

**COMPETENCY MODEL FOR
SYSTEMS PROGRAMMER
CLASS CODE 1455**

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **SYSTEMS PROGRAMMER**. (Numbers refers to the order of competencies in the Competency Bank.)

- 4. Analytical Ability
- 5. Learning Ability
- 7. Self Management
- 12. Conscientiousness
- 20. Job Knowledge
- 35. Teamwork
- 45. Oral Communication
- 49. Project Management

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (*italicized and underlined*), examples of behavioral indicators, and satisfactory and superior performance levels.

- 4. ANALYTICAL ABILITY** – Identifies, obtains, and evaluates relevant information to establish relationships or patterns, cite causes, and reach logical conclusions.

Level of Competency Required by Job:

Level 1: Recognize similarities/differences in current situation to those previously encountered and is guided accordingly. Apply existing policies correctly. Ask pertinent questions or otherwise seek additional information to formulate appropriate response

Level 2: **Consider multiple, varied factors when evaluating a situation or issue. Seek additional information to provide further insight. Reach conclusions that logically follow from the information obtained.**

Level 3: Consider a multitude of diverse factors, their interrelationships, the perspectives of others, alternative courses of action and their likely ramifications when evaluating information to reach a conclusion.

Examples of Behavioral Indicators:

- Obtains the necessary amount of relevant information.
- Recognizes the impact of each type of information on conclusions.
- Evaluates the quality/source of information when considering it.
- States the shortcomings of the information and, therefore, the analysis.

Performance Levels:

Satisfactory

Recognizes available relevant information, seeks additional information to consider, and reaches a conclusion. Provides sound, convincing justification for conclusions, citing relevant data and facts.

Superior

Uses a great deal of existing and obtained information and data to develop and evaluate alternatives and arrive at a final conclusion. Provides compelling arguments in support of conclusions.

5. LEARNING ABILITY – Readily acquires and applies new information.

Level of Competency Required by Job:

Level 1: Learn job-related information, rules, and procedures, and apply them correctly.

Level 2: Learn and apply extensive job-related information correctly. Make reasonable inferences when specific information needed in a given instance was not presented.

Level 3: **Access new job-related information via print or electronic media, in educational/training programs, and/or by speaking with others, and apply it correctly to the job.**

Examples of Behavioral Indicators:

- Recalls information presented in educational/training programs.
- Recognizes how to apply newly acquired information to the job.
- Applies new information to the job in a way that increases productivity.
- Applies “lessons learned” from prior work experiences to current work.
- Answers questions/coaches others who received the same instruction.

Performance Levels:

Satisfactory

Learns new information and applies it appropriately to situations/issues.

Superior

Readily acquires new information, makes appropriate inferencing based on it, and integrates it with prior learning and experience to maximize its use in a variety of situations or with respect to a variety of issues.

7. SELF MANAGEMENT – Organizes and plans for task accomplishment; manages time and works diligently to complete assigned work/fulfill responsibilities.

Level of Competency Required by Job:

Level 1: Order tasks for efficient performance; maintain awareness of time allotted and deadlines in order to ensure they are met.

Level 2: Plan and perform work in a way that maximizes efficient performance; establish and adjust priorities to ensure timely completion of most critical assignments.

Level 3: **Allot time to responsibilities proportional to their prominence, priority, and impact.**

Examples of Behavioral Indicators:

- Performs only work activities during work hours.
- Alters means of performing work when original approach proves to waste time.
- Keeps a “to do” list (with indication of priority and deadlines, if necessary).
- Requests assistance as necessary when it becomes clear that work will not be completed on time.
- Demonstrates a record of progress with respect to all assignments/responsibilities.
- Uses optimal means of communication for efficiency and effectiveness.

Performance Levels:

Satisfactory

Conducts self while at work in a manner that ensures work will be completed as scheduled, or provides explanation or secures assistance or adjustment of schedule if it will not be.

Superior

maximize productivity. Plans work carefully and follows the plan or makes adjustments if it is disrupted. Maintains personal responsibility for all work accomplishment.

