

FARWESTERN UNIVERSITY
FACULTY OF ENGINEERING
MASTER OF SCIENCE DEGREE IN CONSTRUCTION PROJECT MANAGEMENT

Course Title: **Advanced Project Management**

Course Code: CPM 611

Year/Semester: I/I

Class Load: 4 hours per week (Theory: 4 Hrs.)

Credits: 4 (60 Hrs)

Evaluation:

	Theory	Practical	Total
Internal	40	-	40
Final (External)	60	-	60
Total	100	-	100

Course Descriptions and Objective:

The objective of this course is to provide student's enhanced understanding of various tools and techniques of project management. After completion of this course students will be able to apply the acquired knowledge and skill of project management into real practice in managing construction projects

Course Contents:

UNIT 1: Concept of project management (4 Hrs.)

- 1.1 Nature, scope, and characteristics of project
- 1.2 Project life cycle and phases of project
- 1.3 Need of project management

UNIT 2: Project Organization (6 Hrs.)

- 2.1 Concept of project organization
- 2.2 Managing project staff
- 2.3 Team building
- 2.4 Project communication

UNIT 3: Project Finance (10 Hrs.)

- 3.1 Balance Sheet
- 3.2 Income Statement
- 3.3 Cash flow management
- 3.4 Interpretation of financial statement
- 3.5 Ratio analysis and its interpretation

UNIT 4: Project Planning, and Scheduling (12 Hrs.)

- 4.1 Work breakdown structure
- 4.2 Bar chart
- 4.3 Computation of Critical Path Method
- 4.4 Introduction to Program, Evaluation, and Review Technique
- 4.5 Project planning and scheduling
- 4.6 Resource constrained scheduling

UNIT 5: Quality Management and Control (8 Hrs.)

- 5.1 Basic concept of quality
- 5.2 Introduction to quality control, quality assurance, and total quality management

- 5.3 Introduction to project monitoring and control
- 5.4 Time cost tradeoff/crashing
- 5.5 Project cost control
- 5.6 Earned value analysis

UNIT 6: Project Manager (8 Hrs.)

- 6.1 Leadership versus Management
- 6.2 Traits and skills of leader
- 6.3 Traits and skills of project manager
- 6.4 Responsibilities of project manager
- 6.5 Leadership of effective and efficient project manager

UNIT 7: Materials and Inventory Management (6 Hrs.)

- 7.1 Introduction inventory management
- 7.2 Scope of materials management and control
- 7.3 Classification of materials (A, B, C analysis)
- 7.4 Importance of material management

UNIT 8: Constructability and Value Engineering (4 Hrs.)

- 8.1 Concept of constructability and its benefits
- 8.2 Fundamentals of value engineering

UNIT 9: Construction Safety and Labor Management (6 Hrs.)

- 9.1 Occupational health and safety
- 9.2 Construction accidents and their causes
- 9.3 Construction site safety programs
- 9.4 Labor laws and role of labor union

PLAGIARISM

Plagiarism means copying or using other' ideas or work without acknowledging the original source and/or author. This can be in a variety of forms, from directly quoting someone without acknowledgment, copying and pasting from any available sources including internet, changing some words without acknowledgment and etc. This type of activities of a student in submitting any assignment will be considered as a serious offence and the university/course instructor will take serious action.

Indicative References:

1. Edward R. Fisk and Wayne D. Reynolds, *Construction Project Administration*, Pearson Education Inc., USA.
2. Hira N. Ahuja, S.P. Dozzi and S. M. Abourizk, *Project Management Techniques in Planning and Controlling Construction Projects*, John Wiley & Sons, Inc., New York.
3. Garold D. Oberlender, *Project Management for Engineering and Construction*, McGraw-Hill, US.
4. Jack R. Meredith and Samuel J. Mantel, Jr., *Project Management a Managerial Approach*, Wiley, India.
5. Roger Gill, *Theory and Practice of Leadership*, Sage Publications Limited, London.
6. Donald S. Barrie and Boyd C. Paulson Jr., *Professional Construction Management*, Mc-Hill Book Company, USA.
7. Frank Harris and Ronald Mccaffer, *Modern Construction Management*, Granada Publishing Ltd. UK.
8. Kumar NeerajJha, *Construction Project Management*, (Pearson), India.
9. P. Gopalkrishnan and M. Sudarsen, *Materials Management*, PHI, India.
10. Van Horne, *Financial Management and Policy*, PHI, India.

