Skills Transferability Matrix

Mechanical Engineers

Mechanical Engineers have strong foundational knowledge in the major branches of science and mathematics, with a diverse set of technology skills that range from manufacturing and financial planning to resource management software. As highly qualified individuals in a very theoretical field, their occupational attributes make them likely to succeed in roles which require strong knowledge of math, sciences and management, such as research, engineering and consultancy.

Skills

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

1. Operations Analysis
2. Science
3. Critical Thinking
4. Mathematics
5. Complex Problem Solving

Technical Knowledge

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

1. Computer-aided design & manufacturing software
2. Enterprise resource planning software
3. Industrial control software
4. Analytical or scientific software
5. Database management system software

Tasks

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

1. Resolve operational performance problems.
2. Monitor processes for compliance with standards.
3. Design energy production or management equipment or systems.
4. Evaluate characteristics of equipment or systems.
5. Direct equipment maintenance or repair activities.

Abilities

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

1. Information Ordering
2. Problem Sensitivity
3. Written & Oral Comprehension
4. Inductive & Deductive Reasoning
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.

Mechanical Engineers					
Occupations	Skills	Technical Knowledge	Tasks	Abilities	Total
Other professional engineers, n.e.c.	91%	81%	37%	90%	75%
Computer engineers (except software engineers and designers)	88%	85%	25%	88%	71%
Industrial and manufacturing engineers	83%	77%	29%	89%	70%
Electrical and electronics engineers	87%	77%	22%	91%	69%
Chemical engineers	90%	77%	17%	92%	69%
Civil engineers	84%	62%	22%	89%	64%
Aerospace engineers	87%	65%	11%	92%	64%
Database analysts and data administrators	80%	85%	0%	83%	62%
Petroleum engineers	83%	58%	15%	90%	61%
Industrial engineering and manufacturing technologists and technicians	77%	81%	4%	80%	61%
Engineering managers	74%	81%	0%	87%	60%
Natural and applied science policy researchers, consultants and program officers	85%	62%	3%	89%	59%
Manufacturing managers	75%	73%	0%	88%	59%
Biologists and related scientists	84%	58%	0%	88%	58%
Supervisors, electrical products manufacturing	73%	58%	0%	78%	52%

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 mechanical 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 mechanical engineers. Lower or no transferability areas are marked in red. Mechanical engineers were found to share transferable attributes with other engineering occupations including computer, industrial & manufacturing, electrical & electronic, and chemical engineers. Mechanical engineers share the most skills with chemical and other professional engineers, while their technical knowledge is transferable to other occupations such as data analysts and computer engineers. Mechanical engineers can leverage their skills, technical knowledge, and abilities to progress into management positions in the workplace.

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