



**Course Outline**

<b>Class: TY B Tech</b>	<b>Name of the Course: Mechanical Systems Design</b>			
<b>Course type: PEC-IV</b>	<b>Course Code: BME6504</b>			
<b>Credits: 3</b>	<b>Examination Structure</b>			
	IE	MTE	ETE	Total
	20	30	50	100

**Course relevance:** The course enables student to design the systems from various sectors of industries such as Process industries using the pressure vessels, transmission system in machine tools, material handling equipment using belt conveyors and the principal parts of internal combustion engines.

**Prerequisites:**

- |                          |                                      |
|--------------------------|--------------------------------------|
| a. Engineering Mechanics | d. Strength of Materials             |
| b. Applied Mathematics   | e. Manufacturing Practices           |
| c. Materials Engineering | f. Machine Design                    |
|                          | g. Kinematics and Theory of Machines |

*Table 1 Course Outcome and Mapping with POs and PSOs*

CO	Statement	Learning Level	PO/ PSO Mapped	Tools for Assessment
1	Select the appropriate material handling equipment for any application and to design the material handling system.	Evaluate	PO3, PO6, PO8, PSO1	ETE
2	Analyze the stress in thin & thick cylinders under internal and external pressure and design an unfired pressure vessels using IS 2825:1969 and ASME Code.	Analyze	PO3, PO6, PO8, PO9, PO10, PSO1	MTE, IE2, ETE,
4	Determine the optimum kinematic diagram and identify the various speeds in a multi-speed machine tool gearbox.	Analyze	PO3, PO6, PO8, PO9, PO10, PSO1	IE1, MTE,ETE,

*Table 2 Internal Evaluation*

CO	Statement	IE 1 Planning	IE 2	MTE
<b>Weightages</b>		10	10	30
4	Determine the optimum kinematic diagram and identify the various speeds in a multi-speed machine tool gearbox.	Poster presentation on recent designs of machine tool gearboxes and its comparison with the earlier versions.	--	MTE
1	Select the appropriate material handling equipment for any application and to design the material handling system.	--	Case study on conveyers from real applications focused on i. Alternative material handling equipment suitable ii. Current trends	MTE



Department: Mechanical Engineering

A.Y. 2023-24

Semester: II

Date:27.12.2023

Ref No:

Design Engineering Module

**Table 3 Rubric for assessment of Internal Evaluation activities**

Parameter/ Marks	8-10	5-7	2-4	0-1
<b>Knowledge</b>	Covers the complete scope and submits a report with appropriate work with clear understanding	Covers the complete scope and submits a report with appropriate work without complete clarity	Covers the scope partially and submits a report with appropriate work without clarity	Covers the scope partially and submits a report without appropriate work without clarity
<b>Presentation (Skill)</b>	Presents with clarity and answers all the questions asked	Presents with clarity and answers almost all the questions asked	Presents without clarity and answers a few questions asked	Presents without clarity and fails to answers the questions asked
<b>Timely Submission (Attitude)</b>	Followed the submission time line	Late by one day	Late by two days	Late by one week

Teaching Plan for Theory Sessions								Marks Distribution				
CO/ PO	PO3	PO6	PO8	PO9	PO10	PSO1	Total	CO	IE1	IE2	MTE	ETE
CO4	5	4	5			1	15	Out of	10	10	50	80
CO2	3	3	3	2	2	2	15	Converted to	10	10	30	50
CO1	3	3	3	2	2	2	15	2	-	-	-	44
	11	10	11	04	04	05	45	1		10	18	26
								4	10		32	10



**Mr. S.R. Wankhede**  
 Course faculty TY A and  
 Course Coordinator



**Dr. P R Kale**  
 Course Faculty TY B



**Dr. L.V. Awadhani**  
 Course Faculty TY C and  
 Module Coordinator