and photographs. Stores, retrieves, and compares map information, using computers and data banks. Analyzes aerial photographs to detect and interpret significant military, industrial, resource, or topographical data. Trims, aligns, and joins prints to form photographic mosaic, maintaining scaled distances between reference points. Marks errors and makes corrections, such as numbering grid lines or lettering names of rivers or towns. Lays out and matches aerial photographs in sequence taken, looking for missing areas. Traces contours and topographical details to produce map. Calculates latitude, longitude, angles, areas, and other information for mapmaking from survey field notes, using reference tables and computer.

**19-1011.00 Animal Scientists Entry – Mid – Senior level position assuming education and experience prerequisite**

Studies nutritional requirements of animals and nutritive value of feed materials for animals and poultry. Studies effects of management practices, processing methods, feed, and environmental conditions on quality and quantity of animal products, such as eggs and milk. Develops improved practices in incubation, brooding, and artificial insemination. Crossbreeds animals with existing strains, or crosses strains to obtain new combinations of desirable characteristics. Determines generic composition of animal population, and heritability of traits, utilizing principles of genetics. Develops improved practices in feeding, housing, sanitation, and parasite and disease control of animals and poultry. Researches and controls selection and breeding practices to increase efficiency of production and improve quality of animals.

**19-1013.01 Plant Scientists Entry – Mid – Senior level position assuming education and experience prerequisite**

Conducts research to determine best methods of planting, spraying, cultivating, and harvesting horticultural products. Improves bee strains, utilizing selective breeding by artificial insemination. Identifies and classifies species of insects and allied forms, such as mites and spiders. Develops methods for control of noxious weeds, crop diseases, and insect pests. Conducts experiments and investigations to determine methods of storing, processing, and transporting horticultural products. Studies insect distribution and habitat and recommends methods to prevent importation and spread of injurious species. Conducts experiments regarding causes of bee diseases and factors affecting yields of nectar pollen on various plants visited by bees. Aids in control and elimination of agricultural, structural and forest pests by developing new and improved pesticides. Studies crop production to discover effects of various climatic and soil conditions on crops. Experiments to develop new or improved varieties of products having specific features, such as higher yield, resistance to disease, size, or maturity.

**19-1013.02 Soil Scientists Entry – Mid – Senior level position assuming education and experience prerequisite**

Studies soil characteristics and classifies soils according to standard types. Performs chemical analysis on microorganism content of soil to determine microbial reactions and chemical mineralogical relationship to plant growth. Provides advice on rural or urban land use. Investigates responses of specific soil types to soil management practices, such as fertilization, crop rotation, and industrial waste control. Conducts experiments on farms or experimental stations to determine best soil types for different plants.

**19-1013.01 Plant Scientists Entry – Mid – Senior level position assuming education and experience prerequisite**

Conducts research to determine best methods of planting, spraying, cultivating, and harvesting horticultural products. Improves bee strains, utilizing selective breeding by artificial insemination. Identifies and classifies species of insects and allied forms, such as mites and spiders. Develops methods for control of noxious weeds, crop diseases, and insect pests. Conducts experiments and investigations to determine methods of storing, processing, and transporting horticultural products. Studies insect distribution and habitat and recommends methods to prevent importation and spread of injurious species. Conducts experiments regarding causes of bee diseases and factors affecting yields of nectar pollen on various plants visited by bees. Aids in control and elimination of agricultural, structural and forest pests by developing new and improved pesticides. Studies crop production to discover effects of various climatic and soil conditions on crops. Experiments to develop new or improved varieties of products having specific features, such as higher yield, resistance to disease, size, or maturity.

**19-1013.02 Soil Scientists Entry – Mid – Senior level position assuming education and experience prerequisite**

Studies soil characteristics and classifies soils according to standard types. Performs chemical analysis on microorganism content of soil to determine microbial reactions and chemical mineralogical relationship to plant growth. Provides advice on rural or urban land use. Investigates responses of specific soil types to soil management practices, such as fertilization, crop rotation, and industrial waste control. Conducts experiments on farms or experimental stations to determine best soil types for different plants.

**19-4011.01 Agricultural Technicians Entry – Mid level position assuming education and experience prerequisite**

Sets up laboratory and field equipment to assist research workers. Cleans and maintains laboratory and field equipment and work areas. Plants seeds in specified area, and counts plants that grow, to determine germination rate of seeds. Pricks animals, and collects blood samples for testing, using hand held devices. Records production and test data for evaluation by personnel. Measures or weighs ingredients used in testing or as animal feed. Adjusts testing equipment and prepares culture media, following standard procedures. Waters and feeds rations to livestock and laboratory animals. Examines animals and specimens to determine presence of disease or other problems.

**19-4011.02 Food Science Technicians Entry – Mid level position assuming education and experience prerequisite**

Conducts standardized tests on food, beverages, additives, and preservatives to ensure compliance to standards for factors such as color, texture, nutrients, and coloring. Tastes or smells food or beverages to ensure flavor meets



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

specifications or to select samples with specific characteristics. Computes moisture or salt content, percentage or ingredients, formulas, or other product factors using mathematical and chemical procedures. Mixes, blends, or cultivates ingredients to make reagents or to manufacture food or beverage products. Prepares slides and incubates slides with cell cultures. Orders supplies to maintain inventory in laboratory or in storage facility or food or beverage processing plant. Measures, tests, and weighs bottles, cans, and other containers to ensure hardness, strength, and dimensions meet specifications. Cleans and sterilizes laboratory equipment. Records and compiles test results, and prepares graphs, charts, and reports. Examines chemical and biological samples to identify cell structure, bacteria, or extraneous material, using microscope. Analyzes test results to classify product, or compares results with standard tables.

### **19-4021.00 Biological Technicians Entry – Mid level position assuming education and experience prerequisite**

Sets up laboratory and field equipment to assist research workers. Cleans and maintains laboratory and field equipment and work areas. Plants seeds in specified area, and counts plants that grow, to determine germination rate of seeds. Pricks animals, and collects blood samples for testing, using hand held devices. Records production and test data for evaluation by personnel. Measures or weighs ingredients used in testing or as animal feed. Adjusts testing equipment and prepares culture media, following standard procedures. Waters and feeds rations to livestock and laboratory animals. Examines animals and specimens to determine presence of disease or other problems.

### **19-4031.00 Chemical Technicians Entry – Mid level position assuming education and experience prerequisite**

Tests and analyzes chemical and physical properties of liquids, solids, gases, radioactive and biological materials, and products such as perfumes. Prepares chemical solutions for products and processes, following standardized formulas or creates experimental formulas. Sets up and calibrates laboratory equipment and instruments used for testing, process control, product development, and research. Documents results of tests and analyses, and writes technical reports or prepares graphs and charts. Directs other workers in compounding and distilling chemicals. Reviews process paperwork for products to ensure compliance to standards and specifications. Cleans and sterilizes laboratory equipment.

### **19-4041.01 Geological Data Technicians Entry – Mid level position assuming education and experience prerequisite**

Measures geological characteristics used in prospecting for oil or gas, using measuring instruments. Records readings to obtain data used in prospecting for oil or gas. Evaluates and interprets core samples and cuttings, and other geological data used in prospecting for oil or gas. Reads and studies reports to compile information and data for geological and geophysical prospecting. Collects samples and cuttings, using equipment and hand tools. Sets up, or directs set-up of instruments used to collect geological data. Prepares and attaches packing instructions to shipping container. Develops and designs packing materials and handling procedures for shipping of objects. Diagnoses and repairs malfunctioning instruments and equipment, using manufacturers' manuals and hand tools. Develops and prints photographic recordings of information, using equipment. Plans and directs activities of workers who operate equipment to collect data, or operates equipment. Assembles, maintains, and distributes information for library or record system. Interviews individuals and researches public databases to obtain information. Operates and adjusts equipment and apparatus to obtain geological data.

### **19-4041.02 Geological Sample Test Technicians Entry – Mid level position assuming education and experience prerequisite**

Tests samples for content and characteristics, using laboratory apparatus and testing equipment. Analyzes samples to determine presence, quantity, and quality of products, such as oil or gases. Assembles and disassembles testing, measuring, and mechanical equipment and devices. Collects solid and fluid samples from oil or gas bearing formations for analysis. Records testing and operational data for review and further analysis. Adjusts and repairs testing, electrical, and mechanical equipment and devices. Supervises and coordinates activities of workers, including initiating and recommending personnel actions. Inspects engines for wear and defective parts, using equipment and measuring devices.

### **19-4051.01 Nuclear Equipment Operation Technicians Entry – Mid level position assuming education and experience prerequisite**

Sets control panel switches and activates equipment, such as nuclear reactor, particle accelerator, or gamma radiation equipment, according to specifications. Calculates equipment-operating factors, such as radiation time, dosage, temperature, and pressure, using standard formulas and conversion tables. Monitors instruments, gauges, and recording devices in control room during operation of equipment, under directions of nuclear experimenter. Reviews experiment schedule to determine specifications, such as subatomic particle parameters, radiation time, dosage, and gamma intensity. Positions fuel elements in reactor or environmental chamber, according to specified configuration, using slave manipulators or extension tools. Installs instrumentation leads in reactor core to measure operating temperature and

pressure according to mockups, blueprints, and diagrams. Modifies, devises, and maintains equipment used in operations. Disassembles, cleans, and decontaminates hot cells and reactor parts during maintenance shutdown, using slave manipulators, crane, and hand tools. Writes summary of activities or records experiment data in log for further analysis by engineers, scientists, or customers, or for future reference. Communicates with maintenance personnel to ensure readiness of support systems and to warn of radiation hazards. Tests physical, chemical, or metallurgical properties of experimental materials according to standardized procedures, using test equipment and measuring instruments. Withdraws radioactive sample for analysis, fills container with prescribed quantity of material for shipment, or removes spent fuel elements. Sets up and operates machines to saw fuel elements to size or to cut and polish test pieces, following blueprints and other specifications. Transfers experimental materials to and from specified containers and to tube, chamber or tunnel, using slave manipulators or extension tools. Controls laboratory-compounding equipment enclosed in protective hot cell to prepare radioisotopes and other radioactive materials. Adjusts controls of equipment to control particle beam, chain reaction or radiation, according to specifications.

**19-4051.02 Nuclear Monitoring Technicians Entry – Mid level position assuming education and experience prerequisite**

Measures intensity and identifies type of radiation in work areas, equipment, and materials, using radiation detectors and other instruments. Collects samples of air, water, gases and solids to determine radioactivity levels of contamination. Assists in setting up equipment that automatically detects area radiation deviations and tests detection equipment to ensure accuracy. Calculates safe radiation exposure time for personnel, using plant contamination readings and prescribed safe levels of radiation. Scans photographic emulsions exposed to direct radiation to compute track properties from standard formulas, using microscope with scales and protractors. Calibrates and maintains chemical instrumentation sensing elements and sampling system equipment, using calibrations instruments and hand tools. Monitors personnel for length and intensity of exposure to radiation for health and safety purposes. Places radioactive waste, such as sweepings and broken sample bottles, into containers for disposal. Decontaminates objects by cleaning with soap or solvents or by abrading, using wire brush, buffing wheel or sandblasting machine. Enters data into computer to record characteristics of nuclear events and locating coordinates of particles. Weighs and mixes decontamination chemical solutions in tank and immerses objects in solution for specified time, using hoist. Determines or recommends radioactive decontamination procedures, according to size and nature of equipment and degree of contamination. Instructs personnel in radiation safety procedures and demonstrates use of protective clothing and equipment. Confers with scientist directing project to determine significant events to watch for during test. Prepares reports on contamination tests, material and equipment decontaminated, methods used in decontamination process. Informs supervisors to take action when individual exposures or area radiation levels approach maximum permissible limits. Observes projected photographs to locate particle tracks and events and compiles lists of events from particle detectors.

**19-4061.01 City Planning Aides Entry – Mid level position assuming education and experience prerequisite**

Summarizes information from maps, reports, investigations, and books. Answers public inquiries. Prepares reports, using statistics, charts, and graphs, to illustrate planning studies in areas, such as population, land use, or zoning. Prepares and updates files and records. Conducts interviews and surveys and observes conditions that affect land usage.

**19-4091.00 Environmental Science and Protection Technicians, Including Health Entry – Mid level position assuming education and experience prerequisite**

Collects samples of gases, soils, water, industrial wastewater, and asbestos products to conduct tests on pollutant levels. Performs chemical and physical laboratory and field tests on collected samples to assess compliance with pollution standards, using test instruments. Examines and analyzes material for presence and concentration of contaminants such as asbestos in environment, using variety of microscopes. Calculates amount of pollutant in samples or computes air pollution or gas flow in industrial processes, using chemical and mathematical formulas. Determines amounts and kinds of chemicals to use in destroying harmful organisms and removing impurities from purification systems. Prepares samples or photomicrographs from testing and analysis. Discusses test results and analyses with customers. Calibrates microscopes and test instruments. Develops procedures and directs activities of workers in laboratory. Records test data and prepares reports, summaries, and charts that interpret test results and recommend changes. Sets up equipment or station to monitor and collect pollutants from sites, such as smoke stacks, manufacturing plants, or mechanical equipment. Weighs, analyzes, and measures collected sample particles, such as lead, coal dust, or rock, to determine concentration of pollutants. Conducts standardized tests to ensure materials and supplies used throughout power supply system meet processing and safety specifications.

**19-4092.00 Forensic Science Technicians Entry – Mid level position assuming education and experience prerequisite**

Examines, tests, and analyzes tissue samples, chemical substances, physical materials, and ballistics evidence, using recording, measuring, and testing equipment. Testifies as expert witness on evidence or laboratory techniques in trials or hearings. Prepares reports or presentations of findings, investigative methods, or laboratory techniques. Reconstructs crime scene to determine relationships among pieces of evidence. Interprets laboratory findings and test results to identify and classify substances, materials, and other evidence collected at crime scene. Confers with ballistics, fingerprinting, handwriting, documents, electronics, medical, chemicals, or metallurgical experts concerning evidence and its interpretation. Collects and preserves criminal evidence used to solve cases.

**23-2011.00 Paralegals and Legal Assistants Entry – Mid level position assuming education and experience prerequisite**

Gathers and analyzes research data, such as statutes, decisions, and legal articles, codes, and documents. Prepares legal documents, including briefs, pleadings, appeals, wills, contracts, and real estate closing statements. Investigates facts and law of cases to determine causes of action and to prepare cases. Appraises and inventories real and personal property for estate planning. Calls upon witnesses to testify at hearing. Arbitrates disputes between parties and assists in real estate closing process. Presents arguments and evidence to support appeal at appeal hearing. Keeps and monitors legal volumes to ensure that law library is up to date. Directs and coordinates law office activity, including delivery of subpoenas. Answers questions regarding legal issues pertaining to civil service hearings. Prepares affidavits or other documents, maintains document file, and files pleadings with court clerk.

**23-2091.00 Court Reporters Entry – Mid level position assuming education and experience prerequisite**

Use verbatim methods and equipment to capture, store, retrieve, and transcribe pretrial and trial proceedings or other information. Includes stenocaptioners who operate computerized stenographic captioning equipment to provide captions of live or prerecorded broadcasts for hearing impaired viewers.

**23-2093.01 Title Searchers Entry – Mid level position assuming education and experience prerequisite**

Searches lot books, geographic and general indices, and assessor's rolls to compile lists of transactions pertaining to property. Compares legal description of property with legal description contained in records and indices to verify such factors as deed ownership. Requisitions maps or drawings delineating property from company title plant, county surveyor, or assessor's office. Uses computerized system to retrieve additional documentation needed to complete real estate transaction. Examines title to determine if there are restrictions limiting use of property, lists restrictions, and indicates action needed for clear title. Prepares closing statement, utilizing knowledge and expertise in real estate procedures. Prepares title commitment and final policy of title insurance based on information compiled from title search. Retrieves and examines closing files for accuracy and to ensure that information included is recorded and executed according to regulations. Confers with realtors, lending institution personnel, buyers, sellers, contractors, surveyors, and courthouse personnel to obtain additional information. Compiles information and documents required for title binder. Reads search request to ascertain type of title evidence required, and to obtain description of property and names of involved parties.

**23-2093.02 Title Examiners and Abstractors Entry – Mid level position assuming education and experience prerequisite**

Copies or summarizes recorded documents such as mortgages, trust deeds, and contracts affecting title to property. Searches records to determine if delinquent taxes are due. Prepares and issues title insurance policy. Directs activities of workers searching records and examining titles to real property. Confers with interested parties to resolve problems and impart information. Prepares correspondence and other records. Examines mortgages, liens, judgments, easements, plat books, maps, contracts, and agreements to verify legal description, ownership, restrictions, or conformity to requirements. Analyzes encumbrances to title, statutes and case law, and prepares report outlining encumbrances and actions required to clear title.

**25-1072.00 Nursing Instructors and Teachers, Postsecondary Mid – Senior level position assuming education and experience prerequisite**

Participates in planning curriculum, teaching schedule, and course outline with medical and nursing personnel. Supervises student nurses and demonstrates patient care in clinical units of hospital. Directs seminars and panels. Conducts classes for patients in health practices and procedures. Evaluates student progress and maintains records of student classroom and clinical experience. Prepares and administers examinations to nursing students. Cooperates with medical and nursing personnel in evaluating and improving teaching and nursing practices. Issues assignments to students. Conducts and supervises laboratory work.

**25-2023.00 Vocational Education Teachers, Middle School Entry – Mid – Senior level position assuming education and experience prerequisite**

Instructs students, using various teaching methods, such as lecture and demonstration. Performs advisory duties, such as sponsoring student organizations or clubs, helping students select courses, and counseling students with problems. Keeps attendance records. Selects, stores, orders, issues, and inventories classroom equipment, materials, and supplies. Participates in faculty and professional meetings, educational conferences, and teacher training workshops. Prepares course outlines and objectives according to curriculum guidelines or state and local requirements. Uses audiovisual aids and other materials to supplement presentations. Evaluates, records, and reports student progress. Maintains discipline in classroom. Confers with students, parents, and school counselors to resolve behavioral and academic problems. Develops and administers tests. Assigns lessons and corrects homework.

**25-4013.00 Museum Technicians and Conservators Entry – Mid – Senior level position assuming education and experience prerequisite**

Preserves or directs preservation of objects, using plaster, resin, sealants, hardeners, and shellac. Cuts and welds metal sections in reconstruction or renovation of exterior structural sections and accessories of exhibits. Designs and fabricates missing or broken parts. Builds, repairs, and installs wooden steps, scaffolds, and walkways to gain access to or permit improved view of exhibited equipment. Estimates cost of restoration work. Directs curatorial and technical staff in handling, mounting, care, and storage of art objects. Notifies superior when restoration of artifact requires outside experts. Prepares reports of activities and documents methods of preservation and repair. Plans and conducts research to develop and improve methods of restoring and preserving specimens. Installs, arranges, assembles, and prepares artifacts for exhibition. Recommends preservation measures, such as control of temperature, humidity, and exposure to light, to curatorial and building maintenance staff. Evaluate. Constructs skeletal mounts of fossils, replicas of archaeological artifacts, or duplicate specimens, using variety of materials and hand tools. Repairs or reassembles broken objects, using glue, solder, hand tools, power tools, and small machines. Studies descriptive information on object or conducts standard chemical and physical tests to determine age, composition, and original appearance. Cleans objects, such as paper, textiles, wood, metal, glass, rock, pottery, and furniture, using cleansers, solvents, soap solutions, and polishes. Repairs and restores surfaces of artifacts to original appearance and to prevent deterioration, according to accepted procedures.

**25-4031.00 Library Technicians Entry – Mid level position assuming education and experience prerequisite**

Assists patrons in operating equipment, obtaining library materials and services, and explains use of reference tools. Verifies bibliographical data, including author, title, publisher, publication date, and edition on computer terminal. Files catalog cards according to system used. Designs posters and special displays to promote use of library facilities or specific reading program at library. Composes explanatory summaries of contents of books or other reference materials. Prepares order slips for materials, follows up on orders, and compiles lists of materials acquired or withdrawn. Compiles and maintains records relating to circulation, materials, and equipment. Directs activities of library clerks and aides. Issues identification card to borrowers and checks materials in and out. Reviews subject matter of materials to be classified and selects classification numbers and headings according to classification system. Processes print and non-print library materials, and classifies and catalogs materials.

**25-9011.00 Audio-Visual Collections Specialists Entry – Mid – Senior level position assuming education and experience prerequisite**

Plans and develops preproduction ideas into outlines, scripts, continuity, storyboards, and graphics, or directs assistants to develop ideas. Sets up, adjusts, and operates equipment, such as cameras, sound mixers, and recorders during production. Determines format, approach, content, level, and medium to meet objectives most effectively within budgetary constraints, utilizing research, knowledge, and training. Constructs and positions properties, sets, lighting equipment, and other equipment. Develops manuals, texts, workbooks, or related materials for use in conjunction with production materials. Performs narration or presents announcements. Conducts training sessions on selection, use, and design of audiovisual materials, and operation of presentation equipment. Directs and coordinates activities of assistants and other personnel during production. Executes, or directs assistants to execute, rough and finished graphics and graphic designs. Develops production ideas based on assignment or generates own ideas based on objectives and interest. Locates and secures settings, properties, effects, and other production necessities.

**27-1012.00 Craft Artists Entry – Mid – Senior level position assuming education and experience prerequisite**

Create or reproduce hand-made objects for sale and exhibition using a variety of techniques, such as welding, weaving, pottery, and needlecraft.



**27-1013.01 Painters and Illustrators Entry – Mid – Senior level position assuming education and experience prerequisite**

Renders drawings, illustrations, and sketches of buildings, manufactured products, or models, working from sketches, blueprints, memory, or reference materials. Paints scenic backgrounds, murals, and portraiture for motion picture and television productions sets, glass artworks, and exhibits. Develops drawings, paintings, diagrams, and consultations, research, and teachings. Etches, carves, paints, or draws artwork on material, such as stone, glass, canvas, wood, and linoleum. Confers with professional personnel or client to discuss objectives of artwork, develop illustration ideas, and theme to be portrayed. Performs tests to determine factors, such as age, structure, pigment stability, and probable reaction to various cleaning agents and solvents. Applies select solvents and cleaning agents to clean surface of painting and remove accretions, discolorations, and deteriorated varnish. Assembles, leads, and solders finished glass to fabricate stained glass article. Installs finished stained glass in window or doorframe. Examines surfaces of paintings and proofs of artwork using magnifying device to determine method of restoration or needed corrections. Removes painting from frame or paint layer from canvas to restore artwork following specified technique and equipment. Studies style, techniques, colors, textures, and materials used by artist to maintain consistency in reconstruction or retouching procedures. Brushes or sprays protective or decorative finish on completed background panels, informational legends, exhibit accessories, or finished painting.

**27-1013.02 Sketch Artists Entry – Mid – Senior level position assuming education and experience prerequisite**

Draws sketch, Cognofile, or likeness of posed subject or photograph, using pencil, charcoal, pastels, or other medium. Classifies and codes components of image, using established system, to help identify suspect. Operates photocopy or similar machine to reproduce composite image. Measures distances and develops sketches of crime scene from photograph and measurements. Searches police photograph records, using classification and coding system to determine if existing photograph of suspects is available. Poses subject to accentuate most pleasing features or Cognofile. Assembles and arranges outlines of features to form composite image, according to information provided by witness or victim. Alters copy of composite image until witness or victim is satisfied that composite is best possible representation of suspect. Prepares series of simple line drawings conforming to description of suspect and presents drawings to informant for selection of sketch. Interviews crime victims and witnesses to obtain descriptive information concerning physical build, sex, nationality, and facial features of unidentified suspect.

**27-1013.03 Cartoonists Entry – Mid – Senior level position assuming education and experience prerequisite**

Sketches and submits cartoon or animation for approval. Labels each section with designated colors when colors are used. Develops color patterns and moods and paints background layouts to dramatize action for animated cartoon scenes. Discusses ideas for cartoons, comic strips, or animations with editor or publisher's representative. Renders sequential drawings of characters or other subject material which when photographed and projected at specific speed becomes animated. Creates and prepares sketches and model drawings of characters, providing details from memory, live models, manufactured products, or reference material. Develops personal ideas for cartoons, comic strips, or animations, or reads written material to develop ideas. Makes changes and corrections to cartoon, comic strip, or animation as necessary.

**27-1013.04 Sculptors Entry – Mid – Senior level position assuming education and experience prerequisite**

Carves objects from stone, concrete, plaster, wood, or other material, using abrasives and tools, such as chisels, gouges, and mall. Constructs artistic forms from metal or stone, using metalworking, welding, or masonry tools and equipment. Cuts, bends, laminates, arranges, and fastens individual or mixed raw and manufactured materials and products to form works of art. Models substances, such as clay or wax, using fingers and small hand tools to form objects.

**27-1014.00 Multi-Media Artists and Animators Entry – Mid – Senior level position assuming education and experience prerequisite**

Create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials.

**27-1023.00 Floral Designers Entry – Mid – Senior level position assuming education and experience prerequisite**

Plans arrangement according to client's requirements, utilizing knowledge of design and properties of materials, or selects appropriate standard design pattern. Packs and wraps completed arrangements. Conducts classes, demonstrations, or trains other workers. Estimates costs and prices arrangements. Decorates buildings, halls, churches, or other facilities where events are planned. Selects flora and foliage for arrangement. Trims material and arranges bouquets, wreaths, terrariums, and other items using trimmers, shapers, wire, pin, floral tape, foam, and other materials. Confers with client regarding price and type of arrangement desired.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **27-1024.00 Graphic Designers Entry – Mid – Senior level position assuming education and experience prerequisite**

Draws sample of finished layout and presents sample to art director for approval. Produces still and animated graphic formats for on-air and taped portions of television news broadcasts, using electronic video equipment. Prepares illustrations or rough sketches of material according to instructions of client or supervisor. Develops negatives and prints, using negative and print developing equipment and tools and work aids to produce layout photographs. Prepares notes and instructions for workers who assemble and prepare final layouts for printing. Photographs layouts, using camera, to make layout prints for supervisor or client. Confers with client regarding layout design. Prepares series of drawings to illustrate sequence and timing of story development for television production. Reviews final layout and suggests improvements as needed. Studies illustrations and photographs to plan presentation of material, product, or service. Draws and prints charts, graphs, illustrations, and other artwork, using computer. Marks up, pastes, and assembles final layouts to prepare layouts for printer. Keys information into computer equipment to create layouts for client or supervisor. Determines size and arrangement of illustrative material and copy, and selects style and size of type. Arranges layout based upon available space, knowledge of layout principles, and esthetic design concepts.

### **27-1026.00 Merchandise Displayers and Window Trimmers Entry – Mid – Senior level position assuming education and experience prerequisite**

Constructs or assembles prefabricated display properties from fabric, glass, paper, and plastic, using hand tools and woodworking power tools, according to specifications. Originates ideas for merchandise display or window decoration. Prepares sketches or floor plans of proposed displays. Consults with advertising and sales staff to determine type of merchandise to be featured and time and place for each display. Arranges properties, furniture, merchandise, backdrop, and other accessories, as shown in prepared sketch. Cuts out designs on cardboard, hard board, and plywood, according to motif of event. Dresses mannequins for use in displays. Places price and descriptive signs on backdrop, fixtures, merchandise, or floor. Installs decorations, such as flags, banners, festive lights, and bunting, on or in building, street, exhibit hall, or booth. Installs booths, exhibits, displays, carpets, and drapes, as guided by floor plan of building and specifications. Develops layout and selects theme, lighting, colors, and props to be used.

### **27-1027.01 Set Designers Entry – Mid – Senior level position assuming education and experience prerequisite**

Integrates requirements including script, research, budget, and available locations to develop design. Researches and consults experts to determine architectural and furnishing styles to depict given periods or locations. Estimates costs of design materials and construction, or rental of location or props. Reads script to determine location, set, or decoration requirements. Directs and coordinates set construction, erection, or decoration activities to ensure conformance to design, budget, and schedule requirements. Assigns staff to complete design ideas and prepare sketches, illustrations, and detailed drawings of sets, or graphics and animation. Examines dressed set to ensure props and scenery do not interfere with movements of cast or view of camera. Confers with heads of production and direction to establish budget, schedules, and discuss design ideas. Selects furniture, draperies, pictures, lamps, and rugs for decorative quality and appearance. Prepares rough draft and scale working drawings of sets, including floor plans, scenery, and properties to be constructed. Presents drawings for approval and makes changes and corrections as directed. Designs and builds scale models of set design or miniature sets used in filming backgrounds or special effects.

### **27-1027.02 Exhibit Designers Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares preliminary drawings of proposed exhibit, including detailed construction, layout, material specifications, or special effects diagrams. Inspects installed exhibit for conformance to specifications and satisfactory operation of special effects components. Designs, draws, paints, or sketches backgrounds and fixtures for use in windows or interior displays. Oversees preparation of artwork, construction of exhibit components, and placement of collection to ensure intended interpretation of concepts and conformance to specifications. Confers with client or staff regarding theme, interpretative or informational purpose, planned location, budget, materials, or promotion. Arranges for acquisition of specimens or graphics, or building of exhibit structures by outside contractors to complete exhibit. Submits plans for approval, and adapts plan to serve intended purpose or to conform to budget or fabrication restrictions. Designs display to decorate streets, fairgrounds, building or other places for celebrations, using paper, cloth, plastic, or other materials.

### **27-2021.00 Athletes and Sports Competitors Entry – Mid – Senior level position assuming education and experience prerequisite**

Participates in athletic events and competitive sports, according to established rules and regulations. Plays professional sport and is identified according to sport played, such as football, basketball, baseball, hockey, or boxing. Represents team or professional sports club, speaking to groups involved in activities, such as sports clinics and fundraisers. Exercises and practices under direction of athletic trainer or professional coach to prepare and train for competitive events.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **27-4011.00 Audio and Video Equipment Technicians Entry – Mid level position assuming education and experience prerequisite**

Determines format, approach, content, level, and medium to meet objectives most effectively within budgetary constraints, utilizing research, knowledge, and training. Locates and secures settings, properties, effects, and other production necessities. Constructs and positions properties, sets, lighting equipment, and other equipment. Develops manuals, texts, workbooks, or related materials for use in conjunction with production materials. Develops production ideas based on assignment or generates own ideas based on objectives and interest. Directs and coordinates activities of assistants and other personnel during production. Conducts training sessions on selection, use, and design of audiovisual materials, and operation of presentation equipment. Performs narration or presents announcements. Executes, or directs assistants to execute, rough and finished graphics and graphic designs. Plans and develops preproduction ideas into outlines, scripts, continuity, storyboards, and graphics, or directs assistants to develop ideas. Sets up, adjusts, and operates equipment, such as cameras, sound mixers, and recorders during production.

### **27-4012.00 Broadcast Technicians Entry – Mid level position assuming education and experience prerequisite**

Lays electrical cord and audio and video cables between vehicle, microphone, camera, and reporter or person to be interviewed. Aligns antennae with receiving dish to obtain clearest signal for transmission of news event to station. Monitors transmission of news event to station and adjusts equipment as needed to maintain quality broadcast. Performs preventive and minor equipment maintenance, using hand tools. Selects source, such as satellite or studio, from which program will be recorded. Observes monitors and converses with station personnel to set audio and video levels and to verify station is on-air. Drives news van to location of news events. Produces educational and training films and videotapes, including selection of equipment and preparation of script. Instructs trainees how to use television production equipment, to film events, and to copy/edit graphics or sound onto videotape. Edits manuals, schedules programs, and prepares reports outlining past and future programs, including content. Maintains logs, as required by station management and Federal Communications Commission. Reads television programming log to ascertain program to be recorded or aired. Previews scheduled program to ensure that signal is functioning and program is ready for transmission. Sets up, operates, and maintains radio and television production equipment to broadcast programs or events.

### **27-4013.00 Radio Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Communicates by radio with test pilot, engineering personnel, and others during flight-testing to relay information. Turns controls or throws switches to activate power, adjust voice volume and modulation, and set transmitter on specified frequency. Repairs transmitting equipment, using electronic testing equipment, hand tools, and power tools, to maintain communication system in operative condition. Communicates with receiving operator to give and receive instruction for transmission. Determines and obtains bearings of source from which signal originated, using direction finding procedures and equipment. Operates sound recording equipment to record signals and preserve broadcast for analysis by intelligence personnel. Examines and operates new equipment prior to installation in airport radio stations. Reviews company and Federal Aviation Authority regulations regarding radio communications and reports violations. Establishes and maintains standards of operation by periodic inspections of equipment and routine tests. Maintains station log of messages transmitted and received for activities such as flight-testing and fire locations. Coordinates radio searches for overdue or lost airplanes. Monitors emergency frequency for distress calls and dispatches emergency equipment.

### **27-4021.01 Professional Photographers Entry – Mid – Senior level position assuming education and experience prerequisite**

Frames subject matter and background in lens to capture desired image. Arranges subject matter in desired position. Directs activities of workers assisting in setting up photograph. Selects and assembles equipment and required background properties, according to subject, materials, and conditions. Focuses camera and adjusts settings based on lighting, subject material, distance, and film speed. Estimates or measures light level, distance, and number of exposures needed, using measuring devices and formulas.

### **27-4021.02 Photographers, Scientific Entry – Mid – Senior level position assuming education and experience prerequisite**

Photographs variety of subject material to illustrate or record scientific or medical data of phenomena, related to an area of interest. Plans methods and procedures for photographing subject material and set-up of required equipment. Removes exposed film and develops film, using chemicals, touch up tools, and equipment. Sets up, mounts, or installs photographic equipment and cameras. Engages in research to develop new photographic procedure, materials, and scientific data. Observes and arranges subject material to desired position. Sights and focuses camera to take picture of subject material to illustrate or record scientific or medical data or phenomena.

**27-4031.00 Camera Operators, Television, Video, and Motion Picture Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up cameras, optical printers and related equipment to produce photographs and special effects. Selects cameras, accessories, equipment, and film stock to use during filming, using knowledge of filming techniques, requirements, and computations. Observes set or location for potential problems and to determine filming and lighting requirements. Reads work order to determine specifications and location of subject material. Confers with director and electrician regarding interpretation of scene, desired effects filming and lighting requirements. Exposes frames of film in sequential order and regulates exposures and aperture to obtain special effects. Instructs camera operators regarding camera setup, angles, distances, movement, and other variables and cues for starting and stopping filming. Reads charts and computes ratios to determine variables, such as lighting, shutter angles, filter factors, and camera distance. Analyzes specifications to determine work procedures, sequence of operations, and machine setup. Views film to resolve problems or exposure control, subject and camera movement, changes in subject distance, and related variables. Adjusts position and controls of camera, printer and related equipment to produce desired effects, using precision measuring instruments.

**27-4032.00 Film and Video Editors Entry – Mid – Senior level position assuming education and experience prerequisite**

Edits film and video tape to insert music, dialogue, and sound effects, and to correct errors, using editing equipment. Studies script and confers with producers and directors concerning layout or editing to increase dramatic or entertainment value of production. Supervises and coordinates activities of workers engaged in editing and assembling filmed scenes photographed by others. Evaluates and selects scenes in terms of dramatic and entertainment value and story continuity. Trims film segments to specified lengths and reassembles segments in sequence that presents story with maximum effect. Reviews assembled film or edited videotape on screen or monitor and makes corrections.

**29-1111.00 Registered Nurses Entry – Mid – Senior level position assuming education and experience prerequisite**

Provides health care, first aid, and immunization in facilities such as schools, hospitals, and industry. Observes patient's skin color, dilation of pupils, and computerized equipment to monitor vital signs. Records patient's medical information and vital signs. Prepares patients for and assists with examinations. Prepares rooms, sterile instruments, equipment and supplies, and hands items to surgeon. Orders, interprets, and evaluates diagnostic tests to identify and assess patient's condition. Delivers infants and performs postpartum examinations and treatment. Instructs on topics, such as health education, disease prevention, child birth, and home nursing and develops health improvement programs. Advises and consults with specified personnel concerning necessary precautions to be taken to prevent possible contamination or infection. Administers stipulated emergency measures, and contacts obstetrician when deviations from standard are encountered during pregnancy or delivery. Informs physician of patient's condition during anesthesia. Discusses cases with physician or obstetrician. Provides prenatal and postnatal care to obstetrical patients under supervision of obstetrician. Contracts independently to render nursing care, usually to one patient, in hospital or private home. Directs and coordinates infection control program in hospital. Maintains stock of supplies. Conducts specified laboratory tests. Refers students or patients to community agencies furnishing assistance and cooperates with agencies. Prescribes or recommends drugs or other forms of treatment, such as physical therapy, inhalation therapy, or related therapeutic procedures. Administers local, inhalation, intravenous, and other anesthetics.

**29-2011.00 Medical and Clinical Laboratory Technologists Entry – Mid level position assuming education and experience prerequisite**

Cuts, stains, and mounts biological material on slides for microscopic study and diagnosis, following standard laboratory procedures. Harvests cell culture at optimum time sequence based on knowledge of cell cycle differences and culture conditions. Cultivates, isolates, and assists in identifying microbial organisms, and performs various tests on these microorganisms. Prepares slide of cell culture to identify chromosomes, views and photographs slide under photomicroscope, and prints picture. Sets up, cleans, and maintains laboratory equipment. Enters analysis of medical tests and clinical results into computer for storage. Calibrates and maintains equipment used in quantitative and qualitative analysis, such as spectrophotometers, calorimeters, flame photometers, and computer controlled analyzers. Communicates with physicians, family members, and researchers requesting technical information regarding test results. Conducts research under direction of Microbiologist or Biochemist. Cuts images of chromosomes from photograph and identifies and arranges them in numbered pairs on karyotype chart, using standard practices. Studies blood cells, number of blood cells, and morphology, using microscopic technique. Performs tests to determine blood group, type, and compatibility for transfusion purposes. Conducts chemical analysis of body fluids, including blood, urine, and spinal fluid, to determine presence of normal and abnormal components. Examines and tests human, animal, or other materials for microbial organisms. Selects and prepares specimen and media for cell culture, using aseptic technique and knowledge

of medium components and cell requirements. Examines slides under microscope to detect deviations from norm and to report abnormalities for further study. Analyzes samples of biological material for chemical content or reaction.

**29-2012.00 Medical and Clinical Laboratory Technicians Entry – Mid level position assuming education and experience prerequisite**

Conducts quantitative and qualitative chemical analyses of body fluids, such as blood, urine, and spinal fluid. Conducts blood tests for transfusion purposes. Tests vaccines for sterility and virus inactivity. Draws blood from patient, observing principles of asepsis to obtain blood sample. Prepares standard volumetric solutions and reagents used in testing. Inoculates fertilized eggs, broths, or other bacteriological media with organisms. Incubates bacteria for specified period and prepares vaccines and serums by standard laboratory methods. Performs blood counts, using microscope.

**29-2021.00 Dental Hygienists Entry – Mid – Senior level position assuming education and experience prerequisite**

Cleans calcareous deposits, accretions, and stains from teeth and beneath margins of gums, using dental instruments. Provides clinical services and health education to improve and maintain oral health of school children. Removes excess cement from coronal surfaces of teeth. Places and removes rubber dams, matrices, and temporary restorations. Feels lymph nodes under patients' chin to detect swelling and tenderness that could indicate presence of oral cancer. Examines gums, using probes, to locate periodontal recessed gums and signs of gum disease. Administers local anesthetic agents. Exposes and develops x-ray film. Removes sutures and dressings. Makes impressions for study casts. Places, carves, and finishes amalgam restorations. Feels and visually examines gums for sores and signs of disease. Charts conditions of decay and disease for diagnosis and treatment by dentist. Conducts dental health clinics for community groups to augment services of dentist. Applies fluorides and other cavity preventing agents to arrest dental decay.

**29-2031.00 Cardiovascular Technologists and Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates diagnostic imaging equipment to produce contrast-enhanced radiographs of heart and cardiovascular system. Activates fluoroscope and camera to produce images used to guide catheter through cardiovascular system. Injects contrast medium into blood vessels of patient. Conducts electrocardiogram, phonocardiogram, echocardiogram, stress testing, and other cardiovascular tests, using specialized electronic test equipment, recording devices, and laboratory instruments. Conducts tests of pulmonary system, using spirometer and other respiratory testing equipment. Observes gauges, recorder, and video screens of data analysis system, during imaging of cardiovascular system. Records variations in action of heart muscle, using electrocardiograph. Observes ultrasound display screen and listens to signals to acquire data for measurement of blood flow velocities. Assesses cardiac physiology and calculates valve areas from blood flow velocity measurements. Alerts physician to abnormalities or changes in patient responses. Explains testing procedures to patient to obtain cooperation and reduce anxiety. Records test results and other data into patient's record. Reviews test results with physician. Prepares and positions patients for testing. Adjusts equipment and controls according to physicians' orders or established protocol. Enters factors such as amount and quality of radiation beam, and filming sequence, into computer. Compares measurements of heart wall thickness and chamber sizes to standard norms to identify abnormalities. Records analyses of heart and related structures, using ultrasound equipment. Operates monitor to measure and record functions of cardiovascular and pulmonary systems, as part of cardiac catheterization team.

**29-2032.00 Diagnostic Medical Sonographers Entry – Mid – Senior level position assuming education and experience prerequisite**

Produce ultrasonic recordings of internal organs for use by physicians.

**29-2033.00 Nuclear Medicine Technologists Mid – Senior level position assuming education and experience prerequisite**

Administers radiopharmaceuticals or radiation to patient to detect or treat diseases, using radioisotope equipment, under direction of physician. Calculates, measures, prepares, and records radiation dosage or radiopharmaceuticals, using computer and following physician's prescription and x-rays. Measures glandular activity, blood volume, red cell survival, and radioactivity of patient, using scanners, Geiger counters, scintillometers, and other laboratory equipment. Maintains and calibrates radioisotope and laboratory equipment. Disposes of radioactive materials and stores radiopharmaceuticals, following radiation safety procedures. Develops treatment procedures for nuclear medicine treatment programs. Positions radiation fields, radiation beams, and patient to develop most effective treatment of patient's disease, using computer.

