1.1.1 The Institution ensures effective curriculum delivery through a well planned and documented process

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE
(NAAC Accredited)
(Approved by AICTE, Affiliated to APJ Abdul Kalam Technological University, Kerala)

Academic Year1
2019-20

DEPARTMENT OF: Electrical & Electronics Engineering

Name of the Faculty : Manuraj. K. R

Branch / Course : EEE / B. Tech

Year & Semester : I year, I Semester

Subject Code : EST 120

Name of the Subject : Basics of Mechanical Engineering

Objective of the Course : * To provide an insight and inculcate the essentials of mechanical Engineering discipline to the students of all branches of engineering and to provide the students an illustration of the significance of the mechanical engineering profession in satisfying the societal needs.

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD			5/9	7/10								
Initial of Principal			5/9	9/10	21/11/14	21/12/14						

Final Verification By

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE

Principal

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady Thiruvilwamala Thrissur Dt
Pin 680 597 Kerala

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module - IV			
1	Analysis of thermodynamic cycles: Carnot, Otto, Diesel Cycles		14-8-19	5-8-19
2	Derivation of efficiency of these cycles		14-8-19	7-8-19
3	Problems Q_A, Q_R, W and η		21-8-19	8-8-19
4,5	IC Engines: CI, SI, 2 Stroke, 4 Stroke engines. Parts of IC Engines		21-8-19 to 22-8-19	19-8-19 to 21-8-19
6	Efficiency of IC Engines		29-8-19	21-8-19
7	Air, Fuel, Cooling and lubricating Systems in SI and CI Engines		4-9-19	22-8-19
8	CRDI, MPFI, Concept of hybrid engines		4-9-19	29-8-19

Remarks :

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE THIRUVILWAMALA THRISSUR DT

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Thiruvilwamala Thrissur Dt
Kerala

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module - V			
9	Refrigeration - Unit of refrigeration, reversed Carnot cycle, COP, Vapour Compression cycle		5-9-19	4-9-19
10	Definitions of dry, wet, dew point temperatures, specific humidity and relative humidity, Cooling and dehumidification		18-9-19	4-9-19
11	Layout of unit and central air conditioners		18-9-19	5-9-19
12-14	Description about working with Sketches of Reciprocating pump, Centrifugal pump, Pelton turbine, Francis turbine and Kaplan turbine		25-9-19 to 26-9-19	18-9-19 to 25-9-19
15,16	Overall efficiency, Problems on calculation of input and output power of pumps and turbines		9-10-19	28-9-19
17	Belt, Chain, Gear, Clutches		3-10-19	3-10-19

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module - VI			
18,19	Manufacturing Process :- Sand Casting, Forging, Rolling, Extrusion and their applications		10-10-19 to 16-10-19	9-10-19
20,21	Metal Joining Process:- Types of welding, Arc welding, Soldering, Brazing and their Applications		16-10-19 to 17-10-19	10-10-19 16-10-19
22	Basic Machining operations- Turning, Drilling, Milling and Grinding		23-10-19	16-10-19
23	Lathe, Drilling machine, Milling Machine, CNC Machine		23-10-19	17-10-19
24	Principle of CAD/CAM, Rapid and Additive manufacturing		24-10-19	23-10-19

Remarks :

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THRISSUR DT

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DEPARTMENT OF : AUTOMOBILE ENGINEERING.

Name of the Faculty :...REJUMON.R.....

Branch / Course :...AUTOMOBILE.....

Year & Semester :...3rd and 5th SEM.....

Subject Code :...AU341.....

Name of the Subject :...DESIGN PROJECT.....

Objective of the Course :

* To understand the engineering aspects of design with reference to simple products.
* To foster innovation in design of products, processes or systems.
* To develop design that add value to products and solve technical problems.

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD												
Initial of Principal			29/9	9/10/19	21/11/19	28/11/19						

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1	Group Formation and discussion		07.08.19	7.8.19
2	Topic Selection		14.08.19	18.9.19
3	Abstract Presentation		21.08.19	25.9.19
4	First Evaluation		25.0919	16.10.19
5	Second Evaluation		06.11.19	13.10.19
6	Final Evaluation		13.11.19	20.11.19

Remarks :

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Pin - 680 588, Kerala

DEPARTMENT OF :

Name of the Faculty : SANEESH A S

Branch / Course : B.Tech., Mechatronics

Year & Semester : 4th year / 7th sem

Subject Code : MR401

Name of the Subject : Advanced Automation System

Objective of the Course : To make students familiar with the automation and control technologies in modern manufacturing

To provide knowledge on the elements of modern Manufacturing system

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD												
Initial of Principal			5/9	31/10/18	1/11/18	28/11/18						

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Pin 680 597, Kerala

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - I			
1.	Production system facilities - Low, medium and high quantity production.	R1·1 - 1·1·1	1/08/19	29/8/19
2.	Manufacturing supporting system	R1·1 - 1·1·2	1/08/2019	29/8/19
3.	Automation in production system	R1·2	2/08/2019	29/8/19
4.	Automation principles and strategies - USA principle - ten strategies of automation and production system.	R1·4	6/08/2019	30/8/19
5.	Automation Migration strategy.	R1·4 - 1·4·3	8/08/19	2/9/19
6.	Manufacturing industries and products Manufacturing operations	R 2·1 R2·2	8/08/19	3/9/19
7.	Processing and assembly operations	R2·2 - 2.2.1	9/8/19	3/9/19
8.	product / production relationships	R·2·4	13/8/19	3/9/19
9.	production quantity and product variety	R2·4 - 2·4·1	16/8/19	4/9/19
10.	product and part complexity - limitations of capabilities of a manufacturing plant	R2·4 - 2·4·2	20/8/19	5/9/19

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - II			
1.	Elements of an automated System	4:1	22/8/19	5/9/19
2.	power to accomplish the automated process program of instructions	4.1.1	22/8/19	5/9/19
3.	Control System. Advanced Automation functions	4.1.2	23/8/19	12/9/19
4.	Safety monitoring. maintenance and repair diagnostics.	4.1.3	24/8/19	12/9/19
5.	Error detection and Recovery. levels of automation	4.2	29/8/19	19/9/19
6.	variable parameters in process industry and discrete manufacturing industries	4.2.1	29/8/19	19/9/19
7.	continuous and discrete control system - computer process control	4.2.2	30/8/19	19/9/19
8.	Control requirements - capabilities of computer control and levels of industrial process control.	4.2.3	3/9/19	19/9/19
9.	Computer process monitoring - direct digital control - numerical control and robotics	4.3	5/9/19	24/9/19
10.	PLC - Supervisory control - distributed control System.		5/9/19	26/9/19

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - III			
1.	components of a manufacturing system	13.1	8/9/19	26/9/19
2.	production Machines - Material handling System	13.1.1 - 1.2	12/9/19	27/9/19
3.	computer control system - human crews	13.1.3	19/9/19	28/9/19
4.	classification of manufacturing system.	13.2	19/9/19	28/9/19
5.	Types of operations performed - number of work stations	13.2.1	20/9/19	28/9/19
6.	Automation levels - part or product variety	13.2.5	24/9/19	1/10/2019
7.	Type I, type II and type III manufacturing system.	13.3	24/9/19	1/10/2019
8.	Manufacturing support functions		26/9/19	3/10/2019
9.	Learning curve.		27/9/19	4/10/2019

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - IV			
1.	part families - part classification and coding		11/10/19	9/10/19
2.	features and examples of part classification and coding system		21/10/19	10/10/19
3.	production flow analysis		21/10/19	10/10/19
4.	cellular manufacturing - composite part concept		11/10/19	15/10/19
5.	machine cell design - application of group technology		10/10/19	12/10/19
6.	survey of industry practice		10/10/19	12/10/19
7.	quantitative analysis in cellular manufacturing.		11/10/19	23/10/19
8.	Grouping parts and machinery by rank order clustering		15/10/19	24/10/19
9.	Arranging machines in GT cells.		14/10/19	24/10/19

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No. & Page No.	Scheduled on	Delivered on
	UNIT-II			
1.	Introduction to Engineering Economics			
2.	Demand Analysis - Concepts of Demand			
3.	Law of Demand - Exceptions			
4.	Law of Supply - Exceptions			
5.	Elasticity of Demand - Types			
6.	Factors influencing Elasticity of Demand			
7.	Practical Problems - Simple Problems			
8.	Applications of Demand Analysis in Business Decision Applications			
9.	Revision of Unit-II			

Remarks:

Principal

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - VI			
1.	Flexible manufacturing System - types of FMS		1/11/19	8/11/19
2.	FMS components - work stations - material handling and storage system		5/11/19	8/11/19
3.	Computer control system - human resource		7/11/19	11/11/19
4.	FMS applications and benefits - FMS planning and implementation issues		7/11/19	11/11/19
5.	Lean production - agile manufacturing		8/11/19	
6.	Market forces and agility :		12/11/19	14/11/19
7.	Re organizing the production for agility		14/11/19	14/11/19
8.	Leaning relationship for agility		14/11/19	21/11/19
9.	Agility versus mass production - comparison of lean and agile manufacturing		15/11/19	21/11/19.

