



RISE Krishna Sai Gandhi Group of Institutions::Ongole (Autonomous)

(Approved by AICTE-New Delhi, Affiliated to JNTUK, Kakinada)
Accredited by NAAC & Recognized under UGC 2(f)
NH-16, Valluru-523272, Ongole, Prakasam District, A.P

DEPARTMENT OF CHEMISTRY

Minutes of Board of Studies Meeting

Date:26/09/2024

The First External Board of Studies Meeting of the Department of chemistry 26.09.2024 at 03:00 PM via Google meet to finalize Course structure for the first and second semesters of R24 (Autonomous) regulation as well as finalizing the syllabus for first semesters. The following members were present:

S. No	Name of the Member	Designation/occupation	position	signature
1	Mrs. P.Sridevi	Head of The Department	Chairman	
2	Dr.S.Satya Veni	Asst. Professor, Department of Chemistry, JNTUK, Kakinada.	University Nominee and External BOS	
3	Dr.B.Hari Babu	Professor & HOD, Department of Chemistry, registr of AKU	Subject expert 1 and External BOS	Approved via E-mail
4	Dr.S.Srinivasa Rao	Assoc. Professor, Department of Chemistry, V.R.Siddartha Engineering College,	Subject expert 2 and External BOS	Approved via E-mail
5	Mrs.K.Sai Prasanna	Asst. Professor, Chemistry	One Faculty from each specialization from the College	
6	Mrs.R.Rajitha	Chemical analyst in Hetro labs Hyderabad	Industry member	Approved via E-mail
7	Ms. V.Lakshmi devi	Asst. Professor	Alumni	

At the onset of the meeting, the Chairman of BoS, P. sridevi, 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 R-24 regulations. She then presented the syllabus of all subjects of **Chemistry of I-I semester** under R-24 regulations prepared by the internal BOS members.



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Resolutions in Meeting

Agenda 1: To Discuss and Finalize the Course Structure of R-24 (Autonomous) Regulations for Ist Year and Syllabus of Chemistry Theory and Lab proposed I-I Course.

Resolutions: Course Structure of B.Tech Programme of R-24 (Autonomous) Regulations and syllabus of Chemistry Theory and Lab I-I is Approved by the Board of Studies Committee.

General Comments

- Dr.S. Satya Veni University Nominee suggested to rewrite the CO1and CO5 chemistry in theory .
- Dr.S. Satya Veni University Nominee suggested to clearly mention the basic concept in unit -II.
- Dr.S. Satya Veni University Nominee suggested to rewrite the chemistry lab CO5.
- Dr.S. Satya Veni University Nominee suggested that in lab any 12 experiments should done out of 15 experiments.

Subject Expert Comments

- Dr.S. Srinivasa Rao Subject expert outside the parent University suggested in chemistry mention clearly basic concept in unit-2
- Dr.B.Hari babu Subject expert outside the parent University suggested to mention clearly basic concept in unit-II.
- Dr.K. jaya Chandra Industry person advised to introduce a topic of environmental chemistry related to IT and also suggested lab experiment like soil, water test.

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I B.TECH. – COURSE STRUCTURE – RG24

(Applicable from the Academic Year 2024-25 onwards)

Group-A Branches: CSE

Group-B Branches: ECE & CSE (DS)

B.TECH. – I Year I Semester (for Group-A Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Chemistry	3	0	0	3
3	BS&H	Linear Algebra & Calculus	3	0	0	3
4	ES	Basic Civil & Mechanical Engineering	3	0	0	3
5	ES	Introduction to Programming	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Chemistry Lab	0	0	2	1
8	ES	Engineering Workshop	0	0	3	1.5
9	ES	Computer Programming Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	0	0	1	0.5
Total Credits			14	00	11	19.5

B.TECH. – I Year I Semester (for Group-B Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Linear Algebra & Calculus	3	0	0	3
3	ES	Basic Electrical & Electronics Engineering	3	0	0	3
4	ES	Engineering Graphics	1	0	4	3
5	ES	Introduction to Programming	3	0	0	3
6	ES	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	ES	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	ES	Computer Programming Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	0	0	1	0.5
Total Credits			13	00	15	20.5

