

This document was is a sample Skills Map, as developed through the Skills Mapping process. This tool was developed by IBM in 2014. This document serves as one key tool related to the P-TECH 9-14 model.

SAMPLE SKILLS MAP

P-TECH 9-14 Model Taxonomy

Eligible Job Categories

- **Manufacturing:** Manufacturing is a worldwide operation. Manufacturing supports every systems product that IBM sells, including low-end servers, large storage systems, mainframes, and everything in between. It also covers semiconductor fabrication. The manufacturing organization manages everything required to get finished systems to our clients: parts supply, assembly and test processes, the delivery network, as well as recovering equipment for reuse, redistribution, or disposal.
- **Product Services:** Employees with responsibility for on-site installation, maintenance and repair of IBM and multi-vendor systems/components, including hardware, software, networking products, operating systems. Support and advise others in specific product area when assigned. Ensure customer satisfaction by advising customers of preventive maintenance, configuration, operation and environmental factors which may impact product performance or impair customer's IT operation. Manages the customer by developing a support plan with the customer and coordinating other support resources. Takes responsibility to inform the customer of additional support services or refers product and services sales opportunities to the sales team.
- **Software Development & Support:** Software Development and Support professionals design, develop, test and provide technical support on a wide range of IBM product software for large, medium, and small businesses including operating systems, networks, middleware, security, and IBM software solutions.
- **Technical Services:** Employees who perform a variety of technical services including installing, operating, planning and configuring complex client information systems, products, or networking systems/components. Services may also include the integrating and testing of hardware/software solutions. Often found in an environment where IBM has a long-term relationship to provide IT services, or in a multi-vendor environment in support of a client's business. Typically involved in the management of live production systems and/or testing environment performing systems level configuration or analyzing business requirements to define, install and maintain computer systems, network applications/systems and workstation services.

Job Category Demand

Job Category	IBM US Job Category Demand (Low to High)
Manufacturing	LOW
Product Services	MEDIUM
Software Development & Support	HIGH
Technical Services	MEDIUM

Strategic Growth Areas

The strategic growth areas should form a foundation for all roles

- **Cloud**
 - SaaS: Software as a Service
 - PaaS: Platform as a Service
 - IaaS: Infrastructure as a Service
- **Analytics**
 - Business Intelligence
 - Performance Management
 - Predictive Analytics
 - Risk Analytics
 - Regulatory Compliance
- **Mobile**

Integrate mobile into the fabric of your organization. Enable your employees to work anytime and anywhere. Provide trusted mobile interactions as you manage and add greater security to your infrastructure, and optimize performance.
- **Social**

Solutions and strategic consulting services enable authentic engagement between the people who drive your business.
- **Security**

Address the challenges of securing their people, data, applications and infrastructure.

Software Development and Support Roles

- **Information Developers:** Employees in this role complete information development projects, lead teams, and keep information deliverables organized and on schedule. They apply appropriate technical writing, editing, multimedia, visual design and tools skills, as required. They design and develop elements for user interface (UI), web, multimedia delivery, print, and other linear and non-linear information deliverables.
- **Software Developers:** Employees in this role use design documentation, such as Functional Programming Specifications and high-level design documents to implement the identified components. They also ensure that the implemented components are unit tested and ready to be integrated into the product. Software developers also provide fixes to defects identified by the verification team during the software development life cycle.
- **Software Test Specialists:** This role executes the tasks required to fully test an IBM product or system to ensure it functions according to specifications and client requirements and meets the business needs. Testing activities cover all aspects of the product/system including function/component, performance, system, regression, and service. People in this role must demonstrate knowledge of the domain that they are responsible for testing. For example, a functional tester must have deep knowledge of the function that they are responsible for. A solution tester must have knowledge of the overall solution. Knowledge of the target market for the product and the client environment is necessary. They must also be familiar with testing methodologies, tools and techniques. Software Testers may set up test environments, design and plan testing activity, develop test cases/scenarios/use cases, and/or execute required testing. Testers also investigate problems uncovered during testing, recreating those problems

as appropriate and executing fix validations. They provide feedback on usability, serviceability and documentation and report status to the appropriate audience.

