

<b>Discipline: Mechanical Engineering</b>	<b>Semester : 6<sup>th</sup> Semester</b>	<b>Name of the Teaching Faculty: Sri Sekhar sahu Lect. In Mechanical Engineering</b>
<b>Subject: ADVANCE MANUFACTURING PROCESSES</b>	<b>No. of Days/week Class Allotted: 60</b>	<b>No of weeks: 18</b>
<b>week</b>	<b>Class Day</b>	<b>Theory Topics</b>
1 <sup>st</sup>	1 <sup>st</sup>	Introduction – comparison with traditional machining.
	2 <sup>nd</sup>	Ultrasonic Machining: principle, Description of equipment, applications
	3 <sup>rd</sup>	Ultrasonic Machining: principle, Description of equipment, applications
	4 <sup>th</sup>	Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications
2 <sup>nd</sup>	1 <sup>st</sup>	Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications
	2 <sup>nd</sup>	Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.
	3 <sup>rd</sup>	Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.
	4 <sup>th</sup>	Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.
3 <sup>rd</sup>	1 <sup>st</sup>	Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.
	2 <sup>nd</sup>	Laser Beam Machining: principle, description of equipment, Material removal rate, application.
	3 <sup>rd</sup>	Laser Beam Machining: principle, description of equipment, Material removal rate, application.
	4 <sup>th</sup>	Electro Chemical Machining: principle, description of equipment, Material removal rate, application.)

4 <sup>th</sup>	1 <sup>st</sup>	Electro Chemical Machining: principle, description of equipment, Material removal rate, application.
	2 <sup>nd</sup>	Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
	3 <sup>rd</sup>	Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications
	4 <sup>th</sup>	Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
5 <sup>th</sup>	1 <sup>st</sup>	Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
	2 <sup>nd</sup>	Processing of plastics.
	3 <sup>rd</sup>	Moulding processes: Injection moulding, Compression moulding, Transfer moulding
	4 <sup>th</sup>	Moulding processes: Injection moulding, Compression moulding, Transfer moulding
6 <sup>th</sup>	1 <sup>st</sup>	Moulding processes: Injection moulding, Compression moulding, Transfer moulding
	2 <sup>nd</sup>	Extruding; Casting; Calendering.
	3 <sup>rd</sup>	Extruding; Casting; Calendering.
	4 <sup>th</sup>	Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods& tubes), Reinforcing
7 <sup>th</sup>	1 <sup>st</sup>	Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods& tubes), Reinforcing
	2 <sup>nd</sup>	Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods& tubes), Reinforcing
	3 <sup>rd</sup>	Applications of Plastics.
	4 <sup>th</sup>	Introduction, Need for Additive Manufacturing
	8 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	Advantages and Limitations of AM, Commonly used Terms
	3 <sup>rd</sup>	Classification of AM process, Fundamental Automated Processes, Distinction between AM and CNC, other related technologies.
	4 <sup>th</sup>	Classification of AM process, Fundamental Automated Processes, Distinction between AM and CNC, other related technologies.)

9 <sup>th</sup>	1 <sup>st</sup>	Classification of AM process, Fundamental Automated Processes, Distinction between AM and CNC, other related technologies.
	2 <sup>nd</sup>	Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.
	3 <sup>rd</sup>	Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.
	4 <sup>th</sup>	Web Based Rapid Prototyping Systems.
10 <sup>th</sup>	1 <sup>st</sup>	Web Based Rapid Prototyping Systems..
	2 <sup>nd</sup>	Concept of Flexible manufacturing process, concurrent engineering, production toollike capstan and turret lathes, rapid prototyping processes.
	3 <sup>rd</sup>	Concept of Flexible manufacturing process, concurrent engineering, production toollike capstan and turret lathes, rapid prototyping processes..
	4 <sup>th</sup>	Concept of Flexible manufacturing process, concurrent engineering, production toollike capstan and turret lathes, rapid prototyping processes..
11 <sup>th</sup>	1 <sup>st</sup>	Concept of SPM
	2 <sup>nd</sup>	<b>General elements of SPM,</b>
	3 <sup>rd</sup>	<b>General elements of SPM,</b>
	4 <sup>th</sup>	Productivity improvement by SPM,.
12 <sup>th</sup>	1 <sup>st</sup>	Principles ofSPM design
	2 <sup>nd</sup>	Types of maintenance
	3 <sup>rd</sup>	Repair cycle analysis
	4 <sup>th</sup>	Repair complexity
13 <sup>th</sup>	1 <sup>st</sup>	Maintenance manual,

	2 <sup>nd</sup>	Maintenance records
	3 <sup>rd</sup>	Housekeeping.
	4 <sup>th</sup>	Introduction to Total Productive Maintenance (TPM)..
14 <sup>th</sup>	1 <sup>st</sup>	Introduction to Total Productive Maintenance (TPM)..
	2 <sup>nd</sup>	Introduction to Total Productive Maintenance (TPM).
	3 <sup>rd</sup>	Revision of Chapter – 1
	4 <sup>th</sup>	Revision of Chapter – 1
15 <sup>th</sup>	1 <sup>st</sup>	Revision of Chapter – 1
	2 <sup>nd</sup>	Revision of Chapter – 2
	3 <sup>rd</sup>	Revision of Chapter – 2
	4 <sup>th</sup>	Revision of Chapter – 3
16 <sup>th</sup>	1 <sup>st</sup>	Revision of Chapter – 3
	2 <sup>nd</sup>	Revision of Chapter – 3
	3 <sup>rd</sup>	Revision of Chapter – 4
	4 <sup>th</sup>	Revision of Chapter – 4
17 <sup>th</sup>	1 <sup>st</sup>	Revision of Chapter – 5
	2 <sup>nd</sup>	Revision of Chapter – 5
	3 <sup>rd</sup>	Discussion of Probable Questions and Answers (1)
	4 <sup>th</sup>	Discussion of Probable Questions and Answers(2)
18 <sup>th</sup>	1 <sup>st</sup>	Discussion of Probable Questions and Answers (3)
	2 <sup>nd</sup>	Discussion of Probable Questions and Answers(4)
	3 <sup>rd</sup>	Discussion of Probable Questions and Answers (5)
	4 <sup>th</sup>	Discussion of Probable Questions and Answers (6)