



RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada)

Accredited by NAAC & Recognized UGC 2(f)

NH-16, Valluru-523272, Ongole, Prakasam (District), A.P.

Dept. of Electronics and Communication Engineering

Date:03.01.2025

Minutes of meeting of Board of Studies

The second External Board of Studies Meeting of the Department Electronics and Communication Engineering was held online on 03.01.2025 at 12:30 PM via Google meet to finalizing the syllabus for second semester courses: **NETWORK ANALYSIS and NETWORK ANALYSIS AND SIMULATION LABORATORY** and also to finalize subject experts for end semester examination question paper preparation.

The following members were present:

S. No	Name of the Member	Designation	Position	Signature
1	Mr. S V Ravi Kumar	Head of the Department of ECE	Chairman	<i>S.V. Ravi Kumar</i>
2	Dr. B.T. Krishna	Professor in ECE JNTUK, Kakinada	University Nominee and External BoS Member	<i>B.T. Krishna</i>
3	Dr. G. Srinivasulu	Professor in ECE, SVU, Tirupati	Subject Expert 1 and External BoS Member	Approved Via E-mail
4	Dr. P. Ramesh Babu	Professor in EIE, PTU, Puducherry	Subject Expert 2 and External BoS Member	Approved Via E-mail
5	Mr. Pallapothu Ravi Teja	Lead Engineer, HCL Pvt. Ltd. Karnataka	Industry member	Approved via E-mail
6	Dr. S. Chandrasekhar	Professor in ECE, RGAN	Faculty Member	<i>S. Chandrasekhar</i>
7	Dr. S.V.V.N. Chanakya P	Associate Professor in ECE	Faculty Member	<i>Chanakya P</i>
8	Mr. R. V. Kiran Kumar	Associate Professor in ECE	Faculty Member	<i>R. V. Kiran Kumar</i>
9	Mr. Sk. John	Asst. Professor in ECE	Faculty Member	<i>Sk. John</i>
10	Mrs. M Sireesha	Asst. Professor in EEE	Faculty Member	<i>M. Sireesha</i>
11	Mr. P Maruthi Rajesh	Consultant, Wipro Pvt.Ltd,	Alumni Member	Approved via E-mail



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At the onset of the meeting, the Chairman of BoS, Professor S. V. Ravi Kumar, welcomed all the members and introduced members to the External Subject Experts. The meeting began with the presentation of the syllabus of I-II semester subjects under RG24 regulations prepared by the internal BOS members.

Resolutions in Meeting:

Agenda 1: To discuss and finalize the syllabus for the course **NETWORK ANALYSIS** for I B. Tech II semester ECE.

Resolution: The syllabus of **NETWORK ANALYSIS** for I B. Tech II semester ECE has been approved by the Board of Studies Committee.

Agenda 2: To discuss and finalize the syllabus for the course **NETWORK ANALYSIS AND SIMULATION LABORATORY** for I B. Tech II semester ECE.

Resolution: The syllabus of **NETWORK ANALYSIS AND SIMULATION LABORATORY** for I B. Tech II semester ECE has been approved by the Board of Studies Committee.

Agenda 3: To discuss and finalize **subject experts** for question paper preparation for end semester examinations

Resolutions: The list of subject experts for question paper set up has been approved by the Board of Studies committee.

Encl: Annexure –I: Syllabus copies

Annexure -II: List of subject experts

General Comments:

Dr. B.T. Krishna (University Nominee): The syllabus for both Network Analysis and Network Analysis and Simulation Laboratory is well-structured and aligns with academic standards. Subject experts approved have relevant expertise and experience.



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Subject expert comments

Dr. G Srinivasulu: The proposed syllabus effectively covers fundamental concepts and practical skills. Adding modern tools in the lab and real-life examples can further improve learning. The subject experts selected have notable experience in the respective subject.

Dr. P. Ramesh Babu: The syllabus provides a good balance of theory and practical components, ensuring comprehensive learning. Inclusion of real-world applications would be beneficial. The subject experts chosen are highly qualified and well-suited for question paper preparation.



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I Year – II Semester

L	T	P	C
3	0	0	3

NETWORK ANALYSIS (ECE)

Course Objectives:

1. To introduce basic laws, mesh & nodal analysis techniques for solving electrical circuits
2. To impart knowledge on applying appropriate theorem for electrical circuit analysis
3. To explain transient behavior of circuits in time and frequency domains
4. To teach concepts of resonance
5. To introduce open circuit, short circuit, transmission, hybrid parameters and their interrelationship.

Course Outcomes: At the end of this course students will demonstrate the ability to

CO1: Understand basic electrical circuits with nodal and mesh analysis.

CO2: Analyze the circuit using network simplification theorems.

CO3: Find Transient response and Steady state response of a network.

CO4: Analyze electrical networks in the Laplace domain.

CO5: Compute the parameters of a two-port network.

UNIT I

Types of circuit components, Types of Sources and Source Transformations, Mesh analysis and Nodal analysis, problem solving with resistances only including dependent sources also. Principal of Duality with examples.

