RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS

(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada, Recognized UGC 2(f))

NH-16, Valluru, Ongole, Prakasam (District)-523272

Dept. of Electronics and Communication Engineering

Date:25.09.2024

The First External Board of Studies Meeting of the Department Electronics and Communication Engineering was held online on 25.09.2024 at 12:30 PM via Google meet to finalize the Course structure for the first and second semesters of RG24 (Autonomous) regulations as well as finalizing the syllabus for first semester courses: Basic **Electrical & Electronics Engineering and Electrical & Electronics Engineering Workshop**

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	
2	Dr. B.T. Krishna	Professor in ECE JNTUK, Kakinada	University Nominee and External BoS Member	
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	
7	Dr.S.V.V.S.N. Chanakya P	Associate Professor in ECE	Faculty Member	
8	Mr. R. V. Kiran Kumar	Associate Professor in ECE	Faculty Member	
9	Mr.Sk. John	Asst. Professor in ECE	Faculty Member	
10	Mrs.M Sireesha	Asst. Professor in EEE	Faculty Member	
11	Mr. P Maruthi Rajesh	Consultant, Wipro Pvt.Ltd,	Alumni Member	Approved via E-mail

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 course structure by the chair for semesters I-I and I-II under RG24 regulations. He then presented the syllabus of I-I semester under RG24 regulations prepared by the internal BOS members.

Resolutions in Meeting:

Agenda 1: To discuss and finalize the course structure of RG24 (Autonomous) regulations of Ist year and syllabus of the proposed I-I Semester courses: **Basic Electrical & Electronics Engineering** and **Electrical & Electronics Engineering Workshop**

Resolutions: Course Structure of B. Tech Programme of RG24 (Autonomous) regulations and syllabus of I-I Semester courses: **Basic Electrical & Electronics Engineering** and **Electrical & Electronics Engineering Workshop** approved by the Board of Studies Committee.

Encl: Annexure –I

General Comments

Dr. B.T. Krishna (University Nominee) Advised that the RG24 regulations should match the latest university guidelines. Suggested that the Basic Electrical & Electronics Engineering and Workshop courses should be balanced.

Subject expert comments

- Professor Dr. G Srinivasulu Suggested to make the course structure smooth for easy progression from one semester to the next. Recommended hands-on lab sessions in the Workshop course to teach the latest tools and techniques
- Professor Dr. P. Ramesh Babu Suggested aligning the Workshop course with industry standards will help students to gain relevant skills

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada, Recognized UGC 2(f))
NH-16, Valluru, Ongole, Prakasam (District)-523272
Dept. of Electronics and Communication Engineering

BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Common to All branches of Engineering)

L	T	P	C
3	0	0	3

Course Objectives

To expose to the field of electrical & electronics engineering laws, principles and to acquire fundamental knowledge in the relevant field.

Course Outcomes:

After the completion of the course students will be able to:

CO1. Describe fundamental laws, operating principle of motors, generators, measuring instruments. (L2)

CO2. Describe. Demonstrate the working of electrical machines, measuring instruments and power generation stations. (L2)

CO3. Apply fundamental concepts to derive various equations related to electrical circuits and machines. (L3)

CO4. Calculate electrical load and electricity bill of residential and commercial buildings. (L4)

PART A: BASIC ELECTRICAL ENGINEERING

UNIT I DC & AC Circuits

DC Circuits: Electrical circuit elements (R, L and C), Ohm's Law and its limitations, KCL & KVL, series, parallel, series-parallel circuits, Super Position theorem, Simple numerical problems.

AC Circuits: A.C. Fundamentals: Equation of AC Voltage and current, waveform, time period, frequency, amplitude, phase, phase difference, average value, RMS value, form factor, peak factor, Voltage and current relationship with phasor diagrams in R, L, and C circuits, Concept of Impedance, Active power, reactive power and apparent power, Concept of power factor (Simple Numerical problems).

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada, Recognized UGC 2(f))
NH-16, Valluru, Ongole, Prakasam (District)-523272
Dept. of Electronics and Communication Engineering

UNIT II Machines and Measuring Instruments

Machines: Construction, principle and operation of (i) DC Motor, (ii) DC Generator, (iii) Single Phase Transformer, (iv) Three Phase Induction Motor and (v) Alternator, Applications of electrical machines.

