

MECHANICAL ENGINEERING DEPARTMENT

LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA	
Name of the Faculty: P BASKEY / A BARA	Academic Year: 2019-20
Course No.: MET 603	Course Name: ADVANCED MANUFACTURING AND CAD/CAM
Program: Diploma	Branch: MECHANICAL
Year / Sem : III / VI	Section:

Sl. No.	Period /Class	Time (min)	Unit	Topic to be covered	Teaching method
1.	1.	55	1	Non conventional machining process: Requirement of NCM, Explain the Working principle	Black board
2.	2.	55	1	Advantages, disadvantages of Non conventional machining process	Black board
3.	3.	55	1	Electro chemical machining process: working principle	Black board & smart class
4.	4.	55	1	ECM: Advantages, disadvantages and app.	Black board
5.	5.	55	1	Electro discharge machining process: working principle	Black board & smart class
6.	6.	55	1	EDM: Advantages, disadvantages and app.	Black board
7.	7.	55	1	Plasma arc machining process: working principle	Black board & smart class
8.	8.	55	1	PAM: Advantages, disadvantages and app	Black board
9.	9.	55	1	Laser beam machining process: working principle	Black board & smart class
10.	10.	55	1	LBM: Advantages, disadvantages and app	Black board
11.	11.	55	1	Abrasive jet machining process	Black board & smart class
12.	12.	55	1	Electron beam machining process: working principle	Black board & smart class
13.	13.	55	1	EBM: Advantages, disadvantages and app	Black board
14.	14.	55	1	Revision of unit-1	Black board
15.	15.	55	2	Automation: Concept, Define Automation, Different example	Black board
16.	16.	55	2	List types of Automation, Explain need for Automation	Black board
17.	17.	55	2	Explain need for Automation	Black board
18.	18.	55	2	Videos on automation	smart class
19.	19.	55	2	Revision of unit-2	Black board
20.	20.	55	3	Numerical Control: Define Numerical Control	Black board
21.	21.	55	3	Explain the NC system with block diagram	Black board
22.	22.	55	3	Describe the types of NC co-ordinate: Point – to – point, Straight Cut and Contouring.	Black board
23.	23.	55	3	NC part programming: G code and M-code.	Black board
24.	24.	55	3	NC part programming: G code and M-code	Black board

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25.	25.	55	3	Reference Point (Machine Zero, Work zero, Tool zero & Tool offset)	Black board
26.	26.	55	3	Simple part program for lathe.	
27.	27.	55	3	Simple part program for lathe	Black board
28.	28.	55	3	Explain the Extension of NC with the block diagram	Black board
29.	29.	55	3	DNC (Direct numerical Control)	Smart class
30.	30.	55	3	CNC (Computer numerical Control)	Black board
31.	31.	55	3	Videos on CNC & DNC M/C	Smart class
32.	32.	55	3	Adaptive Control	Black board
33.	33.	55	3	Revision of unit-3	Black board
34.	34.	55	4	Robot Technology: Concept, Defining a robot (ISO)	Black board
35.	35.	55	4	Fields of application of robots	Black board & Smart class
36.	36.	55	4	Explain Robot anatomy	Black board
37.	37.	55	4	Describe Robot Configuration	Black board
38.	38.	55	4	Describe Robot Configuration	Black board
39.	39.	55	4	Revision of unit-4	Black board
40.	40.	55	5	Flexible Manufacturing System (FMS):Need for FMS and application	Black board
41.	41.	55	5	Explain the components of FMS: Processing Station	Black board
42.	42.	55	5	Material handling & storage and	Black board
43.	43.	55		Computer Control System	Black board
44.	44.	55	5	Revision of unit-5	Smart class
45.	45.	55	6	CAD / CAM and CIM: Define CAD, CAM and CIM	Black board
46.	46.	55	6	Videos on CAD	smart class
47.	47.	55	6	Explain the benefits of CAD. CAD software and hardware	Black board
48.	48.	55	6	Explain the benefits of CAM, differentiate between CAD and CAM	Black board
49.	49.	55	6	Different CAD software application in industry	smart class
50.	50.	55	6	Explain the concept, background. Software of CIM	Black board
51.	51.	55	6	Explain the concept, background Hardware of CIM	Black board
52.	52.	55	6	Revision of unit-6	Smart class
53.	53.	55		Tutorial Class for unit/chapter-1	Black board
54.	54.	55		Tutorial Class for unit/chapter-2	Black board
55.	55.	55		Tutorial Class for unit/chapter-3	Black board
56.	56.	55		Tutorial Class for unit/chapter-4	Black board
57.	57.	55		Tutorial Class for unit/chapter-5	Black board
58.	58.	55		Tutorial Class for unit/chapter-6	Black board
59.	59.	55		Semester Question paper discussion	Black board
60.	60.	55		Semester Question paper discussion	Smart class

