
II Year B.Tech. Mechanical Engg. I- Semester	L	T	P	To	C
	-	-	3	3	2

ME212 MANUFACTURING PROCESS LAB

Course Description & Objective:

The course aims to create awareness among the students about pattern making, mould making and welding.

Course Outcomes:

Upon completion of the subject, students will be able to:

1. Processing of wooden patterns (i.e. Single piece and Two piece) using carpentry tools .Also Symmetrical & complex shaped patterns are processing using wood working lathe machine.
2. Learn how to prepare moulding sand, preparation of moulds & also test the moulds using mould hardness tester.
3. Learn the design of gating system used in casting process & practical exposure on melting of metals in furnace
4. Learn the working principles & practical exposure on welding techniques such as arc welding, Gas welding, Spot welding.
5. Learn the working principles & practical exposure on injection moulding machine and blow moulding machine for processing of plastics.
6. Learn the various press working operations using Hydraulic press and dies.

1. METAL CASTING:

1. Pattern Design and making - for one casting drawing.
2. Testing of sand - Properties
3. Moulding, Melting and Casting - Single piece
4. Moulding, Melting and Casting - Two piece patern

2. WELDING:

1. ARC Welding Lap & Butt Joint - 2 Exercises
2. Spot Welding - 1 Exercise
3. TIG Welding - 1 Exercise
4. Brazing - 1 Exercises
5. Gas welding - 1 Exercises

3. MECHANICAL PRESS WORKING:

1. Blanking & Piercing operation and study of simple, compound and progressive press tool.

2. Hydraulic Press : Deep drawing and extrusion operation.

4. **PROCESSING OF PLASTICS**

1. Injection Moulding
2. Blow Moulding

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ME211 COMPUTATIONAL METHODS FOR ENGINEERS LAB

Course Description & Objective:

To provide hands on experience in MAT LAB and to write simple codes to implement the numerical methods covered during the theory course.

Course Outcomes:

1. *This course will enable the Mechanical engineers to understand the fundamental criteria for the choice of numerical methods.*
2. *They will understand the use of computational simulations and modeling techniques which are applied to their engineering problems.*
3. *This course also enables them to understand non – linear statistical modeling methods and to utilize them in their real life situations.*
4. *The student will be able to apply the statical quality control techniques in the product quality and quantity.*
5. *They will be able to calculate polynomials to anylise data using interpolation.*

Write Programs in 'C' / MAT LAB:

1. To deduce error involved in polynomial equation.
2. To Find out the root of the Algebraic and Transcendental equations using Bisection, Regula-falsi, Newton Raphson and Iterative Methods. Also give the rate of convergence of roots in tabular form for each of these methods.
3. To implement Newton's Forward and Backward Interpolation formula.
4. To implement Gauss Forward and Backward, Bessel's, Sterling's and Evertt's Interpolation formula
5. To implement Newton's Divided Difference and Langranges Interpolation formula.
6. To implement Numerical Differentiations.