



RAMA UNIVERSITY UTTAR PRADESH, KANPUR

(vide U.P. Act No. 1 of 2014 as passed by State Legislature and recognized by UGC U/s 2(f))



MEOE 004 Introduction to Design Methodology

L T P Credit
3 0 0 3

Course Outcomes: At the end of the course, the student will be able to:

MEOE-004.1	At the end of this course Student will able to Discuss[II] the Scope of industrial management.
MEOE-004.2	At the end of this course Student will able to Explain [III]the Level `s and contribution of management function.
MEOE-004.3	Perform [III] Problem Definition
MEOE-004.4	At the end of this course Student will able to Explain[III] the inventory control methods
MEOE-004.5	At the end of this course student will able to Discuss[II] the quality control methods and their types.

Mapping of course outcomes with program outcomes

CO	PO1: Engineering knowledge	PO2: Problem analysis	PO3: Design /development of solutions	PO4: Conduct investigations of complex problems	PO5: Modern tool usage	PO6: The engineer and society	PO7: Environment and sustainability	PO8: Ethics	PO9: Individual and team work	PO10: Communication	PO11: Project management and finance	PO12: Life-long learning
MEOE-004.1	2	3	2	3	-	-	-	-	-	1	-	1
MEOE-004.2	1	2	1	-	2	-	-	-	-	-	-	1
MEOE-004.3	3	3	2	3	3	-	-	-	1	-	-	2
MEOE-004.4	3	3	2	3	3	-	-	-	1	-	-	2
MEOE-004.5	3	3	2	3	3	-	-	-	1	-	-	2

UNIT 1 Engineering Design

- 1.1 Introduction, Engineering Design Process
- 1.2 Ways to Think About the Engineering Design Process
- 1.3 Considerations of a Good Design
- 1.4 Description of Design Process
- 1.5 Computer-Aided Engineering
- 1.6 Designing to Codes and Standards
- 1.7 Design Review
- 1.8 Societal Considerations in Engineering Design

UNIT 2 Product Development Process, Problem Definition and Need Identification

- 2.1 Factors for Success
- 2.2 Product and Process Cycles
- 2.3 Organization for Design and Product Development
- 2.4 Markets and Marketing
- 2.5 Technological Innovation
- 2.6 Identifying Customer Needs



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- 2.7 Customer Requirements
- 2.8 Establishing the Engineering Characteristics
- 2.9 Quality Function Deployment
- 2.10 Product Design Specification

UNIT 3 Team Behavior and Tools

- 3.1 Introduction, What It Means to be an Effective Team Member
- 3.2 Effective Team Meetings
- 3.3 Problems with Teams
- 3.4 Problem Solving Tools
- 3.5 Time Management
- 3.6 Planning and Scheduling

UNIT 4 Gathering Information

- 4.1 Introduction, The Information Challenge
- 4.2 Types of Design Information
- 4.3 Sources of Design Information
- 4.4 Library Sources of Information
- 4.5 Government Sources of Information

UNIT 5 Concept Generation, Decision Making and Concept Selection

- 5.1 Introduction to Creative Thinking
- 5.2 Idea Generating Techniques Beyond Brainstorming
- 5.3 Creative Methods for Design
- 5.4 Functional Decomposition and Synthesis
- 5.5 Morphological Methods
- 5.6 TRIZ: The Theory of Inventive Problem Solving
- 5.7 Axiomatic Design Introduction
- 5.8 Decision Making
- 5.9 Evaluation Methods
- 5.10 Embodiment Design

Text/Reference Books:

1. Design Thinking Methodology Book by Emrah Yayici