Text Book:

1. O.P khana ,Production technology, Vol-II Dhanpat Rai Publication.
2. B.S. Raghuvanshi , Workshop Technology, Vol – II Dhanpat Rai & Co.
3. Mikel P.Groover CAD /CAM Pearson Publication.
4. Dr. P.N. Rao CAD / CAM Principle & application TMH.

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LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA	
Name of the Faculty: B KISHAN / M SOREN	Academic Year:2019-20
Course No.: BST 501	Course Name: ENVIRONMENTAL STUDIES
Program: Diploma	Branch: Mechanical
Year/Sem: III / VI	Section:

Sl. No.	Period	Time (min)	Unit/ Chapter	Topic to be covered	Teaching method
1.	1.	55	1	Objective of nature of environmental studies, concept	Black board
2.	2.	55	1	The Multidisciplinary nature of environmental studies	Black board
3.	3.	55	1	Definition, scope and importance, Need for public awareness	Black board
4.	4.	55	1	Revision of unit/chapter-1	Black board
5.	5.	55	2	Natural Resources Renewable and non renewable resources: Natural resources and associated	Black board
6.	6.	55	2	Problems Forest resources: Use and over-exploitation, deforestation, case studies	Black board
7.	7.	55	2	Timber extraction mining, dams and their effects on forests and tribal people.	Black board
8.	8.	55	2	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems	Black board
9.	9.	55	2	Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.	Black board
10	10.	55	2	Food Resources: World food problems ,changes caused by agriculture	Black board
11	11.	55	2	Overgrazing, effects of modern agriculture, fertilizers-pesticides problems, water logging, salinity	Black board
12	12.	55	2	Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources	Audio visual smart class
13	13.	55	2	case studies	Black board
14	14.	55	2	Land Resources: Land as a resource ,land degradation ,man induces landslides, soil erosion, and desertification.	Black board
15	15.	55	2	Role of individual in conservation of natural resources, Equitable use of resources for sustainable lifestyles.	Black board
16	16.	55	2	Revision of unit/chapter-2	Black board
17	17.	55	3	Concept of an ecosystem, Structure and function of	Audio visual

