Sri Indu Institute of Engineering & Technology

Recognized Under 2(f) of UGC Act 1956
Approved by AICTE, New Delhi
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COURSE FILE

ON

ELECTRONIC CIRCUIT ANALYSIS

CourseCode-EC405PC

II B.Tech II-SEMESTER

A.Y.:2022-2023

Prepared by

Mrs.G.NIRMALA
Assistant Professor

Head of the Department
Electronics and Communication Engg. Dept
SRI INDU INSTITUTE OF ENGG & TECH
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 510

PRINCIPAL
Sri Indu Institute of Engineering & Tech
Sheriguda(Vill), Ibrahimpatnam
R.R. Dist. Telangana-501 510.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Academic Year	2022-2023
Course Title	ELECTRONIC CIRCUIT ANALYSIS
Course Code	EC405PC
Programme	B.Tech
Year & Semester	II year II-semester
Branch &Section	ECE-A
Regulation	R18
Course Faculty	Mrs.G.NIRMALA, Assistant Professor

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INSTITUTE VISION AND MISSION

Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

Mission:

IM1: To offer outcome-based education and enhancement of technical and practical skills.

IM2: To Continuous assess of teaching-learning process through institute-industry collaboration.

IM3: To be a centre of excellence for innovative and emerging fields in technology development with state-of-art facilities to faculty and students' fraternity.

IM4: To Create an enterprising environment to ensure culture, ethics and social responsibility among the stake holders.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DEPARTMENT VISION AND MISSION

Vision:

To become a recognized center in the field of Electronics and Communication Engineering by producing creative engineers with social responsibility and address ever-changing global challenges.

Mission:

DM1 : To facilitate an academic environment that enables student's centric learning.

DM2 : To provide state-of-the-art hardware and software technologies to meet industry requirements.

DM3 : To continuously update the Academic and Research infrastructure.

DM4 : To Conduct Technical Development Programs for overall professional caliber of Stake Holders.

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PROGRAM EDUCATIONAL OBJECTIVES

Program Educational objectives are to Promote:

PEO1: Graduates with a strong foundation in Electronics and Communication Engineering, Science and Technology to become successful in the chosen professional career.

PEO2: Graduates with ability to execute innovative ideas for Research and Development with continuous learning.

PEO3: Graduates inculcated with industry based soft-skills to enable employability.

PEO4: Graduates demonstrate with ability to work in inter disciplinary teams and ethical professional behavior.

PROGRAM SPECIFIC OUTCOMES

PSO 1: Design Skills: Design, analysis and development a economical system in the area of Embedded system & VLSI design.

PSO2: Software Usage: Ability to investigate and solve the engineering problems using MATLAB, Keil and Xilinx.

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PROGRAM OUTCOMES

1. **ENGINEERING KNOWLEDGE**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **PROBLEM ANALYSIS**: Identify, formulate, research literature, and analyze complex engineering problemsreachingsubstantiatedconclusionsusingfirstprinciplesofmathematics,natural sciences, and engineering sciences.

3. **DESIGN/DEVELOPMENT OF SOLUTIONS**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **MODERN TOOL USAGE**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

6. **THE ENGINEER AND SOCIETY**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **ENVIRONMENT AND SUSTAINABILITY**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **ETHICS**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **INDIVIDUAL AND TEAM WORK**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **COMMUNICATION**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions.

11. **PROJECT MANAGEMENT AND FINANCE**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **LIFE-LONG LEARNING**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.tech. in ELECTRONICS AND COMMUNICATION ENGINEERING

II YEAR COURSE STRUCTURE AND SYLLABUS (R18)

Applicable From 2018-19Admitted Batch

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	EC301PC	Electronic Devices and Circuits	3	1	0	4
2	EC302PC	Network Analysis and Transmission Lines	3	0	0	3
3	EC303PC	Digital System Design	3	1	0	4
4	EC304PC	Signals and Systems	3	1	0	4
5	EC305PC	Probability Theory and Stochastic Processes	3	0	0	3
6	EC306PC	Electronic Devices and Circuits Lab	0	0	2	1
7	EC307PC	Digital System Design lab	0	0	2	1
8	EC308PC	Basic simulation Lab	0	0	2	1
9	*MC309	Constitution of India	3	0	0	0
		Total Credits	**18**	**3**	**6**	**21**

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MA401BS	Laplace Transforms, Numerical Methods & Complex Variables	3	1	0	4
2	EC402PC	Electromagnetic Fields and Waves	3	0	0	3
3	EC403PC	Analog and Digital Communications	3	1	0	4
4	EC404PC	Linear IC Applications	3	0	0	3
5	EC405PC	Electronic Circuit Analysis	3	0	0	3
6	EC406PC	Analog and Digital Communications Lab	0	0	3	1.5
7	EC407PC	IC Applications Lab	0	0	3	1.5
8	EC408PC	Electronic Circuit Analysis Lab	0	0	2	1
9	*MC409	Gender Sensitization Lab	0	0	2	0
		Total Credits	**15**	**2**	**10**	**21**

***MC-Satisfactory/Unsatisfactory**

EC405PC: ELECTRONIC CIRCUIT ANALYSIS

B. Tech. II Year II Sem. **L T P C**
3 0 0 3

Course Objectives:

- Learn the concepts of high frequency analysis of transistors.
- To give understanding of various types of amplifier circuits such as small signal, cascaded, large signal and tuned amplifiers.
- To familiarize the Concept of feedback in amplifiers so as to differentiate between negative and positive feedback
- To construct various multivibrators using transistors and sweep circuits.

Course Outcomes: Upon completing this course, the student will be able to

- Design the multistage amplifiers and understand the concepts of High Frequency Analysis of Transistors.
- Utilize the Concepts of negative feedback to improve the stability of amplifiers and Positive feedback to generate sustained oscillations
- Design and realize different classes of Power Amplifiers and tuned amplifiers useable for audio and Radio applications.
- Design Multivibrators and sweep circuits for various applications.

UNIT – I

Multistage Amplifiers: Classification of Amplifiers, Distortion in amplifiers, Different coupling Schemes used in amplifiers, Frequency response and Analysis of multistage amplifiers, Cascade RC Coupled amplifiers, Cascode amplifier, Darlington pair.
Transistor at High Frequency: Hybrid - model of Common Emitter transistor model, fα, fβ and unity gain bandwidth, Gain-bandwidth product.

UNIT II

Feedback Amplifiers: Concepts of feedback – Classification of feedback amplifiers – GeneralCharacteristics of Negative feedback amplifiers – Effect of Feedback on Amplifier characteristics –Voltage series, Voltage shunt, Current series and Current shunt Feedback configurations – Simple problems.

UNIT -III

Oscillators: Condition for Oscillations, RC type Oscillators-RC phase shift and Wien-bridgeOscillators, LC type Oscillators –Generalized analysis of LC Oscillators, Hartley and ColpittsOscillators, Frequency and amplitude stability of Oscillators, Crystal Oscillator.

UNIT -IV

Large Signal Amplifiers: Class A Power Amplifier- Series fed and Transformer coupled , Conversion Efficiency, Class B Power Amplifier- Push Pull and Complimentary Symmetry configurations, Conversion Efficiency, Principle of operation of Class AB and Class –C Amplifiers.
Tuned Amplifiers: Introduction, single Tuned Amplifiers – Q-factor, frequency response of tuned

amplifiers, Concept of stagger tuning and synchronous tuning.

UNIT –V

Multivibrators: Analysis and Design of Bistable, Monostable, Astable Multivibrators and Schmitt trigger using Transistors.

Time Base Generators: General features of a Time base Signal, Methods of Generating Time Base Waveform, concepts of Transistor Miller and Bootstrap Time Base Generator, Methods of Linearity improvement.

TEXT BOOKS:

1. Integrated Electronics, Jacob Millman, Christos C Halkias, McGraw Hill Education.
2. Electronic Devices Conventional and current version -Thomas L. Floyd 2015, Pearson.

