

G. S. Mandal's
Maharashtra Institute of Technology, Aurangabad
Plastic and Polymer Engineering Department
Academic Year: 2019-20
CO-PO-PSO Mapping of Final Year

Semester VII: Course Name: Mould and Product Design (PPE401)

Course Outcome (CO):

After completing this course the student will be able to	
PPE401.1	Design tools for manufacturing such compression, transfer, injection & blow mould as well as extrusion dies.
PPE401.2	Suggest suitable Process, tool and material for manufacturing used for.
PPE401.3	Develop new components and able to manufacture it.
PPE401.4	Design plastic product according to application.
PPE401.5	Provide guidelines for tooling while manufacturing the mold.
PPE401.6	Execute costing of the product and develop it accordingly.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE401.1	3	-	2	2	-	-	-	-	-	-	-	-
PPE401.2	3	2	-	3	-	-	-	-	-	-	-	-
PPE401.3	3	-	1	3	1	-	-	-	-	-	-	-
PPE401.4	3	-	1	3	2	-	-	1	-	-	-	-
PPE401.5	3	-	1	3	1	-	-	-	-	-	-	-
PPE401.6	3	-	1	3	-	-	-	1	-	-	-	-
Average	3	2	1.2	2.83	1.33	-	-	1	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE401.1	-	2	-
PPE401.2	1	-	-
PPE401.3	-	2	-
PPE401.4	-	-	-
PPE401.5	-	-	-
PPE401.6	-	-	-
Average	1	2	-

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Semester VII: Course Name: Polymer Blends and Composites (PPE402)

Course Outcome (CO):

After completing this course the student will be able to	
PPE402.1	Define the basic terminologies of polymer blends and composites.
PPE402.2	Explain the processes and mechanisms for the preparation of polymer blends and composites.
PPE402.3	Solve numerical problems related to polymer blends and composites.
PPE402.4	Analyze the polymer blends and composites from their different characteristics.
PPE402.5	Utilize available materials and instruments for preparation of polymer blends and composites.
PPE402.6	Formulate compounding recipes of polymer blends and composites according to the required product characteristics.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE402.1	3	-	-	-	-	-	-	-	-	-	-	-
PPE402.2	3	-	-	-	-	-	-	-	-	-	-	-
PPE402.3	3	3	-	-	-	-	-	-	-	-	-	-
PPE402.4	3	3	-	2	-	-	-	-	-	-	-	-
PPE402.5	3	-	-	-	2	-	-	-	-	-	-	-
PPE402.6	3	3	-	-	-	-	-	-	-	-	-	-
Average	3	3	-	2	2	-	-	-	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE402.1	3	-	-
PPE402.2	3	-	-
PPE402.3	3	-	-
PPE402.4	3	-	-
PPE402.5	3	1	-
PPE402.6	3	-	-
Average	3	1	-

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Semester VII: Course Name: Polymer Reaction Engineering and Plant Design (PPE403)

Course Outcome (CO):

After completing this course the student will be able to	
PPE403.1	Interpret rate laws for homogeneous reactions.
PPE403.2	Determine kinetics of reactions from experimental data.
PPE403.3	Design the reactors needed for synthesizing polymers.
PPE403.4	Explain the concepts of plant design and process engineering
PPE403.5	Make use of safety measures while operating process plant
PPE403.6	Recommend process piping accessories and support system

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE403.1	2	2	2	1	-	-	-	-	-	-	-	-
PPE403.2	2	2	3	3	2	-	-	-	-	-	-	-
PPE403.3	2	2	2	2	2	-	-	-	-	-	-	-
PPE403.4	3	2	3	2	-	-	-	-	-	-	2	-
PPE403.5	2	2	3	-	-	3	-	-	-	-	2	2
PPE403.6	2	3	2	2	-	2	-	-	-	-	1	-
Average	2.17	2.17	2.5	2	2	2.5	-	-	-	-	1.67	2

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE403.1	1	-	2
PPE403.2	2	-	3
PPE403.3	-	-	3
PPE403.4	1	-	3
PPE403.5	-	-	2
PPE403.6	-	-	3
Average	1.33	-	2.67

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Semester VII: Course Name: Polymer Reaction Engineering and Plant Design (PPE403)

Course Outcome (CO):

After completing this course the student will be able to	
PPE403.1	Interpret rate laws for homogeneous reactions.
PPE403.2	Determine kinetics of reactions from experimental data.
PPE403.3	Design the reactors needed for synthesizing polymers.
PPE403.4	Explain the concepts of plant design and process engineering
PPE403.5	Make use of safety measures while operating process plant
PPE403.6	Recommend process piping accessories and support system

