PRODUCTION TECHNOLOGY LABORATORY

IV Semester: ME

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AME107	Core	-	-	3	2	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 48				Total Classes: 48		

OBJECTIVES:

The **course should enable the students to:**

I. Understand practical orientation of manufacturing processes.
II. Knowledge on different kinds of production processes and practices available for shaping or molding several daily used parts for industries.
III. Determine bending and shearing strength for different materials.
IV. Evaluate the performance of welding joints.
V. Understand Selection of equipment's for various manufacturing processes will be understood.

COURSE LEARNING OUTCOMES (CLOs):

The students should enable to:

1. Understand the Pattern design and making, casting drawing.
2. Utilize and determination of Sand properties testing for strengths and permeability.
3. Demonstrate practical understanding Moulding, melting and casting.
4. Demonstrate practical understanding of ARC welding lap and butt joint.
5. Demonstrate practical understanding of Spot welding, TIG welding.
6. Demonstrate practical understanding of Plasma welding and brazing (water plasma device).
7. Understand Blanking and piercing, operation and study of simple, compound and progressive press tool.
8. Demonstrate practical understanding of Hydraulic press, deep drawing and extrusion operation..
9. Understand the Bending and other operation.
10. Demonstrate practical understanding Injection moulding process.
11. Demonstrate practical understanding Blow moulding process.
12. Demonstrate practical understanding MIG welding exercises and Riveting of plates.

LIST OF EXPERIMENTS

Week-1	**PATTERN MAKING**
Pattern design and making, casting drawing.	
Week-2	**SAND PROPERTIES TESTING**
Sand properties testing for strengths and permeability.	
Week-3	**METAL CASTING**
Moulding, melting and casting.	
Week-4	**ARC WELDING**
ARC welding lap and butt joint.	
Week-5	**SPOT WELDING**

Spot welding, TIG welding.	
Week-6	**PLASMA WELDING AND BRAZING**
Plasma welding and brazing (water plasma device).	
Week-7	**APPLICATION OF SIMPLE AND COMPOUND DIE**
Blanking and piercing, operation and study of simple, compound and progressive press tool.	
Week-8	**APPLICATION OF PROGRESSIVE DIE**
Hydraulic press: deep drawing and extrusion operation.	
Week-9	**MECHANICAL PRESS WORKING**
Bending and other operation.	
Week-10	**PROCESSING OF PLASTICS**
Injection moulding.	
WeeK-11	**PROCESSING OF PLASTICS**
Blow moulding.	
Week-12	**BEYOND SYLLABUS**
MIG welding exercises and Riveting of a plates.	

Text Books:

1. P. N. Rao, “Manufacturing Technology”, Tata McGraw-Hill, 2nd Edition, 2013.
2. Hajra Chowdhary, “Workshop Technology”, Asia Publishing House, 2nd Edition, 2008.

Reference Books:

1. R. K. Jain, “Production Technology”, Khanna Publishers, 18th Edition, 2013
2. T. V. Ramana Rao, “Metal Casting”, New Age, 1st Edition, 2010.
3. Philips Rosenthal, “Principles of Metal Castings”, TMH, 2nd Edition, 2001.
4. B. S.Raghuwamshi, “A Course in Workshop Technology”, Dhanpat Rai & Sons, 2014.
5. Kalpakjin S, “Manufacturing Engineering and Technology”, Pearson Education, 7th Edition, 2014.
6. HMT, “Production Technology”, McGraw-Hill Education, 1st Edition, 2013.