PROJECT MANAGEMENT AND PROFESSIONAL PRACTICE

ENME 463

Lecture	**: 3**	**Year : IV**
Tutorial	**: 1**	**Part : II**
Practical	**: 0**	

Course Objectives:

The objective of this course is to provide students with the skills to identify, plan and execute engineering projects through the development of formal feasibility studies and project proposals. This course deals with the applications of project scheduling, resource controlling and risk management along with modern management trends and techniques.

1 Introduction of Project and Project Management (2 hours)

- 1.1 Definition of project, its characteristics and example of project
- 1.2 Classification of project
- 1.3 Project objective and goal
- 1.4 Project life cycle phases
- 1.5 Project environment
- 1.6 Introduction to project management

2 Project Appraisal and Project Formulation (4 hours)

- 2.1 Concept of project appraisal
- 2.2 Project proposal (Technical and financial)
- 2.3 Techniques of project formulation
  - 2.3.1 Feasibility analysis
  - 2.3.2 Cost-benefit analysis
  - 2.3.3 Input analysis
  - 2.3.4 Environmental analysis

3 Project Planning and Scheduling (7 hours)

- 3.1 Concept of project planning and its importance
- 3.2 Work breakdown structure (WBS)
- 3.3 Project scheduling with Bar Chart, CPM and PERT
- 3.4 Project scheduling with limited resources (Resource leveling and smoothing)
- 3.5 Introduction to planning software - MS project

4 Project Implementation and Controlling (5 hours)

- 4.1 Project monitoring, evaluation and controlling
- 4.2 Project control cycle
- 4.3 Elements of project control (Time, cost and quality)

4.4 Project schedule control
4.5 Project cost control: Methods and procedure (Earned value analysis)
4.6 Project quality control
4.7 Project management information system (PMIS)

5 Project Risk Management and Project Finance (6 hours)

5.1 Introduction to project risk
5.2 Types of project risk
5.3 Analysis of major sources of risk
5.4 Effective management of project risk
  5.4.1 Risk management planning
  5.4.2 Risk identification
  5.4.3 Qualitative and quantitative risk analysis
  5.4.4 Risk response planning
  5.4.5 Risk monitoring and controlling
5.5 Project financing and capital structure planning

6 Procurement and contract management (10 hours)

6.1 Public procurement act and regulation
6.2 Types, method and tools of procurement
  6.2.1 Goods, works and services
  6.2.2 Direct, sealed quotation, tender
  6.2.3 Force account, users' committee
  6.2.4 Expression of interest, request for proposal
6.3 Preparation of detailed cost estimate
6.4 Technical sanction and budget approval
6.5 Procurement condition, steps and provisions
6.6 Tender and standard bidding documents
6.7 Tender notice, submission
6.8 Methods of selection and evaluation of proposals
6.9 Types of contract: Based on payment; Build own operate transfer; Design and built; Turnkey; Engineering procurement construction
6.10 Negotiations, contract award and agreement

7 Profession, Ethics and Professional Practices (7 hours)

7.1 Profession: Definition and characteristics
7.2 Professional institutions
7.3 Ethics, code of ethics and engineering ethics
7.4 Moral dilemma and ethical decision making
7.5 Detailed duties of an engineer
7.6 Liability, tort and negligence
7.7 Public sector practices
7.8 Private sector practices

7.9 Occupational health and safety
7.10 Decision making: Minute, memo (Tippani) and approval

8 Regulatory Environment (4 hours)

8.1 Nepal engineering council acts and regulations
8.2 Labor law
8.3 Intellectual property rights

Tutorial (15 hours)

1. Writing project proposal
2. Scheduling using bar chart and CPM
3. Scheduling using planning software
4. Project control method (EVA)
5. Case studies based on engineering practices

Final Exam

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

Chapters	Hours	Marks distribution*
1, 2	6	8
3	7	12
4, 7	12	15
5	6	8
6	10	12
8	4	5
Total	**45**	**60**

* There may be minor deviation in marks distribution.

References

1. Agrawal, G. R. (2006). Project management in Nepal. M.K. Publishers and Distributors.
2. Govindarajan, M., Natarajan, S., Senthilkumar, V. S. (2009). Engineering ethics. PHI Learning.
3. Morrison, C., Hughes, P. (1982). Professional engineering practice: Ethical aspects (Latest Edition). McGraw-Hill Ryerson.
4. Nagarajan, K. (2004). Project management. New Age International.
5. Project Management Institute. (2021). A guide to the project management body of knowledge (PMBOK® guide). Project Management Institute.
6. Smith, N. J. (Ed.). (2002). Engineering project management. Blackwell Science.