- **Technical Support Professional:** This role specializes in performing and enabling remote technical support of IBM software, hardware and solutions. Provides technical support assistance to clients and/or IBM field support (SSRs) using problem determination/problem source identification skills. Uses technical and negotiation skills in collaboration with other support operations/organizations to prioritize and diagnose problems to resolution. Communicates action plans to the client or IBM representative as appropriate. Recommends and implements new or improvements to existing technical support tools, procedures, and processes. May provide training for and mentor others on the team. Contributes to department attainment of organizational objectives and high client satisfaction.

Software Development and Support Specialties

Information Developer

Expertise	Description
Design Information	Design information, based on a task and audience analysis and according to the information plan. Verify the information design through an iterative process that includes input from clients and other disciplines. The design can be limited to one information unit or can comprise entire information sets (higher skill levels). Design accessible user information by providing other members of the design team with resources needed to design, implement, and validate the agreed-upon degree of accessibility. Develop a prototype, if necessary, to augment understanding of the proposed design. Ensure that other information deliverables complement each other and are easy for users to find across information sets. Validate approach with clients. The higher the skill level, the more complex the information might be to design and execute. For example, the full range of user assistance for a product might include deliverables such as information center topics, online help, wizards, printed material, and Web based content Base final design on a thorough analysis and

Expertise	Description
	validation of user needs and preferences for finding and using information.
Develop Documentation for International Audience	Implement general Globalization concepts when developing information (such as avoiding jargon, developing glossaries, and developing clear English text that is easy to translate). Use the acrolinx IQ tool (when possible) on newly developed information. Analyze information to ensure compliance with accessibility requirements for information. Use the TermExt tool to create term lists for translation and to check information for new terms, forbidden terms, and inconsistencies.
Develop Information	Develop information based on a task and audience analysis and according to the information plan. Information may be in book metaphor, article- or topic-based help system, information center, e-learning modules, tutorials, or any other suitable form. Develop accessible user information by encapsulating appropriate resource information as needed by other members of the team including checklists, availability of audit tools, etc. Validate information with clients. The design can be limited to one information unit or can comprise entire libraries, help systems or information centers (higher skill levels). Develop a prototype, if necessary. Ensure that information deliverables complement each other. Validate approach with clients. The higher the skill level, the more complex the information might be.
Perform Technical Writing	Analyze user needs, create document designs, draft and write documents and written education material supporting an application or software product. Conform to standards of user interface and

Expertise	Description
	presentation. Apply minimalist and task-supportive writing principles. Clearly distinguish between conceptual, procedural and reference information. Develop accessible product information for different roles of users that meet particular sensory and physical restrictions.
Use Information Development Tools	Use tools to produce information in required media such as print, Web and interactive. Suggested tools/technologies are: ID Workbench, SGML, HTML, XML, DITA, Eclipse, Epic, IDCMS, ClearCase, JavaScript, Java, ISPF, BookManager, UNIX, Easy English Analyzer, CMVC, Frame Maker, Adobe Acrobat, CorelDraw, Photoshop, Paint Shop Pro, and TermEXT. This list may vary as corporate ID strategy evolves.
Apply Project Management Methodologies	Apply appropriate project management methodologies to supervising a business undertaking from start to completion, managing assigned resources, meeting objectives, and reducing the risk of failure.
Develop Information Usability Tests	Plan and prepare scenarios that test information deliverables, such as printed documents, online documents, InfoCenters, Helps, and graphical user interfaces. The scenarios should test information (individually or collectively) for accuracy, applicability, retrievability, navigation, and accessibility. Test scenarios identify test objectives, entry criteria, test procedures, and exit criteria. The scenarios should be reviewed by the product test teams and integrated into existing testing where appropriate. Test scenarios can be independent or synchronized with usability tests or in combination with other test efforts. After testing, analyze test results to establish action plans.