FARWESTERN UNIVERSITY
FACULTY OF ENGINEERING
MASTER OF SCIENCE DEGREE IN CONSTRUCTION PROJECT MANAGEMENT

Course title: **Construction Technology**

Course Code: 614

Year /Semester: I/I

Class Load: 4 hours per week (Theory: 4 hours).

Credits:4 (60 Hrs)

Evaluation:

	Theory	Practical	Total
Internal	40	-	40
Final (External)	60	-	60
Total	100	-	100

Course Description and Objective:

The objective of this course is to strengthening students' understanding of construction technology knowledge to acquire relevant skill for applying them into real practice in managing construction projects.

Course Contents

UNIT 1: Ground Engineering : (16 Hrs.)

Excavation and Compaction, Pile driving, Shoring etc.,

UNIT 2: Masonry: (4 Hrs.)

Stone masonry and Brick masonry,

UNIT 3: Concrete Construction: (8 Hrs.)

Aggregate production, Batching, Mixing, Placing, Compaction, Curing etc.

UNIT 4: Woodworks, Steel and Aluminium works for openings: (4 Hrs.)

UNIT 5: Steel Structure (4 Hrs.)

Rivetting, Welding etc.

UNIT 6: Pipe Laying (4 Hrs.)

Concrete, Steel, GI, CI, Polythine Pipes, etc.

UNIT 7: Highway and Pavement construction (4 Hrs.)

Excavation, Filling, Pavement: Flexible and Rigid

UNIT 8: Hydraulic Structures, (4 Hrs.)

Dam, Barrage, Weirs, Power house, Canals, Gates, Cofferdam, Sedimentation tanks etc

UNIT 9: Tunnel Construction: (4 Hrs.)

Drilling and Blasting method, Boring method, and construction

UNIT 10: Bridge Construction (4 Hrs.)

RCC Bridge, Suspension Bridge etc.

UNIT 11:New Technologies (4 Hrs.)

Prefabrication, erection of units

Special Lectures by experts will be arranged

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Indicative References:

1. Harris, Frank , Construction Plant Ground Engineering Equipments and Methods, Granada Publishing, London
2. Harris, Frank , Construction Plant Excavating and Materials handling equipment and Methods, Granada Publishing, London
3. Neville, A.M. , properties of Concrete, Pitman.

FARWESTERN UNIVERSITY
FACULTY OF ENGINEERING
MASTER OF SCIENCE DEGREE IN CONSTRUCTION PROJECT MANAGEMENT

Course Title: **Issues of Ethics and Liability in Construction**

Course Code: 613

Year/Semester: I/I

Class Load: 4 Hrs. per Week (Theory: 4 Hrs.)

Credits:4 (60 Hrs)

Evaluation:

	Theory	Practical	Total
Internal	40	-	40
Final (External)	60	-	60
Total	100	-	100

Course Descriptions and Objective:

The objective of this course is to provide students enhanced understanding on various aspects of ethical and liability related issues and make them capable in understanding and handling with the issues related to ethics and liability in construction.

Course Contents:

UNIT 1: Introduction (6 Hrs.)

- 1.1 Evolution of construction
- 1.2 Recent trends in construction

UNIT 2: Ethics and construction (10 Hrs.)

- 2.1 General introduction to ethics
- 2.2 Moral issues, moral dilemma and ethical decision making
- 2.3 Role of engineering profession, construction business and code of ethics in regulating profession and construction business.

UNIT 3: Principles of contract law (12 Hrs.)

- 3.1 Principles of law
- 3.2 Meaning and essentials of contract
- 3.3 Performance of a contract
- 3.4 Discharge of contract
- 3.5 Breach of contract

UNIT 4: Legal provisions related to construction (12 Hrs.)

- 4.1 Construction quality and standards
- 4.2 Environment law
- 4.3 Labor law
- 4.4 Building by-laws and codes
- 4.5 Land acquisition and resettlement

UNIT 5: Risk and insurance in construction (8 Hrs.)

- 5.1 Construction risks
- 5.2 Construction insurance

UNIT 6: Introduction to Tort (12 Hrs.)

