Project Engineering

**Course Objective:**

1. To introduce the basic knowledge on project and project environment
2. To make the students able to prepare feasibility study report and project proposal.
3. To provide the sound knowledge of project planning, implementation and controlling.
4. To provide knowledge on risk associated with the project
5. To provide the knowledge of project finance and
6. To provide the concept of modern trends and techniques of project management.
7. **Introduction of Project and Project Management [6 hours]**
   1. Definition of Project, its characteristics, and example of project.
   2. Classification of Project.
   3. Project Objective and Goal.
   4. Project Life Cycle Phases.
   5. Project Environment.
   6. Introduction to Project Management.

1. **Project Appraisal and Project Formulation  [8 hours]**
   1. Concept of Project Appraisal
   2. Project Proposal (technical and financial)
   3. Procedure for Developing Project Proposal
   4. Techniques of Project Formulation
      1. Feasibility analysis,
      2. Cost Benefit analysis,
      3. Input analysis,
      4. Environmental analysis

1. **Project Planning and Scheduling  [12 hours]**
   1. Concept of Project Planning and its Importance.
   2. Project Planning Process.
   3. Work Breakdown Structure (WBS)
   4. Project Scheduling with Bar Chart, CPM & PERT
   5. Project Scheduling with Limited Resources (Resource Leveling and Smoothing).
   6. Introduction to Planning Soft ware - MS Project

1. **Project Implementation and Controlling [7 hours]**
   1. Introduction to Monitoring, Evaluation and Controlling
   2. Project Control.
   3. Project Control Cycle
   4. Elements of Project Control (time, cost and quality).
   5. Project Schedule Control
   6. Project Cost Control: Methods and procedure (Earned value analysis)
   7. Project Quality Control
   8. Introduction to Project Management Information System (PMIS)

1. **Project Risk Analysis and Management [7 hours]**
   1. Introduction to Project Risk.
   2. Types of Project Risk.
   3. Analysis of Major Sources of Risk
   4. Effective Management of Project Risk.
      1. Risk Management planning
      2. Risk Identification
      3. Qualitative and Quantitative Risk Analysis
      4. Risk Response Planning
      5. Risk Monitoring and Controlling

1. **Introduction to Project Financing [5 hours]**
   1. Project finance
   2. Capital Structure Planning
   3. Capital Budgeting Decision.

**Tutorials:**

1. Writing project Proposal  [2 hours]
2. Scheduling Using Bar chart & CPM  [ 4 hours]
3. Scheduling Using  Planning Software [4 hours]
4. Project Control Method (EVA)  [1 hour]
5. Capital Structure Planning Exercise [2 hours]
6. Capital Budgeting Exercise [2 hours]

**References:**

1. Ishwar Adhikari and Santosh Kr. Shrestha, “A text of Project Engineering” 2011, Chandeshwori Publication, First Edition.
2. Dhurba P.Rizal, “Project Management” 2001, Ratna pustak bhandar, First Edition.
3. E.R. Yescombe, “Principles of Project Finance” 2002, Yescombe-Consulting Limited.
4. K. Nagarajan, “Project Management”, ISBN: 81-224-1340-4, New Age International (P) Limited, New Delhi, India, 2001.
5. Dr. Govinda Ram Agrawal, “Project Management in Nepal” Edition: 2006, M.K. Publishers and Distributors, Kathmandu, Nepal.

**Evaluation Scheme:**  
The questions will cover all the chapters in the Syllabus. The evaluation scheme will be as indicated in the table below.

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| --- | --- | --- |
| **Chapters** | **Hours** | **Marks Distribution\*** |
| 1 | 6 | 10 |
| 2 | 8 | 12 |
| 3 | 12 | 24 |
| 4 | 7 | 12 |
| 5 | 7 | 12 |
| 6 | 5 | 10 |
| **Total** | **45** | **80** |

**\*Note: There may be minor deviation in marks distribution.**