



BOARD OF STUDIES MEETING – 2022-23
K.S.R.M COLLEGE OF ENGINEERING
AUTONOMOUS

Minutes of the Meeting

Date	14-06-2023	Day	Wednesday
Time	5.00 pm – 6.00 pm	Venue	Virtual meeting: https://meet.google.com/njr-bbbv-kqb
Dept./SS	Humanities and Sciences (Chemistry & Biology for Engineers)	Convener	Dr. I. Sreevani

Members Present: 11

Members Absent: 00

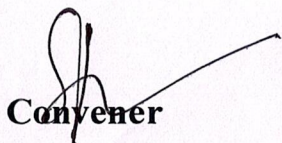
S. No	Name	Designation	Signature	S. No	Name	Designation
1.	Dr.I. Sreevani	Professor., HOD, Dept. of H&S, KSRMCE				
2.	Prof. G. V. Subba Reddy	Vice-Principal, JNTUP	online			
3.	Prof. C. Suresh Reddy	Prof., of Chemistry, Dept. of Chemistry, SV University	online			
4.	Dr. A.G. Damu	Professor of Chemistry, Yogi Vemana University, Kadapa-516005	online			
5.	Prof. P. Chandramati	Professor of Biotechnology YV University, Kadapa	online			
6.	Dr. S. P. Venkata Ramana	Associate Professor of Zoology, Nodal officer EBSB, YV University, Kadapa	online			
7.	Smt. M. Mary Jasmine	Assistant Prof., KSRMCE				
8.	Dr. K. Venkata Ramana	Assistant Prof., KSRMCE				
9.	Smt. B. Prashanti	Assistant Prof., KSRMCE				
10.	C. Rajendra Kumar	Assistant Prof., KSRMCE (Alumni)	online			
11.	Mallikarjuna Yadav	Argo life Sciences	online			


Dr. I. Sreevani, welcomed all the members to the meeting and presented the agenda of the meeting.

There solutions are:

To do item	Discussion	Resolution	Coordinator/in-charge
1. To Review the curriculum and syllabus implemented in I & II Semester under R20 Regulations.	The Board of Chairman has presented the curriculum & syllabus designed by the faculty & explained the course structure & syllabus briefly.	The committee members have expressed their satisfaction regarding curriculum designing in I & II Semester and for the implementation of different subjects in different branches	Dr. I. Sreevani
2. To revise the syllabus of Open elective subjects for R20 Regulations	The Board of Chairman has presented the revised open elective syllabus after taking the feedback from all stakeholders and comparing with premier institute syllabus & Convener explained the syllabus briefly.	The committee members approved the open elective syllabus for R20 Regulations	Dr. I. Sreevani
3. Introduction of new subjects in next regulations	The members have discussed the need of introduction of some new courses in next regulations	The committee members suggested some new topics & courses to be implemented in next curriculum.	Dr. I. Sreevani

The Head of the Department have proposed the Vote of thanks and concluded the meeting.


Convener


HOD H&S
Dr. I. SREEVANI M.Sc., Ph.D
Professor & HOD
Dept.of Humanities & sciences
K.S.R.M. College of Engineering
KADAPA Dist.

Course Title	Basics of Nanotechnology					B. Tech. (Open elective-I)		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
20OE604	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	40	60	100
Mid Exam Duration: 90 Min					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To make the students acquire an understanding the Nanoscience and Applications Student will be able to understand and control matter at the nanoscale leads to a revolution in technology and industry that benefits society. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Acquire knowledge about structure and properties of nano materials							
CO 2	Synthesis of nanomaterials by various methods & their applications							
CO 3	Identify and understand various top-down and bottom-up approaches for nanomaterial synthesis							
CO 4	Correlate properties of nanostructures with their size, shape							
CO 5	Appreciate enhanced sensitivity of nanomaterial-based sensors and their novel applications in industry							

Unit-I: Introduction

History and Scope, Introduction to nanomaterials, Classification of nanomaterials with suitable examples, Structure of different nanomaterials- Graphenes, CNT's, Fullerene, Properties of nanomaterials-Chemical, Optical, Thermal, Electrical Mechanical.