Text / Reference Books:

1. Automation, production System And Computer Integrated Manufacturing MIKELL. P. Groover, pearson education
2. Groover, Automation, production system and CIM, prentice Hall of India
3.
4.
5.
6

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE

Faculty

HOD

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ASSIGNMENTS

Reg. No.	Module No.	Sl. No.	Topic	Date of Submission		Remarks
				Due Date	Submitted on	
1-42	V		Explain circulatory, what is the other Explain the types, the circulation system, the temperature, pulse, blood pressure, BMR, blood, oxygen and transportation, respiration system, explain the			
1-42	VI		Explain the electrocardiogram, Circulatory system, Explain respiration, Explain circulatory, explain explanation			

Staff

HOD

PRINCIPAL
Government College of Engineering and Technology
Kariavattom, Thiruvananthapuram

DEPARTMENT OF : CSE

Name of the Faculty : Sajitha A.S

Branch / Course : CSE, B.Tech

Year & Semester : S3, 2nd Year

Subject Code : CS 207

Name of the Subject : Electronic Devices & Circuits

Objective of the Course : * To introduce to the students the fundamental concept of electronic devices and circuit for engineering application
* To develop the skill of analysis and design of various analog circuits using electronic devices.
* To expose to a variety of electronic circuits/systems using various analog ICs

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD			S.	S.	S.	S.						
Initial of Principal			4/9/14	7/10/14	31/10	21/12/14						

Final Verification By

Principal

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE

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Pampady, Thiruvilwamala, Thrissur Dt
Pin 680 597, Kerala

LECTURE PLAN

Lecture No.	Module I Topics	Reference Book No.& Section	Scheduled on	Delivered on
1	Wave shaping Circuits:		5/8/19	5/8/19
	Sinusoidal & Non-Sinusoidal wave shapes.	R-1.2.1		
2	Principle & working of RC differentiating & Integrating circuits.		6/8/19	6/8/19
	Conversion of one non-Sinusoidal wave shape into another.	R-1.2.6		
3	Clipping circuits – positive, negative & biased clipper	R-1.2.8	7/8/19	7/8/19
4	Clamping Circuits – positive, negative & biased clamper	R-1.2.9	12/8/19	17/8/19
5	Voltage Multiplier – Voltage doubler & tripler	R-2, 134	13/8/19	19/8/19
6	Simple Sweep Circuit using transistor as a switch	R-1.2.11	13/8/19	19/8/19

Remarks :

NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE PAMPADY THIRUVILWAMALA THRISSUR DT

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Pin 680 597 Kerala

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module :			
1	Regulated power Supplies Review of simple zener voltage regulator, Shunt & Series voltage regulator using transistors	R-1, 15-1	14/8/19	20/8/19
2	Current limiting & foldback protection.	R-1, 15.2	19/8/19	21/8/19
3	3 pin regulators - 78XX & 79XX, LM723, and its use as low & high voltage regulators	R-1, 15.3	20/8/19	26/8/19
4	DC to DC conversion, circuit block diagrams & working of SMPS	R-1, 15.4	21/8/19	29/8/19
5	Field effect transistor : JFET, Structure, principle of operation & characteristics	R-2, 12.1	26/8/19	31/8/19
6	Comparison with BJT MOSFET - Structure	R-2, 12.2	27/8/19	2/9/19
7	Enhancement & depletion types, principle of operation & characteristics	R-2, 12.3	28/9/19	3/9/19

Remarks :

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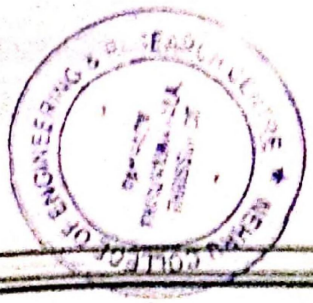
LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module-4			
1	Oscillators: classification,	R2, 2.3	25/9/19	1/10/19
	Criterion for oscillation,			
2	analysis of wien bridge	R2, 2.4	2/10/19	3/10/19
3	oscillator, Hartley & crystal oscillator.	R2, 2.7	1/10/19	9/10/19
4	Non-Sinusoidal oscillators:	R2 2.10	8/10/19	10/10/19
	Astable, monostable & bistable			
5	multivibrators using transistors.	R2 3.1	14/10/19	16/10/19
	Only design equations & working	R2 3.2		
	of circuit are required, Analysis	R2 3.4		
	not required)			
	module Test		15/10/19	15/10/19

Remarks :



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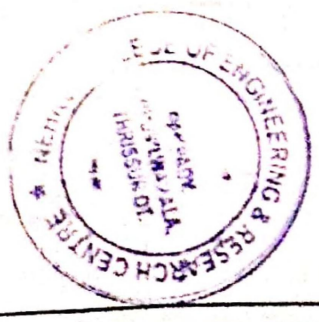
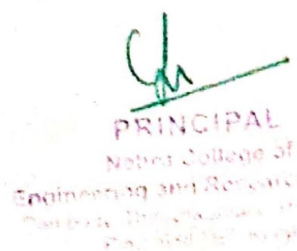
LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module-5			
1	operational amplifiers :	R1, R2	17/10/18	16/10/18
	Differential amplifier, chara-	R1		
2	cteristics of op-amps		18/10/18	17/10/18
	(gain, B.W, slew rate, CMRR)			
3	offset voltage, offset current)	R1 10.2	23/10/18	23/10/18
4	Comparison of ideal & practical			
	op-amp (only),	R1 10.4	24/10/18	23/10/18
	applications of op-amp			
5	scale changer, Sign changer,	R1 · 10.5	25/10/18	25/10/18
6	adder/summing amplifier,	R1 10.6	30/10/18	29/10/18
7	Subtractor, Integrator,	R1 10.8	31/10/18	30/10/18
	differentiator			
8	Schmitt trigger, Wien bridge	R1 10.11	30/10/18	30/10/18
	oscillator			

Remarks :





LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module - 6			
1	Integrated Circuits : Active filters – Low pass & Highpass	Rg. 1.1 1.5	4/11/14	3/11/14
	Chest & second order active filters			
	Why op-amp with gain (No analysis required)			
2	D/A & A/D Converter - Important Specifications, Sample & holder	Rg. 2.3	5/11/14	11/11/14
3	Binary weighted resistor & R-2R	Rg. 2.4	6/11/14	12/11/14
4	Ladder type D/A converter. Concepts only	R3 2.6	11/11/14	13/11/14
5	Flash, dual Slope & successive	R3 .2.9	12/11/14	15/11/14
6	approximation type A/D converter	Rg 3.1	12/11/14	16/11/14
7	Circuit diagram & working of Timer IC 555, astable	R-3 3.2	13/11/14	21/11/14
8	& monostable M.V using 555	R-3 3.2	13/11/14	21/11/14

Text / Reference Books:

1. Robert Boylestad – Electronic Devices & Circuits
2. J.B Gupta – Electronic Devices & Circuits
3. Millman – Integrated Electronics
4.
5.
6

Faculty

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Pin 680 597, Kerala

ASSIGNMENTS

Reg. No	Module No	Batch	Topic	Assign Submission		Remarks
				Date Issue	Submission on	
NCE18CS001 to NCE18CS064	3	I	Draw characteristics compare Wet Sprinkler system Integrated Control Valve Deluge Sprinkler Sprinkler types & Valves.	21/8/21	28/8/21	CJ
NCE18CS001 to NCE18CS064	4		Problems from module 4	1/9/21	6/9/21	B

Faculty

HOD

PRINCIPAL
Nitte Meenakshi Institute of Engineering and Research Centre
Yelahanka, Bangalore-560 064

DEPARTMENT OF :

Name of the Faculty : RAKESH P.R.

Branch / Course : MECHANICAL ENGINEERING

Year & Semester : 4th year, 7th SEMESTER

Subject Code : ME 405

Name of the Subject : Refrigeration and Air Conditioning

Objective of the Course :
1. To introduce vapour compression and vapour absorption systems.
2. To impart knowledge on refrigeration cycles and methods to improve performance.
3. To familiarize the components of refrigeration systems.
4. To introduce air conditioning systems.
5. To know the applications of refrigeration and air conditioning systems.

