



VIDYA JYOTHI
INSTITUTE OF TECHNOLOGY
AN AUTONOMOUS INSTITUTION

(Accredited by NAAC, Approved by AICTE New Delhi & Permanently Affiliated to JNTUH)
Aziz Nagar Gate, C.B. Post, Hyderabad-500 075

Department of Electronics and Communication Engineering
(Accredited by NBA)

Ref: VJIT/ECE/BOS/2025(2)

Date: 12-08-2025

BOARD OF STUDIES MEETING

This is to inform all the members of the Board of Studies (BoS), Department of Electronics and Communication Engineering, that the BoS meeting is scheduled on **13th August 2025**. All members are requested to attend the meeting to discuss and finalize the academic curriculum, syllabus, and other related matters for the upcoming term.

S.No	Name of the BOS member	Designation	Role
1.	Dr. P. Nageswara Rao	Professor & Head ECE, VJIT	Chairman
2.	Dr. K. Anitha Sheela	Professor, JNTUH UCESTH	JNTUH Nominee
3.	Dr. D. Rama Krishna	Professor, University College of Engineering, Osmania University	Academician, External
4.	Dr. M. Kiran	Professor, GRIET	Academician, External
5.	Dr. K. Sudharshan Reddy	Scientist F, DRDO	Industry Expert
6.	Mr. P. Datta Ravi Teja	Senior Software Engineer, Mathworks, Hyderabad	Alumni Member
7.	Dr. M. Rajendra Prasad	Professor, ECE, VJIT	Internal Member
8.	Dr. S. Thulasi Prasad	Professor, ECE, VJIT	Internal Member
9.	Dr. P. Ganesan,	Professor, ECE, VJIT	Internal Member
10.	Dr. M. Vadivel	Professor, ECE, VJIT	Internal Member
11.	Dr. S. Pradeep Kumar Reddy	Assoc. Professor, ECE, VJIT	Internal Member
12.	Dr. M. Krishnaiah	Asst. Professor, ECE, VJIT	Internal Member
13.	Mrs. A. Jaya Lakshmi	Assistant Professor, ECE, VJIT	Internal Member



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Agenda for the Board of Studies Meeting

1. Welcome and Opening remarks by the Chairperson
2. Introduction of reconstituted BOS members
3. Discussion & Approval of I B.Tech ECE Course Structure (R-25)
4. Discussion & Approval of syllabus of I B.Tech ECE subjects in R-25 regulations –
Network Analysis
5. Discussion & Approval of syllabus of I B.Tech courses (subjects) handled by ECE for
other branches in R-25 regulations - EDC

HOD-ECE



MINUTES OF MEETING

RESOLUTION

Item No. 1: Discussion & Approval of I B.Tech ECE Course Structure (R-25)

The chairman of BoS presented a detailed course structure of I B.Tech. ECE R-25 regulations.

Resolution (1): The members after a detailed discussion approved the course structure of B.Tech I year ECE of R-25 regulations. The details of the course structure are given in Annexure – 1

Noted and Approved.

JNTUH	VJIT-ECE
Course Title: Network Analysis & Synthesis	Course Title: Network Analysis & Synthesis

Item No. 2: Discussion & Approval of syllabus of I B.Tech ECE subjects in R-25 regulations – Network Analysis

The chairman of BoS presented a detailed syllabi of B.Tech I Year subjects offered by ECE Department to ECE branch in R-25 regulations.

Discussions:

The following topics are not covered in JNTUH syllabus either in Network Analysis & Synthesis or Basic Electrical Engineering:

Mesh Nodal analysis and review of theorems

Resolution (2): The members after thorough discussion approved the syllabi of B.Tech I Year subject offered by ECE Department to ECE branch. The detailed approved syllabus is given in Annexure -2

Noted and Approved.

