Laxdu Singh Charitable Trust's (Regd.)
THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY
(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai*)
(Accredited Programmes by National Board of Accreditation, New Delhi**)
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*Permanent Affiliated UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology (w.e.f.: A.Y. 2015-16 onwards)
**1st time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology
**2nd time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology • Electronics Engineering (3 years w.e.f.: 01-07-2016)
ISO 9001 : 2008 Certified

TCET/FRM/IP-02/09 Revision: A

Semester Plan
(Theory)

Semester: III Course: EXTC

Subject: CIRCUIT THEORY & NETWORKS Class: SE EXTC A

Sr. No	Prerequisite /Bridge Course	Duration(Hr/week)	Modes of learning	Recommended Resources
1	Basics of Electrical Engineering	4 hrs	Self learning	B.L.Theraja "Electrical Technology" Vol-I and II, S. Chand Publications, 23rd ed. 2003, Chapter 1 & 2

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1		1.1	Theory Orientation	PPT	10/07/17	-	
2		1.2	Orientation on OBE	PPT	12/0717	-	
3	**1**	1.3	**Electrical circuit analysis** Mesh Analysis	PPT	13/07/17	-	
4		1.4	Mesh without controlled source	Blackboard & Chalk	14/07/17	Module 1	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
5		2.1	Nodal Analysis with controlled source	Blackboard & Chalk	17/07/17		
6		2.2	Nodal Analysis without controlled source	Blackboard & Chalk	18/07/17		
7		2.3	Superposition Theorem & Numerical	Blackboard & Chalk	19/07/17		
8		2.4	Thevenin's Theorem & Numerical	Blackboard & Chalk	20/07/17		
9		3.1	Norton's & Millman's Theorem	Blackboard & Chalk	24/07/17		
10		3.2	maximum power transfer and reciprocity theorems	Blackboard & Chalk	25/07/17		
11		3.3	Concept of self & Mutual Induction, Dot Convention	Blackboard & Chalk	27/07/17		
12		3.4	Numerical on Dot Convention	Blackboard & Chalk	28/07/17		
13	**2**	4.1	**Graph Theory** Objectives of graph theory, Linear Oriented Graphs, graph terminologies	Blackboard & Chalk	31/07/17	Module 2	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
14		4.2	Matrix representation of a graph: Incidence matrix, Circuit matrix, Cut-set matrix	Blackboard & Chalk	1/08/17		
15		4.3	Reduced incident matrix, tieset matrix, f-cutset matrix.	Blackboard & Chalk	3/08/17		
16		4.4	Numericals on Matrix Representation of a graph	Blackboard & Chalk	4/08/17		
17		5.1	Relationship between sub matrices A, B & Q	Blackboard & Chalk	7/08/17		
18		5.2	KVL & KCL using matrix	Blackboard & Chalk	8/08/17		
19	**6**	5.3	**Synthesis of RLC circuits** Positive Real Functions	Blackboard & Chalk	10/08/17	Module 3	
20		5.4	Positive Real Functions, Numerical	Blackboard & Chalk	11/08/17		
21		6.1	Synthesis of RC: Foster form	Blackboard & Chalk	14/08/17		
22		6.2	Synthesis of RC: Cauer form	Blackboard & Chalk	17/08/17		

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
23		7.1	Synthesis of RL: Foster form	Blackboard & Chalk	24/08/17		
24		8.1	Synthesis of RL: Cauer form	Blackboard & Chalk	25/08/17		
25		8.2	Synthesis of LC: Foster form	Blackboard & Chalk	1/09/17		
26		9.1	Synthesis of LC: Cauer form	Blackboard & Chalk	04/09/17		
27	**4**	9.2	**Network functions** Network functions for the one port and two port networks, Driving point and transfer functions	Blackboard & Chalk	05/09/17	Module 4	
28		9.3	Poles and Zeros of Network functions	Blackboard & Chalk	07/09/17		
29		9.4	necessary condition for driving point functions, necessary condition for transfer functions	Blackboard & Chalk	08/09/17		
30		10.1	calculation of residues by analytical and graphical methods	Blackboard & Chalk	11/09/17		
31		10.2	Time domain behavior as related to the Pole-Zero plot Stability & causality,	Blackboard & Chalk	12/09/17		

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
32		10.3	Testing for Hurwitz polynomial	Blackboard & Chalk	14/09/17		
33		104	Analysis of ladder & symmetrical lattice network	Blackboard & Chalk	15/09/17		
34		11.1	Analysis of ladder & symmetrical lattice network	Blackboard & Chalk	18/09/17		
35	**5**	11.2	**Two port Networks** Open Circuits, short Circuit parameters	Blackboard & Chalk	19/09/17	Module 5	
36		11.3	Transmission and Hybrid parameters	Blackboard & Chalk	21/09/17		
37		11.4	relationship among parameters	Blackboard & Chalk	22/09/17		
38		12.1	conditions for reciprocity and symmetry	Blackboard & Chalk	25/09/17		
39		12.2	Interconnections of Two-Port networks T & π representation.	Blackboard & Chalk	26/09/17		
40		13.1	Terminated two-port networks	Blackboard & Chalk	03/10/17		

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
41	**2**	13.2	**Time and frequency domain analysis** Time domain analysis of R-L and R-C Circuits: Forced and natural response	Blackboard & Chalk	05/10/17	Module 3	
42		13.3	initial and final values Solution using first order differential equation for impulse, step, ramp, exponential & sinusoidal signals	Blackboard & Chalk	06/10/17		
43		14.1	Time domain analysis of R-L-C Circuits: Forced and natural response, effect of damping factor.	Blackboard & Chalk	12/10/17		
44		15.1	Solution using second order equation for step, ramp, exponential & sinusoidal signals.	Blackboard & Chalk	13/10/17		
45		15.2	Frequency domain analysis: Frequency - domain representation of R, L,C , initial value theorem & final value theorem,	Blackboard & Chalk	16/10/17		
46		15.3	Applications of Laplace Transform in analyzing electrical circuits	Blackboard & Chalk	17/10/17		
Remark:: Course:		Syllabus Coverage:		Practice Session:		Beyond Syllabus:	

Sr. No		Duration(Hr/week)	Modes of learning	Recommended Resources
1	Advanced course: Electronic Devices & Circuits II	40 hrs	Self Learning	1. http://nptel.ac.in/courses/117101106/2.
No. of (lectures planned)/(lecture taken):46/				

Textbooks:

1. Franklin F Kuo, *"Network Analysis and Synthesis",* Wiley Toppan, 2nd.ed. 1966
2. M E Van Valkenburg, *"Network Analysis",* Prentice-Hall of India Pvt Ltd, New Delhi, 26th Indian Reprint, 2000

Reference Books:

1. A Chakrabarti, *"Circuit Theory",* Dhanpat Rai & Co., Delhi, 6h Edition
2. A. Sudhakar, Shyammohan S. Palli "circuits and Networks, Tata McGraw-Hill education
3. Smarajit Ghosh, Network Theory Snallysis & Syntshesis, PHI learning
4. K.S. Suresh Kumar, Elecric circuit analysis, Pearson (2013)
5. D Roy Choudhury, Networks and Systems, New Age International 1998.

SD	SD	SD
Mrs. Archana Deshpande	**Dr. Vinitkumar Dongre**	**Dr. R. R. Sedamkar**
Name & Signature of Faculty	Signature of HOD	Signature of Dean (Academics)
Date: 07/07/17	Date: 17/07/17	Date: 17/07/17

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.