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD												
Initial of Principal												

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Principal

LECTURE PLAN

Lecture No	Topics	Reference Book No & Section	Scheduled on	Delivered on
	Module 1 (6 hrs)			
1.	Introduction and history to Applications of Refrigeration.	T1	1.8.19	1.8.19
2.	Thermodynamics of Refrigeration Reversed Carnot cycle	T1	2.8.19	15.8.19
3.	Heat pump and Refrigeration machines.	T1	7.8.19	7.8.19
4.	Limitations of Reversed Carnot cycle, Unit of Refrigeration	T1	7.8.19	21.8.19
5.	Air Refrigeration Systems Reversed Joule cycle, Open air Refrigeration Systems.	T1	8.8.19	21.8.19
6.	Simple boot strap - Regenerative and Reduced Ambient Systems.	T2	9.8.19	22.8.19

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No & Section	Scheduled on	Completed on
	Module 2 (8 hrs)			
7.	Vapour Jube Refrigeration Very low temp. refrigeration Sys	T_1	4.2.19	5.2.19
8.	Adiabatic demagnetization of paramagnetic salts	T_1	11.2.19	7.2.19
9.	Vapour Compression System	T_1	15.2.19	12.2.19
10.	Simple V/C Systems	T_1	21.2.19	19.2.19
11	Representation on T-S & P-h diagrams.	T_1	21.2.19	20.2.19
12	COP - effect of operating parameters on COP	T_1	22.2.19	21.2.19
13.	Methods of improving COP of Simple cycle. - Superheating	T_1	28.2.19	26.2.19
14.	Under cooling, Liquid Suction HE, actual cycle	T_2	30.2.19	27.2.19

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No. & Section	Scheduled on	Delivered on
	Module 3 (7 hrs)			
15	Multi pressure systems - multi compression & multi evaporator systems	T2	4.9.19	5.9.19
16.	Inter cooling : flash intercooling & flash gas removal	T1	4.9.19	16.9.19
17.	Different combinations of Evaporator and compressors for different applications. Cascade System	T2	5.9.19	18.9.19
18.	Refrigerants & their properties Eco friendly refrigerants mixed - their selection	T1	6.9.19	18.9.19
19.	Vapour absorption Systems - Ammonia water systems Lithium Bromide system.	T1	18.9.19	20.9
20.	Electrolux - comparison with vapour compression system.	T1	19.9.19	25.9
21.	Steam jet Refrigeration.	T1	20.9.19	25.9

Remarks :

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module 4 (6 hrs)			
22	Application of refrigeration - Domestic Refrigerators, water coolers, ice plants.	T1	25.9.19	26.9
23	Cold storages - food preservation methods - plate freezing & quick freezing	T2	25.9.19	27.9
24	Refrigeration System Components - Compressors, Condensers, Expansion devices. Evaporators	T1	26.9.19	28.9
25	Cooling Towers - different types and their applications.	T1	27.9.19	3.10.19
26	Refrigerant Leakage & detection.	T1	3.10.19	4.10.19
27	Charging of refrigerant - System Controls.	T2	4.10.19	5.10.19

Remarks :

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LECTURE PLAN

Lecture No	Topics	Reference Book No & Section	Scheduled on	Delivered on
28	Air washing by cooling coil & humidifying with recirculated water. Psychrometric processes Numerical based on recirculated air.	T1	9-10-19	9-10-19
29.	Concept of effective temperature, comfort charts, factors affecting human comfort, Problems based on comfort charts.	T1	9-10-19	9-10-19
30.	Need for ventilation, standards of ventilation, natural ventilation, mechanical ventilation.	T1	10-10-19	9-10-19
31.	Air conditioning systems with combination of psychrometric charts, Psychrometric processes, cooling with sensible heating, heating & cooling	T1	11-10-19	10-10-19
32.	Humidifying, dehumidifying, air washer, bypass factor, sensible heat factor, RSHF, GSHF, Problems. Design of winter Air conditioning system.	T1	16-10-19	11-10-19
33	Choice of supply condition, Selection of room conditions, Effect of outside air, Ventilation load, Effective temperature & comfort chart.	T1	16-10-19	14-10-19
34.	Factors affecting human comfort, effective temperature, comfort chart, Problems.	T1	17-10-19	19-10-19
35	Factors affecting cooling load calculations	T1	18-10-19	19-10-19

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LECTURE PLAN

Lecture No	Topics	Reference Book & Section	Scheduled Date	Delivered Date
36	Module 6 (Part 1) Air System, Fans, Air Distribution System, Packaged System, All water System.	T1	26-10-19	26-10-19
37	Chilled water System, Window Air Conditioner	T2	28-10-19	28-10-19
38	Central air conditioning Heating System, Humidifiers.	T1	29-10-19	29-10-19
39	Year round Air conditioning system, thermostat & Humidistat.	T1	30-10-19	30-10-19
40	Air distribution system, duct system and design. Air filters, Refrigerants, Evaporators, Expansion valves, Compressors, condensers, Cooling towers	T2	30-10-19	30-10-19
41	Industrial application of Air conditioning	T1	30-10-19	31-10-19
42	Industrial application of Air conditioning.	T1	31-10-19	1-11-19

Text / Reference Books:

1. Arora C P, Refrigeration and air conditioning
2. Arora S C and Domkundwar, Refrigeration and air conditioning
3. Ballaney P L, Refrigeration and air conditioning
4. Manohar Prasad, Refrigeration and air conditioning
5. Dossat R J, Principles of Refrigeration
6. Stoecker W F, Refrigeration and air conditioning

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ASSIGNMENTS

Reg. No.	Module No.	CO's	Topic	Assign. Submission		Remarks
				Due Date	Submitted on	
	5		Psychrometric processes	30/10/19	30-10-19	
			RSHF, FSHF, GSHF			
			Comfort chart,			
			Effective temperature			
	6		*All air Systems,			
			Chilled Water System	8/11/19	8/11/19	
			*Construction &			
			accessories of duct-			
			System			
			*A/c Systems for			
			restaurants &			
			hospitals.			

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Academic Year2 2018-19

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module I			
1	Introduction to CFF- Concept of continuum - System & Control volume approach.	R1	01/08/2018	01/08/18
2	Conservation of mass & momentum derivation	R1	03/08/2018	06/08/18
3	Stagnation State - Compressibility - Entropy relation.	R1, R2	06/08/2018	06/08/18
4	Wave propagation - Acoustic velocity - Mach Number-	R1, R2	10/08/2018	10/08/18
5	Effect of M on compressibility -	R2, R3	10/08/2018	10/08/18
6	Pressure coefficient. Physical difference - Repr of various flow regimes.	R1	13/08/2018	13/08/18
7	Difference between incompressible subsonic, sonic & supersonic flow.	R1	14/08/2018	14/08/2018
8	Mach cone Sonic from reference velocities Impulse function, adiabatic energy equation -	R1	16/08/2018	03/09/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module II			
1.	1D isentropic steady flow - adiabatic & isentropic flow of perfect gas -	R_2	30/8/18	5/09/18
2	A-V relation using 1D approx.	R_1	30/8/18	6/09/18
3	Nozzle & diffuser - $\frac{\dot{m}}{A}$ -	R_1	3/9/18	12/09/18
4	Chocking - flow coefficients	R_1	4/9/18	12/09/18
5	Efficiency of nozzle & diffuser - Tables & charts.	R_1	5/9/18	13/09/18
6.	Operation of nozzle under varying pressure ratio.	R_2	6/9/18	13/09/18
7	Over expansion & under expansion in nozzle.	R_1	10/9/18	17/09/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module III			
1	Irreversible discontinuity in Supersonic flow – 1D Shock wave	R_1	11/9/18	14/09/18
2.	Stationary normal Shock wave – govern equations	R_1	13/9/18	18/09/18
3.	Prandtl – Meyer Relation – Shock strength –	R_2	17/9/18	19/9/18
4	Rankine – Hugoniot Rel – Normal Shock on T-S diagram –	R_1	18/9/18	20/9/18
5.	Working formula – curves & table Oblique shock waves.	R_1	19/9/18	27/09/18
6.	Supersonic flow over Compression and expansion corners	R_1	24/9/18	29/09/18
7.	Problems based on normal shock waves.	R_2	26/9/18	3/10/18 4/10/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module IV			
1.	Flow in a constant area duct with friction	R_2	27/9/18	4/10/18
2.	Governing Equations- Fanno lines	R_2	1/10/18	8/10/18
3.	Fanno relations for perfect gas-	R_1	3/10/18	15/10/18
4.	Choking due to friction.	R_1	4/10/18	22/10/18
5.	Working tables for fanno flow.	R_1	8/10/18	24/10/18
6.	Isothermal flow & problems based on fanno flow.	R_1	9/10/18	25/10/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module V			
1.	Flow through const area duct with HT	R_1	10/10/18	27/10/18
2.	Rayleigh line on h-s & P-V diagram-	R_1	15/10/18	1/11/18
3.	Rayleigh relation for perfect gas	R_1, R_2	15/10/18	5/11/18
4.	Max possible heat addition Location of max enthalpy point	R_2	17/10/18	7/11/18
5.	Thermal choking - Working tables for Rayleigh flow	R_2	22/10/18	8/11/18
6.	Problems on Rayleigh flow using charts.	R_2	24/10/18	8/11/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module VI			
1.	Compressible Flow - field visualisation.	R2	29/10/18	10/11/18
2.	Shadow graph. Schlieren technique.	R2	31/10/18	12/11/18
3.	Interferometer - Subsonic. Compr - flow - field.	R2	01/11/18	14/11/18
4.	Measurement of pressure, Velocity & Temp.	R2	5/11/18	14/11/18
5.	Compressibility - correction factor Hot wire anemometer.	R2	6/11/18	15/11/18
6.	Supersonic flow measurement Shock tube - Rayleigh Pitot tube.	R2	7/11/18	21/11/18
7.	Wedge probe - Stag temp probes & other probes	R2	8/11/18	22/11/18
8.	Wind Tunnels.	R2	12/11/18	22/11/18