Learning Outcomes:

At the end of the unit, The students will be able to

- Classification of nanomaterials.
- Identify different structures of nanomaterials.

Unit-2: Synthesis of Nanomaterials

Chemical precipitation and Co-precipitation, Sol-gel synthesis, Electrochemical synthesis, Photochemical synthesis, Evaporation method-Principal & its uses

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain Sol-gel method.
- Discuss electrochemical and chemical methods of synthesis.

Unit-3: Fabrication of Nanomaterials

Top-Down method (Ball milling), Bottom-up method (chemical vapour deposition method, Sol gel method), Self- assembly method, Electric arc method. Nanocomposite fabrication.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain methods used in fabrication of different nanomaterials

Unit-4: Properties of Nanomaterials

Importance of nano particle, effect of Size on optical, electronic, photonic, mechanical, magnetic and catalytic properties.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the importance of nano particles.
- Discuss the effect of size on different properties.

Unit-5: Applications of Nanomaterials

Applications of Nano electronics, Nanooptics, Nano scale chemical & biosensing, biological/ Biomedical applications, Photo voltaic fuel cells-Related applications

Learning Outcomes:

At the end of the unit, The students will be able to

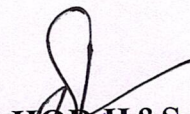
- Know the applications of nanomaterials in different fields.

Textbooks:

1. Text Book of Engineering Chemistry, Shashi Chawla, Dhanapath Rai Publications, New Delhi, 4th Edition, 2011.
2. Textbook of Nanoscience and Nanotechnology in Engineering, Marcel Van de Voorde (Ed.), De Gruyter publications
3. Nanoparticles-Biological activities and nanotechnology, Mindy Adams, NY Research Press
4. Theory and applications of Nano particals, Andrew Green, NY Research Press

Reference Books:

1. Textbook of Nanoscience & Nanotechnology, B.S. Murthy p. Shankar Baldev, University Press-IIM
2. Nanotechnology- A future technology with Visions-BPB Publications
3. Nanotribology, edited by Stephen M. Nsu, Z. Charles Ying, Springer International Edition
4. Introduction to Nanotechnology, Charles P. Poole Jr. Frank J. Owens, Willey Students Editions.


HOD H&S
Dr. I. SREEVANI M.Sc., Ph.D
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Dept. of Humanities & sciences
K.S.R.M. College of Engineering
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Course Title	Corrosion and Control					B. Tech. (Open elective-II)		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
20OE609	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	40	60	100
Mid Exam Duration: 90 Min					End Exam Duration: 3Hrs			
Course Objectives: <ul style="list-style-type: none"> To review the fundamental aspects of electrochemistry. It also focuses on various forms of corrosion, and their impact on life of metallurgical components, means and ways to engineer corrosion 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Recall the concepts of corrosion and its mechanism.							
CO 2	Explore different forms of corrosion and its mechanisms & prevention methods.							
CO 3	Analyze different factors which influence corrosion in different medium							
CO 4	Identify different control methods for efficient control of corrosion							
CO 5	Discuss corrosion aspects which will enable them to apply for modern engineering technology							

Unit-1: Introduction

Introduction to corrosion, definition and types of Corrosion (Chemical- & Electrochemical Corrosion-Evolution of Hydrogen gas & Absorption of Oxygen) & its mechanisms, Pilling Bed worth Rule , Galvanic series & its applications, Factors influencing corrosion-Metal & environment..

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the types of corrosion.
- Identify the factors which influence corrosion.

