



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

LESSON PLAN

Faculty Name	Sadik Iqbal			Name of the Program	Diploma in Mechanical Engineering
Course Name	ADVANCE MANUFACTURING PROCESSES			Course Code	
Course Year	3 rd year	Semester	5 th	Academic Period	2023-24
No. of Classes allotted per Week	04	Planned Classes Required to Complete the Course			60

Sl. No.	Topics to be covered	Module	No. of hours Required	Mode of Teaching	CO	BOOK	CHAPTER (PAGES)	OTHER SOURCE(IM)
1	Introduction – comparison with traditional machining.	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=6oEOz8WIVUE
2	Ultrasonic Machining: principle	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=NCcqOdWh5W4
3	Description of equipment, applications	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=g6uD7COqf5k
4	Electric Discharge Machining: Principle	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=QtJvI3jscGA
5	Description of equipment, Dielectric fluid, tools (electrodes)	I	1	LM/ IM	CO1	T1		https://www.youtube.com/watch?v=wYF2XTb4V3M



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

						T2		
6	Process parameters, Output characteristics, applications	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=b32KyxuqZSU
7	Wire cut EDM: Principle, Description of equipment	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=fQvIFoP7vq4
8	controlling parameters; applications.	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=iHNhr48GGvA
9	Abrasive Jet Machining: principle, description of equipment	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=lnLX5dZ95ZI
10	Material removal rate, application.	I	1	LM/ IM	CO1	T1 T2		https://www.youtube.com/watch?v=zna8e0b2l_Y
11	water jet machining: Defination ,working principle,applications.	II	1	LM/ IM	CO2	T1 T2		https://www.youtube.com/watch?v=dmHv42wda9k
12	Laser Beam Machining: principle,	II	1	LM/ IM	CO2	T1 T2		https://www.youtube.com/watch?v=tTnXn498F90
13	description of equipment, Material removal rate, application.	II	1	LM/ IM	CO2	T1 T2		https://www.youtube.com/watch?v=rhfOakQJgoY



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

14	Electro Chemical Machining: principle	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=b1nX7WVIN7U
15	description of equipment, Material removal rate, application.	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=KB5YU8Uv2F4
16	Plasma Arc Machining – principle	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=LtMp9MA1Td4
17	description of equipment, Material removal rate	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=_zikyEMgCXw
18	Process parameters, performance characterization, Applications	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=_zikyEMgCXw
19	Electron Beam Machining - principle, description of equipment	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=QuZ-qkthCCY
20	Material removal rate, Process parameters, performance characterization, Applications.	II	1	LM/ IM	CO2	T1 T2	https://www.youtube.com/watch?v=UVpiaZb6QQg
21	Processing of plastics.	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=X9tMxT3hqio
22	Moulding processes: Injection moulding	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=Ap3LO8ZNUlg



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

23	Compression moulding	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=eX3LIctViFU
24	Transfer moulding.	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=MfRMj40Vtt4
25	Extruding; Casting;	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=xelsqaS_6cM
26	Calendering.	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=KSwqKPgaLqs
27	Fabrication methods-Sheet forming, Blow moulding	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=HFXY5ATm67o
28	Laminating plastics (sheets, rods& tubes)	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=QbZkS9mi9q0
29	Reinforcing	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=TIVi27bNw90
30	Applications of Plastics.	III	1	LM/ IM	CO3	T1 T2	https://www.youtube.com/watch?v=P9h7dZcLFv0
31	Introduction, Need for Additive Manufacturing	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=OMWz6pOJJDs



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

32	Fundamentals of Additive Manufacturing	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=t7yv4gSnNkE&list=PLwdnzlV3ogoWI8QEu4hsT-n_r8UbWbquy
33	AM Process Chain	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=UeFamolK04c
34	Advantages and Limitations of AM, Commonly used Terms	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=cv-gTjWefdU
35	Classification of AM process	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=bhonREGLLeaQ
36	Fundamental Automated Processes,	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=v-3TmN4HhLc&list=PLwdnzlV3ogoW31clPN6Dn6c8Ia-n36vXk
37	Distinction between AM and CNC, other related technologies.	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=q5yDW4i1vcQ
38	Application –Application in Design, Aerospace Industry	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=MoHAIX4jMj0
39	Automotive Industry, Jewelry Industry, Arts and Architecture	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=enC6-ijC5FU
40	RP Medical and Bioengineering Applications	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=wQOP3RRtIU



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

41	introduction to 4D additive manufacturing	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=lnnObI5dzzE
42	Web Based Rapid Prototyping Systems	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=oDdOqLblmVQ
43	Concept of Flexible manufacturing process, concurrent engineering, production toolslike capstan and turret lathes	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=XGESdFJT-PE
44	rapid prototyping processes.	IV	1	LM/ IM	CO4	T1 T2	https://www.youtube.com/watch?v=YemHb1pvxj0
45	SURPRIZE TEST	IV	1	LM/ IM	CO4	T1 T2	
46	Special Purpose Machines (SPM): Concept	V	1	LM/ IM	CO5	T1 T2	https://www.youtube.com/watch?v=AIA44puuUdY
47	General elements of SPM	V	1	LM/ IM	CO5	T1 T2	https://www.youtube.com/watch?v=QBX3HE4wVYQ&t=1s
48	ASSIGNMENT	V	1	LM/ IM	CO5	T1 T2	



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

49	Productivity improvement by SPM	V	1	LM/ IM	CO5	T1 T2	https://www.youtube.com/watch?v=KgloPwMD7IQ
50	Principles of SPM design.	V	1	LM/ IM	CO5	T1 T2	https://www.youtube.com/watch?v=HG0ADC9p1GQ
51	RECAP	V	1	LM/ IM	CO5	T1 T2	
52	Maintenance of Machine Tools: Types of maintenance	VI	1	LM/ IM	CO6	T1 T2	https://www.youtube.com/watch?v=sZoZdpvJn6o
53	Repair cycle analysis, Repair complexity	VI	1	LM/ IM	CO6	T1 T2	https://www.youtube.com/watch?v=2HkawiqOXgo
54	Maintenance manual,	VI	1	LM/ IM	CO6	T1 T2	https://www.youtube.com/watch?v=C8E4s-byFkU&t=126s
55	Maintenance records, Housekeeping	VI	1	LM/ IM	CO6	T1 T2	https://www.youtube.com/watch?v=nx_fcUlhXhY
56	QUIZ TEST	VI	1	LM/ IM	CO6	T1 T2	



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

57	RECAP WITH ASSIGNMENT	VI	1	LM/ IM	CO6	T1 T2		
58	Introduction to Total Productive Maintenance (TPM).	VI	1	LM/ IM	CO6	T1 T2	https://www.youtube.com/watch?v=JB1tlyFDWHs	
59	REVISION	VI	1	LM/ IM	CO6	T1 T2		
60	REVISION	VI	1	LM/ IM	CO6	T1 T2		

LM: Learner Mode: Chalk & Talk, Lecture

IM: Interactive Mode: PPT, VIDEO and Animation

T1:

O.P.KHANNA	Production technology –Vol-II	Dhanpat Rai Publication
------------	-------------------------------	-------------------------

T2:

Signature of the Faculty

Signature of the HOD