Text / Reference Books:

1. Yahya. S. M., Fundamentals of comp fluid dynamics
2. Compressible Fluid Flow, Airwalk Publishers.
3.
4.
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LECTURE PLAN

18-19

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module I			
1	Introduction to CFF – Concept of continuum – System & Control volume approach.	R1	01/08/2018	01/08/18
2	Conservation of mass & momentum derivation	R1	03/08/2018	06/08/18
3	Stagnation State – Compressibility – Entropy relation.	R1, R2	06/08/2018	06/08/18
4	Wave propagation – Acoustic velocity – Mach Number –	R1, R2	10/08/2018	10/08/18
5	Effect of M on compressibility –	R2, R3	10/08/2018	10/08/18
6	Pressure coefficient. Physical difference – Repr of various flow regimes.	R1	13/08/2018	13/08/18
7	Difference between incompressible, Subsonic, Sonic & Supersonic flow.	R1	14/08/2018	14/08/2018
8	Mach cone Sonic from reference velocities Impulse function, adiabatic energy equation –	R1	16/08/2018	03/09/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module II			
1.	1D isentropic steady flow - adiabatic & isentropic flow of perfect gas -	R_2	30/8/18	5/09/18
2	A-V relation using 1D approx.	R_1	30/8/18	6/09/18
3	Nozzle & diffuser - $\frac{m}{A}$ -	R_1	3/9/18	12/09/18
4	Chocking - flow coefficients	R_1	4/9/18	12/09/18
5	Efficiency of nozzle & diffuser - Tables & charts.	R_1	5/9/18	13/09/18
6.	Operation of nozzle under varying pressure ratio.	R_2	6/9/18	13/09/18
7	Over expansion & under expansion in nozzle.	R_1	10/9/18	17/09/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module III			
1	Irreversible discontinuity in Super Sonic flow – 1D Shock wave	R_1	11/9/18	17/09/18
2.	Stationary normal Shock wave – govern equations	R_1	13/9/18	18/09/18
3.	Prandtl-Meyer Relation – Shock strength –	R_2	17/9/18	19/9/18
4	Rankine-Hugoniot Rel – Normal Shock on T-S diagram –	R_1	18/9/18	20/9/18
5.	Working formula – curves & table Oblique shock waves.	R_1	19/9/18	27/09/18
6.	Supersonic flow over Compression and expansion corners	R_1	24/9/18	29/09/18
7.	Problems based on normal Shock waves.	R_2	26/9/18.	3/10/18 4/10/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module IV			
1.	Flow in a constant area duct with friction	R2	27/9/18	4/10/18
2.	Governing Equation- Fanno lines	R2	1/10/18	8/10/18
3.	Fanno relations for perfect gas-	R1	3/10/18	15/10/18
4.	Choking due to friction.	R1	4/10/18	22/10/18
5.	Working tables for fanno flow.	R1	8/10/18	24/10/18
6.	Isothermal flow & problems based on fanno flow.	R1	9/10/18	25/10/18

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module V			
1.	Flow through Const area duct with HT	R_1	10/10/18	27/10/18
2.	Rayleigh line on h-s & P-V diagram-	R_1	15/10/18	1/11/18
3.	Rayleigh relation for perfect gas	R_1, R_2	15/10/18	5/11/18
4.	Max possible heat addition Location of max enthalpy point.	R_2	17/10/18	7/11/18
5.	Thermal choking - Working tables for Rayleigh flow	R_2	22/10/18	8/11/18
6.	Problems on Rayleigh flow using charts.	R_2	24/10/18	8/11/18

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Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	Module VI			
1.	Compressible flows - field of visualization.	R2	29/10/18	10/11/18
2.	Shadow graph. Schlieren technique.	R2	31/10/18	12/11/18
3.	Interferometer - Subsonic. Compressible flows field.	R2	01/11/18	14/11/18
4.	Measurement of pressure, Velocity & Temp.	R2	5/11/18	14/11/18
5.	Compressibility - correction factor Hot wire anemometer.	R2	6/11/18	15/11/18
6.	Supersonic flow measurement Shock tube - Rayleigh Pitot tube.	R2	7/11/18	21/11/18
7.	Wedge probe - Sting temp probes & other probes	R2	8/11/18	22/11/18
8.	Wind Tunnels.	R2	12/11/18	22/11/18

Text / Reference Books:

1. Yahya. S. M., Fundamentals of comp fluid dynamics
2. Compressible Fluid Flow, Airwalk Publishers.
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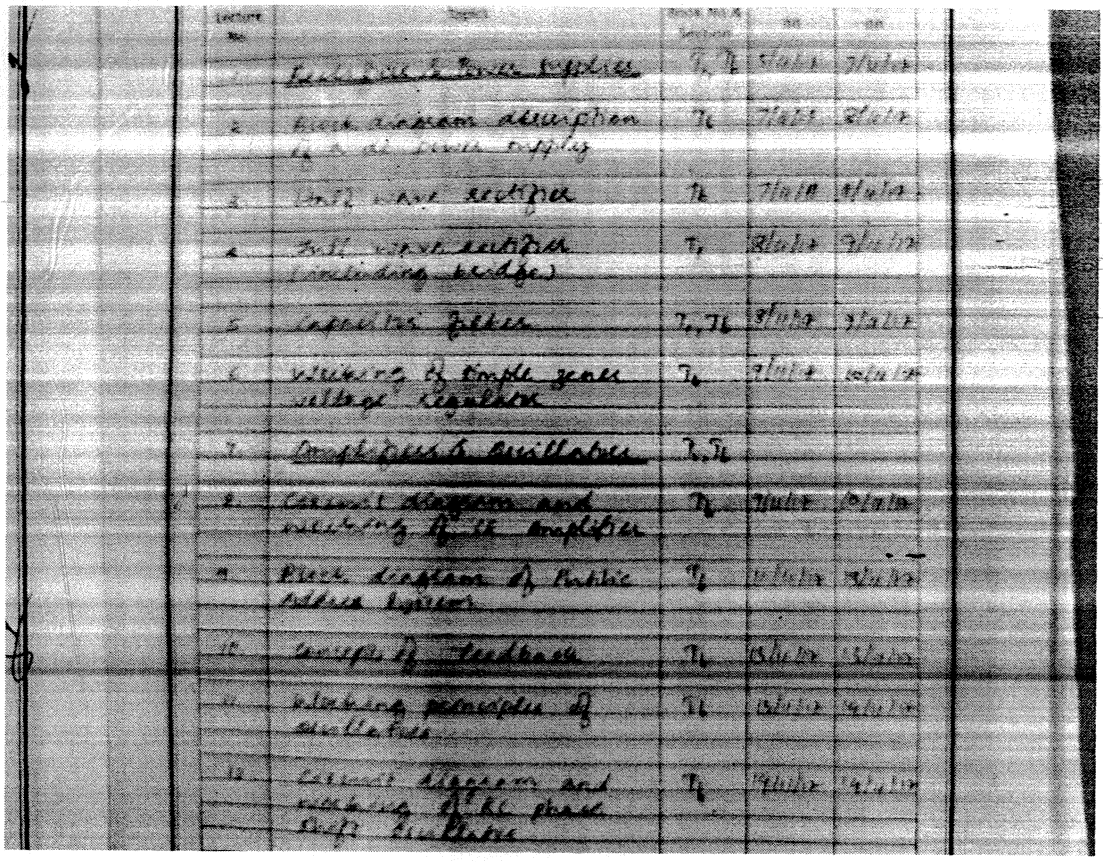
17-18