REFERENCE BOOKS:

1. Electronic Devices and Circuits, David A. Bell – 5th Edition, Oxford.
2. Electronic Devices and Circuits theory– Robert L.Boylestead, Louis Nashelsky, 11th Edition, 2009, Pearson

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Website: https://siiet.ac.in/

COs and Mapping with PO/PSO

Course: Electronic Circuits Analysis (C225) **Class: II ECE-A**

Course Outcomes

After completing this course, the student will be able to:

C225.1	Design the multistage amplifiers and develop& analyze transistor amplifier circuits using Hybrid π model at high frequencies.	Synthesis,Analysis,Knowledge
C225.2	Design of Feedback amplifiers and their frequency Response.	Synthesis
C225.3	To Understand the design of various oscillators such as RC Phase Shift Oscillator, Wien-Bridge Oscillator, Crystal, LC oscillator	Knowledge ,Synthesis
C225.4	Design and compare various Power amplifiers such as Class A, Class B, Class AB amplifiers.	Synthesis
C225.5	Analysis of various tuned amplifiers and their frequency Response.	Analysis
C225.6	Design Multivibrators and sweep circuits for various applications.	Application

Mapping of course outcomes with program outcomes:

High -3 Medium -2 Low-1

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
C225.1	3	3	2	1	-	-	-	-	-	-	-	-	3	3
C225.2	2	3	2	1	-	-	-	-	2	-	-	-	2	3
C225.3	2	3	2	1	-	-	-	-	-	2	-	-	3	3
C225.4	1	3	2	-	-	-	-	-	-	-	-	-	3	3
C225.5	3	2	1	-		-	-	-	-	-	2	-	2	2
C225.6	2	3	2	-	-	-	-	-	-	-	-	2	1	1

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CO- PO/PSO Mapping – Justification

Course: Electronic Circuits Analysis (C225) **Class: II ECE-A**

P01. ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

P02. PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

P03. DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety and the cultural, societal and environmental considerations.

PO4. CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO9. INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions.

PO11. PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSO 1: Design Skills: Design, analysis and development a economical system in the area of Embedded system & VLSI design.

PSO2: Software Usage: Ability to investigate and solve the engineering problems using MATLAB, Keil and Xilinx.

CO-PO mapping Justification

C225.1: Design the multistage amplifiers and develop& analyze transistor amplifier circuits using Hybrid π model at high frequencies (Synthesis, Analysis, Knowledge).

	Justification
PO1	Students get the knowledge on design of low frequency & high frequency amplifiers and apply the knowledge of mathematics and engineering fundamentals in analysis of amplifier.
PO2	Students can analyses the voltage gain, current gain, input resistance, output resistance of various multi stage amplifiers.
PO3	Students able to design solutions for various multistage amplifiers and analyse the circuit by using Hybrid π model at high frequencies.
PO4	Students can understand the design of experiments, analysis and interpretation of data.
PSO1	The application of design skills to create efficient and economical electronic systems.
PSO2	The alignment of multistage amplifier design and analysis with the competency of Software Usage, specifically the use of MATLAB, Keil, and Xilinx, underscores the importance of leveraging advanced software tools to investigate and solve engineering problems in a comprehensive and efficient manner.

C225.2: Design of Feedback amplifiers and their frequency Response (Synthesis)

	Justification
PO1	Students get the knowledge of designing of Amplifiers, develop and analyse the transistor amplifiers
PO2	Students Analyse various tuned amplifiers and their frequency Response.
PO3	Design solutions for complex engineering problems and design system components or process.
PO4	Students can understand the design of experiments, analysis and interpretation of data.
PO9	The design of feedback amplifiers and their frequency response demands a combination of individual technical skills and effective collaboration within diverse teams
PSO1	The design of feedback amplifiers and their frequency response aligns seamlessly with the competency of designing, analyzing, and developing economical systems in the field of Embedded Systems and VLSI design.
PSO2	The alignment of feedback amplifier design with the competency of Software Usage, specifically using MATLAB, Keil, and Xilinx, underscores the importance of leveraging advanced software tools for comprehensive analysis, simulation, and implementation.

C225.3: To Understand the design of various oscillators such as RC Phase Shift Oscillator, Wien-Bridge Oscillator, Crystal, LC oscillator (Knowledge, Synthesis).

	Justification
PO1	Students get the knowledge of designing of Oscillators develop and analyse the transistor amplifiers as an oscillators.
PO2	Students Analyse various oscillators and their frequency Response.
PO3	Students can design the solutions for complex engineering problems and design system components.
PO4	Students can understand the design of experiments, analysis.
PO10	By combining a deep technical understanding with effective communication skills, you'll be able to share your knowledge of oscillator design within the engineering community and society at large.
PSO1	The knowledge and understanding of oscillator designs align with the Design Skills competency, specifically in the context of designing, analyzing, and developing economical systems in Embedded Systems and VLSI design.
PSO2	The alignment of oscillator design with the competency of Software Usage, specifically using MATLAB, Keil, and Xilinx, underscores the importance of leveraging advanced software tools for comprehensive analysis, simulation, and implementation.

C225.4: Design and compare various Power amplifiers such as Class A, Class B, Class AB amplifiers (Synthesis).

	Justification
PO1	Students get the knowledge of designing various Power amplifiers such as Class A, Class B, Class AB amplifiers,
PO2	Students Analyse various tuned amplifiers and their frequency Response.
PO3	Students design the analysis of various power amplifiers.
PSO1	The design and comparison of various power amplifiers align with the competency of Design Skills, emphasizing the ability to create efficient, cost-effective, and reliable amplifiers within the broader context of embedded systems and VLSI design.
PSO2	The alignment of power amplifier design and comparison with the competency of Software Usage, specifically using MATLAB, Keil, and Xilinx, underscores the importance of leveraging advanced software tools for comprehensive analysis, simulation, and implementation.

C225.5: Analysis of various tuned amplifiers and their frequency Response. (Analysis)

	Justification
PO1	Students get the knowledge of designing of Multistage Amplifiers, develop and analyse the transistor amplifiers
PO2	Students Analyse various tuned amplifiers and their frequency Response.
PO3	Design solutions for complex engineering problems and design system components or process
PO11	By aligning the analysis of tuned amplifiers with project management and finance principles, engineers can demonstrate their ability to apply a holistic approach to project execution.
PSO1	The analysis of various tuned amplifiers and their frequency responses aligns with the competency of Design Skills, emphasizing the ability to create efficient, cost-effective, and reliable amplifiers within the broader context of embedded systems and VLSI design.
PSO2	The alignment of tuned amplifier analysis with the competency of Software Usage, specifically using MATLAB, Keil, and Xilinx, underscores the importance of leveraging advanced software tools for comprehensive analysis, simulation, and implementation.

C225.6: Design Multivibrators and sweep circuits for various applications (Applications).

	Justification
PO1	Students get the knowledge of designing of Multivibrators and sweep circuits.
PO2	Students Analyse various sweep generator and their frequency Response.
PO3	Students design the analysis of various sweep circuits.
PO12	By demonstrating a commitment to life-long learning in the context of designing multivibrators and sweep circuits, an engineer ensures they remain relevant, adaptable, and capable of addressing evolving challenges in the field of electronics and circuit design.
PSO1	The design of multivibrators and sweep circuits aligns with the competency of Design Skills, emphasizing the ability to create efficient, cost-effective, and reliable circuits within the broader context of embedded systems and VLSI design.
PSO2	The alignment of multivibrator and sweep circuit design with the competency of Software Usage, particularly using MATLAB, Keil, and Xilinx, emphasizes the importance of leveraging advanced software tools for comprehensive analysis, simulation, and implementation.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

ACADEMIC CALENDAR 2022-23

B. Tech./B.Pharm. II YEAR I & II SEMESTERS

I SEM

S. No	Description	Duration	
		From	To
1	Commencement of I Semester classwork	**28.11.2022**	
2	1st Spell of Instructions	28.11.2022	21.01.2023 (8 Weeks)
3	First Mid Term Examinations	23.01.2023	30.01.2023 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	04.02.2023	
5	2nd Spell of Instructions	31.01.2023	29.03.2023 (8 Weeks)
6	Second Mid Term Examinations	31.03.2023	08.04.2023 (1 Week)
7	Preparation Holidays and Practical Examinations	10.04.2023	15.04.2023 (1 Week)
8	Submission of Second Mid Term Exam Marks to the University on or before	15.04.2023	
9	End Semester Examinations	17.04.2023	29.04.2023 (2 Weeks)