Seeks efficiencies in doing work to

12. CONSCIENTIOUSNESS – Dependable, reliable, diligent, and attends to all aspects of assignments (the “details”).

Level of Competency Required by Job:

Level 1: Remain on-task and make every reasonable effort to complete work in time allotted. Note discrepancies and takes action or informs appropriate person when “things don’t seem right” in information or data.

Level 2: **Note when own work logically relates to the work of others and coordinate with them and when additional tasks must be performed to complete an assignment and perform/assign them. Recognize when, despite best efforts, work will not be done and notifies supervision.**

Level 3: Attend to each area of responsibility, and if all are not being addressed, arrange for transfer or elimination of some of them. Ensure that all aspects of programs/projects are properly addressed to ensure success.

Examples of Behavioral Indicators:

- Seeks all necessary information to do the job well.
- Learns from experience so can recognize when things are not right.
- Maintains a high level of task-related behavior.
- Continues to work diligently in the absence of supervision.
- Fully attends to seemingly minor as well as major aspects of each work assignment.

Performance Levels:

Satisfactory

Fully attends to work at hand; notes details, errors, and discrepancies and follows-up as necessary. Reliably performs and completes work. Punctual; respectful of others’ time.

Superior

Notes relationship of own work to work of others to ensure all aspects are coordinated. Performs additional tasks and otherwise follows-up to ensure thoroughness.

20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

Level 1: Knowledge is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.

Level 2: **Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.**

Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice (“coaching”) to new employees regarding their work.
- Develops training programs for other employees.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/ programs and/or give internal and/or external presentations related to work.

Job Knowledge Areas

1. Knowledge of the capabilities, uses, characteristics, and limitations of servers – virtual, physical and cloud, computers and peripheral equipment, operating software systems (Windows, Linux, Unix, MacOS, etc.), software such as assemblers, generators, subroutine libraries, compilers and vendor written application programs sufficient to create and maintain optimal and secure operating environments.
2. Knowledge of programming languages such as C/C++, Java, .NET - VB, ASP, MVC, C#, PHP, Perl, Hadoop, Python, PowerShell, or command languages for distributed and large scale computers and/or network and associated programming aids sufficient to create interfaces, troubleshoot or repair bugs, and automate functions.
3. Knowledge of security related software, application security software, network security, identity management and control software such as anti-virus programs, intrusion prevention systems, intrusion detection systems, and Network Access Control (NAC) in order to ensure secure operating environments.
4. Knowledge of Local Area Networks (LANs), Wide Area Networks (WANs), Metropolitan and cloud networks, and IP Protocols such as TCP/IP, Multi-Protocol Label Switching (MPLS), and VLAN in order to build and maintain effective networks.
5. Knowledge of Storage Area Network (SAN) and Network Attached Storage (NAS) such as their uses, limitations, configurations, compatibility in order to ensure performance and high availability of application and data storage.
6. Knowledge of cloud computing and usage monitoring such as configurations, features, and costs sufficient to ensure cost effective, optimal and secure operating cloud environments.
7. Knowledge of system optimization techniques and performance tuning such as memory allocation and sizing, analyze system memory, CPU and storage options, and RAID, in order to create and maintain optimal and secure operating environments.
8. Knowledge of the storage, backup and disaster recovery procedures, and other business resumption and data protection technologies such as BCP (business continuity plan), offsite storage and disaster recovery sites to ensure maximum accessibility and business continuity.
9. Knowledge of the terminology and factors necessary to interpret proposed systems and procedures developed by analysts and developers such as system and device requirements, priority, allocation, and availability of resources sufficient to prepare logic diagrams and computer instructions that utilize storage and processing time efficiently.

10. Knowledge of the framework or detailed plan to prepare documentation, procedures, tests, corrections, and take other steps including but not limited to SDLC and PERT necessary for the planned implementation and modification of programs.
11. Knowledge to identify security exposures and provide mitigation controls as they apply to information and management information systems including software distribution and patch management in cyber security, software and threats in order to prevent and mitigate cyberattacks.
12. Knowledge of internet, intranet, and cloud application environments such as websites, web programming (Http, Https), DNS, certificates, IaaS, SaaS, and PaaS in order to ensure optimal operating environments.