**29-2034.01 Radiologic Technologists Mid – Senior level position assuming education and experience prerequisite**

Operates or oversees operation of radiologic and magnetic imaging equipment to produce photographs of the body for diagnostic purposes. Operates fluoroscope to aid physician to view and guide wire or catheter through blood vessels to areas of interest. Administers oral or injected contrast media to patients. Positions imaging equipment and adjusts controls to set exposure time and distance, according to specification of examination. Monitors video display of area being scanned and adjusts density or contrast to improve picture quality. Positions and immobilizes patient on examining table. Explains procedures and observes patients to ensure safety and comfort during scan. Assigns duties to radiologic staff to maintain patient flows and achieve production goals. Demonstrates new equipment, procedures, and techniques and provides technical assistance to staff. Develops departmental operating budget and coordinates purchase of supplies and equipment. Reviews and evaluates developed x-rays, videotape, or computer generated information for technical quality. Monitors use of radiation safety measures to comply with government regulations and to ensure safety of patients and staff. Keys commands and data into computer to document and specify scan sequences, adjust transmitters and receivers, or photograph certain images.

**29-2034.02 Radiologic Technicians Entry – Mid level position assuming education and experience prerequisite**

Uses beam restrictive devices and patient shielding skills to minimize radiation exposure to patient and staff. Positions patient on examining table and adjusts equipment to obtain optimum view of specific body area requested by physician. Explains procedures to patient to reduce anxieties and obtain patient cooperation. Operates mobile x-ray equipment in operating room, emergency room, or at patient's bedside. Moves x-ray equipment into position and adjusts controls to set exposure factors, such as time and distance.

**29-2051.00 Dietetic Technicians Entry – Mid level position assuming education and experience prerequisite**

Guides individuals and families in food selection, preparation, and menu planning, based upon nutritional needs. Assists in referrals for continuity of patient care. Supervises food production and service. Develops job specifications, job descriptions, and work schedules. Assists in implementing established cost control procedures. Plans menus based on established guidelines. Obtains and evaluates dietary histories of individuals to plan nutritional programs. Selects, schedules, and conducts orientation and in-service education programs. Standardizes recipes and tests new products for use in facility.

**29-2052.00 Pharmacy Technicians Entry – Mid level position assuming education and experience prerequisite**

Assists pharmacist to prepare and dispense medication. Prepares intravenous (IV) packs, using sterile technique, under supervision of hospital pharmacist. Counts stock and enters data in computer to maintain inventory records. Cleans equipment and sterilizes glassware according to prescribed methods. Mixes pharmaceutical preparations, fills bottles with prescribed tablets and capsules, and types labels for bottles. Receives and stores incoming supplies. Processes records of medication and equipment dispensed to hospital patient, computes charges, and enters data in computer.

**29-2054.00 Respiratory Therapy Technicians Entry – Mid level position assuming education and experience prerequisite**

Provide specific, well-defined respiratory care procedures under the direction of respiratory therapists and physicians.

**29-2056.00 Veterinary Technologists and Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Perform medical tests in a laboratory environment for use in the treatment and diagnosis of diseases in animals. Prepare vaccines and serums for prevention of disease. Prepare tissue samples, take blood samples, and execute laboratory tests, such as urinalysis and blood counts. Clean and sterilize instruments and materials and maintain equipment and machines.

**29-2061.00 Licensed Practical and Licensed Vocational Nurses Entry – Mid – Senior level position assuming education and experience prerequisite**

Administers specified medication, orally or by subcutaneous or intramuscular injection, and notes time and amount on patient's charts. Dresses wounds, gives enemas, douches, alcohol rubs, and massages. Observes patients and reports adverse reactions to medication or treatment to medical personnel in charge. Applies compresses, ice bags, and hot water bottles. Washes and dresses bodies of deceased persons. Cleans rooms, makes beds, and answer patients' calls. Assists in delivery, care, and feeding of infants. Prepares or examines food trays for prescribed diet and feeds patients. Records food and fluid intake and output. Sterilizes equipment and supplies, using germicides, sterilizer, or autoclave. Collects samples, such as urine, blood, and sputum, from patients for testing and performs routine laboratory tests on samples. Assembles and uses such equipment as catheters, tracheotomy tubes, and oxygen suppliers. Inventories and requisitions supplies. Bathes, dresses, and assists patients in walking and turning. Takes and records patients' vital signs.

Provides medical treatment and personal care to patients in private home settings.

**29-2071.00 Medical Records and Health Information Technicians Entry – Mid level position assuming education and experience prerequisite**

Compiles and maintains medical records of patients to document condition and treatment and to provide data for research studies. Maintains variety of health record indexes and storage and retrieval systems. Enters data, such as demographic characteristics, history and extent of disease, diagnostic procedures and treatment into computer. Prepares statistical reports, narrative reports and graphic presentations of tumor registry data for use by hospital staff, researchers, and other users. Contacts discharged patients, their families, and physicians to maintain registry with follow-up information, such as quality of life and length of survival of cancer patients. Assists in special studies or research, as needed. Reviews records for completeness and to abstract and code data, using standard classification systems, and to identify and compile patient data. Compiles medical care and census data for statistical reports on diseases treated, surgery performed, and use of hospital beds.

**29-2081.00 Opticians, Dispensing Entry – Mid – Senior level position assuming education and experience prerequisite**

Measures clients' bridge and eye size, temple length, vertex distance, papillary distance, and optical centers of eyes, using measuring devices. Verifies finished lenses are ground to specification. Recommends specific lenses, lens coatings, and frames to suit client needs. Heats, shapes, or bends plastic or metal frames to adjust eyeglasses to fit client, using pliers and hands. Assists client in selecting frames according to style and color, coordinating frames with facial and eye measurements and optical prescription. Grinds lens edges or applies coating to lenses. Instructs clients in adapting to wearing and caring for eyeglasses. Fabricates lenses to prescription specifications. Repairs damaged frames. Evaluates prescription in conjunction with client's vocational and avocational visual requirements. Determines client's current lens prescription, when necessary, using lensometer or lens analyzer and client's eyeglasses. Prepares work order and instructions for grinding lenses and fabricating eyeglasses.

**29-9011.00 Occupational Health and Safety Specialists Mid – Senior level position assuming education and experience prerequisite**

Investigates adequacy of ventilation, exhaust equipment, lighting, and other conditions, which may affect employee health, comfort, or efficiency. Uses cost-benefit analysis to justify money spent. Prepares documents to be used in legal proceedings and gives testimony in court proceedings. Prepares and calibrates equipment used to collect and analyze samples. Reviews physicians' reports and conducts worker studies to determine if diseases or illnesses are job related. Collects samples of dust, gases, vapors, and other potentially toxic materials for analysis. Recommends measures to ensure maximum employee protection. Collaborates with engineers and physicians to institute control and remedial measures for hazardous and potentially hazardous conditions of equipment. Prepares reports including observations, analysis of contaminants, and recommendation for control and correction of hazards. Participates in educational meetings to instruct employees in matters pertaining to occupational health and prevention of accidents. Conducts evaluations of exposure to ionizing and non-ionizing radiation and to noise.

**29-9012.00 Occupational Health and Safety Technicians Entry – Mid level position assuming education and experience prerequisite**

Collect data on work environments for analysis by occupational health and safety specialists. Implement and conduct evaluation of programs designed to limit chemical, physical, biological, and ergonomic risks to workers.

**31-1011.00 Home Health Aides Entry – Mid level position assuming education and experience prerequisite**

Changes bed linens, washes and irons patient's laundry, and cleans patient's quarters. Assists patients into and out of bed, automobiles, or wheelchair, to lavatory, and up and down stairs. Administers prescribed oral medication under written direction of physician or as directed by home care nurse and aide. Massages patient and applies preparations and treatment, such as liniment or alcohol rubs and heat-lamp stimulation. Performs variety of miscellaneous duties as requested, such as obtaining household supplies and running errands. Entertains patient, reads aloud, and plays cards and other games with patient. Maintains records of services performed and of apparent condition of patient. Purchases, prepares, and serves food for patient and other members of family, following special prescribed diets.

**31-1012.00 Nursing Aides, Orderlies, and Attendants Entry – Mid level position assuming education and experience prerequisite**

Feeds patients unable to feed themselves. Sets up equipment, such as oxygen tents, portable x-ray machines, and overhead irrigation bottles. Prepares food trays. Bathes, grooms, and dresses patients. Measures and records food and liquid intake and output. Measures and records vital signs. Administers medication as directed by physician or nurse. Cleans room and changes linen. Stores, prepares, and issues dressing packs, treatment trays, and other supplies. Administers catheterizations, bladder irrigations, enemas, and douches. Sterilizes equipment and supplies. Administers massages and alcohol rubs. Transports patient to areas, such as operating and x-ray rooms. Turns and re-positions bedfast patients, alone or with assistance, to prevent bedsores. Assists patient to walk.

**31-9011.00 Massage Therapists Entry – Mid level position assuming education and experience prerequisite**

Massage customers for hygienic or remedial purposes.

**31-9091.00 Dental Assistants Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares patient, sterilizes and disinfects instruments, sets up instrument trays, prepares materials, and assists dentist during dental procedures. Takes and records medical and dental histories and vital signs of patients. Assists dentist in management of medical and dental emergencies. Records treatment information in patient records. Provides postoperative instructions prescribed by dentist. Pours, trims, and polishes study casts. Instructs patients in oral hygiene and plaque control programs. Cleans teeth, using dental instruments. Fabricates temporary restorations and custom impressions from preliminary impressions. Schedules appointments, prepares bills and receives payment for dental services, completes insurance forms, and maintains records, manually or using computer. Cleans and polishes removable appliances. Makes preliminary impressions for study casts and occlusal registrations for mounting study casts. Applies protective coating of fluoride to teeth. Exposes dental diagnostic x-rays.

**31-9092.00 Medical Assistants Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares treatment rooms for examination of patients. Cleans and sterilizes instruments. Computes and mails monthly statements to patients and records transactions. Contacts medical facility or department to schedule patients for tests. Performs routine laboratory tests. Gives injections or treatments to patients. Receives payment for bills. Operates x-ray, electrocardiograph (EKG), and other equipment to administer routine diagnostic tests. Gives physiotherapy treatments, such as diathermy, galvanics, and hydrotherapy. Completes insurance forms. Lifts and turns patients. Inventories and orders medical supplies and materials. Hands instruments and materials to physician. Schedules appointments. Interviews patients, measures vital signs, weight, and height, and records information. Maintains medical records.

**31-9093.00 Medical Equipment Preparers Entry – Mid – Senior level position assuming education and experience prerequisite**

Examines equipment to detect leaks, worn or loose parts, or other indications of disrepair. Delivers equipment to specified hospital location or to patient's private residence. Maintains inventory and equipment usage records. Connects equipment to water source and flushes water through system to purge equipment of wastes. Disinfects, and sterilizes equipment, such as respirators, hospital beds, and wheelchairs, and oxygen and dialysis equipment, using cleansing and sterilizing solutions. Installs and sets up equipment, using hand tools. Starts equipment and observes gauges and equipment operation to detect malfunctions and assure equipment is operating to prescribed standards.

**31-9095.00 Pharmacy Aides Entry – Mid level position assuming education and experience prerequisite**

Record drugs delivered to the pharmacy, store incoming merchandise, and inform the supervisor of stock needs. May operate cash register and accept prescriptions for filling.

**31-9096.00 Veterinary Assistants and Laboratory Animal Caretakers Entry – Mid – Senior level position assuming education and experience prerequisite**

Assists veterinarian in variety of animal health care duties, including injections, venipunctures, and wound dressings. Completes routine laboratory tests and cares for and feeds laboratory animals. Inspects products or carcasses to ensure compliance with health standards, when employed in food processing plant. Assists professional personnel with research projects in commercial, public health, or research laboratories. Assists veterinarian during surgical procedures, passing instruments and materials in accordance with oral instructions. Prepares examination or treatment room, and holds or restrains animal during procedures. Prepares patient, medications, equipment, and instruments for surgical procedures, using specialized knowledge.



**33-2021.01 Fire Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects interiors and exteriors of buildings to detect hazardous conditions or violations of fire codes. Issues permits and summons, and enforces fire codes. Tests equipment, such as gasoline storage tanks, air compressors, and fire extinguishing and fire protection equipment to endure conformance to fire and safety codes. Discusses violations and unsafe conditions with facility representative, makes recommendations, and instructs in fire safety practices. Prepares reports, such as inspections performed, code violations, and recommendations for eliminating fire hazards. Gives First aid in emergencies. Collects fees for permits and licenses.

**33-3021.02 Police Identification and Records Officers Mid – Senior level position assuming education and experience prerequisite**

Dusts selected areas of crime scene to locate and reveal latent fingerprints. Lifts prints from crime site, using special tape. Classifies and files fingerprints. Develops film and prints, using photographic developing equipment. Photographs, records physical description, and fingerprints homicide victims and suspects for identification. Photographs crime or accident scene to obtain record of evidence. Submits evidence to supervisor.

**33-3021.04 Child Support, Missing Persons, and Unemployment Insurance Fraud Investigators Mid – Senior level position assuming education and experience prerequisite**

Serves warrants and makes arrests to return persons sought in connection with crimes or for non-payment of child support. Interviews and discusses case with parent charged with non-payment of support to resolve issues in lieu of filing court proceedings. Reviews files and criminal records to develop possible leads, such as previous addresses and aliases. Interviews client to obtain information, such as relocation of absent parent, amount of child support awarded, and names of witnesses. Contacts employers, neighbors, relatives, and law enforcement agencies to locate person sought and verify information gathered about case. Obtains extradition papers to bring about return of fugitive. Confers with prosecuting attorney to prepare court case and with court clerk to obtain arrest warrant and schedule court date. Prepares file indicating data, such as wage records of accused, witnesses, and blood test results. Computes amount of child support payments. Testifies in court to present evidence regarding cases. Examines medical and dental x-rays, fingerprints, and other information to identify bodies held in morgue. Examines case file to determine that divorce decree and court ordered judgment for payment are in order. Completes reports to document information acquired during criminal and child support cases, and actions taken. Monitors child support payments awarded by court to ensure compliance and enforcement of child support laws. Determines types of court jurisdiction, according to facts and circumstances surrounding case, and files court action.

**33-3051.02 Highway Patrol Pilots Mid – Senior level position assuming education and experience prerequisite**

Pilots airplane to maintain order, respond to emergencies, to enforce traffic and criminal laws, and apprehend criminals. Informs ground personnel of traffic congestion or unsafe driving conditions to ensure traffic flow and reduce incidence of accidents. Investigates traffic accidents and other accidents to determine causes and how to determine if crime was committed. Reviews facts to determine if criminal act or statute violation is involved. Arrests perpetrator of criminal act or submits citation or warning to violator of motor vehicle ordinance. Informs ground personnel where to re-route traffic in case of emergencies. Records facts, photographs and diagrams crime or accident scene, and interviews witnesses to gather information for possible use in legal action or safety programs. Renders aid to accident victims and other persons requiring first aid for physical injuries. Testifies in court to present evidence or act as witness in traffic and criminal cases. Expedites processing of prisoners, prepares and maintains records of prisoner bookings, and maintains record of prisoner status during booking and pre-trial process. Prepares reports to document activities. Relays complaint and emergency request information to appropriate agency dispatcher. Evaluates complaint and emergency request information to appropriate agency dispatcher.

**33-3051.03 Sheriffs and Deputy Sheriffs Entry – Mid – Senior level position assuming education and experience prerequisite**

Serves subpoenas and summonses. Executes arrest warrants, locating and taking persons into custody and issues citations. Transports or escorts prisoners or defendants between courtroom, prison, or jail, District Attorney's offices, or medical facilities. Investigates illegal or suspicious activities of persons. Patrols and guards courthouse, grand jury room, or assigned areas to provide security, enforce laws, maintain order, and arrest violators. Maintains records and submits reports of dispositions and logs daily activities. Arranges delivery of prisoner's arrest records from criminal investigation unit, at District Attorney's request. Notifies patrol units to take violators into custody, or provide needed assistance or medical aid. Questions individuals entering secured areas to determine purpose of business and directs or reroutes individuals to destinations. Confiscates real or personal property by court order, and posts notices in public places. Takes control of accident scene to maintain traffic flow, assist accident victims, and investigate causes.

**35-2011.00 Cooks, Fast Food Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares specialty foods, such as pizzas, fish and chips, sandwiches, and tacos, following specific methods, usually requiring short preparation time. Reads food order slip or receives verbal instructions as to food required by patron, and prepares and cooks food according to instructions. Measures required ingredients needed for specific food item being prepared. Prepares dough, following recipe. Prepares and serves beverage, such as coffee and fountain drinks. Serves orders to customers at window or counter. Cleans work area and food preparation equipment. Slices meats, cheeses, and vegetables, using knives and food slicing machines.

**35-2012.00 Cooks, Institution and Cafeteria Entry – Mid – Senior level position assuming education and experience prerequisite**

Cooks foodstuffs according to menu, special dietary or nutritional restrictions, and number of persons to be served. Cleans, cuts, and cooks meat, fish, and poultry. Requisitions food supplies, kitchen equipment and appliances, and other supplies and receives deliveries. Apportions and serves food to residents, employees, or patrons. Washes pots, pans, dishes, utensils, and other cooking equipment. Directs activities of one or more workers who assist in preparing and serving meals. Compiles and maintains food cost records and accounts. Plans menus, taking advantage of foods in season and local availability. Bakes breads, rolls, and other pastries. Prepares and cooks vegetables, salads, dressings, and desserts. Cleans and inspects galley equipment, kitchen appliances, and work areas for cleanliness and functional operation.

**35-2013.00 Cooks, Private Household Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepare meals in private homes.

**35-2014.00 Cooks, Restaurant Mid – Senior level position assuming education and experience prerequisite**

Weighs, measures, and mixes ingredients according to recipe or personal judgment, using various kitchen utensils and equipment. Seasons and cooks food according to recipes or personal judgment and experience. Regulates temperature of ovens, broilers, grills, and roasters. Observes and tests food to determine that it is cooked, by tasting, smelling, or piercing, and turns or stirs food if necessary. Bakes, roasts, broils, and steams meats, fish, vegetables, and other foods. Bakes bread, rolls, cakes, and pastry. Washes, peels, cuts, and seeds fruits and vegetables to prepare fruits and vegetables for use. Inspects food preparation and serving areas to ensure observance of safe, sanitary food-handling practices. Estimates food consumption and requisitions or purchases supplies, or procures food from storage. Butchers and dresses animals, fowl or shellfish, or cuts and bones meat prior to cooking. Carves and trims meats, such as beef, veal, ham, pork, and lamb for hot or cold service, or for sandwiches. Plans items on menu. Portions, arranges, and garnishes food, and serves food to waiter or patron.

**35-2015.00 Cooks, Short Order Entry – Mid – Senior level position assuming education and experience prerequisite**

Takes order from customer and cooks foods requiring short preparation time, according to customer requirements. Completes order from steam table and serves customer at table or counter. Cleans food preparation equipment, work area, and counter or tables. Carves meats, makes sandwiches, and brews coffee. Accepts payment and makes change, or writes charge slip.

**35-2021.00 Food Preparation Workers Entry – Mid level position assuming education and experience prerequisite**

Cleans and portions, and cuts or peels various foods to prepare for cooking or serving. Cleans, cuts, slices, or disjoints meats and poultry to prepare for cooking. Prepares and serves variety of beverages, such as coffee, tea, and soft drinks. Portions and arranges food on serving dishes, trays, carts, or conveyor belts. Prepares variety of foods according to customers' orders or instructions of superior, following approved procedures. Carries food supplies, equipment, and utensils to and from storage and work areas. Distributes food to waiters and waitresses to serve to customers. Stores food in designated containers and storage areas to prevent spoilage. Butchers and cleans fowl, fish, poultry, and shellfish to prepare for cooking or serving. Requisitions, stores, and distributes food supplies, equipment, and utensils. Cleans and maintains work areas, equipment, and utensils.

**35-3011.00 Bartenders Entry – Mid level position assuming education and experience prerequisite**

Mixes ingredients, such as liquor, soda, water, sugar, and bitters, to prepare cocktails and other drinks. Collects money for drinks served. Serves wine and draft or bottled beer. Arranges bottles and glasses to make attractive display. Orders or requisitions liquors and supplies. Prepares appetizers, such as pickles, cheese, and cold meats. Cleans glasses, utensils, and bar equipment. Slices and pits fruit for garnishing drinks.

**35-3021.00 Combined Food Preparation and Serving Workers, Including Fast Food Entry – Mid level position assuming education and experience prerequisite**

Selects food items from serving or storage areas and places food and beverage items on serving tray or in takeout bag. Cooks or re-heats food items, such as french fries. Receives payment. Notifies kitchen personnel of shortages or special orders. Requests and records customer order and computes bill. Makes and serves hot and cold beverages or desserts.

**35-9021.00 Dishwashers Entry – Mid level position assuming education and experience prerequisite**

Cleans and maintains work areas, equipment, and utensils. Carries or transfers by hand truck supplies and equipment between storage and work areas. Removes garbage and trash and places refuse in designated pick up area. Stocks serving stations with food and utensils. Loads or unloads trucks used in delivering or picking up food and supplies. Sets up banquet tables. Cleans and prepares various foods for cooking or serving. Prepares and packages individual place settings.

**37-2011.00 Janitors and Cleaners, Except Maids and Housekeeping Cleaners Entry – Mid – Senior level position assuming education and experience prerequisite**

Sweeps, mops, scrubs, and vacuums floors of buildings, using cleaning solutions, tools and equipment. Gathers and empties trash. Cleans or polishes walls, ceilings, windows, plant equipment and building fixtures, using steam cleaning equipment, scrapers, brooms and variety of hand and power tools. Applies waxes or sealers to wood or concrete floors. Tends, cleans, adjusts and services furnaces, air conditioners, boilers and other building heating and cooling systems. Removes snow from sidewalks, driveways, and parking areas, using snowplow, snow blower, and snow shovel, and spreads snow melting chemicals. Notifies management personnel concerning need for major repairs or additions to building operating systems. Sprays insecticides and fumigants to prevent insect and rodent infestation. Cleans laboratory equipment, such as glassware and metal instruments, using solvents, brushes, rags, and power cleaning equipment. Mows and trims lawns and shrubbery, using mowers and hand and power trimmers, and clears debris from grounds. Mixes water and detergents or acids in container to prepare cleaning solutions, according to specifications. Drives vehicles, such as van, industrial truck or industrial vacuum cleaner. Cleans chimneys, flues, and connecting pipes, using power and hand tools. Cleans and restores building interiors damaged by fire, smoke, or water, using commercial cleaning equipment. Services and repairs cleaning and maintenance equipment and machinery and performs minor routine painting, plumbing, electrical, and related activities. Moves items between departments, manually or using hand truck. Sets up, arranges, and removes decorations, tables, chairs, ladders, and scaffolding, for events such as banquets and social functions. Requisitions supplies and equipment used in cleaning and maintenance duties. Dusts furniture, walls, machines, and equipment.

**37-2021.00 Pest Control Workers Entry – Mid level position assuming education and experience prerequisite**

Sprays or dusts chemical solutions, powders, or gases into rooms, onto clothing, furnishings or wood, and over marshlands, ditches, catch-basins. Sets mechanical traps and places poisonous paste or bait in sewers, burrows, and ditches. Cuts or bores openings in building or surrounding concrete, accesses infested areas, inserts nozzle, and injects pesticide to impregnate ground. Directs and/or assists other workers in treatment and extermination processes to eliminate and control rodents, insects, and weeds. Studies preliminary reports and diagrams of infested area and determines treatment type required to eliminate and prevent recurrence of infestation. Digs up and burns or sprays weeds with herbicides. Cleans work site after completion of job. Records work activities performed. Drives truck equipped with power spraying equipment. Posts warning signs and locks building doors to secure area to be fumigated. Positions and fastens edges of tarpaulins over building and tapes vents to ensure air-tight environment and checks for leaks. Cleans and removes blockages from infested areas to facilitate spraying procedure and provide drainage, using broom, mop, shovel, and rake. Measures area dimensions requiring treatment, using rule, calculates fumigant requirements, and estimates cost for service. Inspects premises to identify infestation source and extent of damage to property, wall, and roof porosity, and access to infested locations.

**37-3011.00 Landscaping and Grounds Keeping Workers Entry – Mid level position assuming education and experience prerequisite**

Mows lawns, using power mower. Digs holes for plants, mixes fertilizer or lime with dirt in holes, inserts plants, and fills holes with dirt. Trims and picks flowers and cleans flowerbeds. Hauls or spreads topsoil, and spreads straw over seeded soil to hold soil in place. Decorates garden with stones and plants. Attaches wires from planted trees to support stakes.

Maintains tools and equipment. Seeds and fertilizes lawns. Shovels snow from walks and driveways. Builds forms and mixes and pours cement to form garden borders. Applies herbicides, fungicides, fertilizers, and pesticides, using spreaders or spray equipment. Waters lawns, trees, and plants, using portable sprinkler system, hose, or watering can.

**37-3012.00 Pesticide Handlers, Sprayers, and Applicators, Vegetation Entry – Mid level position assuming education and experience prerequisite**

Lifts, pushes, and swings nozzle, hose, and tube to direct spray over designated area. Covers area to specified depth, applying knowledge of weather conditions, droplet size, elevation-to- distance ratio, and obstructions. Fills sprayer tank with water and chemicals, according to formula. Starts motor and engages machinery, such as sprayer agitator and pump. Cleans and services machinery to ensure operating efficiency, using water, gasoline, lubricants, and hand tools. Plants grass with seed spreader and operates straw blower to cover seeded area with asphalt and straw mixture. Sprays livestock with pesticides. Gives driving instructions to truck driver, using hand and horn signals, to ensure complete coverage of designated area. Connects hoses and nozzles, selected according to terrain, distribution pattern requirements, type of infestation, and velocity.

**37-3013.00 Tree Trimmers and Pruners Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts away dead and excess branches from trees, using handsaws, pruning hooks, sheers, and clippers. Applies tar or other protective substances to cut surfaces to seal surfaces against insects. Scrapes decayed matter from cavities in trees and fills holes with cement to promote healing and to prevent further deterioration. Uses truck-mounted hydraulic lifts and pruners and power pruners. Prunes, cuts down, fertilizes, and sprays trees as directed by tree surgeon. Climbs trees, using climbing hooks and belts, or climbs ladders to gain access to work area.

**39-3011.00 Gaming Dealers Entry – Mid level position assuming education and experience prerequisite**

Conducts gambling table or game, such as dice, roulette, cards, or keno, and ensures that game rules are followed. Exchanges paper currency for playing chips or coin money and collects game fees or wagers. Verifies, computes, and pays out winnings. Sells food, beverages, and tobacco to players. Seats patrons at gaming tables. Prepares collection report for submission to supervisor. Participates in game for gambling establishment to provide minimum complement of players at table.

**39-3012.00 Gaming and Sports Book Writers and Runners Entry – Mid level position assuming education and experience prerequisite**

Conducts gambling table or game, such as dice, roulette, cards, or keno, and ensures that game rules are followed. Verifies, computes, and pays out winnings. Participates in game for gambling establishment to provide minimum complement of players at table. Seats patrons at gaming tables. Sells food, beverages, and tobacco to players. Prepares collection report for submission to supervisor. Exchanges paper currency for playing chips or coin money and collects game fees or wagers.

**39-3021.00 Motion Picture Projectionists Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates motion picture projection and sound-reproducing equipment to project or produce pictures and sound effects on screen. Inserts film into top magazine reel or threads film through the projector and onto automatic spool of projector. Monitors equipment operation and changes projectors without interruption to showing. Regulates and adjusts projection light and focus, volume, tone, and timing of projection equipment. Operates special-effects equipment, such as stereopticon, to project pictures on screen. Cleans lenses and maintains and performs minor repairs on projectors and equipment or notifies maintenance personnel to correct major malfunctions. Inspects and repairs faulty sections of film and rewinds film onto reels automatically or by hand. Coordinates equipment operation with presentation of supplemental material, such as music, oral commentary, or sound effects. Positions, installs, and connects auxiliary equipment, such as microphones, amplifiers, and lights.

**39-3092.00 Costume Attendants Entry – Mid – Senior level position assuming education and experience prerequisite**

Inventories stock to determine types and condition of costuming available and selects costumes based on historical analysis and studies. Studies books, pictures, and examples of period clothing to determine styles worn during specific period in history. Designs and constructs costume or sends it to tailor for construction or major repairs and alterations. Purchases or rents costumes and other wardrobe accessories from vendor. Assists cast in donning costumes or assigns cast dresser to assist specific cast members with costume changes. Arranges or directs cast dresser to arrange costumes on clothing racks in sequence of appearance. Examines costume fit on cast member, and sketches or writes notes for

alterations. Analyzes or reviews analysis of script to determine locale of story, period, number of characters, and costumes required per character. Repairs, alters, cleans, presses, and refits costume prior to performance and cleans and stores costume following performance.

**39-4011.00 Embalmers Entry – Mid – Senior level position assuming education and experience prerequisite**

Packs body orifices with cotton saturated with embalming fluid to prevent escape of gases or waste matter. Applies cosmetics to impart lifelike appearance. Reshapes or reconstructs disfigured or maimed bodies, using materials such as clay, cotton, plaster of paris, and wax. Dresses and places body in casket. Maintains records, such as itemized list of clothing or valuables delivered with body and names of persons embalmed. Inserts convex celluloid or cotton between eyeball and eyelid to prevent slipping and sinking of eyelid. Washes and dries body, using germicidal soap and towels or hot air drier. Joins lips, using needle and thread or wire. Presses diaphragm to evacuate air from lungs. Makes incision in arm or thigh and drains blood from circulatory system and replaces blood with embalming fluid, using pump. Incises stomach and abdominal walls and probes internal organs, using trocar, to withdraw blood and waste matter from organs. Attaches trocar to pump-tube, starts pump, and repeats probing to force embalming fluid into organs. Closes incisions, using needle and suture.

**39-5012.00 Hairdresser, Hairstylists, and Cosmetologists Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts, trims and shapes hair or hairpieces, using clippers, scissors, trimmers and razors. Attaches wig or hairpiece to model head and dresses wigs and hairpieces according to instructions, samples, sketches or photographs. Massages and treats scalp for hygienic and remedial purposes, using hands, fingers, or vibrating equipment. Analyzes patron's hair and other physical features or reads makeup instructions to determine and recommend beauty treatment. Updates and maintains customer information records, such as beauty services provided. Cleans, shapes, and polishes fingernails and toenails using files and nail polish. Shapes and colors eyebrows or eyelashes and removes facial hair, using depilatory cream and tweezers. Recommends and applies cosmetics, lotions, and creams to patron to soften and lubricate skin and enhance and restore natural appearance. Administers therapeutic medication and advises patron to seek medical treatment for chronic or contagious scalp conditions. Combs, brushes, and sprays hair or wigs to set style. Shampoos, rinses, and dries hair and scalp or hairpieces with water, liquid soap, or other solutions. Bleaches, dyes, or tints hair, using applicator or brush. Applies water, setting or waving solutions to hair and winds hair in curlers or rollers.

**39-5091.00 Makeup Artist, Theatrical and Performance Entry – Mid – Senior level position assuming education and experience prerequisite**

Applies makeup to performers to alter their appearance to accord with their roles. Selects desired makeup shades from stock or mixes oil, grease, and coloring to achieve special color effects. Designs rubber or plastic prostheses and requisitions materials, such as wigs, beards, and special cosmetics. Confers with stage or motion picture officials and performers to determine dress or makeup alterations. Creates character drawings or models, based upon independent research to augment period production files. Examines sketches, photographs, and plaster models to obtain desired character image depiction. Studies production information, such as character, period settings and situations to determine makeup requirements. Attaches prostheses to performer and applies makeup to change physical features and depict desired character.

**41-2011.00 Cashiers Entry – Mid level position assuming education and experience prerequisite**

Receives sales slip, cash, check, voucher, or charge payments and issues receipts, refunds, credits, or change due to customer. Cashes checks. Operates cash register or electronic scanner. Computes and records totals of transactions. Keeps periodic balance sheet of amount and number of transactions. Sorts, counts, and wraps currency and coins. Sells tickets and other items to customer. Monitors checkout stations, issues and removes cash as needed, and assigns workers to reduce customer delay. Resolves customer's complaints. Compiles and maintains non-monetary reports and records. Bags, boxes, or wraps merchandise. Answers questions and provides information to customers. Learns prices, stocks shelves, marks prices, weighs items, issues trading stamps, and redeems food stamps and coupons.

**41-2012.00 Gaming Change Persons and Booth Cashiers Entry – Mid level position assuming education and experience prerequisite**

Exchange coins and tokens for patrons' money. May issue payoffs and obtain customer's signature on receipt when winnings exceed the amount held in the slot machine. May operate a booth in the slot machine area and furnish change persons with money bank at the start of the shift, or count and audit money in drawers.

**41-2022.00 Parts Salespersons Entry – Mid – Senior level position assuming education and experience prerequisite**

Determines replacement part required, according to inspection of old part, customer request, or customer description of malfunction. Advises customer on substitution or modification of part when identical replacement is not available. Reads catalog, microfiche viewer, or computer display to determine replacement part stock number and price. Fills customer orders from stock. Examines returned part for defects, and exchanges defective part or refunds money. Receives payment or obtains credit authorization. Prepares sales slip or sales contract. Repairs parts or equipment. Takes inventory of stock. Marks and stores parts in stockroom according to prearranged system. Places new merchandise on display. Measures parts, using precision measuring instruments to determine whether similar parts may be machined to required size. Discusses use and features of various parts, based on knowledge of machine or equipment. Demonstrates equipment to customer and explains functioning of equipment. Receives and fills telephone orders for parts.

**41-3021.00 Insurance Sales Agents Mid – Senior level position assuming education and experience prerequisite**

Advises clients of broker (independent agent) in selecting casualty, life, or property insurance. Discusses advantages and disadvantages of various policies. Selects Company that offers type of coverage requested by client to underwrite policy. Contacts underwriter and submits forms to obtain binder coverage. Plans and oversees incorporation of insurance program into bookkeeping system of company. Installs bookkeeping systems and resolves system problems. Establishes client's method of payment. Explains necessary bookkeeping requirements for customer to implement and provide group insurance program. Explains group insurance programs to promote sale of insurance plan. Calls on policyholders to deliver and explain policy, to suggest additions or changes in insurance program, or to change beneficiaries.

**43-3011.00 Bill and Account Collectors Entry – Mid – Senior level position assuming education and experience prerequisite**

Mails form letters to customers to encourage payment of delinquent accounts. Notifies credit department, orders merchandise repossession or service disconnection, or turns over account to attorney if customer fails to respond. Persuades customer to pay amount due on credit account, damage claim, or non-payable check, or negotiates extension of credit. Confers with customer by telephone or in person to determine reason for overdue payment and review terms of sales, service, or credit contract. Drives vehicle to visit customer, return merchandise to creditor, or deliver bills. Sorts and files correspondence, and performs miscellaneous clerical duties. Traces delinquent customer to new address by inquiring at post office or questioning neighbors. Records information about financial status of customer and status of collection efforts. Receives payments and posts amount paid to customer account, using computer or paper records.

**43-3021.01 Statement Clerks Entry – Mid – Senior level position assuming education and experience prerequisite**

Compares previously prepared bank statements with canceled checks, prepares statements for distribution to customers, and reconciles discrepancies in records and accounts. Recovers checks returned to customer in error, adjusts customer account, and answers inquiries. Matches statement with batch of canceled checks by account number. Posts stop payment notices to prevent payment of protested checks. Takes orders for imprinted checks. Encodes and cancels checks, using machine. Keeps canceled checks and customer signature files. Routes statements for mailing or over-the-counter delivery to customers. Inserts statements and canceled checks in envelopes and affixes postage, or stuffs envelopes and meters postage.

**43-3021.02 Billing, Cost, and Rate Clerks Entry – Mid – Senior level position assuming education and experience prerequisite**

Computes amounts due from such documents as purchase orders, sales tickets, and charge slips. Updates manuals when rates, rules, or regulations are amended. Estimates market value of product or services. Answers mail and telephone inquiries regarding rates, routing, and procedures. Consults manuals, which include rates, rules, regulations, and government tax and tariff information. Compiles cost factor reports, such as labor, production, storage, and equipment. Verifies compiled data from vendor invoices to ensure accuracy and revises billing data when errors are found. Resolves discrepancies on accounting records. Types billing documents, shipping labels, credit memorandums, and credit forms, using typewriter or computer. Keeps records of invoices and support documents. Compiles and computes credit terms, discounts, and purchase prices for billing documents.

**43-3021.03 Billing, Posting, and Calculating Machine Operators Entry – Mid level position assuming education and experience prerequisite**

Calculates accounting and other numerical data, such as amounts customers owe, sales totals, and inventory data, using

calculating machine. Transcribes data from office records, using specified forms, billing machine, and transcribing machine. Transfers data from machine, such as encoding machine, to computer. Bundles sorted documents to prepare those drawn on other banks for collection. Cleans machines, such as encoding or sorting machines, and replaces ribbons, film, and tape. Manually sorts and lists items for proof or collection. Observes operation of sorter to note document machine cannot read, and manually records amount, using keyboard. Compares machine totals to records for errors, and encodes correct amount or prepares correction record if error is found. Sorts and microfilms transaction documents, such as checks, using sorting machine. Encodes and adds amounts of transaction documents, such as checks or money orders, using encoding machine. Posts totals to records and prepares bill or invoice to be sent to customers, using billing machine.

**43-3031.00 Bookkeeping, Accounting, and Auditing Clerks Entry – Mid level position assuming education and experience prerequisite**

Records financial transactions and other account information to update and maintain accounting records. Performs financial calculations such as amounts due, balances, discounts, equity, and principal. Debits or credits accounts. Complies with federal, state, and company policies, procedures, and regulations. Evaluates records for accuracy of balances, postings, calculations, and other records pertaining to business or operating transactions and reconciles, or notes discrepancies. Processes negotiable instruments such as checks and vouchers. Verifies balances and entries, calculations, and postings recorded by other workers. Compiles reports and tables to show statistics related to cash receipts, expenditures, accounts payable and receivable, and profit and loss.

**43-3041.00 Gaming Cage Workers Entry – Mid level position assuming education and experience prerequisite**

Conduct financial transactions for patrons in gaming establishment. Reconcile daily summaries of transactions to balance books. Accept patron's credit application and verify credit references to provide check-cashing authorization or to establish house credit accounts. Sell gambling chips, tokens, or tickets to patrons, or to other workers for resale to patrons. Convert gaming chips, tokens, or tickets to currency upon patron's request. Use a cash register or computer to record transaction.

**43-3051.00 Payroll and Timekeeping Clerks Entry – Mid level position assuming education and experience prerequisite**

Compiles employee time, production, and payroll data from time sheets and other records. Reviews time sheets, work charts, timecards, and union agreements for completeness and to determine payroll factors and pay rates. Compares wage computations, logs, and time sheets to detect and reconcile payroll discrepancies. Records employee information, such as exemptions, transfers, leave pay, and insurance coverage to maintain and update payroll records. Processes and issues paychecks to employees. Compiles and submits payroll status and other reports to designated departments. Calculates or computes wages and deductions and enters data into computer. Verifies attendance, hours worked, and pay adjustments and posts information onto designated records.

**43-3061.00 Procurement Clerks Entry – Mid level position assuming education and experience prerequisite**

Verifies terminology and specifications of purchase requests. Confers with suppliers concerning late deliveries. Approves bills for payment. Determines if material is on hand in sufficient quantity. Types or writes purchase order and sends copy to supplier and department originating request. Computes total cost of items purchased, using calculator. Verifies bills from suppliers with bids and purchase orders. Compares prices, specifications, and delivery dates, and awards contract to supplier with best bid. Types or writes invitation-of-bid forms and mails forms to supplier firms or distributes forms for public posting. Compiles records of items purchased or transferred between departments. Reads catalogs and interviews suppliers to obtain prices and specifications.

**43-3071.00 Tellers Entry – Mid level position assuming education and experience prerequisite**

Receives checks and cash for deposit, verifies amount, and examines checks for endorsements. Cashes checks and pays out money after verification of signatures and customer balances. Examines coupons and bills presented for payment to verify issue, payment date, and amount due. Enters customer's transactions into computer to record transactions and issues computer generated receipts. Prepares daily inventory of currency, drafts, and travelers' checks. Counts currency, coins, and checks received for deposit, shipment to branch banks, or Federal Reserve Bank by hand or currency-counting machine. Issues checks to bond owners in settlement of transactions. Quotes unit exchange rate, following daily international rate sheet or computer display. Balances currency, coin, and checks in cash drawer at end of shift and calculates daily transactions. Composes, types, and mails correspondence relating to discrepancies, errors, and outstanding unpaid items. Explains, promotes, or sells products or services, such as travelers checks, savings bonds, money orders, and cashier's checks. Gives information to customer about foreign currency regulations and computes

exchange value and transaction fee for currency exchange. Removes deposits from automated teller machines and night depository, and counts and balances cash in them.

**43-4011.00 Brokerage Clerks Entry – Mid level position assuming education and experience prerequisite**

Records and documents security transactions, such as purchases, sales, conversions, redemptions, and payments, using computers, accounting ledgers, and certificate records. Prepares forms, such as receipts, withdrawal orders, transmittal papers, and transfer confirmations, based on transaction requests from stockholders. Schedules and coordinates transfer and delivery of security certificates between companies, departments, and customers. Verifies ownership and transaction information and dividend distribution instructions to ensure conformance with governmental regulations, using stock records and reports. Monitors daily stock prices and computes fluctuations to determine the need for additional collateral to secure loans. Files, types, and operates standard office machines. Corresponds with customers and confers with coworkers to answer inquiries, discuss market fluctuations, and resolve account problems. Computes total holdings, dividends, interest, transfer taxes, brokerage fees, and commissions and allocates appropriate payments to customers. Prepares reports summarizing daily transactions and earnings for individual customer accounts.