JNTUH	VJIT-ECE
Course Title: Network Analysis & Synthesis	Course Title: Network Analysis & Synthesis
Syllabus Five Units	Syllabus: 1. UNIT-2 to UNIT-5 are same as JNTUH 2. Mesh Nodal analysis and review of theorems are added to the JNTUH UNIT-1 3. UNIT-1 title has been changed to Network Topology and Coupled Circuits



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TEXT BOOKS: 1. 1. Van Valkenburg -Network Analysis, 3rd Ed., Pearson, 216. 2. 2. JD Ryder - Networks, Lines and Fields, 2nd Ed., PHI, 1999.	TEXT BOOKS: 1. Van Valkenburg -Network Analysis, 3rd Ed., Pearson, 2019. 2. JD Ryder - Networks, Lines and Fields, 2nd Ed., PHI, 2015. 3. Charles K.Alexander and Matthew N.O.Sadiku-Fundamentals of Electric Circuits, 6 th Ed., McGraw Hill Company, 2016
REFERENCE BOOKS 1. J. Edminister and M. Nahvi - Electric Circuits, Schaum's Outlines, Mc Graw Hills Education, 1999. 2. A. Sudhakar and Shyammohan S Palli - Networks & Circuits, 4th Ed., Tata McGraw- Hill Publications 3. William Hayt and Jack E. Kimmerley - Engineering Circuit Analysis, 6th Ed., William Hayt and Jack E. Kimmerley, McGraw Hill Company	REFERENCE BOOKS Same as JNTUH

Item No. 3: Discussion & Approval of syllabus of I B.Tech courses (subjects) handled by ECE for other branches in R-25 regulations – EDC

The Chairman presented syllabi of B.Tech I Year subjects offered by ECE Department in R-25 regulations to I B.Tech I Semester (CSE, CSE (DS) & CSE (AIML)) and I B.Tech II Semester (IT).

Discussions: Few topics such as Advanced Devices: FinFETs - 3D structure, Scaling advantages, CNTFETs - Structure, ballistic transport, fabrication, Comparison: CMOS vs. FinFET vs. CNTFET are found to be advanced for the CSE and allied branches.

Resolution (3): The members after thorough discussion approved the syllabi of B.Tech I Year subjects offered by ECE Department to I B.Tech I Semester (CSE, CSE (DS) & CSE (AIML)) and I B.Tech II Semester (IT).than ECE. The detailed approved syllabus is given in Annexure -3

Noted and Approved.



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JNTUH	VJIT-ECE
Course Title: Electronic Devices And Circuits	Course Title: Basic Electronics
Syllabus Five Units	Syllabus: 1. All UNITS are same JNTUH except Advanced Devices in UNIT-5 of JNTUH 2. Advanced Devices: FinFETs - 3D structure, Scaling advantages, CNTFETs - Structure, ballistic transport, fabrication, Comparison: CMOS vs. FinFET vs. CNTFET are removed from the UNIT-5
TEXT BOOKS: 1. Millman, Jacob, and Christos C. Halkias. Electronic Devices and Circuits. Tata McGraw-Hill, 1991. 2. Boylestad, Robert L., and Louis Nashelsky. Electronic Devices and Circuit Theory. Pearson, 11th ed., 2013. 3. Sedra, Adel S., and Kenneth C. Smith. Microelectronic Circuits. Oxford University Press, 7th ed., 2014.	TEXT BOOKS: 1. Boylestad, Robert L., and Louis Nashelsky. Electronic Devices and Circuit Theory. Pearson, 11th edition, 2013. 2. Millman, Jacob, and Christos C. Halkias. Electronic Devices and Circuits. Tata McGraw-Hill, 1991. 3. Bell, David A. Electronic Devices and Circuits. Oxford University Press, 5th ed., 2008
REFERENCE BOOKS 1. Bell, David A. Electronic Devices and Circuits. Oxford University Press, 5th ed., 2008. 2. Neamen, Donald A. Electronic Circuit Analysis and Design. McGraw-Hill, 2nd ed., 2001. 3. Salivahanan, S., and N. Suresh Kumar. Electronic Devices and Circuits. McGraw-Hill Education, 4th ed., 2017. 4. Razavi, Behzad. Fundamentals of Microelectronics. Wiley, 2nd ed., 2013. 5. Taur, Yuan, and Tak H. Ning. Fundamentals of Modern VLSI Devices. Cambridge University Press, 2nd ed., 2009.	REFERENCE BOOKS 1. Neamen, Donald A. Electronic Circuit Analysis and Design. McGraw-Hill, 2nd ed., 2001. 2. Salivahanan, S., and N. Suresh Kumar. Electronic Devices and Circuits. McGraw-Hill Education, 4th ed., 2017. 3. Razavi, Behzad. Fundamentals of Microelectronics. Wiley, 2nd ed., 2013. 4. Taur, Yuan, and Tak H. Ning. Fundamentals of Modern VLSI Devices. Cambridge University Press, 2nd ed., 2009.



