

Pokhara University
Faculty of Science and Technology

Course Code.: MGT 320
Course title: Engineering Management (2-1-0)
Nature of the course: Theory

Full marks: 100
Pass marks: 45
Time per period: 1 hour
Total periods: 30
Program: BE

Level: Bachelor

1. Course Description

This course is designed to provide essential understanding of basic management knowledge and enhance their managerial capabilities integrating technology and contemporary issues. It includes introduction of management, planning, organizing, staffing, leading and motivation, controlling and recent trends in management specially tailored for software, computer and IT engineering. The course delivery will consist of lecture sessions, case studies and presentations on professional management practices.

2. General Objective

The course is designed to impart knowledge on management and emerging engineering management trends and develop skills of the students to enhance their managerial capabilities and enable them to apply in a technology-based organization.

3. Contents in Detail

| Specific Objectives | Contents |
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| To develop a foundational understanding of management, organization and engineering management | Unit I: Introduction (6 Hrs.) 1.1 Management 1.1.1 Functions of management 1.1.2 Level and scope of management 1.1.3 Principles of management 1.2 Organization 1.2.1 Characteristics of organization 1.2.2 Types of organization: formal and informal organizations, virtual organization 1.3 Engineering Management 1.3.1 Importance of management in technology-driven environments 1.3.2 Engineering functions in organizations: product development, operations, IT systems, quality assurance and others 1.3.3 Roles and responsibilities of an engineering manager |
| To familiarize students with the planning and organizing and identify their emerging issues in ICT enterprises | Unit II: Planning and Organizing (6 Hrs.) 2.1 Planning 2.1.1 Levels of planning: strategic, tactical and operational 2.1.2 Steps in planning 2.1.3 Tools for planning 2.1.4 Importance of planning |

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| | 2.2 Organizing 2.2.1 Process of organizing 2.2.2 Organization structure 2.2.3 Types of organization structure 2.2.2.1 Traditional structure: line and functional 2.2.2.2 Modern structure: matrix, network, hybrid 2.4 Emerging planning and organizing issues for ICT enterprises |
| To enable students to analyze and address key issues in motivating and leading a technical workforce | Unit III: Motivation and Leadership (6 Hrs.) 3.1 Motivation 3.1.1 Theories of motivation: Maslow's hierarchy, Herzberg's two factor, Expectancy, Equity 3.1.2 Techniques for motivation 3.2 Leadership 3.2.1 Leadership styles: autocratic, democratic, servant and transformational 3.2.2 Characteristics of learning organization in the ICT industry 3.3 Challenges and strategies for motivating and leading technical workforce |
| To enhance students' knowledge of human resource management and control functions, emphasizing their practical application for managing ICT organization | Unit IV: Human Resource Management and Control (8 Hrs.) 4.1 Human Resource Management 4.1.1 Functions of human resource management 4.1.2 Job analysis, job specification, job description 4.1.3 Recruitment and selection 4.1.4 Human resource training (on the job and off the job) 4.1.5 Performance appraisal and methods 4.1.6 Challenges in managing people in ICT workforce 4.2 Control 4.2.1 Importance 4.2.2 Process and types 4.2.3 Techniques 4.2.4 ICT tools for effective control of engineering projects and organizations. |
| To expose students to emerging trends in engineering management and their application in ICT driven organizations | Unit V: Emerging trends in engineering management (4 Hrs.) 5.1 Participative management, conflict resolution, change management, quality management, innovation management and disruption 5.2 Recent engineering management concepts for managing ICT based projects and organizations |

4. Methods of Instruction

Lecture, Tutorials, Discussions, Assignments and Presentation

5. List of Tutorials

| S.N. | Tutorials |
|------|---|
| 1 | IT companies case studies related to management functions |
| 2. | Students' presentation on course contents, and relevant current management issues |
| 3. | Identification and use of recent ICT based management tools |

6. Evaluation system and Students' Responsibilities

Evaluation System

In addition to the formal exam(s) conducted by the Office of the Controller of Examination of Pokhara University, the internal evaluation of a student may consist of class attendance, class participation, quizzes, assignments, presentations, written exams, etc. The tabular presentation of the evaluation system is as follows.

| External Evaluation | Marks | Internal Evaluation | Marks |
|--------------------------|-------|---------------------------------------|-------|
| Semester-End Examination | 50 | Class attendance and participation | 10 |
| | | Case Study Discussion | 5 |
| | | Quizzes/assignments and presentations | 5 |
| | | Internal Term Exam | 30 |
| Total External | 50 | Total Internal | 50 |
| Full Marks 50+50=100 | | | |

Students' Responsibilities:

Each student must secure at least 45% marks in the internal evaluation with 80% attendance in the class to appear in the Semester End Examination. Failing to obtain such a score will be given NOT QUALIFIED (NQ) and the student will not be eligible to appear in the End-Term examinations. Students are advised to attend all the classes and complete all the assignments within the specified time period. Students are required to complete all the requirements defined for the completion of the course.

7. Prescribed Books and References

Test and Reference Books

1. Harold Koontz and Heinz Weihrich, *Essentials of Management*
2. Prem Raj Pant, *Principles of Management*
3. Govinda Ram Agrawal, *Organization and Management in Nepal*.

Recommended Resources

1. Online resources on content and cases
2. Articles collected from various Journals and Periodicals