**43-4021.00 Correspondence Clerks Entry – Mid level position assuming education and experience prerequisite**

Composes letter in response to request or problem identified by correspondence. Gathers data to formulate reply. Types acknowledgment letter to person sending correspondence. Processes orders for goods requested in correspondence. Reviews records pertinent to resolution of problem for completeness and accuracy and attaches records to correspondence for reply by others. Compiles data from records to prepare periodic reports. Investigates discrepancies in reports and records and confers with personnel in affected departments to ensure accuracy and compliance with procedures. Confers with company personnel regarding feasibility of complying with writer's request. Maintains files and control records to show status of action in processing correspondence. Routes correspondence to other departments for reply. Compiles data pertinent to manufacture of special products for customers. Completes form letters in response to request or problem identified by correspondence. Reads incoming correspondence to ascertain nature of writer's concern and determine disposition of correspondence.

**43-4031.01 Court Clerks Entry – Mid level position assuming education and experience prerequisite**

Prepares docket or calendar of cases to be called, using typewriter or computer. Instructs parties when to appear in court. Explains procedures or forms to parties in case. Records minutes of court proceedings, using stenotype machine or shorthand, and transcribes testimony, using typewriter or computer. Notifies district attorney's office of cases prosecuted by district attorney. Administers oath to witnesses. Collects court fees or fines and records amounts collected. Records case disposition, court orders, and arrangement for payment of court fees. Examines legal documents submitted to court for adherence to law or court procedures. Prepares case folders, and posts, files, or routes documents. Secures information for judges, and contacts witnesses, attorneys, and litigants to obtain information for court.

**43-4031.02 Municipal Clerks Entry – Mid level position assuming education and experience prerequisite**

Prepares agendas and bylaws for town council. Prepares reports on civic needs. Records minutes of council meetings. Keeps fiscal records and accounts. Answers official correspondence.

**43-4031.03 License Clerks Entry – Mid level position assuming education and experience prerequisite**

Questions applicant to obtain information, such as name, address, and age, and records data on prescribed forms. Evaluates information obtained to determine applicant qualification for licensure. Conducts oral, visual, written, or performance test to determine applicant qualifications. Submits fees and reports to government for record. Counts collected fees and applications. Collects prescribed fee. Issues driver, automobile, marriage, dog, or other license.

**43-4041.01 Credit Authorizers Entry – Mid level position assuming education and experience prerequisite**

Verifies credit standing of customer from information in files, and approves or disapproves credit, based on predetermined standards. Files sales slips in customer's ledger for billing purposes. Keeps record of customer's charges and payments and mails charge statement to customer. Prepares credit cards or charge account plates. Receives charge slip or credit application by mail, or receives information from salespeople or merchants by phone.

**43-4041.02 Credit Checkers Entry – Mid level position assuming education and experience prerequisite**

Interviews credit applicant by telephone or in person to obtain financial and personal data for credit report. Contacts former employers and other acquaintances to verify references, employment, health history, and social behavior. Obtains information from banks, credit bureaus, and other credit services and provides reciprocal information if requested. Compiles and analyzes credit information gathered by investigation. Telephones subscriber to relay requested information or sends subscriber credit report. Prepares reports of findings and recommendations, using typewriter or computer.





## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

Examines city directories and public records to verify residence property ownership, bankruptcies, liens, arrest record, or unpaid taxes of applicant.

### **43-4051.01 Adjustment Clerks Entry – Mid level position assuming education and experience prerequisite**

Reviews claims adjustments with dealer, examines parts claimed to be defective and approves or disapproves of dealer's claim. Notifies customer and designated personnel of findings and recommendations, such as exchanging merchandise or refunding money, or adjustment of bill. Examines weather conditions, number of days in billing period, and reviews meter accounts for errors which might explain high utility charges. Orders tests to detect product malfunction and determines if defect resulted from faulty construction. Trains dealers or service personnel in construction of products, service operations, and customer service. Compares merchandise with original requisition and information on invoice and prepares invoice for returned goods. Prepares reports showing volume, types, and disposition of claims handled. Writes work order.

### **43-4061.01 Claims Takers, Unemployment Benefits Entry – Mid – Senior level position assuming education and experience prerequisite**

Interviews claimants returning at specified intervals to certify claimants for continuing benefits. Reviews data on job application or claim forms to ensure completeness. Assists applicants completing application forms for job referrals or unemployment compensation claims. Answers questions concerning registration for jobs or application for unemployment benefits. Assists applicants in filling out forms, using knowledge of information required or native language of applicant. Schedules unemployment insurance claimants for adjudication interview when question of eligibility arises. Refers applicants to job opening or interview with other staff, in accordance with administrative guidelines or office procedure.

### **43-4071.00 File Clerks Entry – Mid level position assuming education and experience prerequisite**

Sorts or classifies information, according to content, purpose, user criteria, or chronological, alphabetical, or numerical order. Scans or reads incoming materials to determine filing order or location. Inspects or examines materials or files for accuracy, legibility, or damage. Assigns and records or stamps identification numbers or codes to index materials for filing. Photographs or makes copies of data and records, using photocopying or microfilming equipment. Authorizes or documents materials movement, using logbook or computer and traces missing files. Inserts additional data on file records. Removes or destroys out dated materials in accordance with file maintenance schedules or legal requirements. Locates and retrieves files upon request from authorized users. Places materials into storage receptacles, such as file cabinets, boxes, bins, or drawers, according to classification and identification information.

### **43-4081.00 Hotel, Motel, and Resort Desk Clerks Entry – Mid level position assuming education and experience prerequisite**

Greets, registers, and assigns rooms to guests of hotel or motel. Date-stamps, sorts, and racks incoming mail and messages. Deposits guests' valuables in hotel safe or safe-deposit box. Answers inquiries pertaining to hotel services; registration of guests; and shopping, dining, entertainment, and travel directions. Issues room key and escort instructions to bellhop. Computes bill, collects payment, and makes change for guests. Makes and confirms reservations. Transmits and receives messages, using telephone or telephone switchboard. Posts charges, such as room, food, liquor, or telephone, to ledger, manually or using computer. Keeps records of room availability and guests' accounts, manually or using computer.

### **43-4111.00 Interviewers, Except Eligibility and Loan Entry – Mid level position assuming education and experience prerequisite**

Contacts persons at home, place of business, or field location, by telephone, mail, or in person. Explains reason for questioning, and other specified information. Asks questions to obtain various specified information, such as person's name, address, age, religion, and state of residency. Records results and data from interview or survey, using computer or specified form. Assists person in filling out application or questionnaire. Compiles and sorts data from interview and reviews to correct errors.

### **43-4121.00 Library Assistants, Clerical Entry – Mid level position assuming education and experience prerequisite**

Issues borrower's identification card according to established procedures. Delivers and retrieves items to and from departments by hand or push cart. Answers routine inquiries and refers patrons who need professional assistance to librarian. Repairs books, using mending tape and paste and brush, and places plastic covers on new books. Prepares address labels for books to be mailed, overdue notices, and duty schedules, using computer or typewriter. Operates and maintains audio-visual equipment and explains use of reference equipment to patrons. Places books in mailing container, affixes address label, and secures container with straps for mailing to blind library patrons. Selects substitute titles,

following criteria, such as age, education, and interest when requested materials are unavailable. Inspects returned books for damage, verifies due-date, and computes and receives overdue fines. Reviews records, such as microfilm and issue cards, to determine title of overdue materials and to identify borrower. Prepares, stores, and retrieves classification and catalog information, lecture notes, or other documents related to document stored, using computer. Issues books to patrons and records or scans information on borrower's card. Locates library materials for patrons, such as books, periodicals, tape cassettes, Braille volumes, and pictures. Classifies and catalogs items according to contents and purpose. Maintains records of items received, stored, issued, and returned and files catalog cards according to system used. Sorts books, publications, and other items according to procedure and returns them to shelves, files, or other designated storage area. Drives bookmobile to specified locations following library services schedule and to garage for preventive maintenance and repairs.

**43-4131.00 Loan Interviewers and Clerks Entry – Mid – Senior level position assuming education and experience prerequisite**

Verifies and examines information and accuracy of loan application and closing documents. Interviews loan applicant to obtain personal and financial data and to assist in filling out application. Assembles and compiles documents for closing, such as title abstract, insurance form, loan form, and tax receipt. Prepares and types loan applications, closing documents, legal documents, letters, forms, government notices, and checks, using computer. Records applications for loan and credit, loan information, and disbursement of funds, using computer. Contacts customer by mail, telephone, or in person concerning acceptance or rejection of application. Checks value of customer collateral to be held as loan security. Answers questions and advises customer regarding loans and transactions. Calculates, reviews, and corrects errors on interest, principal, payment, and closing costs, using computer or calculator. Reviews customer accounts to determine whether payments are made on time and that other loan terms are being followed. Accepts payment on accounts. Orders property insurance or mortgage insurance policies to ensure protection against loss on mortgaged property. Files and maintains loan records. Establishes credit limit and grants extension of credit on overdue accounts. Presents loan and repayment schedule to customer. Schedules and conducts closing of mortgage transaction. Contacts credit bureaus, employers, and other sources to check applicant credit and personal references. Submits loan application with recommendation for underwriting approval.

**43-4151.00 Order Clerks Entry – Mid level position assuming education and experience prerequisite**

Receives and handles customer complaints. Routes or relays orders to specified department or unit to prepare and ship orders to designated locations. Confers with production, sales, shipping, warehouse, or common carrier personnel to expedite or trace merchandise or delayed shipments. Computes total charge for merchandise or services and shipping charges. Recommends merchandise or services to customer. Attempts to sell additional merchandise or service to prospective or current customers by phone or through visits. Recommends type of packing or labeling needed on order. Inspects outgoing work for compliance with customer's specifications. Collects charge vouchers and cash for service and keeps record of transaction. Checks inventory control to determine availability of merchandise and notifies department of order that would deplete stock. Calculates and compiles statistics and prepares reports for management. Files copies of orders received or posts order on records. Reviews orders for completeness according to reporting procedures and forwards incomplete orders for further processing. Writes or types information on form to record customer's requests and specifications. Informs customer by mail or phone of information, such as unit price, shipping date, anticipated delay, and additional information needed. Prepares invoices and shipping documents.

**43-5051.00 Postal Service Clerks Entry – Mid level position assuming education and experience prerequisite**

Collects payment for postage stamps, postal cards, stamped envelopes, metered postage, and money orders. Answers questions pertaining to mail regulations, procedures, postage rates, and mail delivery. Feeds mail into electric-electronic postage canceling device or hand stamps to cancel postage. Transports mail from one workstation to another within same postal office. Registers and insures letters and parcels. Assists public in complying with federal regulations of Postal Service and other federal agencies, such as registration of aliens. Posts announcements on centrally located bulletin board to distribute government-related information to general public. Receives, registers, and refers for investigation complaints regarding mail theft, delivery, lost mail, and damaged mail. Calibrates postage meters. Examines mail for correct postage. Weighs and computes mailing costs of letters and parcels based on type, weight, and destination. Sorts mail according to groups and destination by hand or by operating electronic mail-sorting or scanning device.

**43-5053.00 Postal Service Mail Sorters, Processors, and Processing Machine Operators Entry – Mid level position assuming education and experience prerequisite**

Prepare incoming and outgoing mail for distribution. Examine, sort, and route mail by State, type of mail, or other scheme.

Load, operate, and occasionally adjust and repair mail processing, sorting, and canceling machinery. Keep records of shipments, pouches, and sacks and other duties related to mail handling within the postal service. Must complete a competitive exam.

**43-5071.00 Shipping, Receiving, and Traffic Clerks Entry – Mid level position assuming education and experience prerequisite**

Examines contents and compares with records, such as manifests, invoices, or orders, to verify accuracy of incoming or outgoing shipment. Records shipment data, such as weight, charges, space availability, and damages and discrepancies, for reporting, accounting, and recordkeeping purposes. Determines shipping method for materials, using knowledge of shipping procedures, routes, and rates. Contacts carrier representative to make arrangements and to issue instructions for shipping and delivery of materials. Confers and corresponds with establishment representatives to rectify problems, such as damages, shortages, and nonconformance to specifications. Requisitions and stores shipping materials and supplies to maintain inventory of stock. Delivers or routes materials to departments, using work devices, such as hand truck, conveyor, or sorting bins. Computes amounts, such as space available, and shipping, storage, and demurrage charges, using calculator or price list. Prepares documents, such as work orders, bills of lading, and shipping orders to route materials. Packs, seals, labels, and affixes postage to prepare materials for shipping, using work devices such as hand tools, power tools, and postage meter.

**43-5081.01 Stock Clerks, Sales Floor Entry – Mid level position assuming education and experience prerequisite**

Receives, opens, and unpacks cartons or crates of merchandise and checks invoice against items received. Stocks storage areas and displays with new or transferred merchandise. Sets up advertising signs and displays merchandise on shelves, counters, or tables to attract customers and promote sales. Stamps, attaches, or changes price tags on merchandise, referring to price list. Cleans display case, shelves, and aisles. Answers questions and advises customer in selection of merchandise.

**43-5081.02 Marking Clerks Entry – Mid level position assuming education and experience prerequisite**

Marks selling price by hand on boxes containing merchandise or on price tickets. Pins, pastes, sews, ties, or staples tickets, tags, or labels to article, using tagging mechanism. Records price, buyer, and grade of product on tickets attached to products auctioned. Prints information on tickets, using ticket-printing machine. Records number and types of articles marked and packs articles in boxes. Keeps records of production, returned goods, and related transactions. Performs other clerical tasks during periods between auction sales. Compares printed price tickets with entries on purchase order to verify accuracy and notifies supervisor of discrepancies. Indicates price, size, style, color, and inspection results on tags, tickets, and labels, using rubber stamp or writing instrument.

**43-5081.03 Stock Clerks- Stockroom, Warehouse, or Storage Yard Entry – Mid level position assuming education and experience prerequisite**

Receives, counts, and stores stock items and records data, manually or using computer. Compares office inventory records with sales orders, invoices, or requisitions to verify accuracy and receipt of items. Locates and selects material, supplies, tools, equipment, or other articles from stock or issues stock item to workers. Packs, unpacks, and marks stock items, using identification tag, stamp, electric marking tool, or other labeling equipment. Delivers products, supplies, and equipment to designated area, and determines sequence and release of back orders according to stock availability. Prepares documents, such as inventory balance, price lists, shortages, expenditures, and periodic reports, using computer, typewriter, or calculator. Purchases or prepares documents to purchase new or additional stock and recommends disposal of excess, defective, or obsolete stock. Examines and inspects stock items for wear or defects, reports damage to supervisor, and disposes of or returns items to vendor. Confers with engineering and purchasing personnel and vendors regarding procurement and stock availability. Drives truck to pick up incoming stock or deliver parts to designated locations. Cleans and maintains supplies, tools, equipment, and instruments, and storage areas to ensure compliance to safety regulations. Assists or directs to other stockroom, warehouse, or storage yard workers. Adjusts, repairs, assembles, or prepares products, supplies, equipment, or other items, according to specifications or customer requirements. Receives and fills orders or sells supplies, materials, and products to customers. Verifies computations against physical count of stock, adjusts for errors, or investigates discrepancies. Determines method of storage, identification, and stock location based on turnover, environmental factors, and physical capacity of facility. Compiles, reviews, and maintains data from contracts, purchase orders, requisitions, and other documents to determine supply needs. Records nature, quantity, value, or location of material, supplies, or equipment received, shipped, used, or issued to workers.

**43-5081.04 Order Fillers, Wholesale and Retail Sales Entry – Mid level position assuming education and experience prerequisite**

Computes price of each group of items. Obtains merchandise from bins or shelves. Places merchandise on conveyor leading to wrapping area. Reads order to ascertain catalog number, size, color, and quantity of merchandise.

**43-5111.00 Weighers, Measurers, Checkers, and Samplers, Recordkeeping Entry – Mid – Senior level position assuming education and experience prerequisite**

Unloads or unpacks incoming shipments or arranges, packs, or prepares materials and products for display, distribution, outgoing shipment, or storage. Transports materials, products, or samples to processing, shipping, or storage areas, manually or by using conveyors, pumps, or hand trucks. Removes products or loads not meeting quality standards from stock, and notifies supervisor or appropriate department of discrepancy or shortage. Collects fees and issues receipts for payments. Communicates with customers and vendors to exchange information regarding products, materials, and services. Works with, signals, or instructs other workers to weigh, move, or check products. Operates or tends machines to clean or sanitize equipment, or manually washes equipment, using detergent, brushes, and hoses. Examines blueprints and prepares plans, layouts, or drawings of facility or finished products to identify storage locations or verify parts assemblies. Weighs or measures materials or products, using volume meters, scales, rules, and calipers. Collects, prepares, or attaches measurement, weight, or identification labels or tickets to products. Computes product totals and charges for shipments, using calculator. Compares product labels, tags, or tickets; shipping manifests; purchase orders; and bills of lading to verify that the contents, quantity, or weight of shipments is accurate. Fills orders for products and samples, following order tickets, and forwards or mails items. Collects and prepares product samples for laboratory analysis or testing. Maintains perpetual inventory of samples and replenishes stock to maintain required levels. Sorts products or materials into predetermined sequence or groupings for packing, shipping, or storage. Prepares measurement tables and conversion charts, using standard formulae. Examines products or materials, parts, and subassemblies for damage, defects, or shortages, using specification sheets, gauges, and standards charts. Documents quantity, quality, type, weight, and value of materials or products to maintain shipping, receiving, and production records and files. Counts or estimates quantities of materials, parts, or products received or shipped.

**43-6011.00 Executive Secretaries and Administrative Assistants Entry – Mid – Senior level position assuming education and experience prerequisite**

Coordinates and directs office services, such as records and budget preparation, personnel, and housekeeping, to aid executives. Files and retrieves corporation documents, records, and reports. Interprets administrative and operating policies and procedures for employees. Plans conferences. Reads and answers correspondence. Studies management methods to improve workflow, simplify reporting procedures, or implement cost reductions. Analyzes operating practices and procedures to create new or to revise existing methods. Prepares records and reports, such as recommendations for solutions of administrative problems and annual reports.

**43-6012.00 Legal Secretaries Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares and processes legal documents and papers, such as summonses, subpoenas, complaints, appeals, motions, and pretrial agreements. Completes various forms, such as accident reports, trial and courtroom requests, and applications for clients. Attends legal meetings, such as client interviews, hearings, or depositions, and takes notes. Mails, faxes, or arranges for delivery of legal correspondence to clients, witnesses, and court officials. Makes photocopies of correspondence, document, and other printed matter. Schedules and makes appointments. Receives and places telephone calls. Drafts and types office memos. Organizes and maintains law libraries and document and case files. Reviews legal publications and performs data base searches to identify laws and court decisions relevant to pending cases. Submits articles and information from searches to attorneys for review and approval for use. Assists attorneys in collecting information such as employment, medical, and other records.

**43-6013.00 Medical Secretaries Entry – Mid – Senior level position assuming education and experience prerequisite**

Compiles and records medical charts, reports, and correspondence, using typewriter or personal computer. Schedules patient diagnostic appointments and medical consultations. Takes dictation in shorthand. Transmits correspondence and medical records by mail, e-mail, or fax. Greets visitors, ascertains purpose of visits, and directs to appropriate staff. Routes messages and documents such as laboratory results to appropriate staff. Prepares and transmits patients' bills. Maintains medical records and correspondence files. Answers telephone and directs call to appropriate staff. Transcribes recorded messages and practitioner's diagnosis and recommendations into patient's medical record.

**43-6014.00 Secretaries, Except Legal, Medical, and Executive Entry – Mid – Senior level position assuming education and experience prerequisite**

Answers telephone and gives information to callers, takes messages, or transfers calls to appropriate individuals. Answers routine correspondence. Schedules appointments. Takes dictation in shorthand or by machine and transcribes information. Files correspondence and other records. Arranges travel schedules and reservations. Makes copies of correspondence and other printed matter. Provides customer services such as, order placement and account information. Collects and disburses funds from cash account and keeps records. Prepares and mails checks. Orders and dispenses supplies. Mails newsletters, promotional material and other information. Compiles and types statistical reports, using typewriter or computer. Records and types minutes of meetings, using typewriter or computer. Compiles and maintains lists and records, using typewriter or computer. Greets and welcomes visitors, determines nature of business, and conducts visitors to employer or appropriate person. Locates and attaches appropriate file to incoming correspondence requiring reply. Maintains calendar and coordinates conferences and meetings. Composes and distributes meeting notes, correspondence, and reports. Opens incoming mail and routes mail to appropriate individuals.

**43-9011.00 Computer Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Enters commands, using computer terminal, and activates controls on computer and peripheral equipment to integrate and operate equipment. Diagnoses reasons for equipment malfunction and enters commands to correct error or stoppage and resume operations. Records information, such as computer operating time and problems that occurred, such as down time, and actions taken. Clears equipment at end of operating run and reviews schedule to determine next assignment. Assists workers in classifying, cataloging, and maintaining tapes. Separates output, when needed, and sends data to specified users. Notifies supervisor of errors or equipment stoppage. Answers telephone calls to assist computer users encountering problems. Reads job set-up instructions to determine equipment to be used and order of use. Observes peripheral equipment operation and error messages displayed on terminal monitor to detect faulty output or machine stoppage. Enters commands to clear computer system and start operation, using keyboard of computer terminal. Loads peripheral equipment with selected materials for operating runs, or oversees loading of peripheral equipment by peripheral equipment operators.

**43-9021.00 Data Entry Keyers Entry – Mid – Senior level position assuming education and experience prerequisite**

Enters data from source documents into computer or onto tape or disk for subsequent entry, using keyboard or scanning device. Compares data entered with source documents. Compiles, sorts, and verifies accuracy of data to be entered. Deletes incorrectly entered data. Keeps record of completed work. Loads machine with required input or output media, such as paper, cards, disk, tape or Braille media. Files completed documents. Resolves garbled or indecipherable messages, using cryptographic procedures and equipment. Selects materials needed to complete work assignment. Re-enters data in verification format to detect errors.

**43-9022.00 Word Processors and Typists Entry – Mid – Senior level position assuming education and experience prerequisite**

Types from rough draft, corrected copy, or previous version displayed on screen, using computer or typewriter. Checks completed work for spelling, grammar, punctuation, and format. Transcribes stenotyped notes of court proceedings. Stores completed documents on computer hard drive or data storage medium, such as disk. Uses data entry device, such as optical scanner, to input data into computer for revision or editing. Keeps records of work performed. Computes and verifies totals on report forms, requisitions, or bills, using adding machine or calculator. Transmits work electronically to other locations. Operates duplicating machine. Answers telephone. Sorts and distributes mail. Collates pages of reports and other documents prepared. Files and stores completed documents. Prints and makes copy of work. Adjusts settings for format, page layout, line spacing, and other style requirements. Types from recorded dictation. Addresses envelopes or prepares envelope labels, using typewriter or computer. Gathers and arranges material to be typed, following instructions.

**43-9031.00 Desktop Publishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Views monitors for visual representation of work in progress and for instructions and feedback throughout process. Activates options, such as masking, pixel (picture element) editing, airbrushing, or image retouching. Activates options, such as masking or text processing. Enters data, such as background color, shapes, and coordinates of images; and retrieves data from system memory. Enters data, such as coordinates of images and color specifications, into system to retouch and make color corrections. Enters digitized data into electronic prepress system computer memory, using

scanner, camera, keyboard, or mouse. Saves completed work on floppy disks or magnetic tape. Creates special effects, such as vignettes, mosaics, and image combining. Loads floppy disks or tapes containing information into system. Studies layout or other instructions to determine work to be done and sequence of operations.

**43-9041.01 Insurance Claims Clerks Entry – Mid level position assuming education and experience prerequisite**

Contacts insured or other involved persons for missing information. Calculates amount of claim. Transmits claims for payment or further investigation. Prepares and reviews insurance claim forms and related documents for completeness. Reviews insurance policy to determine coverage. Posts or attaches information to claim file.

**43-9041.02 Insurance Policy Processing Clerks Entry – Mid level position assuming education and experience prerequisite**

Reviews and verifies data, such as age, name, address, and principal sum and value of property on insurance applications and policies. Checks computations of interest accrued, premiums due, and settlement surrender on loan values. Corresponds with insured or agent to obtain information or inform them of status or changes to application of account. Receives computer printout of policy cancellations or obtains cancellation card from file. Collects initial premiums, issues receipts, and compiles periodic reports for management. Transcribes data to worksheets and enters data into computer for use in preparing documents and adjusting accounts. Notifies insurance agent and accounting department of policy cancellation. Calculates premiums, refunds, commissions, adjustments, and new reserve requirements, using insurance rate standards. Examines letters from policyholders or agents, original insurance applications, and other company documents to determine if changes are needed and effects of changes. Compares information from application to criteria for policy reinstatement and approves reinstatement when criteria are met.

**43-9051.01 Mail Machine Operators, Preparation and Handling Entry – Mid level position assuming education and experience prerequisite**

Inserts material for printing or addressing into loading rack on machine. Operates embossing machine or typewriter to make corrections, additions, and changes on address plates. Selects type of die size. Changes machine ribbon. Adjusts machine guides, rollers, and card insert prior to starting machine. Reads production order to determine type and size of items scheduled for printing and mailing. Places folded sheets into envelopes preparatory to mailing. Positions plates, stencils, or tapes in machine magazine. Makes adjustments to machine and inspects output for defects. Observes machine operation to detect evidence of malfunctions during production run. Checks ink level, adds ink, and fills paste reservoir. Removes printed material from machine, such as labeled articles, postmarked envelopes or tape, and folded sheets. Starts machine.

**43-9051.02 Mail Clerks, Except Mail Machine Operators and Postal Service Entry – Mid level position assuming education and experience prerequisite**

Sorts letters or packages into sacks or bins, and places identifying tag on sack or bin, according to destination and type. Stamps date and time of receipt of incoming mail, and distributes and collects mail. Seals or opens envelopes by hand or machine. Affixes postage to packages or letter by hand, or stamps with postage meter, and dispatches mail. Records and maintains records of information such as charges and destination of insured, registered or c.o.d. packages. Weighs packages or letters, computes charges, and accepts payment, using weight scale and rate chart. Addresses packages or letters by hand, or using addressing machine, label, or stamp. Releases packages or letters to customer upon presentation of written notice or other identification. Stacks bundles of bulk printed matter for shipment, and loads and unloads from trucks and conveyors. Answers inquiries regarding shipping or mailing policies. Receives request for merchandise samples or promotional literature, prepares shipping slips, and mails samples or literature. Inspects wrapping, address, and appearance of outgoing package or letter for conformance to standards, and accuracy. Wraps packages or bundles by hand or using tying machine.

**43-9061.00 Office Clerks, General Entry – Mid level position assuming education and experience prerequisite**

Compiles, copies, sorts, and files records of office activities, business transactions, and other activities. Operates office machines, such as photocopier, telecopier, and personal computer. Stuffs envelopes and addresses, stamps, sorts, and distributes mail, packages, and other materials. Orders materials, supplies, and services, and completes records and reports. Transcribes dictation and composes and types letters and other correspondence, using typewriter or computer. Communicates with customers, employees, and other individuals to disseminate or explain information. Collects, counts, and disburses money, completes banking transactions, and processes payroll. Completes work schedules and arranges appointments for staff and students. Reviews files, records, and other documents to obtain information to respond to requests. Answers telephone, responds to requests, delivers messages, and runs errands. Completes and mails bills, contracts, policies, invoices, or checks. Computes, records, and proofreads data and other information, such as records or reports.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **43-9111.00 Statistical Assistants Entry – Mid level position assuming education and experience prerequisite**

Compiles statistics from source materials, such as production, sales, and personnel records, surveys, and questionnaires. Verifies completeness and accuracy of source data. Posts and files charts. Prepares reports and graphs to show comparisons or survey results of statistical information obtained. Computes statistical data according to formulas, using computer or calculator. Assembles and classifies statistics, following prescribed procedures Operates computer to enter and retrieve data and prepare correspondence and reports.

### **45-2011.00 Agricultural Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects facilities and equipment for adequacy, sanitation, and compliance with regulations. Examines, weighs, and measures commodities such as poultry, eggs, meat, and seafood to certify wholesomeness, grade, and weight. Writes reports of findings and recommendations and advises farmer, grower, or processor of corrective action to be taken. Advises farmers and growers of development programs or new equipment and techniques to aid in quality production, applying agricultural knowledge. Testifies in legal proceedings. Collects sample of pests or suspected diseased animals or materials and routes to laboratory for identification and analysis. Inspects livestock to determine effectiveness of medication and feeding programs. Inspects horticultural products or livestock to detect harmful disease, infestation or growth rate.

### **45-2041.00 Graders and Sorters, Agricultural Products Entry – Mid level position assuming education and experience prerequisite**

Grades and sorts products, according to factors, such as color, length, width, appearance, feel, and smell. Weighs and places products in containers, according to grade and marks grade on containers. Segregates products on conveyor belt or table, according to grade, color, size, fiber quality, species, deformities, and sex. Estimates weight of product visually and by feel. Examines product fibers through microscope to determine maturity and spirality of fibers. Discards inferior or defective products and foreign matter and places acceptable products in containers for further processing. Pulls product sample apart between fingers to determine fiber quality. Records grade on tag or shipping, receiving, or sales sheet.

### **45-4023.00 Log Graders and Scalers Entry – Mid level position assuming education and experience prerequisite**

Estimates and calculates total volume, waste volume, and marketable volume of log using measurements and conversion table, and records results. Tends conveyor chain to move logs to and from scaling station. Weighs log trucks before and after unloading and records weight and identity of supplier. Measures wood to determine dimensions or quantity using measuring device and conversion table. Jabs log with scale stick and inspects log for defects and to ascertain characteristics. Paints mark on logs to identify grade and species or calls out grade. Evaluates log's characteristics and determines grade using established criteria.

### **47-2011.00 Boilermakers Entry – Mid – Senior level position assuming education and experience prerequisite**

Positions, aligns, and secures structural parts and related assemblies of pressure vessels, using plumb bobs, levels, wedges and turnbuckles. Installs manholes, handholes, valves, gauges, and feedwater connections in drums of water tube boilers using hand tools. Repairs or replaces defective pressure vessel parts, using torchjacks, caulking hammers, power saw, threading die, and welding equipment. Shapes seams, joints, and irregular edges of pressure vessel sections and structural parts to attain specified fit, using cutting torch, files, and power grinder. Studies blueprints to determine location, relationship and dimensions of parts, to assemble pressure vessels, such as boilers, tanks and vats. Installs refractory brick and other heat resistant materials in firebox of pressure vessel. Locates and marks reference points for columns or plates on foundation, using master straightedge, square, transit and measuring instruments. Attaches rigging and signals crane operator to lift pressure vessel parts to specified position. Cleans pressure vessel equipment, using scrapers, wire brush and cleaning solvent. Fabricates parts, such as stacks, uptakes, and chutes, to adapt pressure vessel to premises. Repairs insulation of pressure vessel with cement. Maintains and repairs stationary steam boilers and boiler house auxiliaries, using hand tools and power tools. Inspects assembled vessels for faulty accessories and pressure tests for leakage. Bells, beads with power hammer, or welds pressure vessel tube ends to ensure leak proof joints. Straightens or reshapes bent pressure vessel plates and structure parts, using hammer, jacks, and torch. Bolts or arc-welds pressure vessel structures and parts together, using wrenches and welding equipment.

### **47-2021.00 Brickmasons and Blockmasons Entry – Mid – Senior level position assuming education and experience prerequisite**

Lays and aligns bricks, blocks, or tiles to build or repair structures or high temperature equipment, such as cupola, kilns, ovens, or furnaces. Applies and smooths mortar or other mixture over work surface and removes excess, using trowel and hand tools. Measures distance from reference points and marks guidelines to lay out work, using plumb bobs and levels.

Examines brickwork or structure to determine need for repair. Fastens or fuses brick or other building material to structure with wire clamps, anchor holes, torch, or cement. Cleans working surface to remove scale, dust, soot, or chips of brick and mortar, using broom, wire brush, or scrapper. Sprays or spreads refractory material over brickwork to protect against deterioration. Removes burned or damaged brick or mortar, using sledgehammer, crowbar, chipping gun, or chisel. Breaks or cuts bricks, tiles, or blocks to size, using edge of trowel, hammer, or power saw. Mixes specified amount of sand, clay, dirt, or mortar powder with water to form refractory mixture. Calculates angles and courses and determines vertical and horizontal alignment of courses.

**47-2022.00 Stonemasons Entry – Mid – Senior level position assuming education and experience prerequisite**

Shapes, trims, faces and cuts marble or stone preparatory to setting, using power saws, cutting equipment, and hand tools. Lays out wall pattern or foundation of monument, using straight edge, rule, or staked lines. Finishes joints between stones, using trowel. Smooths, polishes, and bevels surfaces, using hand tools and power tools. Positions mold along guidelines of wall, presses mold in place, and removes mold and paper from wall. Removes sections of monument from truck bed, and guides stone onto foundation, using skids, hoist, or truck crane. Repairs cracked or chipped areas of ornamental stone or marble surface, using blowtorch and mastic. Digs trench for foundation of monument, using pick and shovel. Drills holes in marble or ornamental stone and anchors bracket. Lines interiors of molds with treated paper and fills molds with composition-stone mixture. Cleans excess mortar or grout from surface of marble, stone, or monument, using sponge, brush, water, or acid. Mixes mortar or grout and pours or spreads mortar or grout on marble slabs, stone, or foundation. Aligns and levels stone or marble, using measuring devices, such as rule, square, and plumb line. Sets stone or marble in place, according to layout or pattern.

**47-2031.01 Construction Carpenters Entry – Mid – Senior level position assuming education and experience prerequisite**

Shapes or cuts materials to specified measurements, using hand tools, machines, or power saw. Assembles and fastens materials, using hand tools and wood screws, nails, dowel pins, or glue, to make framework or props. Installs structures and fixtures, such as windows, frames, floorings, and trim, or hardware, using carpenter's hand and power tools. Builds or repairs cabinets, doors, frameworks, floors, and other wooden fixtures used in buildings, using woodworking machines, carpenter's hand tools, and power tools. Fills cracks and other defects in plaster or plasterboard and sands patch, using patching plaster, trowel, and sanding tool. Removes damaged or defective parts or sections of structure and repairs or replaces, using hand tools. Verifies trueness of structure, using plumb bob and level. Prepares layout according to blueprint or oral instructions, using rule, framing square, and calipers. Estimates amount and kind of lumber or other materials required, and selects and orders them. Inspects ceiling or floor tile, wall coverings, siding, glass, or woodwork to detect broken or damaged structures. Studies specifications in blueprints, sketches, or building plans to determine materials required and dimensions of structure to be fabricated. Measures and marks cutting lines on materials, using ruler, pencil, chalk, and marking gauge. Finishes surfaces of woodworking or wallboard in houses and buildings, using paint, hand tools, and paneling.

**47-2031.03 Carpenter Assemblers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Measures and marks location of studs, leaders, and receptacle openings, using tape measure, template, and marker. Installs prefabricated windows and doors, insulation, wall, ceiling and floor panels or siding, using adhesives, hoists, hand tools, and power tools. Removes surface defects, using knife, scraper, wet sponge, electric iron, and sanding tools. Trims overlapping edges of wood, weatherboard, using portable router or power saw, and hand tools. Applies stain, paint or crayons to defects and filter to touch up the repaired area. Directs crane operator in positioning floor, wall, ceiling, and roof panel on house foundation. Moves panel or roof section to other workstations or to storage or shipping area, using electric hoist. Studies blueprints, specification sheets, and drawings to determine style and type of window or wall panel required. Fills cracks, seams, depressions, and nail holes with filler. Examines wood surfaces for defects, such as nicks, cracks, or blisters. Measures cut materials to determine conformance to specifications, using tape measure. Realigns windows and screens to fit casements and oils moving parts. Repairs or replaces defective locks, hinges, cranks, and pieces of wood, using glue, hand tools, and power tools. Lays out and aligns materials on worktable or in assembly jig according to specified instructions. Cuts sidings and moldings, sections of weatherboard, openings in sheetrock, and lumber, using hand tools and power tools. Aligns and fastens materials together, using hand tools and power tools, to form building or bracing.

**47-2031.04 Ship Carpenters and Joiners Entry – Mid – Senior level position assuming education and experience prerequisite**

Reads blueprints to determine dimensions of furnishings in ships or boats. Assembles and installs hardware, gaskets, floors, furnishings, or insulation, using adhesive, hand tools, and power tools. Cuts wood or glass to specified dimensions,



using hand tools and power tools. Shapes irregular parts and trims excess material from bulkhead and furnishings to ensure fit meets specifications. Constructs floors, doors, and partitions, using woodworking machines, hand tools, and power tools. Greases gears and other moving parts of machines on ship. Transfers dimensions or measurements of wood parts or bulkhead on plywood, using measuring instruments and marking devices. Repairs structural woodwork and replaces defective parts and equipment, using hand tools and power tools. Shapes and laminates wood to form parts of ship, using steam chambers, clamps, glue, and jigs.

**47-2031.05 Boat Builders and Shipwrights Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts and forms parts, such as keel, ribs, sidings, and support structures and blocks, using woodworking hand tools and power tools. Attaches metal parts, such as fittings, plates, and bulkheads, to ship, using brace and bits, augers, and wrenches. Smooths and finishes ship surfaces, using power sander, broadax, adz, and paint, and waxes and buffs surface to specified finish. Measures and marks dimensional lines on lumber, following template and using scribe. Establishes dimensional reference points on layout and hull to make template of parts and locate machinery and equipment. Consults with customer or supervisor and reads blueprint to determine necessary repairs. Attaches hoist to sections of hull, and directs hoist operator to align parts over blocks, according to layout of boat. Marks outline of boat on building dock, shipway, or mold loft according to blueprint specifications, using measuring instruments and crayon. Inspects boat to determine location and extent of defect. Positions and secures support structures on construction area. Cuts out defect, using power tools and hand tools, and fits and secures replacement part, using caulking gun, adhesive, or hand tools. Assembles and installs hull timbers and other structures in ship, using adhesive, measuring instruments, and hand tools or power tools. Constructs and shapes wooden frames, structures, and other parts according to blueprint specifications, using hand tools, power tools, and measuring instruments.

**47-2031.06 Brattice Builders Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs rigid and flexible air ducts to transport air to work areas. Erects partitions to support roof in areas unsuited to timbering or bolting. Drills and blasts obstructing boulders to reopen ventilation shafts.

**47-2044.00 Tile and Marble Setters Entry – Mid – Senior level position assuming education and experience prerequisite**

Positions and presses or taps tile with trowel handle to affix tile to plaster or adhesive base. Cuts and shapes tile, using tile cutters and biters. Measures and cuts metal lath to size for walls and ceilings, using tin snips. Wipes grout between tiles and removes excess, using wet sponge. Brushes glue onto manila paper on which design has been drawn and positions tile's finished side down onto paper. Mixes and applies mortar or cement to edges and ends of drain tiles to seal halves and joints. Installs and anchors fixtures in designated position, using hand tools. Tacks lath to wall and ceiling surfaces, using staple gun or hammer. Selects tile and other items to be installed, such as bathroom accessories, walls, panels, and cabinets, according to specifications. Measures and marks surfaces to be tiled and lays out work, following blueprints. Spreads plaster or concrete over surface to form tile base and levels to specified thickness, using brush, trowel and screed. Cuts tile backing to required size, using shears. Spreads mastic or other adhesive base on roof deck to form base for promenade tile, using serrated spreader.

**47-2061.00 Construction Laborers Entry – Mid level position assuming education and experience prerequisite**

Tends pumps, compressors, and generators to provide power for tools, machinery, and equipment or to heat and move materials such as asphalt. Positions, joins, aligns, and seals structural components, such as concrete wall sections and pipes. Digs ditches and levels earth to grade specifications, using pick and shovel. Signals equipment operators to facilitate alignment, movement, and adjustment of machinery, equipment, and materials. Builds and positions forms for pouring concrete and dismantles forms after use, using saws, hammers, nails, or bolts. Grinds, scrapes, sands, or polishes surfaces, such as concrete, marble, terrazzo, or wood flooring, using abrasive tools or machines. Erects and disassembles scaffolding, shoring, braces, and other temporary structures. Mixes concrete, using portable mixer. Loads and unloads trucks and hauls and hoists materials. Measures, marks, and records openings and distances to lay out area to be graded or to erect building structures. Smooth and finishes freshly poured cement or concrete, using float, trowel, screed, or powered cement finishing tool. Applies caulking compounds by hand or with caulking gun to seal crevices. Tends machine that pumps concrete, grout, cement, sand, plaster or stucco through spray gun for application to ceilings and walls. Lubricates, cleans, and repairs machinery, equipment, and tools. Sprays materials such as water, sand, steam, vinyl, paint, or stucco through hose to clean, coat, or seal surfaces. Razes buildings and salvages useful materials. Mixes ingredients to create compounds, used to cover or clean surfaces. Cleans construction site to eliminate possible hazards. Mops, brushes, or spreads paints, cleaning solutions or other compounds over surfaces to clean or provide protection.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **47-2142.00 Paperhangers Entry – Mid – Senior level position assuming education and experience prerequisite**

Applies thinned glue to waterproof porous surfaces, using brush, roller, or pasting machine. Trims rough edges from strips, using straightedge and trimming knife. Aligns and places strips or poster sections of billboard on surface to match adjacent edges. Trims excess material at ceiling or baseboard, using knife. Applies acetic acid to damp plaster to prevent lime from bleeding through paper. Measures walls and ceiling to compute number and length of strips required to cover surface. Fills holes and cracks with plaster, using trowel. Removes paint, varnish, and grease from surfaces, using paint remover and water soda solution. Removes old paper, using water, steam machine, or chemical remover and scraper. Erects and works from scaffold. Smooths rough spots on walls and ceilings, using sandpaper. Staples or tacks advertising posters onto fences, walls, or poles. Marks vertical guideline on wall to align first strip, using plumb bob and chalk line. Smooths strips or poster sections with brush or roller to remove wrinkles and bubbles and to smooth joints. Measures and cuts strips from roll of wallpaper or fabric, using shears or razor. Mixes paste, using paste-powder and water, and brushes paste onto surface.