Note: No. of Working / Instructional Days: 93

II SEM

S. No	Description	Duration	
		From	To
1	Commencement of II Semester classwork	**01.05.2023**	
2	1st Spell of Instructions (including Summer Vacation)	01.05.2023	08.07.2023 (10 Weeks)
3	**Summer Vacation**	15.05.2023	27.05.2023 (2 Weeks)
4	First Mid Term Examinations	10.07.2023	15.07.2023 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	22.07.2023	
6	2nd Spell of Instructions	18.07.2023	11.09.2023 (8 Weeks)
7	Second Mid Term Examinations	12.09.2023	16.09.2023 (1 Week)
8	Preparation Holidays and Practical Examinations	19.09.2023	23.09.2023 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	23.09.2023	
10	End Semester Examinations	25.09.2023	07.10.2023 (2 Weeks)

Note: No. of Working / Instructional Days: 92

24/11/22

REGISTRAR

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Class Timetable

CLASS: II-B.Tech ECE-A **A.Y:2022-23** **SEMESTER: II** **LH: C-101**

TIME/ DAY	I 9:40-10:30	II 10:30 -11:20	III 11:20-12:10	IV 12:10-1:00	1:00-1:30	V 1:30-2:20	VI 2:20-3:10	VII 3:10-4:00
MON	LTNM	LICA	EMF&W	A&DC	LUNCH	ECA	EMF&W	A&DC(T)/LTNM(T)
TUE	A&DC	LICA	COUN	ECA		LTNM	CO-CU/DAA	
WED	LICA	A&DC	EMF&W	LTNM		ICA LAB / A&DC LAB		
THU	ECA	EMF&W	A&DC	LICA		A&DC LAB / ICA LAB		
FRI	LTNM	ECA	ECA LAB / GS LAB			LTNM(T)/A&DC(T)	LICA	SPORTS
SAT	EMF&W	ECA	LIB	A&DC		LTNM	GS LAB / ECA LAB	

*(T) – Tutorial Concern Faculty

Course Code	Course Name	Name of the Faculty
MA401BS	LTNM-Laplace Transforms, Numerical Methods & Complex Variables	T.Thirupathi Reddy
EC402PC	EMF&W-Electromagnetic Fields and Waves	K.Rajender
EC403PC	A&DC-Analog and Digital Communications	B.Jyothirmai
EC404PC	LICA-Linear IC Applications	G.Anitha
EC405PC	ECA-Electronic Circuit Analysis	G.Nirmala

Course Code	Course Name	Name of the Faculty
EC406PC	A&DC LAB-Analog and Digital Communications Lab	B.Jyothirmai/K.Rajender/T.Bhavani
EC407PC	ICA LAB-IC Applications Lab	A.Vaani/G.Anitha/T.Divya
EC408PC	ECA LAB-Electronic Circuit Analysis Lab	G.Nirmala/G.Anusha/Y.Rajani
*MC409	GS LAB-Gender Sensitization Lab	G.Ananda Rao
COUN	Counseling	I.Venu/G.Nirmala/A.Swetha
SPORTS	Sports	Dr.S.Suresh/I.Venu
CO-CU/DAA	Co-Curricular/Dept. Assoc.Activities	G.Nirmala/D.Aruna Kumari/K.Bhaskar Reddy
LIB	Library	S.Alekhya/M.Srilatha

Class Incharge

Head of the Department
Electronics and Communication Engg. Dept
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Principal
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LESSONPLAN

Programme: B.Tech	Academic Year: 2022-23
Year: II	Semester :II
Course Title: Electronic Circuit Analysis	Course Code:EC405PC
Name of Faculty: G. Nirmala	

Unit-I Syllabus

Multistage Amplifiers: Classification of Amplifiers, Distortion in amplifiers, Different coupling Schemes used in amplifiers, Frequency response and Analysis of multistage amplifiers, Cascade RC Coupled amplifiers, Cascode amplifier, Darlington pair.
Transistor at High Frequency: Hybrid - model of Common Emitter transistor model, fα, fβ and unity gain bandwidth, Gain-bandwidth product.

No. of Sessions Planned	Topics	Reference	Teaching Method/ Aids
1	Classification of Amplifiers	T1	Black Board
1	Distortion in amplifiers	T1	Black Board
1	Different coupling Schemes used in amplifiers	T1	PPT
2	Frequency response and Analysis of multistage amplifiers	T1	Black Board
2	Cascade RC Coupled amplifiers	T1	Black Board
1	Darlington pair	T1	Black Board
2	Hybrid - model of Common Emitter transistor model	T1	Black Board
2	fα, fβ and unity gain bandwidth	T1	Black Board
1	Gain-bandwidth product	T1	Black Board
Gap beyond syllabus(if any):			
Gap with in the syllabus(if any)			
Course Outcome1: Describe the multistage amplifiers of different coupling schemes, including frequency response, and analyze multistage amplifiers using a hybrid model.			

*Session Duration: 50minutes

*Total Number of Hours/Unit: 13

Unit-II Syllabus

Feedback Amplifiers: Concepts of feedback – Classification of feedback amplifiers – General Characteristics of Negative feedback amplifiers – Effect of Feedback on Amplifier characteristics – Voltage series, Voltage shunt, Current series and Current shunt Feedback configurations – Simple problems.

No.of Sessions Planned	Topics	Reference	Teaching Method/ Aids
1	Concepts of feedback	T1,R1	Black Board
1	Classification of feedback amplifiers	T1,R1	Black Board
2	General Characteristics of Negative feedback amplifiers	T1,R 1	Black Board
2	Effect of Feedback on Amplifier characteristics	T1,R 1	Black Board
2	Voltage series	T1	Black Board
1	Voltage shunt	T1,R1	Black Board
2	Current series	T1,R2	Black Board
2	Current shunt Feedback configurations	T1	Black Board
2	Simple problems	T1	Black Board
Gap beyond syllabus(if any):			
Gap with in the syllabus(if any)			
Course Outcome1: Discuss the general characteristics of negative feedback amplifiers in voltage series, voltage shunt, current series, and current shunt feedback configurations.			

*Session Duration: 50minutes

*Total Number of Hours/Unit: 15

Unit-III Syllabus

Oscillators: Condition for Oscillations, RC type Oscillators-RC phase shift and Wien-bridge Oscillators, LC type Oscillators –Generalized analysis of LC Oscillators, Hartley and Colpitts Oscillators, Frequency and amplitude stability of Oscillators, Crystal Oscillator.

No. of Sessions Planned	Topics	Reference	Teaching Method/ Aids
2	Condition for Oscillations	T1,R1	Black Board
1	RC type Oscillators	T1	Black Board
2	RC phase shift and Wien-bridge Oscillators	T1,R1	Black Board
1	LC type Oscillators	T1,R1	Black Board
1	Generalized analysis of LC Oscillators	T1,R1	Black Board
2	Hartley and Colpitts Oscillators	T1,R2	Black Board
2	Frequency and amplitude stability of Oscillators	T1,R1	Black Board
2	Crystal Oscillator	T1,R2	Black Board
Gap beyond syllabus(if any):			
Gap with in the syllabus(if any)			
Course Outcome1: Discuss the RC phase-shift and Wien-bridge oscillators.			

*Session Duration: 50minutes

*Total Number of Hours/Unit:13

Unit-IV Syllabus

Large Signal Amplifiers: Class A Power Amplifier- Series fed and Transformer coupled,Conversion Efficiency, Class B Power Amplifier- Push Pull and Complimentary Symmetry configurations, Conversion Efficiency, Principle of operation of Class AB and Class – C Amplifiers.
Tuned Amplifiers: Introduction, single Tuned Amplifiers – Q-factor, frequency response of tuned amplifiers, Concept of stagger tuning and synchronous tuning.