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				an ecosystem	smart class
18	18.	55	3	Producers, consumers, decomposers, Energy flow in the ecosystems, Ecological succession	Black board
19	19.	55	3	Food chains, food web sand	Black board
20	20.	55	3	ecological pyramids, Introduction, types, characteristic features	Black board
21	21.	55	3	structure and function of the following ecosystem	Black board
22	22.	55	3	Forest ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).	Black board
23	23.	55	3	Revision of unit/chapter-3	Black board
24	24.	55	4	Biodiversity and it's Conservation ,Introduction-Definition: genetics, species and ecosystem diversity.	Black board
25	25.	55	4	Biogeographically classification of India	Black board
26	26.	55	4	Value of biodiversity: consumptive use, productive use	Black board
27	27.	55	4	Social ethical, aesthetic and opt in values	Black board
28	28.	55	4	Biodiversity at global, national and local level	Black board
29	29.	55	4	Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts	Black board
30	30.	55	4	Revision of unit/chapter-4	Black board
31	31.	55	5	Environmental Pollution:Definition Causes, effects and control measures of: a) Air pollution.	Audio visual smart class
32	32.	55	5	b) Water pollution. c) Soil pollution d) Marine pollution	Audio visual smart class
33	33.	55	5	e) Noise pollution. f) Thermal pollution g) Nuclear hazards.	Audio visual smart class
34	34.	55	5	Solid waste Management: Causes, effects and control measures of urban and industrial wastes.	Black board
35	35.	55	5	Role of an individual in prevention of pollution.	Black board
36	36.	55	5	Disaster management: Floods, earth quake, cyclone and landslides	Black board
37	37.	55	5	Revision of unit/chapter-5	Black board
38	38.	55	6	Social issues and the Environment :From unsustainable to sustainable development, Urban problems related to energy	Black board
39	39.	55	6	Water conservation, rain water harvesting, water shed management.	Black board
40	40.	55	6	Resettlement and rehabilitation of people; its problems and concern	Black board
41	41.	55	6	Environmental ethics: issue and possible solutions	Black board
42	42.	55	6	Climate change, global warming, acid rain, ozone	Audio visual

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				layer depletion	smart class
43	43.	55	6	nuclear accidents and holocaust, case studies, Air (prevention and control of pollution) Act	Black board
44	44.	55	6	Water (prevention and control of pollution) Act, Public awareness	Black board
45	45.	55	6	Revision of unit/chapter-6	Black board
46	46.	55	7	Human population and the environment.	Black board
47	47.	55	7	Population growth and variation among nations	Black board
48	48.	55	7	Population explosion-family welfare program, Environment and human health	Black board
49	49.	55	7	Human rights, Value education	Black board
50	50.	55	7	Role of information technology in environment and human health.	Black board
51	51.	55	7	Revision of unit/chapter-7	Black board
52	52.	55		Tutorial class for unit/Chapter-1	Black board
53	53.	55		Tutorial class for unit/Chapter-2	Black board
54	54.	55		Tutorial class for unit/Chapter-3	Black board
55	55.	55		Tutorial class for unit/Chapter-4	Black board
56	56.	55		Tutorial class for unit/Chapter-5	Black board
57	57.	55		Tutorial class for unit/Chapter-6	Black board
58	58.	55		Tutorial class for unit/Chapter-7	Black board
59	59.	55		Semester Question and Answer discussion	Black board
60	60.	55		Semester Question and Answer discussion	Black board

Text Book:

1. Text book of Environmental studies, Erach Bharucha, UGC Publication
2. Fundamental concepts in Environmental Studies, D.D .Mishra, S. Chand & Co-Ltd
3. Textbook of Environmental Studies, K.Raghavan Nambiar, SCITECH Publication Pvt. Ltd.
4. Environmental Engineering, V.M.Domkundwar, Dhanpat Rai & Co

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LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA	
Name of the Faculty: D BARIHA / B KISHAN	Academic Year: 2019-20
Course No.: MET 604	Course Name: POWER PLANT ENGINEERING
Program: Diploma	Branch: MECHANICAL
Year / Sem : III / VI	Section:

Sl. No.	Period /Class	Time (min)	Unit	Topic to be covered	Teaching method
1.	1.	55	1	Introduction of PPE ,Describe sources of energy	Black board
2.	2.	55	1	Explain concept of Central and Captive power station, Classify power plants	Black board
3.	3.	55	1	Revision of Unit / Class -1	Black board
4.	4.	55	2	Steam Power Plant: Layout of steam power plant	Black board
5.	5.	55	2	Steam power cycle	Black board & smart class
6.	6.	55	2	Explain Rankine cycle with P-V, T-S & H-s diagram	Black board
7.	7.	55	2	Determine thermal efficiency, Work done , work ratio, and specific steam Consumption	Black board
8.	8.	55	2	Solve related Simple Problems	Black board
9.	9.	55	2	Explain reheat cycle	Black board & smart class
10.	10.	55	2	regenerative cycle	Black board & smart class
11.	11.	55	2	Combination of reheat and regenerative cycle	Black board
12.	12.	55	2	Boiler Accessories: Air pre heater, Economiser	Black board & smart class
13.	13.	55	2	Electrostatic precipitator and superheater, Need of boiler mountings	Black board & smart class
14.	14.	55	2	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages	Black board & smart class
15.	15.	55	2	Steam prime movers: Advantages & disadvantages of steam turbine	Black board
16.	16.	55	2	Elements of steam turbine, Compounding and governing of steam turbine	Black board & smart class
17.	17.	55	2	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency	Black board
18.	18.	55	2	Solve related Simple problems	Black board
19.	19.	55	2	Steam condenser: Function of condenser, Classification of condenser (explain jet and Surface condensers)	smart class
20.	20.	55	2	function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, cooling water and circulating pump	Black board & smart class
21.	22.	55	2	Cooling Tower: Function and types of cooling tower	Black board
23.	24.	55	2	Natural and Mechanical draft cooling Tower	Black board

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24.	25.	55	2	Revision of Unit / Class -2	Black board
25.	26.	55	3	Nuclear Power Plant: Classify nuclear fuel (Fissile & fertile material),	Black board
26.	27.	55	3	Explain fusion and fission reaction	Blackboard
27.	28.	55	3	Explain nuclear reactor: Components of nuclear reactor such as fuel	Black board
28.	29.	55		Explain construction and working of moderator, reflector, coolant, control rod	Black board & smart class
29.	30.	55	3	Explain construction and working of Shielding, reactor vessel & their function	Black board
30.	31.	55	3	Explain the working principle of PWR power plant	smart class
31.	32.	55	3	Explain the working principle of BWR power plant	smart class
32.	33.	55	3	Compare the nuclear and thermal plant	Black board
33.	34.	55	3	Explain the disposal of nuclear waste	Black board
34.	35.	55	3	Revision of Unit / Class -3	Black board
35.	36.	55	3	Revision of Unit / Class -3	Black board
36.	37.	55	4	Diesel engine power plant: State the advantages and disadvantages of diesel plant	Black board
37.	38.	55	4	Explain briefly different systems of diesel power plant	Black board
38.	39.	55	4	Fuel storage	Smart class
39.	40.	55	4	fuel supply system	Black board
40.	41.	55	4	Fuel injection system	Black board
41.	42.	55	4	Air supply system	Black board
42.	43.	55	4	Exhaust system	Black board
43.	44.	55	4	Cooling system	Black board
44.	45.	55	4	Lubrication system	Black board
45.	46.	55	4	Starting system	Black board
46.	47.	55	4	Governing system	Black board
47.	48.	55	4	Revision of Unit / Class -4	Black board
48.	49.	55	5	Hydel Power Plant: State advantages and disadvantages of hydroelectric power plant	Black board
49.	50.	55	5	Classify and Explain the general arrangement of storage type hydroelectric project	Black board & Smart class
50.	51.	55	5	Explain its operation	Black board
51.	52.	55	5	Revision of Unit / Class -5	Black board
52.	53.	55		Tutorial Class for unit/chapter-1	Black board
53.	54.	55		Tutorial Class for unit/chapter-2	Black board
54.	55.	55		Tutorial Class for unit/chapter-3	Black board
55.	56.	55		Tutorial Class for unit/chapter-4	Black board
56.	57.	55		Tutorial Class for unit/chapter-5	Black board
57.	58.	55		Semester Question paper discussion	Black board
58.	59.	55		Semester Question paper discussion	Black board
59.	60.	55		Semester Question paper discussion	Black board

REFERENCES

Text Book:

1. R.K Rajput ,Power plant engineering , Laxmi Publication
2. P.K.Nag , Power plant engineering , TMH Publication
3. G R Nagpal , Power plant engineering, Khanna Publisher

