

**DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT  
MEHRAN UNIVERSITY OF ENGINEERING & TECHNOLOGY, JAMSHORO**

<b>Title of Subject</b>	:	<b>Project Design and Optimization</b>	<b>INM-709</b>	<b>(3+0)</b>
<b>Discipline</b>	:	Industrial Engineering and Management		
<b>Semester</b>	:	3 <sup>rd</sup> Semester 2 <sup>nd</sup> Year		
<b>Effective</b>	:	21S- Batch and onwards		
<b>Credit Hours</b>	:	Th: 03 & Pr=00		
<b>Marks</b>	:	Th: 100 & Pr=00		
<b>Minimum Contact Hours</b>	:	42 (For Theory)		

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**Aims**

The aim of this course is to give students an understanding of the most common processes, tools, techniques, and theories that are necessary to design and optimize a project.

**Objectives**

- To learn the steps required to design a project using the logical framework, elements of a good project proposal and the components of an effective monitoring and evaluation plan.
- To Identify and Analyze factors for successful Projects.
- To design and optimize the methodologies required at the four distinct stages in the Project's life cycle.

**CONTENTS:**

**Basics of Project Design and Optimization**

Overview of Projects, Project Management Framework, Project Plan Development, Project Charter, The Action Plan, The Work Breakdown Structure, Tools and Techniques

**Risk Management and Project Scheduling**

Project Risk Management Processes, Types of Risk, Risk Identification, Risk Quantitative Analysis, Risk Qualitative Analysis, Risk Response Strategies, Decision Trees for Project risk management, Project Network Diagram Methods, CPM, PERT.

**Project Budgeting, Tracking and Control**

Project Cost Management Processes, Project Planning and Cost Controls, Resource Requirements, Cost Estimating Methods, Cost Budgeting, Earned Value Concepts, Project Time Management Processes, Crashing, Fast Tracking, Resource Allocation and Leveling, Schedule Control, Dependencies, Control of Change and Scope Creep

**Project Reporting and Closing**

The Planning-Monitoring-Controlling Cycle, Information Needs and Reporting, Project Management Information Systems, The Project Audit, Construction and Use of the Audit Report, The Project Audit Life Cycle, The Termination Process, When to Terminate a Project, Varieties of Project Termination, The Final Report.

**RECOMMENDED BOOKS**

1. Rose, Kenneth H. *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, Willey, Latest Edition
  2. Meredith, Jack R., Samuel J. Mantel Jr, and Scott M. Shafer. *Project management: a managerial approach*. John Wiley & Sons, Latest Edition.
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Approval:

Board of Studies:  
ASRB:  
Academic Council:

Res. No. 3.1  
Res. No. 171.20a  
Res. No. -----

Dated: 27.08.2019  
Dated: 15.02.2021  
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