Measuring Instruments: Construction and working principle of Permanent Magnet Moving Coil (PMMC), Moving Iron (MI) Instruments and Wheat Stone bridge.

UNIT III Energy Resources, Electricity Bill & Safety Measures

Energy Resources: Conventional and non-conventional energy resources; Layout and operation of various Power Generation systems: Hydel, Nuclear, Solar & Wind power generation.

Electricity bill: Power rating of household appliances including air conditioners, PCs, Laptops, Printers, etc. Definition of "unit" used for consumption of electrical energy, two-part electricity tariff, calculation of electricity bill for domestic consumers.

Equipment Safety Measures: Working principle of Fuse and Miniature circuit breaker (MCB), merits and demerits. Personal safety measures: Electric Shock, Earthing and its types, Safety Precautions to avoid shock.

Textbooks:

1. Basic Electrical Engineering, D. C. Kulshreshtha, Tata McGraw Hill, 2019, First Edition
2. Power System Engineering, P.V. Gupta, M.L. Soni, U.S. Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co, 2013
3. Fundamentals of Electrical Engineering, Rajendra Prasad, PHI publishers, 2014, Third Edition
4. Fundamentals of Electrical Engineering, Ashfaq Hussain, Dhanpat Rai & Co, Third Edition

Reference Books:

1. Basic Electrical Engineering, D. P. Kothari and I. J. Nagrath, Mc Graw Hill, 2019, Fourth Edition
2. Principles of Power Systems, V.K. Mehtha, S.Chand Technical Publishers, 2020

3. Basic Electrical Engineering, T. K. Nagsarkar and M. S. Sukhija, Oxford University Press, 2017
4. Basic Electrical and Electronics Engineering, S. K. Bhatacharya, Person Publications, 2018, Second Edition.

Web Resources:

- https://nptel.ac.in/courses/108105053
- https://nptel.ac.in/courses/108108076

PART B: BASIC ELECTRONICS ENGINEERING

Course Objectives:

To teach the fundamentals of semiconductor devices and its applications, principles of digital electronics.

UNIT I SEMICONDUCTOR DEVICES

Introduction - Evolution of electronics – Vacuum tubes to nano electronics - Characteristics of PN Junction Diode — Zener Effect — Zener Diode and its Characteristics. Bipolar Junction Transistor — CB, CE, CC Configurations and Characteristics — Elementary Treatment of Small Signal CE Amplifier.

UNIT II BASIC ELECTRONIC CIRCUITS AND INSTRUMENTTAION

Rectifiers and power supplies: Block diagram description of a dc power supply, working of a full wave bridge rectifier, capacitor filter (no analysis), working of simple zener voltage regulator. Amplifiers: Block diagram of Public Address system, Circuit diagram and working of common emitter (RC coupled) amplifier with its frequency response. Electronic Instrumentation: Block diagram of an electronic instrumentation system.

UNIT III DIGITAL ELECTRONICS

Overview of Number Systems, Logic gates including Universal Gates, BCD codes, Excess-3 code, Gray code, Hamming code. Boolean Algebra, Basic Theorems and

properties of Boolean Algebra, Truth Tables and Functionality of Logic Gates – NOT, OR, AND, NOR, NAND, XOR and XNOR. Simple combinational circuits–Half and Full Adders. Introduction to sequential circuits, Flip flops, Registers and counters (Elementary Treatment only)

Textbooks:

1. R. L. Boylestad & Louis Nashlesky, Electronic Devices & Circuit Theory, Pearson Education, 2021.
2. R. P. Jain, Modern Digital Electronics, 4th Edition, Tata Mc Graw Hill, 2009

Reference Books:

1. R. S. Sedha, A Textbook of Electronic Devices and Circuits, S. Chand & Co, 2010.
2. Santiram Kal, Basic Electronics- Devices, Circuits and IT Fundamentals, Prentice Hall, India, 2002.
3. R. T. Paynter, Introductory Electronic Devices & Circuits – Conventional Flow Version, Pearson Education,2009.