**INDUSTRIAL ENGINEERING & QUALITY CONTROL**

<b>JHARSUGUDA ENGINEERING SCHOOL</b>		
NAME OF FACULTY : MISS PUJA SWAIN		ACADEMY YEAR:2019-20
MR. SAROJ KUMAR SAHU		COURSE NAME:IEQC
COURSE NO.:		BRANCH:MECHANICAL
PROGRAMME NAME: DIPLOMA		SECTION:

sl no.	period	unit	duration	topic to be covered	teaching method
1	1	1	55 min	plant location and layout:introduction	black board & chalk
2	2	1	55 min	describe features governing plant location.	black board & chalk
3	3	1	55 min	plant layout	black board & chalk
4	4	1	55 min	describe the objectives and principles of plant	black board & chalk
5	5	1	55 min	explain process layout,product layout	black board & chalk
6	6	1	55 min	combination layout	black board & chalk
7	7	1	55 min	oral test	black board & chalk
8		2	55 min	OPERATIONS RESEARCH:	black board & chalk
9	6	2	55 min	Introduction and appliation	black board & chalk
10	7	2	55 min	define linear programming problem.	black board & chalk
11	8	2	55 min	solution to LPP by graphical method	black board & chalk
12	9	2	55 min	numericals	black board & chalk
13	10	2	55 min	critical path method and PERT	black board & chalk
14	11	2	55 min	NUMERICALS	black board & chalk
15	12	2	55 min	NUMERICALS	black board & chalk
16	13	2	55 min	NUMERICALS	black board & chalk
17	14	2	55 min	class test	black board & chalk
		3	55 min	INVENTORY CONTROL:	black board & chalk
18,19	15	3	55 min	Classification of intentry	black board & chalk
20	16	3	55 min	objective of inventory control	black board & chalk
21	17	3	55 min	describe functions of inventories	black board & chalk
22	18	3	55 min	explain and derive EOQ	black board & chalk
23	19	3	55 min	Numericals	black board & chalk
24	20	3	55 min	Numericals	black board & chalk
25	21	3	55 min	define and explain ABC analysis	black board & chalk
26	22	3	55 min	class test	black board & chalk
		4	55 min	PLANT MAINTENANCE	black board & chalk
27	22	4	55 min	objective of plant maintenance	black board & chalk
				describe duties,functions and responsibilities of plant maintenance department	black board & chalk
28	23	4	55 min	type of maintenance:	black board & chalk
29	24	4	55 min	preventive,breakdown	black board & chalk
30	25	4	55 min	scheduled ,preventive maintenance	black board & chalk
31	26	4	55 min		black board & chalk
		5	55 min	INSPECTION AND QUALITY CONTROL	black board & chalk
32	27	5	55 min	Define inspection and quality control	black board & chalk
33	28	5	55 min	describe planning of inspection	black board & chalk

34	29	5	55 min	types of inspection	black board & chalk
35	30	5	55 min	factors influencing the quality of manufacture	black board & chalk
36	31	5	55 min	concept of ststistical quality control	black board & chalk
37	32	5	55 min	control chart:	black board & chalk
38	33	5	55 min	X-chart	black board & chalk
39	34	5	55 min	R-chart	black board & chalk
40	35	5	55 min	P-chart	black board & chalk
41	36	5	55 min	C-chart	black board & chalk
42	37		55 min	NUMERICALS	black board & chalk
43	38		55 min	Class test	black board & chalk
44	39	6	55 min	CONTEMPORARY QUALITY MANAGEMENT CO	black board & chalk
45	40	6	55 min	concept-TOQ	black board & chalk
46	41	6	55 min	ISO-9000/14000,Concept and evaluation & im	black board & chalk
47	42	6	55 min	JIT	black board & chalk
48	43	6	55 min	SIX Sigma	black board & chalk
49	44	6	55 min	7s	black board & chalk
50	45	6	55 min	lean manufacturing	black board & chalk
51	46	6	55 min	NUMERICALS	black board & chalk
52	47	6	55 min	class test	black board & chalk
53	50		55min	revision	black board & chalk
54	51		55min	revision	black board & chalk
55	52		55min	revision	black board & chalk
56	53		55min	revision	black board & chalk