Bhoj Reddy Engineering College for Women: Hyderabad

Department of General Engineering

Lesson plan of faculty member for the academic year 2016–17

Class: II B Tech Branch-Section: EEE Semester: I

Subject: Fluid Mechanics & Hydraulic Machinery Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: FLUID STATICS & KINEMATICS		
1	Introduction to FMHM	13June 2016
2	Syllabus and Topics scope and Coverage for the semester	16 June 2016
3	**FLUID STATICS:** Dimensions, Units, Specific gravity, viscosity	17 June 2016
4	G2,G3,G1……Problems on fluid statics	15,16,17 June 2016
5	Surface Tension, Vapor pressure & its influence on fluid motion	18 June 2016
6	Pressure, Atmospheric, gauge and vacuum pressure	20 June 2016
7	Pressure measuring devices, Piezometer, U – tube manometers	23 June 2016
8	Differential manometers	24 June 2016
9	G2,G3,G1……Problems on manometers	22,23,24 June 2016
10	**FLUID KINEMATICS**: Stream line, path line and streak lines Steady & unsteady, uniform & non uniform,	25 June 2016
11	Laminar & turbulent, rotational & irrotational flows	27 June 2016
12	Continuity equation for 1D flow and problems	30 June 2016
UNIT – II: FLUID DYNAMICS & CLOSED CONDUIT FLOWS		
13	**FLUID DYNAMICS**: surface and body forces	1 July 2016
14	G2,G3,G1……Problems on kinematics	29, 30 June, 1 July 2016
15	Euler's and Bernoulli's equations for flow along a stream line	2 July 2016
16	Momentum equation derivation for forces on a pipe bend	4 July 2016
17	Problems on dynamics	8 July 2016
18	G1……Problems on dynamics	8 July 2016
19	**CLOSED CONDUIT FLOWS**: Reynolds experiment,	9 July 2016
20	Darcy Weisbach equation	11 July 2016
21	Losses in pipes, Pipes in series and in parallel	14 July 2016
22	TEL, HGL and Problems	15 July 2016
23	G2,G3,G1……Problems	13,14,15 July 2016
24	Measurement of flow: pitot tube, venturimeter	16 July 2016
25	Orifice meter, Flow nozzle and Problems	18 July 2016
UNIT – III: TURBO MACHINERY& HYDROELECTRIC POWER STATIONS		
26	**TURBO MACHINERY**: Forces of jets on FLAT vanes (stationary and movable)	21 July 2016
27	problems	22 July 2016
28	G2,G3,G1……Problems flat vanes	20,21,22 July 2016
29	forces of jets on INCLINED & CURVED vanes (stationary and movable)	23 July 2016
30	forces when jet strikes centrally and at the tip	25 July 2016
31	Velocity diagrams - work done and efficiency	28 July 2016
32	Problems on jet hitting on different vanes	29 July 2016
33	G2,G3,G1……Problems on jet hitting on different vanes	27,28,29 July 2016
34	Problems on jet hitting on different vanes	30 July 2016
35	Problems	4 August 2016
36	Flow over radial vanes explanation and problems	5 August 2016
37	G2,G3,G1……Problems on radial vanes	3,4,5 August 2016
38	Problems	6 August 2016
39	**HYDROELECTRIC POWER STATIONS** : Elements and Types	18 August 2016
40	Concept of pumped storage plants – storage requirements	19 August 2016
41	G2,G3,G1……Problems	17,18,19 August 2016

42	Estimation of power developed from a given catchment area	20 August 2016
43	Mass Curve(explanation only), Heads and efficiencies	22 August 2016
UNIT – IV HYDRAULIC TURBINES & PERFORMANCE		
44	**HYDRAULIC TURBINES**: Classification of turbines	26 August 2016
45	G2,G1……Problems	24,26 August 2016
46	Pelton, Francis and Kaplan turbines	27 August 2016
47	Working proportions, work done, efficiencies	29 August 2016
48	Hydraulic design, Draft tube theory, functions and efficiency	1 September 2016
49	Problems on Draft Tube	2 September 2016
50	G2,G3,G1…… Problems on Turbines	31 August,1,2 September 2016
51	Problems on turbine design	3 September 2016
52	**PERFORMANCE OF HYDRAULIC TURBINES:** Unit and Specific quantities	8 September 2016
53	Model Analysis, Characteristic curves	9 September 2016
54	G2,G3,G1……Problems	7,8,9September 2016
55	Governing of turbines	10 September 2016
56	Selection of turbines	15 September 2016
57	Cavitation, Surge tank and water hammer.	16 September 2016
58	G2,G3,G1……Problems on Unit and specific quantities	14,15,16 September 2016
59	Problems on Model Analysis	17 September 2016
UNIT – V CENTRIFUGAL PUMPS		
60	**CENTRIFUGAL PUMPS:** Classification, Working	19 September 2016
61	Work done, Manometric head	22 September 2016
62	static head and losses	23 September 2016
63	G2,G3,G1……Problems on pump	21,22,23 September 2016
64	Problems on pump	24 September 2016
65	Efficiencies and problems	26 September 2016
66	Specific Speed and model analysis	29 September 2016
67	G2,G3……Problems on specific speed	28,29 September 2016
68	Problems on model analysis	1 October 2016
69	Pumps in series and Parallel	3 October 2016
70	characteristic curves , water hammer	27 October 2016
71	NPSH in centrifugal pump	28 October 2016
72	G3,G1…… Problems on comparisons of different Pumps	27,28 October 2016
73	Problems on comparisons of different Pumps	29 October 2016
74	Revision and question papers discussion	3 November 2016

Text books:

1. Hydraulics, Fluid Mechanics and Hydraulic Machinery *by Modi and Seth*
2. Fluid Mechanics and Hydraulic Machines *by R.K Rajput*
3. Fluid mechanics and hydraulic machines *by R.K Bansal*

Name and signature of the faculty: Ms Ahmedi Begum ----

Name and signature of Head of the Department: Ms P Anagha ----