End examination pattern:

1. Question paper shall be in two parts viz., Part A and Part B with equal weightage of 35 marks each.
2. In each part, question 1 shall contain 5 compulsory short answer questions for a total of 5 marks such that each question carries 1 mark.
3. In each part, questions from 2 to 4, there shall be either/or type questions of 10 marks each. Student shall answer any one of them.
4. The questions from 2 to 4 shall be set by covering one unit of the syllabus for each question.

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada, Recognized UGC 2(f))
NH-16, Valluru, Ongole, Prakasam (District)-523272
Dept. of Electronics and Communication Engineering

ELECTRICAL & ELECTRONICS ENGINEERING WORKSHOP
(Common to All branches of Engineering)

L	T	P	C
0	0	3	1.5

Course Objectives:

To impart knowledge on the fundamental laws & theorems of electrical circuits, functions of electrical machines and energy calculations.

Course Outcomes:

After competition of this course, the student will be able to

CO1. Measure voltage, current and power in an electrical circuit.

CO2. Measure Resistance using Wheatstone's bridge.

CO3. Discover critical field resistance and critical speed of DC shunt generators.

CO4. Investigate the effect of reactive power and power factor in electrical loads.

Activities:

1. Familiarization of commonly used Electrical & Electronic Workshop Tools: Bread board, Solder, cables, relays, switches, connectors, fuses, Cutter, plier, screwdriver set, wire stripper, flux, knife/blade, soldering iron, de-soldering pump etc.
    a. Provide some exercises so that hardware tools and instruments are learned to be used by the students.
2. Familiarization of Measuring Instruments like Voltmeters, Ammeters, multimeter, LCR-Q meter, Power Supplies, CRO, DSO, Function Generator, Frequency counter.
    a. Provide some exercises so that measuring instruments are learned to be used by the students.
3. Components:
    a. Familiarization/Identification of components (Resistors, Capacitors, Inductors, Diodes, transistors, IC's etc.) – Functionality, type, size, colour coding package, symbol, cost etc.

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS
(Autonomous)
(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada, Recognized UGC 2(f))
NH-16, Valluru, Ongole, Prakasam (District)-523272
Dept. of Electronics and Communication Engineering

b. Testing of components like Resistor, Capacitor, Diode, Transistor, ICs etc. - Compare values of components like resistors, inductors, capacitors etc with the measured values by using instruments

PART A: ELECTRICAL ENGINEERING LAB

List of experiments:

1. Verification of KCL and KVL.
2. Verification of Superposition theorem.
3. Measurement of Resistance using Wheat stone bridge.
4. Magnetization Characteristics of DC shunt Generator.
5. Measurement of Power and Power factor using Single-phase wattmeter.
6. Measurement of Earth Resistance using Megger.
7. Calculation of Electrical Energy for Domestic Premises.

Reference Books:

1. Basic Electrical Engineering, D. C. Kulshreshtha, Tata McGraw Hill, 2019, First Edition
2. Power System Engineering, P.V. Gupta, M.L. Soni, U.S. Bhatnagar and A. Chakrabarti, Dhanpat Rai & Co, 2013
3. Fundamentals of Electrical Engineering, Rajendra Prasad, PHI publishers, 2014, Third Edition

Note: Minimum Six Experiments to be performed.

PART B: BASIC ELECTRONICS ENGINEERING

Course Objectives:

To impart knowledge on the principles of digital electronics and fundamentals of electron devices & its applications.

Course Outcomes: At the end of the course, the student will be able to

CO1: Identify & testing of various electronic components.

CO2: Understand the usage of electronic measuring instruments.

CO3: Plot and discuss the characteristics of various electron devices.

CO4: Explain the operation of a digital circuit.

List of Experiments:

1. Plot V-I characteristics of PN Junction diode A) Forward bias B) Reverse bias.
2. Plot V – I characteristics of Zener Diode and its application as voltage Regulator.
3. Implementation of half wave and full wave rectifiers
4. Plot Input & Output characteristics of BJT in CE and CB configurations
5. Frequency response of CE amplifier.
6. Simulation of RC coupled amplifier with the design supplied
7. Verification of Truth Table of AND, OR, NOT, NAND, NOR, Ex-OR, Ex-NOR gates using ICs.
8. Verification of Truth Tables of S-R, J-K& D flip flops using respective ICs.
9. Tools / Equipment Required: DC Power supplies, Multi meters, DC Ammeters, DC Voltmeters, AC Voltmeters, CROs, all the required active devices.