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Signature of the BOS Member

1. Dr. P. Nageswara Rao

2. Dr. K. Anitha Sheela

3. Dr. D. Rama Krishna

4. Dr. M. Kiran

5. Dr. K. Sudharshan Reddy

6. Mr. P. Datta Ravi Teja

7. Dr. M. Rajendra Prasad

8. Dr. S. Thulasi Prasad

9. Dr. P. Ganesan,

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ANNEXURE-1



DEPARTMENT OF HUMANITIES & SCIENCES

B. TECH I YEAR COURSE STRUCTURE 2025-26

(Electronics & Communication Engineering)

Semester – I

S. No	Course Code	Course Title	L	T	P	Credits
1		Mathematics-I (Matrices & Calculus)	3	1	0	4.0
2		Advanced Engineering Physics	3	0	0	3.0
3		Programming for Problem Solving	3	0	0	3.0
4		Basic Electrical Engineering	2	0	0	2.0
5		English for Skill Enhancement	3	0	0	3.0
6		Advanced Engineering Physics Lab	0	0	2	1.0
7		Programming for Problem Solving Lab	0	0	2	1.0
8		English Language & Communication Skills Lab	0	0	2	1.0
9		Basic Electrical Engineering Lab	0	0	2	1.0
10		Induction Program				
Total			14	01	08	19

Semester – II

S. No	Course Code	Course Title	L	T	P	Credits
1		Mathematics – II (Ordinary Differential Equations & Vector Calculus)	3	0	0	3.0
2		Engineering Chemistry	3	0	0	3.0
3		Data Structures Essentials	3	0	0	3.0
4		Python Programming	3	0	0	3.0
5		Network Analysis & Synthesis	3	0	0	3.0
6		Engineering Workshop	0	0	2	1.0
7		Engineering Drawing and Computer Aided Drafting	2	0	2	3.0
8		Engineering Chemistry Lab	0	0	2	1.0
9		Data Structures Essentials Lab	0	0	2	1.0
10		Applied Python Programming Lab	0	0	2	1.0
Total			17	0	10	22

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ANNEXURE-2



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NETWORK ANALYSIS AND SYNTHESIS

I B.Tech II Semester

L	T	P	C
3	0	0	3

COURSE OUTCOMES:

Upon successful completion of the course, students will be able to:

CO1: Analyze electrical networks and magnetic circuits using cut-set/tie-set methods and transformer concepts.

CO2: Evaluate transient and steady-state responses of RC, RL, and RLC circuits, including resonance.

CO3: Determine two-port parameters and apply them for impedance matching and attenuator design.

CO4: Design and classify filters, attenuators, and equalizers for given specifications.

CO5: Synthesize LC, RC, and RL networks using Foster and Cauer methods.

UNIT - I

Network Topology and Coupled Circuits: Basic cut set and tie set matrices for planar networks, Magnetic Circuits, Mesh Nodal analysis and review of theorems, Self and Mutual inductances, dot convention, impedance, reactance concept, Impedance transformation and coupled circuits, coefficient of coupling, equivalent T for Magnetically coupled circuits, Ideal Transformer.

UNIT - II

Transient and Steady state analysis: RC, RL and RLC Circuits, Sinusoidal, Step and Square responses, RC Circuits as integrator and differentiators, 2nd order series and parallel RLC Circuits, Root locus, damping factor, over damped, under damped, critically damped cases, quality factor and bandwidth for series and parallel resonance, resonance curves.

UNIT - III

Two port network parameters: Z, Y, ABCD, h and g parameters, Characteristic impedance, Image transfer constant, image and iterative impedance, network function, driving point and transfer functions — using transformed (S) variables, Poles and Zeros, Standard T, π , L Sections, Characteristic impedance, image transfer constants, Design of Attenuators, impedance matching network.

