

1201205 – English for Information Technology 1
Week 12 - Computer programmer skills and knowledge

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Title: What skills are required for computer programmers?

Source:

<https://www.mymajors.com/career/computer-programmers/skills/>

Importance Skills

- ■ **Programming** - Writing computer programs for various purposes.
- ■ **Reading Comprehension** - Understanding written sentences and paragraphs in work related documents.
- ■ **Critical Thinking** - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- ■ **Complex Problem Solving** - Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- ■ **Quality Control Analysis** - Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- ■ **Active Listening** - Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- ■ **Judgment and Decision Making** - Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- ■ **Operations Analysis** - Analyzing needs and product requirements to create a design.
- ■ **Systems Evaluation** - Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.
- ■ **Time Management** - Managing one's own time and the time of others.
- ■ **Mathematics** - Using mathematics to solve problems.
- ■ **Systems Analysis** - Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
- ■ **Writing** - Communicating effectively in writing as appropriate for the needs of the audience.
- ■ **Active Learning** - Understanding the implications of new information for both current and future problem-solving and decision-making.

- ■ **Monitoring** - Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- ■ **Speaking** - Talking to others to convey information effectively.
- ■ **Social Perceptiveness** - Being aware of others' reactions and understanding why they react as they do.
- ■ **Coordination** - Adjusting actions in relation to others' actions.
- ■ **Technology Design** - Generating or adapting equipment and technology to serve user needs.
- ■ **Science** - Using scientific rules and methods to solve problems.
- ■ **Persuasion** - Persuading others to change their minds or behavior.
- ■ **Management of Personnel Resources** - Motivating, developing, and directing people as they work, identifying the best people for the job.

What knowledge is needed to be a computer programmer?

Importance Knowledge

- ■ Computers and Electronics - Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- ■ English Language - Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- ■ Mathematics - Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- ■ Customer and Personal Service - Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- ■ Administration and Management - Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
- ■ Design - Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
- ■ Education and Training - Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.

Title: 5 soft skills every programmer needs (and you might already have!)

Source: <http://www.rasmussen.edu/degrees/technology/blog/5-soft-skills-programmers-need/>

News flash: The best computer programmers don't always make the best managers. They may write beautiful code but they might not have the soft skills necessary to manage others without ruffling feathers.

Technical programming skills can be learned but soft skills, on the other hand, are the kinds that tend to come naturally for the best managers. We went to the Occupational Information Network (O*NET) to find the soft skills that will make the difference for you in your management career. Add these to the technical programming skills you'll learn in a traditional college computer science program and you might just have the right mix to move into a management position.

Soft Skill #1: Communication

The ability to communicate effectively, both orally and in writing, is one of the most important soft skills for a manager in tech-based fields, according to O*NET. Strong communication skill isn't just being able to speak in front of a group without stammering, but also finding ways to diplomatically convey your message.

As a manager, situations will inevitably arise where you will have to pick sides when considering multiple solutions to a problem. Your ability to tell a valued employee that their solution was passed over in a way that doesn't upset office harmony will go a long way to keeping your workers motivated and happy.

Furthermore, if you can't clearly communicate your expectations for your team members, confusion and a lack of accountability will follow, a surefire way to doom any project.

Soft Skill #2: Effective delegation

No matter how skilled you may be with the hands-on work, once you reach a management position you won't be able to do it all. Being able to delegate work is a soft skill every manager needs, and the key to it is being able to break down a large project into smaller pieces.

The best managers know the strengths and weaknesses of their workers and look to set them up for success by matching their skills to the pieces of a project that best fit their skill set. If you're the type of person to take charge and assign roles when faced with a large group project—especially when everyone else doesn't know where to start—you already have a strong grasp on the delegation skills needed to succeed in management.

Soft Skill #3: Listening

While it's great to have the ability to take charge and give clear direction to your subordinates, you need to be able to listen to feedback and adjust plans accordingly. Being an active listener is one of the top skills required of computer and information systems managers, which makes sense with the amount of feedback you'll receive from both your subordinates and your supervisors.

Listening can be more of a challenge than you'd think for managers—not many people like to say that they're overwhelmed or uncomfortable with a task assigned to them lest they risk looking incompetent. Being able to gather information and listen for signs of trouble will help you be proactive in addressing issues before they come up.

Soft Skill #4: Mentoring/teaching

Everyone in their career will make a mistake, no matter how skilled they are in their job. The key with any mistake is to learn from it—that's where mentorship comes into play. If you're comfortable walking someone through problems and their solutions, you'll be able to avoid similar mistakes in the future. This is a big reason why teaching others and providing guidance are skills identified as important to managerial success.

Another benefit from strong mentorship ability is the trust that develops between you and your workers. It becomes a lot easier to approach a boss with an issue if you know they're willing to help you without judging you too harshly. The benefits of mentorship aren't limited to just a supervisor and a pupil, eventually the skills and advice will be passed on throughout the company as pupils begin to mentor others as they develop in their careers.

Soft Skill # 5: Resourcefulness

It doesn't take MacGyver-like skill to be an effective manager—at least we hope you're not diffusing bombs with paperclips and chewing gum at your workplace—but there are times when resourcefulness comes in handy for managers.

Critical thinking and problem solving are two of the top skills for computer and information systems managers, according to O*NET. The ability to think on your feet when faced with tough situations like a budget crunches and changes in project scope is incredibly valuable.

Quick thinking and creative solutions can prevent large delays and over-budget projects from creating angry clients or bosses. If you've got a talent for making the best of a bad situation, you just might have the resourcefulness needed to be an effective manager.