- 6.1 Nature and functions of the Law of tort
- 6.2 General characteristics of tortious liability
- 6.3 Negligence
- 6.4 Nuisance
- 6.5 Defective products
- 6.6 Trespass
- 6.7 Defenses and limitation

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Indicative References:

- 1.0 Mike W. Martin and Roland Schinzinger, Ethics in Engineering, The McGraw-Hill Companies, Inc., New York
- 2.0 M. Govindarajan, S. Natarajan and V. S. Senthilkumar, Engineering Ethics, Prentice Hall of India P. Ltd., New Delhi
- 3.0 Rajendra P. Adhikari, Engineering Professional Practice, Pashupati Publishing House, Kathmandu, Nepal
- 4.0 P. C. Tulsian, Business Law, Tata McGraw Hill Education P. Ltd., New Delhi
- 5.0 Roger terHaar, Anna Laney and Marshall Levine (Ed.), Construction Insurance and UK Construction Contracts (Construction Practice Series), Informa Law from Routledge, NY, USA
- 6.0 Nael G. Bunni, Risk and Insurance in Construction, Spon Press, NY, USA
- 7.0 Michael A. Jones, Textbook on Torts, Lawman (India) P. Ltd., New Delhi
- 8.0 W. V. H. Rogers, Winfield and Jolowicz on Tort, Thomson Reuters (Legal) Limited, England
- 9.0 David L. Cornes, Design Liability in the Construction Industry, Granada Publishing, Great Britain
- 10.0 Alan J. Pannett, Law of Torts, Pitman Publishing, London
- 11.0 Relevant codes and laws
- 12.0 Journal of Professional Issues in Engineering, ASCE
- 13.0 Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, ASCE

FARWESTERN UNIVERSITY
FACULTY OF ENGINEERING
MASTER OF SCIENCE DEGREE IN CONSTRUCTION PROJECT MANAGEMENT

Course Title: **Procurement and Supply Chain Management**

Course Code: 612

Year/Semester: I/I

Class Load: 4 Hrs. per Week (Theory: 4 Hrs.)

Credits: 4 (60 Hrs)

Evaluation:

	Theory	Practical	Total
Internal	40	-	40
Final (External)	60	-	60
Total	100	-	100

Course Description and Objective:

The objective of this course is to develop necessary skills to build careers in the procurement field by providing a conceptual foundation in procurement and supply chain management. After completion of this course the students are expected to work independently in the field of procurement and supply chain management both in public and private sectors.

Course Contents:

UNIT 1: Introduction (10 Hrs.)

- 1.1 Introduction to supply chain management, its scope and importance
- 1.2 Concept of procurement and public procurement
- 1.3 Trends in the supply chain

UNIT 2: Procurement planning and preparation (12 Hrs.)

- 2.1 Preparation of procurement plan
- 2.2 Procurement methods
- 2.3 Project delivery methods
- 2.4 Understanding of development partners procurement practices

UNIT 3: Procurement of Goods and Works (16 Hrs.)

- 3.1 Need identification, cost estimate and specification writing
- 3.2 Preparation of bid documents
- 3.3 Understanding of INCOTERMS
- 3.4 Bid evaluation and contract award
- 3.5 Practical exercise and cases

UNIT 4: Procurement of Consulting and Other Services (12 Hrs.)

- 4.1 Need identification and cost estimate
- 4.2 Understanding of EOI and RFP
- 4.3 Understanding of procurement methods
- 4.4 Evaluation and selection
- 4.5 Practical exercise and cases

UNIT 5: Price and Total Cost of Ownership (TCO) –(4 Hrs.)

UNIT 6: Understanding of e-Procurement – (6 Hrs.)

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Indicative References:

- 1.0 Peter Baily, David Farmer, Barry Crocker, David Jessop and David Jones, Procurement Principles and Management, Pearson Education
- 2.0 Fred Sollish and John Semanik, The Procurement and Supply Manager's Desk Reference, Wiley
- 3.0 Birgit Dam Jespersen and TageSkjoett-Larsen, Supply Chain Management: in Theory and Practice, Copenhagen Business School Press DK
- 4.0 Chartered Institute of Procurement & Supply (CIPS)/Profex, Procurement and Supply Functions – Course Book
- 5.0 Chartered Institute of Procurement & Supply (CIPS)/Profex, Procurement and Supply Processes – Course Book
- 6.0 रमेश कुमार शर्मा,नेपालमा सार्वजनिक खरिद व्यवस्थापन (सिध्दान्त र व्यवहार), वीणा टुङ्गाना
- 7.0 Development partners procurement guidelines
- 8.0 Website of Public Procurement Monitoring Office, Nepal and other relevant websites
- 9.0 Relevant Acts, Policies and guidelines
- 10.0 Journal of Public Procurement (JoPP)
- 11.0 Journal of Purchasing & Supply Management, Elsevier
- 12.0 Journal of Supply Chain Management, Wiley Online Library
- 13.0 European Journal of Logistics, Purchasing and Supply Chain
- 14.0 सार्वजनिक खरिदपत्रिका, सार्वजनिक खरिद अनुगमन कार्यालय, नेपाल