Network Theorems: Thevenin's, Norton's, Milliman's, Reciprocity, Compensation, Substitution, Superposition, Max Power Transfer, Tellegens - problem solving using dependent sources also.

UNIT II

Transients: First order differential equations, Definition of time constants, R-L circuit, R-C circuit with DC excitation, evaluating initial conditions procedure, second order differential



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equations, homogeneous, non-homogeneous, problem-solving using R-L-C elements with DC excitation and AC excitation, Response as related to s-plane rotation of roots.

Laplace transform: introduction, Laplace transformation, basic theorems, problem solving using Laplace transform, partial fraction expansion, Heaviside's expansions, problem solving using Laplace transform.

UNIT III

Steady State Analysis of A.C Circuits: Impedance concept, phase angle, series R-L, R-C, R-L-C circuits problem solving. Complex impedance and phasor notation for R-L, R-C, R-L-C problem solving using mesh and nodal analysis, Star-Delta conversion, problem solving using Laplace transforms also.

UNIT IV

Resonance: Introduction, Definition of Q, Series resonance, Bandwidth of series resonance, Parallel resonance, general case-resistance present in both branches, anti-resonance at all frequencies.

Coupled Circuits: Coupled Circuits: Self-inductance, Mutual inductance, Coefficient of coupling, analysis of coupled circuits, Natural current, Dot rule of coupled circuits, conductively coupled equivalent circuits- problem solving.

UNIT V

Two-port Networks: Relationship of two port networks, Z-parameters, Y-parameters, Transmission line parameters, h- parameters, Relationships Between parameter Sets, Parallel & series connection of two port networks, cascading of two port networks, problem solving using dependent sources also.

Image and iterative impedances. Image and iterative transfer constants. Insertion loss. Attenuators and pads. Lattice network and its parameters. Impedance matching networks.

Textbooks:

1. Network Analysis – ME Van Valkenburg, Prentice Hall of India, revised 3rd Edition, 2019.
2. Engineering Circuit Analysis by William H. Hayt, Jack Kemmerly, Jamie Phillips, Steven M. Durbin, 9th Edition 2020.



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3. Network lines and Fields by John. D. Ryder 2nd Edition, PHI

Reference Books:

1. D. Roy Choudhury, Networks and Systems, New Age International Publications, 2013.
2. Joseph Edminister and Mahmood Nahvi, Electric Circuits, Schaum's Outline Series, 7th Edition, Tata McGraw Hill Publishing Company, New Delhi, 2017
3. Fundamentals of Electric Circuits by Charles K. Alexander and Matthew N. O. Sadiku, McGraw-Hill Education.



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Dept. of Electronics and Communication Engineering

I Year – II Semester

L	T	P	C
0	0	3	1.5

NETWORK ANALYSIS AND SIMULATION LABORATORY (ECE)

Course Objectives:

1. To gain hands on experience in verifying Kirchoff's laws and network theorems
2. To analyze transient behavior of circuits
3. To study resonance characteristics
4. To determine 2-port network parameters

Course Outcomes:

CO1: Verify Kirchoff's laws and network theorems.

CO2: Measure time constants of RL & RC circuits.

CO3: Analyze behavior of RLC circuit for different cases.

CO4: Design resonant circuit for given specifications.

CO5: Characterize and model the network in terms of all network parameters.

The following experiments need to be performed using both Hardware and simulation Software.

The experiments need to be simulated using software and the same need to be verified using the hardware.

1. Study of components of a circuit and Verification of KCL and KVL. 2. Verification of mesh and nodal analysis for AC circuits
2. Verification of Superposition, Thevenin's & Norton theorems for AC circuits
3. Verification of maximum power transfer theorem for AC circuits
4. Verification of Tellegen's theorem for two networks of the same topology. 6. Study of DC transients in RL, RC and RLC circuits



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5. To study frequency response of various 1st order RL & RC networks
6. To study the transient and steady state response of a 2nd order circuit by varying its various parameters and studying their effects on responses
7. Find the Q Factor and Bandwidth of a Series and Parallel Resonance circuit.
8. Determination of open circuit (Z) and short circuit (Y) parameters
9. Determination of hybrid (H) and transmission (ABCD) parameters.
10. To measure two port parameters of a twin-T network and study its frequency response.
11. Determination of open circuit (Z) and short circuit (Y) parameters.
12. Determination of hybrid (H) and transmission (ABCD) parameters
13. To measure two port parameters of a twin-T network and study its frequency response.

Hardware Requirements:

Regulated Power supplies, Analog/Digital Function Generators, Digital Multimeters, Decade Resistance Boxes/Rheostats, Decade Capacitance Boxes, Ammeters (Analog or Digital), Voltmeters (Analog or Digital), Active & Passive Electronic Components

Software requirements:

Multisim/ Pspice/Equivalent simulation software tool, Computer Systems with required specifications

References:

1. Network Analysis – ME Van Valkenburg, Prentice Hall of India, revised 3rd Edition, 2019.
2. Engineering Circuit Analysis by William H. Hayt, Jack Kemmerly, Jamie Phillips, Steven M. Durbin, 9th Edition 2020.