B.TECH. – I Year II Semester (for Group-A Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Differential Equations & Vector Calculus	3	0	0	3
3	ES	Basic Electrical & Electronics Engineering	3	0	0	3
4	ES	Engineering Graphics	1	0	4	3
5	Professional Core	Data Structures	3	0	0	3
6	ES	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	ES	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	Professional Core	Data Structures Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	0	0	1	0.5
Total Credits			13	00	15	20.5

B.TECH. – I Year II Semester (for Group-B Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Chemistry	3	0	0	3
3	BS&H	Differential Equations & Vector Calculus	3	0	0	3
4	ES	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Network Analysis	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Chemistry Lab	0	0	2	1
8	ES	Engineering Workshop	0	0	3	1.5
9	Professional Core	Network Analysis Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	0	0	1	0.5
Total Credits			14	00	11	19.5



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CHEMISTRY

(Common to EEE, ECE, CSE, CSE-AI&ML & CSE-DS)

L	T	P	C
3	0	0	3

Course Objectives :

- To Familiarize Engineering Chemistry and its Applications.
- To Train the Students on the Principles and Applications of Electrochemistry and Polymers.
- To Introduce Instrumental Methods.

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

CO1: Explain the Significance of wave Functions, Illustrate the Molecular orbital energy level Diagrams of Different Molecular Species.

CO2: Apply the Principles of band Diagrams in the Applications of Conductors & Semiconductors.

CO3: Compare the Materials of Construction for Battery and Electrochemical Sensors.

CO4: Explain the Preparation, Properties and Applications of Thermoplastics & Thermosetting & Elastomers & Conducting Polymers.

CO5: Explain the principles of spectrometry, HPLC in separation of solid and liquid mixtures.

UNIT I Structure and Bonding Models:

Fundamentals of Quantum mechanics, Schrodinger Wave equation, significance of Ψ and Ψ^2 , particle in one dimensional box, molecular orbital theory – bonding in homo- and heteronuclear diatomic molecules – energy level diagrams of O_2 and CO , etc. π -molecular orbital of butadiene and benzene, calculation of bond order.

UNIT II Modern Engineering Materials

Semiconductors - Introduction, types and properties. Applications



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Super conductors - Introduction types and properties, Applications

Super capacitors - Introduction, types and properties, Applications

Nanomaterials: Introduction, classification, properties and applications of Fullerenes, carbon nano tubes and Graphene's nanoparticles.

UNIT III Electrochemistry and Applications

Electrochemical cell, Nernst equation, cell potential calculations and numerical problems, potentiometry- potentiometric titrations (redox titrations), concept of conductivity, conductivity cell, conductometric titrations (acid-base titrations).

Electrochemical sensors – potentiometric sensors with examples, amperometry sensors with examples.

Primary cells – Zinc-air battery, Secondary cells – lithium-ion batteries- working of the batteries including cell reactions; Fuel cells, hydrogen-oxygen fuel cell– working of the cells. Polymer Electrolyte Membrane Fuel cells (PEMFC)

UNIT IV : Polymer Chemistry

Introduction to polymers, functionality of monomers, chain growth and step growth polymerization, coordination polymerization, with specific examples and mechanisms of polymer formation.

Plastics –Thermo and Thermosetting plastics, Preparation, properties and applications of – PVC, Teflon, Bakelite, Nylon-6,6, carbon fibers.

Elastomers–Buna-S, Buna-N–preparation, properties and applications.

Conducting polymers – polyacetylene, polyaniline, – mechanism of conduction and applications. **Bio-Degradable polymers** - Poly Glycolic Acid (PGA), Poly Lactic Acid (PLA).

UNIT V : Instrumental Methods and Applications

Electromagnetic Spectrum. Absorption of Radiation: Beer-Lambert's law. UV-Visible Spectroscopy, electronic transition, Instrumentation, IR spectroscopies, fundamental modes and selection rules. Instrumentation. Chromatography-Basic Principle. Classification-HPLC: Principle, Instrumentation and Applications.