Lecture No.	Topics	Book No. & Sections		
1	Evaluation of Power supplies	T_1 T_2	5/6/12	7/6/12
2	Block diagram description of a DC power supply	T_1	7/6/12	8/6/12
3	Half wave rectifier	T_1	7/6/12	8/6/12
4	Full wave rectifier (including bridge)	T_1	8/6/12	9/6/12
5	Capacitor filter	T_1, T_2	8/6/12	9/6/12
6	Ripple factor, Simple zener voltage regulator	T_1	9/6/12	10/6/12
7	Complex zener regulator	T_1, T_2		
8	Circuit diagram and explaining of IC amplifier	T_1	11/6/12	12/6/12
9	Block diagram of Public address system	T_1	12/6/12	13/6/12
10	Concepts of feedback	T_1	13/6/12	15/6/12
11	Working principles of oscillators	T_1	15/6/12	16/6/12
12	Circuit diagram and explaining of RC phase shift oscillator	T_1	19/6/12	21/6/12

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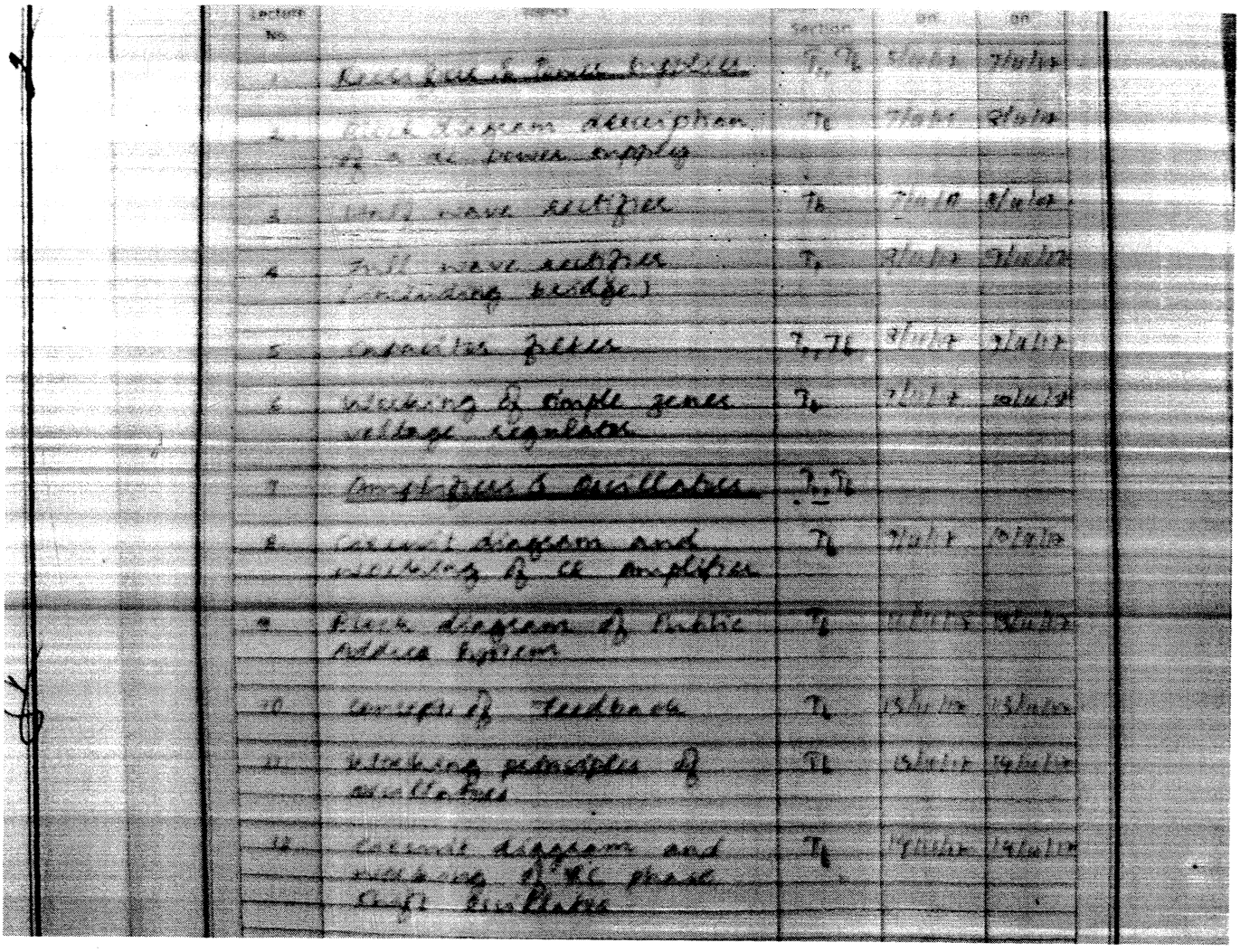

Lecture No.		Section		
1	Block diagram description of SMPS	T_1, T_6		
2	Full wave rectifier	T_6		
3	Full wave rectifier (Bridge)	T_6		
4	Capacitor filter	T_7, T_8		
5	Working of Simple series voltage regulator	T_9		
6	Comparators & oscillators	T_9, T_{10}		
7	Circuit diagram and working of IC amplifier	T_{11}		
8	Block diagram of Public address system	T_{12}		
9	Concept of feedback	T_{13}		
10	Working principles of oscillators	T_{14}		
11	Circuit diagram and working of RC phase shift oscillator	T_{15}		

Lecture No.		Section		
1.	Evolution of Electronics.	T1, T6	2/8/17	2/8/17
2.	Impact of Electronics in industry & society.	T1, T6	2/8/17	3/8/17
3.	Resistors - types, specifications, Standard values, color coding	T1, T6	3/8/17	3/8/17
4.	Capacitors - types, specifications Standard values, marking.	T6	17/8/17	18/8/17
5.	Inductors - types, specifications Principle of working.	T6	22/8/17	22/8/17
6.	Transformers - types, specifications Principle of working	T6	29/8/17	29/8/17
7.	Electromechanical components - Relays.	T1, T6	14/9/17	14/9/17
8.	Electromechanical components - Contactors.	T6	14/9/17	14/9/17

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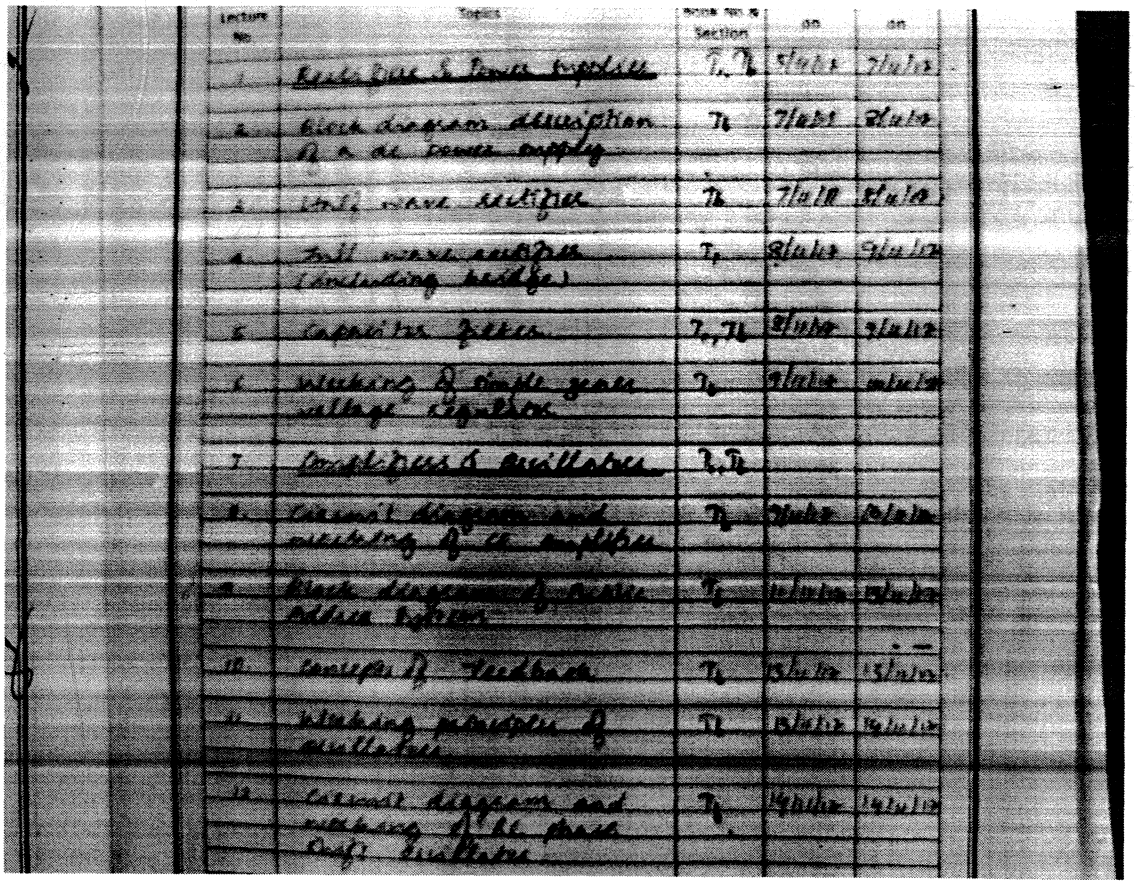
Lecture No.		Section		
1.	Evolution of Electronics.	T, T1	2/8/17	2/8/17
2.	Impact of Electronics in industry & society.	T, T1	2/8/17	3/8/17
3.	Resistors - types, specifications, Standard values, color coding	T, T1	3/8/17	3/8/17
4.	Capacitors - types, specifications Standard values, marking.	T1	17/8/17	18/8/17
5.	Inductors - types, specifications Principle of working.	T1	22/8/17	22/8/17
6.	Transformers - types, specifications Principle of working.	T1	29/8/17	29/8/17
7.	Electromechanical component - Relays.	T, T1	14/9/17	14/9/17
8.	Electromechanical components - Contactors.	T1	14/9/17	14/9/17



