Ref. No.:

Date: 30-08-2025

Shadan College of Engineering and Technology

(An Autonomous Institution)

Peerancheru, Hyderabad – 500086, Telangana.

Department of Science and Humanities (Chemistry)

Agenda for the 5th Board of Studies (BoS) Meeting

Agenda for the Meeting:

I. To welcome the Board of Studies Members with a special welcome to the JNTUH nominee.

II. To Recommend to Academic Council, the Course Structure of Engineering Chemistry Subject offered in B.Tech I Year (I & II SEM) of R-25 regulations.

III. To Recommend the Syllabi of Engineering Chemistry Subject & Engineering Chemistry Lab offered to B.Tech I Year (I & II SEM) R-25 regulations to the Academic Council.

IV. To Recommend the courses offered by Chemistry department to other departments in B.Tech I Year (I & II SEM).

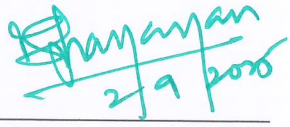
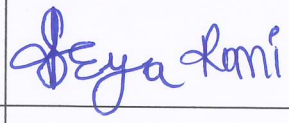
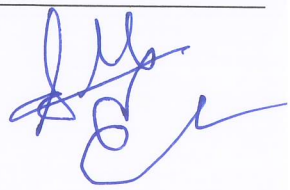
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Department of Science and Humanities (Chemistry)

Members Present in the 5th BoS Meeting held on 2nd September 2025:

Sl No	Name of the Member	Designation	Category	Signature
01	DR BOLLABATHINI SRINIVAS	Head of the Department	Chairperson	
02	Dr. B. SATYANARAYANA	Asst. Prof. of Chemistry, JNTUH UCEJ.	JNTUH Nominee	
03	P. TULASI MANASA	Assistant Professor	Faculty Member	
04	R. MALATHI	Assistant Professor	Faculty Member	
05	K. SRIDHAR	Assistant Professor	Faculty Member	
06	J. SANDHYA RANI	Assistant Professor	Faculty Member	
07	MR. M A QADEER	Project Manager, Verizon Pvt. Ltd.	Industry Representative	
08	SOUDAGER FARHAN AHMED	College Alumni	College Alumni	

MINUTES OF THE 5th MEETING OF BOARD OF STUDIES (BoS) HELD AT 02.15 PM ON 2nd September 2025 AT THE SHADAN COLLEGE OF ENGINEERING AND TECHNOLOGY, PEERANCHERU, HYDERABAD-86.

Minutes of Meeting:

Item 1: The Chairperson welcomed all the Board of Studies Members with a special welcome to the JNTUH nominee Dr. B. Satyanarayana, Asst. Prof. of Chemistry, JNTUH UCEJ.

Resolution: The BoS noted and welcomed all the new Members.

Item 2: To Recommend the Course Structure of Chemistry Subject offered to B.Tech I Year (I & II SEM) of R-25 regulations to the Academic Council.

The Chairperson of BoS presented the detailed course structure of B.Tech. I Year (I & II Sem) Course Structure of R-25 regulations

Resolution: The members after thorough discussion recommended the course structure of B.Tech. (Chemistry) I Year (I & II Sem). The details of the course structure are given in Annexure -1.

Item 3: To Recommend the Syllabi of Chemistry Subject offered to B.Tech I Year (I & II SEM) R-25 regulations to the Academic Council.

The Chairperson presented the detailed syllabi of B.Tech (Chemistry) I Years (I & II Sem).

Resolution: The members after thorough discussion recommended the syllabi of B.Tech. (Chemistry) I Years (I & II Sem). The details of the syllabi recommended are given in Annexure-2

2/9/25

Item 4: To Recommend the courses offered by Chemistry department to other departments in B.Tech I Year (I & II SEM).

1. Engineering Chemistry course along with the syllabus offered to I Year I Sem of CSE & CSE (AI&ML) Department under R-25 regulations.
2. Engineering Chemistry course along with the syllabus offered to I Year II Sem of CE, EEE, ME, ECE, IT, AIDS, AIML & CSE (DS) Departments under R-25 regulations.

The Chairperson presented detailed syllabi of above said courses that are offered to IT, CSE(DS), AI&DS, AI&ML, CSE(AI&ML), EEE, Civil Engineering, ECE, ME & CSE Departments under R-25 regulations.

Resolution: The members after thorough discussion recommended the courses offered to IT, CSE(DS), AI&DS, AI&ML, CSE(AI&ML), EEE, Civil Engineering, ECE, ME & CSE Department and the details are given in Annexure - 3.

The session ended with profuse thanks by Chairperson to all the members for attending the meeting.

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SCET

CH202BS: ENGINEERING CHEMISTRY

B.Tech. I Year II Sem.

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Course Objectives:

1. To develop adaptability to new advances in Engineering Chemistry and acquire the essential skills to become a competent engineering professional.
2. To understand the industrial significance of water treatment, fundamental principles of battery chemistry, and the impact of corrosion along with its control methods for structural protection.
3. impart foundational knowledge of various energy sources and their practical applications in engineering.
4. To equip students with an understanding of smart materials, biosensors, and analytical techniques applicable in engineering, industrial, environmental, and biomedical fields.

Course Outcomes:

1. Students will be able to understand the fundamental properties of water and its applications in both domestic and industrial purposes.
2. Students will gain basic knowledge of electrochemical processes and their relevance to corrosion and its control methods.
3. Students will comprehend the significance and practical applications of batteries and various energy sources, enhancing their potential as future engineers and entrepreneurs.
4. Students will learn the basic concepts and properties of polymers and other engineering materials.
5. Students will be able to apply the principles of UV-Visible, IR spectroscopy and Raman spectroscopy in analyzing pollutants in dye industries and biomedical applications.

UNIT-I: Water and its treatment: [8]

Introduction- Hardness, types, degree of hardness and units. Estimation of hardness of water by complexometric method - Numerical problems. Potable water and its specifications (WHO) - Steps involved in the treatment of potable water - Disinfection of potable water by chlorination and break-point chlorination. Defluoridation - Nalgonda technique. Boiler troubles: Scales, Sludges and Caustic embrittlement. Internal treatment of boiler feed water - Calgon conditioning, Phosphate conditioning, Colloidal conditioning. External treatment methods - Softening of water by ion-exchange processes. Desalination of brackish water – Reverse osmosis.

UNIT-II: Electrochemistry and Corrosion: [8]

Introduction- Electrode potential, standard electrode potential, Nernst equation (no derivation), electrochemical cell - Galvanic cell, cell representation, EMF of cell - Numerical problems. Types of electrodes, reference electrodes - Primary reference electrode - Standard Hydrogen Electrode (SHE), Secondary reference electrode - Calomel electrode. Construction, working and determination of pH of unknown solution using SHE and Calomel electrode.

Corrosion: Introduction- Definition, causes and effects of corrosion – Theories of corrosion, chemical and electrochemical theories of corrosion, Types of corrosion: galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion - Nature of the metal, Nature of the corroding environment. Corrosion control methods - Cathodic protection Methods - Sacrificial anode and impressed current methods.

UNIT–III: Energy sources: [8]

Batteries: Introduction– Classification of batteries - Primary, secondary and reserve batteries with examples. Construction, working and applications of Zn-air and Lithium-ion battery. Fuel Cells –

CH202BS: ENGINEERING CHEMISTRY

B.Tech. I Year I Sem. SCET

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4. Students will learn the basic concepts and properties of polymers and other engineering materials.
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