### **47-2152.02 Plumbers Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs and maintains plumbing by replacing defective washers, replacing or mending broken pipes, and opening clogged drains. Fills pipes or plumbing fixtures with water or air and observes pressure gauges to detect and locate leaks. Directs workers engaged in pipe cutting and pre-assembly and installation of plumbing systems and components. Cuts, threads, and bends pipe to required angle, using pipe cutters, pipe threading machine, and pipe bending machine. Installs pipe assemblies, fittings, valves, and fixtures, such as sinks, toilets, and tubs, using hand and power tools. Studies building plans and inspects structure to determine required materials and equipment and sequence of pipe installations. Locates and marks position of pipe installations and passage holes in structures, using measuring instruments, such as ruler and level. Cuts opening in structures to accommodate pipe and pipe fittings using hand and power tools. Assembles pipe sections, tubing and fittings, using screws, bolts, solder, plastic solvent, and caulking.

### **47-2161.00 Plasterers and Stucco Masons Entry – Mid – Senior level position assuming education and experience prerequisite**

Applies coats of plaster or stucco to walls, ceilings, or partitions of buildings, using trowel, brush, or spray gun. Installs guide wires on exterior surface of buildings to indicate thickness of plaster or stucco. Molds and installs ornamental plaster pieces, panels, and trim. Directs workers to mix plaster to desired consistency and to erect scaffolds. Applies weatherproof, decorative covering to exterior surfaces of building. Mixes mortar to desired consistency and puts up scaffolds. Creates decorative textures in finish coat, using sand, pebbles, or stones.

### **47-2211.00 Sheet Metal Workers Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates fabricating machines, such as shears, brakes, presses, and routers, to cut, bend, block, and form materials. Welds, solders, bolts, rivets, screws, clips, caulks, or bonds component parts to assemble products, using hand tools, power tools, and equipment. Lays out and marks dimensions and reference lines on material, using scribes, dividers, squares, and rulers. Selects gauge and type of sheet metal or nonmetallic material, according to product specifications. Inspects assemblies and installation for conformance to specifications, using measuring instruments, such as calipers, scales, dial indicators, gauges, and micrometers. Determines sequence and methods of fabricating, assembling, and installing sheet metal products, using blueprints, sketches, or product specifications. Installs assemblies in supportive framework according to blueprints, using hand tools, power tools, and lifting and handling devices. Shapes metal material over anvil, block or other form, using hand tools. Trims, files, grinds, deburrs, buffs, and smooths surfaces, using hand tools and portable power tools.

### **47-4011.00 Construction and Building Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects bridges, dams, highways, building, wiring, plumbing, electrical circuits, sewer, heating system, and foundation for conformance to specifications and codes. Reviews and interprets plans, blueprints, specifications, and construction methods to ensure compliance to legal requirements. Measures dimensions and verifies level, alignment, and elevation of structures and fixtures to ensure compliance to building plans and codes. Approves and signs plans that meet required specifications. Records and notifies owners, violators, and authorities of violations of construction specifications and building codes. Issues violation notices, stop-work orders, and permits for construction and occupancy. Confers with owners, violators, and authorities to explain regulations and recommend alterations in construction or specifications. Reviews complaints, obtains evidence, and testifies in court that construction does not conform to code. Maintains daily logs, inventory, and inspection and construction records and prepares reports. Evaluates premises for cleanliness, including garbage disposal and lack of vermin infestation. Computes estimates of work completed and approves payment for contractors.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **49-2011.01 Automatic Teller Machine Servicers Entry – Mid level position assuming education and experience prerequisite**

Removes money canisters from ATM, and replenishes machine supplies, such as deposit envelopes, receipt paper, and cash. Counts cash and items deposited by customers, and compares to transactions indicated on transaction tape from ATM. Tests machine functions, and balances machine cash account, using electronic keypad. Corrects malfunctions, such as jammed cash or paper, or calls repair personnel when ATM needs repair. Records transaction information on form or log, and notifies designated personnel of discrepancies.

### **49-2011.02 Data Processing Equipment Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Replaces defective components and wiring. Tests faulty equipment and applies knowledge of functional operation of electronic units and systems to diagnose cause of malfunction. Adjusts mechanical parts, using hand tools and soldering iron. Maintains records of repairs, calibrations, and tests. Enters information into computer to copy program from one electronic component to another, or to draw, modify, or store schematics. Calibrates testing instruments.

### **49-2011.03 Office Machine and Cash Register Servicers Entry – Mid level position assuming education and experience prerequisite**

Tests machine to locate cause of electrical problems, using testing devices, such as voltmeter, ohmmeter, and circuit test equipment. Repairs, adjusts, or replaces electrical and mechanical components and parts, using hand tools, power tools, and soldering or welding equipment. Operates machine, such as typewriter, cash register, or adding machine to test functioning or parts and mechanisms. Disassembles machine and examines parts, such as wires, gears, and bearings for wear and defects, using hand tools, power tools, and measuring devices. Reads specifications, such as blueprints, charts, and schematics to determine machine settings and adjustments. Assembles and installs machine according to specifications, using hand tools, power tools, and measuring devices. Instructs operators and servicers in operation, maintenance, and repair of machine. Cleans and oils mechanical parts to maintain machine.

### **49-2021.00 Radio Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Locates defects, such as loose connections, broken wires, or burned out components, using schematic diagrams, test equipment, and inspection tags. Inspects wiring and soldering, and performs repairs, using soldering iron, wire cutters, pliers, and wiring diagram. Tests equipment for power output, frequency, and calibration, using oscilloscope, circuit analyzer, frequency meter, wattmeter, ammeter, and voltmeter. Replaces defective components, such as conductors, resistors, semiconductors, and integrated circuits, using soldering iron, wire cutters, and hand tools. Removes and replaces defective units that are not repairable. Installs, tests, adjusts, modifies, and repairs intercommunication systems. Tests emergency transmitter to ensure readiness for immediate use. Inserts plugs into receptacles and bolts or screws leads to terminals to connect equipment to power source, using hand tools. Adjusts receivers for maximum sensitivity and transmitters for maximum output, using frequency meter. Monitors radio range station to detect flaws in transmission and adjusts controls to eliminate flaws. Tests noise level and audio quality, using audiometer. Tests batteries with hydrometer and ammeter, and charges batteries.

### **49-2022.01 Central Office and PBX Installers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Tests circuits and components of malfunctioning telecommunication equipment to isolate source of malfunction, using test instruments and circuit diagrams. Analyzes test readings, computer printouts, and trouble reports to determine method of repair. Repairs or replaces defective components, such as switches, relays, amplifiers, and circuit boards, using hand tools and soldering iron. Tests and adjusts installed equipment to ensure circuit continuity and operational performance, using test instruments. Removes and remakes connections on wire distributing frame to change circuit layout, following diagrams. Routes cables and trunk lines from entry points to specified equipment, following diagrams. Enters codes to correct programming of electronic switching systems. Connects wires to equipment, using hand tools, soldering iron, or wire wrap gun. Installs preassembled or partially assembled switching equipment, switchboards, wiring frames, and power apparatus according to floor plans. Retests repaired equipment to ensure that malfunction has been corrected.

### **49-2022.02 Frame Wirers, Central Office Entry – Mid – Senior level position assuming education and experience prerequisite**

Solders connections, following diagram or oral instructions. Tests circuit connections, using voltmeter or ammeter. Lubricates moving switch parts. Assists in locating and correcting malfunction in wiring on distributing frame. Cleans

switches and replaces contact points, using vacuum hose, solvents, and hand tools. Strings distributing frames with connecting wires. Removes and remakes connections to change circuit layouts.

**49-2022.03 Communication Equipment Mechanics, Installers, and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Examines and tests malfunctioning equipment to determine defects, using blueprints and electrical measuring instruments. Assembles and installs communication equipment, such as data communication lines and equipment, computer systems, and antennas and towers, using hand tools. Tests installed equipment for conformance to specifications, using test equipment. Measures, cuts, splices, connects, solders, and installs wires and cables. Adjusts or modifies equipment in accordance with customer request or to enhance performance of equipment. Plans layout and installation of data communications equipment. Measures distance from landmarks to identify exact installation site. Demonstrates equipment and instructs customer in use of equipment. Determines viability of site through observation, and discusses site location and construction requirements with customer. Digs holes or trenches. Answers customers' inquiries or complaints. Cleans and maintains tools, test equipment, and motor vehicles. Communicates with base, using telephone or two-way radio to receive instructions or technical advice, or to report unauthorized use of equipment. Climbs poles and ladders, constructs pole, roof mounts, or reinforcements and mixes concrete to enable equipment installation. Reviews work orders, building permits, manufacturer's instructions, and ordinances to move, change, install, repair, or remove communication equipment. Performs routine maintenance on equipment, which includes adjustment, repair, and painting. Evaluates quality of performance of installed equipment by observance and using test equipment. Disassembles equipment to adjust, repair, or replace parts, using hand tools. Repairs, replaces, or adjusts defective components.

**49-2022.04 Telecommunications Facility Examiners Entry – Mid – Senior level position assuming education and experience prerequisite**

Examines telephone transmission facilities to determine requirements for new or additional telephone services. Visits subscribers' premises to arrange for new installations, such as telephone booths and telephone poles. Climbs telephone poles or stands on truck-mounted boom to examine terminal boxes for available connections. Designates cables available for use.

**49-2022.05 Station Installers and Repairers, Telephone Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs communication equipment, such as intercommunication systems and related apparatus, using schematic diagrams, testing devices, and hand tools. Climbs poles to install or repair outside service lines. Operates and tests equipment to ensure elimination of malfunction. Assembles telephone equipment, mounts brackets, and connects wire leads, using hand tools and following installation diagrams or work order. Repairs cables, lays out plans for new equipment, and estimates material required. Analyzes equipment operation, using testing devices to locate and diagnose nature of malfunction and ascertain needed repairs. Disassembles components and replaces, cleans, adjusts and repairs parts, wires, switches, relays, circuits, or signaling units, using hand tools.

**49-2091.00 Avionics Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Assembles components, such as switches, electrical controls, and junction boxes, using hand tools and soldering iron. Lays out installation of assemblies and systems in aircraft, according to blueprints and wiring diagrams, using scribe, scale, and protractor. Sets up and operates ground support and test equipment to perform functional flight test of electrical and electronic systems. Fabricates parts and test aids as required. Interprets flight test data to diagnose malfunctions and systemic performance problems. Installs electrical and electronic components, assemblies, and systems in aircraft, using hand tools, power tools, and soldering iron. Adjusts, repairs, or replaces malfunctioning components or assemblies, using hand tools and soldering iron. Connects components to assemblies, such as radio systems, instruments, magnetos, inverters, and in-flight refueling systems, using hand tools and soldering iron. Tests components or assemblies, using circuit tester, oscilloscope, and voltmeter.

**49-2092.01 Electric Home Appliance and Power Tool Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Disassembles appliance to examine specific mechanical and electrical parts to diagnose problem. Instructs customer regarding operation and care of appliance and provides emergency service number. Traces electrical circuits, following diagram, to locate shorts and grounds, using electrical circuit testers. Measures and performs minor carpentry procedures

to area where appliance is to be installed. Records nature of maintenance or repair in log and returns to business office for further assignments. Maintains stock of parts used in on-site installation, maintenance, and repair of appliance. Cleans, lubricates, and touched up minor scratches on newly installed or repaired appliance. Replaces worn and defective parts, such as switches, bearings, transmissions, belts, gears, circuit boards, or defective wiring. Reassembles unit, making necessary adjustments to ensure efficient operation. Connects appliance to power source and uses test instruments to calibrate timers and thermostats and to adjust contact points. Observes and examines appliance during operation to detect specific malfunction, such as loose parts or leaking fluid.

**49-2092.02 Electric Motor and Switch Assemblers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Assembles electrical parts, such as alternators, generators, starting devices, and switches, following schematic drawings, using hand, machine, and power tools. Repairs and rebuilds defective mechanical parts in electric motors, generators, and related equipment, using hand tools and power tools. Tests for overheating, using speed gauges and thermometers. Replaces defective parts, such as coil leads, carbon brushes, and connecting wires, using soldering equipment. Rewires electrical systems and repairs or replaces electrical accessories. Disassembles defective unit, using hand tools. Cuts and removes parts, such as defective coils and insulation. Tests charges and replaces batteries. Adjusts working parts, such as fan belt tension, voltage output, contacts and springs, using hand tools, and verifies corrections, using gauges. Lifts units or parts, such as motors or generators, using crane or chain hoist. Scrapes and cleans units or parts, using cleaning solvent, and lubricates moving parts. Records repairs required, parts used, and labor time. Re-faces, reams, and polishes commutators and machine parts to specified tolerances, using machine tools. Cuts and forms insulation and inserts insulation into armature, rotor, or stator slots. Inspects parts for wear or damage, or reads work order or schematic drawings to determine required repairs. Measures velocity, horsepower, r.p.m., amperage, circuitry, and voltage of unit or parts, using electrical meters and mechanical testing devices. Reassembles repaired electric motors to specified requirements and ratings, using hand tools and electrical meters. Installs, secures, and aligns parts, using hand tools, welding equipment, and electrical meters. Rewinds coils on core while core is in slots, or makes replacement coils, using coil-winding machine.

**49-2092.03 Battery Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Inspects electrical connections, wiring charging relays, charging resistance box, and storage batteries, following wiring diagram. Removes and disassembles cells and cathode assembly, using tension handles, pry bars, and hoist, and cuts wires to faulty cells. Connects battery-to-battery charger and adjusts rheostat to start flow of electricity into battery. Repairs or adjusts defective parts, using hand tools, or power tools. Disconnects electrical leads and removes battery, using hand tools and hoist. Installs recharged or repaired battery or cells, using hand tools. Cleans cells, cell assemblies, glassware, leads, electrical connections, and battery poles, using scraper, steam, water, emery cloth, power grinder, or acid. Fabricates and assembles electrolytic cell parts for storage batteries. Compiles operating and maintenance records. Seals joints with putty, mortar, and asbestos, using putty extruder and knife. Repairs battery charging equipment. Measures cathode blade and anode, using ruler, and rate of mercury flow, using stopwatch. Secures cell on rocker mechanism or attaches assemblies, using bolts or cement. Positions and levels, or signals worker to position and level, cell, anode, or cathode, using hoist and leveling jacks. Adds water and acid to battery cells to obtain specified concentration. Replaces defective parts, such as cell plates, fuses, lead parts, switches, wires, anodes, cathodes, and rheostat. Tests condition, fluid level, and specific gravity of electrolyte cells, using voltmeter, hydrometer, and thermometer. Inspects battery for defects, such as dented cans, damaged carbon rods and terminals, and defective seals.

**49-2092.04 Transformer Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Replaces worn or defective parts, using hand tools. Inspects transformer for defects, such as cracked weldments. Signals crane operator to raise heavy transformer component subassemblies. Secures input and output wires in position. Winds replacement coils, using coil-winding machine. Dismantles lamination assembly, preparatory to cleaning and inspection. Fills reassembled transformer with oil until coils are submerged. Drains and filters transformer oil. Disassembles distribution, streetlight, or instrument transformers.

**49-2092.05 Electrical Parts Reconditioners Entry – Mid – Senior level position assuming education and experience prerequisite**

Solders, wraps, and coats wires to ensure proper insulation. Inserts and hammers ready-made coils in place. Bolts porcelain insulators to wood parts to assemble hot stools. Cleans and polishes parts, using solvent and buffing wheel. Tests armatures and motors to ensure proper operation. Solders ends of coils to commutator segments.

Disassembles salvaged equipment used in electric power systems, such as air circuit breakers and lightning arresters, using hand tools, and discards non-repairable parts. Replaces broken and defective parts. Cuts insulating material to fit slots on armature core, and places material in bottom of core slots. Winds new coils on armatures of generators and motors.

**49-2092.06 Hand and Portable Power Tool Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs or replaces tools and defective parts, such as handles, vises, pliers, or metal buckets, using soldering tool, gas torch, power tools, or hand tools. Cleans polishing and buffing wheels, using steam cleaning machine, to remove abrasives and bonding materials and salvages cloth from wheel. Sprays, brushes, or recoats surface of polishing wheel and places it in oven to dry. Maintains stock of parts. Records nature and extent of repairs performed. Examines and tests tools to determine defects or cause of malfunction, using hand and power tools, observation, and experience. Disassembles and reassembles tools, using hand tools, power tools, or arbor press. Verifies and adjusts alignment and dimensions of parts, using gauges and tracing lathe. Sharpens tools, such as picks, shovels, screwdrivers, and scoops, using bench grinder and emery wheel.

**49-2093.00 Electrical and Electronics Installers and Repairers, Transportation Equipment Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts, repairs, or replaces defective wiring and relays in ignition, lighting, air-conditioning, and safety control systems, using electrician's tools. Cuts openings and drills holes for fixtures, outlet boxes, and fuse holders, using electric drill and router. Visually inspects and tests electrical system or equipment, using testing devices such as oscilloscope, voltmeter, and ammeter, to determine malfunctions. Estimates cost of repairs based on parts and labor charges. Confers with customer to determine nature of malfunction. Repairs or rebuilds starters, generators, distributors, or door controls using electrician's tools. Installs fixtures, outlets, terminal boards, switches, and wall boxes using hand tools. Measures, cuts, and installs framework and conduit to support and connect wiring, control panels, and junction boxes using hand tools. Splices wires with knife or cutting pliers, and solders connections to fixtures, outlets, and equipment. Installs electrical equipment, such as air-conditioning, heating, or ignition systems, generator brushes, and commutators using hand tools.

**49-2094.00 Electrical and Electronics Repairers, Commercial and Industrial Equipment Entry – Mid – Senior level position assuming education and experience prerequisite**

Analyzes technical requirements of customer desiring to utilize electronic equipment, and performs installation and maintenance duties. Inspects components of equipment for defects, such as loose connections and frayed wire, and for accuracy of assembly and installation. Tests faulty equipment, using test equipment and applying knowledge of functional operation of electronic unit and systems, to diagnose malfunction. Advises management regarding customer satisfaction, product performance, and suggestions for product improvements. Signs overhaul documents for equipment replaced or repaired. Consults with customer, supervisor, and engineers to plan layout of equipment and to resolve problems in system operation and maintenance. Enters information into computer to copy program or to draw, modify, or store schematics, applying knowledge of software package used. Maintains records of repairs, calibrations, and tests. Converses with equipment operators to ascertain whether mechanical or human error contributed to equipment breakdown. Studies blueprints, schematics, manuals, and other specifications to determine installation procedures. Operates equipment to demonstrate use of equipment and to analyze malfunctions. Determines feasibility of using standardized equipment, and develops specifications for equipment required to perform additional functions. Replaces or repairs defective components, using hand tools and technical documents. Adjusts defective components, using hand tools and technical documents. Installs equipment in industrial or military establishments and in aircraft and missiles. Calibrates testing instruments and installed or repaired equipment to prescribed specifications.

**49-2095.00 Electrical and Electronics Repairers, Powerhouse, Substation, and Relay Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs, replaces, and cleans equipment, such as brushes, commutators, windings, bearings, relays, switches, controls, and instruments. Disconnects voltage regulators, bolts, and screws, and connects replacement regulators to high-voltage lines. Prepares reports of work performed. Analyzes test data to diagnose malfunctions and evaluate effect of system modifications. Paints, repairs, and maintains buildings and sets forms and pours concrete footings for installation of heavy equipment. Notifies personnel of need for equipment shutdown requiring changes from normal operation to maintain service. Tests insulators and bushings of equipment by inducing voltage across insulation, using testing apparatus, and calculating insulation loss. Repairs or rebuilds circuit breakers, transformers, and lightning arresters by replacing worn parts. Inspects and tests equipment and circuits to identify malfunction or defect, using wiring diagrams and testing devices such as ohmmeters, voltmeters, or ammeters. Tests oil in circuit breakers and transformers for dielectric strength

and periodically refills.

**49-2096.00 Electronic Equipment Installers and Repairers, Motor Vehicles Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts, repairs, or replaces defective wiring and relays in ignition, lighting, air-conditioning, and safety control systems, using electrician's tools. Estimates cost of repairs based on parts and labor charges. Confers with customer to determine nature of malfunction. Cuts openings and drills holes for fixtures, outlet boxes, and fuse holders, using electric drill and router. Installs electrical equipment, such as air-conditioning, heating, or ignition systems, generator brushes, and commutators, using hand tools. Installs fixtures, outlets, terminal boards, switches, and wall boxes, using hand tools. Measures, cuts, and installs framework and conduit to support and connect wiring, control panels, and junction boxes, using hand tools. Visually inspects and tests electrical system or equipment, using testing devices such as oscilloscope, voltmeter, and ammeter, to determine malfunctions. Splices wires with knife or cutting pliers, and solders connections to fixtures, outlets, and equipment. Repairs or rebuilds starters, generators, distributors, or door controls, using electrician's tools.

**49-2097.00 Electronic Home Entertainment Equipment Installers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Disassembles equipment and repairs or replaces loose, worn, or defective components and wiring, using hand tools and soldering iron. Positions or mounts speakers and wires speakers to console. Computes cost estimates for labor and materials. Analyzes and tests products and parts to locate defects or source of trouble. Confers with customers to determine nature of problem or to explain repairs. Makes service calls and repairs units in customers' homes or returns unit to shop for major repair. Installs electronic equipment or instruments, such as televisions, radios, audio-visual equipment, and organs, using hand tools. Tests circuits, using schematic diagrams, service manuals, and testing instruments such as voltmeters, oscilloscopes, and audiogenerators. Tunes or adjusts equipment and instruments, according to specifications, to obtain optimum visual or auditory reception.

**49-2098.00 Security and Fire Alarm Systems Installers Entry – Mid – Senior level position assuming education and experience prerequisite**

Install, program, maintain, and repair security and fire alarm wiring and equipment. Ensure that work is in accordance with relevant codes.

**49-3011.01 Airframe-and-Power-Plant Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts, aligns, and calibrates aircraft systems, using hand tools, gauges, and test equipment. Examines and inspects engines or other components for cracks, breaks, or leaks. Disassembles and inspects parts for wear, warping, or other defects. Tests engine and system operations, using testing equipment, and listens to engine sounds to detect and diagnose malfunctions. Assembles and installs electrical, plumbing, mechanical, hydraulic, and structural components and accessories, using hand tools and power tools. Reads and interprets aircraft maintenance manuals and specifications to determine feasibility and method of repairing or replacing malfunctioning or damaged components. Modifies aircraft structures, space vehicles, systems, or components, following drawings, engineering orders and technical publications. Removes engine from aircraft or installs engine, using hoist or forklift truck. Services and maintains aircraft systems by performing tasks, such as flushing crankcase, cleaning screens, greasing moving parts, and checking brakes. Repairs, replaces, and rebuilds aircraft structures, functional components, and parts, such as wings and fuselage, rigging, and hydraulic units.

**49-3011.02 Aircraft Engine Specialists Mid – Senior level position assuming education and experience prerequisite**

Replaces or repairs worn, defective, or damaged components, using hand tools, gauges, and testing equipment. Disassembles and inspects engine parts, such as turbine blades and cylinders, for wear, warping, cracks, and leaks. Reassembles engine and installs engine in aircraft. Tests engine operation, using test equipment such as ignition analyzer, compression checker, distributor timer, and ammeter, to identify malfunction. Services and maintains aircraft and related apparatus by performing activities, such as flushing crankcase, cleaning screens, and lubricating moving parts. Adjusts, repairs, or replaces electrical wiring system and aircraft accessories. Services, repairs, and rebuilds aircraft structures, such as wings, fuselage, rigging, and surface and hydraulic controls, using hand or power tools and equipment. Reads and interprets manufacturers' maintenance manuals, service bulletins, and other specifications to determine feasibility and methods of repair. Removes engine from aircraft, using hoist or forklift truck. Listens to operating engine to detect and diagnose malfunctions, such as sticking or burned valves.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **49-3011.03 Aircraft Body and Bonded Structure Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Reinstalls repaired or replacement parts for subsequent riveting or welding, using clamps and wrenches. Trims and shapes replacement section to specified size and fits and secures section in place, using adhesives, hand tools, and power tools. Locates and marks dimension and reference lines on defective or replacement part, using templates, scribes, compass, and steel rule. Communicates with other workers to fit and align heavy parts or expedite processing of repair parts. Cures bonded structure, using portable or stationary curing equipment. Spreads plastic film over area to be repaired to prevent damage to surrounding area. Cleans, strips, primes, and sands structural surfaces and materials prior to bonding. Removes or cuts out defective part or drills holes to gain access to internal defect or damage, using drill and punch. Reads work orders, blueprints, and specifications or examines sample or damaged part or structure to determine repair or fabrication procedures and sequence of operations. Repairs or fabricates defective section or part, using metal fabricating machines, saws, brakes, shears, and grinders.

### **49-3021.00 Automotive Body and Related Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Positions dolly block against surface of dented area and beats opposite surface to remove dents, using hammer. Straightens bent automobile or other vehicle frames, using pneumatic frame-straightening machine. Fills depressions with body filler and files, grinds, and sands repaired surfaces, using power tools and hand tools. Paints and sands repaired surface, using paint spray gun and motorized sander. Measures and marks vinyl material and cuts material to size for roof installation, using rule, straightedge, and hand shears. Soaks fiberglass matting in resin mixture and applies layers matting over repair area to specified thickness. Peels separating film from repair area and washes repaired surface with water. Cuts and tapes plastic separating film to outside repair area to avoid damaging surrounding surfaces during repair procedure. Reads specifications or confers with customer to determine custom modifications to alter appearance of vehicle. Removes upholstery, accessories, electrical window-and-seat-operating equipment, and trim to gain access to vehicle body and fenders. Cleans work area, using air hose to remove damaged material and to remove discarded fiberglass strips used in repair procedures. Adjusts or aligns headlights, wheels, and brake system. Examines vehicle to determine extent and type of damage. Mixes polyester resin and hardener to be used in restoring damaged area. Cuts away damaged fiberglass from automobile body, using air grinder. Removes damaged fenders and panels, using wrenches and cutting torch, and installs replacement parts, using wrenches or welding equipment. Fits and secures windows, vinyl roof, and metal trim to vehicle body, using caulking gun, adhesive brush, and mallet. Cuts opening in vehicle body for installation of customized windows, using templates, and power shears or chisel.

### **49-3022.00 Automotive Glass Installers and Repairers Entry – Mid level position assuming education and experience prerequisite**

Installs precut replacement glass to replace curved or custom-shaped windows. Removes broken or damaged glass windshield or window-glass from motor vehicles, using hand tools to remove screws from frame holding glass. Applies moisture-proofing compound along glass edges and installs glass into windshield- or glass-frame in door or side panel of vehicle. Installs rubber-channeling strip around edge of glass or frame to weatherproof or to prevent rattling. Replaces or adjusts motorized or manual window-raising mechanisms. Obtains windshield for specific automobile make and model from stock and examines for defects prior to installation. Holds cut or uneven edge of glass against automated abrasive belt to shape or smooth edges. Cuts flat safety glass according to specified pattern, using glasscutter.

### **49-3023.01 Automotive Master Mechanics Mid – Senior level position assuming education and experience prerequisite**

Repairs and overhauls defective automotive units, such as engines, transmissions, or differentials. Repairs or replaces parts, such as pistons, rods, gears, valves, and bearings. Overhauls or replaces carburetors, blowers, generators, distributors, starts, and pumps. Repairs manual and automatic transmissions. Installs and repairs accessories, such as radios, heaters, mirrors, and windshield wipers. Replaces and adjusts headlights. Aligns front end. Repairs damaged automobile bodies. Rebuilds parts, such as crankshafts and cylinder blocks. Examines vehicles and discusses extent of damage or malfunction with customer. Repairs radiator leaks. Repairs or replaces shock absorbers. Rewires ignition system, lights, and instrument panel. Repairs, relines, replaces, and adjusts brakes.

### **49-3023.02 Automotive Specialty Technicians Entry – Mid level position assuming education and experience prerequisite**

Repairs, installs, and adjusts hydraulic and electromagnetic automatic lift mechanisms used to raise and lower automobile windows, seats, and tops. Rebuilds, repairs, and tests automotive injection units. Aligns and repairs wheels, axles, frames, torsion bars, and steering mechanisms of automobiles. Converts vehicle fuel systems from gasoline to butane gas operations and repairs and services operating butane fuel units. Examines vehicle, compiles estimate of repair costs, and



secures customer approval to perform repairs. Tunes automobile engines and tests electronic computer components. Inspects, tests, repairs, and replaces automotive cooling systems and fuel tanks. Inspects and tests new vehicles for damage, records findings, and makes repairs. Repairs and replaces defective ball joint suspension, brake shoes, and wheel bearings. Repairs, replaces, and adjusts defective carburetor parts and gasoline filters. Installs and repairs automotive air-conditioning units. Removes and replaces defective mufflers and tailpipes from automobiles. Repairs and aligns defective wheels of automobiles. Repairs, overhauls, and adjusts automobile brake systems. Repairs and rebuilds clutch systems. Repairs and replaces automobile leaf springs.

**49-3031.00 Bus and Truck Mechanics and Diesel Engine Specialists Entry – Mid – Senior level position assuming education and experience prerequisite**

Inspects defective equipment and diagnoses malfunctions, using test instruments, such as motor analyzers, chassis charts, and pressure gauges. Reconditions and replaces parts, pistons, bearings, gears, and valves. Attaches test instruments to equipment and reads dials and gauges to diagnose malfunctions. Changes oil, checks batteries, repairs tires and tubes, and lubricates equipment and machinery. Adjusts brakes, aligns wheels, tightens bolts and screws, and reassembles equipment. Examines and adjusts protective guards, loose bolts, and specified safety devices. Operates valve-grinding machine to grind and reset valves. Reads job orders and observes and listens to operating equipment to ensure conformance to specifications or to determine malfunctions. Disassembles and overhauls internal combustion engines, pumps, generators, transmissions, clutches, and rear ends. Inspects and verifies dimensions and clearances of parts to ensure conformance to factory specifications. Inspects, repairs, and maintains automotive and mechanical equipment and machinery, such as pumps and compressors.

**49-3041.00 Farm Equipment Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs or replaces defective parts, using hand tools, milling and woodworking machines, lathes, welding equipment, grinders, or saws. Examines and listens to machines, motors, gas and diesel engines, and equipment to detect malfunctioning. Tests and replaces electrical components and wiring, using test meter, soldering equipment, and wire strippers. Records type and cause of defect on agricultural equipment. Drives truck to haul tools and equipment to work site. Fabricates new metal parts, using drill press, engine lathe, and other machine tools. Reads inspection reports and examines equipment to determine type and extent of defect. Reassembles, adjusts, and lubricates machines and equipment, using hand tools. Dismantles defective machines, using hand tools. Installs and repairs agricultural plumbing systems. Installs and maintains self-propelled irrigation system, using truck-mounted crane, wrenches, tube cutter, and pipe threader.

**49-3042.00 Mobile Heavy Equipment Mechanics, Except Engines Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs and replaces damaged or worn parts. Welds or cuts metal, and welds broken parts and structural members, using electric or gas welder. Operates and inspects machines or heavy equipment to diagnose defects. Directs workers engaged in cleaning parts and assisting with assembly or disassembly of equipment. Immerses parts in tanks of solvent or sprays parts with grease solvent to clean parts. Adjusts, maintains, and repairs or replaces engines and subassemblies, including transmissions and crawler heads, using hand tools, jacks, and cranes. Dismantles and reassembles heavy equipment, using hoists and hand tools. Overhauls and tests machines or equipment to ensure operating efficiency. Examines parts for damage or excessive wear, using micrometers and gauges.

**49-3043.00 Rail Car Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs, reassembles, and replaces defective parts, metal sections, or components, using hand tools, torque wrench, power tools, and welding equipment. Disassembles units, such as water pump, control valve, governor, distributor, windshield wiper motor, compressor and roller bearings. Replaces defective wiring and insulation, and tightens electrical connections, using hand tools. Cleans units and components, using compressed air blower. Records condition of cars, repairs made, and other repair work to be performed. Removes locomotive, car mechanical unit, or other component, using pneumatic hoist and jack, pinch bar, hand tools, and cutting torch. Tests electric systems of cars, using ammeter and by operating light and signal switches. Measures diameter of axle wheel seats, using micrometer, and marks dimension on axle for boring of wheels to specified dimensions. Measures sections and drills holes to prepare replacement sections for reassembly. Repairs window sash frames, attaches weather stripping, and channels to frame, and replaces window glass, using hand tools. Adjusts repaired or replaced units as needed, following diagrams. Tests units before and after repairs for operability. Examines car roof for wear and damage and repairs defective sections, using roofing material, cement, nails, and waterproof paint. Installs and repairs interior flooring, fixtures, walls, plumbing, steps, and platforms. Inspects components, such as bearings, seals, gaskets, wheels, truck and brake assemblies, air

cylinder reservoirs, valves, and coupler assemblies. Aligns car sides, for installation of car ends and crossties, using width gauge, turnbuckle, and wrench.

**49-3051.00 Motorboat Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Tests motor for conformance to specifications and operations, while motor is running in tank, using tachometers, monometers, voltmeters, ammeter, and stroboscope. Examines propeller and propeller shafts, and aligns, repairs, or replaces defective parts. Starts motor and listens to and inspects it for signs of malfunctioning, such as smoke, excessive vibration, misfiring, and missing or broken parts. Adjusts generator and replaces faulty wiring, using hand tools and soldering iron. Writes test report to indicate acceptance or reason for rejection of motor. Mounts motor to boat and operates boat at various speeds on waterway to conduct operational tests. Sets starter lock, and aligns and repairs steering or throttle controls, using gauges, screwdrivers, and wrenches. Operates machine tools, such as lathes, mills, drills, and grinders, to repair or rework parts, such as cams, rods, crankshaft, and propeller. Adjusts carburetor mixture, electrical point settings, and timing, while motor is running in water-filled test tank. Analyzes test results, and disassembles and inspects motor for defective parts, using mechanic's hand tools and gauges. Replaces parts, such as gears, magneto points, piston rings, and spark plugs, and reassembles engine. Repairs mechanical equipment of engines, such as power-tilt, bilge pumps, or power take-offs. Idles motor and observes thermometer to determine effectiveness of cooling system.

**49-3052.00 Motorcycle Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Dismantles engine and repairs or replaces defective parts, such as magneto, carburetor, and generator. Reassembles and tests subassembly unit. Listens to engine, examines vehicle's frame, and confers with customer to determine nature and extent of malfunction or damage. Connects test panel to engine and measures generator output, ignition timing, and other engine performance indicators. Disassembles subassembly unit and examines condition, movement or alignment of parts visually or using gauges. Replaces defective parts, using hand tools, arbor press, flexible power press, or power tools. Hammers out dents and bends in frame, welds tears and breaks, and reassembles frame and reinstalls engine. Repairs or replaces other parts, such as headlight, horn, handlebar controls, gasoline and oil tanks, starter, and muffler. Repairs and adjusts motorcycle subassemblies such as forks, transmissions, brakes, and drive chain, according to specifications. Removes cylinder heads, grinds valves, and scrapes off carbon, and replaces defective valves, pistons, cylinders and rings, using hand tools and power tools.

**49-3053.00 Outdoor Power Equipment and Other Small Engine Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs or replaces defective parts, such as water pump, carburetor, thermostat, gears, solenoid, pistons, valves, and crankshaft, using hand tools. Records repairs made, time spent, and parts used. Positions and bolts engine to engine stand. Grinds, reams, rebores, and retaps parts to obtain specified clearances, using grinders, lathes, taps, reamers, boring machines, and micrometer. Tests and inspects engine to determine malfunctions and locate missing and broken parts, using diagnostic instruments. Repairs and maintains gas internal-combustion engines that power electric generators, compressor, and similar equipment. Tests and repairs magnetos used in gasoline and diesel engines, using meters, gauges, and hand tools. Repairs and maintains portable saws powered by internal combustion engines, following manufacturer's repair manuals and using hand tools. Dismantles engines, using hand tools, examines parts for defects, and cleans parts. Reassembles engines and listens to engines in action to detect operational difficulties. Tests and repairs turbo or superchargers. Repairs fractional-horsepower gasoline engines used to power lawn mowers, garden tractors, and similar machines. Adjusts points, valves, carburetor, distributor and spark plug gaps, using feeler gauges.

**49-3091.00 Bicycle Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs, repairs, and replaces equipment or accessories, such as handlebars, stands, lights, and seats. Disassembles axle to repair, adjust, and replace defective parts, using hand tools. Welds broken or cracked frame together, using oxyacetylene torch and welding rods. Paints bicycle frame, using spray gun or brush. Repairs holes in tire tubes, using scraper and patch. Assembles new bicycles. Shapes replacement parts, using bench grinder. Installs and adjusts speed and gear mechanisms. Aligns wheels.

**49-3092.00 Recreational Vehicle Service Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Locates and repairs frayed wiring, broken connections, or incorrect wiring, using ohmmeter, soldering iron, tape, and hand tools. Inspects, examines, and tests operation of parts or systems to be repaired and to verify completeness of work performed. Repairs leaks with caulking compound or replaces pipes, using pipe wrench. Connects water hose to inlet pipe

of plumbing system and tests operation of toilets and sinks. Connects electrical system to outside power source and activates switches to test operation of appliances and light fixtures. Seals open side of modular units to prepare them for shipment, using polyethylene sheets, nails, and hammer. Resets hardware, using chisel, mallet, and screwdriver. Refinishes wood surfaces on cabinets, doors, moldings, and floors, using power sander, putty, spray equipment, brush, paints, or varnishes. Opens and closes doors, windows, and drawers to test their operation and trims edges to fit, using jack-plane or drawknife. Lists parts needed, estimates costs, and plans work procedure, using parts list, technical manuals, and diagrams. Confers with customer or reads work order to determine nature and extent of damage to unit. Removes damaged exterior panels, repairs and replaces structural frame members, and seals leaks, using hand tools. Repairs plumbing and propane gas lines, using caulking compounds and plastic or copper pipe.

**49-9011.00 Mechanical Door Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs doorframes, door closers and electronic-eye mechanisms, using power tools, hand tools, and electronic test equipment. Sets in and secures floor treadle for door activating mechanism and connects power pack and electrical panel board to treadle. Studies blueprints and schematic diagrams to determine method of installing and repairing automated door openers. Bores and cuts holes in flooring, using hand tools and power tools. Covers treadle with carpeting or other floor covering materials and tests system by stepping on treadle. Cleans door closer parts, using caustic soda, rotary brush, and grinding wheel. Lubricates door closer oil chamber and packs spindle with leather washer. Repairs, replaces, or fabricates worn or broken parts, using welder, lathe, drill press, and shaping and milling machines. Removes or disassembles defective automatic mechanical door closers, using hand tools.

**49-9012.01 Electric Meter Installers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Mounts and installs meter and other electric equipment, such as time clocks, transformers, and circuit breakers, using electrician's hand tools. Repairs electric meters and components, such as transformers and relays, and changes faulty or incorrect wiring using hand tools. Makes adjustments to meter components, such as setscrews or timing mechanism to conform to specifications. Cleans meter parts, using chemical solutions, brushes, sandpaper, and soap and water. Disconnects and removes electric power meters when defective or when customer accounts are in default using hand tools. Records meter reading and installation data on meter cards, work orders, or field service orders. Splices and connects cable from meter or current transformer to pull box or switchboard using hand tools to provide power. Inspects and tests electric meters, relays, and power, to detect cause of malfunction and inaccuracy using hand tools and testing equipment.

**49-9012.02 Valve and Regulator Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Replaces, repairs or adjusts defective valve or regulator parts and tightens attachments, using hand tools, power tools, and welder. Tests valves and regulators for leaks, temperature and pressure settings, using precision testing equipment. Examines valves or mechanical control device parts for defects, dents, or loose attachments. Measures salvageable parts removed from mechanical control devices for conformance to standards or specifications, using gauges, micrometers, and calipers. Dips valves and regulators in molten lead to prevent leakage and paints valves, fittings, and other devices, using spray gun. Cleans corrosives and other deposits from serviceable parts, using solvents, wire brushes, or sandblaster. Advises customers on proper installation of valves or regulators and related equipment. Records repair work, inventories parts, and orders new parts. Correlates testing data, performs technical calculations, and writes test reports to record data. Lubricates wearing surfaces of mechanical parts, using oils or other lubricants. Disassembles mechanical control devices or valves, such as regulators, thermostats, or hydrants, using power tools, hand tools, and cutting torch.

**49-9012.03 Meter Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts meter and repeats test until meter registration is within specified limits. Inspects, repairs, and maintains gas meters at wells or processing plants. Analyzes test results to determine cause of persistent meter registration errors. Reassembles meter and meter parts using soldering gun, power tools, or hand tools. Caps meter housing and activates controls on paint booth to spray paint meter case. Records test results, materials used, and meters needing repair on log or card and segregates meters requiring repair. Cleans plant growth, scale, and rust from meter housing using wire brush, buffer, sandblaster, or cleaning compounds. Lubricates moving meter parts using oil gun. Dismantles meter and replaces defective parts, such as case, shafts, gears, disks, and recording mechanisms using soldering iron and hand tools. Connects gas, oil, water, or air meter to test apparatus to detect leaks.

**49-9021.01 Heating and Air Conditioning Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs, connects, and adjusts thermostats, humidistats, and timers, using hand tools. Repairs or replaces defective equipment, components, or wiring. Joins pipes or tubing to equipment and to fuel, water, or refrigerant source, to form complete circuit. Tests electrical circuits and components for continuity, using electrical test equipment. Fabricates, assembles, and installs duct work and chassis parts, using portable metal-working tools and welding equipment. Cuts and drills holes in floors, walls, and roof to install equipment, using power saws and drills. Measures, cuts, threads, and bends pipe or tubing, using pipe fitter's tools. Reassembles equipment and starts unit to test operation. Lays out and connects electrical wiring between controls and equipment according to wiring diagram, using electrician's hand tools. Wraps pipes in insulation and secures it in place with cement or wire bands. Studies blueprints to determine configuration of heating or cooling equipment components. Inspects inoperative equipment to locate source of trouble. Discusses heating-cooling system malfunctions with users to isolate problems or to verify malfunctions have been corrected. Inspects and tests system to verify system compliance with plans and specifications and to detect malfunctions. Adjusts system controls to setting recommended by manufacturer to balance system, using hand tools. Installs auxiliary components to heating-cooling equipment, such as expansion and discharge valves, air ducts, pipes, blowers, dampers, flues and stokers, following blueprints. Tests pipe or tubing joints and connections for leaks, using pressure gauge or soap-and-water solution. Assembles, positions, and mounts heating or cooling equipment, following blueprints. Disassembles system and cleans and oils parts.