Lecture No	Topics	Book No & Section	on	on
1	Basic Laws & Power supplies	T_1, T_2	5/10/12	7/10/12
2	Block diagram description of a dc Power supply	T_1	7/10/21	8/10/12
3	Half wave rectifier	T_1	7/10/18	8/10/18
4	Full wave rectifier (including bridge)	T_1	8/10/12	9/10/12
5	Capacitor filter	T_1, T_2	9/10/12	9/10/12
6	Working of simple zener voltage regulator	T_1	9/10/12	10/10/12
7	Oscillators & oscillators	T_1, T_2		
8	Circuit diagram and working of CE amplifier	T_1	12/10/12	12/10/12
9	Block diagram of series voltage regulator	T_1	12/10/12	12/10/12
10	Concept of feedback	T_1	13/10/12	15/10/12
11	Working principle of oscillators	T_1	15/10/12	16/10/12
12	Circuit diagram and working of RC phase shift oscillator	T_1	16/10/12	16/10/12

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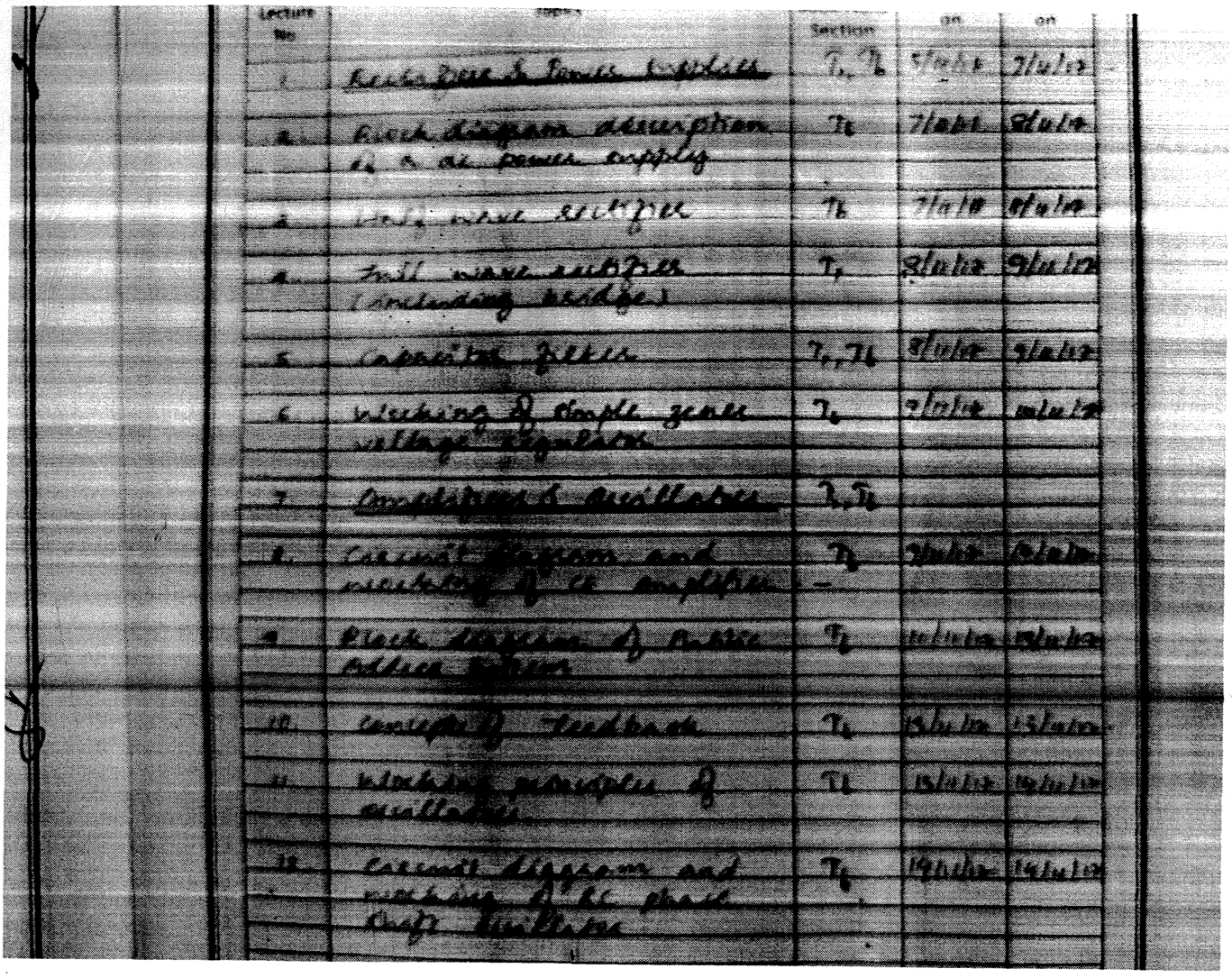

Lecture No	Topics	Section	on	on
1	Review [illegible]	T1, T2	5/1/12	7/1/12
2	Block diagram description of a DC power supply	T2	7/1/12	9/1/12
3	[illegible]	T2	7/1/12	9/1/12
4	Full wave rectifier (Considering bridge)	T3	9/1/12	9/1/12
5	Capacitor filter	T3, T4	9/1/12	9/1/12
6	Working of Simple zener voltage regulator	T4	9/1/12	10/1/12
7	Oscillators & oscillators	T3, T5		
8	Circuit diagram and working of CE amplifier	T5	9/1/12	10/1/12
9	Block diagram of three adder system	T5	10/1/12	12/1/12
10	Concept of feedback	T5	12/1/12	13/1/12
11	Working principles of oscillators	T6	13/1/12	16/1/12
12	Circuit diagram and working of RC phase shift oscillator	T6	16/1/12	16/1/12

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Lecture No.		Section		
1.	Evolution of Electronics.	T, TL	2/8/17	2/8/17
2.	Impact of Electronics in industry & society.	T, TL	2/8/17	3/8/17
3.	Resistors - types, specifications, standard values, color coding	T, TL	3/8/17	3/8/17
4.	Capacitors - types, specifications, standard values, marking.	TL	17/8/17	18/8/17
5.	Inductors - types, specifications, Principle of working.	TL	22/8/17	22/8/17
6.	Transformers - types, specifications, Principle of working	TL	29/8/17	29/8/17
7.	Electromechanical components - Relays.	T, TL	14/9/17	19/9/17
8.	Electromechanical components - Contactors	TL	19/9/17	19/9/17

Lecture No.		Section		
1.	Evolution of Electronics.	T, Tb	2/8/17	2/8/17
2.	Impact of Electronics in Industry & society.	T, Tb	2/8/17	3/8/17
3.	Resistors - types, specifications, Standard values, color coding	T, Tb	3/8/17	3/8/17
4.	Capacitors - types, specifications Standard values, marking.	Tb	17/8/17	18/8/17
5.	Inductors - types, specifications Principle of working.	Tb	22/8/17	22/8/17
6.	Transformers - types, specifications Principle of working	Tb	29/8/17	29/8/17
7.	Electromechanical components - Relays.	T, Tb	14/9/17	14/9/17
8.	Electromechanical components - Contactors.	Tb	14/9/17	14/9/17

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Academic Year4
2016-17

15-16

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COURSE FILE

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20.16..... 20..17.....