No. of Sessions Planned	Topics	Reference	Teaching Method/ Aids
1	Class A Power Amplifier	T2,R2	Black Board
1	Series fed and Transformer coupled	R2	Black Board
1	Conversion Efficiency	T2,R1	Black Board
1	Class B Power Amplifier	T2,R2	Black Board
1	Frequency-domain methods of design.	T2,R1	Black Board
2	Push Pull and Complimentary Symmetry configurations	T2	Black Board
1	Principle of operation of Class AB Amplifiers	T2	Black Board
2	Principle of operation of Class C Amplifiers	T1	Black Board
1	single Tuned Amplifiers	T2,R1	Black Board
1	Q-factor	T2,R2	Black Board
1	frequency response of tuned amplifiers	R2	Black Board
1	Concept of stagger tuning and synchronous tuning.	T2,R2	Black Board
Gap beyond syllabus(if any):			
Gap with in the syllabus(if any)			
Course Outcome1: Principle of operation of Class AB Amplifiers, Class C Amplifiers, Class B Power Amplifier, single Tuned Amplifiers.			

*Session Duration: 50minutes

*Total Number of Hours/Unit:14

Unit-V Syllabus

Multi vibrators: Analysis and Design of Bistable, Monostable, Astable Multivibrators and Schmitt trigger using Transistors.

Time Base Generators: General features of a Time base Signal, Methods of Generating Time Base Waveform, concepts of Transistor Miller and Bootstrap Time Base Generator, Methods of Linearity improvement.

No. of Sessions Planned	Topics	Reference	Teaching Method/ Aids
2	Analysis and Design of Bistable	T2,R2	Black Board
1	Mono stable Multi vibrators	T2,R2	Black Board
1	Astable Multi vibrators	T2	Black Board
1	Schmitt trigger using Transistors.	T1, R1	Black Board
2	General features of a Time base Signal	T1, R1	Black Board
2	Methods of Generating Time Base Waveform	T1	Black Board
1	concepts of Transistor Miller Time Base Generator	T2	Black Board
1	Bootstrap Time Base Generator	T1, R1	Black Board
2	Methods of Linearity improvement	T2, R1	Black Board
Gap beyond syllabus(if any):			
Gap with in the syllabus(if any)			
CourseOutcome1: Discuss Mono stable & Astable Multi vibrators.			

*Session Duration: 50minutes

*Total Number of Hours/Unit: 13

TEXTBOOKS:

T1.M.Gopal,"ControlSystems:PrinciplesandDesign",McGrawHillEducation,1997
T2. B. C. Kuo, "Automatic Control System", Prentice Hall, 1995.

REFERENCEBOOKS:

R1. K.Ogata,"ModernControlEngineering",PrenticeHall,1991.
R2. I.J.NagrathandM.Gopal,"ControlSystemsEngineering",NewAgeInternational,2009.

WEB REFERENCES:

+

S.No.	Web Link
1	https://www.electronics-tutorials.ws/transistor/darlington-transistor.html
2	https://pressbooks.bccampus.ca/basicelectricity/chapter/fuses-and-circuit-breakers/
3	https://www.electronics-tutorials.ws/oscillator/rc_oscillator.html
4	https://www.tutorialspoint.com/amplifiers/class_b_power_amplifier.htm
5	https://www.electronics-tutorials.ws/waveforms/astable.html

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(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)

Khalsa Ibrahimpatnam, Sheriguda (V),Ibrahimpatnam(M),RangaReddy Dist.,Telangana–501510

Website: https://siiet.ac.in/

Lecture Notes

Unit1 link:

https://drive.google.com/file/d/1OJ8pdz2bh7wwBe_riBqBU2BsHIWgISob/view?usp=sharing

Unit 2 link:

https://drive.google.com/file/d/1ZXeWDEyItYp1Smf6C_x1sjg0-ZjOUO_l/view?usp=sharing

Unit 3 link:

https://drive.google.com/file/d/1pS8DcxVEdS0UmNlY65fDdQh2tzznfG1G/view?usp=sharing

Unit 4 link:

https://drive.google.com/file/d/1DCVlZhAWkVnq11z-azJ-AcDztXDPzKS4/view?usp=sharing

Unit5 link:

https://drive.google.com/file/d/1Ndi1iVK8tdV-5_qSsxnAilX0qubD63fW/view?usp=sharing

Power point presentation

PPT link:

https://docs.google.com/presentation/d/1IfU6MD5YG4slHRx2JIgJZhoTDlegGfnW/edit?usp=sharing&ouid=107122273852189527807&rtpof=true&sd=true

Code No: 154AW **R18**

JAWAHARLALNEHRUTECHNOLOGICALUNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations,March-2022
ELECTRONIC CIRCUIT ANALYSIS
(Common to ECE,EIE)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
Allquestionscarryequalmarks

1.a) Derive expressionforcurrentgain,voltagegainandinputimpedanceofDarlingtonpair Emitter follower. [10+5]
b) Explain the need of cascading amplifiers.

2.a) Draw the circuit diagram of RC coupled amplifier and explain its operation.
b) Derive the relation between f_α, f_β and also define them. [10+5]

3.a) Derivetheinputresistance,outputresistanceandvoltagegainwithfeedbackfor Voltage shunt negative feedback amplifier using block diagram.
b) List out the advantages of negative feedback amplifiers. [10+5]

4.a) A negative feedback of 0.005 is applied to an amplifier whose open loop gain is 60dB. If the open loop gain gets reduced by 12%, how much the overall gain gets altered?
b) A Hartley Oscillator is designed with L_1=2mH, L_2=20μH and avariable capacitance. Determine the range of capacitor values if the frequency of oscillation is varying between 950KHzand2050 KHz. [7+8]

5.a) Obtain the expression for frequency of oscillations and condition of oscillations for colpitt's oscillator. A colpitt's oscillator has C_1=0.16 μF, C_2=15.8μF and its frequency of oscillation is 20 KHz. Calculate the value of L.
b) What are the merits of crystal oscillators? Draw the circuit diagram. [8+7]

6.a) With a neat diagram, explain the principle of operation of class B push-pull amplifier and find its efficiency.
b) Explain a crossover distortion in power amplifiers, how it can be eliminated?[10+5]

7.a) Draw the class-A transformer coupled power amplifier and explain its operation and derive the equation for its efficiency and explain its working.
b) Compare Astable and Mono stable multi vibrators in terms of their operation.[10+5]

8.a) Design Schmitt trigger circuit using Transistor and explain its working with necessary waveforms.
b) Perform the analysis of Bistable multi vibrator using transistors with neat sketch.[7+8]

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CodeNo:154AW **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, August/September-2022
ELECTRONIC CIRCUIT ANALYSIS
(Common to ECE,EIE)

Time: 3 Hours **Max.Marks:75**

Answer any five questions
All questions carry equal marks

1.a) Draw the equivalent circuit of RC coupled amplifier for Mid-band, Low frequency range, high frequency range and derive the expressions for current gain, voltage gain.
b) With a neat sketch explain Bootstrap Emitter Follower. [8+7]

2.a) Derive the expressions for higher and lower cut-off frequency of a multistage amplifier.
b) Explain about the validity of hybrid-π model. Also give typical values of hybrid-π conductances and capacitances. [7+8]

3.a) Show that the bandwidth increases in negative feedback amplifiers.
b) Derive the expression for input and output resistance of voltage series feedback amplifier with a neat diagram. [7+8]

4.a) Draw the block diagrams of four types of negative feedback amplifier circuits and explain the advantages and disadvantages with necessary derivations.
b) An amplifier requires an input signal of 70mV to produce a certain output with a negative feedback to get the same output the required signal is 0.6V. The voltage gain with feedback is 100. Find the open loop gain and feedback factor. [7+8]

5.a) Derive the expression for frequency of oscillation of Hartley oscillator using BJT.
b) Explain Barkhausen criterion for oscillation in feedback oscillator. [8+7]

