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

Semester Plan
(Theory)

Semester: III Course: EXTC

Subject: Electronic Devices and Circuits-I Class: SE- A

Sr. No.	Bridge courses/Technology	Duration (Week/hrs)	Modes of Learning	Recommended Sources
1.	**Prerequisite course:** 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,"

Class Room Teaching

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1		L1.1	**SOP**	LCD Projector	10/07/17		
2		L1.2	EDC-I (Lab)	LCD Projector	11/07/17		
3		L1.3	OBE	LCD Projector	12/07/17		

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
4	1	L1.4	**Diode and Material science:** Study of various types of resistor, capacitor and inductors	LCD Projector & Graphics	13/07/17	M1.7.1	
5	1	L1.5	Basic fabrication steps of passive elements.	LCD Projector	14/07/17	M1.7.2	
6	1	L2.1	PN junction Diode characteristics, small signal model	LCD Projector & Black Board	17/07/17	M1.7.3	
7	2	L2.2	**Rectifiers, Filters and Regulators:** Analysis of half wave and full wave rectifiers	LCD Projector & Simulations	18/07/17	M2.7.1	
8	2	L2.3	Analysis of rectifiers with L, LC, C filters and design problems	LCD Projector	19/07/17	M2.7.2	
9	2	L2.4	Analysis of rectifiers with CLC, CRC filters and design problems	LCD Projector	20/07/17	M2.7.3	
10	2	L2.5	Concept of load and line regulation in power supply circuits.	LCD Projector & Black Board	21/07/17	M2.7.4	
11	2	L3.1	Analysis of zener voltage regulator	LCD Projector	24/07/17	M2.7.5	
12	2	L3.2	Design of zener voltage regulator	LCD Projector	25/07/17	M2.7.6	
13	2	L3.3	Design problems based on rectifier filter.	LCD Projector	27/07/17	M2.8	

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14	3	L3.4	**Transistor Biasing and Design:** Operation of BJT, BJT characteristics, DC/AC load line.	LCD Projector & Black Board	28/07/17	M3.7.1	
15	3	L4.1	DC analysis and design of fixed bias, collector to base bias, stability factor analysis.	LCD Projector & Black Board	31/07/17	M3.7.2	
16	3	L4.4	BJT voltage divider bias, stability factor analysis.	LCD Projector & Black Board	01/08/17	M3.7.3	
17	3	L4.3	Numerical based on biasing circuits.	LCD Projector & Black Board	03/08/17	M3.7.4	
18	3	L4.4	FET (N-CHANNEL, P-CHANNEL) with characteristics and equation	LCD Projector & Black Board	04/08/17	M3.7.5	
19	3	L5.1	Analysis and design of self- bias and voltage divider bias	LCD Projector & Black Board	07/08/17	M3.7.6	
20	3	L5.2	FET zero temp drift biasing and numerical based on FET biasing	LCD Projector & Black Board	08/08/17	M3.7.7	
21	3	L5.3	Numerical based on biasing circuits of BJTand FET	LCD Projector & Black Board	10/08/17	M3.7.8	
22		L5.4	Term test preparation with practice session.	-	11/08/17	M1-M3	
23	4	L6.1	**Transistor modelling and Small signal analysis of amplifier:** Hybrid and Hybrid pi model of BJT with graphical representations.	LCD Projector & Black Board	14/08/17	M4.7.1	

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
24	4	L6.2	Small signal analysis (Zi, Zo, Av and Ai) of CE amplifier	LCD Projector & Black Board	18/08/17	M4.7.2	
25	4	L7.1	Numerical based on CE amplifier analysis.	LCD Projector & Black Board	24/08/17	M4.7.3	
26	4	L8.1	Small signal analysis (Zi, Zo, Av and Ai) of CC,CB amplifier and numerical.	LCD Projector & Black Board	31/08/17	M4.7.4	
27	4	L8.2	Small signal model of FET with graphical representation.	LCD Projector & Black Board	01/09/17	M4.7.5	
28	4	L9.1	small signal (mid-frequency) analysis of CS using FET	LCD Projector & Black Board	04/09/17	M4.7.6	
29	4	L9.2	Small signal (mid-frequency) analysis of CD,CG using FET	LCD Projector & Black Board	05/09/17	M4.7.7	
30	4	L9.3	Numerical based on FET amplifier	LCD Projector & Black Board	07/09/17	M4.8	
31	5	L9.4	**High frequency response of BJT and FET amplifiers:** High frequency hybrid-pi equivalent Circuits of BJT and FET	LCD Projector & Black Board	08/09/17	M5.7.1	
32	5	L10.1	Miller effect and Miller capacitance, gain bandwidth product	LCD Projector & Black Board	11/09/17	M5.7.2	
33	5	L10.2	Effects of capacitors on frequency response of single stage amplifier using BJT	LCD Projector & Black Board	12/09/17	M5.7.3	