References:

1. R. L. Boylestad & Louis Nashlesky, Electronic Devices & Circuit Theory, Pearson Education, 2021.
2. R. P. Jain, Modern Digital Electronics, 4th Edition, Tata Mc Graw Hill, 2009
3. R. T. Paynter, Introductory Electronic Devices & Circuits – Conventional Flow Version, Pearson Education,2009.

Note: Minimum Six Experiments to be performed. All the experiments shall be implemented using both Hardware and Software.

Gmail ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting -BoS-Dt:25.09.2024

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in> Sat, Sep 28, 2024 at 5:13 PM
To: tkbattula@jntucek.ac.in

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

2 attachments

RGAN-ECE-BoS-MoM-I.pdf
473K

Annexure-I_Syllabus.pdf
1266K

T Krishna Battula <tkbattula@jntucek.ac.in> Sat, Sep 28, 2024 at 5:23 PM
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Dear professor

I approve the syllabus
Please proceed further
[Quoted text hidden]

Gmail ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting -BoS-Dt:25.09.2024

3 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in> Sat, Sep 28, 2024 at 5:17 PM
To: gunapatieee@rediffmail.com

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

2 attachments

RGAN-ECE-BoS-MoM-I.pdf
473K

Annexure-I_Syllabus.pdf
1266K

sreenivasulu gunapati <gunapatieee@rediffmail.com> Sun, Sep 29, 2024 at 10:42 AM
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Sir,
Minutes of the Board of Studies meeting held on 25/09/2024 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> Sat, Sep 28, 2024 at 6:20 PM
To: sreenivasulu gunapati <gunapatieee@rediffmail.com>

Thank you sir for your support and quick response.

with regards,
S V Ravi Kumar M.Tech., (Ph.D),
Professor & HOD, Dept. of ECE,
RISE Krishna Sai Gandhi Group of Institutions,

Gmail

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting -BoS-Dt:25.09.2024

2 messages

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

E

ECE Dept <ecehod@risekrishnasaigandhi.edu.in>
to tkbattula

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 thr 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

2 attachments

RGAN-ECE-BoS-MoM-I.pdf
473K

Annexure-I_Syllabus.pdf
1266K

Dr. Ramesh babu Pojala <prameshbabu@ptuniv.edu.in> Mon, Sep 30, 2024 at 7:15 AM
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Dear sir
I here by approve the minutes of meeting
Dr.P.Ramesh babu
[Quoted text hidden]

Gmail ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting -BoS-Dt:25.09.2024

2 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in> Sat, Sep 28, 2024 at 5:19 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 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

2 attachments

RGAN-ECE-BoS-MoM-I.pdf
473K

Annexure-I_Syllabus.pdf
1266K

ravi teja <raviteja138438@gmail.com> Mon, Sep 30, 2024 at 11:10 AM
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Dear sir,

They are looking fine.

Approved.

Regards,
Ravi Teja. P

[Quoted text hidden]

Gmail ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Minutes of Meeting -BoS-Dt:25.09.2024

3 messages

ECE Dept <ecehod@risekrishnasaigandhi.edu.in> Sat, Sep 28, 2024 at 5:44 PM
To: "rajeshpothakamuri1@gmail.com" <rajeshpothakamuri1@gmail.com>

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 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

2 attachments

RGAN-ECE-BoS-MoM-I.pdf
473K

Annexure-I_Syllabus.pdf
1266K

MARUTHI RAJESH <rajeshpothakamuri1@gmail.com> Mon, Sep 30, 2024 at 10:06 AM
To: ECE Dept <ecehod@risekrishnasaigandhi.edu.in>

Hi Sir,

Yes sir, This is approved.

I don't have any concerns on this.

Thanks & Regards,
Maruthi Rajesh Pothakamuri,
+91-9493422682.
[Quoted text hidden]

ECE Dept <ecehod@risekrishnasaigandhi.edu.in> Sat, Sep 28, 2024 at 6:19 PM
To: MARUTHI RAJESH <rajeshpothakamuri1@gmail.com>

Thank you for your support and fast response.

with 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

[Quoted text hidden]