Unit-2: Corrosion& Various phenomenon

Uniform Corrosion (definition, mechanism & prevention), Galvanic (Two-metal) Corrosion (Definition, mechanism & prevention), Pitting corrosion (Definition, mechanism & prevention), Concentration Cell Corrosion (Definition, mechanism & prevention),Differential aeration method (Definition, mechanism & prevention)

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the mechanisms and prevention methods of different forms of corrosion.
- Analyze the differences between pitting and galvanic corrosion.

Unit-3: Environmental Factors on Corrosion

Various factors that influence Corrosion- Corrosion in water and aqueous solution, microbiologically induced corrosion, corrosion in acidic and alkaline medium.

Learning Outcomes:

At the end of the unit, The students will be able to

- discuss various environmental factors which influence the corrosion

Unit-4: Prevention & Control

Basic principle & concepts of prevention of corrosion-Cathodic protection (Sacrificial anodic protection, Impressed current Cathodic protection), Electroplating & Electroless plating- Definition with examples (Nickel & Copper), advantages - Alternation of Environment.

Learning Outcomes:

At the end of the unit, The students will be able to

- explain the prevention methods of corrosion
- discuss the basic concepts of electroplating and electroless plating

Unit-5: Modern theory and applications of corrosion:

Introduction, Gibb's free energy, cell potentials, EMF series, Corrosion rate expressions, Importance of corrosion in engineering technology & industrial applications.

Learning Outcomes:

At the end of the unit, The students will be able to

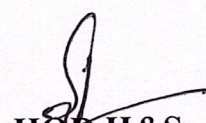
- Analyze the rate of corrosion
- Explain the importance of Electrochemical series

Textbooks:

1. Text Book of Engineering Chemistry, Shashi Chawla, Dhanapath Rai Publications, New Delhi, 4th Edition, 2011.
2. Corrosion of metals, Helmut Kaesche, Springer Publications
3. Handbook of Corrosion Engineering, 3rd edition, Pierre R. Roberg, McGraw Hill publications
4. General Chemistry for Engineers, Jeffrey S. Gaffney & Nancy A. Marley, Elsevier publications

REFERENCES:

1. Corrosion engineering, Fontana Mars G, Mc Graw Hill publications
2. A Text Book of Engineering Chemistry, Jain and Jain, Dhanapath Rai Publishing Company, New Delhi, 15th Edition, 2010
3. Corrosion and chemical resistant masonry materials Handbook, Walter T.V. Sheppard Lee, Building materials series.
4. General chemistry by Ebbing Darrell, Himalaya Publications


Dr. I. SREEVANI M.Sc., Ph.D
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Dept. of Humanities & sciences
K.S.R.M. College of Engineering
KADAPA Dist,

Course Title	Fuel Technology				B. Tech. (Open elective-III)			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
20OE614	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	40	60	100
Mid Exam Duration: 90 Min					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> The students will have the general knowledge of Fuels in the context of clean power, sustainability and alternative fuels To build up knowledge of concepts and theories of fuel combustion & control process 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Recall the Characteristics & properties of a fuel.							
CO 2	Analyze the concepts of solid fuels and evaluate the calorific value of solid fuels by Bomb Calorimeter.							
CO 3	Explore the synthesis of synthetic petrol & process of Refining of petroleum.							
CO 4	Identify various gaseous fuels and explain their preparation and properties.							
CO 5	Discuss about the purpose of different alternative fuels, merits & demerits of alternative fuels							

UNIT-I-Introduction

Fuels-Introduction, Classification of Fuels, Differences between Solid, Liquid & gaseous fuels. Characteristics of a Good fuel, Calorific Value of Fuels-Gross calorific value(GCV) & Net calorific Value (NCV)- definition, units & their relation, Numerical problems on calorific value.