Software Development and Support Specialties

Software Developer

Expertise	Description
Apply Knowledge of DB2	Thorough applied or technical knowledge of DB2. This includes an understanding of DB2 functions, capabilities and uses. One should also have knowledge in the areas of administration, operation, recovery, tuning and application programming.
Apply Knowledge of JAVA & JavaScript	Thorough applied or technical knowledge of JavaScript, including functions and capabilities. The individual should have knowledge and be capable of addressing technical aspects of JavaScript in the areas of installation, customization and operation.
Apply Knowledge of Lean/Agile Principles	Understand and apply the practices of lean and agile, including stakeholder feedback, use cases, user stories, iterative development, stable/consumable code, continuous integration, TDD, and value stream maps.
Apply Knowledge of Python Scripting	Thorough applied or technical knowledge of Python Shell scripting, including functions and capabilities. The individual should have knowledge and be capable of addressing technical aspects of scripting in the areas of installation, customization and operation.
Apply Knowledge of XML Schema, XPath, and XSLT	Possess thorough technical knowledge, including functions and capabilities. Address technical aspects associated with requirements, usage, and solutions opportunities. Individual should have knowledge and be capable of installation, customization and operation.
Code C++	Analyze, code and debug applications written in C++ language. Review and

Expertise	Description
	analyze application program abends and failures on the various platforms or environments. Use relevant dumps, traces and other diagnostic material and tools to identify the probable failing component or source of the defect. May be able to code a fix or workaround.
Code HTML	Understand and use the features and functions of HTML interface and pages.
Develop Code Using Eclipse	Understand the features and functions of the Eclipse workbench. Understand how Eclipse functions relate to WSAD (WebSphere Application Developer Product). Use Eclipse in integrating function to create a development environment.
Develop Web Applications Using CSS	Develop Web applications using Cascading Stylesheets. Cascading Stylesheets (CSS) is a stylesheet language used to describe the presentation of a document written in a markup language. Its most common application is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document.
Develop Web Applications Using Dojo	Develop web applications using Dojo. Dojo enables you to easily build dynamic sites. It provides a rich widget library you can use to compose your pages. You can use Dojo's aspect-based event system to attach events to components to create a rich interaction experience.
Develop XML Applications	Design, code, test, debug and document applications using XML.

Software Development and Support Specialties

Software Test Specialist

Expertise	Description
Analyze Code	Be familiar with common programming languages and methods in order to understand code flow and paths, specifically error handling, message logging and tracing. Follow the execution flow through a software routine. Work in a basic code development tooling environment to use software debugging tools (online debuggers, trace handlers and decoders) and to develop and support problem determination tools and utilities.
Analyze Test Results	Analyze test results to evaluate the quality. If indicators show that there is a problem, take appropriate action.
Apply RAS Best Practices	Understand the first principles of problem determination and debugging across an appropriate set of platforms or technologies to be able to determine the needs of a given product that will allow these activities to occur easily. Have a basic understanding of client information technology operations, deployment practices and availability requirements so as to appropriately propose or specify related product requirements or goals.
Implement Testing Goals	Plan the implementation of the test environment to ensure test plans represent the way the client uses the product. Provide advice and guidance to the project team by representing the client's point of view.
Perform Integration Test	Execute the tasks that relate to Integration Test activities. These include the ability to understand and test new/enhanced function and its interaction within the system, the ability to create, run, monitor, and diagnose workloads running on the system, and the ability to understand the

Expertise	Description
	test new/enhanced functions on a platform level.
Perform System Programming	Execute the tasks that relate to system programming which include software installation, system configuration, customization, system operation, performance tuning, problem diagnostics and system and data recovery. Install PTFs and other changes. Work with the customer to understand their needs.
Perform System Test	Execute the tasks that relate to System Test activities that involve the ability to understand and test new/enhanced function and its interaction within the system.
Test Software Across Multi OS & Hardware Platforms	Applied knowledge and abilities to design, code and execute tests across multiple operating systems and hardware platforms.
Develop Test Automation Tools	Create test automation tools needed for execution of test cases. Provide input into business case for use, purchase, or deployment of test tools.
Use Programming Languages	Apply knowledge of features and functions of Programming Languages (for example: C, C++, APIs, COBOL, Java, PL/X Technology, SQL, Visual Basic, XML, etc.). Have an understanding of open standards and how those programming languages are best used within that environment.

