Zagdu 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**)

THAKUR TRUSTS ®

A - Block, Thakur Educational Campus,
Shyamnarayan Thakur Marg, Thakur Village,
Kandivali (East), Mumbai - 400 101.
Tel.: 6730 8000 / 8106 / 8107
Fax : 2846 1890
Email : tcet@thakureducation.org
Website : www.tcetmumbai.in • www.thakureducation.org

tcet
ISO 9001 : 2008 Certified

*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)

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

**Semester Plan
(Theory)**

Semester: III   Course: EXTC

Subject: Electronics Devices and Circuits-I   Class: SE B

Sr. No	Prerequisite /Bridge Course	Duration(Hr/week)	Modes of learning	Recommended Resources
1	Basics of semiconductors:Insulators,Conductors, Semiconductros,ntype,ptype,pn junction ,forward and reverse bias	4 hrs	Self learning and classroom revision	1.D. A. Neamen, "Electronic Circuit Analysis and Design," Tata McGraw Hill, 2ndEdition. 2.A. Mottershead, "Electronic Devices and Circuits; An Introduction,"

Classroom teaching

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1	-----	1	Syllabus orientation and outcome based education details	PPT	10/07/17		
2	1	2	Study of various types of resistor, capacitor and inductors	PPT and graphics	11/07/17	1.7.1	
3	1	3	Basic fabrication steps of passive elements.	PPT	12/07/17	1.7.2	
4	1	4	PN junction Diode characteristics, small signal model	Black board and PPT	13/07/17	1.7.3	
5	2	5	Analysis of half wave and full wave rectifiers	PPT and simulations	14/07/17	2.7.1	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
6	2	6	Analysis of rectifiers with L, LC, C filters and design problems	PPT	17/07/17	2.7.2	
7	2	7	Analysis of rectifiers with CLC, CRC filters and design problems	PPT	18/07/17	2.7.3	
8	2	8	Concept of load and line regulation in power supply circuits.	Blackboard	19/07/17	2.7.4	
9	2	9	Analysis of zener voltage regulator	PPT	20/07/17	2.7.5	
10		10	Design of zener voltage regulator	Blackboard	21/07/17	2.7.6	
11	3	11	Design problems based on rectifier filter.	Blackboard	25/07/17	2.8	
12	3	12	Operation of BJT, BJT characteristics, DC/AC load line.	Blackboard and PPT	26/07/17	3.7.1	
13	3	13	DC analysis and design of fixed bias, collector to base bias, stability factor analysis.	Blackboard and PPT	27/07/17	3.7.2	
14	3	14	BJT voltage divider bias, stability factor analysis.	Blackboard and PPT	1/08/17	3.7.3	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
15	3	15	Numerical based on biasing circuits.	Blackboard and PPT	2/08/17	3.7.4	
16	3	16	FET (N-CHANNEL, P-CHANNEL) with characteristics and equation	Blackboard and PPT	3/08/17	3.7.5	
17		17	Analysis and design of self-bias and voltage divider bias	Blackboard and PPT	4/08/17	3.7.6	
18		18	FET zero temp drift biasing and numerical based on FET biasing	Blackboard and PPT	8/08/17	3.7.7	
19	3	19	Numerical based on biasing circuits of BJTand FET	Blackboard	9/08/17	3.7.8	
20	-	20	Term test preparation with practice session.	PPT	10/08/17	M1-M3	
21	4	21	Hybrid ,Hybrid pi model of BJT with graphical representations.	Blackboard and PPT	11/08/17	4.7.1	
22		22	Small signal analysis (Zi, Zo, Av and Ai) of CE amplifier	Blackboard and PPT	16/08/17	4.7.2	
23		23	Numerical based on CE amplifier analysis.	Blackboard and PPT	18/08/17	4.7.3	
24		24	Small signal analysis (Zi, Zo, Av and Ai) of CC,CB amplifier and numerical.	Blackboard and PPT	24/08/17	4.7.4	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
25		25	Small signal model of FET with graphical representation.	Blackboard and PPT	30/08/17	4.7.5	
26		26	small signal (mid-frequency) analysis of CS using FET	Blackboard and PPT	31/08/17	4.7.5	
27		27	small signal (mid-frequency) analysis of CD,CG using FET	Blackboard and PPT	1/09/17	4.7.6	
28		28	Numerical based on FET amplifier	Blackboard and PPT	5/09/17	4.8	
29	5	29	High frequency hybrid-pi equivalent Circuits of BJT and FET	Blackboard and PPT	6/09/17	5.7.1	
30	5	30	Miller effect and Miller capacitance, gain bandwidth product	Blackboard and PPT	7/09/17	5.7.2	
31	5	31	Effects of capacitors on frequency response of single stage amplifier using BJT	Blackboard and PPT	8/09/17	5.7.3	
32	5	32	Effects of capacitors on frequency response of single stage amplifier using BJT	Blackboard and PPT	12/09/17	5.7.4	
33	5	33	Analysis of single stage amplifiers at HF and gain bandwidth product.	Blackboard and PPT	13/09/17	5.7.5	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
34	5	34	Analysis of single stage amplifiers at HF and gain bandwidth product	Blackboard and PPT	14/09/17	5.7.6	
35	5	35	Design of single stage RC Coupled CE amplifier.	Blackboard and PPT	15/09/17	6.7.1	
36	6	36	Design of single stage RC Coupled CE amplifier.	Blackboard and PPT	19/09/17	6.7.1	
37	6	37	Design of single stage RC Coupled CE amplifier	Blackboard and PPT	20/9/17	6.7.1	
38	6	38	Design of single stage RC Coupled CE amplifier	Blackboard and PPT	21/09/17	6.7.1	
39	6	39	Design of single stage RC Coupled CS amplifier.	Blackboard and PPT	22/09/17	6.7.2	
40	6	40	Design of single stage RC Coupled CS amplifier.	Blackboard and PPT	03/10/17	6.7.2	
41	6	41	Design of single stage RC Coupled CS amplifier.	Blackboard and PPT	04/10/17	6.7.2	
42		42	Problem solving based on BJT circuits		05/10/17	6.8	

