PNS SCHOOL OF ENGINEERING &TECH MARSHAGHAI KENDRAPARA

LESSON PLAN

Semester-6th **Subject- Advance Manufacturing Process (TH4)**

Branch/Course-Mechanical Engineering/Diploma

Name of the Faculty: Er. Sanyasi swain, Dr. S.R. Pradhan

Duration: 04/02/2025 to 17/05/2025

Periods	week	Topics to be covered
1	1st	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	2nd	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	3rd	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	4th	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	5th	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	6th	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	7th	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	8th	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	9th	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		Working of Special purpose machining

46	10th	Advantages of Special purpose machining
47		Improvement of productivity by SPM
48		Design principle of SPM
49		Essence of SPM
50		Quiz test
51	11th	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	12th	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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