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Text Books:

1. Jain and Jain, Engineering Chemistry, 16/e, Dhanpat Rai, 2013.
2. Peter Atkins, Julio de Paula and James Keeler, Atkins' Physical Chemistry, 10/e, Oxford University Press, 2010.

Reference Books:

1. Skoog and West, Principles of Instrumental Analysis, 6/e, Thomson, 2007.
2. J.D. Lee, Concise Inorganic Chemistry, 5th Edition, Wiley Publications, Feb.2008
3. Textbook of Polymer Science, Fred W. Billmeyer Jr, 3rd Edition



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CHEMISTRY LAB

(Common to EEE, ECE, CSE, CSE-AI&ML & CSE-DS)

Course Objectives:

- Verify the fundamental concepts with experiments.

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

CO1: Determine the cell constant and conductance of solutions.

CO2: Prepare advanced polymer Bakelite materials.

CO3: Measure the strength of an acid present in secondary batteries.

CO4: Preparation of nanomaterials by precipitation method.

CO5: Analysis of IR Spectra of some Organic Compounds.

List of Experiments (Complete Any 12 of the below Experiments)

1. Determination of HCl using standard Na_2CO_3 solution
2. Conductometric titration of strong acid vs. strong base
3. Conductometric titration of weak acid vs. strong base
4. Determination of cell constant and conductance of solutions
5. Potentiometer - determination of redox potentials and emfs
6. Determination of Strength of an acid in Pb-Acid battery
7. Preparation of a Bakelite
8. Verify Lambert-Beer's law
9. Determination of Mn(II) using standard oxalic acid solution
10. Preparation of Nylon-6,6.
11. Preparation of nano material by precipitation method
12. Estimation of Ferrous Iron by Dichrometry
13. Measurement of IO_3^- by spectrophotometric method
14. Wavelength measurement of sample through UV-Visible Spectroscopy
15. Identification of simple organic compounds by IR

Reference: • "Vogel's Quantitative Chemical Analysis 6th Edition" Pearson Publications by J. Mendham, R.C. Denney, J.D. Barnes and B. Sivasanka.



SH HOD <shhod@risekrishnasaigandhi.edu.in>

Fwd: Chemistry BoS minutes of meeting

Satya Veni Sunkara <dr.satyapurna@gmail.com>
To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Tue, Oct 1, 2024 at 9:38 AM

Respected Madam,

I approve the Chemistry theory and lab syllabus for I B. Tech. students of CSE and ECE.

Thanking you,

Sincerely,
Satya Veni
[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

Fwd: Chemistry BoS minutes of meeting

H B Bollikolla <dr.b.haribabu@gmail.com>

To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Tue, Oct 1, 2024 at 11:52 AM

Approved the syllabus

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

Fwd: Chemistry BoS minutes of meeting

Srinivasa Rao, Vijayawada <chemysri@yahoo.com>

Tue, Oct 1, 2024 at 11:04 AM

To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Respected Madam/Sir,

I have gone through the revised syllabus contents of Chemistry modified as per the suggestions provided in the BOS. The syllabus in the present form can be accepted and I am approving the same.

With best wishes,

Dr. S. Srinivasa Rao
Associate Professor & HOD
Department of Chemistry
V. R. Siddhartha Engineering College
Deemed to be University
Vijayawada-520007
Andhra Pradesh, India.
Contact No. 08897557599

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

Fwd: Chemistry BoS minutes of meeting

SH HOD <shhod@risekrishnasaigandhi.edu.in>
To: Rajitha rayapati <rajitha.innovation@gmail.com>

Tue, Oct 1, 2024 at 9:38 AM

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

Fwd: Chemistry BoS minutes of meeting

lakshmi veerapogu <veerapogulakshmi86@gmail.com>

Mon, Sep 30, 2024 at 6:42 PM

To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Ok approved

[Quoted text hidden]