Software Development and Support Specialties

Technical Support Specialist

Expertise	Description
Apply Problem Prevention Techniques	Demonstrate techniques that prevent problem recurrence. Employ the following for the purpose of providing quality products/solutions under problem free processes: market-driven processes; 'closed-loop' problem solving; implementation of standards and procedures that prevent low-quality or problem recurrence and result in continuous improvement. For example, the analysis of Problem Management Reports are input to development and documented in a knowledge management system to assist clients and IBM professionals.
Apply Knowledge of Remote System Analysis	Have a working knowledge of the tools, concepts, and procedures for performing problem determination and analysis on systems at a remote location. For example use tools like IBM Support Assistance (ISA), Autonomic, and Adaptive Optimization System (AOS). Apply knowledge to a variety of tasks that may include activities such as system or sub-system problem debug and resolution, process flow, and test trial setup.
Apply Knowledge of Software Design & Development	Have a working knowledge of software design that may include compilers, assemblers, debuggers, databases and networks. Understand basic operating systems and the design factors used such as multi-tasking, paging, scheduling, and segments.
Perform Debug	Review and analyze program abends and failures on various platforms or environments. Use relevant dumps, traces and other diagnostic material and tools to identify, isolate and collect appropriate

Expertise	Description
	debug information. Fix the problem by applying knowledge of diagnostic tools for debugging code, debugging hardware and analyzing problems using available information. Understand the function, operating principles and adjustment of tools and equipment used in assignments. Recognize proper and improper operation of equipment and take corrective action as appropriate.
Perform Problem Determination/Problem Source Identification	Perform problem determination and problem source identification. Execute procedures for problem analysis and problem determination of system failures in a multi-vendor environment by isolating the problem to the source and providing an appropriate resolution plan. May review technical data available for the product and research known issues in IBM documentation and technical databases. May perform routine preventative maintenance (PM) service checks on tools subject to PM safety audits.

Product Services

- **Remote Technical Support:** Demonstrate proficiency in the hardware and software platform supported by maintaining applicable technical certifications. Provide technical support service delivery within established guidelines, demonstrating soft skills and technical skills that contribute to client satisfaction. Demonstrate excellent oral and written communication skills. Position may require industry certification and skills training requirements.
- **Software Specialist:** This role specializes in performing problem determination and problem source identification in software environments. Responsibilities include: - problem analysis, evaluation, recreation, and resolution of client reported problems - the use of relevant problem management systems to search for known problems and to create new entries/update existing entries - advice and guidance to clients regarding the use of software - the use of IBM technical resources and tools to answer client questions and respond to clients requirements. Software environments include operating systems, programming languages, database management systems, packages, development tools, etc.
- **Support Center Representative:** This role participates in remote technical support of IBM hardware and software products and/or systems and may include the following: Provide remote troubleshooting and analysis assistance for installation (or reinstallation), usage and configuration questions. Provide

answers for general usage and operation questions. Provide problem determination / problem source Identification. Review diagnostic information to assist in isolation of a problem cause (which could include, assistance interpreting traces and dumps). Identify known defects and fixes to resolve problems. Provide assistance on supported product known defects for which available corrective service information and program fixes are available. Identify suspected defects and engage development teams to assist in resolution. Provide assistance with questions regarding product documentation related to the supported products. Interpret online manuals regarding IBM code and application interfaces. Collaborate with other support centers and business units to provide seamless problem resolution. Demonstrate proficiency in the hardware and software platform supported by maintaining applicable technical certifications. Provide technical support service delivery within established guidelines; demonstrating soft skills and technical skills that contribute to client satisfaction. Demonstrate excellent oral and written communication skills. Position may require industry certification and skills training requirements.

