

CVL 440 Engineering Professional Practice (2-0-0)

Evaluation:

	Theory	Practical	Total
Sessional	50	-	50
Final	50	-	50
Total	80	-	100

Course Objectives:

The main objective of this course is to introduce the students to the professional, ethical and legal environment in engineering practice. After successful completion of this course the students are expected to be able to:

- a) analyze the role of engineers in a society,
- b) analyze ethical and unethical behaviors in professional practice,
- c) make professional decisions by following existing regulatory and professional frameworks,
- d) select appropriate dispute and conflict resolution methods, and
- e) analyze professional engineering issues related to ethics, code of conduct, conflict of interest, norms and standards and to render decisions on appropriateness of steps taken and assign degree of responsibility in specific cases.

Course Contents:

1. **Society and Technology** 6 hrs
 - 1.1 Definition, types, and essential elements of a society
 - 1.2 Factors and classical theories of social change (cyclical, evolution, functional and conflict)
 - 1.3 Impacts and consequences of technology on socio-economic parameters (agriculture, communication, construction methods, information storage, generation and dissemination, dispute resolution, family structure, culture and livelihood)
 - 1.4 Effects of major technological developments (2D and 3D printing, dynamite, automation, mechanization, organic chemistry, transportation, internet, communication, and satellites) on practice of engineering profession
 - 1.5 Role of engineers in society
2. **Ethics and Professionalism** 3 hrs
 - 2.1 Moral, ethics and professionalism
 - 2.2 Characteristics of ethical decision making
 - 2.3 Liability of engineers in design, construction and implementation of projects
 - 2.4 Loss of professionalism
 - 2.5 Ethical issues in professional engineering in dealing with other professions (accounting, banking, law, journalism and management)
3. **Roles of Professional Organizations in Regulation and Professional Development** 4 hrs



- 3.1 Regulation of the practice of engineering profession
- 3.2 Objectives of NEC and its licensing provision
- 3.3 Codes of ethics and guidelines for professional engineering practice – the NEC code of conduct
- 3.4 Roles of professional organizations in induction of new entrants into the profession
- 3.5 Upgrading and maintaining the professional and technical competence of members of professional associations
- 3.6 Providing technical expertise to public authorities in developing policies, acts, standards, project implementation procedures and international agreements and negotiations
- 3.7 Ensuring occupational health, safety and general welfare of the public
- 3.8 Role of professional societies in environmental protection

4. Legal Aspects of Professional Engineering in Nepal **9 hrs**

- 4.1 Introduction to Nepalese legal system
- 4.2 Essentials of a valid contract
- 4.3 Void and voidable contracts
- 4.4 Significance of a contract
- 4.5 Factors to be considered in preparing a contract document
- 4.6 Interpretation of contractual clauses
- 4.7 Liability under contract, criminal law and tort
- 4.8 Duties and Liabilities of designers and professionals
- 4.9 Conditions for establishment of professional negligence (duty, breach, proximity cause and damage)
- 4.10 Types of business enterprises: sole, partnership, and limited company
- 4.11 Intellectual property right (Copy right, patent, design and trademark)

5. Conflict and Dispute Management **2 hrs**

- 5.1 Levels and sources of conflict
- 5.2 Conflict resolution methods: avoidance, diffusion, containment, confrontation, conciliation, mediation, arbitration and litigation
- 5.3 Dispute resolution methods: adjudication and arbitration

6. Case Studies Related to Practice of Engineering Profession **6 hrs**

- 6.1 Cases involving public safety, industrialization and protection of environment
- 6.2 Cases involving conflict of interest, personal integrity and personal privacy
- 6.3 Cases involving professional negligence (duty, breach, proximate cause and damage)
- 6.4 Cases involving breach of duty, criminal law and tort
- 6.5 Cases involving breach of NEC's code of conduct
- 6.6 Cases involving breach of Public Procurement Act and Public Procurement Regulation
- 6.7 Cases involving breach of intellectual property rights and copyrights
- 6.8 Cases involving abuse of position and authority



Text Book:

Whitbeck, C. *Ethics in Engineering Practice and Research*. Cambridge University Press.

References:

1. Shrestha, S. K. and Shrestha, R. K. *Engineering Professional Practice*. Heritage Publishers and Distributors Pvt. Ltd.
2. Adhikari, R. P. *Engineering Professional Practice*. Pashupati Publishing House, ISBN: 978-9937-8249-03
3. Galami, T. B. *Engineering Professional Practice*. Akshalok Prakashan, ISBN: 978-99946-779-1-7
4. Morrison, Carson and Hughes, Philip. *Professional Engineering Practice - Ethical Aspects*. Toronto: McGraw-Hill Ryerson Ltd.