Learning Outcomes:

At the end of the unit, The students will be able to

- Classification of fuels
- Analyze the characteristics of a good fuel

UNIT-2-Solid Fuels

Introduction, Types of Coal, Coal formation, Properties, Advantage & disadvantages of solid fuels. Proximate & Ultimate analysis of coal. Manufacture of metallurgical Coke-Otto Hoffmann method, Determination of Calorific value of solid fuel by Bomb calorimeter,

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the advantages and disadvantages of solid fuel
- Determine the calorific value of fuel by Bomb Calorimeter

UNIT-3-Liquid Fuels

Introduction, Properties, Advantages & disadvantages of Liquid fuels, Classification of petroleum, refining of petroleum-Fractional distillation of crude oil, uses of various petroleum products, Synthetic Petrol- methods-Fischer-Tropsch method and Bergius process. Knocking-Octane number, Cetane Number-Definitions

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the advantages and disadvantages of Liquid fuel.
- Discuss about refining of petroleum and uses of various petroleum products.

UNIT-4-Gaseous Fuels

Introduction, Properties, Advantages & disadvantages Of Gaseous fuels - Preparation, properties & uses of Natural gas, producer gas, water gas, Propane. Determination of calorific value of gaseous fuels by Junker's Gas Calorimeter-Principle & applications.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the advantages and disadvantages of Gaseous fuel.
- Preparation and properties of different types of gaseous fuels

Unit-5-Need for Alternate Fuels

Need for alternate fuels- Effects of Exhaust gas emissions on environment & Humans (NO, NO₂, CO₂, CO, SO_x). Introduction to alternate fuels- General uses of alternate fuels like Hydrogen, LPG, CNG, Biogas, Methanol, Ethanol, Butanol. Biofuels-Types of Biofuels, Applications of Biofuels, Merits & demerits of alternate fuels.

Learning Outcomes:

At the end of the unit, The students will be able to

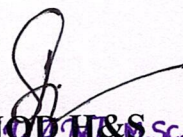
- Know about the effects of exhaust gas emissions on environment and humans.
- Analyze the merits and demerits of alternate fuels

Textbooks:

1. Text Book of Engineering Chemistry, Shashi Chawla, Dhanapath Rai Publications, New Delhi, 4th Edition, 2011.
2. Internal Combustion Engine Fundamentals, Heywood John B, Pragnya IAS Publications
3. General Chemistry for Engineers, Jeffrey S. Gaffrey & Nancy A. Marky
4. Fuels & Fuel- Additives, S.P.Srivastava , Jeno Hancsok, Willey Publications

REFERENCES:

- 1.A Text Book of Engineering Chemistry, Jain and Jain, Dhanapath Rai Publishing Company, New Delhi, 15th Edition, 2010.
2. Alternative Liquid fuels, Desai Ashok V, Willey Publications
3. Introduction to Combustion, Turns Stephen R, Mc GrawHill Publications
4. Fuels and Fuels Technology, Wilfrid Francis, Martin C. Peters, 2nd edition, Elsevier publications


Dr. I. SREEVALSAN, Ph.D.
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Course Title	Green Chemistry and Technology					B. Tech. (Open Elective-IV)		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
20OE619	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	40	60	100
Mid Exam Duration: 90 Min					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To make students aware of how chemical processes can be designed, developed and run in a sustainable way. Students acquire the competence to think of chemistry as a sustainable activity 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Understand the tolls & Principles of Green Chemistry							
CO 2	Knowledge of applications of green routes for synthesis of chemicals							
CO 3	Synthesis of biocatalysts using different techniques							
CO 4	Analyze about trends of solvent free chemical reactions							
CO 5	Better realization about reflections of Green Chemistry on sustainable development initiatives.							

Unit-1: Fundamentals of Green Chemistry:

Discussion of the current state of chemistry and the environment and the definition of green chemistry. An introduction to the tools of green chemistry and its fundamental principles.

Learning Outcomes:

After completing this unit, the student will be able to

- Summarize the principles in green chemistry.
- Understand the importance of green chemistry in future development

Unit-2: Principles of Green Chemistry:

Prevention of waste / by-products, Hazardous products Designing of safer chemicals-Selection of appropriate solvents and starting materials- Use of protecting groups and catalysis- Designing of biodegradable products.