**49-9021.02 Refrigeration Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Mounts compressor, condenser, and other components in specified location on frame using hand tools and acetylene welding equipment. Replaces or adjusts defective or worn parts to repair system and reassembles system. Cuts, bends, threads, and connects pipe to functional components and water, power, or refrigeration system. Installs expansion and control valves using acetylene torch and wrenches. Assembles structural and functional components, such as controls switches, gauges, wiring harnesses, valves, pumps, compressors, condensers, cores, and pipes. Brazes or solders parts to repair defective joints and leaks. Drills holes and installs mounting brackets and hangers into floor and walls of building. Fabricates and assembles components and structural portions of refrigeration system using hand tools, power tools, and welding equipment. Keeps records of repairs and replacements made and causes of malfunctions. Reads blueprints to determine location, size, capacity, and type of components needed to build refrigeration system. Tests lines, components, and connections for leaks. Lays out reference points for installation of structural and functional components using measuring instruments. Dismantles malfunctioning systems and tests components using electrical, mechanical, and pneumatic testing equipment. Observes system operation using gauges and instruments, and adjusts or replaces mechanisms and parts, according to specifications. Adjusts valves according to specifications and charges system with specified type of refrigerant. Lifts and aligns components into position using hoist or block and tackle.

**49-9031.01 Home Appliance Installers Entry – Mid – Senior level position assuming education and experience prerequisite**

Observes and tests operation of appliances, such as refrigerators, washers, and dryers, and makes initial installation adjustments accordingly. Disassembles and re-installs existing kitchen cabinets and assembles and installs prefabricated kitchen cabinets in conjunction with appliance installation. Levels washing machines and connects hoses to water pipes, using plumbing and other hand tools. Lights and adjusts pilot lights on gas stoves and examines valves and burners for gas leakage and specified flame. Advises customers regarding use and care of appliance and provides them with emergency service number. Levels refrigerators, adjusts doors, and connects water lines to water pipes for ice makers and water dispensers, using hand tools.

**49-9031.02 Gas Appliance Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Measures, cuts, and threads pipe and connects it to feeder lines and equipment or appliance using rule and hand tools. Assembles new or reconditioned appliances. Tests and examines pipelines and equipment to locate leaks and faulty connections and to determine pressure and flow of gas. Dismantles meters and regulators, and replaces defective pipes, thermocouples, thermostats, valves, and indicator spindles using hand tools.

**49-9041.00 Industrial Machinery Mechanics Entry – Mid – Senior level position assuming education and experience prerequisite**

Confers with operators and observes, tests, and evaluates operation of machinery and equipment to diagnose cause of

malfunction. Disassembles machinery and equipment to remove parts and make repairs. Repairs, replaces, adjusts, and aligns components of machinery and equipment. Examines parts for defects, such as breakage or excessive wear. Fabricates replacement parts. Orders or requisitions parts and materials. Enters codes and instructions to program computer-controlled machinery. Records repairs and maintenance performed. Repairs and replaces electrical wiring and components of machinery. Welds to repair broken metal parts, fabricate new parts, and assemble new equipment. Test-runs repaired machinery and equipment to verify adequacy of repairs. Cleans and lubricates parts, equipment, and machinery.

**49-9042.00 Maintenance and Repair Workers, General Entry – Mid level position assuming education and experience prerequisite**

Inspects and tests machinery and equipment to diagnose machine malfunctions. Dismantles and reassembles defective machines and equipment. Installs new or repaired parts. Installs and/or repairs wiring and electrical and electronic components. Installs machinery and equipment. Assembles, installs, and/or repairs pipe systems and hydraulic and pneumatic equipment. Estimates costs of repairs. Records repairs made and costs. Fabricates and repairs counters, benches, partitions, and other wooden structures, such as sheds and outbuildings. Operates cutting torch or welding equipment to cut or join metal parts. Sets up and operates machine tools to repair or fabricate machine parts, jigs and fixtures, and tools. Lays brick to repair and maintain physical structure of establishment. Paints and repairs woodwork and plaster. Assembles, installs, and/or repairs plumbing. Cleans and lubricates shafts, bearings, gears, and other parts of machinery.

**49-9043.00 Maintenance Workers, Machinery Entry – Mid level position assuming education and experience prerequisite**

Sets up and operates machine and adjusts controls that regulate operational functions to ensure conformance to specifications. Installs, replaces, or changes machine parts and attachments, according to production specifications. Lubricates, oils, or applies adhesive, or other material to machines, machine parts, or other equipment, according to specified procedures. Replaces or repairs metal, wood, leather, glass, or other lining in machine or equipment compartments or containers. Dismantles machine, removes machine parts, and reassembles machine, using hand tools, chain falls, jack, crane, or hoist. Inspects or tests damaged machine parts and marks defective area or advises supervisor of need for repair. Records and maintains production, repair, and machine maintenance information. Marks, separates, ties, aligns, threads, attaches, or inserts material or product preparatory to machine operation or to identify machine process. Measures, mixes, prepares and tests chemical solutions used to clean or repair machinery and equipment, according to product specifications. Communicates with or assists other workers to repair or move machines, machine parts or equipment. Replaces, empties, or replenishes empty machine and equipment containers, such as gas tanks or boxes. Removes hardened material from machine or machine parts, using abrasives, power and hand tools, jackhammer, sledgehammer, or other equipment. Reads work orders and specifications to determine machines and equipment requiring repair or maintenance. Cleans machine and machine parts, using cleaning solvent, cloth, air gun, hose, vacuum, or other equipment. Collects and discards worn machine parts and other garbage to maintain machinery and work areas. Transports machine parts, tools, equipment and other material between work areas and storage, using crane, hoist, or dolly. Inventories and requisitions machine parts, equipment, and other supplies to replenish and maintain stock. Cuts, shapes, smooths, attaches or assembles pieces of metal, wood, rubber, or other material repair and maintenance machines and equipment. Starts machine and observes mechanical operation to determine efficiency and to detect defects, malfunctions, or other machine damage.

**49-9044.00 Millwrights Entry – Mid – Senior level position assuming education and experience prerequisite**

Dismantles machines, using hammers, wrenches, crowbars, and other hand tools. Assembles machines, and bolts, welds, rivets, or otherwise fastens them to foundation or other structures, using hand tools and power tools. Moves machinery and equipment, using hoists, dollies, rollers, and trucks. Connects power unit to machines or steam piping to equipment, and tests unit to evaluate its mechanical operation. Lays out mounting holes, using measuring instruments, and drills holes with power drill. Positions steel beams to support bedplates of machines and equipment, using blueprints and schematic drawings, to determine work procedures. Replaces defective parts of machine or adjusts clearances and alignment of moving parts. Repairs and lubricates machines and equipment. Operates engine lathe to grind, file, and turn machine parts to dimensional specifications. Signals crane operator to lower basic assembly units to bedplate, and aligns unit to centerline. Constructs foundation for machines, using hand tools and building materials such as wood, cement, and steel. Installs robot and modifies its program, using teach pendant. Shrink-fits bushings, sleeves, rings, liners, gears, and wheels to specified items, using portable gas heating equipment. Levels bedplate and establishes centerline, using straightedge, levels, and transit. Inserts shims, adjusts tension on nuts and bolts, or positions parts, using hand tools and measuring instruments, to set specified clearances between moving and stationary parts. Aligns machines and equipment, using hoists, jacks, hand tools, squares, rules, micrometers, and plumb bobs.

Dismantles machinery and equipment for shipment to installation site, usually performing installation and maintenance work as part of team. Attaches moving parts and subassemblies to basic assembly unit, using hand tools and power tools. Assembles and installs equipment, using hand tools and power tools. Bolts parts, such as side and deck plates, jaw plates, and journals, to basic assembly unit.

**49-9045.00 Refractory Materials Repairers, Except Brickmasons Entry – Mid – Senior level position assuming education and experience prerequisite**

Relines or repairs ladle and pouring spout with refractory clay, using trowel. Dumps and tamps clay in mold, using tamping tool. Mixes specified amounts of sand, clay, mortar powder, and water to form refractory clay or mortar, using shovel or mixing machine. Installs preformed metal scaffolding in interior of cupola, using hand tools. Chips slag from lining of ladle, or entire lining when beyond repair, using hammer and chisel. Transfers clay structures to curing ovens, melting tanks, and drawing kilns, using electric forklift truck. Climbs scaffolding with hose, and sprays surfaces of cupola with refractory mixture, using spray equipment. Installs clay structures in melting tanks and drawing kilns to control flow and temperature of molten glass, using hoists and hand tools. Measures furnace wall, and cuts required number of sheets from plastic block, using saw. Bolts sections of wooden mold together, using wrench, and lines mold with paper to prevent adherence of clay to mold. Removes worn or damaged plastic block refractory lining of furnace, using hand tools. Disassembles mold, and cuts, chips, and smooths clay structures, such as floaters, drawbars, and L-blocks, using square rule and hand tools. Dries and bakes new lining by placing inverted lining over burner, building fire in ladle, or by using blowtorch. Fastens stopper head to rod with metal pin, to assemble refractory stopper used to plug pouring nozzles of steel ladles. Spreads mortar on stopper head and rod, using trowel, and slides brick sleeves over rod to form refractory jacket. Tightens locknuts holding assembly together, spreads mortar on jacket to seal sleeve joints, and dries mortar in oven. Drills holes in furnace wall, bolts overlapping layers of plastic to walls, and hammers surface to compress layers into solid sheets.

**49-9051.00 Electrical Power-Line Installers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs electrical power cables and auxiliary equipment for electrical power lines. Climbs poles and removes and installs hardware, wires, and other equipment. Strings wire conductors and cable between erected poles and adjusts slack, using winch. Drives conveyance equipped with tools and materials to job site. Works on energized lines to avoid interruption of service. Covers conductors with insulating or fireproofing materials. Installs watt-hour meters and connects service drops between power line and consumer. Tests conductors to identify corresponding conductors and to prevent incorrect connections, according to electrical diagrams and specifications. Cleans, tins, and splices corresponding conductors by twisting ends together or by joining ends with metal clamps and soldering connection. Cuts and peels lead sheath and insulation from defective or newly installed cables and conducts prior to splicing. Replaces and straightens poles and attaches cross arms, insulators, and auxiliary equipment to wood poles preparatory to erection. Opens switches or clamps grounding device to de-energize disturbed or fallen lines to facilitate repairs or to remove electrical hazards. Installs and repairs conduits, cables, wires, and auxiliary equipment following blueprints. Splices cables together or to overhead transmission line, customer service line, or street light line. Splices, solders, and insulates conductors and wiring to join sections of power line, and to connect transformers and electrical accessories. Tests electric power lines and auxiliary equipment, using direct reading and testing instruments to identify cause of disturbances.

**49-9052.00 Telecommunications Line Installers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs terminal boxes and strings lead-in-wires, using electrician's tools. Measures signal strength at utility pole, using electronic test equipment. Connects television set to cable system, evaluates incoming signal, and adjusts system to ensure optimum reception. Collects installation fees. Explains cable service to subscriber. Cleans and maintains tools and test equipment. Fills and tamps holes, using cement, earth, and tamping device. Digs holes, using power auger or shovel, and hoists poles upright into holes, using truck-mounted winch. Installs and removes plant equipment, such as call boxes and clocks. Repairs cable system, defective lines, and auxiliary equipment. Ascends poles or enters tunnels and sewers to string lines and install terminal boxes, auxiliary equipment and appliances, according to diagrams. Pulls lines through ducts by hand or with use of winch. Computes impedance of wire from pole to house to determine additional resistance needed for reducing signal to desired level.

**49-9061.00 Camera and Photographic Equipment Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Measures parts to verify specified dimensions/settings, such as camera shutter speed and light meter reading accuracy, using measuring instruments. Adjusts cameras, photographic mechanisms, and equipment, such as range and view finders, shutters, light meters, and lens systems, using hand tools. Examines cameras, equipment, processed film, and

laboratory reports to diagnose malfunction, using work aids and specifications. Disassembles equipment to gain access to defect, using hand tools. Calibrates and verifies accuracy of light meters, shutter diaphragm operation, and lens carriers, using timing instruments. Tests equipment performance, focus of lens system, alignment of diaphragm, lens mounts, and film transport, using precision gauges. Fabricates or modifies defective electronic, electrical, and mechanical components, using bench lathe, milling machine, shaper, grinder, and precision hand tools according to specifications. Recommends design changes or upgrades of microfilming, film-developing, and photographic equipment. Requisitions parts and materials. Records test data and documents fabrication techniques on reports. Cleans and lubricates cameras and polishes camera lenses, using cleaning materials and work aids. Lays out reference points and dimensions on parts and metal stock to be machined, using precision measuring instruments. Installs film in aircraft camera and electrical assemblies and wiring in camera housing, following blueprints, using hand tools and soldering equipment. Assembles aircraft cameras, still and motion picture cameras, photographic equipment, and frames, using diagrams, blueprints, bench machines, hand tools, and power tools. Reads and interprets engineering drawings, diagrams, instructions, and specifications to determine needed repairs, fabrication method and operation sequence.

**49-9062.00 Medical Equipment Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Inspects and tests malfunctioning medical and related equipment, using test and analysis instruments and following manufacturers' specifications. Calibrates and adjusts components and equipment, using hand tools, power tools, measuring devices, and following manufacturers' manuals and troubleshooting techniques. Safety-tests medical equipment and facility's structural environment to ensure patient and staff safety from electrical or mechanical hazards. Maintains various equipment and apparatus, such as patient monitors, electrocardiographs, x-ray units, defibrillators, electrosurgical units, anesthesia apparatus, pacemakers, and sterilizers. Cleans and lubricates equipment, using solvents, rags, and lubricants. Consults with medical or research staff to ensure that equipment functions properly and safely. Logs records of maintenance and repair work and approved updates of equipment as required by manufacturer. Demonstrates and explains correct operation of equipment to medical personnel. Installs medical, dental, and related technical equipment in medical and research facilities. Solders loose connections, using soldering iron. Disassembles malfunctioning equipment and removes defective components. Repairs and replaces defective parts, such as motors, clutches, tubes, transformers, resistors, condensers, and switches, using hand tools.

**49-9063.01 Keyboard Instrument Repairers and Tuners Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs or replaces defective, broken, or worn parts, using hand tools, power tools, glue, and nails. Disassembles and reassembles instruments and parts to tune and repair, using hand tools and power tools. Removes irregularities from tuning pins, strings, and hammers of piano, using wood block or filing tool. Compares pitch of instruments with specified pitch of tuning tool to tune instrument. Cleans instruments, using vacuum cleaner. Mixes and measures glue. Makes wood replacement parts, using woodworking machines and hand tools. Assembles and installs new pipe organs and pianos in buildings. Inspects and tests parts of pianos, pipe organs, accordions, and concertinas to determine defects, using hand tools, gauges, and electronic testing equipment. Adjusts alignment, string spacing, and striking point of hammers of piano, using wrench, burner, shims, and bushings. Adjusts lips, reeds, or toe hole of organ pipes, using hand tools, to regulate airflow and loudness of sound. Adjusts felt hammers on piano to increase tonal mellowness or brilliance, using sanding paddle, lacquer, or needles.

**49-9064.00 Watch Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Repairs or replaces broken, damaged, or worn parts, using watchmaker's lathe, drill press, and hand tools. Tests and replaces batteries and other electronic components. Repairs watch cases, surface defects of clocks, and watchbands. Examines watch mechanism, case, and parts for defects or foreign matter using loupe. Records quantity and type of clocks repaired. Removes mechanism from case and disassembles parts such as hands, springs, or wheels using hand tools. Assembles mechanism oils moving parts, and de-magnetizes mechanism using de-magnetizing machine. Cleans, rinses, and dries parts, using watch-cleaning machine. Tests accuracy of balance wheel assembly, and adjusts timing regulator, using truing calipers, watch-rate recorder, and tweezers.

**49-9091.00 Coin, Vending, and Amusement Machine Servicers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts and repairs vending machines and meters and replaces defective mechanical and electrical parts using hand tools, soldering iron, and diagrams. Shellacs or paints dial markings or mechanisms' exterior using brush or spray gun. Replenishes vending machines with ingredients or products. Keeps records of machine maintenance and repair. Collects coins from machine and makes settlements with concessionaires. Tests dispensing, coin handling, electrical, refrigeration, carbonation, or ice-making systems of machine. Examines and inspects vending machines and meters to

determine cause of malfunction. Disassembles and assembles machines, following specifications and using hand tools and power tools. Cleans and oils parts with soap and water, gasoline, kerosene, or carbon tetrachloride.

**49-9093.00 Fabric Menders, Except Garment Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates sewing machine to re-stitch defective seams, sew up holes, or replace garment pockets or blanket binding ribbons. Replaces defective shrouds and splices connections between shrouds and harness, using hand tools. Spreads out articles or material and examines for holes, tears, worn areas, and other marked or unmarked defects. Cleans stains from fabric or garment, using spray gun and cleaning fluid. Stamps grommets into canvas, using mallet and punch or eyelet machine. Sews labels and emblems on articles for identification. Measures and hems curtains, garments, and canvas coverings to size, using tape measure. Sews fringe, tassels, and ruffles onto drapes and curtains, and buttons and trimming onto garments. Trims edges of cut or torn fabric, using scissors or knife, and stitches together. Patches holes, sews tears and ripped seams, or darns defects in items, using needle and thread or sewing machine. Re-knits runs and replaces broken threads, using latch needle. Repairs holes by weaving thread over them, using needle. Pulls knots to wrong side of garment, using hook.

**49-9094.00 Locksmiths and Safe Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Disassembles mechanical or electrical locking devices and repairs or replaces worn tumblers, springs, and other parts, using hand tools. Moves picklock in cylinder to open door locks without keys. Opens safe locks by drilling. Keeps record of company locks and keys. Removes interior and exterior finishes on safes and vaults and sprays on new finishes. Inserts new or repaired tumblers into lock to change combination. Repairs and adjusts safes, vault doors, and vault components, using hand tools, lathes, drill presses, and welding and acetylene cutting apparatus. Cuts new or duplicate keys, using key cutting machine. Installs safes, vault doors, and deposit boxes according to blueprints, using equipment such as powered drills, taps, dies, truck crane, and dolly.

**49-9098.00 Helpers--Installation, Maintenance, and Repair Workers Entry level position assuming education and experience prerequisite**

Helps mechanics and repairers maintain and repair vehicles, industrial machinery, and electrical and electronic equipment. Transfers equipment, tools, parts, and other objects to and from workstations and other areas, using hand tools, power tools, and moving equipment. Installs or replaces machinery, equipment, and new or replacement parts and instruments, using hand tools or power tools. Applies protective materials to equipment, components, and parts to prevent defects and corrosion. Positions vehicles, machinery, equipment, physical structures, and other objects, for assembly or installation, using hand tools, power tools, and moving equipment. Builds or erects and maintains physical structures, using hand tools or power tools. Examines and tests machinery, equipment, components, and parts for defects and to ensure proper functioning. Tends and observes equipment and machinery to verify efficient and safe operation. Adjusts and connects or disconnects wiring, piping, tubing, and other parts, using hand tools or power tools. Assembles and disassembles machinery, equipment, components, and other parts, using hand tools and power tools. Furnishes tools, parts, equipment, and supplies to other workers. Cleans or lubricates vehicles, machinery, equipment, instruments, tools, work areas, and other objects, using hand tools, power tools, and cleaning equipment.

**51-2011.01 Aircraft Structure Assemblers, Precision Entry – Mid level position assuming education and experience prerequisite**

Installs units, parts, equipment, and components in structural assembly, according to blueprints and specifications, using hand tools and power tools. Locates and marks reference points and holes for installation of parts and components, using jigs, templates, and measuring instruments. Aligns structural assemblies. Positions and aligns subassemblies in jigs or fixtures, using measuring instruments, following blueprint lines and index points. Inspects and tests installed units, parts, and equipment for fit, performance, and compliance with standards, using measuring instruments and test equipment. Cuts, trims, and files parts, and verifies fitting tolerances to prepare for installation. Bolts, screws, or rivets accessories to fasten, support, or hang components and subassemblies. Drills holes in structure and subassemblies, and attaches brackets, hinges, or clips to secure installation or to fasten subassemblies.

**51-2011.02 Aircraft Systems Assemblers, Precision Entry – Mid – Senior level position assuming education and experience prerequisite**

Aligns, fits, and assembles system components, such as armament, structural, and mechanical components, using jigs, fixtures, measuring instruments, hand tools, and power tools. Tests systems and assemblies for functional performance, and adjusts, repairs, or replaces malfunctioning units or parts. Installs mechanical linkages and actuators, and verifies





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tension of cables, using tensiometer. Reworks, replaces, realigns, and adjusts parts and assemblies according to specifications. Reads and interprets blueprints, illustrations, and specifications to determine layout, sequence of operations, or identity and relationship of parts. Measures, drills, files, cuts, bends, and smooths materials to ensure fit and clearance of parts. Cleans, oils, assembles, and attaches system components to aircraft, using hand tools, power tools, and measuring instruments. Examines parts for defects and for conformance to specifications, using precision measuring instruments. Lays out location of parts and assemblies, according to specifications. Assembles and installs parts, fittings, and assemblies on aircraft, using layout tools, hand tools, power tools, and fasteners.

### **51-2011.03 Aircraft Rigging Assemblers Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates machines and systems to crimp, cut, bend, form, swage, flare, bead, burr, and straighten tubing, according to specifications. Swages fittings onto cable, using swaging machine. Marks location of cutouts, holes, and trim lines of parts and relationship of parts, using measuring instruments. Reads and interprets, blueprints, work orders, data charts, and specifications to determine operations, and type, quantity, dimensions, configuration, and finish of tubing, cable and fittings. Selects and installs accessories in swaging machine, using hand tools. Tests tubing and cable assemblies for defects, using pressure testing equipment and proof loading machines. Marks identifying information on tubing or cable assemblies, using electro-chemical etching device, label, rubber stamp, or other methods. Cleans, lubricates, and coats tubing and cable assemblies. Verifies dimensions of cable assembly and position of fittings, using measuring instruments, and repairs and reworks defective assemblies. Fabricates cable templates. Forms loops or splices in cables, using clamps and fittings, or reweaves cable strands. Welds tubing and fittings, and solders cable ends, using tack-welder, induction brazing chamber, or other equipment. Assembles and attaches fittings onto cable and tubing components, using hand tools. Measures, cuts, and inspects cable and tubing, using master template, measuring instruments, and cable cutter or saw.

### **51-2021.00 Coil Winders, Tapers, and Finishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates or tends wire-coiling machine. Repairs and maintains electrical components and machinery parts, using hand tools. Observes gauges and stops machine to remove completed components, using hand tools. Selects and loads materials, such as work pieces, objects, and machine parts onto equipment used in coiling process. Examines and tests wired electrical components, using measuring devices. Records production and operational data on specified forms. Applies solutions or paints to wired electrical components, using hand tools. Reviews work orders and specifications to ascertain material needed and type of part to be processed. Attaches, alters and trims materials, such as wire, insulation, and coils, using hand tools.

### **51-2022.00 Electrical and Electronic Equipment Assemblers Entry – Mid – Senior level position assuming education and experience prerequisite**

Assembles systems and support structures, and installs components, units, and printed circuit boards, following specifications and using hand tools and power tools. Marks and tags components to track and identify stock inventory. Paints structures as specified, using paint sprayer. Instructs customers in installation, repair, and maintenance of products and explains assembly procedures or techniques to workers. Packs finished assemblies for shipment and transports to storage areas, using hoists or hand trucks. Cleans parts, using cleaning solution, air hose, and cloth. Completes, reviews, and maintains production, time, and component waste reports. Assists or confers with supervisor or engineer to plan and review work activities and to resolve production problems. Selects or distributes materials, supplies, and subassemblies to work area. Inspects units to detect malfunctions, and adjusts, repairs, or replaces component parts to ensure conformance to specifications. Measures and adjusts voltages to specified value to determine operational accuracy of instruments. Fabricates and forms parts, coils, and structures according to specifications, using drill, calipers, cutters, and saws. Positions, aligns, and adjusts work pieces and electrical parts to facilitate wiring and assembly. Tests wiring installations, assemblies, and circuits for resistance factors and operational defects, and records results. Drills and taps holes in specified locations to mount control units and to provide openings for elements, wiring, and instruments. Reads and interprets schematic drawings, diagrams, blueprints, specifications, work orders, and reports to determine materials requirements and assembly instructions.

### **51-2023.00 Electromechanical Equipment Assemblers Entry – Mid – Senior level position assuming education and experience prerequisite**

Assembles parts or unit and attaches unit to assembly, subassembly, or frame, using hand tools and power tools. Attaches name plates and marks identifying information on parts. Cleans and lubricates parts and subassemblies.



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Disassembles unit to replace parts or to crate for shipping. Measures parts to determine tolerances, using precision measuring instruments, such as micrometers, calipers, and verniers. Drills, taps, reams, countersinks, and spot faces bolt holes in parts, using drill press and portable power drill. Positions and aligns parts, using fixtures, jigs, and templates. Files, laps, and buffs parts to fit, using hand tools and power tools. Reads blueprints and specifications to determine component parts and assembly sequence of electromechanical unit. Connects electrical wiring according to circuit diagram, using soldering iron. Inspects, tests, and adjusts completed unit to ensure that unit meets specifications, tolerances, and customer order requirements.

### **51-2031.00 Engine and Other Machine Assemblers Entry – Mid – Senior level position assuming education and experience prerequisite**

Fastens components or parts together, using hand tools, rivet gun, and welding equipment. Maintains and lubricates parts and components. Sets up and operates metalworking machines, such as milling and grinding machines, to shape or fabricate parts. Removes rough spots and smooths surfaces to fit, trim, or clean parts or components, using hand tools and power tools. Operates machine to verify functioning, machine capabilities, and conformance to customer's specifications. Lays out and drills, reams, taps, and cuts parts for assembly. Analyzes assembly blueprint and specifications manual, and plans assembly or building operations. Fastens and installs piping, fixtures, or wiring and electrical components to specifications. Inspects and tests parts and accessories for leakage, defect, or functionality, using test equipment. Verifies conformance of parts to stock list and blueprints, using measuring instruments, such as calipers, gauges, and micrometers. Sets and verifies clearance of parts. Reworks, repairs, and replaces damaged parts or assemblies. Positions and aligns components for assembly, manually or with hoist.

### **51-2041.01 Metal Fabricators, Structural Metal Products Entry – Mid – Senior level position assuming education and experience prerequisite**

Develops layout and plans sequence of operations for fabricating and assembling structural metal products, applying trigonometry and knowledge of metal. Locates and marks bending and cutting lines onto work piece, allowing for stock thickness and machine and welding shrinkage. Sets up and operates fabricating machines, such as brakes, rolls, shears, flame cutters, and drill presses. Verifies conformance of work piece to specifications, using square, ruler, and measuring tape. Designs and constructs templates and fixtures, using hand tools. Sets up and operates machine tools associated with fabricating shops, such as radial drill, end mill, and edge planer. Preheats work pieces to render them malleable, using hand torch or furnace. Positions, aligns, fits, and welds together parts, using jigs, welding torch, and hand tools. Hammers, chips, and grinds work piece to cut, bend, and straighten metal.

### **51-2041.02 Fitters, Structural Metal- Precision Entry – Mid – Senior level position assuming education and experience prerequisite**

Aligns parts, using jack, turnbuckles, wedges, drift pins, pry bars, and hammer. Sets up face block, jigs and fixtures. Locates reference points, using transit, and erects ladders and scaffolding to fit together large assemblies. Heat-treats parts with acetylene torch. Straightens warped or bent parts, using sledge, hand torch, straightening press, or bulldozer. Gives directions to welder to build up low spots or short pieces with weld. Removes high spots and cuts bevels, using hand files, portable grinders, and cutting torch. Examines blueprints and plans sequence of operation, applying knowledge of geometry, effects of heat, weld shrinkage, machining, and metal thickness. Marks reference points onto floor or face block and transposes them to work piece, using measuring devices, squares, chalk, and soapstone. Positions or tightens braces, jacks, clamps, ropes, or bolt straps, or bolts parts in positions for welding or riveting. Tack welds fitted parts together. Moves parts into position, manually or by hoist or crane.

### **51-2091.00 Fiberglass Laminators and Fabricators Entry – Mid – Senior level position assuming education and experience prerequisite**

Laminate layers of fiberglass on molds to form boat decks and hulls, bodies for golf carts, automobiles, or other products.

### **51-2092.00 Team Assemblers**

Work as part of a team having responsibility for assembling an entire product or component of a product. Team assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being assigned to a specific task on a permanent basis. May participate in making management decisions affecting the work. Team leaders who work as part of the team should be included.

### **51-2093.00 Timing Device Assemblers, Adjusters, and Calibrators Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts size or positioning of timepiece parts to achieve specified fit or function using calipers, fixture, and loupe.

Cleans and lubricates timepiece parts and assemblies using solvent, buff stick, and oil. Bends parts such as hairsprings, pallets, barrel covers, and bridges to correct deficiencies in truing or endshake using tweezers. Observes operation of timepiece parts and subassemblies to determine accuracy of movement and diagnose cause of defects. Replaces specified parts to repair malfunctioning timepieces using watchmaker's tools, loupe, and holding fixture. Tests operation and fit of timepiece parts and subassemblies using electronic testing equipment, tweezers, watchmaker's tools, and loupe. Screws parts or assemblies into position. Examines components of timepieces such as watches, clocks, or chronometers for defects using loupe or microscope. Reviews blueprints, sketches, or work orders to gather information about task to be completed. Disassembles timepieces such as watches, clocks, and chronometers to diagnose and repair malfunctions. Assembles and installs components of timepieces using watchmaker's tools and loupe to complete mechanism.

**51-4011.01 Numerical Control Machine Tool Operators and Tenders, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Selects, measures, assembles, and sets machine tools, such as drill bits and milling or cutting tools using precision measuring instruments. Mounts, installs, aligns, and secures tools, attachments, fixtures, and work piece on machine using hand tools and precision measuring instruments. Determines specifications or procedures for tooling set-up, machine operation, work piece dimensions, or numerical control sequences using blueprints, instructions, and machine knowledge. Calculates and sets machine controls to position tools, synchronize tape and tool, or regulate cutting depth, speed, feed, or coolant flow. Monitors machine operation and control panel displays to detect malfunctions and compare readings to specifications. Enters commands or manually adjusts machine controls to correct malfunctions or tolerances. Measures dimensions of finished work piece to ensure conformance to specifications using precision measuring instruments, templates, and fixtures. Examines electronic components for defects and completeness of laser beam trimming using microscope. Operates lathe, drill press, jig-boring machine, or other machines manually or semi-automatically. Cleans machine, tooling, and parts using solvent or solution and rag. Confers with supervisor or programmer to resolve machine malfunctions and production errors and obtains approval to continue production. Maintains machines and removes and replaces broken or worn machine tools using hand tools. Lifts work piece to machine manually, with hoist or crane, or with tweezers. Stops machine to remove finished work piece or change tooling, setup, or work piece placement according to required machining sequence. Lays out and marks areas of part to be shot-peened, and fills hopper with shot. Positions and secures work piece on machine bed, indexing table, fixture, or dispensing or holding device. Loads control media, such as tape, card, or disk, in machine controller or enters commands to retrieve programmed instructions. Starts automatic operation of numerical control machine-to-machine parts or test setup, work piece dimensions, or programming.

**51-4012.00 Numerical Tool and Process Control Programmers Entry – Mid – Senior level position assuming education and experience prerequisite**

Prepares geometric layout from graphic displays, using computer-assisted drafting software or drafting instruments and graph paper. Sorts shop orders into groups to maximize materials utilization and minimize machine setup. Reviews shop orders to determine job specifications and requirements. Loads and unloads disks or tapes and observes operation of machine on trial run to test taped or programmed instructions. Depresses pedal or button of programmer to enter coordinates of each hole location into program memory. Moves reference table to align pattern film over circuit board holes with reference marks on enlarger scope. Aligns and secures pattern film on reference table of optical programmer and observes enlarger scope view of printed circuit board. Determines reference points, machine cutting paths, or hole locations and computes angular and linear dimensions, radii, and curvatures. Compares encoded tape or computer printout with original program sheet to verify accuracy of instructions. Draws machine tool paths on pattern film, using colored markers and following guidelines for tool speed and efficiency. Enters computer commands to store or retrieve parts patterns, graphic displays, or programs to transfer data to other media. Revises numerical control machine tape programs to eliminate instruction errors and omissions. Analyzes drawings, specifications, printed circuit board pattern film, and design data to calculate dimensions, tool selection, machine speeds, and feed rates. Writes instruction sheets, cutter lists, and machine instructions programs to guide setup and encode numerical control tape.

**51-4021.00 Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs dies, machine screws, and sizing rings on machine extruding thermoplastic or metal materials. Starts machine and sets controls to regulate vacuum, air pressure, sizing rings, and temperature, and synchronizes speed of extrusion. Loads machine hopper with mixed materials, using auger, or stuffs rolls of plastic dough into machine cylinders. Operates shearing mechanism to cut rods to specified length. Replaces worn dies when products vary from specifications. Measures extruded articles for conformance to specifications and adjusts controls to obtain product of specified

dimensions. Reels extruded product into rolls of specified length and weight. Tests physical properties of product with testing devices, such as acid-bath tester, burst tester, and impact tester. Examines extruded product for defects, such as wrinkles, bubbles, and splits. Studies specifications, determines setup procedures and selects machine dies and parts. Adjusts controls to draw or press metal into specified shape and diameter. Selects nozzles, spacers, and wire guides, according to diameter and length of rod. Weighs and mixes pelletized, granular, or powdered thermoplastic materials and coloring pigments.

**51-4022.00 Forging Machine Setters, Operators, and Tenders, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts machine, produces sample work piece, and observes operations to detect machine malfunction and ensure setup conforms to specifications. Reads blueprints to determine specified tolerances and sequence of operations to set up machines. Positions and moves metal wire or work piece through series of dies to compress and shape stock to form die impressions. Marks layout, verifies dimensions, and measures, weighs and inspects machined parts to ensure conformance to product specifications. Confers with other workers regarding setup and operational specifications of machines. Sharpens cutting tools and drill bits, using bench grinder. Adjust temperature controls of furnace in which rods are heated. Trims and compresses finished forgings to specified tolerances. Installs and adjusts or removes and replaces dies, synchronizing cams, forging hammer, and stop guides, according to specifications. Selects, aligns, and bolts positioning fixtures and stops and specified dies to ram and anvil, forging rolls, or presses and hammers. Turns handles or knobs to set pressure and depth of ram stroke, and synchronize machine operations.

**51-4035.00 Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Selects and installs cutting tool, stylus, and other accessories according to specifications, using hand tools or power tools. Moves controls to set cutting specifications, position cutting tool and work piece in relation to each other, and start machine. Moves cutter or material manually or by turning hand wheel, or engages automatic feeding mechanism to mill work piece to specifications. Observes machine operation and adjusts controls to ensure conformance with specified tolerances. Selects cutting speed, feed rate, and depth of cut, applying knowledge of metal properties and shop mathematics. Verifies alignment of work piece on machine, using measuring instruments, such as rules, gauges, or calipers. Turns valve to begin and regulate the flow of coolant on work area. Studies blueprint, layout, sketch, or other specifications to determine materials needed, sequence of operations, dimensions, and tooling instructions. Computes dimensions, tolerances, and angles, of work piece or machine according to specifications and knowledge of metal properties and shop mathematics. Positions and secures work piece on machine, using holding devices, measuring instruments, hand tools, and hoists. Verifies conformance of finished work piece to specifications, using measuring instruments, such as microscopes, gauges, calipers, and micrometers. Removes work piece and template or model from machine. Mounts attachments and other tools, such as pantograph, engraver, or router, to perform other operations, such as drilling or boring. Replaces worn tools, using hand tools. Sharpens dull tools, using bench grinder. Makes templates or cutting tools. Records production output.

**51-4041.00 Machinists Entry – Mid – Senior level position assuming education and experience prerequisite**

Studies sample parts, blueprints, drawings, and engineering information to determine methods and sequence of operations to fabricate product. Assembles parts into completed units, using jigs, fixtures, hand tools, and power tools. Calculates and sets controls to regulate machining, or enters commands to retrieve, input, or edit computerized machine control media. Measures, examines, and tests completed units to detect defects and ensure conformance to specifications. Operates brazing, heat-treating, and welding equipment to cut, solder, and braze metal. Cleans, lubricates, and maintains machines, tools, and equipment to remove grease, rust, stains, and foreign matter. Cuts and shapes sheet metal and heats and bends metal to specified shape. Observes and listens to operating machines or equipment to diagnose machine malfunction and determine need for adjustment or repair. Evaluates experimental procedures and recommends changes or modifications for efficiency and adaptability to setup and production. Tests experimental models under simulated operating conditions for such purposes as development, standardization, and feasibility of design. Designs fixtures, tooling, and experimental parts to meet special engineering needs. Confers with engineering, supervisory, and manufacturing personnel to exchange technical information. Establishes work procedures for fabricating new structural products, using variety of metalworking machines. Installs experimental parts and assemblies, such as hydraulic systems, electrical wiring, lubricants, and batteries into machines and mechanisms. Dismantles machine or equipment, using hand tools and power tools, to examine parts for defect or to remove defective parts. Installs repaired part into equipment and operates equipment to verify operational efficiency. Lays out and verifies dimensions of parts, using precision measuring and marking instruments and knowledge of trigonometry. Fabricates, assembles, and modifies tooling, such as jigs, fixtures, templates, and molds or dies to produce parts and assemblies. Operates metalworking



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machine tools, such as lathe, milling machine, shaper, or grinder to machine parts to specifications. Selects, aligns, and secures holding fixtures, cutting tools, attachments, accessories, and materials onto machines.

### **51-4061.00 Model Makers, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates machines, such as lathes, drill presses, punch presses, or band saw, to fabricate prototypes or models. Studies blueprint, drawings, or sketches, and computes dimensions for laying out materials and planning model production. Aligns, fits, and joins parts, using bolts or screws or by welding or gluing. Wires and solders electrical and electronic connections and components. Assembles mechanical, electrical, and electronic components into models or prototypes, using hand tools, power tools, and fabricating machines. Records specifications, production operations, and final dimensions of model for use in establishing operating standards and machinery procedures. Consults and confers with engineering personnel to discuss developmental problems and recommend modifications to correct or improve performance of product. Makes bridges, plates, wheels, cutting teeth on wheels and pinions, and threaded screws. Devises and constructs own tools, dies, molds, jigs, and fixtures, or modifies existing tools and equipment. Inspects and tests model or other product to verify conformance to specifications, using precision measuring instruments or circuit tester. Reworks or alters component model or parts as required to ensure performance of equipment or that parts meet standards. Fabricates metal or plastic parts, using hand tools. Grinds, files, and sands parts to finished dimensions. Drills, countersinks, and reams holes in parts and assemblies for bolts, screws, and other fasteners, using power tools. Lays out and marks reference points and dimension on materials, using measuring instruments and drawing or scribing tools. Cuts, shapes, and forms metal parts, using lathe, power saw, snips, power brakes and shear, files, and mallets. Determines fixtures, machines, tooling, and sequence of operations to fabricate parts, dies, and tooling, according to drawings and sketches.

### **51-4062.00 Patternmakers, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates machine tools, such as milling machines, lathes, drill presses, and grinders, to machine castings or pattern. Operates welding equipment to weld pattern together. Cleans and fine finishes pattern or template, using emery cloth, files, scrapers, and power grinders. Marks identification numbers or symbols onto pattern or template. Repairs and reworks templates and patterns. Covers or sprays pattern used in producing plastic with plastic-impregnated fabric or coat of sealing lacquer or wax. Constructs platforms, fixtures, and jigs for holding and placing patterns. Makes templates or files for own use in inspection and finishing of particular shape. Assembles pattern sections, using hand tools, bolts, screws, rivets, or glue. Studies blueprint of part to be cast or pattern to be made, computes dimensions, and plans sequence of operations. Designs and develops template or pattern according to work orders, sample parts, or mockups. Lays out and draws or scribes pattern onto material, using compass, protractor, ruler, scribe, or other instruments. Verifies conformance of pattern or template dimensions to specifications, using measuring instruments such as calipers, scales, and micrometers. Cuts, trims, shapes, and forms patterns or templates, using hand tools and power tools.

### **51-4081.01 Combination Machine Tool Setters and Set-Up Operators, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates lathes, cutters, borers, millers, grinders, presses, drills, and auxiliary machines to make metallic and plastic work pieces. Moves controls or mounts gears, cams, or templates in machine to set feed rate and cutting speed, depth, and angle. Monitors machine operation and moves controls to align and adjust position of work pieces and action of cutting tools. Selects, installs, and adjusts alignment of drills, cutters, dies, guides, and holding devices, using template, measuring instruments, and hand tools. Starts machine and turns hand wheels or valves to engage feeding, cooling, and lubricating mechanisms. Reads blueprint or job order to determine product specifications and tooling instructions and to plan operational sequences. Measures and marks reference points and cutting lines on work piece, using traced templates, compasses, and rules. Computes data, such as gear dimensions and machine settings, applying knowledge of shop mathematics. Inspects first-run work pieces and verifies conformance to specifications to check accuracy of machine setup. Lifts, positions, and secures work pieces in holding devices, using hoists and hand tools. Makes minor electrical and mechanical repairs and adjustments to machines, and notifies supervisor when major service is required. Records operational data such as pressure readings, length of stroke, feeds, and speeds. Instructs operators or other workers in machine setup and operation.