6.a) Derive the oscillation condition for LC circuits.
b) With the help of suitable schematic, explain the operation of a Wien Bridge oscillator and derive an expression for its frequency of operation. [7+8]

7.a) Explain the operation of Direct coupled class-A power amplifier with a neat circuit. Show that the maximum conversion efficiency is 25%.
b) Draw the circuit of single tuned capacitance coupled amplifier and explain its operation. [8+7]

8.a) Draw and explain the circuit of Astable Multivibrator with necessary waveforms.
b) With neat sketches and necessary expressions, explain the transistor Miller time-base generator. [7+8]

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Code No: 154AW

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, July/August – 2021
ELECTRONIC CIRCUIT ANALYSIS
(Common to ECE, EIE)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

\- - -

1.a) Derive the expression for the bandwidth of multistage amplifier.
b) What is the use of transformer coupling in the output of multistage amplifier? Give itsadvantages and disadvantages. [8+7]

2.a) Show that bandwidth increases in negative feedback amplifiers.
b) An amplifier has an input resistance of 200 K ohms, with a certain negative feedback introduced in the above amplifier the input resistance is found to be 20 M ohms and overall gain is found to be 1000. Calculate the loop gain and feedback factor. [8+7]

3.a) Derive the expression for frequency of oscillation of Hartley oscillator.
b) Discuss about Frequency and amplitude stability of oscillators. [9+6]

4.a) Describe the operation of Class B Push pull amplifier and show how even harmonics areeliminated.
b) Derive the expression for conversion efficiency of class-B amplifier. [10+5]

5.a) Draw the neat diagram of monostable multivibrator using external connection and explain it in detail.
b) Determine the frequency of oscillation for the astable multivibrator using IC-555. Given that $R_A=R_B=1K\Omega$ and C=1000PF. [10+5]

6.a) Discuss in detail about the Validity of hybrid-π model. Also give typical values of hybrid-π conductance and capacitances.
b) Draw the four types of feedback amplifiers and explain them briefly. [7+8]

7.a) Establish the condition for frequency of oscillation in an RC phase shift oscillator.
b) Derive the expression for maximum conversion efficiency for a Transformer coupled Class A power amplifier. [10+5]

8.a) With the help of a neat circuit diagram, explain the working of a simple current sweep.
b) What are the techniques used to improve the Linearity of current sweeps? Explain.[8+7]

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SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Shereguda (V), Ibrahimpatnam (M), R.R.Dist-501 510 **Set – I**

I - Mid Examinations, JULY-2023

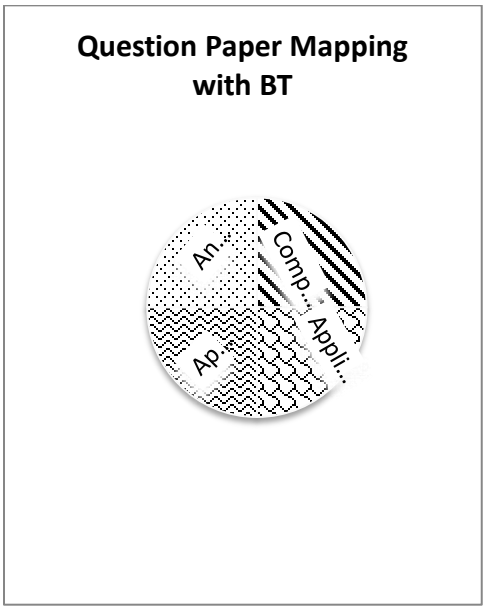
Year &Branch: II ECE-A &B Date: 12-07-2023(FN)

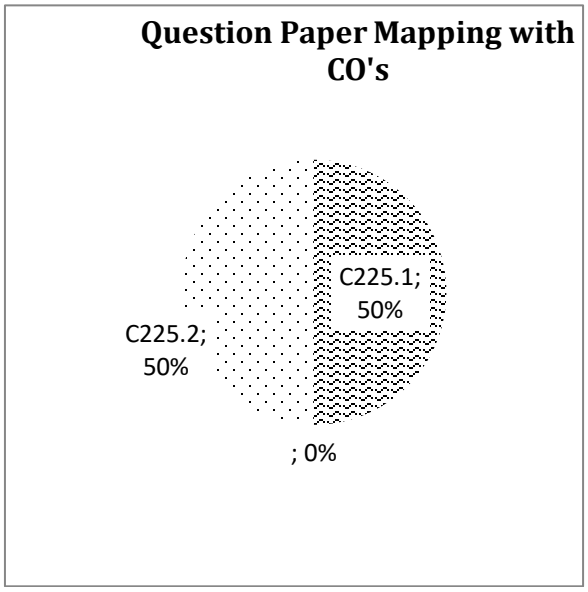
Subject: ECA Max. Marks: 10 Time: 60mins

Answer any **TWO** Questions. All Question Carry Equal Marks 2*5=10 marks

(This question paper is prepared with Course Outcome and BT's mapping)

1	Sketch Two RC coupled CE transistor stages. Show the middle and low frequency model for one stage.	(5)	C225.1	(Comprehension)
2.	Draw the circuit diagram of darlington pair circuit. Deriving its important characteristics.	(5)	C225.1	(Application)
3	Draw the practical circuit for current series feedback. And find the voltage gain, input impendance & output impendence.	(5)	C225.2	(Application)
4	Draw the frequency response of an amplifier without and with feedback & show the bandwidth for each case & how these two curves are related to gain bandwidth product.	(5)	C225.2	(Analysis)





SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Shereguda (V), Ibrahimpatnam (M), R.R.Dist-501 510 **Set – I**

II - Mid Examinations, SEP-2023

Year &Branch: II ECE-A &B Date:13-09-2023(FN)

Subject: ECA Max. Marks: 10 Time: 60mins

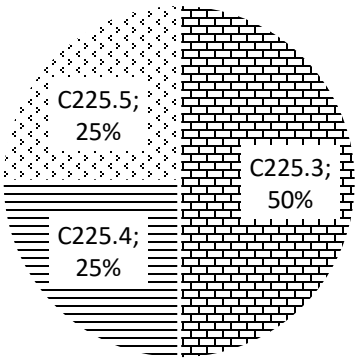
Answer any **TWO** Questions. All Question Carry Equal Marks 2*5=10 marks

(This question paper is prepared with Course Outcome and BT's mapping)

1	Derive an expression for frequency oscillations of transistorized Colpitts oscillators.	(5)	C225.3	(synthesis)
2.	Draw the circuit diagram of class-B complementary symmetry push pull amplifier and explain its working	(5)	C225.4	(Application)
3	With the help of a neat circuit diagram & waveforms , explain the working of a collector-coupled Mono stable Multivibrator	(5)	C225.5	(Analysis)
4	Derive an expression for frequency oscillations of transistorized Hartely oscillators.	(5)	C225.3	(synthesis)

Question Paper Mapping with BT

Question Paper Mapping with CO's



Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

B-Tech I - Mid Examinations, JULY -2023

Objective Type Exam

Year &Branch: II –ECE-A& B Date: 12-07-2023(FN)

Subject: ECA Max. Marks: 10 Time: 20 mins

Name: ……Roll No……

Choose the correct answers.

