MANUFACTURING PROCESS LABORATORY

IV Semester: ME

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AMEC15	Core	0	0	2	1	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 26				Total Classes: 26		

Prerequisite: Workshop Practices Laboratory

I. COURSE OVERVIEW:

This course is to introduce the concept of manufacturing process with the help of various processes widely employed in the industries. This course consists of casting, welding, sheet metal forming, extrusion and forging processes with the related details of equipment and applications. It Introduces the different manufacturing processes and breakeven analysis. Engineering materials, laying emphasis on ferrous and non-ferrous materials along with the heat treatment of metals discusses the special casting processes and metal-forming processes respectively.

II. COURSE OBJECTIVES:

The students will try to learn:

I. The Importance manufacturing sciences in the day-to-day life, and study the basic manufacturing processes and tools used.

II. The knowledge in thermal, metallurgical aspects during casting and welding for defect free manufacturing components.

III. The design features that make each of this manufacturing process both harder, easier, assess design and manufacturing features on real products.

III. LIST OF EXPERIMENTS

Week-1: PATTERN MAKING

Batch I: Pattern design and making

Batch II: Pattern design and making

Week-2 SAND CASTING

Batch I: Moulding, melting and casting

Batch II: Moulding, melting and casting

Week-3 METAL CASTING

Batch I: Moulding, melting and casting

Batch II: Moulding, melting and casting

Week-4 ARC WELDING

Batch I: ARC welding lap and butt joint

Batch II: ARC welding lap and butt joint

Week-5 SPOT WELDING

Batch I: Spot welding lap and butt joint

Batch II: Spot welding lap and butt joint

Week-6 GAS WELDING
Batch I: Gas Welding lap and butt joint
Batch II: Gas Welding lap and butt joint

Week-7 BRAZING
Batch I: Brazing lap and butt joint
Batch II: Brazing lap and butt joint

Week-8 APPLICATION OF SIMPLE DIE
Batch I: Blanking and piercing
Batch II: Blanking and piercing

Week-9 APPLICATION OF COMPOUND DIE
Batch I: Blanking and piercing
Batch II: Blanking and piercing

Week-10 PROCESSING OF PLASTICS
Batch I: Injection moulding
Batch II: Injection moulding

WeeK-11 PROCESSING OF PLASTICS
Batch I: Blow moulding
Batch II: Blow moulding

Week-12 RIVETING
Batch I: Riveting of a plates
Batch II: Riveting of a plates

Week-13 SAND PROPERTIES TESTING
Batch I: Sand properties testing for strengths and permeability
Batch II: Sand properties testing for strengths and permeability

IV. 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.

VI. WEB REFERENCES:

1. https://books.google.co.in/books/about/Manufacturing_Processes_Reference_Guide.html?id=6x1sm