- **System Services Representative:** This role is an individual contributor responsible for on-site installation, maintenance and repair of IBM and multi-vendor systems and components, including hardware, networking products, software and operating systems. They are the primary technical interface to clients for the coordination of hardware and/or software support and delivery of operational services as required by the client. They advise clients of preventive maintenance, configuration, operation and environmental factors which may impact product performance or impair client's IT operation. They may also perform services activities such as systems assurance, installation planning, account management, systems-level problem determination, discontinuance and relocation of IBM and non-IBM systems and products. They are accountable to ensure a high level of client satisfaction with service delivery, technical support and operational services for the client account(s). When critical situations occur, they are the IBM technical interface to clients and manage the situation until the problem is fixed. They have a thorough understanding of, and are able to articulate, IBM's technical support strategy. They are responsible for the technical value relationship to protect revenue base and identify new services opportunities.
- **Technical Support Representative:** This role provides remote technical support assistance to clients and IBM technical personnel on multiple products in the high volume through high availability product environments. They receive and record incident related information, and using a variety of tools, techniques and procedures, selects appropriate actions to resolve problems, and communicates the solution or action plan to the client or IBM service representative. They identify/recommend updates to knowledge based systems and maintenance packages. They may also provide hardware or software technical support assistance to clients and IBM personnel in multi-vendor, multi-protocol networks/systems in the high availability product environment. They use professional knowledge and problem determination/problem source identification skills to resolve problems involving hardware, microcode, operating system, application programs, and network issues.

Product Services Specialties

Perform Problem Determination/Problem Source Identification	Perform problem determination and problem source identification. Execute procedures for problem analysis and problem determination of system failures in a multi-vendor environment by isolating the problem to the source and providing an appropriate resolution plan. May review technical data available for the product and research known issues in IBM documentation and technical databases. May perform routine preventative maintenance (PM) service checks on tools subject to PM safety audits.
Apply Call Handling Standards	Perform the following actions in an appropriate manner: Greeting Caller, Caller's Name, Diffusing Anger, Putting Caller on Hold, Transfer/Connect, Closing Call, Speech Quality, Accuracy of Information, Call Control, Courtesy, Listening, and Call Ownership.
Apply System Fixes	Identify and implement I/T improvements and fixes in software environments where your specialties are being applied. Put your software knowledge and expertise into action by identifying problems and installing fixes in software environments.
Perform Preventive Services	Plan and execute procedures necessary to prevent component, system, subsystem, or application failures.
Use Network Problem Determination Tools	Apply knowledge of features and functions of Network Problem Determination Tools.
Perform Hardware Maintenance	Diagnose and resolve equipment problems using appropriate resources and support structure. Optimize machine performance and minimize disruption to client operation. Install equipment, Engineering Changes and MESS. Track and log account activity as required according to the account management plan. Assist other personnel as needed.
Perform Product Conversion	Manage the migration from one system or subsystem product to another product or platform, including hardware, software and applications. Perform any processes and run procedures used to migrate to the new system. Advise and guide the client regarding the use of the product by using IBM technical

	resources and tools to answer client questions and respond to client requirements. Support the client in problem resolution activities.
Plan Physical Installation	Familiar with System Assurance and environment planning (power, cooling, floor size...).
Use Documentation Tools	Create documents and diagrams using IBM and commercially available tools.