### **51-4081.02 Combination Machine Tool Operators and Tenders, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Activates and tends or operates machines to cut, shape, thread, bore, drill, tap, bend, or mill metal or non-metallic material. Observes machine operation to detect work piece defects or machine malfunction. Positions, adjusts, and secures work piece against stops, on arbor, or in chuck, fixture, or automatic feeding mechanism manually or using hoist.

Reads job specifications to determine machine adjustments and material requirements. Aligns layout marks with die or blade. Extracts or lifts jammed pieces from machine, using fingers, wire hooks, or lift bar. Inspects work piece for defects and measures work piece, using rule, template, or other measuring instruments to determine accuracy of machine operation. Adjusts machine components and changes worn accessories, such as cutting tools and brushes, using hand tools. Sets machine stops or guides to specified length as indicated by scale, rule or template. Installs machine components, such as chucks, boring bars, or cutting tools, according to specifications, using hand tools. Removes burrs, sharp edges, rust, or scale from work piece, using file, hand grinder, wire brush, or power tools. Performs minor machine maintenance, such as oiling or cleaning machines, dies, or work pieces, or adding coolant to machine reservoir.

**51-4111.00 Tool and Die Makers Entry – Mid – Senior level position assuming education and experience prerequisite**

Studies blueprints or specifications and visualizes shape of die, part, or tool. Measures, marks, and scribes metal or plastic stock to lay out machining, using instruments, such as protractors, micrometers, scribes, and rulers. Lifts, positions, and secures machined parts on surface plate or worktable, using hoist, vises, v-blocks, or angle plates. Verifies dimensions, alignments, and clearances of finished parts, using measuring instruments, such as calipers, gauge blocks, micrometers, and dial indicators. Sets pyrometer controls of heat-treating furnace, and feeds or places parts, tools, or assemblies into furnace to harden. Designs tools, jigs, fixtures, and templates for use as work aids. Casts plastic tools or parts, or tungsten-carbide cutting tips, using pre-made molds. Cuts, shapes, and trims blank or block to specified length or shape, using power saws, power shears, rule, and hand tools. Fabricates saw blades, using power roller to straighten blade stock, punch press to cut teeth, and power grinder to sharpen teeth. Connects wiring and hydraulic lines to install electrical and hydraulic components. Inspects die for smoothness, contour conformity, and defects by touch or visually, using loupe or microscope. Operates power press to test completed dies, and applies pigment to die to indicate high spots which require reworking. Sets up and operates drill press to drill and tap holes in parts for assembly. Repairs or modifies tools and dies, using machine tools and hand tools. Fits and assembles parts, using bolts, glue, and other fasteners, and hand tools, such as hammers and wrenches. Smooths and polishes flat and contoured surfaces of parts or tools, using scrapers, abrasive stones, files, emery cloth, or power grinder. Sets up and operates machine tools, such as lathes, milling machines, shapers, and grinders, to machine parts. Computes dimensions of assembly and plans sequence of operations.

**51-4121.01 Welders, Production Entry – Mid – Senior level position assuming education and experience prerequisite**

Welds or tack welds metal parts together, using spot welding gun or hand, electric, or gas welding equipment. Ignites torch and regulates flow of gas and air to obtain desired temperature, size, and color of flame. Preheats work pieces preparatory to welding or bending, using torch. Fills cavities or corrects malformation in lead parts and hammers out bulges and bends in metal work pieces. Positions and secures work piece, using hoist, crane, wire and banding machine, or hand tools. Climbs ladders or works on scaffolds to disassemble structures. Signals crane operator to move large work pieces. Examines work piece for defects and measures work piece with straightedge or template to ensure conformance with specifications. Dismantles metal assemblies or cuts scrap metal, using thermal-cutting equipment such as flame-cutting torch or plasma-arc equipment. Selects, positions, and secures torch, cutting tips, or welding rod, according to type, thickness, area, and desired temperature of metal. Connects hoses from torch to tanks of oxygen and fuel gas, and turns valves to release mixture. Guides and directs flame or electrodes on or across work piece to straighten, bend, melt, or build up metal. Fuses parts together, seals tension points, and adds metal to build up parts.

**51-4121.02 Welders and Cutters Entry – Mid – Senior level position assuming education and experience prerequisite**

Welds metal parts or components together, using brazing, gas, or arc welding equipment. Guides electrodes or torch along weld line at specified speed and angle to weld, melt, cut, or trim metal. Reviews layouts, blueprints, diagrams, or work orders in preparation for welding or cutting metal components. Selects and installs torch, torch tip, filler rod, and flux, according to welding chart specifications or type and thickness of metal. Ignites torch or starts power supply and strikes arc. Preheats work piece, using hand torch or heating furnace. Positions work pieces and clamps together or assembles in jigs or fixtures. Inspects finished work piece for conformance to specifications. Chips or grinds off excess weld, slag, or spatter, using hand scraper or power chipper, portable grinder, or arc-cutting equipment. Cleans or degreases parts, using wire brush, portable grinder, or chemical bath. Welds in flat, horizontal, vertical, or overhead position. Repairs broken or cracked parts, fills holes and increases size of metal parts, using welding equipment. Connects and turns regulator valves to activate and adjust gas flow and pressure to obtain desired flame. Selects and inserts electrode or gas nozzle into holder and connects hoses and cables to obtain gas or specified amperage, voltage, or polarity.



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### **51-4121.03 Welder-Fitters Entry – Mid – Senior level position assuming education and experience prerequisite**

Lays out, positions, and secures parts and assemblies according to specifications, using straightedge, combination square, calipers, and ruler. Tack-welds or welds components and assemblies, using electric, gas, arc, or other welding equipment. Cuts work piece, using powered saws, hand shears, or chipping knife. Heats, forms, and dresses metal parts, using hand tools, torch, or arc welding equipment. Observes tests on welded surfaces, such as hydrostatic, x-ray, and dimension tolerance to evaluate weld quality and conformance to specifications. Inspects grooves, angles, or gap allowances, using micrometer, caliper, and precision measuring instruments. Installs or repairs equipment, such as lead pipes, valves, floors, and tank linings. Removes rough spots from work piece, using portable grinder, hand file, or scraper. Melts lead bar, wire, or scrap to add lead to joint or to extrude melted scrap into reusable form. Welds components in flat, vertical, or overhead positions. Ignites torch and adjusts valves, amperage, or voltage to obtain desired flame or arc. Analyzes engineering drawings and specifications to plan layout, assembly, and welding operations. Determines required equipment and welding method, applying knowledge of metallurgy, geometry, and welding techniques. Develops templates and other work aids to hold and align parts.

### **51-4192.00 Layout Workers, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Details location and sequence of cutting, drilling, bending, rolling, punching, and welding operations, using compass, protractor, dividers, and rule. Locates centerline and verifies template position, using measuring instruments, including gauge blocks, height gauges, and dial indicators. Marks curves, lines, holes, dimensions, and welding symbols onto work piece, using scribes, soapstone, punches, and hand drill. Determines reference points and computes layout dimensions and works to tolerances, as close as 0.001 inch. Examines work piece and verifies such requirements as dimensions and squareness, using rule, square, and straightedge. Lifts and positions work piece in relation to surface plate manually or with hoist, using parallel blocks and angle plates. Plans and develops layout from blueprints and templates, applying knowledge of trigonometry, design, effects of heat, and properties of metal. Applies pigment to layout surfaces, using paintbrush. Inspects machined parts to verify conformance to specifications. Fits and aligns fabricated parts for welding or assembly operations. Adds dimensional details to blueprints or drawings by other workers and designs templates of wood, paper, or metal.

### **51-4193.01 Electrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Moves controls to permit electrodeposition of metal on object or to regulate movement of wire strand to obtain specified thickness. Adjusts voltage and amperage, based on observations. Determines size and composition of object to be plated and amount of electrical current and time required, following work order. Suspends object, such as part or mold, from cathode rod (negative terminal) and immerses object in plating solution. Suspends stick or piece of plating metal from anode (positive terminal) and immerses metal in plating solution. Mixes chemical solutions, fills tanks and charges furnaces. Removes plated object from solution at periodic intervals and observes object to ensure conformance to specifications. Plates small objects, such as nuts or bolts, using motor-driven barrel. Immerses object in cleaning and rinsing baths to complete plating process. Examines object at end of process to determine thickness of metal deposit or measures thickness, using instruments, such as micrometers. Measures, marks, and masks areas excluded from plating. Grinds, polishes, or rinses object in water and dries object to maintain clean even surface.

### **51-4193.03 Non-Electrolytic Plating and Coating Machine Setters and Set-Up Operators, Metal and Plastic Entry – Mid – Senior level position assuming education and experience prerequisite**

Measures and sets stops, rolls, brushes, and guides on automatic feeder and conveying equipment or coating machines, using micrometer. Adjusts controls to set temperatures of coating substance, and adjusts speeds of machines and equipment. Attaches nozzle, positions gun, connects hoses, and threads wire to set up metal-spraying machine. Ignites gun and adjusts controls to regulate wire feed, air pressure, and flow of oxygen and fuel to operate metal-spraying machine. Installs gears and holding devices on conveyor equipment. Reads production schedule to determine setup of equipment and machines. Mixes anodize solution in tank of machine, according to formula, and verifies solution concentration, using gauge. Positions work pieces, starts operation of machines and conveyors, and feeds work pieces into machines to be coated. Adjusts controls to synchronize equipment speed with speed of coating or spraying machine. Operates hoist to place work pieces onto machine feed carriage or spindle. Inspects coated products for defects and specified color and coverage. Operates sandblasting equipment to roughen and clean surface of work pieces. Preheats work pieces in oven.

### **51-4194.00 Tool Grinders, Filers, and Sharpeners Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets-up, operates, and adjusts grinding or polishing machines to grind metal work pieces, such as dies, parts, and tools.

Files or finishes surface of work piece, using prescribed hand tool. Selects and mounts grinding wheels on machines, according to specifications, using hand tools and applying knowledge of abrasive and grinding procedures. Straightens work piece and removes dents in work piece, using straightening press and hammers. Computes number, width, and angle of cutting tool, micrometer, scales, and gauges and adjusts tool to produce specified cuts. Studies blueprint or layout of metal work piece to visualize grinding procedure and plan sequences of operations. Measures and examines work piece to verify that dimensions meet specifications. Cleans and lubricates machine parts. Removes finished work piece from machine and places in boxes or racks, depending on size of work piece. Inspects dies to detect defects, assess wear, and verify specifications, using micrometers, steel gauge pins, and loupe. Fits parts together in pre-assembly to ensure dimensions are accurate. Forms specified section of work piece and repairs cracks in work piece, using welding or brazing equipment. Removes and replaces machine parts, using hand tools. Duplicates work piece contours, using tracer attachment. Places work piece in electroplating solution or applies pigment to surfaces of work piece to highlight ridges and grooves. Turns valves to direct flow of coolant against cutting wheel and work piece. Examines and feels surface of work piece to verify grinding meets specifications. Observes and listens to machine operation to determine whether adjustments are necessary to ensure work pieces meet specifications. Tends machine that grinds, files, or polishes work piece. Dresses grinding wheel, according to specifications.

**51-5011.01 Bindery Machine Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs bindery machine devices, such as knives, guides, and clamps to accommodate sheets, signatures or books of specified sizes. Starts machines and makes trial runs to verify accuracy of machine setup. Fills glue pot and adjusts flow of glue and speed of conveyors. Observes and monitors machine operations to detect malfunctions and makes required adjustments. Manually stocks supplies such as signatures, books, or paper. Records time spent on specific tasks and number of items produced, for daily production sheet. Trains workers to set up, operate, and use automatic bindery machines. Removes books or products from machine and stacks them. Cleans and lubricates machinery parts and makes minor repairs. Examines product samples for defects. Reads work order to determine work instructions. Threads wire into machine to load stitcher head for stapling. Positions and clamps stitching heads on cross arms to space stitches to specified lengths. Sets machine controls to adjust length and thickness of folds, stitches or cuts, and to adjust speed and pressure. Mounts and secures rolls or reels of wire, cloth, paper or other material onto machine spindles and fills paper feed.

**51-5022.01 Hand Compositors and Typesetters Entry – Mid – Senior level position assuming education and experience prerequisite**

Inserts spacers between words or units to balance and justify lines. Prepares proof copy of setup, using proof press. Measures copy with line gauge to determine length of line. Arranges galley of linotype slugs (takes) in sequence on correction table. Cleans type after use and distributes it to specified boxes in type case. Removes incorrect portion and manually inserts corrections. Compares symbols on proof with galley symbol, and reads portion of text to locate positions for insertion of corrected slugs. Compares corrected type slugs against proof to detect errors. Transfers type from stick to galley when setup is complete. Selects type from type case and sets it in compositional sequence, reading from copy. Inserts lead, slugs, or lines of quads between lines to adjust length of setup. Arranges, groups, and locks galley setups of type, cuts, and headings in chases, according to dummy makeup sheet.

**51-5022.03 Photoengravers Entry – Mid – Senior level position assuming education and experience prerequisite**

Develops and prints negatives, positives, film, or plates by controlled exposure to light, using exposure equipment, chemical baths, and vacuum. Brushes protective solution and powder on plate and starts machine to distribute acid or photosensitizing solution over plate or rollers. Etches designs on metal rollers and plates, using etching machines, hand tools, and acidic chemicals, to produce printing plates and rollers. Computes camera machine settings for film exposure or reproduction, using equipment meter, computer, worksheets, and standard formulas and tables. Studies and compares film negatives or positives with originals or design, to determine photographic requirements and verify reproduction. Matches colors with original to produce balanced color values or intensity design. Examines developed film, proof, or engravings, using magnifier, chalk, or charcoal to evaluate quality and detect errors. Modifies or repairs plates or film, using etching and artist's brush, acid, and hand tools. Mixes caustic or acid solutions. Washes rollers and plates preparatory to etching or to remove resistant solution and photographic emulsion, using water, cleaning solution, and brush. Transfers images, designs, or patterns onto rollers, plates, or film, using photographic or pantographic equipment and techniques, and hand tools. Positions, loads, or mounts copy, plates, film, or rollers and secures into place.



**51-5022.04 Camera Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Feeds film into automatic film processor that develops, fixes, washes, and dries film. Selects and installs screens and filters in camera to produce desired effects. Adjusts camera settings, lights, and lens. Exposes high contrast film for predetermined exposure time. Performs exposure tests to determine line, halftone, and color reproduction exposure lengths for various photographic factors. Mounts material to be photographed on copy board of camera. Measures original layouts and determines proportions needed to make reduced or enlarged photographic prints for paste-up. Measures density of continuous tone images to be photographed to set exposure time for halftone images. Immerses film in series of chemical baths to develop images and hangs film on rack to dry.

**51-5022.05 Scanner Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Activates scanner to produce positive or negative films for each primary color and black in original copy. Types on scanner keyboard or touches mouse to symbols on scanner video display unit to input software, or moves controls to set scanner to specific color density, size, screen ruling, and exposure adjustments. Loads film into holder, places holder in exposing chamber, and starts mechanism that loads and secures film on scanner drum. Inspects developed film for specified results and quality and forwards acceptable negatives or positives to other workers or customer. Performs tests to determine exposure adjustments on scanner and adjusts scanner controls until specified results are obtained. Positions color transparency, negative, or reflection copy on scanning drum and mounts drum and head on scanner. Analyzes original to evaluate color density, gradation highlights, middle tones, and shadows, using densitometer and knowledge of light and color. Unloads exposed film from scanner and places film in automatic processor to develop image on film.

**51-5022.06 Strippers Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts image window area to allow exposure to plate or film, using razor or artist's knife. Applies rubber solution and collodion to toughen negative, cuts to size, and immerses in acid bath to prepare negative for stripping. Positions film negatives or positives on light table according to art layout, blueprint, and color register to form film flat. Cuts masks and arranges negatives to prepare for contact printing, plate exposure, or proof making. Assembles and aligns negatives or positives to assure register and fit with units of color. Examines paste-up, artwork, film, prints, and instructions to determine size and dimensions, number of job colors, and camera work needed. Determines proportions needed to reduce or enlarge photographs and graphics to fit in designated area, using calculator or proportion scale. Makes proof from film flat to determine accuracy of flat. Draws ruled lines and borders around negatives or positives. Sends completed flat to proofing area or plate making area for preparation of final proof or lithographic plate. Examines proof returned by customer and makes corrections according to customer specifications. Touches up imperfections, using opaque and brush on negatives, and needle and crayon pencil on photographs. Determines or approves plans and page sequences to lay out job for specific printing press. Examines negatives and photographs to detect defective areas, using lighted viewing table. Strips negative from base. Aligns negatives and masks over unexposed film in vacuum frame to make negatives or positives for final film of each color. Selects and inserts screen tints in film flat, using knowledge of dot percentages required to obtain specific colors.

**51-5022.07 Plate Makers Entry – Mid – Senior level position assuming education and experience prerequisite**

Mounts negative and plate in camera that exposes exposed plate to artificial light through photographic negative, thus transferring image. Transfers image from master plate to unexposed plate and immerses plate in developing solution to develop image on plate. Transfers images by hand and covers surface of plates with photosensitive chemical, using brush, and allows plate to dry. Removes plate-film assembly from vacuum frame and places exposed plate in automatic processor to develop image and dry plate. Examines unexposed photographic plate to detect flaws or foreign particles prior to printing pattern of aperture masks on sensitized steel. Installs and aligns plates in printing case. Punches holes in light-sensitive plate and inserts pins in holes to prepare plate for contact with positive or negative film. Repairs defective plates with missing dots, using photographic touch-up tool and ink. Performs tests to determine time required for exposure by exposing plates and compares exposure to scale which measures tone ranges. Places plate in vacuum frame to align positives or negatives with each other and places masking paper over uncovered areas. Examines plate, using light-box and microscope to detect flaws, verify conformity with master plate, and measure dot size and center. Mixes and applies chemical-based developing solution to plates and replenishes solution in processor to maintain it in working order. Lowers vacuum frame onto plate-film assembly to establish contact between positive-negative film and plate, and sets timer to expose plate.

**51-5022.08 Dot Etchers Entry – Mid – Senior level position assuming education and experience prerequisite**

Places masks over separation negatives or positives and exposes film for specified time, using contact frame and

automatic film processor to reduce size of photographic dots to increase or reduce color. Determines extent of correction and exposure length needed based on experience or predetermined exposure and color charts. Applies opaque to defective areas of film to block out blemishes and pinholes. Compares proof print of color separation negative or positive with customer's original copy and standard color chart to determine accuracy of reproduction. Identifies and marks color discrepancies on print and film. Examines film on light table to determine specified color and color balance, using magnifying glass or densitometer. Prepares photographic masks to protect areas of film not needing correction, using contact frame and automatic film processor or by manually cutting masking material, to correct color by photomechanical method. Prepares dyes and other chemical solutions according to standard and applies solution to inaccurately colored areas of film to correct color by chemical method. Blocks out or modifies color shades of film, using template, brushes, and opaque.

**51-5022.09 Electronic Masking System Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Views monitors for feedback and error prompts, for visual representations of work in progress, and for numerical information such as width of line and last point plotted. Presses button to activate vacuum to hold masking in place and to activate drafting unit that scores masking material with programmed figures. Presses button to transfer data from system memory to disk. Activates plotting drum to make photographic mask exposures. Places material on light table and peels scored figures from masking material, using needle and tape. Removes scored masking material from drafting table. Removes film from plotting drum and puts film in automatic film processor to create masks. Positions artist's layout on digitizing tables of electronic masking system to prepare for data entry in system memory. Studies layout sheet to determine shapes of windows drawn on layout sheet. Loads drafting unit with masking material to prepare for plotting and scoring of programmed figures or loads film into plotting drum to make photographic mask exposure. Touches reference points of designs on layout sheet, using mouse, and presses button of mouse to enter coordinates of design in system memory. Selects options on menu of electronic masking system, such as shape, dimensions of designs to be drawn, register marks, and retrieval of stored designs. Touches symbol of option selected on menu and activates option with mouse.

**51-5022.10 Electrotypers and Stereotypers Entry – Mid – Senior level position assuming education and experience prerequisite**

Inserts pins in base to register stereotype plates to key plate for mat molding. Drills matching holes in series of mounted color stereotype plates to be duplicated. Corrects defects on plate, using engraver's hand tools, punches, and hammers. Aligns and notches mats of color series with key color mat, using matching machine with monochrome magnifier attachment. Sprays plastic mold with silver solution and immerses mold in plating tank. Operates proof press to obtain proof of plate reproduction and registration. Curves plates for cylinder presses, using plate-curving machine. Cuts and pastes pieces of paper-felt or cardboard in nonprinting areas of wood-fiber mat to prevent collapse during casting. Mounts finished plates on wood or metal blocks for flatbed presses, using hammer, nails, or bonding press. Examines plate to detect imperfect formation of lines, type, and halftone dots, using magnifier. Trims mat, using trimming machine, by aligning notches of mat with pins on trimming machine. Operates automatic casting machine to produce electrotype or stereotype printing plates. Forms mold of composed type, using plastic sheet molding or wood-fiber mat, and hydraulic press. Pours metal into casting box or plated mold by hand to produce electrotype or stereotype printing plates. Removes excess metal from edges, back, and nonprinting surface areas of plate, using power shear, milling machines, or routing machine.

**51-5022.11 Plate Finishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Selects cutting position and sets controls of saws, milling machines, and routers following specifications. Operates plate-carving machine to cut plates to fit printing press. Operates press to print proof of plate, observing printing quality. Taps plate with hammer and block to flatten until even. Examines plates with magnifier or microscope to detect flaws using engraver's tools. Rubs surface with finishing material to reveal unevenness. Mounts finished plates on wood or metal blocks using hammer and nails or thermoplastic adhesive and heat press. Operates cutting tools to shave and smooth plates to specified thickness.

**51-5022.12 Typesetting and Composing Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Monitors machines and gauges to ensure and maintain standards. Adjusts feed guides, gauges, and rollers using hand tools. Fills reservoirs with paint or ink. Adjusts and changes gears using hand tools. Inspects product to detect defects. Measures and records amount of product produced. Selects printing plates, dies, or type according to work order. Installs printing plates, cylinders, or rollers on machine using hand tools and gauges. Mounts materials to be printed onto feed mechanisms and threads materials through guides to machine.

**51-5022.13 Photoengraving and Lithographing Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates machinery such as film processor, graining machine, and varnishing equipment. Paints over pinholes, scratches and reference points on roller using brush and acid resistant paint. Grains printing plates by wet or dry sandblasting or using glass marbles. Examines finished blueprint for specified color, intensity, and sharpness of line. Cuts printing plates from sheets of aluminum and zinc using power shears. Examines printing plates with magnifier for uniformity, size, and structures of grain and washes off excess sediment. Rolls out and hammers used printing plates to remove gripper marks and bent corners. Maintains machinery in working order such as automatic film processor and exposure machine. Copies printed materials such as documents and drawing using blueprint machine. Applies acid resistant ink to varnished copper roller and examines for ink smears or cavities filled with ink. Cuts excess metal and bevels edges of printing plates using routing machine. Immerses and turns printing roller in bath solutions to dissolve coating, develop image, and dye using electric hoist. Mounts finished plates on wood, synthetic or metal blocks either by hand or using automatic plate-mounting equipment.

**51-5023.01 Precision Printing Workers Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates automatic processor to develop photographs, plates, or base material used in single or multicolor proofs. Sets up and operates various types of cameras to produce negatives, photostats, or plastic or paper printing plates. Immerses exposed materials into chemical solutions to hand develop single or multicolor proofs, or printing plates. Prepares microfiche duplicates of microfilm, using contact printer and developing machine. Puts flats into vacuum frame to produce aluminum plate, microfiche print, or single or multicolor proof. Hand rubs paper against printing plate to transfer specified design onto paper for use in etching glassware. Scans artwork, using optical scanner, which changes image into computer-readable form. Enters, positions, and alters size of text, using computer, to make up and arrange pages to produce printed materials. Sets up and operates bindery equipment to cut, assemble, staple, or bind materials. Maintains printing machinery and equipment. Examines and inspects printed material for clarity of print and specified color. Mixes powdered ink pigments, using matching book and measuring and mixing tools. Reviews layout and customer order to determine size and style of type. Measures density levels of colors or color guides on proofs, using densitometer, and compares readings to set standards. Prints paper or film copies of completed material from computer. Compares test exposures to quality control color guides or exposure guides to determine data for exposure settings. Positions and aligns negatives to assemble flats for reproduction. Operates offset-duplicating machine or small printing press to reproduce single or multicolor copies of line, drawings, graphs, or similar materials.

**51-5023.02 Offset Lithographic Press Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Examines job order to determine quantity to be printed, stock specifications, colors, and special printing instructions. Washes plate to remove protective gum coating. Applies packing sheets to blanket cylinder to build up blanket thickness to diameter of plate cylinder. Fills ink and dampening solution fountains, and adjusts controls to regulate flow of ink and dampening solution to plate cylinder. Removes and cleans plate and cylinders. Loads paper into feeder or installs rolls of paper, adjusts feeder and delivery mechanisms, and unloads printed material from delivery mechanism. Measures plate thickness and inserts packing sheets on plate cylinder to build up plate to printing height. Starts press and examines printed copy for ink density, position on paper, and registration. Makes adjustments to press throughout production run to maintain specific registration and color density. Measures paper thickness and adjusts space between blanket and impression cylinders according to thickness of paper stock. Installs and locks plate into position, using hand tools, to achieve pressure required for printing.

**51-5023.03 Letterpress Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Moves controls to set or adjust ink flow, tension rollers, paper guides, and feed controls. Directs and monitors activities of apprentices and feeding or stacking workers. Record and maintain production log sheet. Inspects printed materials for irregularities such as off-level areas, variations in ink volume, register slippage, and poor color register. Reads work orders and job specifications to select ink and paper stock. Operates specially equipped presses and auxiliary equipment, such as cutting, folding, numbering, and pasting devices. Loads, positions, and adjusts unprinted materials on holding fixtures or in feeding mechanism of press. Pushes buttons or moves controls to start printing press and control operation. Monitors feeding and printing operations to maintain specified operating levels and detect malfunctions. Dismantles and reassembles printing unit or parts, using hand tools, to repair, clean, maintain, or adjust press. Mixes colors or inks and fills reservoirs. Positions and installs printing plates, cylinder packing, die, and type forms in press, according to specifications, using hand tools.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **51-5023.04 Design Printing Machine Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs printing plates, cylinders, or rollers on machine, using hand tools and gauges. Monitors machines and gauges to ensure and maintain standards. Inspects product to detect defects. Repairs or replaces worn or broken parts, using hand tools. Measures and records amount of product produced. Cleans and lubricates equipment. Mixes colors of paint according to formulas. Fills reservoirs with paint or ink. Adjusts feed guides, gauges, and rollers, using hand tools. Adjusts and changes gears, using hand tools.

### **51-5023.05 Marking and Identification Printing Machine Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts machine as needed, using hand tools. Monitors printing process to detect machine malfunctions. Cleans machine and equipment, using solvent and rags. Examines product to detect defects. Sets rate of flow of coloring agent and speed and spacing of materials to achieve desired product. Selects printing plates, dies, or type according to work order. Mounts printing plates, dies, or type onto machine. Fills reservoirs with ink or specified coloring agents. Mounts materials to be printed onto feed mechanisms and threads materials through guides on machine.

### **51-5023.06 Screen Printing Machine Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets and adjusts feed rollers, spindle reel, printing screens, and bolts to specifications. Examines product for paint smears, position of design, or other defects and adjusts equipment. Inspects printing equipment and replaces damaged or defective parts, such as switches, pulleys, fixtures, screws, and bolts. Compares ink or paint prepared for printing run with master color swatch to confirm accuracy of match. Adjusts position of design or screen to ensure specified color print registration. Trains workers in use of printing equipment and in quality standards. Counts and records quantities printed in production log. Patrols printing area to monitor production activities and to detect problems, such as mechanical breakdowns or malfunctions. Mixes paints according to formula, using bench mixer. Starts dyeing oven and sets thermostat to temperature specified for printing run. Reviews print order to determine settings and adjustments required to set up manually controlled or automatic screen printing machine or decorating equipment. Determines from orders type and color of designs to print. Measures, centers, and aligns and positions screen, using gauge and hand tools.

### **51-5023.07 Embossing Machine Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets guides to hold cover in position and adjusts table height to obtain correct depth of impression. Stamps embossing design on work piece, using heated work tools. Makes impression of embossing to desired depth in composition on platen, trims off excess, and allows composition to harden. Mixes embossing composition to putty-like consistency, spreads glue on paten, and applies thin pad of composition over glue. Cuts surface of cardboard leaving design or letters, using hand tools. Removes and stacks embossed covers. Scrapes high spots on counter die to prevent from puncturing paper. Sets sheets singly in gauge pins and starts press. Positions, installs, and locks embossed plate in chase and locks chase in bed of press. Starts machine to lower ram and impress cardboard.

### **51-5023.08 Engraver Set-Up Operators Entry – Mid level position assuming education and experience prerequisite**

Positions machine mechanisms and depresses levers to apply marks on roller. Inserts mandrel through roller and lifts into position on machine. Measures depth of engraving and weighs diamond points, using gauges and scales. Records ground setting, length of roller, width of engraving, and circumference of roller on production sheet. Examines marks on roller to verify alignment and detect defects. Determines ground setting according to weight of fabric, type of design, and colors in design. Turns screws to align machine components. Aligns plate with markings on machine table and tacks to table. Adjusts and tightens levers in position, using hand tools.

### **51-5023.09 Printing Press Machine Operators and Tenders Entry – Mid level position assuming education and experience prerequisite**

Pushes buttons, turns handles or moves controls and levers to start printing machine or manually controls equipment operation. Reviews work order to determine ink, stock and equipment needed for production. Blends and tests paint, inks, stains and solvents according to type of material being printed and work order specifications. Inspects and examines printed products for print clarity, color accuracy, conformance to specifications and external defects. Pours or spreads paint, ink, color compounds and other materials into reservoirs, troughs, hoppers or color holders of printing unit. Directs and monitors activities of workers feeding, inspecting and tending printing machines and materials. Keeps daily time and materials usage reports and records identifying information printed on manufactured products and parts.

Packs and labels cartons, boxes or bins of finished products. Accepts orders, calculates and quotes prices and receives payments from customers. Discards or corrects misprinted materials, using ink eradicators or solvents. Dismantles and reassembles printing unit or parts, using hand and power tools, to repair, maintain or adjust machine. Cleans and lubricates printing machine and components (e.g., rollers, screens, typesetting, reservoirs) using oil, solvents, brushes, rags and hoses. Removes printed materials from press, using hand truck, electric lift or hoist, and transports them to drying, storage or finishing areas. Monitors and controls operation of auxiliary equipment, such as cutters, folders, drying ovens and sanders to assemble and finish product. Monitors feeding, printing and racking processes of press to maintain specified operating levels and detect malfunctions. Turns, pushes or moves controls to set and adjust speed, temperature, ink flow, and position and pressure tolerances of press. Selects and installs printing plates, rollers, screens, stencils, type, die, and cylinders in machine according to specifications, using hand tools. Loads, positions and adjusts unprinted materials on holding fixture or in loading and feeding mechanisms of press.

**51-6011.01 Spotters, Dry Cleaning Entry – Mid level position assuming education and experience prerequisite**

Inspects spots to ascertain composition and select solvent. Sprays steam, water, or air over spot to flush out chemicals, dry material, raise nap, or brighten color. Mixes bleaching agent with hot water in vats and soaks material until it is bleached. Cleans fabric using vacuum or air hose. Operates dry cleaning machine. Spreads article on worktable and positions stain over vacuum head or on marble slab. Applies chemicals to neutralize effect of solvents. Sprinkles chemical solvents over stain and pats area with brush or sponge until stain is removed. Applies bleaching powder to spot, and sprays with steam to remove stains from certain fabrics, which do not respond to other cleaning solvents.

**51-6011.02 Precision Dyers Entry – Mid – Senior level position assuming education and experience prerequisite**

Matches sample color applying knowledge of bleaching agent and dye properties, and type, construction, condition, and color of article. Immerses article in dye solution and stirs with stick or dyes article in rotary drum or paddle dyeing machine. Rinses article in water and acetic acid solution to remove excess dye and to fix colors. Applies dye to article, using spray gun, electrically rotated brush or hand brush. Operates or directs operation of extractor and drier. Sprays or brushes article with prepared solution to remove stains. Dissolves dye or bleaching chemicals in water. Measures and mixes amounts of bleaches, dyes, oils, and acids following formulas. Immerses article in bleaching bath to strip colors. Examines article to identify fabric and original dye by sight, touch, or by testing sample with fire or chemical reagent. Tests dye on swatch of fabric, to ensure color match.

**51-6011.03 Laundry and Dry Cleaning Machine Operators and Tenders, Except Pressing Entry – Mid level position assuming education and experience prerequisite**

Starts washer, dry cleaner, drier, or extractor, and turns valves or levers to regulate and monitor cleaning or drying operations. Tends variety of automatic machines that comb and polish furs; clean, sterilize, and fluff feathers and blankets; and roll and package towels. Removes or directs other workers to remove items from washer or dry cleaning machine and into extractor or tumbler. Adjusts switches to tend and regulate equipment that fumigates and removes foreign matter from furs. Mends and sews articles, using hand stitching, adhesive patch, or power sewing machine. Hangs curtains, drapes, blankets, pants, and other garments on stretch frames to dry, and transports items between specified locations. Irons or presses articles, fabrics, and furs, using hand iron or pressing machine. Receives and marks articles for laundry or dry cleaning with identifying code number or name, using hand or machine marker. Sorts and counts articles removed from dryer and folds, wraps, or hangs items for airing out, pickup, or delivery. Examines and sorts articles to be cleaned into lots, according to color, fabric, dirt content, and cleaning technique required. Pre-soaks, sterilizes, scrubs, spot-cleans, and dries contaminated or stained articles, using neutralizer solutions and portable machines. Washes, dry-cleans, or glazes delicate articles or fur garment linings by hand, using mild detergent or dry cleaning solutions. Cleans machine filters and lubricates equipment. Starts pumps to operate distilling system that drains and reclaims dry cleaning solvents. Loads or directs other workers to load articles into washer or dry cleaning machine. Mixes and adds detergents, dyes, bleach, starch, and other solutions and chemicals to clean, color, dry, or stiffen articles.

**51-6021.01 Pressers, Delicate Fabrics Entry – Mid level position assuming education and experience prerequisite**

Operates machine presses to finish parts that can be pressed flat and completes other parts by pressing with hand iron. Finishes pleated garments determining size of pleat from evidence of old pleat or from work order using machine press or hand iron. Inserts heated metal form into tie and touches up rough places with hand iron. Presses ties on small pressing machine. Finishes parts difficult to reach such as flounces by fitting parts over puff irons. Finishes velvet garments by steaming them on buck of hot head press or steam table and brushing pile with hand brush. Finishes fancy garments with hand iron to produce high quality finishes, which cannot be obtained on machine presses.

**51-6021.02 Pressing Machine Operators and Tenders- Textile, Garment, and Related Materials Entry – Mid – Senior level position assuming education and experience prerequisite**

Activates pressing machine to remove wrinkles from garments and flatwork items, or shape, form or patch articles. Selects, installs, and adjusts machine components, including pressing forms, rollers, and guides, according to pressing instructions using hoist and hand tools. Removes finished pieces from pressing machine and hangs or stacks for cooling, or forwards for additional processing. Moistens materials to soften and smooths and straightens materials with hands, to prepare for machine pressing. Presses materials, such as garments, drapes, and slipcovers using hand iron. Cleans and maintains pressing machines using cleaning solutions and lubricants. Hangs, folds, packages, and tags finished articles for delivery to customer. Applies cleaning solvents, and brushes materials made of suede, leather, and felt, to remove spots, and raise and smooth nap. Shrinks, stretches, or blocks articles by hand, to conform to original measurements, using forms, blocks, and steam. Sews end of new material to leader or to end of material in pressing machine using sewing machine. Examines and measures finished articles to verify conformance to standards, using measuring devices, including tape measure and micrometer. Positions materials, such as cloth garments, felt, or straw on table, die, or feeding mechanism of pressing machine. Lowers iron, ram, or pressing head of machine into position over material to be pressed. Activates and adjusts machine controls to regulate temperature and pressure of rollers, ironing shoe, or plates, according to specifications.

**51-6021.03 Pressers, Hand Entry – Mid level position assuming education and experience prerequisite**

Pushes and pulls iron over surface of article, according to type of fabric. Adjusts temperature of iron, according to fabric type, and uses covering cloths to prevent scorching or sheen on delicate fabrics. Fits odd-shaped pieces, which cannot be pressed flat over puff iron. Places article in position on ironing board or worktable. Sprays water over fabric to soften fibers when not using steam iron. Pins, folds, and hangs article after pressing. Measures fabric to specifications, cuts uneven edges with shears, folds material, and presses with iron to form heading. Smooths and shapes fabric prior to pressing.

**51-6031.01 Sewing Machine Operators, Garment Entry – Mid level position assuming education and experience prerequisite**

Starts and operates or tends machines that automatically join, reinforce, or decorate material or fabricated articles. Replaces and rethreads needles. Positions material or article in clamps, template, or hoop frame prior to automatic operation of machine. Guides garment or garment parts under machine needle and presser foot to sew parts together. Records number of garment parts or complete garments sewn. Inspects garments and examines repair tags and markings on garment to locate defects or damage. Cuts material and threads, using scissors. Replaces sewing machine parts and performs basic maintenance, such as oiling machine. Draws markings or pins appliqué on fabric to obtain variation in design and marks stitching errors with pins or tape. Bastes edges of material to align and temporarily secure garment parts for final assembly. Selects supplies, such as fasteners and thread, according to specifications or characteristics of fabric. Removes holding devices and finished item from machine. Attaches tape, trim, or elastic to specified garments or garment parts, according to item specifications. Folds or stretches edges or length of items, while sewing, to facilitate forming specified sections. Attaches buttons or fasteners to fabric, using feeding hopper or clamp holder. Observes sewing machine operation to detect defects in stitching or machine malfunction, and notifies supervisor. Sews replacement parts or missing stitches, according to repair tickets. Turns knobs, screws, and dials to adjust settings of machine, according to garment style and observation of operation. Draws thread through guides, tensions, and needles and adjusts machine functions, according to fabric type. Positions item under needle, using marks on machine, clamp or template, edges of cloth, or markings on cloth as guides.

**51-6031.02 Sewing Machine Operators, Non-Garment Entry – Mid level position assuming education and experience prerequisite**

Activates and adjusts machine controls to regulate stitching speed and length, dimensions of gathers and tucks, and material or thread tension. Positions materials through feed rollers and guides, or positions and maneuvers under sewing machine presser foot and needle during operation. Examines and measures finished articles to verify conformance to standards, using ruler. Places spools of thread, cord, or other materials on spindles, inserts bobbin, and threads ends through machine guides and components. Selects supplies, such as binding, cord, or thread, according to specifications or color of material. Sews materials by hand, using needle and thread. Records amount of materials processed in production logs. Removes finished materials from sewing machine. Tapes or twists together thread or cord to repair breaks. Positions and marks patterns on materials to prepare for sewing. Replaces needles, sands rough areas of needles with sandpaper, and cleans and oils sewing machines to maintain equipment. Cuts materials, according to specifications, or cuts excess material or thread from finished product, using blade, scissors, or electric knife. Folds or fits together materials, such as cloth, foam rubber, or leather, to prepare for machine sewing. Mounts attachments, such as needles, cutting blades, or pattern plates, and adjusts machine guides according to specifications. Monitors machine operation to detect problems, such as defective stitching, breaks in thread, or machine malfunction.

Activates sewing machine to join, gather, hem, reinforce, or decorate materials or fabricated articles, such as linens, toys, or luggage.

**51-6041.00 Shoe and Leather Workers and Repairers Entry – Mid – Senior level position assuming education and experience prerequisite**

Assembles product according to specifications, utilizing sewing machine, needle and thread, or leather lacing, glue, clamps, or rivets. Dyes, soaks, paints, stamps, or engraves leather or other materials to obtain desired effect or shape. Fabricates articles such as purses, wallets, belts, luggage frames, and shoes. Inserts and positions padding, foam cushioning, or lining and glues or stitches into place. Inspects article for defects and removes damaged or worn parts, using hand tools. Trims and buffs, bevels, or flares work piece to specified size and shape. Draws pattern, using measurements, plaster cast, or customer specifications, and positions or outlines pattern on work piece. Reads prescription or specifications and measures item, using calipers, tape measures, or rule. Drills or punches holes and inserts metal rings, handles, and hardware. Aligns and stitches or glues materials, such as fabric, fleece, leather, or wood to join parts. Repairs and reconditions products such as trunks, luggage, shoes, and saddles. Selects material and cuts parts along pattern or outline, with knife, shears, or scissors. Attaches accessories or ornamentation to decorate or protect product. Sews rips or patches holes by hand or machine to repair articles, such as purses, shoes, and luggage.

**51-6042.00 Shoe Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Turns setscrew on needle bar and positions required number of needles in designated stitching machines. Draws thread through machine guide slots and needles. Lowers pressure foot or roller to secure parts and starts machine stitching, using hand, foot, or knee controls. Selects and places spools of thread or pre-wound bobbins into shuttles or onto spindles or loupers of stitching machines. Removes and examines shoe parts and design to verify conformance to specifications. Reads shoe part tags to identify appropriate instruction cassette and style and color of thread. Cuts excess thread or material from shoe part, using scissors or knife. Guides shoe into feeding mechanism that attaches, stitches, joins, or reinforces shoe parts, according to instructions. Selects and inserts specified cassettes into consoles of stitching machine to stitch decorative designs onto shoe parts. Aligns parts to be stitched, following seams, edges, or markings, and positions parts under needle.