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List of Subject Experts

The following list of subject experts has been reviewed and officially approved by the Board of Studies (BOS) members in the meeting held on 03.01.2025 for question paper preparation.

S.No	Name of the Subject expert	Designation	Experience	Address	Mobile Number	Email
1	Dr. P. Ramesh Babu	Professor	32 Years	Dept of Electronics and Instrumentation Engineering, Puducherry Technological University, Puducherry	7708856288	prameshbabu@ptuniv.edu.in
2	Dr. G. Srinivasulu	Professor	27 Years	Dept. of ECE, S V University College of Engineering, Sri Venkateswara University, Tirupati, A.P., India.	9490182693	gunapatieeee@rediffmail.com
3	Dr. Shaik Rajak	Asst. Professor	6 Years	Dept. of ECE, Amrita Vishwa Vidyapeetham, Amaravati campus, Mangalagiri	9989898570	r_shaik@av.amrita.edu
4	Dr. Katta Rajesh	Professor	20 Years	Dept. of ECE, KL University, Vaddeswaram, near Vijayawada, Andhra Pradesh	98859 95375	kraieshbabu@kluniversity.in
5	Dr. B Surendra	Associate Professor	20 Years	Dept. of ECE, Bapatla Engineering College, Bapatla	9398261625	mailtosurendra@gmail.com



ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting -BoS_03.01.2025

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>
To: T Krishna Battula <tkbattula@jntucek.ac.in>

Thu, Jan 9, 2025 at 2:33 PM

Dear Professor,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 25.09.2024. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

with kind regards,
S V Ravi Kumar M.Tech., (Ph.D),
Professor & HOD, Dept. of ECE,
RISE Krishna Sai Gandhi Group of Institutions,
Ongole, Andhra Pradesh.
Pin:523272
Cell:7093383852

3 attachments

Annexure-II.pdf
375K

RGAN ECE BOS_II_MoM.pdf
361K

Annexure-I.pdf
439K

T Krishna Battula <tkbattula@jntucek.ac.in>
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Thu, Jan 9, 2025 at 4:40 PM

dear sir

i approve the minutes of the meeting

[Quoted text hidden]



ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting_BoS_03.01.2025

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>
To: **sreenivasulu gunapati** <gunapatieeee@rediffmail.com>

Thu, Jan 9, 2025 at 2:35 PM

Dear Professor,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 03.01.2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

with kind regards,
S V Ravi Kumar M.Tech., (Ph.D),
Professor & HOD, Dept. of ECE,
RISE Krishna Sai Gandhi Group of Institutions,
Ongole, Andhra Pradesh.
Pin:523272
Cell:7093383852

3 attachments

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Annexure-I.pdf
439K

Annexure-II.pdf
375K

sreenivasulu gunapati <gunapatieeee@rediffmail.com>
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Thu, Jan 9, 2025 at 5:27 PM

Sir,

Minutes of the Board of Studies meeting held on 03/01/2025 are approved.

Dr. G. Sreenivasulu
Professor
Department of ECE
SVU College of Engineering
SV University, Tirupati
Mobile: 9490182693
[Quoted text hidden]



ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting_BoS_03.01.2025

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>
To: "Dr. Ramesh babu Pojala" <prameshbabu@ptuniv.edu.in>

Thu, Jan 9, 2025 at 2:36 PM

Dear Professor,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 03.01.2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

with kind regards,
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Professor & HOD, Dept. of ECE,
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Ongole, Andhra Pradesh.
Pin:523272
Cell:7093383852

3 attachments

 **RGAN ECE BOS_II_MoM.pdf**
361K

 **Annexure-I.pdf**
439K

 **Annexure-II.pdf**
375K

Dr. Ramesh babu Pojala <prameshbabu@ptuniv.edu.in>
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Fri, Jan 10, 2025 at 8:10 AM

dear sir
I herewith approve the BoS minutes
Dr.PRB
[Quoted text hidden]



ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting_BoS_03.01.2025

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>
To: MARUTHI RAJESH <rajeshpothakamuri1@gmail.com>

Thu, Jan 9, 2025 at 2:40 PM

Dear Maruthi Rajesh P,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 03.01.2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

with kind regards,
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Professor & HOD, Dept. of ECE,
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Cell:7093383852

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MARUTHI RAJESH <rajeshpothakamuri1@gmail.com>
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Fri, Jan 10, 2025 at 11:41 AM

Hi ,

Thanks for the invitation.

I have approved this

I don't have any concerns.

[Quoted text hidden]



ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting_BoS_03.01.2025

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Thu, Jan 9, 2025 at 2:39 PM

To: **raviteja138438@gmail.com**

Dear sir,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 03.01.2025, I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

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Cell:7093383852

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439K **Annexure-II.pdf**
375K

ravi teja <raviteja138438@gmail.com>

Sat, Jan 11, 2025 at 1:49 PM

To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Approved.

Regards,
Ravi Teja. P
[Quoted text hidden]