

Profile of an Engineer

Definition

This Profile defines general attributes of a top performing engineer. The key actions illustrate specific evidences of the corresponding attribute. Top quality engineers, within five years of graduation with a baccalaureate engineering degree, should evidence all of these attributes and most of the key actions.

Attribute	Key Actions
Technically Competent Competent in knowledge, methods & tools of engineering analysis	Applies mathematics correctly in solving engineering problems
	Applies knowledge of physical and life sciences to understand engineering problems
	Employs statistics, experimental methods, and data analysis properly in engineering experimentation
	Applies engineering sciences properly in engineering analysis
	Demonstrates operational knowledge of engineering economics
	Uses contemporary engineering tools to analyze, solve, and communicate engineering problems and solutions
	Formulates, solves, and interprets solutions to engineering problems
Business Aligned Conducts engineering in a business environment	Articulates suitable business goals and objectives for a project
	Manages costs, schedule, and performance to achieve stakeholder requirements
	Estimates costs and benefits associated with a business plan
	Visualizes and articulates business opportunities in technological development
Socially Conscious Cognizant of social issues	Is sensitive to international and cultural issues in a global economy
	Is aware of principal contemporary issues shaping society and human values
	Recognizes how engineering impacts society on local, national and global scales
Customer/Quality Focused Pursues quality targets expressed by customers	Establishes relationships with internal and external customers to understand their needs and expectations
	Characterizes, improves, and controls processes that ensure high quality and customer satisfaction
	Contributes to an environment that supports continuous quality improvement
Idea Generator Finds and creates useful ideas	Thinks creatively (independently and cooperatively) to identify and formulate innovative alternatives
	Searches broadly and deeply to obtain relevant information, technologies, and ideas
	Contributes to a working environment that enhances innovation
Decision Maker Makes sound decisions	Recognizes issues, problems, and opportunities that merit decisive action
	Formulates clear decision and evaluation criteria that incorporate all relevant factors and risks
	Selects alternatives to produce results that satisfy established criteria
Solution Integrator Produces engineering products, processes, plans, and/or systems	Develops engineering solutions that meet needs within global, social, political, and environmental constraints
	Designs technological solutions that are implementable and sustainable
	Applies systems engineering principles to problem solving
	Incorporates appropriate state-of-the-art technologies and products into solutions
Team Worker Builds and maintains effective collaboration	Shows respect for perspectives and contributions of people from different cultures and backgrounds
	Builds and maintains trusting, productive, enjoyable working relationships
	Resolves conflicts in a timely fashion
	Contributes to shared goals and strategies to guide team effort
Leader Initiates and facilitates achievement	Serves as an effective team player contributing to individual and team successes
	Plans, monitors, and manages tasks for timely project completion
	Formulates and articulates a vision that motivates others
	Uses understanding of constraints and personal and organizational behaviors to gain support
Communicator Exchanges information to meet needs of stakeholders	Helps others respond to challenges and grow professionally
	Recognizes and rewards individual and team accomplishments
	Listens and observes attentively and effectively to assess audience information needs
	Documents information, results, and reflections for future use
Results Oriented Proactively completes assignments	Organizes and presents a message to achieve desired understanding and impact
	Keeps stakeholders informed about matters that affect their work while protecting necessary confidentiality
	Accepts responsibility and accountability for an assignment
Change Manager Pursues strategic personal development	Establishes priorities and maintains focus to complete important tasks on time amidst multiple demands
	Takes necessary initiative and appropriate risks to overcome obstacles and achieve objectives
	Seeks input and remains flexible to respond to challenges and feedback
Principle Centered Acts from professional and ethical principles	Anticipates and embraces challenges based on knowledge of contemporary issues
	Invests in self-assessment, planning, and learning for ongoing professional growth
	Displays integrity, consistency, ethical, and professional demeanor in engineering practice and relationships
	Participates in professional and service organizations for the benefit of society
	Complies with appropriate professional codes, standards, and regulations