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Pin 680 597 Kerala

DEPARTMENT OF :

Name of the Faculty : DHANESH. S

Branch / Course : MECHATRONICS

Year & Semester : 2014 - 2018 BATCH, S5

Subject Code : EN14 502. MANUFACTURING TECHNOLOGY

Name of the Subject : MANUFACTURING TECHNOLOGY.

Objective of the Course : To make aware of various manufacturing processes like metal forming, casting, metal cutting processes, gear manufacturing processes.

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD		5/8/16			2/11/16							
Initial of Principal												

Final Verification By

Chairman & Managing Trustee

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - I			
1	CASTINGS - INTRODUCTION	T2	15/6/16	15/6/16
2	Patterns - Different types	T2	15/6/16	16/6/16
3	properties of moulding sand	T2	16/6/16	21/6/16
4	core making, Gating & riseering	~~T2~~ T2	21/6/16	22/6/16
		~~T2~~	~~22/6~~	~~23/6~~
5	Allowances	T2	22/6/16	23/6/16
6	Sand castings - steps	T2	23/6/16	1/7/16
7	Special casting process - Shell casting	T1	28/6/16	2/7/16
8	Investment castings. Die casting.	T1	28/6/16	12/7/16
9	centrifugal casting welding & types. Gases	T1	29/6/16	18/7/16
10	Electron beam, ultrasonic electron slag.	T1	30/6/16	19/7/16
11	Friction welding - electrical resistance welding.	T1	2/7/16	20/7/16
12	Revision on casting & welding.		5/7/16	20/7/16

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - II			
13	Hot & cold working	T3	7/7/16	21/7/16
14	Features of hot & cold working.	T3	12/7/16	26/7/16
15	Sheet metal operations.	T4	13/7/16	27/7/16
16	punching & blanking	T4	14/7/16	30/7/16
17	punching & blanking.	T4	19/7/16	1/8/16
18	eqtns on punching & blanking.	T4	20/7/16	3/8/16
19	Bending operations - Forces, shearing. Tube forming - Trimming Stretch forming.	T4	21/7/16	9/8/16
20	extrusion types.	T4	26/7/16	9/8/16
21	Rolling operation.	T4	27/7/16	10/8/16
22	wire drawing.	T4	28/7/16	11/8/16
23	equations.	T4	30/7/16	12/8/16
24	Forging - Types	T4	2/8/16	16/8/16
25	Types of dies	T1	3/8/16	16/8/16

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - III			
26	orthogonal & oblique cutting - nomenclature of cutting tool - & chases	T1	3/8/16	17/8/16
27	classification of cutting tool	T1	4/8/16	18/8/16
28	Tool signature	T1	6/8/16	22/8/16
29	forces in cutting. - merchant's circle.	T1	9/8/16	22/8/16
30	Factors affecting machining.	T1	10/8/16	23/8/16
31	chip formation	T1	11/8/16	23/8/16
32	Factors for continous & uncontinous chips	T1	16/8/16	3/9/16
33	built up edge - signi-ficance.	T1	17/8/16	7/9/16
34	Tool life affecting factors. Taylor's eqn cutting fluids	T1	18/8/16	8/9/16
35	Geos manufacturing process - Extrusion, Stamping powder metallurgy.	T1	23/8/16	20/9/16
36	Geos Generating process - shaping & hobbing.	T1	23/8/16	20/9/16
37	Grinding process - types - wheels.	T1	24/8/16	22/9/16
38	NEHRU COLLEGE OF ENGINEERING & RESEARCH CENTRE TRICHUR Fine finishing - lapping,	T1		
39	honing, buffing & super finishing.	T1	25/8/16	26/9/16

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	MODULE - IV			
40	Milling machine - Specification	T1	30/8/16	4/10/16
41	Types of milling machine (other types)	T1	31/8/16	4/10/16
42	Indexing methods.	T1	1/9/16	5/10/16
43	lab visit.	-		
44	Shaping machine	T1	3/9/16	6/10/16
45	-slotting machine	T1	6/9/16	15/10/16
46	slotting machine - Types & operation.	T1	7/9/16	18/10/16
47	Boring machine - specification. types	T1	8/9/16	18/10/16
48	Boring machines - Opns.	T1	13/9/16	19/10/16
49	Broaching machine.	T1	13/9/16	20/10/16
50	operations in broaching.	T1	14/9/16	20/10/16
51	Revision		15/9/16	25/10/16
52	Revision.		20/9/16	25/10/16

Text / Reference Books:

1. Manufacturing Technology by R.K Rajput.
2. principles of metal casting by Laffer & Rossenlal
3. metal Forming by Nagpal.
4. Sheet metal opns by Pollock.

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LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	803			
1,2	Services, mechanisms & attacks	1.1.1	25.1.'16	8.2.'16
3	OSI security architecture	1.1.2	25.1.'16	8.2.'16
4	model for n/w security	1.1.3	26.1.'16	13.2.'16
5	Classical encryption techniques:	1.2	27.1.'16	13.2.'16
6	Symmetric cipher model	1.2.1	28.1.'16	15.2.'16
7	Substitution techniques	1.2.2	30.1.'16	15.2.'16 to 25.2.'16
8	Transposition techniques	1.2.3	8.2.'16	13.2016
9	Rotor machine	1.2.4	9.2.'16	2.3.2016
10	Steganography, problems	1.2.5	9.2.'16	2.3.2016
		1.2.7	(15.2.'16-25.2.	
11	Block ciphers & DES, simplified DES	1.3	10.2.'16	2.3.'16
		1.3.1		
12	Block cipher principles	1.3.2	11.2.'16	3.3.'16
13,14	DES, strength of DES	1.3.3	13.2.'16	10.3.'16
		1.3.4	16.2.'16	
15	Block cipher design principles	1.3.6	16.2.'16	11.3.'16
16,17	Block cipher modes of operation,	1.3.7	17.2.'16	15.3.'16
18	problems	1.3.7	18.2.'16	

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LECTURE PLAN

S03

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1,2	Public key Cyphography & RSA	1.9	28/1/16	28/1/16
3	RSA algorithm	1.9.1	30/1/16	30/1/16
4	Principles of public key cryptosystems	1.9.2	29/1/16	29/1/16
5	Problems	1.9.4	29/1/16	29/1/16
6	Other public key crypto systems & key management	1.10	30/1/16 2/2/16	30/1/16 2/2/16
7,8	Key management	10.10.1	2/2/16	2/2/16 9/2/16
9	Diffie - Hellman Key exchange	1.10.2	11/2/16	11/2/16
10,11	Elliptic curve arithmetic	1.10.3	13/2/16	13/2/16 18/2/16
12,13	Elliptic curve cryptography	1.10.4	20/2/16	25/2/16
14,15	Problems	1.10.6	20/2/16	25/2/16

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Academic Year5
2015-16

LECTURE PLAN

Module 1

Lecture No.	Topics 801	Reference Book No.& Section	Scheduled on	Delivered on
1	Queueing Theory	R1, 3·1	30-3-16	1-3-1
2.	Markov chain - discrete time & continuous time	R1, 3·2	31-3-16	3-3-1
3.	Markov chain - Poisson process	R2, 8·4	1-4-16	5-3-1
4.	M/M/1 queue	R1, 3·3	2-4-16	5-3-1
5.	Little's formula	R1, 3·4·1	2-4-16	10-3-
6.	M/M/m/m queueing models	R1, 3·4·2	4-4-16	10-3-
7.	Infinite Server Case dependent Queues ~~Birth~~	R1, 3·4·3	5-4-16	11-3-
8.	Birth Death Process	R2, 8·3·2	5-4-16	11-3-1
	M/G/1 Queue	R1, 3·5·1	6-4-16	12-3