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE403.1	2	2	2	1	-	-	-	-	-	-	-	-
PPE403.2	2	2	3	3	2	-	-	-	-	-	-	-
PPE403.3	2	2	2	2	2	-	-	-	-	-	-	-
PPE403.4	3	2	3	2	-	-	-	-	-	-	2	-
PPE403.5	2	2	3	-	-	3	-	-	-	-	2	2
PPE403.6	2	3	2	2	-	2	-	-	-	-	1	-
Average	2.17	2.17	2.5	2	2	2.5	-	-	-	-	1.67	2

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE403.1	1	-	2
PPE403.2	2	-	3
PPE403.3	-	-	3
PPE403.4	1	-	3
PPE403.5	-	-	2
PPE403.6	-	-	3
Average	1.33	-	2.67

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Semester VII: Course Name: CAE for Plastics (PPE422)

Course Outcome (CO):

After completing this course the student will be able to	
PPE422.1	Show the basics of flow analysis software including user interface.
PPE422.2	Demonstrate filling, packing, cooling and warping behavior of plastics product.
PPE422.3	Apply the design concepts to optimize the flow process.
PPE422.4	Examine the complete optimized flow process with conclusion for sustainable alternative.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE422.1	2	-	-	-	-	-	-	-	-	-	-	-
PPE422.2	2	2	2	-	-	-	-	-	-	-	-	-
PPE422.3	2	2	2	-	2	-	-	-	-	-	-	-
PPE422.4	2	2	1	-	2	-	-	-	-	-	-	-
Average	2	2	1.67	-	2	-	-	-	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE422.1	1	-	2
PPE422.2	2	-	3
PPE422.3	-	-	3
PPE422.4	1	-	3
Average	1.33	-	2.67

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Semester VII: Course Name: Plant Design Lab (PPE423)

Course Outcome (CO):

After completing this course the student will be able to	
PPE423.1	Outline instrumentation diagrams showing measurement & control of various parameters like temperature, pressure level, flow (Understanding)
PPE423.2	Develop a plant layout of a polymer industry (Applying)
PPE423.3	Construct various pipe fittings, bends and supports for piping (Applying)
PPE423.4	Design a heat exchanger (Creating)

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE423.1	3	-	2	-	-	-	-	-	-	-	-	-
PPE423.2	3	2	3	-	-	-	-	-	2	-	-	-
PPE423.3	2	2	-	-	-	-	-	-	-	-	-	-
PPE423.4	3	3	2	2	-	-	-	-	-	-	-	-
Average	2.75	2.33	2.33	2	-	-	-	-	2	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE423.1	-	-	3
PPE423.2	-	-	3
PPE423.3	-	-	2
PPE423.4	-	-	2
Average	-	-	2.5

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Semester VII: Course Name: Polymer Reaction Engineering (PPE421)

Course Outcome (CO):

After completing this course the student will be able to	
PPE421.1	Interpret rate laws for homogeneous reactions.
PPE421.2	Determine kinetics of reactions from experimental data.
PPE421.3	Design the reactors needed for synthesizing polymers.
PPE421.4	Explain the concepts of plant design and process engineering
PPE421.5	Make use of safety measures while operating process plant
PPE421.6	Recommend process piping accessories and support system

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE421.1	-	2	2	-	-	-	-	-	-	-	-	-
PPE421.2	-	2	3	-	-	-	-	-	-	-	-	-
PPE421.3	-	2	2	-	-	-	-	-	-	-	-	-
PPE421.4	-	2	3	-	-	-	-	-	-	-	-	-
PPE421.5	-	2	3	-	-	-	-	-	-	-	-	-
PPE421.6	-	3	2	-	-	-	-	-	-	-	-	-
Average	-	2.17	2.5	-	-	-	-	-	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE421.1	1	-	2
PPE421.2	2	-	3
PPE421.3	-	-	3
PPE421.4	1	-	3
PPE421.5	-	-	2
PPE421.6	-	-	3
Average	1.33	-	2.67

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Semester VII: Course Name: Open Elective II Polymer Recycling and Waste Management (PPE431)

Course Outcome (CO):

After completing this course the student will be able to	
PPE431.1	Define various methods of plastic recycling and its importance in modern day's life.
PPE431.2	Compare recycling and waste management technologies for various polymers.
PPE431.3	Identify the importance of plastics recycling and waste management in various sectors of application.
PPE431.4	Analyze the properties and performance of plastics along with its contribution to the properties after recycling.
PPE431.5	Evaluate the effectiveness of plastic recycling and waste management methods.
PPE431.6	Design a recycling plan for plastic product based on its applications.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE431.1								2	3		2	3
PPE431.2		1			1	2				1	3	
PPE431.3		1		1	1						3	
PPE431.4								1	3	1	2	2
PPE431.5		2	1	2	2				1		3	
PPE431.6	1	1	1	1	1	1		2	2	1	2	3
Average	1	1.25	1	1.33	1.25	1.5		1.67	2.25	1	2.5	2.67