43		43	Problem solving based on FET circuits		06/10/17	6.8	
44		44	Problem solving based on rectifier and filter circuits.		12/10/17	M2-2.8	
45		45	Doubt solving sessions for the course		13/10/17	M1-M6	

Remark:: Course:	Syllabus Coverage:		Practice Session:	Beyond Syllabus: AIM SPICE simulations for problem solving.
No. of (lectures planned)/(lecture taken):				

Sr. No		Duration(Hr/week)	Modes of learning	Recommended Resources
1	Advanced course: Analog Circuits and Systems through SPICE Simulation	12 week	NPTEL videos with hands on training in Laboratory	1.: https://onlinecourses.nptel.ac.in/noc17_ec15/ 2. Mircoelectronic Circuits, Sedra and Smith 2) Design of Analog CMOS Integrated Circuits, Behzad Razavi

Text Books:
1. D. A. Neamen, *"Electronic Circuit Analysis and Design,"* Tata McGraw Hill, 2nd Edition.
2. A. S. Sedra, K. C. Smith, and A. N. Chandorkar, *"Microelectronic Circuits Theory and Applications,"* International Version, OXFORD International Students, 6th Edition
3. R. S. Dudhe and M. Farhan, *"Electronic Devices and Circuits,"* Synergy Knowledgeware, 1st Edition, 2013

Reference Books:

1. 1. Boylestad and Nashelesky, *"Electronic Devices and Circuits Theory,"* Pearson Education, 11th Edition.
2. A. K. Maini , *"Electronic Devices and Circuits,"* Wiley.
3. T. L. Floyd, *"Electronic Devices,"* Prentice Hall, 9th Edition, 2012.
4. A. Rockett, *"Material Science of Semiconductors",*, Springer, 1st Edition, 2009
5. A. Mottershead, *"Electronic Devices and Circuits; An Introduction,"*

Sd-------------------------   Sd-------------------------   Sd-------------------------
Dr.M.K.Mavinkurve   Dr.Vineetkumar Dongre   Dr.R.R.Sedamkar
Name & Signature of Faculty   Signature of HOD   Signature of Dean (Academics)

Date: Date: Date:

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.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.