Learning Outcomes:

After completing this unit, the student will be able to

- Explain the importance of designing of safer chemicals.
- Interpret the need for selection of appropriate solvents and starting materials in chemical reactions.

UNIT-3: Catalysis for Green Chemistry:

Use of biocatalysts- Biochemical Oxidation, Biochemical Reduction, Modified biocatalysts-transition metal catalysis-Simmons-Smith reaction, Heck reaction, Ullmann's coupling.

Learning Outcomes:

After completing this unit, the student will be able to

- Know the use of biocatalysts.
- Explain transition metal catalysis reactions

UNIT-4: Synthesis of green chemistry

a) Solvent Free Reactions: Solvent free techniques- Reactions on solid mineral supports, Phase Transfer Catalysis- C-alkylation, N-alkylation.

b) Ultrasound assisted green synthesis Introduction to ultrasound assisted green synthesis, Hydroboration, Bouveault reaction.

Learning Outcomes:

After completing this unit, the student will be able to

- Explain solvent free reactions in green synthesis
- Understand the importance of ultrasound assisted Green synthesis

UNIT-5: Applications of Green Chemistry

Importance of Green chemistry in Sustainable development. Applications in Pharmaceutical Industry, Nanoscience, Chemical industry, Colour, Paper, polymer, Solar cells & in agriculture field.

Learning Outcomes:

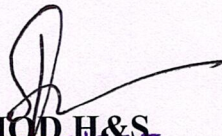
After completing this unit, the student will be able to

Textbooks:

1. Engineering Chemistry, Fundamentals and Applications, Shikha Agarwal
2. Green Chemistry: Theory & Practice, Oxford University Press, Oxford publication, 1998
3. Green chemistry, Stanley E. Manahan, ChemChar Research, Inc publishers 2005.
4. Introduction to Green Chemistry, Second edition, Albert Matlack, CRC Press 2016

References:

1. Text Book of Engineering Chemistry by S.S. Dara & Mukkati S. Chand & Co Publishers, New Delhi, 2006.
2. Handbook of Green chemistry and technology, James H. Clark, Duncan J. MacQuarrie, Blackwell, Abingdon, 2002
3. An Introduction Text on Green Chemistry, Indu Tucker Sidhwani, Rakesh K. Sharma, Wiley Publications
4. Green Organic Chemistry in Lecture and laboratory, Andrew P. Dicks & Michael C. Cann, T& F India publications.


HOD H&S
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Dept. of Humanities & sciences
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KADAPA Dist.

Course Title	Corrosion and Control					B. Tech. (Open elective)V Sem		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
180E2608	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs			
Course Objectives: <ul style="list-style-type: none"> To review the fundamental aspects of electrochemistry. It also focuses on various forms of corrosion, and their impact on life of metallurgical components, means and ways to engineer corrosion 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Recall the concepts of corrosion and its mechanism.							
CO 2	Explore different forms of corrosion and its mechanisms							
CO 3	Analyze different factors of environment which influence corrosion in different medium							
CO 4	Identify different control methods for efficient electrodeposition							
CO 5	Discuss corrosion aspects which will enable them to apply for modern technology							

Unit-1: Introduction

Introduction to corrosion, definition and types of Corrosion (Dry & Wet Corrosion) & its mechanisms, Galvanic series, Factors influencing corrosion.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the types of corrosion.
- Identify the factors which influence corrosion.

Unit-2: Corrosion & Various phenomenon

Uniform Corrosion (definition, mechanism & prevention), Galvanic (Two-metal) Corrosion (Definition, mechanism & prevention), Pitting corrosion (Definition, mechanism & prevention), Concentration Cell Corrosion (Definition, mechanism & prevention).

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the mechanisms and prevention methods of different forms of corrosion.
- Analyze the differences between pitting and galvanic corrosion.

Unit-3: Environmental Factors on Corrosion

Various factors that influence Corrosion- Corrosion in water and aqueous solution, microbiologically induced corrosion, corrosion in acidic and alkaline medium.