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE431.1	1	-	-
PPE431.2	3	-	-
PPE431.3	3	-	-
PPE431.4	3	-	-
PPE431.5	2	-	-
PPE431.6	3	-	-
Average	2.5	-	-

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Semester VII: Course Name: Elective-III: Plastic Packaging Technology (PPE441)

Course Outcome (CO):

After completing this course the student will be able to	
PPE441.1	List out the functions, advantages, conversion processes, different forms, materials, printing techniques and testing methods for plastic packaging.
PPE441.2	Explain different plastic packaging techniques, processes, printing techniques, testing procedures and materials used.
PPE441.3	Select the suitable packaging materials, forms and printing techniques as per requirements of various products.
PPE441.4	Categorize the appropriate machinery and materials to pack the product.
PPE441.5	Compare various forms and techniques used for packing the different products.
PPE441.6	Discuss on package design to protect the product, fulfill manufacturers need and satisfy customers demand.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE441.1	2	-	-	-	1	-	-	-	-	-	-	-
PPE441.2	1	2	-	-	1	-	-	-	-	-	-	-
PPE441.3	-	-	2	-	2	-	-	-	-	-	-	-
PPE441.4	2	-	-	-	1	-	-	-	-	-	-	-
PPE441.5	1	-	1	-	2	-	-	-	-	-	-	-
PPE441.6	-	-	2	-		-	-	-	-	-	-	-
Average	1.5	2	1.67	-	1.4	-	-	-	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE441.1	2	-	-
PPE441.2	1	-	-
PPE441.3	1	-	-
PPE441.4	2	-	-
PPE441.5	2	-	-
PPE441.6	1	1	-
Average	1.5	1	-

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Semester VII: Course Name: Elective-IV: Functional Core-shell Hybrid Nanomaterials (PPE444)

Course Outcome (CO):

After completing this course the student will be able to	
PPE444.1	Define the terminologies of functional hybrid nanomaterials.
PPE444.2	Classify different types and synthesis methods of functional hybrid nanomaterials
PPE444.3	Identify the different synthesis methods of functional hybrid nanomaterials
PPE444.4	Compare the factors affecting the physical properties of functional hybrid nanomaterials.
PPE444.5	Explain different characterization methods of functional hybrid nanomaterials.
PPE444.6	Discuss the specific applications of nanomaterials and nanocomposites in various fields by using different pathways.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE444.1	2	-	-	-	-	-	1	-	-	-	-	-
PPE444.2	2	-	-	-	-	-	1	-	-	-	-	-
PPE444.3	3	2	-	3	3	-	1	-	-	-	-	-
PPE444.4	2	3	-	3	-	-	3	-	-	-	-	-
PPE444.5	3	2	2	3	3	-	1	-	-	-	-	-
PPE444.6	3	3	3	2	2	3	3	1	-	-	-	-
Average	2.5	2.5	2.5	2.75	2.67	3	1.67	1	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE444.1	3	-	-
PPE444.2	3	2	-
PPE444.3	3	2	-
PPE444.4	3	-	-
PPE444.5	3	-	-
PPE444.6	3	-	-
Average	3	2	-

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CO-PO-PSO Mapping of Final Year

Semester VII: Course Name: Elective-IV: Rubber Technology for Automotive Applications (PPE445)

Course Outcome (CO):

After completing this course the student will be able to	
PPE444.1	Define the basic terminologies of rubber-based automotive products.
PPE444.2	Explain the working principles of different rubber-based automotive products.
PPE444.3	Compare different classifications of rubber-based automotive products.
PPE444.4	Select suitable materials for different rubber-based automotive products.

CO-PO Mapping

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
PPE444.1	3	-	-	-	-	-	-	-	-	-	-	-
PPE444.2	3	-	-	-	-	-	-	-	-	-	-	-
PPE444.3	3	2	-	-	-	-	-	-	-	-	-	-
PPE444.4	3	2	2	-	-	-	-	-	-	-	-	-
Average	3	2	2	-	-	-	-	-	-	-	-	-

CO-PSO Mapping

CO	PSO 1	PSO 2	PSO 3
PPE444.1	3	-	-
PPE444.2	3	-	-
PPE444.3	3	-	-
PPE444.4	3	-	-
Average	3	-	-