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34	5	L10.3	Effects of capacitors on frequency response of single stage amplifier using FET	LCD Projector & Black Board	14/09/17	M5.7.4	
35	5	L10.4	Analysis of single stage amplifiers at HF and gain bandwidth product.	LCD Projector & Black Board	15/09/17	M5.7.5	
36	6	L11.1	**Design of Small signal Amplifiers:** Design of single stage RC Coupled CE amplifier. (USE of parameters from data sheet compulsory)	LCD Projector & Black Board	18/09/17	M6.7.1	
37	6	L11.2	Design of single stage RC Coupled CE amplifier. (USE of parameters from data sheet compulsory)	LCD Projector & Black Board	19/09/17	M6.7.1	
38	6	L11.3	Design of single stage RC Coupled CS amplifier. (USE of parameters from data sheet compulsory)	LCD Projector & Black Board	21/09/17	M6.7.2	
39	6	L11.4	Design of single stage RC Coupled CS amplifier. (USE of parameters from data sheet compulsory)	LCD Projector & Black Board	22/09/17	M6.7.2	
40	6	L12.1	Design of single stage RC Coupled CS amplifier. (USE of parameters from data sheet compulsory)	LCD Projector & Black Board	25/09/17	M6.7.2	
41	-	L12.2	Design Problems	Black Board	26/09/17	M6.8	
42	2-6	L13.1	**Practise problems:** Problem solving based on BJT circuits	Black Board	03/10/17	M3.8-M6.8	
43	2-6	L13.2	Problem solving based on FET circuits	Black Board	05/10/17	M3.8-M6.8	

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44	-	L13.3	Term test preparation with practice session	Black Board	06/10/17	M4-M6	
45	2	L14.1	Problem solving based on rectifier and filter circuits	Black Board	12/10/17	M2.8	
46		L14.2	University paper doubt solving.		13/10/17	University Paper	
Remark:: Course:		Syllabus Coverage:		Practice Session:		Beyond Syllabus:	
No. of (lectures planned)/(lecture taken): (45)							

Bridge courses Objective: Bridging of gaps with respect to prerequisites and industry skills or to carryout research in signal processing field**. (20 Hrs / Semester / student)**

Sr . No.	Bridge courses/Technology	Duration (Week/hrs)	Modes of Learning	Recommended Sources
1	**Advanced course:** Analog Circuits and Systems through SPICE Simulation (NPTEL Course)	12 week	Technology Based learning	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) Donald A. Neamen, Electronic Circuit Analysis and Design, Tata McGraw Hill, 2nd Edition
2) Adel S. Sedra, Kenneth C. Smith and Arun N Chandorkar, Microelectronic Circuits ,Sixth Edition
3) R.S Dudhe and M. Farhan, ",*"Electronic Devices and Circuits"*, Synergy Knowledgeware, 1st Edition,2013.Operational Amplifier designing & Applications

Reference Books:

1) Salivahanan, N. Suresh Kumar,*"Electronic Devices and Circuits",* Tata McGraw Hill, 3rd Edition
2) Jacob Millman, Christos C Halkias, and Satyabratatajit, *"Millman's Electronic Devices and Circuits",* McGrawHill, 3rd Edition
3) Muhammad H. Rashid, *"Microelectronics Circuits Analysis and Design",* CengageLearning, 2nd Edition

Digital Reference:

- Wikipedia
- Google
- *http://www.mkp.com*
- *http://sensin.unLedu/idc/index.html*

SD	SD	SD
Name & Signature of Faculty	Signature of HOD	Signature of Principal /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.