1. The type of combination used in cascode amplifier is [ ]
   a) CB-CC b) CB-CE c) CE-CB d)CC-CB
2. Harmonic distortion is also known as [ ]
   a) Frequency distortion c) Phase distortion
   b) Delay distortion d) Amplitude distortion
3. The gain of the negative feedback amplifier is [ ]
   a) $A/1+A\beta$ b) $A/1-A\beta$ c) $1/1+A\beta$ d) $A\beta/1+A\beta$
4. The phase difference between input signal and feedback in a negative feedback amplifier is [ ]
   a) 180^0 b) 90^0 c) 270^0 d) 0^0
5. A transistor converts [ ]
   a) Ac power into dc power b) Low resistance into high resistance
   c) High resistance into low resistance d) Dc power into ac power
6. Using negative feedback bandwidth and gain [ ]
   a) Increases , decreases c) Increases , increases
   b) decreases , increases d)decreases , decreases
7. In negative feedback ---------- is reduced [ ]
   a) Gain b) bandwidth c) distortion d) both a) & c)
8. Trans conductance (G_M) of the feedback amplifier is [ ]
   a) I_0/V_0 b) I_0/V_S c) I_S/V_0 d) I_0/V_I
9. In a series mixing Input resistance is [ ]
   a) increases b) decreases c) constant d) none
10. The input resistance (R_{if}) of current series feedback amplifier is [ ]
    a) $R_{if} = (1+\beta R_M)$ c) $R_{if=} R_i / (1+\beta R_M)$
    b) $R_{if=} R_i (1+\beta R_M)$ d) $R_{if=}(1+\beta R_M)/R_i$

I. Fill in the Blanks

11. The input resistance of shunt mixing is_____
12. The output resistance of voltage sampling is ----------
13. Input resistance R_{if} of Voltage series feedback amplifier _____.
14. What are the Different types of coupling techniques used in amplifiers _____
15. In hybrid – π model g_m = _____
16. In RC phase shift oscillator F= _____
17. In voltage series feedback amplifier R_{of} = _____
18. What are the different types of distortions generated in amplifiers _____
19. In CE short circuit model Unity gain bandwidth (f_T) =_____
20. In a hybrid- π model $g_{b'e}$ =_____

Sri Indu Institute of Engineering &Technology

Sheriguda(V),Ibrahimpatnam(M),R.R.Dist-501510

B-Tech II - Mid Examinations, SEP-2023

Objective Type Exam

Year &Branch: II –ECE-A&B Date:13/09/23(FN)

Subject: ECA Max. Marks: 10 Time: 20 mins

Name:……..RollNo……

I. Choose the correct answers.

1. An oscillator type of LC type having a spilt capacitor in the tank circuit is
   a) Hartley b) Colpitts c) Ttuned d) Wein bridge [ ]
2. An important limitation of a crystal oscillator is [ ]
   a) its low output b) its high Q c) less availability of quartz crystal d) its high output
3. With transformer connection to load the maximum efficiency of the class A amplifier will go up to a maximum of [ ]
   a) 78.5% b) 25% c) 50% d) 66%
4. In _____power amplifier, the output signal varies for a full 360' of the cycle. [ ]
   a) Class A b) Class B c) Class AB d) None of the above
5. In tuned amplifiers, harmonic distortion is [ ]
   a) Infinite b) More c) Less d) None
6. Tuned amplifiers can be used in [ ]
   a) Radar b) IF amplifiers c) Both a and b d) None
7. Which of the following is the function of capacitor. [ ]
   a) Charges b) Stores c) Discharges d) All of the above.
8. How many stages of a tuned amplifier does a staggered tuned amplifier comprises of [ ]
   a) Single b) Double c) Dual d) Multiple
9. Miller integrator voltage sweep generator uses [ ]
   a) Negative feedback b) Positive feedback c) both negative and positive feedback d) No feedback
10. Darlington emitter follower has [ ]
    a) high input resistance and unity voltage gain b) low input resistance and unity voltage gain c) low input resistance and high voltage gain d) high input resistance and voltage gain less than unity but close to unity

II. Fill in the Blanks

11. The frequency stability of LC oscillator is _____than RC oscillators.
12. The oscillator which uses inductive feedback is _____
13. In a RC phase shift oscillator, each RC section provides a phase shift of _____
14. Small signal tuned amplifiers are operated in _____ mode.
15. Non sinusoidal oscillators are also called _____
16. LC circuit in a tuned amplifier is also called_____
17. _____ is a combination of tuned amplifiers.
18. Which oscillator is characterized by a split capacitor in its tank circuit_____
19. The oscillator that gives good frequency stability _____
20. The gain of an operational amplifier will be maximum at _____

Sri Indu Institute of Engineering &Technology

Sheriguda(V),Ibrahimpatnam(M),R.R.Dist-501510

B-Tech I-Mid Examinations, July-2023

Year &Branch: II–ECE-A&B

Date:12/07/23(FN)

Subject: ECA

ANSWER KEY

Descriptive paper key link:

https://drive.google.com/file/d/1nMqVdL1T6E9SD00cT5g3_PWqsBUciNXO/view?usp=sharing

I. Choose the correct alternative:

1) c
2) d
3) a
4) a
5) b
6) a
7) d
8) b
9) a
10) c

Fill in the blanks Answers

11. Decreases
12. Decreases
13. $R_{if} = R_i*(1+\beta A)$
14. RC coupled, Transformed coupled, Direct coupled
15. $g_m = I_C/V_T$
16. $F=1/2\pi RC\sqrt{6}$
17. $R_{of} = R_o/(1+\beta A)$
18. Amplitude distortion, Frequency distortion, Phase distortion
19. $f_T = g_m/2\pi C_e$
20. $g_{b'e}=g_m/h_{fe}$

Sri Indu Institute of Engineering &Technology

Sheriguda(V),Ibrahimpatnam(M),R.R.Dist-501510

B-Tech II-Mid Examinations, SEP-2023

Year &Branch: II–ECE-A&B **Date:13/09/2023**

Subject: ECA

ANSWER KEY

Descriptive paper key link:

https://drive.google.com/file/d/1ilUYkSptGanw53XA6mgkG5c0Z3cZIxCz/view?usp=sharing

Objective/Quiz Key Paper

I. Choose the correct alternative:

1) B

2) A

3) C

4) A

5) C

6) C

7) B

8) C

9) B

10) D

II. Fill in the blanks:

11) Less

12) Hartley

13) 60 Degree

14) Class A

15) Multivibrators

16) Tank circuit

17) RLC

18) Colpitts oscillator

19) Crystal oscillator

20) 1HZ

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Website: https://siiet.ac.in/

ASSIGNMENT-1 **SUBJECT:ELECTRONIC CIRCUIT ANALYSIS**

1. Explain two-stage RC coupled amplifier. (C225.1) (Understanding)

2. Define f_α,f_β and derive the expressions for f_α,f_β &f_T. (C225.1) (Remembering)

3. Draw the circuit diagram of darlington pair circuit & derive its important characteristics. (C225.1) (Applying)

4. Draw the frequency response of an amplifier with & without feedback and show the BW for each case & how its are related to gain BW product. (C225.2) (Applying)

5. Draw the practical circuit for current series feedback and find the voltage gain input impedance and output impendance. (C225.2) (Applying)

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ASSIGNMENT-2 **SUBJECT:ELECTRONIC CIRCUIT ANALYSIS**

1. Derive an expression for frequency oscillations of transistorized colpitt's oscillator. (C225.3) (Creating)

2. Draw the circuit diagram of class-B complementary symmetry push pull amplifier and explain its working. (C225.4) (Applying)

3. Derive an expression for frequency oscillations of transistorized hartelly oscillator. (C225.3) (Creating)

4. With the help of a neat circuit diagram & waveforms, explain the working of a collector -coupled monostable multivibrator. (C225.5) (Applying)

5. Derive an expression for frequency oscillations & transistorized RC phase shift oscillations. (C225.4) (Creating)

6. Explain the principle of stagger tuning technique of transformer coupled amplifier. (C225.5) (Understanding)

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Website: https://siiet.ac.in/

Result Analysis:

Course Title	ELECTRONIC CIRCUIT ANALYSIS
Course Code	EC405PC
Programme	B.Tech
Year &Semester	II year II- semester, A sec
Regulation	R18
Course Faculty	G.NIRMALA, Assistant Professor, ECE

Slow learners:

S No	Roll No	No of backlogs	Internal-I Status	Internal-II Status
1	21X31A0402	3	14	16
2	21X31A0403	4	14	16
3	21X31A0407	5	19	17
4	21X31A0408	5	19	17
5	21X31A0412	5	14	17
6	21X31A0416	3	17	19
7	21X31A0428	3	20	19
8	21X31A0433	5	19	20

Advanced learners:

S.NO	ROLL.NO.	GATE MATERIAL
1	21X31A0404	Cascade RC Coupled amplifiers, Cascode amplifier, Darlington pair, Hartley and Colpitts Oscillators, Crystal Oscillator, Bistable, Monostable, Astable Multivibrators and Schmitt trigger using Transistors.
2	21X31A0405	
3	21X31A0406	
4	21X31A0410	
5	21X31A0413	
6	21X31A0415	
7	21X31A0418	
8	21X31A0420	
9	21X31A0422	
10	21X31A0424	
11	21X31A0426	
12	21X31A0427	
13	21X31A0429	

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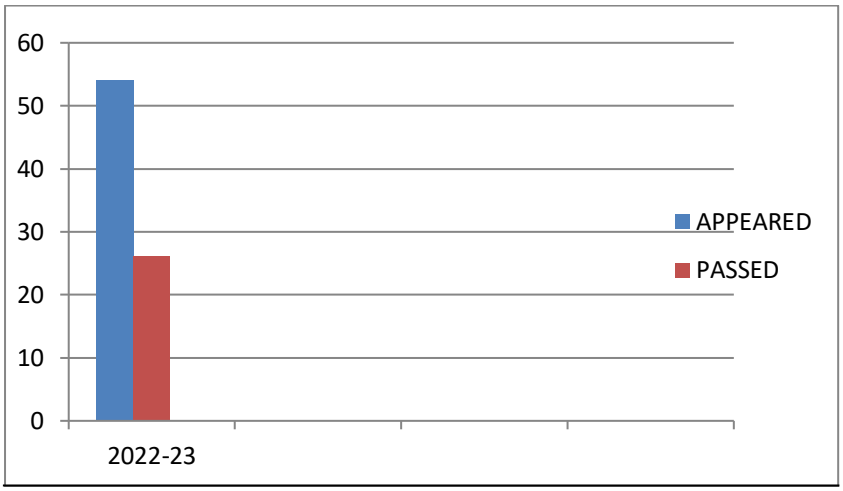
Website: https://siiet.ac.in/

BATCH ECE-II B.TECH IISEM ECE-A RESULT ANALYSIS

ACADAMIC YEAR	COURSE NAME	NUMBER OF STUDENTS		QUESTION PAPER SETTING		PASS%
		APPEARED	PASSED	INTERNAL	EXTERNAL	
2022-23	ELECTRONIC CIRCUIT ANALYSIS	54	26	COURSE FACULTY	JNTUH	48.14%

ELECTRONIC CIRCUIT ANALYSIS (C225) RESULT ANALYSIS



SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC)
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(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)
Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510
Website: https://siiet.ac.in/

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

REMEDIAL CLASSES TIME TABLE

A.Y 2022-23 **SEMESTER-II**

BRANCH/ SEC	MON 4.00 PM- 5.00 PM	TUE 4.00 PM- 5.00 PM	WED 4.00 PM- 5.00 PM	THUR 4.00 PM- 5.00 PM	FRI 4.00 PM- 5.00 PM
II ECE-A	EMF&W	LTNM	A&DC	LICA	ECA
II ECE-B	LICA	A&DC	EMF&W	ECA	LTNM
III ECE-A	DSP	VLSID	A&P	ESD	IM
III ECE-B	A&P	ESD	DSP	IM	VLSID
III ECE-C	IM	A&P	ESD	VLSID	DSP
IV ECE-A	WSN	ML	LPVLSID	-	-
IV ECE-B	ML	LPVLSID	WSN	-	-
IV ECE-C	LPVLSID	WSN	ML	-	-

HOD Department
Head of the Department
Electronics and Communication Engg. Dept
SRI INDU INSTITUTE OF ENGG & TECH
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 510

PRINCIPAL
PRINCIPAL
Sri Indu Institute of Engineering & Tech
Sheriguda(Vill), Ibrahimpatnam
R R Dist Telangana -501 510

SRI INDU INSTITUTE OF ENGINEERING ANDTECHNOLOGY

Department of Electronics and Communication Engineering

Course Outcome Attainment (University Examinations)

Name of the faculty :	G.Nirmala	Academic Year:	2022-23
Branch & Section:	ECE - A	Examination:	I Internal
Course Name:	Electronic Circuit Analysis	Year: II	Semester: II

S.No	HT No.	Q1a	Q1b	Q2a	Q2b	Q3a	Q3b	Q4a	Q4b	Obj1	A1
Max. Marks ==>		**5**		**5**		**5**		**5**		**10**	**5**
1	21X31A0401	3		5						7	5
2	21X31A0402			2						7	5
3	21X31A0403			2		5				7	5
4	21X31A0404	2		2						7	5
5	21X31A0405	5		3						8	5
6	21X31A0406	5						5		10	5
7	21X31A0407	3				3				8	5
8	21X31A0408	3						3		8	5
9	21X31A0409	4				3				7	5
10	21X31A0410	5				5				7	5
11	21X31A0412	5								5	5
12	21X31A0413	5				4				7	5
13	21X31A0414	4								7	5
14	21X31A0415	4								7	5
15	21X31A0416	5								7	5
16	21X31A0417	3						2		7	5
17	21X31A0418	5				5		3		9	5
18	21X31A0420	5						5		9	5
19	21X31A0421	5				2				8	5
20	21X31A0422	5								8	5
21	21X31A0423	4		5						9	5
22	21X31A0424	3								9	5
23	21X31A0425	4		3						8	5
24	21X31A0426	3		3						8	5
25	21X31A0427	5				5				9	5
26	21X31A0428	3				3				9	5
27	21X31A0429	4				2				9	5
28	21X31A0431			5		1				8	5
29	21X31A0432	4				2				8	5
30	21X31A0433	4				2				8	5
31	21X31A0434	5				2				9	5
32	21X31A0435	4								8	5
33	21X31A0436	5								7	5
34	21X31A0437	4						2		6	5
35	22X35A0401	4		5						7	5
36	22X35A0402	4		3						7	5
37	22X35A0403	4		2						7	5
38	22X35A0404	3								6	5
39	22X35A0405	4		2						5	5

40	22X35A0406	4		2						7	5
41	22X35A0407	4		3						8	5
42	22X35A0408	4								6	5
43	22X35A0409	5								8	5
44	22X35A0410	5		4						7	5
45	22X35A0411	4						4		7	5
46	22X35A0412	5		3						7	5
47	22X35A0413	4		4						8	5
48	22X35A0414			5						8	5
49	22X35A0415	4						4		7	5
50	22X35A0416	5								7	5
51	22X35A0417	4		1						7	5
52	22X35A0418	5		3						9	5
53	22X35A0419	4						3		9	5
54	22X35A0420	5						4		9	5
Target set by the faculty / HoD		3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	6.00	3.00
Number of students performed above the target		48	0	14	0	8	0	8	0	52	54
Number of students attempted		50	0	21	0	14	0	10	0	54	54
Percentage of students scored more than target		96%		67%		57%		80%		96%	100%

CO Mapping with Exam Questions:

CO - 1	Y		Y		Y				Y	Y
CO - 2							Y		Y	Y
CO - 3									Y	Y
CO - 4										
CO - 5										
CO - 6										

% Students Scored >Target %	96%		67%		57%		80%		96%	100%

CO Attainment based on Exam Questions:

CO - 1	96%		67%		57%				96%	100%
CO - 2							80%		96%	100%
CO - 3									96%	100%
CO - 4										
CO - 5										
CO - 6										

CO	Sub	obj	Asgn	Overall	Level
CO-1	73%	96%	100%	90%	3.00
CO-2	80%	96%	100%	92%	3.00
CO-3		96%	100%	98%	3.00
CO-4					
CO-5					
CO-6					

Attainment Level	
1	40%
2	50%
3	60%

Attainment (Internal 1 Examination) = 3.00

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electronics and Communication Engineering

Course Outcome Attainment (Internal Examination)

Name of the faculty :	G. Nirmala	Academic Year:	2022-23
Branch & Section:	ECE - A	Examination:	II Internal
Course Name:	Electronic Circuit Analysis	Year:: II	Semester: II