UNIT-IV

Filters: Classification of Filters, Filter Networks, Constant-K Filters-Low pass, high pass, Band pass, band-stop filters, M-derived Filters- T and π filters- Low pass, high pass

Attenuators: Types — T, π , L, Bridge T and lattice, Asymmetrical Attenuators T, π , L
Equalizers- Types- Series, Shunt, Constant resistance, bridge T attenuation, bridge T phase, Lattice attenuation, lattice Phase equalizers

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UNIT - V

Network Synthesis: Driving point impedance and admittance, transfer impedance and admittance, network functions of Ladder and non ladder networks, Poles, Zeros analysis of network functions, Hurwitz polynomials, Positive Real Functions, synthesis of LC, RC and RL Functions by foster and causer methods.

TEXT BOOKS:

1. Van Valkenburg - Network Analysis, 3rd Ed., Pearson, 2019.
2. JD Ryder - Networks, Lines and Fields, 2nd Ed., PHI, 2015.
3. Charles K. Alexander and Matthew N.O. Sadiku - Fundamentals of Electric Circuits, 6th Ed., McGraw Hill Company, 2016

REFERENCE BOOKS:

1. J. Edminister and M. Nahvi - Electric Circuits, Schaum's Outlines, Mc Graw Hills Education, 1999.
2. A. Sudhakar and S. Srinivasan S Palli - Networks & Circuits, 4th Ed., Tata McGraw- Hill Publications
3. William Hayt and Jack E. Kimmerley - Engineering Circuit Analysis, 6th Ed., McGraw Hill Company

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ANNEXURE-3



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BASIC ELECTRONICS

I B.Tech I Semester CSE, CSE (DS) & CSE (AIML)

I B.Tech II Semester IT

L	T	P	C
3	0	0	3

COURSE OUTCOMES:

By the end of this course, students will be able to:

- CO1: Analyze the electrical characteristics and models of semiconductor diodes and apply them in rectifier and clipping circuits.
- CO2: Evaluate the operation and configurations of Bipolar Junction Transistors (BJTs) and analyze their input and output characteristics.
- CO3: Design appropriate biasing networks for BJTs and determine the operating point for amplifier applications.
- CO4: Analyze transistor amplifier circuits using h-parameter models and assess performance for various configurations.
- CO5: Analyze the structure, working, and characteristics of JFETs, MOSFETs

UNIT - I:

Diode Characteristics and Applications: PN junction diode - I-V characteristics, Diode resistance and capacitance, Diode models (Ideal, Simplified, Piecewise Linear), Rectifiers - Half-wave, Full-wave (Center-tap and bridge), Capacitor filter for rectifiers, Clippers and clampers, Zener diode - I-V characteristics and voltage regulation.

UNIT - II:

Bipolar Junction Transistor (BJT): Structure and working principle of BJT, Current components and transistor action, Configurations: Common Base (CB), Common Emitter (CE), Common Collector (CC), Input and output characteristics, Determination of h-parameters from transistor characteristics.

UNIT - III:

BJT Biasing: Need for biasing and stabilization, Load line and operating point, Biasing techniques: Fixed bias, Collector-to-base bias, Voltage divider bias, Stability factors and thermal runaway

UNIT - IV:

Transistor Amplifiers: Transistor as a small-signal amplifier, h-parameter equivalent circuit, CE, CB, CC amplifier analysis using h-parameters, Approximate CE model - with and without emitter bypass capacitor.

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UNIT - V:

Special Purpose Diodes and Field Effect Transistors: Principle of Operation of – SCR, Tunnel Diode, Varactor Diode, Photo Diode, Solar Cell, LED and Schottky Diode. JFET: Structure, operation, and characteristics, MOSFET: Enhancement and Depletion modes – Structure, operation, and characteristics.

TEXT BOOKS:

1. Boylestad, Robert L., and Louis Nashelsky. Electronic Devices and Circuit Theory. Pearson, 11th edition, 2013.
2. Millman, Jacob, and Christos C. Halkias. Electronic Devices and Circuits. Tata McGraw-Hill, 1991.
3. Bell, David A. Electronic Devices and Circuits. Oxford University Press, 5th ed., 2008

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3. Razavi, Behzad. Fundamentals of Microelectronics. Wiley, 2nd ed., 2013.
4. Taur, Yuan, and Tak H. Ning. Fundamentals of Modern VLSI Devices. Cambridge University Press, 2nd ed., 2009.

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