Learning Outcomes:

At the end of the unit, The students will be able to

- discuss various environmental factors which influence the corrosion

Unit-4: Prevention & Control

Basic principle & concepts of prevention of corrosion-Cathodic protection (Sacrificial anodic protection, Impressed current Cathodic protection), Electroplating & Electroless plating with examples- Alternation of Environment.

Learning Outcomes:

At the end of the unit, The students will be able to

- explain the prevention methods of corrosion
- discuss the basic concepts of electroplating and electroless plating

Unit-5: Modern theory and applications of corrosion:

Introduction, Gibb's free energy, cell potentials, emf series, Corrosion rate expressions, applications in modern technology

Learning Outcomes:

At the end of the unit, The students will be able to

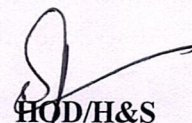
- Analyze the rate of corrosion
- Explain the importance of Electrochemical series

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REFERENCES:

1. Corrosion engineering, Fontana Mars G, Mc Graw Hill publications
2. A Text Book of Engineering Chemistry, Jain and Jain, Dhanapath Rai Publishing Company, New Delhi, 15th Edition, 2010
3. Corrosion and chemical resistant masonry materials Handbook, Walter T.V. Sheppard Lee, Building materials series.
4. General chemistry by Ebbing Darrell, Himalaya Publications



HOD/H&S

Dr. I. SREEVANI M.Sc., Ph.D
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA - 516 005

Course Title	Basics of Nanotechnology				B. Tech. (Open elective) VI Sem			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
180E2603	Open Elective	L	T	P	C	Continuou s Internal Assessment	End Exam s	Total
		3	0	0				
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To make the students acquire an understanding the Nanoscience and Applications Student will be able to understand and control matter at the nanoscale leads to a revolution in technology and industry that benefits society. 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Acquire knowledge about structure and properties of nano materials							
CO 2	Synthesize and deposit nanomaterials by various methods.							
CO 3	Identify and understand various top-down and bottom-up approaches for nanomaterial synthesis							
CO 4	Correlate properties of nanostructures with their size, shape							
CO 5	Appreciate enhanced sensitivity of nanomaterial-based sensors and their novel applications in industry							

Unit-I: Introduction

History and Scope, Introduction to nanomaterials, Classification of nanomaterials with suitable examples, Structure of different nanomaterials- Graphines, CNT's, Fullerence, Properties of nanomaterials.

Learning Outcomes:

At the end of the unit, The students will be able to

- Classification of nanomaterials.
- Identify different structures of nanomaterials.

Unit-2: Synthesis of Nanomaterials

Chemical precipitation and Co-precipitation, Sol-gel synthesis, Electrochemical synthesis, Photochemical synthesis, Evaporation method

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain Sol-gel method.
- Discuss electrochemical and chemical methods of synthesis.

Unit-3: Fabrication of Nanomaterials

Top-Down method (Ball milling), Bottom-up method (chemical vapour deposition method, Sol gel method), Self- assembly method, Electric arc method.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain methods used in fabrication of different nanomaterials

Unit-4: Properties of Nanomaterials

Importance of nano particle, effect of Size on optical, electronic, photonic, mechanical, magnetic and catalytic properties.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the importance of nano particles.
- Discuss the effect of size on different properties.

Unit-5: Applications of Nanomaterials

Nano particles and Nanocomposites; Nanotubes, Fullerenes, Nano sensors, Nano-electronics, Nano-medical applications, Textiles, paints, Defence & Space applications

Learning Outcomes:

At the end of the unit, The students will be able to

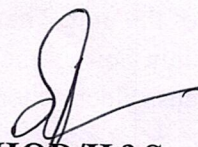
- Know the applications of nanomaterials in different fields.

