

Introduction to Engineering Professionalism

ENG101 Engineering Professionalism

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What is Engineering?

The ABET Definition of Engineering:

*The **profession** in which a knowledge of the mathematical or physical sciences gained by study, experience and practice is applied with judgement to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind*

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Engineering: Profession or Occupation?

According to UN Statistics Division and International Classification of Occupations (ISCO-08) of ILO:

*An **occupation** is defined as a set of jobs (or work activities) whose main tasks and duties are characterized by a high degree of similarity.*

***Job** is A set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self employment.*

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Classification of Occupations

According to UN Statistics Division and International Classification of Occupations (ISCO-08) of ILO, occupations can be classified based on skill:

***Skill** is defined as the ability to carry out the tasks and duties of a given job.*

Two dimensions of skill are used to arrange occupations into groups:

Skill Level

Skill Specialization

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Classification of Occupations

ISCO-08 major groups	Skill level
1 Managers	3 + 4
2 Professionals	4
3 Technicians and Associate Professionals	3
4 Clerical Support Workers	2
5 Services and Sales Workers	
6 Skilled Agricultural, Forestry and Fishery Workers	
7 Craft and Related Trades Workers	
8 Plant and Machine Operators, and Assemblers	
9 Elementary Occupations	1
0 Armed Forces Occupations	1 + 2 + 4

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Professional Occupations

Sub-major groups in Major Group 2: Professionals

ISCO-08 code	ISCO-08 title
21	Science and Engineering Professionals
22	Health Professionals
23	Teaching Professionals
24	Business and Administration Professionals
25	Information and Communications Technology Professionals
26	Legal, Social and Cultural Professionals

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What Comprises an Engineering Profession?

A **body of knowledge** is required to be acquired and maintained by the practitioner

The **authority to practice** is granted, upheld and enforced by an authorizing body

A **society** to which the individual belongs which promotes his/her *practice field* in common interests with others and strives to support their practice

A **Code of Ethics** to be complied with

Strong sense of public service with the obligation to *practice* in their best interests of protecting their health, safety and welfare

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Who is a Professional Practitioner

Highly skilled in the services rendered

Compensation for the services rendered

Functions with **authority** and exercises **responsible, independent judgment** in the application of his/her knowledge and skills

Achieve **recognition** and acquire **esteem** from the public, client, or employer and peers

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What makes you an Engineering Professional?

One engaged in engineering profession, characterized by or conforming to the technical or ethical standards of engineering profession.

High Academic Standards—Having knowledge and skill not possessed by the general public (for example, high levels of technical competence)

Continual Renewal of Knowledge—Staying abreast of developments through journals, publications, conferences, and seminars

Service for Society—Performing services that affect the public health, safety, and welfare (beneficial application of technical competence)

Personal Responsibility for Work—Continually looking for own mistakes and opportunities/methods for improvement

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What makes you an Engineering Professional?

Self-Confidence—Who wants a nervous dentist, unsure of which tooth to drill?

Exercise of Judgment and Discretion—Having flexibility/authority to make decisions based upon a defined body of knowledge

Predominantly Intellectual Work—Generally white-collar and not readily subject to productivity measurement

Regulated/License Usually Required—Quality of work is subject to established standards. Members of the profession risk loss of right to practice for misconduct, incompetence, or gross negligence

Dedication Beyond Pecuniary and Personal Considerations—Commitment to the "calling" with ethics and quality of work transcending any other issues

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Engineering Professionalism

How engineers practice and conduct themselves in their work and as individuals in society, the way their clients/employers award for their work, and the recognition by society as a result of the contributions they make to society from the results of applying their special scientific knowledge in engineering products for the public to use.

Conduct – characterize or mark a profession or professional person

Ethics – honest practice

Job Performance – A job well done

Recognition - concern for public approbation

Need for group action – to protect engineers' rights

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Reading Assignment

<https://pdh-pro.com/pe-resources/professionalism-and-engineering/>

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References

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