Skills Transferability Matrix

FOCAL Initiative

Computer Engineers

Computer Engineers are responsible for the development and research of computer and networking hardware technologies. As engineers of advanced equipment and components used in computing, Computer Engineers possess skills such as programming, design and manufacturing, which can be applied to roles across engineering and information technology. Strong communication and project management skills may help them succeed in management roles.

Skills

Skills are developed through training and experience, and are the practical proficiencies someone possesses. The following are top key skills computer engineers employ in their work:

1. Critical Thinking
2. Complex Problem Solving
3. Reading Comprehension
4. Systems Analysis and Evaluation
5. Active Listening

Technical Knowledge

Technical Knowledge is the understanding of theory and utility of modern tools in a work environment. The following tools are used by computer engineers regularly:

1. Development environment software
2. Computer-aided design software
3. Project management software
4. Requirements analysis and system architecture software
5. Object or component oriented development software

Tasks

Tasks are the assigned duties that an occupational group performs in their daily work. The following are the tasks computer engineers most regularly encounter:

1. Develop computer or information security policies or procedures.
2. Design electronic or computer equipment or instrumentation.
3. Evaluate characteristics of equipment or systems.
4. Maintain contingency plans for disaster recovery.
5. Monitor the performance of computer networks.

Abilities

Abilities refer to the innate faculties that allow workers to carry out tasks and activities. The following are the top abilities that computer engineers possess:

1. Inductive & Deductive Reasoning
2. Information Ordering
3. Written & Oral Comprehension & Expression
4. Near Vision
5. Category Flexibility

Skills Transferability Matrix

FOCAL's Skills Transferability Matrices analyze the transferability of an occupation across a multitude of other occupations on the basis of similarities in **skills**, **technical knowledge, tasks, and abilities** as outlined by the O*Net database. It aims to show workers how to leverage their skill set in changing occupations, planning a career path, and transitioning to other industries. It also assists policy makers and educators address changing skill sets and areas of opportunity for workforce entrants in developing industries. Employers can also use this tool in reskilling or upskilling workers to circumvent skills shortages, and reduce the hiring and training challenges.

Computer Engineers					
Occupations	Skills	Technical Knowledge	Tasks	Abilities	Total
Information systems analysts and consultants	86%	90%	14%	89%	70%
Computer network technicians	83%	87%	18%	88%	69%
Electrical and electronics engineers	92%	38%	32%	94%	64%
Database analysts and data administrators	83%	75%	7%	87%	63%
Other professional engineers, n.e.c.	88%	41%	17%	87%	58%
Computer and information systems managers	80%	62%	0%	92%	58%
Computer programmers and interactive media developers	73%	68%	6%	85%	58%
Mechanical engineers	86%	32%	20%	88%	56%
Software engineers and designers	83%	43%	8%	91%	56%
Industrial and manufacturing engineers	84%	35%	14%	89%	56%
Chemical engineers	86%	38%	10%	87%	55%
Metallurgical and materials engineers	83%	22%	6%	91%	50%
Manufacturing managers	71%	32%	0%	87%	48%
Contractors and supervisors, electrical trades and telecommunications occupa	75%	26%	0%	79%	45%

After scanning over 2,600 skills, technical competencies, tasks, and abilities of each of the 500 occupations as defined by the National Occupational Classification (NOC) system, a skills transferability matrix for computer engineers is produced. In the matrix above, a high score is highlighted in green and indicates the high transferability potential of an attribute of an occupation with that of computer engineers. Lower or no transferability areas are marked in red. Computer engineers share highest transferability with information system occupations, in analysis and technician roles. With regular application of engineering techniques and principles, there is moderate transferability to roles in engineering, ranging from electronic to materials engineering. Computer engineers can leverage their skills, technical knowledge, and abilities to progress into management positions in the workplace. They have the ability to transfer into computer and information system managers or engineering managers, granting them flexibility in upward mobility.

To learn more about developments, trends and new technologies in Canada's automotive manufacturing industry, visit our website futureautolabourforce.ca.
You can also check our social media by following these links:

/focalinitiative

@FocalInitiative

/focal-initiative