Department of Electronics and Communication Engineering

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Course Title	**Electronic Circuits**		
Course Code	**ECPC17**	**No. of Credits**	**3**
Department	**ECE(A section)**	**Faculty**	**Dr. N.Gunavathi**
Pre-requisites Course Code	**ECPC13**		
Course Coordinator(s) (if, applicable)	-		
Other Course Teacher(s)/Tutor(s) E-mail	-	**E-mail/Telephone No.**	**gunavathi@nitt.edu 0431-2503315**
Course Type	☑ **Core course**	☐ **Elective course**	

COURSE OVERVIEW

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

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
CO 1: illustrate about rectifiers, transistor and FET amplifiers and its biasing. Also compare the performances of its low frequency models.	
CO 2:discuss about the frequency response of MOSFET and BJT amplifiers.	
CO 3 : illustrate about MOS and BJT differential amplifiers and its characteristics	
CO 4: discuss about the feedback concepts and construct feedback amplifiers and oscillators Also summarizes its performance parameters.	
CO5 : explain about power amplifiers and its types and also analyze its characteristics	

COURSE TEACHING AND LEARNING ACTIVITIES

S. No.	Week	Topic	Mode of Delivery
1.	First week of January **(3 Contact Hours)**	• Load line, operating point, biasing methods for BJT and MOSFET.	Chalk &Talk, PPT or any suitable mode
2.	Second week of January **(3 Contact Hours)**	• Low frequency and high models of BJT	
3.	Third week of January **(3 Contact Hours)**	• Low frequency and high models of MOSFET	
4.	Fourth week of January **(3 Contact Hours)**	• Small signal Analysis of CE, CS, CD and Cascode amplifier	
5.	First week of February **(3 Contact Hours)**	• MOSFET amplifiers: Current mirrors: Basic current mirror, Cascode current mirror	
6.	**ASSESSMENT –I**		**Written exam**
7.	Third week of February **(3 Contact Hours)**	• Single ended amplifiers: CS amplifier – with resistive load, diode connected load, current source load, triode load, source degeneration.	Chalk &Talk, PPT or any suitable mode
8.	Fourth week of February **(3 Contact Hours)**	• CG and CD amplifiers , Problems and Cascode amplifier.	
9.	First week of March **(3 Contact Hours)**	• Frequency response of amplifiers, **ASSESSMENT –II**	
10.	Second week of March **(3 Contact Hours)**	• Differential Amplifiers, CMRR, Differential amplifiers with active load	Chalk &Talk, PPT or any suitable mode
11.	Third week of March **(3 Contact Hours)**	Two stage amplifiers , Feedback concept, Properties	
12.	**ASSESSMENT-III**		**Written exam**
13.	First week of April **(3 Contact Hours)**	• Feedback amplifiers, Stability analysis, Condition for oscillation	

14.	Second week of April **(3 Contact Hours)**	• Sinusoidal oscillators, Power amplifiers- class A, class B	Chalk &Talk, PPT or any suitable mode.
15.	Third week of April **(3 Contact Hours)**	• class AB, Biasing circuits, class C and class D	
		COMPENSATION ASSESSMENT	**Written exam**
16.	**FINAL ASSESSMENT**		**Descriptive type of exam**

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	**ASSESSMENT-I (Descriptive)**	**2nd week of February'2017**	**60minutes**	**20**
2.	**ASSESSMENT-II [Mini project /Assignments/Quiz (Written)]**	**1st week of March'2017**	**-**	**10**
4.	**ASSESSMENT-III (Descriptive)**	**4th week of March'2017**	**60minutes**	**20**
5.	**COMPENSATION ASSESSMENT (CPA)**	**3rd week of April'2017**	**60 minutes**	**Refer course policy**
6.	**FINAL ASSESSMENT (Descriptive type of exam)**	**First week of May'2017**	**180 minutes**	**50**

ESSENTIAL READINGS :

Text Books:

1. A.S.Sedra &K.C.Smith, "Microelectronic Circuits (5/e)", Oxford, 2004.
2. D.L.Schilling&C.Belove,"Electronic Circuits: Discrete and Integrated", (3/e), McGraw Hill, 1989.

Reference Books:

1. J.Millman&A., "Microelectronics", McGraw Hill, 1987.
2. K.V.Ramanan, "Functional Electronics" ,Tata McGraw Hill ,1984

COURSE EXIT SURVEY

1. Feedback from the students during class committee meeting.
2. Queries through questionnaire.
3. Course Attainment is calculated through Direct tools (Exams)

COURSE POLICY

Correspondence:

1. All the students are advised to come to class regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be intimated in the class / over phone.
2. Queries (if required) to the course teacher shall be emailed to the email id specified.

Attendance:

1. Attendance will be taken by the faculty in all the contact hours. Every student should maintain minimum 75 % physical attendance (on other duty will not be considered) in these contact hours to attend the end semester examination.
2. Any student, who fails to maintain the minimum 75% attendance but has attendance between 50% and 75%, will be eligible for attending the end semester examination provided if he/she appears for the compensation assessment (CPA) and scores more than 60 % marks in the CPA. Otherwise, they will have to REDO the course.
3. Students having attendance less than 50% at the end of the semester will have to RE DO the course.

Assessment:

1. Attending all the assessments is MANDATORY for every student.
2. If any student is not able to attend either one or both of the continuous assessments I & III due to genuine reason, student is permitted to attend the compensation assessment (CPA) with only 20 % weightage for both the cases.
3. At any case, CPA will not be considered as an improvement test.
4. If any student is not able to attend the End semester due to genuine reason with valid attestation, student is permitted to take up FORMATIVE ASSESSMENT.
5. Finally, every student is expected to score minimum 35% of the mark of the class in the total assessment (1, 2, 3 and end semester) to pass the course. Otherwise the student would be declared fail and 'F' grade will be awarded. Further the student can take up only FORMATIVE ASSESSMENT.

ADDITIONAL COURSE INFORMATION

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

FOR SENATE'S CONSIDERATION

Course Faculty **CC-Chairperson** 3/1/2017. **HOD** 4/1/2017