35. TEAMWORK – Interacts effectively with others to achieve mutual objectives; Readily offers assistance to others to facilitate their goal accomplishment.

Level of Competency Required by Job:

Level 1: Work effectively as a member of a work unit or project team. Readily offer assistance to others when they have too much work or have too little.

Level 2: **Work effectively as a team member in which different people have different roles/responsibilities and perspectives. Identify points for collaboration with co-workers; readily offer and request assistance.**

Level 3: Work effectively as a part of an interdependent team (your work gets done only if the work of the whole team is done; evaluation of team performance is more relevant than individual performance).

Examples of Behavioral Indicators:

- Discusses work-related matters with co-workers.
- Offers and requests assistance readily.
- Offers and is receptive to suggestions.
- Identifies problems with workflow that will prevent team from accomplishing its goals.
- Provides constructive criticism and feedback to team members to improve overall functioning of team.
- Assigns credit to team for accomplishments.

Performance Levels:

Satisfactory

Cooperates with co-workers and fulfills responsibilities as a member of a project team. Maintains a focus on common objectives and offers and requests assistance readily.

Superior

Sees the team as a whole; acknowledges that performance of the team is what in reality is evaluated by others. If anyone fails, everyone on the team fails.

45. ORAL COMMUNICATION – Communicates orally in a clear, concise, and effective manner.

Level of Competency Required by Job:

Level 1: Exchange specific, job-related information orally with others in the immediate work environment or via telephone and/or radio.

Level 2: **Obtain/provide/present general and/or job-specific information orally to a variety of others in various situations.**

Level 3: Obtain/provide/present a diverse array of information orally at varying levels of complexity to a wide range of others across many different situations and circumstances.

Examples of Behavioral Indicators:

- Audience clearly understands the intended message.
- Rarely must repeat information in response to questions.
- Refrains from use of unnecessary words, phrases, or jargon.
- Provides a level of detail appropriate to the situation (avoids too much or too little detail).
- Speaks at a level appropriate to the audience in terms of terminology, sentence structure, and simplicity/complexity of ideas expressed.
- Uses words with precision (vocabulary) to convey exact information.

Performance Levels:

Satisfactory

Speaks clearly and audibly, providing the appropriate information and level of detail. Typically conveys the message on the first attempt. Answers questions accurately and directly.

Superior

Speech is direct and to the point. Speaks convincingly and with authority when appropriate. Maintains sensitivity to the audience while providing thorough information with the appropriate level of detail through the use of precise language.

49. PROJECT MANAGEMENT – Anticipates and plans for all aspects of a multi-faceted, discrete endeavor to ensure resources are available and actions are taken at proper times for successful completion.

Level of Competency Required by Job:

Level 1: **Plan, coordinate, and oversee accomplishment of multi-step projects involving other employees.**

Level 2: Design, plan, coordinate, and manage large, multi-faceted projects involving employees from various segments of the organization representing different perspectives.

Level 3: Design, plan, secure approval and resources, and manages largescale, complex projects involving many employees representing a large number of diverse segments of the organization and perspectives, which may at times be in conflict.

Examples of Behavioral Indicators:

- Establishes project plans that gain management acceptance.
- Establishes realistic timeline and estimates of resources needed.
- Assembles appropriate team with complementary skills to efficiently execute all portions of a project.
- Secures necessary resources for successful project completion.
- Clearly designates roles/responsibilities/accountability.
- Addresses failure to perform or other problems in a timely and effective manner to minimize negative impact.

Performance Levels:

Satisfactory

Establishes acceptable project plan; assembles team with required skills; establishes personal responsibility/accountability. Ensures the necessary time and resources are available.

Superior

Designs efficient project plan to maximize benefits and minimize use of resources. Designates precise mix of people to best accomplish the project. Completes on time, with resources allocated.