**51-6051.00 Sewers, Hand Entry – Mid – Senior level position assuming education and experience prerequisite**

Sews using various types of stitches, such as felling, tacking, basting, embroidery, and fagoting. Folds, twists, stretches, or drapes material and secures article in preparation for sewing. Trims excess threads or edges of parts, using scissors or knife. Smooths seams with heated iron, flat bone or rubbing stick. Ties, knits, weaves or knots ribbon, yarn or decorative materials. Softens leather or shoe material with water. Waxes thread by drawing it through ball of wax. Draws and cuts pattern according to specifications. Attaches trimmings and labels to article with cement, using brush or cement gun. Measures and aligns parts, fasteners, or trimmings, following seams, edges, or markings on parts. Selects thread, twine, cord, or yarn and threads needles. Joins and reinforces parts of articles, such as garments, books, mattresses, toys, and wigs.

**51-6052.01 Shop and Alteration Tailors Mid – Senior level position assuming education and experience prerequisite**

Repairs or replaces defective garment parts, such as pockets, pocket flaps, and linings. Expands or narrows garment parts, such as waist or chest. Re-sews garment, using needle and thread or sewing machine. Raises or lowers garment parts, such as collars or lapels. Presses garment, using hand iron or pressing machine. Records required alterations and instructions. Inserts or eliminates padding in shoulders while maintaining drape and proportions of garment. Removes stitches from garment, using ripper or razor blade. Studies garment on customer and measures pieces, such as sleeves, pants, and hems, using tape measure. Fits garment on customer to determine required alterations. Examines tag on garment to ascertain necessary alterations. Shortens or lengthens garment parts, such as sleeves or legs. Measures and marks alteration lines. Pins altering folds or marks on cloth at seams, darts, or necklines to indicate alterations to be made.

**51-6052.02 Custom Tailors Mid – Senior level position assuming education and experience prerequisite**

Develops design for garment, adapts existing design for garment, or copies existing design for garment. Assembles garment parts and joins parts with basting stitches, using needle and thread or sewing machine. Alters garment and joins parts, using needle and thread or sewing machine, to form finished garment. Draws individual pattern or alters existing pattern to fit customer's measurements. Sews buttons and buttonholes to finish garment. Presses garment, using hand iron or pressing machine. Confers with customer to determine type of material and garment style desired. Positions

pattern of garment parts on fabric, and cuts fabric along outlines, using scissors. Measures customer for size, using tape measure and records measurements. Fits basted garment on customer and marks areas requiring alterations.

**51-6061.00 Textile Bleaching and Dyeing Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts machines and equipment to process and finish textile goods prior to further processing, following instructions. Mounts roll of cloth on machine, using hoist or places textile goods in machines or pieces of equipment. Removes items, such as dyed articles, cloth, cones, and bobbins from tanks and machines for drying and further processing. Threads ends of cloth or twine through specified sections of equipment prior to processing. Cleans machines and equipment. Ravels seams connecting cloth ends after processing is completed. Confers with coworkers to ascertain information regarding customer orders, process steps to be completed during shift, or reason for delays. Notifies supervisor of equipment malfunctions and coworkers to initiate steps in processing of textile goods. Records information, such as fabric yardage processed, temperature readings, fabric tensions, machine speeds, and delays caused by range malfunctions. Sews ends of cloth together by hand or using machine to form endless length of cloth to facilitate processing. Examines and feels products to determine variation from processing standards. Weighs ingredient to be mixed together to process textiles. Tests solutions used to process textile goods to detect variations from standards, using standard procedures. Soaks specified textile products for designated time. Keys in processing instructions to program electronic equipment. Creels machine with bobbins or twine. Mixes or adds dyes, water, detergents, or chemicals to tanks to dilute or strengthen solutions as indicated by tests. Observes display screen, control panel and equipment, and cloth entering or exiting process to determine equipment adjustments. Adjusts equipment controls to maintain standards.

**51-6062.00 Textile Cutting Machine Setters, Operators, and Tenders Entry – Mid level position assuming education and experience prerequisite**

Installs, levels, and aligns components, such as gears, chains, guides, dies, cutters, and needles to set up machinery for operation. Adjusts heating mechanisms, tension and speed of machine operation to produce product meeting desired specifications. Studies guides, samples, charts, and specification sheets, or confers with supervisor or engineering staff to determine setup requirements. Inspects machinery to determine adjustments or repairs needed. Cleans, oils, and lubricates machines, using air hose, cleaning solutions, rags, oilcan, and grease gun. Repairs or replaces worn or defective parts or components using hand tools. Inspects product to ensure product meets specifications and to determine need for machine adjustment. Operates machine for test run to verify adjustments and to obtain sample of product. Threads yarn, thread, and fabric through guides, needles, and rollers of machines. Starts machine, monitors operation, makes adjustments as needed, and stops machine when specified amount of product has been produced.

**51-6063.00 Textile Knitting and Weaving Machine Setters, Operators, and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs, levels, and aligns components, such as gears, chains, guides, dies, cutters, and needles to set up machinery for operation. Studies guides, samples, charts, and specification sheets, or confers with supervisor or engineering staff to determine setup requirements. Inspects machinery to determine adjustments or repairs needed. Cleans, oils, and lubricates machines, using air hose, cleaning solutions, rags, oilcan and grease gun. Repairs or replaces worn or defective parts or components, using hand tools. Inspects product to ensure product meets specifications and to determine need for machine adjustment. Operates machine for test run to verify adjustments and to obtain sample of product. Adjusts heating mechanisms, tension and speed of machine operation to produce product meeting desired specifications. Threads yarn, thread, and fabric through guides, needles, and rollers of machines. Starts machine, monitors operation, makes adjustments as needed, and stops machine when specified amount of product has been produced.

**51-6064.00 Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs, levels, and aligns components, such as gears, chains, guides, dies, cutters, and needles to set up machinery for operation. Inspects machinery to determine adjustments or repairs needed. Cleans, oils, and lubricates machines, using air hose, cleaning solutions, rags, oilcan and grease gun. Repairs or replaces worn or defective parts or components, using hand tools. Inspects product to ensure product meets specifications and to determine need for machine adjustment. Starts machine, monitors operation, makes adjustments as needed, and stops machine when specified amount of product has been produced. Threads yarn, thread, and fabric through guides, needles, and rollers of machines. Studies guides, samples, charts, and specification sheets, or confers with supervisor or engineering staff to determine setup requirements. Operates machine for test run to verify adjustments and to obtain sample of product. Adjusts heating mechanisms, tension and speed of machine operation to produce product meeting desired specifications.



**51-6091.01 Extruding and Forming Machine Operators and Tenders, Synthetic or Glass Fibers Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates or tends machines that extrude and form filaments from synthetic materials. Notifies workers of defects and to adjust extruding and forming machines. Records operational data on tag and attaches to machine. Cleans and maintains extruding and forming machines, using hand tools. Removes excess or completed filament from machine, using hand tools. Loads and adjusts materials into extruding and forming machines, using hand tools. Moves controls to activate and adjust extruding and forming machines. Observes machine operation, control board, and gauges to detect malfunctions. Presses buttons to stop machine when process is completed or malfunction detected.

**51-6092.00 Fabric and Apparel Patternmakers Entry – Mid – Senior level position assuming education and experience prerequisite**

Draws outline of pattern parts, using drafting instruments such as calipers, squares, and straight and curved rules. Positions and cuts out pattern, using scissors and knife. Traces outline of paper onto cardboard pattern, and cuts pattern into parts to make template. Traces outline of specified pattern onto material and cuts fabric, using scissors. Marks finished pattern with garment size, section, and style information. Positions and pins pattern sections onto model form and discusses style lines, details, and revisions with designer. Lays out large patterns on floor and cuts material, according to markings. Makes drawings of garments and patterns, and writes instructions for use in reproducing commercial patterns. Computes dimensions of pattern according to size, considering stretching of material, and measures and marks pattern. Positions master pattern in clamp of grading device, places paperboard under pattern, sets device to specified size, and marks reference points. Positions master pattern on paperboard and drafts reference points based on data from charts. Calculates dimensions and specifications from sales order and enters data on worksheet. Examines sketches or sample articles and design specifications to ascertain number, shape, and size of pattern parts. Draws lines between reference points, producing outline of graded pattern. Draws details on outlined parts to indicate guides in joining parts. Draws patterns for range of garment sizes, grading master pattern for each size, using charts or grading device.

**51-6093.00 Upholsterers Entry – Mid – Senior level position assuming education and experience prerequisite**

Measures and cuts new covering material, using pattern and measuring and cutting instruments. Adjusts or replaces webbing, padding, and springs and secures them in place. Sews rips or tears in material, or creates tufting, using needle and thread. Draws cutting lines on material following pattern, templates, sketches, or blueprints, using chalk, pencil, paint, or other method. Reads order and applies knowledge and experience with materials to determine type and amount of material required to cover work piece. Refinishes wood surfaces on upholstered or reupholstered furniture. Maintains records of time required to perform each job. Designs upholstery cover patterns. Drills or punches holes in material. Stacks, aligns, and smooths material on cutting table. Repairs frame of work piece. Removes covering, webbing, padding, and defective springs from work piece, using hand tools. Examines upholstery to locate defects. Attaches fasteners, grommets, buckles, ornamental trim, and other accessories to cover or frame, using hand tools. Attaches binding or applies solutions to edges of cut material to prevent raveling. Fits, installs, and secures material on work piece, using hand tools, power tools, glue, cement, or staples. Operates sewing machine to seam cushions and join various sections of covering material.

**51-7011.00 Cabinetmakers and Bench Carpenters Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up and operates machines, including power saws, jointers, mortisers, tenoners, molders, and shapers, to cut and shape woodstock. Sands and scrapes surfaces and joints of articles to prepare articles for finishing. Dips, brushes, or sprays assembled articles with protective or decorative materials, such as stain, varnish, or lacquer. Studies blueprints, drawings, and written specifications of articles to be constructed or repaired and plans sequence of performing such operations. Installs hardware, such as hinges, catches, and drawer pulls, using hand tools. Marks dimensions of parts on paper or lumber stock, following blueprints, and matches lumber for color, grain, and texture. Trims component parts of joints to ensure snug fit, using hand tools, such as planes, chisels, or wood files. Glues, fits, and clamps parts and subassemblies together to form complete unit. Bores holes for insertion of screws or dowel by hand or using boring machine. Drives nails or other fasteners to joints of articles for finishing.

**51-7021.00 Furniture Finishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Disassembles item, masks area adjacent to those being refinished, and removes accessories using hand tools to prepare for finishing. Finishes surfaces of new furniture pieces to replicate antiques by distressing surfaces with abrasives before staining. Brushes, sprays, or hand rubs finishing ingredients onto and into grain of wood. Spreads graining ink over metal portions of furniture to simulate wood grain finish. Replaces and refurbishes upholstery of item, using tacks, adhesives, softeners, solvents, stains, or polish. Polishes, sprays, or waxes finished pieces to match surrounding finish. Stencils,



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gilds, embosses, or paints designs or borders on restored pieces to reproduce original appearance. Mixes finish ingredients to obtain desired color or shade of existing finish. Selects appropriate finishing ingredients, such as paint, stain, lacquer, shellac, or varnish for wood surface. Examines furniture to determine extent of damage or deterioration and determines method of repair or restoration. Removes old finish and damaged or deteriorated parts using hand tools, abrasives, or solvents. Treats warped or stained surfaces to restore original contour or color. Smooths and shapes surfaces with sandpaper, pumice stone, steel wool, or chisel. Washes or bleaches surface to return to natural color or prepare for application of finish. Fills cracks, blemishes, or depressions and repairs broken parts, using plastic or wood putty, glue, nails, or screws.

### **51-7031.00 Model Makers, Wood Entry – Mid – Senior level position assuming education and experience prerequisite**

Plans, lays out, and draws outline of unit, sectional patterns, or full-scale mock-up of products. Trims, smooths and shapes surfaces, and planes, shaves, files, scrapes, and sands models to attain specified shapes using hand tools. Constructs wooden models, templates, full-scale mock-up and molds for parts of products. Shellacs, lacquers, or waxes finished pattern or model. Issues patterns to designated machine operators and maintains pattern record for reference. Marks identifying information such as colors or codes on patterns, parts, and templates to indicate assembly method. Reads blueprints, drawing, or written specifications to determine size and shape of pattern and required machine setup. Fits, fastens, and assembles wood parts together to form pattern, model, or section using glue, nails, dowels, bolts, and screws. Sets up, operates, and adjusts variety of woodworking machines to cut and shape sections, parts, and patterns, according to specifications.

### **51-7032.00 Patternmakers, Wood Entry – Mid – Senior level position assuming education and experience prerequisite**

Plans, lays out, and draws outline of unit, sectional patterns, or full-scale mock-up of products. Trims, smooths and shapes surfaces, and planes, shaves, files, scrapes, and sands models to attain specified shapes using hand tools. Constructs wooden models, templates, full-scale mock-up and molds for parts of products. Reads blueprints, drawing, or written specifications to determine size and shape of pattern and required machine setup. Shellacs, lacquers, or waxes finished pattern or model. Issues patterns to designated machine operators and maintains pattern record for reference. Marks identifying information such as colors or codes on patterns, parts, and templates to indicate assembly method. Sets up, operates, and adjusts variety of woodworking machines to cut and shape sections, parts, and patterns, according to specifications. Fits, fastens, and assembles wood parts together to form pattern, model, or section using glue, nails, dowels, bolts, and screws.

### **51-7041.01 Sawing Machine Setters and Set-up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Selects knives to achieve specified diameter of cut, or installs bit and dado saw according to work ticket. Aligns and bolts knives in cutter head and screws it on spindle using wrenches. Adjusts angle of table by turning hand wheel, and bolts or clamps holding jigs to table. Places stock in jig and pushed table containing stock into saw or lays stock on conveyor that carries it into machine. Pulls table back against stops and depresses pedal to advance cutter head that shapes end of stock.

### **51-7041.02 Sawing Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates and tends saws and machines to cut stock and to adjust machine speed and tension, moving levers and hand wheels. Guides work piece against saw or saw over work piece or operates automatic feeding device to guide cuts. Operates panel board of saw and conveyor system to cut stock to specified dimensions and to move stock through process. Trims defects from stock or work piece to straighten rough edges of lumber using circular power saw. Turns knobs, hand wheels, setscrews, and panel controls, or uses hand tools to position and adjust cutting stops and guides. Adjusts saw blades by turning hand wheels, pressing pedals, levers, and panel buttons, or using wrenches and rulers. Observes approaching lumber on conveyor to determine cut that will produce highest grade. Determines sawing blade, type and grade of stock needed, and cutting procedures according to work order or supervisor's instructions. Mounts and bolts sawing blade or attachments to machine shaft and turns hand wheels to set blade tension. Positions and clamps stock on table, conveyor, or carriage, using hoists, guides, stops, dogs, wedges, and wrench. Moves machine table to specified angle and height by turning hand wheels, cranks, or knobs. Measures work piece to mark for cuts and to verify accuracy of cuts, using ruler, square, or caliper rule. Clears machine jams using hand tools. Unclamps and removes finished work piece from table. Sharpens blades or replaces defective or worn blades and bands using hand tools. Inspects stock for imperfections and estimates grade or quality of stock of work piece.

Lubricates and cleans machines, using wrench, grease gun, and solvents. Unloads and rolls logs from truck to sawmill deck or to carriage or moves logs in pond using pike pole. Counts, sorts, and stacks finished work pieces and disposes of waste material.

**51-7042.01 Woodworking Machine Setters and Set-up Operators, Except Sawing Entry – Mid – Senior level position assuming education and experience prerequisite**

Installs knives, sanding apparatus, cams, cutting heads, bits, chisels, and blades using hand tools. Attaches and adjusts guides, stops, clamps, chucks, and feed mechanisms using hand tools. Starts machine and feeds stock into machine through feed mechanisms or conveyors. Monitors operation of automatic machines and makes adjustments as needed to correct problems and ensure conformance to specifications. Examines blueprints, drawings, and work orders, to determine characteristics of finished item, materials to be used, and machine setup requirements. Adjusts machine table or cutting devices to produce specified cut or operation. Pushes or holds work piece against, under or through cutting, boring or shaping mechanism. Selects knives, sanding apparatus, cams, cutting heads, bits, chisels, and blades. Mounts or clamps stock onto machine. Removes and replaces worn machine parts, knives, bits, belts and sandpaper. Examines work piece visually, by touch, or using tape rule, calipers, or gauges to ensure product meets desired standards. Unclamps and removes work piece from machine, and stacks work piece on pallet or in box. Sharpens knives, bits, and other cutting and shaping tools. Cleans product, machine, or work area, using rags and air hose.

**51-7042.02 Woodworking Machine Operators and Tenders, Except Sawing Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts machine, adjusts controls, and moves lever or depresses pedal to bore, shape, smooth, shave, chip, slice or cut Woodstock. Starts machine and moves lever to engage hydraulic lift to press Woodstock into desired form, allows for drying-time, and removes. Re-adjusts and re-aligns guides of sanding, cutting, or boring machines to correct defects in finished product, using hand tools. Installs and adjusts blades, cutter heads, boring-bits, or sanding-belts in machines, according to work piece, machine function, and specifications, using hand tools. Selects knives, blades, cutter heads, boring-bits, or sanding-belts, according to work piece, machine function, and specifications. Places or secures woodstock against guide or into holding-device prior to feeding into machine. Examines blueprints, drawings, or samples to determine size, type, and setting of machine tools, stops, jigs, and guides to use. Places water-soaked woodstock into form under hydraulic lift to shape for use in making such items as musical instruments. Examines finished work piece for smoothness, shape, angle, depth-of-cut and conformity to specifications, visually and using hands, rule, or other gauges. Examines raw woodstock for defects and to ensure conformity to size and other specification standards. Examines rollers, sanding-belts, knives, cutting or boring devices, and conveyor mechanisms and sharpens or replaces worn parts, using hand tools. Cleans machines, workstation, or conveyor, using air hose, wax, solvents, brushes and rags. Marks or otherwise identifies completed and inspected work piece. Hand-stacks on pallet or conveyor or controls hoist to remove part or product from workstation.

**51-8011.00 Nuclear Power Reactor Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Regulates equipment according to data provided by recording and indicating instruments or computers. Corrects abnormal conditions, following standard practices. Dispatches orders and instructions to personnel through radiotelephone or intercommunication system to coordinate operation of auxiliary equipment. Monitors and operates boilers, turbines, wells, and auxiliary power plant equipment. Notes malfunctions of equipment, instruments, or controls. Monitors gauges to determine effects of generator loading on other power equipment. Monitors computer operated equipment. Adjusts controls to regulate flow of power between generating and substations.

**51-8013.01 Power Generating Plant Operators, Except Auxiliary Equipment Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates or controls machinery that generates electric power, using control boards or semiautomatic equipment. Examines and tests electrical power distribution machinery and equipment, using testing devices. Maintains and repairs electrical power distribution machinery and equipment, using hand tools. Compiles and records operational data on specified forms. Adjusts controls on equipment to generate specified electrical power. Monitors control and switchboard gauges to determine electrical power distribution meets specifications.

**51-8013.02 Auxiliary Equipment Operators, Power Entry – Mid – Senior level position assuming education and experience prerequisite**

Tends portable or stationary high-pressure boilers that supply heat or power for engines, turbines, and steam-powered equipment. Replenishes electrolyte in batteries and oil in voltage transformers and resets tripped electric relays. Reads gauges to verify that units are operating at specified capacity, and listens for sounds warning of mechanical

malfunction. Assists in making electrical repairs. Cleans and lubricates equipment and collects oil, water, and electrolyte samples for laboratory analysis to prevent equipment failure or deterioration. Tightens leaking gland and pipe joints and reports need for major equipment repairs. Opens and closes valves and switches in sequence upon signal from other worker to start or shut down auxiliary units.

**51-8021.01 Boiler Operators and Tenders, Low Pressure Entry – Mid – Senior level position assuming education and experience prerequisite**

Tends boilers and equipment to supply and maintain steam or heat for buildings, marine vessels, or operation of pneumatic tools. Shovels coal or coke into firebox to feed fuel, using hand tools. Tests sample quality to ensure sample meets specifications, using testing devices. Obtains samples from designated location on boiler and carries samples to testing laboratory. Records test results on specified form and gives to worker or supervisor. Cleans and maintains heating and steam boilers and equipment, using hand tools. Installs burners and auxiliary equipment, using hand tools. Moves controls and observes gauges to regulate heat and steam. Ignites fuel in burner using torch or flame.

**51-8021.02 Stationary Engineers Entry – Mid – Senior level position assuming education and experience prerequisite**

Adjusts controls and valves on equipment to provide power and regulate and set operations of system and industrial processes. Lubricates, maintains, and repairs equipment, using hand tools and power tools. Tests electrical system to determine voltage, using voltage meter. Adds chemicals or tends equipment to maintain temperature of fluids or atmosphere or to prevent scale buildup. Cleans equipment, using air hose, brushes, and rags, and drains water from pipes and air reservoir. Records temperature, pressure, water levels, fuel consumption, and other data at specified intervals in logbook. Reads dials of temperature, pressure, and ampere gauges and meters to detect malfunctions and ensure specified operation of equipment. Inspects equipment to determine need for repair, lubrication, or adjustment. Lights burners and opens valves on equipment, such as condensers, pumps, and compressors, to prepare system for operation.

**51-8031.00 Water and Liquid Waste Treatment Plant and System Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates and adjusts controls on equipment to purify and clarify water, process or dispose of sewage, and generate power. Records operational data, personnel attendance, and meter and gauge readings on specified forms. Maintains, repairs, and lubricates equipment, using hand tools and power tools. Cleans and maintains tanks and filter beds, using hand tools and power tools. Directs and coordinates plant workers engaged in routine operations and maintenance activities. Collects and tests water and sewage samples, using test equipment and color analysis standards. Inspects equipment and monitors operating conditions, meters, and gauges to determine load requirements and detect malfunctions. Adds chemicals, such as ammonia, chlorine, and lime, to disinfect and deodorize water and other liquids.

**51-8091.00 Chemical Plant and System Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Turns valves to regulate flow of product or byproducts through agitator tanks, storage drums, or neutralizer tanks, according to process. Moves control settings to make control adjustments on equipment units affecting speed of chemical reactions and quality and yield. Interprets chemical reactions visible through sight glasses or on television monitor and reviews laboratory test reports for process adjustments. Records operating data, such as process conditions, test results, and instruments readings, calculating material requirements or yield according to formulas. Manually regulates or shuts down equipment during emergency situations, as directed by supervisory personnel. Draws samples of products and conducts quality control tests to monitor processing and ensure standards are met. Confers with technical and supervisory personnel to report or resolve conditions affecting safety, efficiency, and product quality. Inspects equipment for potential and actual hazards, wear, leaks, and other conditions requiring maintenance shutdown. Notifies maintenance, stationary engineering, and other auxiliary personnel to correct equipment malfunction and adjust power, steam, water, or air supply. Gauges tank levels, using calibrated rod. Patrols work area to observe level of carbon in thickener tank and wash solutions in overflow troughs to prevent spills. Defrosts frozen valves, using steam hose. Monitors recording instruments, flowmeters, panel lights, and other indicators, and listens for warning signals to verify conformity of process conditions. Starts pumps to wash and rinse reactor vessels, to exhaust gases and vapors, and to mix product with water.

**51-8092.01 Gas Processing Plant Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Controls fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. Observes pressure, temperature, level, and flow gauges to ensure standard operation.



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Reads log sheet to ascertain demand and disposition of product or to detect equipment malfunctions. Records gauge readings and test results. Calculates gas ratios, using testing apparatus, to detect deviations from specifications. Signals or directs workers tending auxiliary equipment. Cleans and repairs equipment, using hand tools. Tests oxygen for purity and moisture content at various stages of process, using burette and moisture meter. Controls operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or re-gasify natural gas. Adjusts temperature, pressure, vacuum, level, flow rate, or transfer of gas, according to test results and knowledge of process and equipment.

### **51-8092.02 Gas Distribution Plant Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Controls equipment to regulate flow and pressure of gas to feed lines of boilers, furnaces, and related steam-generating or heating equipment. Determines causes of abnormal pressure variances and makes corrective recommendations, such as installation of pipe to relieve overloading. Changes charts in recording meters. Observes, records, and reports flow and pressure gauge readings on gas mains and fuel feed lines. Determines required governor adjustments, according to customer-demand estimates. Adjusts governors to maintain specified gas pressure and volume.

### **51-8093.01 Petroleum Pump System Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts battery of pumps, observes pressure meters and flowmeters, and turns valves to regulate pumping speeds according to schedules. Synchronizes activities with other pump houses to ensure continuous flow of products and minimum of contamination between products. Reads operating schedules or instructions from dispatcher. Records operating data, such as products and quantities pumped, stocks used, gauging results, and operating time. Signals other workers by telephone or radio to operate pumps, open and close valves, and check temperatures. Plans movement of products through lines to processing, storage, and shipping units, utilizing knowledge of interconnections and capacities system. Turns hand wheels to open line valves and direct flow of product.

### **51-8093.02 Petroleum Refinery and Control Panel Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Reads and analyzes specifications, schedules, logs, and test results to determine changes to equipment controls required to produce specified product. Operates control panel to coordinate and regulate process variables and to direct product flow rate, according to prescribed schedules. Observes instruments, gauges, and meters to verify conformance to specified quality and quantity of product. Inspects equipment and listens for automated warning signals to determine location and nature of malfunction, such as leaks and breakage. Repairs, lubricates, and maintains equipment or reports malfunctioning equipment to supervisor to schedule needed repairs. Compiles and records operating data, instrument readings, documents, and results of laboratory analyses. Cleans interior of processing units by circulating chemicals and solvents within unit. Samples and tests liquids and gases for chemical characteristics and color of products, or sends products to laboratory for analysis. Operates auxiliary equipment and controls multiple processing units during distilling or treating operations. Monitors and adjusts unit controls to ensure safe and efficient operating conditions.

### **51-8093.03 Gaugers Entry – Mid – Senior level position assuming education and experience prerequisite**

Gauges quality of oil in storage tanks before and after delivery, using calibrated steel tape and conversion. Regulates flow of products into pipelines, using automated pumping equipment. Reads automatic gauges at specified intervals to determine flow rate of oil into or from tanks and amount of oil in tanks. Operates pumps, teletype, and mobile radio. Turns bleeder valves or lowers sample container into tank to obtain oil sample. Calculates test results using standard formulas. Tightens connections with wrenches and greases and oils valves using grease gun and oilcan. Inspects pipelines, valves, and flanges to detect malfunctions, such as loose connections and leaks. Clamps seal around valves to secure tanks. Reports leaks or defective valves to maintenance. Records meter and pressure readings at gas well. Lowers thermometer into tanks to obtain temperature reading. Records readings and test results. Gauges tank containing petroleum and natural gas byproducts, such as condensate or natural gasoline. Starts pumps and opens valves to regulate flow of oil into and out of tanks, according to delivery schedules. Tests oil to determine amount of bottom sediment, water, and foreign materials using centrifugal tester.

### **51-9011.01 Chemical Equipment Controllers and Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets and adjusts indicating, controlling, or timing devices, such as gauging instruments, thermostat, gas analyzers, or recording calorimeter. Adjusts controls to regulate temperature, pressure, and time of prescribed reaction, according to knowledge of equipment and process. Operates or tends auxiliary equipment, such as heaters, scrubbers, filters, or driers, to prepare or further process materials. Monitors gauges, recording instruments, flow meters, or product to regulate

or maintain specified conditions. Directs activities of workers assisting in control or verification of process or in unloading materials. Makes minor repairs and lubricates and maintains equipment, using hand tools. Records operational data such as temperature, pressure, ingredients used, processing time, or test results, in operating log. Flushes or cleans equipment, using steam hose or mechanical reamer. Draws samples of product and sends to laboratory for analysis. Tests sample for specific gravity, chemical characteristics, pH level, concentration, or viscosity. Patrols and inspects equipment or unit to detect leaks and malfunctions. Weighs or measures specified amounts of materials. Reads plant specifications to ascertain product, ingredient, and prescribed modifications of plant procedures. Dumps or scoops prescribed solid, granular, or powdered materials into equipment. Adds treating or neutralizing agent to product and pumps product through filter or centrifuge to remove impurities or precipitate product. Mixes chemicals according to proportion tables or prescribed formulas. Moves controls to adjust feed and flow of liquids and gases through equipment in specified sequence. Starts pumps, agitators, reactors, blowers, or automatic feed of materials. Opens valves or operates pumps to admit or drain specified amounts of materials, impurities, or treating agents to or from equipment.

**51-9022.00 Grinding and Polishing Workers, Hand Entry – Mid – Senior level position assuming education and experience prerequisite**

Grinds, sands, cleans, or polishes objects or parts using hand tools or equipment. Applies solutions and chemicals to equipment, objects, or parts using hand tools. Measures and marks equipment, objects, or parts to ensure grinding and polishing standards are met. Records product and processing data on specified forms. Transfers equipment, objects, or parts to specified work areas using moving devices. Sharpens abrasive grinding tools using machines and hand tools. Repairs and maintains equipment, objects, or parts using hand tools. Removes work piece from equipment or worktable using hand tools. Moves controls to adjust, start, or stop equipment during grinding and polishing process. Trims, scrapes or deburrs objects or parts using hand tools or equipment. Selects, loads, and adjusts work piece or abrasive parts onto equipment or worktable using hand tools. Observes and inspects equipment, objects, or parts to ensure specifications are met.

**51-9031.00 Cutters and Trimmers, Hand Entry – Mid level position assuming education and experience prerequisite**

Cuts materials, such as textiles, food, and metal, using hand tools, portable power tools, or bench-mounted tools. Adjusts guides and stops to control depth and width of cuts. Lowers table-mounted cutter, such as knife blade, cutting wheel, or saw to cut items to specified size. Replaces or sharpens dulled cutting tools, such as saws. Marks identification numbers, trademark, grade, marketing data, size, or model number on products. Observes and marks or discards items with defects, such as spot, stains, scars, snags, chips, scratches, or unacceptable shape or finish. Folds or shapes materials, preparatory to or after cutting. Unrolls, lays out, attaches, or mounts material or item on cutting table or machine. Reads work order to determine dimensions, cutting locations, and quantity to cut. Marks cutting lines around pattern or template, or follows layout points, using square, rule, straightedge and chalk, pencil, or scribe. Positions template or measures material to locate specified point of cut or to obtain maximum yield, using rule, scale, or pattern. Transports items to work or storage area by pushing or pulling carts. Counts or weighs and bundles items. Cleans, treats, buffs, or polishes finished items, using grinder, brush, chisel, and cleaning solutions and polishing materials. Stacks cut items and loads them on racks, conveyors, or onto truck. Separates materials or products according to size, weight, type, condition, color, or shade. Routes items to provide cutouts for parts, using portable router, grinder, and hand tools.

**51-9061.01 Materials Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects materials, products, and work in progress for conformance to specifications, and adjusts process or assembly equipment to meet standards. Analyzes and interprets blueprints, sample data, and other materials to determine, change, or measure specifications or inspection and testing procedures. Reads dials and meters to verify functioning of equipment according to specifications. Fabricates, installs, positions, or connects components, parts, finished products, or instruments for testing or operational purposes. Observes and monitors production operations and equipment to ensure proper assembly of parts, or assists in testing and monitoring activities. Confers with vendors and others regarding inspection results, recommends corrective procedures, and compiles reports of results, recommendations, and needed repairs. Supervises testing or drilling activities, and adjusts equipment to obtain sample fluids or to direct drilling. Operates or tends machinery and equipment, and uses hand tools. Marks items for acceptance or rejection, records test results and inspection data, and compares findings with specifications to ensure conformance to standards. Collects samples for testing, and computes findings. Tests and measures finished products, components, or assemblies for functioning, operation, accuracy, or assembly to verify adherence to functional specifications.

**51-9061.02 Mechanical Inspectors Mid – Senior level position assuming education and experience prerequisite**

Tests and measures finished products, components, or assemblies for functioning, operation, accuracy, or assembly to

verify adherence to functional specifications. Collects samples for testing, and computes findings. Reads dials and meters to ensure that equipment is operating according to specifications. Cleans and maintains test equipment and instruments to ensure proper functioning. Confers with vendors and others regarding inspection results, recommends corrective procedures, and compiles reports of results, recommendations, and needed repairs. Completes necessary procedures to satisfy licensing requirements, and indicates concurrence with acceptance or rejection decisions. Estimates and records operational data. Installs and positions new or replacement parts, components, and instruments. Analyzes and interprets sample data. Reads and interprets materials, such as work orders, inspection manuals, and blueprints, to determine inspection and test procedures. Discards or rejects products, materials, and equipment not meeting specifications. Marks items for acceptance or rejection, records test results and inspection data, and compares findings with specifications to ensure conformance to standards. Inspects materials, products, and work in progress for conformance to specifications, and adjusts process or assembly equipment to meet standards. Starts and operates finished products for testing or inspection.

**51-9061.03 Precision Devices Inspectors and Testers Mid – Senior level position assuming education and experience prerequisite**

Inspects materials, products, and work in progress for conformance to specifications, and adjusts process or assembly equipment to meet standards. Reads dials and meters to verify functioning of equipment according to specifications. Cleans and maintains test equipment and instruments and certifies that precision instruments meet standards. Fabricates, installs, positions, or connects components, parts, finished products, or instruments for testing or operational purposes. Discards or rejects products, materials, and equipment not meeting specifications. Analyzes and interprets blueprints, sample data, and other materials to determine, change, or measure specifications or inspection and testing procedures. Completes necessary procedures to satisfy licensing requirements. Computes and/or calculates data and other information. Confers with vendors and others regarding inspection results and recommends corrective procedures. Disassembles defective parts and components. Estimates operational data to meet acceptable standards. Operates or tends machinery and equipment, and uses hand tools. Marks items for acceptance or rejection, records test results and inspection data, and compares findings with specifications to ensure conformance to standards. Tests and measures finished products, components, or assemblies for functioning, operation, accuracy, or assembly to verify adherence to functional specifications.

**51-9061.04 Electrical and Electronic Inspectors and Testers Mid – Senior level position assuming education and experience prerequisite**

Tests and measures finished products, components, or assemblies for functioning, operation, accuracy, or assembly to verify adherence to functional specifications. Marks items for acceptance or rejection, records test results and inspection data, and compares findings with specifications to ensure conformance to standards. Reads dials and meters to verify functioning of equipment according to specifications. Inspects materials, products, and work in progress for conformance to specifications, and adjusts process or assembly equipment to meet standards. Analyzes and interprets blueprints, sample data, and other materials to determine, change, or measure specifications or inspection and testing procedures. Examines, and adjusts or repairs, finished products, and components or parts. Operates or tends machinery and equipment, and uses hand tools. Cleans and maintains test equipment and instruments to ensure proper functioning. Positions or directs other workers to position products, components, or parts, for testing. Writes and installs computer programs to control test equipment. Installs, positions, or connects new or replacement parts, components, and instruments. Reviews maintenance records to ensure that plant equipment functions properly. Disassembles defective parts and components. Confers with vendors and others regarding inspection results, recommends corrective procedures, and compiles reports of results, recommendations, and needed repairs. Computes and/or calculates sample data and test results.

**51-9061.05 Production Inspectors, Testers, Graders, Sorters, Samplers, Weighers Mid – Senior level position assuming education and experience prerequisite**

Weighs materials, products, containers, or samples to verify packaging weight, to determine percentage of each ingredient, or to determine sorting. Examines product or monitors processing of product, using any or all of five senses, to determine defects or grade. Measures dimensions of product, using measuring instruments, such as rulers, calipers, gauges, or micrometers, to verify conformance to specifications. Tests samples, materials, or products, using test equipment, such as thermometer, voltmeter, moisture meter, or tensiometer, for conformance to specifications. Marks, affixes, or stamps product or container to identify defects, or denote grade or size information. Collects or selects samples for testing or for use as model. Notifies supervisor or specified personnel of deviations from specifications, machine malfunctions, or need for equipment maintenance. Uses or operates product to test functional performance. Sets controls, starts machine, and observes machine, which automatically sorts or inspects products. Computes percentages or averages, using formulas and calculator, and prepares reports of inspection or test findings.

Wraps and packages product for shipment or delivery. Transports inspected or tested products to other workstations, using hand truck or lift truck. Cleans, trims, makes adjustments, or repairs product or processing equipment to correct defects found during inspection. Counts number of product tested or inspected, and stacks or arranges for further processing, shipping, or packing. Reads work order to determine inspection criteria and to verify identification numbers and product type. Discards or routes defective products or contaminants for rework or reuse. Records inspection or test data, such as weight, temperature, grade, or moisture content, and number inspected or graded. Grades, classifies, and sorts products according to size, weight, color, or other specifications. Compares color, shape, texture, or grade of product or material with color chart, template, or sample, to verify conformance to standards.

**51-9071.01 Jewelers Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts and shapes metal into jewelry pieces, using cutting and carving tools. Arranges jewelry pieces into specified design, softens metal by heating with gas torch, and shapes, using hammer and die. Solders pieces of jewelry together and enlarges or reduces size of rings, using soldering torch or iron. Repairs, reshapes, and restyles jewelry by replacing broken parts or using hand tools and machines. Ties or twists gold or silver wires together, and bends to form rings. Smooths soldered joints and rough spots, using hand file and emery paper, and polishes with polishing wheel or buffing wire. Immerses jewelry in cleaning solution or acid to remove stains, or in solution of gold or other metal to color jewelry. Forms model of article from wax or metal, using carving tools. Places model in casting ring, and pours plaster into ring to form mold. Forms sand or rubber mold from model for casting article. Pours molten metal into mold, or operates centrifugal casting machine, to cast article. Examines gemstone surfaces and internal structure to evaluate genuineness, quality, and value, using polariscope, refractometer, and other optical instruments. Immerses gemstones in chemical solutions to determine specific gravity and key properties for identification and appraisal. Grades stones for color, perfection, and quality of cut. Estimates wholesale and retail value of gemstones, following price guides and market fluctuations.

**51-9071.02 Silversmiths Entry – Mid – Senior level position assuming education and experience prerequisite**

Anneals silverware, such as coffeepots, tea sets, and trays, in gas oven for prescribed time to soften metal for reworking. Solders parts together, and fills holes and cracks with silver solder, using gas torch. Hammers out deformations, selecting and using hammer and dollies with head corresponding in curvature with surface of article. Forms concavity in bottom of article to improve stability, using tracing punches and hammer. Shapes and straightens damaged or twisted articles by hand, or using pliers. Strikes article with small tools, or punches with hammer, to indent or restore embossing. Glues plastic separators to handles of coffee and teapots. Outlines design from photographs or drawings onto surface of article, using hand tools. Positions article over snarling tool and raises design area, using foot-powered hammer. Peens edges of scratches or holes to repair defect, using peening hammer. Wires parts, such as legs, spouts, and handles to body to prepare article for soldering. Pierces and cuts open design in ornamentation, using hand drill and scroll saw. Examines article to determine nature of defects, such as dents, uneven bottom, scratches, or holes, to repair. Verifies levelness of bottom edges of article, using straightedge, or by rocking back and forth on flat surface.

**51-9071.03 Model and Mold Makers, Jewelry Entry – Mid – Senior level position assuming education and experience prerequisite**

Carves, chisels, scrapes, and files plaster, wax or other plastic materials to make mold or model, according to design specifications. Fits, secures, and solders halves of molds together and drills holes in mold to attach handles and allow gases to escape during casting. Lays out design on metal stock and cuts along markings to fabricate pieces used to cast metal molds. Builds sand mold in flask, following pattern, and heats flask using furnace or torch to dry and harden mold. Cuts design in mold or other material to be used as model to fabricate metal and jewelry products. Constructs preliminary model of wax, metal, clay or plaster, forms sample casting in mold, and measures casting to verify dimensions. Mixes or melts clay, metal, plaster, wax or other material and pours material into mold to cast model or mold. Examines and measures metal parts for conformance to design specifications on scale drawing. Writes or modifies design specifications, such as content, weight, and material to be used to cast article. Presses model into clay and builds up clay around exposed parts of model to retain plaster. Removes mold from cast article, cleans mold, and applies shellac and dry powder to preserve mold for reuse. Polishes metal surfaces and products, using abrasive wheel. Modifies, sharpens, repairs or fabricates jigs, fixtures, and hand tools, such as scrapers, cutter, gougers, and shapers. Computes cost of labor and material to determine production cost of products and articles.

**51-9071.04 Bench Workers, Jewelry Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts, trims, shapes and smooths jewelry stones, pearls, and metal pieces, using abrasives, grinding stone and power and hand tools. Weighs, mixes and melts metal alloys or material and pours molten material into mold to cast models of jewelry. Forms, joins, or assembles metal pieces, articles, or wire, using soldering iron, gas torch, and hand tools.



Disassembles mold casting from metal or jewelry work piece and places work piece in water or on tray to cool. Marks and drills holes in jewelry mounting to center stones according to design specifications. Positions and aligns stones and metal pieces and sets, mounts and secures item in place, using setting and hand tools. Manually rotates mold to distribute molten material and prevent formation of air pockets in mold. Marks, engraves or embosses designs on metal pieces, such as castings, wire, or jewelry, following samples, sketches, or other specifications. Plates articles, such as jewelry pieces and clock and watch dials with silver, gold, nickel, or other metals. Examines assembled or finished product, using magnifying glass or precision measuring instruments, to ensure conformance to specifications. Repairs existing jewelry mountings to reposition jewels or adjust mounting. Sands inside mold pieces, using emery cloth and chalk dust. Assembles and secures mold sections used to cast metal articles and pieces. Brushes, buffs, cleans and polishes metal items and jewelry pieces, using jeweler's tools, polishing wheel, and chemical bath. Operates machines, such as centrifugal-casting, routing, and lathe, to fabricate casting molds, metal parts or wax models of products. Weighs completed pieces to determine deviation from specifications and records weight and processing time on production records. Designs and fabricates molds, models and machine accessories, and modifies hand tools used to cast metal and jewelry pieces. Researches and analyzes reference materials and consults with interested parties to develop new or modify existing products.