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LECTURE PLAN

Module 2

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1.	Layered Architecture in Data Networks	R_1, 2.7	25-2-16	19-3-16
		R_1, 3.1	26-2-16	14-3-16
2.	OSI standards architecture and protocols	R_1, 3.6	29-2-16	14-3-16
3.	X.25 protocol data link layer	R_1, 7.3	01-3-16	14-3-16
4.	ARQ retransmission strategies	R_1, 2.6.2	02-3-16	15-3-16
5.	Flow Control	R_1, 2.6.3	3-3-16	15-3-16
6.	Congestion Control	R_1, 2.7.1	4-3-16	16-3-16
7.	error control - stop & wait	R_1, 2.6.4	5-3-16	16-3-16
8.	Sliding windows, Automatic Repeat	R_1, 2.6.5	9-3-16	18-3-16
9.	Asynchronous Protocols - XMODEM, YMODEM	R_1, 8.3	11-3-16	18-3-16
10.	Synchronous Protocols - Character oriented protocols	R_1, 8.4.1	14-3-16	21-3-16
11.	Bit oriented Protocols	R_1, 8.4.2	16-3-16	21-3-16
12.	Routing functions & routing algorithm	R_1, 4.3.1	17-3-16	23-3-16
13.	Shortest path routing virtual circuit and	R_1, 4.3.2	19-3-16	28-3-16
14.	datagram networks	R_1, 4.3.3	21-3-16	29-3-16
15.	TCP/IP protocols.	R_1, 4.1	21-3-16	30-3-16

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LECTURE PLAN

Module III

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
	801			
1.	Local Area Networks IEEE 802 stds	R1, 3.2.4	22-3-16	1-4-16
2.	CSMA/CD			
3.	Random access Aloha - Pure and slotted aloha	R2, 13.1	22-3-16	1-4-16
4.	Random acess using CSMA/CD	R1, 7.9.2	23-3-16	1-4-16
5.	Ethernet, Token Bus	R1, 32, 33	24-3-16	2-4-16
6.	Token Ring, FDDI	R1, 3.4	24-3-16	2-4-16
7.	ATM networks	R1, 3.7	25-3-16	2-4-16
8.	DQDB, SMBDS	R1, 3.8, 3.9	25-3-16	3-4-16
9.	Routing in ATM networks	R1, 12.5.4	28-3-16	
10.	Self Routing networks Benes n/w	R1, 12.3	28-3-16	
11.	SONET, SDH	R2, 17.1	29-3-16	1-4-16
12.	X.25 protocols	R2, 17.2	29-3-16	
13.	Architecture & layers of Protocols	R2, 12.7	29-3-16	

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Module IV

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1	Telecom Switching	R2, 1.2	21-1-16	21-1-16
2	Elements of Traffic Engg-	R2, 8.1	25-1-16	29-1-16
3	Erg and GoS	R2, 8.2	27-1-16	30-1-16
4	Incoming Traffic	R2, 8.3	28-1-16	1-2-16
5	Service Time Characterization	R2, 8.3	29-1-16	1-2-16
6	Analysis of blocking models	R2, 8.4	29-1-16	3-2-16
7	Delay models	R2, 8.5	01-1-16	8-2-16
8	Erlang formulai	R2, 8.6	3-2-16	10-2-16
9	Digital Switching networks - Two stage	R4, 4.7	9-2-16	12-2-16
10	Three stage and N stage switch	R4, 4.8	12-2-16	15-2-16
11	Combination switches	R4, 4.9	16-2-16	18-2-16
12	Blocking probability	R4, 4.8	18-2-16	19-2-16
13	Analysis of multistage switches	R2, 6.5	20-2-16	25-2-16
14	Lee's approximation	R1, 10.5	22-2-16	25-2-16
15	AT&T No.5 ESS switch, DMS-100 Switch	R1, 10.6	24-2-16	29-2-16

Text / Reference Books:

1. Behrouz A. Forouzan, "Data Communications & Networking"
2. Thiagarajan Viswanathan, "Telecommunication Switching Systems and Networks"
3. Wayne Tomasi, "Introduction to Data Communications & Networking"
4. Uyless Black, "Data Communications, Networks - Protocols & Security"

Module Coordinator

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LECTURE PLAN

Module 1

cture No.	Topics 801	Reference Book No.& Section	Scheduled on	Delivere on
1	Queueing Theory	R1, 3·1	30-3-16	1-3-1
2.	Markov chain – discrete time & continuous time	R1, 3·2	31-3-16	3-3-1
3.	Markov chain – Poisson Process	R2, 8·4	1-4-16	5-3-1
4.	M/M/1 queue	R1, 3·3	2-4-16	5-3-1
5.	Little's formula	R1, 3·4·1	2-4-16	10-3-
6.	M/M/m/m queueing models	R1, 3·4·2	4-4-16	10-3-
7.	Infinite Server Case dependent Queues ~~Birth~~	R1, 3·4·3	5-4-16	11-3-
8.	Birth Death Process	R2, 8·3·2	6-4-16	11-3-1
9.	M/G/1 Queue	R1, 3·5·1	6-4-16	12-3

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LECTURE PLAN

Module 2

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1.	Layered Architecture in Data Networks	R_1, 2.7	25-2-16	14-3-16
		R_1, 3.1	26-2-16	14-3-16
2.	OSI standards architecture and protocols	R_1, 3.6	27-2-16	14-3-16
3.	X.25 protocol data link layer	R_1, 7.3	01-3-16	14-3-16
4.	ARQ retransmission strategies	R_1, 2.6.2	02-3-16	15-3-16
5.	Flow Control	R_1, 2.6.3	3-3-16	15-3-16
6.	Congestion Control	R_1, 2.7.1	4-3-16	16-3-16
7.	error control - stop & wait	R_1, 2.6.4	5-3-16	16-3-16
8.	Sliding windows, Automatic Repeat	R_1, 2.6.5	9-3-16	18-3-16
9.	Asynchronous Protocols - XMODEM, YMODEM	R_1, 8.3	11-3-16	18-3-16
10.	Synchronous Protocols - Character oriented protocols	R_1, 8.4.1	14-3-16	21-3-16
11.	Bit oriented Protocols	R_1, 8.9.2	16-3-16	21-3-16
12.	Routing functions & routing algorithm	R_1, 4.3.1	17-3-16	23-3-16
13.	Shortest path routing virtual circuit and	R_1, 4.3.2	19-3-16	28-3-16
14.	datagram networks	R_1, 4.3.3	21-3-16	29-3-16
15.	TCP/IP protocols.	R_1, 4.1	21-3-16	30-3-16

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LECTURE PLAN

Module III

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1.	Local Area Networks IEEE 802 stds	R1, 3.2.4	22-3-16	1-4-16
2.	CSMA/CD			
3.	Random access Aloha - Pure and slotted aloha	R2, 13.1	22-3-16	1-4-16
4.	Random acces using CSMA/CD	R1, 7.4.2	23-3-16	1-4-16
5.	Ethernet, Token Bus	R1, 32, 33	24-3-16	2-4-16
6.	Token Ring, FDDI	R1, 3.4	24-3-16	2-4-16
7.	ATM networks	R1, 3.7	25-3-16	2-4-16
8.	DQDB, SMBDS	R1, 3.8, 3.9	25-3-16	3-4-16
9.	Routing in ATM networks	R1, 12.5, 9.4	28-3-16	
10.	Self routing networks Banne n/w	R1, 12.3	28-3-16	
11.	SONET, SDH	R2, 17.1	29-3-16	1-4-16
12.	X-25 protocols	R2, 17.2	29-3-16	
13.	Architecture & layers of Protocols.	R1, 12.7	29-3-16	

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Module IV

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1	Circuit Switching	R2, 5.1	21-1-16	21-1-16
2	Elements of Traffic Engg-	R2, 5.1	25-1-16	29-1-16
3	Grag and Gb	R2, 5.2	27-1-16	30-1-16
4	Incoming Traffic	R2, 8.3	28-1-16	1-2-16
5	Service Time Characterization	R2, 8.3	29-1-16	2-2-16
6	Analysis of blocking models	R2, 8.4	29-1-16	3-2-16
7	Delayed models	R2, 8.5	01-1-16	8-2-16
8	Erlang formulai	R2, 8.6	3-2-16	10-2-16
9	Digital Switching networks - Two stage	R4, 4.7	9-2-16	12-2-16
10	Three stage and N stage ckts	R4, 4.8	12-2-16	15-2-16
11	Combination switches	R4, 4.9	16-2-16	18-2-16
12	Blocking probability	R4, 4.8	18-2-16	19-2-16
13	Analysis of multistage switches	R2, 6.5	20-2-16	25-2-16
14	Lee's approximation	R1, 10.5	22-2-16	25-2-16
15	AT&T No.5 ESS switch, DMS-100 switch	R1, 10.6	24-2-16	29-2-16

Text / Reference Books:

1. Bellamy R, "Data Networks"
2. T. "Telecommunication Switching Systems and Networks"
3. Computer Communication & Networking
4. Protocols, Modeling

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