DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Course Title	**ELECTRONIC CIRCUITS**		
Course Code	**ECMI17**	**No. of Credits**	**3**
Course Code of Pre-requisite subject(s)	**ECMI13**		
Session	**Jul- 2023**	**Section (if, applicable)**	**N.A**
Name of Faculty	**Dr. R. Murali krishna**	**Department**	**Electronics and communication engineering**
Email	**mkr@nitt.edu**	**Telephone No.**	**8790987346**
Name of Course Coordinator(s) (if, applicable)	**-**		
E-mail	**-**	**Telephone No.**	
Course Type	✓ **Minor course**		

Syllabus (approved in BoS)

Load line, operating point, biasing methods for BJT and MOSFET. Low frequency and high models of BJT and MOSFET, Small signal Analysis of CE, CS, CD and Cascade amplifier

MOSFET amplifiers: Current mirrors: Basic current mirror, Cascade current mirror, Single-ended amplifiers: CS amplifier – with resistive load, diode connected load, current source load, triode load, source degeneration. CG and CD amplifiers, Cascade amplifier,

Frequency response of amplifiers, Differential Amplifiers, CMRR, Differential amplifiers with active load, two stage amplifiers

Feedback concept, Properties, Feedback amplifiers, Stability analysis, Condition for oscillation, Sinusoidal oscillators.

Power amplifiers- class A, class B, class AB, Biasing circuits, class C and class D

COURSE OBJECTIVES

To make the students understand the fundamentals of electronic circuits.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
1. To illustrate about rectifiers, transistor and FET amplifiers and its biasing. Also compare the performances of its low frequency models.	**PO1, PO2, PO4**
2. To discuss about the frequency response of MOSFET and BJT amplifiers	**PO2, PO4, PO5**
3. To illustrate about MOS and BJT differential amplifiers and its characteristics.	**PO1, PO2, PO3, PO4, PO5**

4. To discuss about the feedback concepts and construct feedback amplifiers and oscillators. Also summarize its performance parameters	**PO2, PO4, PO5**
5. To explain about power amplifiers and its types and also analyze its characteristics.	**PO2, PO4, PO5**

COURSE PLAN – PART II

COURSE OVERVIEW

- To make the students understand the fundamentals of electronic circuits.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1 (3 contact Hours)	Load line, operating point, biasing methods for BJT and MOSFET	**Lecture C&T/ PPT or any suitable mode**
2	Week 2 (3 contact Hours)	. Low frequency and high models of BJT and MOSFET	
3	Week 3 (3 contact Hours)	Small signal Analysis of CE, CS, CD and Cascade amplifier	
4	Week 4 (3 contact Hours)	MOSFET amplifiers: Current mirrors: Basic current mirror, Cascade current mirror,	
5	As per Academic Calender	**ASSESSMENT I - 20Marks**	**Descriptive/Numerial (Written)**
6	Week 6 (3 contact Hours)	Single-ended amplifiers: CS amplifier – with resistive load, diode connected load, current source load, triode load	**Lecture C&T/ PPT or any suitable mode**
7	Week 7 (2 contact Hours)	source degeneration. CG and CD amplifiers, Cascade amplifier,	
9	Week 8 (3 contact Hours)	Frequency response of amplifiers, Differential Amplifiers, CMRR,	**Lecture C&T/ PPT or any suitable mode**
10	As per Academic Calender	**ASSESSMENT II - 20 Marks**	**Descriptive/Numerical (Written)**
11	Week 10 (3 contact Hours)	CMRR, Differential amplifiers with active load, two stage amplifiers	**Lecture C&T/ PPT or any suitable mode**
12	Week 11 (3 contact Hours)	Feedback concept, Properties, Feedback amplifiers, Stability analysis,	

13	Week 12 (3 contact Hours)	Condition for oscillation, Sinusoidal oscillators.	
14	Week 13 (3 contact Hours)	Power amplifiers- class A, class B, class AB	
16	Week 14 (3 contact Hours)	Biasing circuits, class C and class D	
17	Week 16	**END ASSESSMENT – 50 Marks**	**Descriptive/Numerical (Written)**

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment I	As per Academic Calender	(60 minutes)	20 marks
2	Assessment II		(60 minutes)	20 marks
3	Assignment / Mini project		-	10 marks
CPA	Assessment V (CPA)		(60 minutes)	20 marks
4	End Assessment		(180 minutes)	50 marks

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Feedback from the students during class committee meeting.
2. Queries through questionnaire.

COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, academic honesty and plagiarism etc.)

MODE OF CORRESPONDENCE (email/ phone etc)

1. All the students are advised to check their NITT WEBMAIL/group mail/suggested by the course faculty, class representative regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through them only.
2. Queries (if required) to the course teacher shall only be emailed to the email id specified by the teacher.

ATTENDANCE

1. Attendance will be taken by the faculty in all the contact hours. Every student should try to be present in the class during these contact hours.

COMPENSATION ASSESSMENT

1. Attending all the assessments are MANDATORY for every student.
2. The pass criteria for each student shall be set and followed as per the institute norms.
3. Those students who missed any of the continuous assessments (CAs) due to genuine reasons can appear for retest. The scores in the retest will be considered for computing marks for CA.

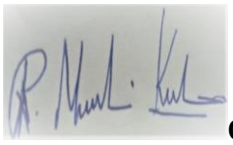
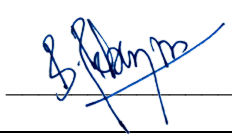
ACADEMIC HONESTY & PLAGIARISM

1. All the students are expected to be genuine during the course work. Taking of information by means of copying simulations, assignments, looking or attempting to look at another student's paper or bringing and using study material in any form for copying during any assessments is considered dishonest.
2. Tendering of information such as giving one's program, simulation work, assignments to another student to use or copy is also considered dishonest.
3. Preventing or hampering other students from pursuing their academic activities is also considered as academic dishonesty.
4. Any evidence of such academic dishonesty will result in the loss of marks on that assessment. Additionally, the names of those students so penalized will be reported to the class committee chairperson and HoD of the concerned department.
5. Students who honestly producing ORIGINAL and OUTSTANDING WORK will be REWARDED.

ADDITIONAL INFORMATION

Queries and feedback may also be emailed to the Course Faculty at mkr@nitt.edu

FOR APPROVAL

Course Faculty  **CC-Chairperson**  **HOD**  08-08-2023