**51-9071.05 Pewter Casters and Finishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Fills casting mold to form parts. Secures molded item in chuck of lathe, activates lathe, and finishes inner and outer surfaces of item. Rotates mold to distribute alloy in mold and to prevent formation of air pockets. Heats ingots or alloy mixture and skims off impurities. Weighs and mixes alloy ingredients. Engraves decorative lines on item, using engraving tool. Routes out location of part and solder path where part is joined to item, using routing machine. Positions and aligns auxiliary part in jig and joins parts, using solder and blowtorch. Sands inside of mold parts, applies glaze to inside surface of mold, and assembles mold. Strikes mold to separate dried casting from mold. Determines placement of auxiliary parts, such as handle and spout and marks locations of parts. Weighs completed item to determine deviation from specified weight and records weight. Designs, drafts, and fabricates models of new casting molds and chipping and turning tools used to finish surface of products. Carries castings or finished item to storage area or next workstation. Researches reference materials, analyzes production data, and consults with interested parties to develop ideas for new products.

**51-9071.06 Gem and Diamond Workers Entry – Mid – Senior level position assuming education and experience prerequisite**

Holds stone, gem, die, or stylus, attached to holder or lapidary stick, against rotating plates or wheels to shape, grind, and polish. Grinds, drills, and finishes jewel bearings for use in precision instruments, such as compasses and chronometers. Bores, laps, and polishes holes in industrial diamonds used for dies, using drill, lathe, lapping machine, and hand tools. Splits gem along pre-marked lines to remove imperfections, using blade and jeweler's hammer. Laps girdle on rough diamonds, using diamond-girdling lathe. Measures size of stone's bore holes and cuts to ensure adherence to specifications, using precision measuring instruments. Locates and marks drilling position on surface of diamond dies, using diamond chip and power hand drill. Lubricates, dismantles, and cleans lapping, boring, cutting, polishing, and shaping equipment and machinery. Replaces, trues, and sharpen blades, drills, and plates. Examines gem during processing to ensure accuracy of angle and position of cut or bore, using magnifying glass, loupe, or shadowgraph. Secures gem or diamond in holder, chuck, dop, lapidary stick, or block for cutting, polishing, grinding, drilling, or shaping. Examines diamond or gem to determine shape, cut, and width of stone. Selects shaping wheel, mixes, and applies abrasive, bort, or polishing compound. Positions gem or diamond against edge of revolving saw, lathe saw, or lapidary slitter to cut, block, or slit stone.

**51-9081.00 Dental Laboratory Technicians Entry – Mid level position assuming education and experience prerequisite**

Fabricates dental appliances or apparatus, such as dentures, retainers, or metal bands. Reads prescription or specifications and examines models and impressions to determine design of dental products to be constructed. Rebuilds or replaces linings, wire sections, and missing teeth to repair dentures. Casts plastic, plaster, and metal framework and removes mold from frame. Melts metals or mixes plaster, porcelain, or acrylic paste, and pours material into molds or over framework to form dental apparatus or prosthesis. Applies investments or mixtures, such as porcelain paste or wax, over prosthesis framework or setup, using brushes and spatula. Shapes and solders wire and metal frames or bands for dental products, using soldering iron and hand tools. Tests appliance for conformance to specifications and accuracy of occlusion, using articulator and micrometer. Assembles, carves, grinds, and polishes metal and plastic appliances, using pliers, spatula, grinders, and polishes. Fills chipped or low spots in surface with acrylic resin. Removes excess mixture and investment and polishes surface of prosthesis or framework, using polishing machine.

**51-9082.00 Medical Appliance Technicians Entry – Mid level position assuming education and experience prerequisite**

Carves, cuts, grinds, and welds wood, plastic, or metal material to fabricate medical supportive devices, using hand and power tools. Repairs and maintains medical supportive devices, such as artificial limbs, braces, and surgical supports, according to specifications. Lays out and marks dimensions of parts, using templates and precision measuring instruments. Bends, forms, and shapes fabric or material to conform to measurements for prescribed contours to fabricate structural components. Drills and taps holes for rivets, and glues, welds, bolts, and rivets parts together to form prosthetic or orthotic device. Polishes artificial limbs, braces, and supports, using grinding and buffing wheels. Mixes pigments according to formula to match skin coloring of patient and applies mixture to prosthetic or orthotic device. Reads specifications to determine type of product or device to be fabricated and selects required materials and tools. Constructs or receives plaster cast of patient's torso or limbs to use as pattern for cutting and fabricating supportive devices. Tests medical supportive device for body fit, alignment, movement, and biomechanical stability, using meters and alignment fixtures. Covers or pads metal or plastic structures and devices, using coverings such as rubber, leather, felt, plastic, or fiberglass. Fabricates wax or plastic impression of amputated area and prepares mold from impression to form artificial cosmetic ear, nose, or hand. Fits appliance onto patient and adjusts appliance as necessary. Instructs patient in use of prosthetic or orthotic device.

**51-9083.01 Precision Lens Grinders and Polishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets up machines to polish, bevel, edge, and grind lenses, flats, blanks, and other precision optical elements. Cleans and polishes finished lenses and eyeglasses using cloth, solvent, and equipment. Mounts and secures lens blanks or optical lens in holding tool or chuck of cutting, polishing, grinding, or coating machine. Holds lens against rotating wheel to grind or polish lens manually or using machine. Positions and adjusts cutting tool to specified curvature, dimensions, and depth of cut. Selects lens blank, molds, tools, or polishing or grinding wheel according to production specifications. Examines prescription, work order, or broken or used eyeglasses to determine specifications for lenses, contact lens, and other optical elements. Immerses eyeglass frames in solutions to harden, soften, or dye frames. Removes lenses from molds and separates lenses in containers for further processing or storage. Marks lenses and writes specifications to guide fabricators. Lays out lenses and traces lens outline on glass using template or assembles molds to cast contact lens. Inspects, weighs, and measures lens blanks or lens to verify compliance to specifications using precision instruments. Inspects lens blank to detect flaws, verify smoothness of surface and ensure thickness of coating on lens. Cuts or blocks lenses, optical glass, and blanks using cutting machinery or precision hand tools. Controls equipment to coat lenses to alter reflective quality of lens. Mounts, secures, and aligns lenses in frames or optical assemblies using precision hand tools. Assembles eyeglass frame, and attaches shields, nose pads, and temple pieces using pliers, screwdriver, and drill. Inspects and measures mounted or un-mounted lenses to verify alignment and conformance to specifications using precision measuring instruments. Adjusts lenses and frames to correct alignment and repairs broken parts using precision hand tools and soldering iron.

**51-9083.02 Optical Instrument Assemblers Entry – Mid – Senior level position assuming education and experience prerequisite**

Assembles structural, mechanical, and optical parts of instrument, using hand tools and cement. Mixes holding compounds, and mounts work piece or optical element on holding fixture and machine. Measures and marks dimensions and reference points, and lays out stock for machining. Studies work orders, blueprints, and sketches to formulate plans and sequences for fabricating optical elements, instruments, and systems. Computes distance of sighting instruments, using trigonometric formulas. Paints parts, using brush and spray gun. Records production, inspection, and test data in logs. Sets up and operates machines to fabricate fixtures, optics, and tools. Cleans elements and parts, using tissue, cleaning solution, and air compressor. Tests and sights instruments to verify compliance to specifications, using precision testing instruments. Measures and tests optics, using precision measuring and testing instruments. Grinds and polishes optics, using hand tools and polishing cloths. Coats optical elements according to specifications, using coating equipment.

**51-9111.00 Packaging and Filling Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Tends or operates machine that packages product. Starts machine, by engaging controls. Stops or resets machine when malfunction occurs and clears machine jams. Regulates machine flow, speed, or temperature. Operates mechanism to cut filler product or packaging material. Adjusts machine tension and pressure and machine components according to size or processing angle of product. Removes finished packaged items from machine and separates rejected items. Observes machine operations to ensure quality and conformity of filled or packaged products to standards. Attaches identification labels to finished packaged items. Stacks finished packaged items or packs items in cartons or containers. Counts and

records finished and rejected packaged items. Cleans, oils, and makes minor repairs to machinery and equipment. Secures finished packaged items by hand tying, sewing, or attaching fastener. Tests and evaluates product and verifies product weight or measurement to ensure quality standards. Stocks packaging material for machine processing. Stocks product for packaging or filling machine operation. Inspects and removes defective product and packaging material.

**51-9121.01 Coating, Painting, and Spraying Machine Setters and Set-Up Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Sets-up and operates machines to paint or coat products with such materials as silver and copper solution, rubber, paint, glaze, oil, or rust proofing materials. Turns valves and adjusts controls to regulate speed of conveyor, temperature, air pressure and circulation, and flow or spray of coating or paint. Weighs or measures chemicals, coatings, or paints and adds to machine. Removes materials, parts, or work pieces from painting or coating machines, using hand tools. Measures thickness and quality of coating, using micrometer. Records operational data on specified forms. Cleans and maintains coating and painting machines, using hand tools. Examines and tests solutions, paints, products, and work pieces to ensure specifications are met. Operates auxiliary machines or equipment used on the coating or painting process. Starts pumps to mix solutions and to activate coating or painting machines. Selects and loads materials, parts, and work pieces on machine, using hand tools. Observes and adjusts loaded work piece or machine, according to specifications.

**51-9121.02 Coating, Painting, and Spraying Machine Operators and Tenders Entry – Mid – Senior level position assuming education and experience prerequisite**

Observes machine operation and gauges to detect defects or deviations from standards. Threads or feeds item or product through or around machine rollers and dryers. Examines, measures, weighs, or tests sample product to ensure conformance to specifications. Places item or product on feed rack, spindle, or reel strand to coat, paint, or spray, using hands, hoist, or truck lift. Records production data. Cleans machine, equipment and work area, using water, solvents and other cleaning aids. Transfers completed item or product from machine to drying or storage area, using handcart, hand truck or crane. Aligns or fastens machine parts such as rollers, guides, brushes, and blades to secure roll, using hand tools. Starts and stops operation of machine, using lever or button. Fills hopper, reservoir, trough, or pan with material used to coat, paint, or spray, using conveyor or pail. Measures and mixes specified quantities of substances to create coatings, paints, or sprays. Attaches specified hose or nozzle to machine, using wrench and pliers. Turns dial, hand wheel, valve or switch to control and adjust temperature, speed, and flow of product or machine.

**51-9122.00 Painters, Transportation Equipment Entry – Mid – Senior level position assuming education and experience prerequisite**

Pours paint into spray gun and sprays specified amount of primer, decorative, or finish coatings onto prepared surfaces. Paints areas inaccessible to spray gun or retouches painted surface, using brush. Paints designs, lettering, or other identifying information on vehicles, using paintbrush or paint sprayer. Selects paint according to company requirements and matches colors of paint following specified color charts. Regulates controls on portable ventilators and exhaust units to cure and dry paint or other coatings. Strips grease, dirt, paint, and rust from vehicle surface, using abrasives, solvents, brushes, blowtorch, or sandblaster. Removes accessories from vehicles, such as chrome or mirrors, and masks other surfaces with tape or paper. Sets up portable ventilators, exhaust units, ladders, and scaffolding. Operates lifting and moving devices to move equipment or materials to access areas to be painted. Lays out logos, symbols, or designs on painted surfaces, according to blueprint specifications, using measuring instruments, stencils, and patterns. Disassembles sprayer and power equipment, such as sandblaster, and cleans equipment and hand tools, using solvents, wire brushes, and cloths. Mixes, stirs and thins paint or other coatings, using spatula or power mixing equipment.

**51-9123.00 Painting, Coating, and Decorating Workers Entry – Mid – Senior level position assuming education and experience prerequisite**

Applies coating, such as paint, ink, or lacquer, to protect or decorate work piece surface, using spray gum, pen, or brush. Reads job order and inspects work piece to determine work procedure and materials required. Rinses coated work piece to remove excess coating material or to facilitate setting of finish coat on work piece. Examines finished surface of work piece to verify conformance to specifications and retouches defective areas of surface. Drains or wipes work pieces to remove excess coating material or to facilitate setting of finish coat on work piece. Cleans and maintains tools and equipment, using solvent, brushes, and rags. Selects and mixes ingredients to prepare coating substance according to specifications, using paddle or mechanical mixer. Melts or heats coating material to specified temperature. Places coated work piece in oven or dryer for specified time to dry or harden finish. Cuts out sections in surface of material to be inlaid with decorative pieces, using pattern and knife or scissors. Cleans surface of work piece in preparation for coating, using cleaning fluid, solvent, brushes, scraper, steam, sandpaper, or cloth. Conceals blemishes in work piece, such as nicks and dents, using filler, such as putty. Positions and glues decorative pieces in cutout section, following pattern.

Immerses work piece into coating material for specified time.

**51-9131.01 Photographic Retouchers and Restorers Entry – Mid – Senior level position assuming education and experience prerequisite**

Applies paint to retouch or enhance negative or photograph using airbrush, pen, artist's brush, cotton swab, or gloved finger. Shades negative or photograph with pencil to smooth facial contours, conceal blemishes, stray hairs, or wrinkles, and soften highlights. Rubs eraser or cloth over photograph to reduce gloss, remove debris, or prepare specified areas of illustration for highlighting. Inks borders or lettering on illustration using pen, brush, or drafting instruments. Examines drawing, negative, or photographic print to determine coloring, shading, accenting, and changes required to retouch or restore. Mixes ink or paint solutions according to color specifications, color chart, and consistency desired. Cuts out masking template using shears and positions templates on picture to mask selected areas. Trims edges of print to enhance appearance using scissors or paper cutter. Wipes excess color from portrait to produce specified shade using cotton swab. Paints negative with retouching medium to ensure retouching pencil will mark surface of negative.

**51-9131.02 Photographic Reproduction Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts exposure to duplicate original, photograph, or negative. Estimates exposure time according to size of lens aperture, grade of sensitized paper, and intensity of light. Sets automatic timer, lens opening, and carriage of printer to specified focus and exposure time. Examines negative for contrast to determine grade of sensitized paper required for print. Measures material to be copied and computes percentage of enlargement or reproduction necessary using rule, chart, or percentage scale. Selects lens assembly according to size and type of negative or photograph to be printed. Mixes developing and processing solutions for use in developing, processing, and rinsing prints. Examines developed print for defects such as broken lines, spots, and blurs. Develops exposed paper or material. Rolls exposed section of sensitized paper into developer tank inside machine. Retouches defects in print using chemicals, inks, brushes, and pens. Rinses developed print in water and places in heated drying cabinet. Places sensitized paper in frame of projection printer, photostat, or other reproduction machine. Reads work order to determine required processes, techniques, materials, and equipment. Mounts camera on tripod or stand and load prescribed type and size film in camera. Mounts original photograph, negative, or other printed material in holder or vacuum frame beneath light. Reprints original to enlarge or in sections to be pieced together. Places filter over lens to make color separation when copying color work.

**51-9131.03 Photographic Hand Developers Entry – Mid – Senior level position assuming education and experience prerequisite**

Immerses exposed film or photographic paper in developer solution to bring out latent image. Immerses negative paper, film, or print in stop bath to arrest developer action. Immerses negative paper, film, or print in water to remove chemicals. Mixes developing and fixing solutions, following formula. Produces color photographs, negatives, and slides using color reproduction processes. Dries prints or negatives using sponge, squeegee, or mechanical air dryer. Immerses negative paper, film, or print in hypo-solution to fix image.

**51-9131.04 Film Laboratory Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Computes amount of light intensity needed to compensate for density of film using standardized formulas. Exposes filmstrip to progressively timed lights to compare effects of various exposure times. Threads film strip through densitometer and exposes film to light to determine density of film. Records test data and routes film-to-film developer and film printer for further processing. Threads film strip through sensitometer and exposes film to light. Reads gauges on sensitometer to determine film's sensitivity to light.

**51-9194.01 Precision Etchers and Engravers, Hand or Machine Entry – Mid – Senior level position assuming education and experience prerequisite**

Engraves or cuts lettering, design, or characters in work piece surface using hand tools and engraving tool. Sketches, traces, or scribes layout lines and design on work piece, plates, dies, or rollers using compass, scribe, graver, or pencil. Determines machine settings and moves bars or levers to reproduce designs on rollers or plates. Operates machine to engrave design into steel rollers or plates. Trims precut designs or cuts around design to remove undesirable part using graver. Reviews sketches, diagrams, blueprints, or photographs to determine design to be cut or engraved. Measures and computes dimensions of lettering, designs, or patterns to be engraved. Prints proof or examines design to verify accuracy and reworks engraving as required. Sketches original design or pattern for use in printing or engraving. Transfers design from sleet or film to die or roller by decimal staining. Casts male die from engraved female die for use in seals.

Positions and clamps work piece, plate, or roller in holding fixture. Scrapes plate or die to remove imperfections and smooth surface. Sharpens and forms cutting edge of gravers or cutter grinder. Polishes and oils surface of plate or die, or brushes with acid proof paint.

**51-9194.02 Engravers / Carvers Entry – Mid – Senior level position assuming education and experience prerequisite**

Holds work piece against outer edge of wheel and twists and turns work piece to grind glass according to marked design. Carves design on work piece using electric hand tool. Cuts outline of impression with graver and removes excess material with knife. Selects and mounts wheel and miter on lathe, and equips lathe with water to cool wheel and prevent dust. Prepares work piece to be engraved or carved such as glassware, rubber, or plastic product. Dresses and shapes cutting wheels by holding dressing stone against rotating wheel. Attaches engraved work piece to mount using cement. Suggests original designs to customer or management. Polishes engravings using felt and cork wheels. Traces, sketches, or presses design or facsimile signature on work piece by hand, or by using artist equipment.

**51-9194.03 Etchers Entry – Mid – Senior level position assuming education and experience prerequisite**

Immerses waxed ware in hydrofluoric acid to etch design on glass surface. Sandblasts exposed area of glass using spray gun to cut design in surface. Removes wax or tape using stylus or knife to expose glassware surface to be etched. Immerses ware in hot water to remove wax or peels off tape. Coats glass in molten wax or masks glassware with tape. Positions pattern against waxed or taped ware and sprays ink through pattern to transfer design to wax or tape.

**51-9194.04 Pantograph Engravers Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts machine and guides stylus over template causing cutting tool to simultaneously duplicate design or letters on work piece. Positions and secures work piece such as nameplate, stamp, seal, badge, trophy, or bowling ball in holding fixture using measuring instruments. Inserts cutting tool or bit into machine and secures with wrench. Sets reduction scale to obtain required reproduction ratio on work piece. Sharpens cutting tools on cutter grinder. Examines engraving for quality of cut, burrs, rough spots, and irregular or incomplete engraving. Verifies conformance to specifications using micrometers and calipers. Brushes acid over designated engraving to darken or highlight inscription. Observes action of cutting tool through microscope and adjusts movement of stylus to ensure accurate reproduction. Selects and insets letter or design template beneath stylus attached to machine cutting tool or router according to work order. Adjusts depth and size of cut by adjusting height of worktable or adjusting gauge on machine arms. Sets stylus at beginning of pattern.

**51-9194.05 Etchers, Hand Entry – Mid – Senior level position assuming education and experience prerequisite**

Exposes work piece to acid to develop etch pattern such as designs, lettering, or figures. Prepares work piece for etching by cutting, sanding, cleaning, or treating with wax, acid resist, lime, etching powder, or light sensitive enamel. Fills etched characters with opaque paste to improve readability. Transfers image to work piece using contact printer, pantograph stylus, silkscreen printing device, or stamp pad. Measures and marks work piece such as plastic, fiberglass, epoxy board, metal or glass, using measuring and calibrating equipment. Inspects etched work for uniformity using calibrated microscope and gauge. Compares work piece design such as lettering, trademark, numerals, or lines to sample to verify development of pattern. Reduces artwork using reduction camera. Positions and secures work piece to be etched on setup board. Prepares etching solution according to formula. Neutralizes work piece to remove acid, wax, or enamel using water or solvents.

**51-9194.06 Engravers, Hand Entry – Mid – Senior level position assuming education and experience prerequisite**

Cuts grooves of specified depth and uniformity into printing roller following lines of design impression. Presses sketch on copper printing roller to produce impression of design. Cuts strip of engraving gum-using knife. Refers to sketch to ensure that lines of only one printing color are engraved into each roller. Punches holes in plate to fasten plate to press using hand tools. Glues rubber or linoleum pattern to woodblock. Inspects designs for defective engraving and re-engraves to meet specifications. Prepares additional rubber plates for jobs requiring colors by omitting different portions of design or lettering on each plate. Traces pattern of design and letters in reverse on linoleum or two or three ply rubber using ruler, pencil, drawing instruments, or cutting tools. Cuts around drawn pattern leaving raised design or letters using cutting tools.

**51-9195.01 Precision Mold and Pattern Casters, except Non-ferrous Metals Entry – Mid – Senior level position assuming education and experience prerequisite**

Pours, packs, spreads, or presses plaster, concrete, liquid plastic, or other materials into or around model or mold. Applies reinforcing strips and additional layers of materials to form pattern of model. Reviews specifications, blueprint, or sketch, to plan and lay out work. Applies lubricant or parting agent to mold or pattern. Constructs or assembles wooden mold using clamps and bolts, hand tools, and power tools. Locates and scribes parting line on patterns using measuring



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instruments such as calipers, square, and depth gauge. Positions and secures reinforcing structure or materials, flask, mold, model, or pattern. Combines or melts ingredients to attain specified viscosity and shape. Removes casting from mold after specified time using tools and equipment such as hand tools, power tools, and crane. Verifies dimensions using measuring instruments such as calipers, vernier gauge, and protractor. Mixes ingredients according to standard formula. Trims or removes excess material using scraper, knife, or band saw. Patches broken edges and fractures using clay or plaster and molders hand tools.

### **51-9195.02 Precision Pattern and Die Casters, Non-ferrous Metals Entry – Mid – Senior level position assuming education and experience prerequisite**

Shapes mold to specified contours with sand using trowel and related tools. Tilts melting pot or uses ladle to pour molten alloy, bronze, or other non-ferrous metal into sand mold. Preheats dies or patterns using blowtorch or other equipment, and applies parting compound. Lowers metal jig into molten metal in prescribed manner to attach anchor bolts to punch. Clamps metal and plywood strips around die or pattern to form mold. Operates foundry furnaces and ovens. Constructs wood patterns used to form sand molds for metal casts. Operates hoist to position dies or patterns on foundry floor. Machines metal patterns to exact dimensions.

### **51-9195.03 Stone Cutters and Carvers Entry – Mid – Senior level position assuming education and experience prerequisite**

Guides nozzle over stone following stencil outline or chips along marks to create design or work surface down to desired finish. Drills holes, or cuts molding and grooves in stone. Studies artistic objects or graphic materials, such as models, sketches, or blueprints and plans carving or cutting technique. Lays out designs or dimensions on stone surface, by freehand or transfer from tracing paper, using scribe or chalk and measuring instruments. Selects chisels, pneumatic or surfacing tools, or sandblasting nozzles and determines sequence of their use according to intricacy of design or figure. Removes or adds stencil during blasting to create differences in depth of cuts, intricate designs, or rough, pitted finish. Loads sandblasting equipment with abrasive, attaches nozzle to hose, and turns valves to admit compressed air and activate jet. Verifies depth and dimensions of cut or carving, using measuring instruments, to ensure adherence to specifications. Moves fingers over surface of carving to ensure smoothness of finish.

### **51-9195.04 Glass Blowers, Molders, Benders, and Finishers Entry – Mid – Senior level position assuming education and experience prerequisite**

Shapes, bends, or joins sections of glass, using paddles, pressing and flattening hand tools, or cork. Blows tubing into specified shape, using compressed air or own breath. Places glass into die or mold of press and controls press to form products, such as, glassware components or optical blanks. Dips end of blowpipe into molten glass to collect gob on pipe head or cuts gob from molten glass, using shears. Preheats or melts glass pieces or anneals or cools glass products and components, using ovens and refractory powder. Heats glass to pliable stage, using gas flame or oven. Cuts length of tubing to specified size, using file or cutting wheel. Inspects and measures product to verify conformance to specifications, using instruments, such as micrometers, calipers, magnifier, and ruler. Examines gob of molten glass for imperfections, utilizing knowledge of molten glass characteristics. Strikes neck of finished article to separate article from blowpipe. Determines type and quantity of glass required to fabricate product. Adjusts press stroke length and pressure, and regulates oven temperatures according to glass type processed. Develops sketch of glass product into blueprint specifications, applying knowledge of glass technology and glass blowing.

### **51-9195.05 Potters Entry – Mid – Senior level position assuming education and experience prerequisite**

Raises and shapes clay into ware, such as vases, saggars, and pitchers, on revolving wheel, using hands, fingers, and thumbs. Smooths surfaces of finished piece, using rubber scrapers and wet sponge. Adjusts speed of wheel according to feel of changing firmness of clay. Positions ball of clay in center of potters wheel. Starts motor, or pumps treadle with foot to revolve wheel. Pulls wire through base of article and wheel to separate finished piece. Verifies size and form using calipers and templates. Moves piece from wheel to dry.

### **51-9195.06 Mold Makers, Hand Entry – Mid – Senior level position assuming education and experience prerequisite**

Constructs molds used for casting metal, clay or plaster objects, using plaster, fiberglass, rubber, casting machine, patterns and flasks. Smooths surfaces of mold, using scraping tool and sandpaper. Bores holes or cuts grates and risers in mold, using power tools. Covers model or pattern of object from which mold is to be made with lubricant or parting agent to prevent mold from sticking to model. Melts metal pieces using torch and casts products, such as inlays and crowns, using centrifugal casting machine. Mixes modeling material, such as plaster powder and water, or mud, sand, and loam, to specified formula. Repairs cracks and broken edges of mold, using hand tools. Allows mold to harden or dry in oven and repeats process until mold is complete. Examines mold for accuracy. Separates model or pattern from mold.

Removes excess modeling or mold material, such as plaster, wax, or rubber, using straightedge. Assembles hardened molds and seals joints. Places form around model and separately immerses each half portion of model in plaster, wax, or other mold making material. Covers portions of model with layers of modeling or casting material treated to harden when allowed to set or dry.

**51-9195.07 Molding and Casting Workers Entry – Mid – Senior level position assuming education and experience prerequisite**

Fills mold with mixed material or applies material to mold to specified thickness. Operates and adjusts controls of heating equipment to melt material or to cure, dry or bake filled molds according to specifications. Measures ingredients and mixes molding or casting material or sealing compound, to prescribed consistency according to formula. Removes excess material and levels and smooths wet mold mixture. Reads work order or examines part to determine part or section of product to be produced. Installs and secures mold or mold parts together. Selects size and type of mold according to instructions. Engraves or stamps identifying symbols, letters or numbers on product. Cleans and lubricates mold and mold parts. Cleans, trims, smooths, and polishes products or parts. Fastens metal inserts, such as drainage tubes, bolts, or electrical connections to product, using hand tools and power tools. Inspects and tests parts or products for defects and to verify accuracy and adherence to standards. Aligns and assembles parts to produce completed product, using gauges and hand tools. Measures and cuts product to specified dimensions, using measuring and cutting instruments. Brushes or sprays surface of mold with parting agent or inserts paper to ensure smoothness and prevent sticking or seepage. Loads or stacks filled molds in oven, drier, or curing box, or on storage racks or carts. Assembles, inserts and adjusts wires, tubes, cores, fittings, rods, or patterns into mold, using hand tools and depth gauge. Opens mold and removes finished products. Molds parts or products using vibrator, hand press, or casting equipment and taps or tilts mold to ensure uniformity.

**51-9198.01 Production Laborers Entry – Mid level position assuming education and experience prerequisite**

Carries or hand trucks supplies to work stations. Loads and unloads items from machines, conveyors, and conveyance. Lifts raw materials, final products, and items packed for shipment, manually, or using hoist. Attaches slings, ropes, cables, or identification tags to objects, such as pipes, hoses, and bundles. Ties product in bundles for further processing or shipment, following prescribed procedure. Weighs raw materials for distribution. Records information, such as number of product tested, meter readings, and date and time product placed in oven. Examines product to verify conformance to company standards. Mixes ingredients, according to formula. Feeds item into processing machine. Inserts parts into partial assembly, during various stages of assembly to complete product. Counts finished product to determine completion of production order. Washes machines, equipment, vehicles and products, such as prints, rugs, and table linens. Folds parts of product and final product during processing. Separates product according to weight, grade, size, and composition of material used to produce product. Cuts or breaks flashing from materials or products. Places product in equipment or on work surface for further processing, inspecting, or wrapping. Positions spout or chute of storage bin to fill containers, during processing. Threads ends of items, such as thread, cloth, and lace through needles, rollers, and around take-up tube. Breaks up defective products for reprocessing.

**51-9198.02 Production Helpers Entry level position assuming education and experience prerequisite**

Cleans and lubricates equipment. Dumps materials into machine hopper prior to mixing. Loads and unloads processing equipment or conveyance used to receive raw materials or to ship finished products. Marks or tags identification on parts. Places or positions equipment or partially assembled product for further processing, manually, or using hoist. Removes product, machine attachments, and waste material from machine. Reads gauges and charts and records data. Signals coworkers to facilitate moving product, during processing. Measures amount of ingredients, length of extruded article, or work to ensure conformance to specifications. Replaces damaged or worn equipment parts. Tends equipment to facilitate process. Mixes ingredients, according to procedure. Turns valves to regulate flow of liquids or air, to reverse machine, to start pump, and to regulate equipment. Starts machines or equipment to begin process. Observes operation and notifies equipment operator of malfunctions.

**53-2021.00 Air Traffic Controllers Entry – Mid – Senior level position assuming education and experience prerequisite**

Communicates with, relays flight plans to, and coordinates movement of air traffic between control centers. Issues landing and take-off authorizations and instructions, and communicates other information to aircraft. Recommends flight path changes to planes traveling in storms or fog or in emergency situations. Transfers control of departing flights to traffic control center and accepts control of arriving flights from air traffic control center. Directs radio searches for aircraft, and alerts control centers emergency facilities of flight difficulties. Completes daily activity report and keeps record of messages from aircraft. Reviews records and reports for clarity and completeness and maintains records and reports. Inspects, adjusts, and controls radio equipment and airport lights. Analyzes factors, such as weather reports, fuel

requirements, and maps to determine flights and air routes. Relays air traffic information, such as altitude, expected time of arrival, and course of aircraft to control centers. Controls air traffic at and within vicinity of airport. Determines timing of and procedure for flight vector changes in sector.

**53-2022.00 Airfield Operations Specialists Entry – Mid – Senior level position assuming education and experience prerequisite**

Ensure the safe takeoff and landing of commercial and military aircraft. Duties include coordination between air traffic control and maintenance personnel; dispatching; using airfield landing and navigational aids; implementing airfield safety procedures; monitoring and maintaining flight records; and applying knowledge of weather information.

**53-3011.00 Ambulance Drivers and Attendants, Except Emergency Medical Technicians Entry – Mid – Senior level position assuming education and experience prerequisite**

Transports sick or injured person to hospital, or convalescents to destination, avoiding sudden motions detrimental to patients. Changes equipment to maintain sanitary conditions. Replaces supplies and disposable items on ambulance. Places patients on stretcher and loads stretcher into ambulance, usually with help of ambulance attendant. Administers first aid as needed. Reports facts concerning accident or emergency to hospital personnel or law enforcement officials.

**53-4011.00 Locomotive Engineers Entry – Mid – Senior level position assuming education and experience prerequisite**

Interprets train orders, train signals, and railroad rules and regulations to drive locomotive, following safety regulations and time schedule. Inspects locomotive before run to verify specified fuel, sand, water, and other supplies. Inspects locomotive after run to detect damaged or defective equipment. Synchronizes watch with that of conductor to ensure departure time from station or terminal is in accordance with time schedule. Prepares reports to explain accidents, unscheduled stops, or delays. Drives diesel-electric rail-detector car to transport rail-flaw-detecting machine over railroad. Observes track to detect obstructions. Receives starting signal from conductor and moves controls, such as throttle and air brakes, to drive locomotive. Calls out train signals to assistant for verification of meaning to avoid errors in interpretation. Confers with conductor or traffic control center personnel via radiophone to issue or receive information concerning stops, delays, or oncoming trains.

**53-5022.00 Motorboat Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates engine throttle and steering mechanism to guide boat on desired course. Secures boat to dock with mooring lines and casts off lines to depart. Gives directions for loading and seating in boat. Cleans and repairs boat hull and superstructure. Performs routine maintenance on boat engine and equipment. Maintains desired course, using compass or electronic navigational aides.

**53-5031.00 Ship Engineers Entry – Mid – Senior level position assuming education and experience prerequisite**

Orders crew to repair or replace defective parts of engines and other equipment. Inspects engines and other equipment. Stands engine room watch, observing that lubricants and water levels are maintained in machinery and load on generators is within limits. Starts engines to propel ship and regulates engines and power transmission to control speed of ship. Maintains engineering log and bellbook (orders of changes in speed and direction of ship). Repairs machinery, using hand tools and power tools.

**53-6041.00 Traffic Technicians Entry – Mid level position assuming education and experience prerequisite**

Observes factors affecting traffic conditions, such as lighting, visibility of signs and pavement markings, traffic signals, and width of street. Computes mathematical factors for adjusting timing of traffic signals, speed restrictions, and related data, using standard formulas. Recommends changes in traffic control devices and regulations on basis of findings. Prepares drawings of proposed signal installations or other control devices, using drafting instruments. Draws graphs, charts, diagrams, and similar aids to illustrate observations and conclusions. Analyzes traffic volume and interviews motorists at intersections or areas where congestion exists or disproportionate number of accidents has occurred. Determines average speed of vehicles, using electrical timing devices or radar equipment. Times stoplight or other delays, using stopwatch. Conducts statistical studies of traffic conditions.

**53-6051.01 Aviation Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects aircraft and components to identify damage or defects and to determine structural and mechanical airworthiness using hand tools and test instruments. Examines maintenance record and flight log to determine if service and maintenance checks and overhauls were performed at prescribed intervals. Examines access plates and doors for security. Starts aircraft and observes gauges, meters, and other instruments to detect evidence of malfunction.



Conducts flight test program to test equipment, instruments, and systems under various conditions including adverse weather, using both manual and automatic controls. Recommends purchase, repair, or modification of equipment. Schedules and coordinates in-flight testing program with ground crews and air traffic control to assure ground tracking, equipment monitoring, and related services. Prepares reports to document flight activities. Approves or disapproves issuance of certificate of airworthiness. Investigates air accidents to determine cause. Analyzes training program and conducts examinations to assure competency of persons operating, installing, and repairing equipment.

**53-6051.02 Public Transportation Inspectors Mid – Senior level position assuming education and experience prerequisite**

Observes employees performing assigned duties to note their department, treatment of passengers, and adherence to company regulations and schedules. Observes and records time required to load and unload passengers or freight volume of traffic on vehicle and at stops. Investigates schedule delays, accidents, and complaints. Inspects company vehicles and other property for evidence of abuse, damage, and mechanical malfunction and directs repair. Determines need for changes in service, such as additional vehicles, route changes, and revised schedules to improve service and efficiency. Drives automobile along route to detect conditions hazardous to equipment and passengers and negotiates with local governments to eliminate hazards. Submits written reports to management with recommendations for improving service. Reports disruptions to service. Assists in dispatching equipment when necessary. Recommends promotions and disciplinary actions involving transportation personnel.

**53-6051.03 Marine Cargo Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects loaded cargo in holds and cargo handling devices to determine compliance with regulations and need for maintenance. Reads vessel documents to ascertain cargo capabilities according to design and cargo regulations. Calculates gross and net tonnage, hold capacities, volume of stored fuel and water, cargo weight, and ship stability factors, using mathematical formulas. Determines type of license and safety equipment required, and computes applicable tolls and wharfage fees. Examines blueprints of ship and takes physical measurements to determine capacity and depth of vessel in water, using measuring instruments. Writes certificates of ad measurement, listing details, such as design, length, depth, and breadth of vessel, and method of propulsion. Issues certificate of compliance when violations are not detected or recommends remedial procedures to correct deficiencies. Times rolls of ship, using stopwatch. Analyzes data, formulates recommendations, and writes reports of findings. Advises crew in techniques of stowing dangerous and heavy cargo, according to knowledge of hazardous cargo.

**53-6051.04 Railroad Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects signals and track wiring to determine continuity of electrical connections. Examines roadbed, switches, fishplates, rails, and ties to detect damage or wear. Examines locomotives and cars to detect damage or structural defects. Inspects and tests completed work. Operates switches to determine working conditions. Tests and synchronizes rail-flaw-detection machine, using circuit tester and hand tools, and reloads machine with paper and ink. Starts machine and signals worker to operate rail-detector car. Prepares reports on repairs made and equipment, railcars, or roadbed needing repairs. Tags rail cars needing immediate repair. Fills paint container on rail-detector car used to mark section of defective rail with paint. Directs crews to repair or replace defective equipment or to re-ballast roadbed. Places lanterns or flags in front and rear of train to signal that inspection is being performed. Seals leaks found during inspection that can be sealed with caulking compound. Replaces defective brake rod pins and tightens safety appliances. Notifies train dispatcher of railcar to be moved to shop for repair. Makes minor repairs. Packs brake bearings with grease.

**53-6051.05 Motor Vehicle Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects truck accessories, airlines and electric circuits, and reports needed repairs. Examines vehicles for damage, and drives vehicle to detect malfunctions. Tests vehicle components for wear, damage, or improper adjustment, using mechanical or electrical devices. Applies inspection sticker to vehicles that pass inspection, and rejection sticker to vehicles that fail. Prepares report on each vehicle for follow-up action by owner or police. Prepares and keeps record of vehicles delivered. Positions trailer and drives car onto truck trailer. Notifies authorities of owners having illegal equipment installed on vehicle. Services vehicles with fuel and water.

**53-6051.06 Freight Inspectors Mid – Senior level position assuming education and experience prerequisite**

Inspects shipment to ascertain that freight is securely braced and blocked. Observes loading of freight to ensure that crews comply with procedures. Monitors temperature and humidity of freight storage area. Records freight condition and handling, and notifies crews to reload freight or insert additional bracing or packing. Measures height and width of loads that will pass over bridges or through tunnels. Notifies workers of special treatment required for shipments. Prepares and submits report after trip. Posts warning signs on vehicles containing explosives or inflammatory or radioactive materials.



## JOB TITLES AND ASSOCIATED TASKS Sorted by Cognofile

### **53-7021.00 Crane and Tower Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates cranes, cherry pickers, or other moving equipment to lift and move loads, such as machinery or bulk materials. Inspects bundle packaging for conformance to customer requirements and removes and batches packaging tickets. Weighs bundles, using floor scale, and records weight for company records. Directs helpers engaged in placing blocking and out-rigging under crane when lifting loads. Inspects cables and grappling devices for wear, and installs or replaces cables. Directs truck drivers backing vehicles into loading bays and covers, uncovers, and secures loads for delivery. Reviews daily truck-delivery schedule to ascertain orders, sequence of deliveries, and special loading instructions. Cleans, lubricates, and maintains mechanisms, such as cables, pulleys, and grappling devices. Inspects and compares load weights with lifting capacity to ensure against overload. Loads and unloads bundles from trucks and moves containers to storage bins, using moving equipment. Inspects and adjusts crane mechanisms and accessory equipment to prevent malfunctions and wear.

### **53-7031.00 Dredge Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Starts and stops engines to operate equipment. Lowers anchor pole to verify depth of excavation, using winch, or scans depth gauge to determine depth of excavation. Directs workers placing shore anchors and cables, laying additional pipes from dredge to shore, and pumping water from pontoons. Starts power winch that draws in or lets out cable to change position of dredge, or pulls in and lets out cable manually. Moves levers to position dredge for excavation, engage hydraulic pump, raise and lower suction boom, and control rotation of cutter head.

### **53-7032.01 Excavating and Loading Machine Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates power machinery, such as powered-shovel, stripping-shovel, scraper loader (mucking machine), or back-hoe (trench-excavating machine) to excavate and load material. Measures and verifies levels of rock or gravel, base, and other excavated material. Lubricates and repairs machinery and replaces parts, such as gears, bearings, and bucket teeth. Directs ground workers engaged in activities, such as moving stakes or markers. Receives written or oral instructions to move or excavate material. Observes hand signals, grade stakes, and other markings when operating machines.

### **53-7032.02 Dragline Operators Entry – Mid – Senior level position assuming education and experience prerequisite**

Moves controls to position boom, lower and drag bucket through material, and release material at unloading point. Drives machine to work site. Directs workers engaged in placing blocks and outriggers to prevent capsizing of machine when lifting heavy loads.

### **53-7033.00 Loading Machine Operators, Underground Mining Entry – Mid – Senior level position assuming education and experience prerequisite**

Operates levers to move conveyor boom or shovel to move mine contents into car or onto conveyor. Drives machine into pile of material blasted from working face. Pries off loose material from roof and moves it into path of machine with crowbar. Starts conveyor boom and gathering-arm motors. Moves trailing electrical cable clear of obstructions, using rubber safety gloves. Advances machine to gather material and convey it into car at rear. Stops gathering arms when car is full.

### **53-7072.00 Pump Operators, Except Wellhead Pumpers Entry – Mid – Senior level position assuming education and experience prerequisite**

Turns valves and starts pump to commence or regulate flow of substances, such as gases, liquids, slurries, or powdered materials. Connects hoses and pipes to pumps and vessels, using hand tools. Adds chemicals and solutions to tank to ensure specifications are met. Communicates with workers to start flow of materials or substance. Collects and delivers sample solutions for laboratory analysis. Transfers materials to and from vessels, using moving equipment. Tests materials and solutions, using testing equipment. Records information such as type and quantity of material, and operating data. Inspects and reports vessel and pump abnormalities such as leaks, pressure, and temperature fluctuations. Cleans and maintains pumps and vessels, using hand tools and equipment. Tends auxiliary equipment such as water treatment and refrigeration units and heat exchanges. Observes gauges and flow meter to ascertain specifications are met, such as tank level, chemical amounts, and pressure. Tends vessels that store substances such as gases, liquids, slurries, or powdered materials.