Textbooks:

1. Text Book of Engineering Chemistry, Shashi Chawla, Dhanapath Rai Publications, New Delhi, 4th Edition, 2011.
2. Textbook of Nanoscience and Nanotechnology in Engineering, Marcel Van de Voorde (Ed.), De Gruyter publications
3. Nanoparticles-Biological activities and nanotechnology, Mindy Adams, NY Research Press
4. Theory and applications of Nano particals, Andrew Green, NY Research Press

Reference Books:

1. Textbook of Nanoscience & Nanotechnology, B.S. Murthy p. Shankar Baldev, University Press-IIM
2. Nanotechnology- A future technology with Visions-BPB Publications
3. Nanotribology, edited by Stephen M. Nsu, Z. Charles Ying, Springer International Edition
4. Introduction to Nanotechnology, Charles P. Poole Jr. Frank J. Owens, Willey Students Editions.



HOD/H&S

Dr. I. SREEVANI M.Sc., Ph.D

Head of Humanities & Sciences

K.S.R.M. College of Engineering

KADAPA 516 005

Course Title	Fuel Technology					B. Tech. (Open elective) VII Sem		
Course Code	Category	Hours/Week			Credits	Maximum Marks		
18OE2613	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> The students will have the general knowledge of Fuels in the context of clean power, sustainability and alternative fuels To build up knowledge of concepts and theories of fuel combustion & control process 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Recall the Characteristics & properties of a fuel.							
CO 2	Analyze the concept of solid fuels and evaluate the calorific value of solid fuels							
CO 3	Explore the process of Refining of petroleum and uses of various byproducts							
CO 4	Identify various types of gaseous fuels that reduces exhaust gas emissions							
CO 5	Discuss about the purpose of different alternative fuels, merits & advanced applications of alternative fuels							

UNIT-I-Introduction

Fuels-Introduction, Classification of Fuels, Characteristics of a Good fuel, Calorific Value of Fuels-Gross calorific value & Net calorific Value- definition, units & their relation.

Learning Outcomes:

At the end of the unit, The students will be able to

- Classification of fuels
- Analyze the characteristics of a good fuel

UNIT-2-Solid Fuels

Introduction, Types of Coal, Coal formation, Properties, Advantage & disadvantages of solid fuels, manufacture of metallurgical Coke, Determination of Calorific value of solid fuel by Bomb calorimeter

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the advantages and disadvantages of solid fuel
- Determine the calorific value of fuel by Bomb Calorimeter

UNIT-3-Liquid Fuels

Introduction, Properties, Advantages & disadvantages of Liquid fuels, Classification of petroleum, refining of petroleum-Refining of petroleum, uses of various petroleum products, Synthetic Petrol-Synthesis methods-Fischer-Tropsch method and Bergius process.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the advantages and disadvantages of Liquid fuel.
- Discuss about refining of petroleum and uses of various petroleum products.

UNIT-4-Gaseous Fuels

Introduction, Properties, Advantages & disadvantages Of Gaseous fuels - Preparation, properties & uses of Natural gas, producer gas, water gas. Determination of calorific value of gaseous fuels by Junker's Gas Calorimeter.

Learning Outcomes:

At the end of the unit, The students will be able to

- Explain the advantages and disadvantages of Gaseous fuel.
- Preparation and properties of different types of gaseous fuels

Unit-5-Need for Alternate Fuels

Need for alternate fuels- Effects of Exhaust gas emissions on environment & Humans(NO , NO_2 , CO_2 , CO , SO_x).

Introduction to alternate fuels- General uses of alternate fuels like Hydrogen, LPG, CNG, Biogas, Biofuels-Types of Biofuels, Applications of Biofuels, Merits & demerits of alternate fuels.