Technical Services

- **Customer Service Representative:** This role advises and guides the client regarding the use of a broad range of products, offerings, and services. Following a standard call flow and problem handling processes (scripted or not scripted), they verify entitlement, perform problem determination, resolve and close the problem, or route the incident record to the appropriate level of support. Using technical resources and tools, they support the client by answering questions and responding to client requirements. They utilize their product, technology, industry and/or services skills to identify problems that may be related to product installation, update, configuration, operations or performance. They guide the client, advising on potential resolutions and their implementation, and play a key role in overall client satisfaction.
- **Computer Operator:** This role is responsible for monitoring, controlling and operating complex computer systems, networks, applications and/or distributed systems in a multi vendor environment. They are also responsible for analyzing first level problems for all systems (according to the service agreements), resolving and routing as appropriate, supporting the Systems Management Processes specific to their client requirements, performing I/O (tape and print) duties where appropriate and batch management when required.
- **Security Delivery Specialist:** This role is a subject matter expert qualified to perform multiple roles related to the delivery of security & risk management services to a client. Responsibilities may include leading the development and implementation of policies and practices, security programs, multi-functional teams, and/or project plan delivery. Their sphere of responsibility may range from a single customer account to multiple customers. They provide subject matter expertise in specific areas such as logical & physical access management, information security, incident management, issue & risk management, audit readiness and compliance.
- **Deskside Support Representative:** This role performs varying degrees of problem determination and resolution of desktop hardware and software problems through the effective use of available technical resources, per contracted service level agreements. They may also perform installs, moves, adds and change (IMAC) activities, as well as data backup and restore on certain accounts, for clients. They are responsible for resolving problems and performing IMACs within Service Level Agreement objectives (SLA), and completing all related administrative duties. As the main interface to the client, they need to understand the local and regional infrastructure and key contacts in the other competencies, i.e. network team, server admin, etc., in order to ensure that the proper team is aware of, and taking action on the problem. Strong client communication and business skills are therefore needed since direct client interaction is often required. Accordingly, they have a direct impact on client satisfaction, and therefore, need to understand their account/site environment. Responsibilities include: Resolve client hardware/software PC problem tickets. A technical knowledge of the supported platform is required as well as a working knowledge of the hardware. Resolve tickets within the client SLA and obtain a high client Satisfaction Rating. Good communication skills are required.

- **Systems Administrator:** This role is performed by technical professionals who specialize in providing perform services to clients on hardware and software components. Activities include operation and maintenance of operating systems across multiple platforms, middleware applications, various database technologies, high availability solutions and load balancing.

Technical Services Specialties

Expertise	Description
Apply Call Handling Standards	Perform the following actions in an appropriate manner: Greeting Caller, Caller's Name, Diffusing Anger, Putting Caller on Hold, Transfer/Connect, Closing Call, Speech Quality, Accuracy of Information, Call Control, Courtesy, Listening, and Call Ownership.
Implement Desktop Operating Systems	Plan the customization, installation and implementation for Desktop Operating Systems that may include education, conversion, testing and integration activities. Advise and guide users regarding function and performance for Desktop Operating Systems. Install Desktop Operating Systems.
Implement System Hardware/Software Components	Implement systems hardware and software components.
Manage System Change	Tailor and use change management tools, processes, and services to plan, facilitate manage and control changes to the system environment.
Perform Automate Console Operations (AOC)	Operate, monitor, and control Automate Console Operations. Advise the customer to enable them to reconfigure their environment and assist in customer operator development.
Perform Problem Management	Tailor and use the problem management tools, processes, and services to predict, prevent and manage problems that may impact the effectiveness of the total systems environment. Lead problem determination efforts in multi-vendor, multi-platform environment.
Perform Standard Recovery Management Process & Tools	The OneView Tool is used to facilitate the Standard Recovery Management Process i.e. to expedite technical recovery for those Critical Events, which directly impact the customer's business, and to provide real time

	communication to IBM and Service Management detailing specific recovery actions, plans, and status. Specifically, OneView provides a mechanism to quickly communicate details about a given outage from Operations teams to Recovery Management teams, and provides the ability to send notification messages to defined distribution lists. It also provides a consolidated data source for generating reports on critical impact outages and associated recovery efforts. Information in this tool is to be considered IBM Confidential.
Perform System Operations	Have a high degree of competency and understanding of at least one operating system in a complex environment. Communicate effectively to allow customers to reconfigure their environment and to assist in customer operator development.
Support Communications Software	Support at least one set of communications software including installation, tuning and problem determination. Examples include APPN,TCP/IP and SNMP.
Support E-Mail Systems/Standards	Advise and guide the client by using IBM technical resources and tools to answer questions and respond to requirements. Support the client, which may include: identify problems related to installation, update, configuration, operations or performance, resolve problems, advise on potential resolutions and their implementation and implement suggested resolutions to the satisfaction of the client.
Support IBM PC Desktops	Advise and guide the client by using IBM technical resources and tools to answer questions and respond to requirements. Support the client, which may include: identify problems related to installation, update, configuration, operations or performance, resolve problems, advise on potential resolutions and their implementation and implement suggested resolutions to the satisfaction of the client.
Support Networking Interfaces/Protocols	Advise and guide the customer regarding the use of Networking Interfaces/Protocols by

