

PNS SCHOOL OF ENGINEERING &TECH

LESSON PLAN

Semester-6th

Subject- Advance Manufacturing Process

Branch/Course-Mechanical Engineering/Diploma

Name of the Faculty-Er Sanyasi swain

Academic Session – 2022-2023

Periods	Sl.No / Unit	Topics to be covered
1	Module-1	Introduction of advance manufacturing and its comparison with traditional machining
2		Need and importance of non-traditional machining processes
3		Principle of Ultrasonic machining
4		Description of equipment, applications of Ultrasonic machining
5		Principle of Electrical discharge machining
6		Process parameters, characteristics of EDM
7		Description of equipment, dielectric fluid, tools(electrode) in EDM
8		Principle of Wire cut EDM, description of equipment wire cut EDM
9		Controlling parameters and applications of wire cut EDM
10		Principle of Abrasive jet machining, description of equipment
11		Application and material removal rate of AJM
12		Principle of Laser beam machining, description of equipment
13		Application and material removal rate of LBM
14		Principle of Electro chemical machining, description of equipment
15		Applications of ECM and material removal rate
16		Principle of Plasma arc machining, description of equipment
17		Material removal rate, process parameters, performance characteristics, application of PAM
18		Principle of Electron beam machining, description of equipment, material removal rate
19		Process parameters, performance characteristics
20		Class test
21	Module-2	Introduction to plastic processing

22		Process and characteristics of plastic processing
23		Moulding process and its types
24		Extrusion and its types
25		Fabrication and its methods
26		Reinforcement and its use in hybrid composite
27		Mechanical properties of reinforcement materials
28		Application of plastics
29		Class test 2
30		Quiz test
31	Module-3	Introduction and necessity to Additive manufacturing
32		Fundamentals of additive manufacturing, process chain of additive manufacturing
33		Advantages and limitations of additive manufacturing, important terms used in it.
34		Classifications of additive manufacturing process; Principle of Fundamental Automated processes
35		Distinction between additive manufacturing and CNC, other related technologies
36		Applications of additive manufacturing
37		Application in design, application in aerospace industry, application in automotive industry
38		Applications in jewellery industry, arts and architecture, rapid prototyping medical and bioengineering applications
39		Principle of Web based rapid prototyping systems
40		Flexible manufacturing process, definition, process and features
41		Concurrent engineering, its importance and advantages
42		Knowing production tools like capstan and turret lathes, Rapid prototyping process
43		PYQ discussion and analysis
44		PYQ discussion and analysis
45	Module-4	Working of Special purpose machining
46		Advantages of Special purpose machining

47		Improvement of productivity by SPM
48		Design principle of SPM
49		Essence of SPM
50		Quiz test
51	Module-5	About maintenance, types of maintenance
52		Level of repair cycle analysis
53		Rising complexity of machine maintenance and repair
54		Operation and maintenance manual
55		Mechanical equipment, maintenance records and housekeeping
56		Introduction to Total production maintenance
57		Definition, objective and examples of total production maintenance
58		Aims and preventive techniques to increase reliability
59		PYQ discussion and analysis
60		PYQ discussion and analysis

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