S.No Max. Marks ==>	HT No.	Q1a 5	Q1b	Q2a 5	Q2b	Q3a 5	Q3b	Q4a 5	Q4b	Obj4 10	A4 5
1	21X31A0401	5				5				4	5
2	21X31A0402	5								6	5
3	21X31A0403	5								6	5
4	21X31A0404	5				4				7	5
5	21X31A0405	5		5						6	5
6	21X31A0406			5				5		7	5
7	21X31A0407	5								7	5
8	21X31A0408	5								7	5
9	21X31A0409			4						5	5
10	21X31A0410	4				3				6	5
11	21X31A0412	5		1						6	5
12	21X31A0413			5				5		6	5
13	21X31A0414	4				3				7	5
14	21X31A0415			3				4		6	5
15	21X31A0416	4				3				7	5
16	21X31A0417	5								6	5
17	21X31A0418			5						7	5
18	21X31A0420	5				5				7	5
19	21X31A0421			5				4		7	5
20	21X31A0422			5				4		9	5
21	21X31A0423	5								8	5
22	21X31A0424	5								9	5
23	21X31A0425			4		4				8	5
24	21X31A0426	4		3						7	5
25	21X31A0427			5		5				8	5
26	21X31A0428			4				4		6	5
27	21X31A0429	4				4				6	5
28	21X31A0431			5				4		6	5
29	21X31A0432	4		4						6	5
30	21X31A0433			4		4				7	5
31	21X31A0434	5						4		7	5
32	21X31A0435	4				4				6	5
33	21X31A0436	5								6	5
34	21X31A0437	5		1						7	5
35	22X35A0401	5				5				8	5
36	22X35A0402			5				4		8	5
37	22X35A0403	5								8	5
38	22X35A0404					5				8	5

39	22X35A0405	4		3						8	5
40	22X35A0406			4		3				7	5
41	22X35A0407			3		4				7	5
42	22X35A0408	4		4						6	5
43	22X35A0409	5				4				8	5
44	22X35A0410	5						5		6	5
45	22X35A0411	5		4						7	5
46	22X35A0412			5		4				6	5
47	22X35A0413					5		4		6	5
48	22X35A0414	5								7	5
49	22X35A0415	5		3						7	5
50	22X35A0416			5		4				7	5
51	22X35A0417	4		3						7	5
52	22X35A0418	5						5		6	5
53	22X35A0419			4		4				6	5
54	22X35A0420	5		4						6	5
Target set by the faculty / HOD		3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	6.00	3.00
Number of students performed above the target		34	0	27	0	20	0	12	0	52	54
Number of students attempted		34	0	29	0	20	0	12	0	54	54
Percentage of students scored more than target		100%		93%		100%		100%		96%	100%

CO Mapping with Exam Questions:

CO - 1									
CO - 2									
CO - 3		y							
CO - 4	y							y	y
CO - 5			y					y	y
CO - 6					y		y	y	y

% Students Scored >Target %	100%		93%		100%		100%	96%	100%

CO Attainment based on Exam Questions:

CO - 1									
CO - 2									
CO - 3									
CO - 4	100%							96%	100%
CO - 5			93%					96%	100%
CO - 6					100%		100%	96%	100%

CO	Sub	obj	Asgn	Overall	Level
CO-1					
CO-2					
CO-3					
CO-4	100%	96%	100%	99%	3.00
CO-5	93%	96%	100%	96%	3.00
CO-6	100%	96%	100%	99%	3.00

Attainment Level	
1	40%
2	50%
3	60%

Attainment (Internal Examination-2) = 3.00

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electronics and Communication Engineering

Course Outcome Attainment (University Examinations)

Name of the faculty: G.Nirmala Academic Year: 2022-23

Branch & Section: ECE - A Year / Semester: II / II

Course Name: Electronic Circuit Analysis

S.No	Roll Number	Marks Secured
1	21X31A0401	26
2	21X31A0402	5
3	21X31A0403	12
4	21X31A0404	32
5	21X31A0405	30
6	21X31A0406	26
7	21X31A0407	2
8	21X31A0408	9
9	21X31A0409	26
10	21X31A0410	42
11	21X31A0412	4
12	21X31A0413	32
13	21X31A0414	10
14	21X31A0415	30
15	21X31A0416	12
16	21X31A0417	26
17	21X31A0418	26
18	21X31A0420	42
19	21X31A0421	26
20	21X31A0422	26
21	21X31A0423	38
22	21X31A0424	26
23	21X31A0425	29
24	21X31A0426	26
25	21X31A0427	42
26	21X31A0428	9
27	21X31A0429	26
28	21X31A0431	34
29	21X31A0432	29
30	21X31A0433	15
31	21X31A0434	26
32	21X31A0435	16
33	21X31A0436	29
34	21X31A0437	26
Max Marks	75	

S.No	Roll Number	Marks Secured
35	22X35A0401	42
36	22X35A0402	33
37	22X35A0403	28
38	22X35A0404	29
39	22X35A0405	27
40	22X35A0406	29
41	22X35A0407	44
42	22X35A0408	26
43	22X35A0409	26
44	22X35A0410	42
45	22X35A0411	39
46	22X35A0412	26
47	22X35A0413	35
48	22X35A0414	33
49	22X35A0415	26
50	22X35A0416	54
51	22X35A0417	30
52	22X35A0418	26
53	22X35A0419	37
54	22X35A0420	38

Class Average mark	26
Number of students performed above the target	44
Number of successful students	54
Percentage of students scored more than target	81%
Attainment level	**3**

Attainment Level	**% students**
1	40%
2	50%
3	60%

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electronics and Communication Engineering

Course Outcome Attainment

Name of the faculty :	G.Nirmala	Academic Year:	2022-23
Branch & Section:	ECE - A	Year:	II
Course Name:	Electronic Circuit Analysis	Semester:	II

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	3.00	3.00
CO2	3.00		3.00	3.00	3.00
CO3	3.00		3.00	3.00	3.00
CO4		3.00	3.00	3.00	3.00
CO5		3.00	3.00	3.00	3.00
CO6		3.00	3.00	3.00	3.00
Internal & University Attainment:			3.00	3.00	
Weightage			25%	75%	
CO Attainment for the course (Internal, University)			0.75	2.25	
CO Attainment for the course (Direct Method)			3.00		

Overall course attainment level 3.00

SRI INDU INSTITUTE OF ENGINEERING &TECHNOLOGY

Department of Electronics and Communication Engineering

Program Outcome Attainment(from Course)

Name of Faculty:	G.Nirmala	Academic Year:	2022-23
Branch & Section:	ECE - A	Year:	II
Course Name:	Electronic Circuit Analysis	Semester:	II

CO-PO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1	-	-	-	-	-	-	-	-	3	3
CO2	2	3	2	1	-	-	-	-	2	-	-	-	2	2
CO3	2	3	2	1	-	-	-	-	-	2	-	-	3	3
CO4	1	3	2	-	-	-	-	-	-	-	-	-	3	3
CO5	3	2	1	-	-	-	-	-	-	-	2	-	2	2
CO6	2	3	2	-	-	-	-	-	-	-	-	2	1	1
Course	**2.17**	**1.83**	**1.83**	**0.50**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**2.00**	**2.33**	**2.33**

CO	**Course Outcome Attainment**
CO1	3.00
CO2	3.00
CO3	3.00
CO4	3.00
CO5	3.00
CO6	3.00
Overall course attainment level	**3.00**

PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO Attainment	**2.17**	**1.83**	**1.83**	**0.50**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**2.00**	**-**	**-**

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)

ASSIGNMENTS AND REGISTERS

Assignment1 script link:

https://drive.google.com/file/d/1gtyVYy0ukm1ytfII279y--esrSM7U9SP/view?usp=sharing

Assignment2 script link:

https://drive.google.com/file/d/1nSGQ4m6dP0KBvOP6wB44eF8EZi2pKo5h/view?usp=sharing

Attendance register link:

https://drive.google.com/file/d/1Xgifr_lF4WLSOE3P2CqhFT8Qm22g0WqP/view?usp=sharing