	using IBM technical resources and tools to answer customer questions and respond to customer requirements. Support the customer which may include: Identifying problems related to Networking Interfaces/Protocols installation, update, configuration, operations or performance; resolving problems; advising on potential resolutions and their implementation; implementing suggested resolutions to the satisfaction of the customer. e.g. 802.2, 802.5, 802.3 NETBIOS, TCP/IP.
Support Productivity Applications	Advise and guide the customer by using IBM technical resources and tools to answer customer's questions and respond to customer's requirements. Support the customer, which may include: identify problems related to installation, update, configuration, operations or performance, resolve problems, advise on potential resolutions and their implementation and implement suggested resolutions to the satisfaction of the customer.
Use Systems Monitor Tools	Use systems monitoring tools and processes to ensure attainment of service level agreements.

Manufacturing Roles

- **Manufacturing Engineering Technician:** This role is responsible for engineering activities related to developing, modifying, and supporting processes, systems, products, devices, components, or production. Involved in conducting experiments, analyzing problems and recommending solutions, as well as verifying and repeating the solution. Responsible for process documentation, specification requirements, and bill of material architecture.
- **Manufacturing Operator:** Manufacturing Operators support the overall end-to-end operations i.e, Crib, Packaging, Production, Shipping, Receiving, Returns, in getting finished systems, solutions, and or parts to our clients. This role is responsible for and not limited to assembly operations, manufacturing processing, equipment operation, parts and product handling, clean room operations, line logistics, control systems, and safety as well receive and manage inventory of parts.
- **Manufacturing Technician:** This person provides technical expertise to ensure products and or tools serviceability. This role uses manufacturing procedures to identify and resolve problems across manufacturing. They also work with Engineering to model new products and processes. Presents and reports status at manufacturing and cross functional meetings.

Manufacturing Specializations

Skill	Description
Apply Knowledge of Inventory Management Process	Understand and apply knowledge of Inventory Management Process, replenishment, inventory control (e.g. parts and assets), audits, and or forecasting, strategic planning and performance measurement.
Apply Parts Inventory Knowledge	Parts inventory involves the planning, organizing and controlling of inventory management of spare parts which may be used for internal consumption as in a manufacturing environment or spare parts for sale to clients. Knowledge of inventory management, Knowledge of the systems and business processes that support the inventory of parts, Understand the benefits and costs associated with effective parts inventory, Understand the features and functions of parts inventory.
Design Mock-ups & Prototypes	Design and/or build mock-ups and/or prototypes that illustrate visual style and functionality. These mock-ups, which can be static or interactive, may be used in user testing sessions or to explore design concepts or evaluate design solutions.
Perform Kitting of Parts	Accurately kit parts based on order specifications.
Perform Problem Determination/Problem Source Identification	Perform problem determination and problem source identification. Execute procedures for problem analysis and problem determination of system failures in a multi-vendor environment by isolating the problem to the source and providing an appropriate resolution plan. May review technical data available for the product and research known issues in IBM documentation and technical databases. May perform routine preventative maintenance (PM) service checks on tools subject to PM safety audits.
Perform System Assembly	Perform System Assembly by following on-line build instructions as per order specifications.
Use Blueprints & Written Specifications	Demonstrate ability to read blueprints, models, sketches and written specifications in order to maintain and build the final product.

Skill	Description
Use Machine Tools	Demonstrate ability to operating milling machines, lathes, surface grinders, wire electrical discharge machines and other machine tools.
Use Precision Measuring Devices	Demonstrate ability to use a wide variety precision measuring devices with high degree of attention to detail. Devices include but are not limited to digital calipers, micrometers, rulers, and electronic measuring devices.

For more information about the P-TECH 9-14 model, please visit ptech.org