

INDUSTRIAL LAW AND ENGINEERING PROFESSIONAL PRACTICE

ENIE 411

Lecture : 3
Tutorial : 0
Practical : 0

Year : IV
Part : I

Course Objectives:

The objective of this course is to provide students with a comprehensive understanding of the legal, ethical, and regulatory aspects of engineering practice. It aims to develop knowledge of engineering contracts, procurement systems, labor legislation, industrial governance, and professional responsibilities, enabling graduates to make informed decisions, ensure regulatory compliance, and practice engineering effectively, ethically, and responsibly in public, private, and entrepreneurial organizations.

1 Engineering, Society and Professional Responsibility (4 hours)

- 1.1 Engineering and social transformation
- 1.2 Technology, society and sustainable development
- 1.3 Engineering and public welfare
- 1.4 Ethics of technological growth and resource utilization
- 1.5 Climate change, sustainability and engineering responsibility
- 1.6 Engineers in national development and global society

2 Engineering Ethics and Professional Conduct (5 hours)

- 2.1 Ethics, morals, integrity and professionalism
- 2.2 NEC code of ethics and professional misconduct
- 2.3 Conflict of interest and corruption risks
- 2.4 Whistleblowing and professional accountability
- 2.5 AI ethics and automation governance
- 2.6 Data ethics, cybersecurity awareness and digital responsibility
- 2.7 Inclusion, diversity and equity in engineering practice

3 Professional Institutions and Engineering Governance (4 hours)

- 3.1 Nepal engineering council (NEC)
- 3.2 NEC licensing and registration systems
- 3.3 Continuing professional development (CPD)
- 3.4 Engineering standards and codes
- 3.5 Washington accord and global engineering mobility
- 3.6 Role of professional societies and engineering associations

- 4 Engineering Contracts, Procurement and Professional Practice (7 hours)**
- 4.1 Principles of engineering contract law
 - 4.2 Contract formation and essential legal elements
 - 4.3 Public procurement act and regulations
 - 4.4 e-GP systems and digital procurement governance
 - 4.5 Tendering procedures and contract documentation
 - 4.6 FIDIC basics and international contract frameworks
 - 4.7 Engineering consultancy practice
 - 4.8 Contract administration and claims management
 - 4.9 Arbitration, mediation and dispute resolution
 - 4.10 Engineering negligence and professional liability
 - 4.11 BIM accountability and digital project governance
- 5 Sustainability, Risk and Infrastructure Governance (4 hours)**
- 5.1 Environmental governance and engineering accountability
 - 5.2 Environmental protection act and compliance
 - 5.3 ESG principles and sustainability reporting
 - 5.4 Infrastructure risk management
 - 5.5 Public safety and engineering failures
 - 5.6 Climate resilience and disaster risk governance
 - 5.7 Smart infrastructure and cyber-physical system risks
- 6 Industrial Law and Industrial Governance (4 hours)**
- 6.1 Industrial development and industrial policy in Nepal
 - 6.2 Industrial enterprise act and industrial classification
 - 6.3 Manufacturing, service, IT, tourism and energy industries
 - 6.4 Industry 4.0 and industrial transformation
 - 6.5 Industrial compliance and governance systems
 - 6.6 Foreign investment and joint venture provisions
- 7 Corporate Structures, Entrepreneurship and Investment Law (5 hours)**
- 7.1 Proprietorship, partnership, private and public companies
 - 7.2 Companies act and corporate governance
 - 7.3 Startup ecosystem and startup enterprise policy
 - 7.4 Foreign investment and technology transfer
 - 7.5 Innovation financing and venture systems
 - 7.6 Intellectual property commercialization
 - 7.7 Sweat equity and technology ownership
- 8 Labor Law, Occupational Safety and Industrial Relations (6 hours)**
- 8.1 Labor act and employment systems
 - 8.2 Worker classification and employment contracts

- 8.3 Social security fund and contribution systems
- 8.4 Trade unions and collective bargaining
- 8.5 Occupational health and safety (OHS)
- 8.6 Industrial disputes and grievance handling
- 8.7 Workplace inclusion and labor compliance
- 8.8 International labor standards and ILO conventions

9 Technology Law, Intellectual Property and Emerging Governance Issues (6 hours)

- 9.1 Patent, design, trademark and copyright systems
- 9.2 Software ownership and digital intellectual property
- 9.3 AI governance and liability
- 9.4 Data governance and cybersecurity considerations
- 9.5 Technology transfer and licensing
- 9.6 Anti-corruption and compliance systems
- 9.7 Public-private partnerships (PPP)
- 9.8 Engineering communication and legal reporting
- 9.9 Emerging legal trends in engineering governance

Final Exam

The questions will cover all the chapters in the syllabus. The evaluation scheme will be as indicated in the table below:

Chapter	Hours	Mark distribution*
1	4	4
2	5	6
3	4	6
4	7	10
5	4	6
6	4	6
7	5	6
8	6	8
9	6	8
Total	45	60

* There may be minor deviation in marks distribution.

References

1. Fleddermann, C. B. (2024). Engineering ethics. Pearson.
2. Harris, C. E., Pritchard, M. S., Rabins, M. J. (2023). Engineering ethics: Concepts and cases. Cengage Learning.
3. Hughes, W., Champion, R., Murdoch, J. (2024). Construction contracts: Law and management. Routledge.

4. International Labour Organization. (2024). Occupational safety and health convention and international labour standards. International Labour Organization.
5. Kerzner, H. (2022). Project management: A systems approach to planning, scheduling, and controlling. Wiley.
6. Martin, M. W., Schinzinger, R. (2010). Ethics in engineering. McGraw-Hill Education.
7. Nepal Engineering Council. (2024). NEC code of ethics and guidelines for professional practice. Nepal Engineering Council.
8. Nicholas, J. M., Steyn, H. (2020). Project management for engineering, business and technology. Routledge.
9. Powell-Smith, V., Furmston, M. (2012). Building contract casebook. Wiley-Blackwell.
10. International Engineering Alliance. (2021). Graduate attributes and professional competencies. International Engineering Alliance.
11. Winfield, P. H. (2016). A textbook on tort. Sweet & Maxwell.