Learning Outcomes:

At the end of the unit, The students will be able to

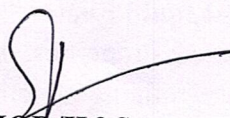
- Know about the effects of exhaust gas emissions on environment and humans.
- Analyze the merits and demerits of alternate fuels

Textbooks:

1. Text Book of Engineering Chemistry, Shashi Chawla, Dhanapath Rai Publications, New Delhi, 4th Edition, 2011.
2. Internal Combustion Engine Fundamentals, Heywood John B, Pragnya IAS Publications
3. General Chemistry for Engineers, Jeffrey S.Gaffrey & Nancy A. Marky
4. Fuels & Fuel- Additives, S.P.Srivastava , Jeno Hancsok, Willey Publications

REFERENCES:

1. A Text Book of Engineering Chemistry, Jain and Jain, Dhanapath Rai Publishing Company, New Delhi, 15th Edition, 2010.
2. Alternative Liquid fuels, Desai Ashok V, Willey Publications
3. Introduction to Combustion, Turns Stephen R, Mc GrawHill Publications
4. Fuels and Fuels Technology, Wilfrid Francis, Martin C. Peters, 2nd edition, Elsevier publications



HOD/H&S

Dr. I. SREEVANI M.Sc., Ph.D
Head of Humanities & Sciences
K.S.R.M College of Engineering
KADAPA 516 005

Course Title	Green Chemistry and Technology				B. Tech. (Open Elective) VIII Sem			
Course Code	Category	Hours/Week			Credits	Maximum Marks		
180E2618	Open Elective	L	T	P	C	Continuous Internal Assessment	End Exams	Total
		3	0	0	3	30	70	100
Mid Exam Duration: 2Hrs					End Exam Duration: 3Hrs			
Course Objectives:								
<ul style="list-style-type: none"> To make students aware of how chemical processes can be designed, developed and run in a sustainable way. Students acquire the competence to think of chemistry as a sustainable activity 								
Course Outcomes: On successful completion of this course, the students will be able to								
CO 1	Understand the Principles of Green Chemistry							
CO 2	Knowledge of applications of green routes for synthesis of chemicals							
CO 3	Synthesis of biocatalysts using different techniques							
CO 4	Analyze about trends of solvent free chemical reactions							
CO 5	Better realization about reflections of Green Chemistry on sustainable development initiatives.							

Unit-1: Fundamentals of Green Chemistry:

Discussion of the current state of chemistry and the environment and the definition of green chemistry. An introduction to the tools of green chemistry and its fundamental principles.

Learning Outcomes:

After completing this unit, the student will be able to

- Summarize the principles in green chemistry.
- Understand the importance of green chemistry in future development

Unit-2: Principles of Green Chemistry:

Prevention of waste / by-products, Hazardous products Designing of safer chemicals-Selection of appropriate solvents and starting materials- Use of protecting groups and catalysis- Designing of biodegradable products.

Learning Outcomes:

After completing this unit, the student will be able to

- Explain the importance of designing of safer chemicals.
- Interpret the need for selection of appropriate solvents and starting materials in chemical reactions.

R

Dr. J. Srinivasulu Reddy
Head of Department, Chemistry
K. J. Somaiya Institute of Engineering & Information Technology
Warananagar, Andheri (W), Mumbai - 400 075

UNIT-3: Catalysis for Green Chemistry:

Use of biocatalysts- Biochemical Oxidation, Biochemical Reduction, Modified biocatalysts- transition metal catalysis-Simmons-Smith reaction, Heck reaction, Ullmann's coupling.

Learning Outcomes:

After completing this unit, the student will be able to

- Know the use of biocatalysts.
- Explain transition metal catalysis reactions

UNIT-4: Solvent Free Reactions:

Solvent free techniques- Reactions on solid mineral supports, Phase Transfer Catalysis- C-alkylation, N-alkylation.

Learning Outcomes:

After completing this unit, the student will be able to

- Explain solvent free reactions in green synthesis

UNIT-5: Ultrasound assisted green synthesis:

Introduction to ultrasound assisted green synthesis, Oxidation, Reduction, Hydroboration, Bouveault reaction.

Learning Outcomes:

After completing this unit, the student will be able to

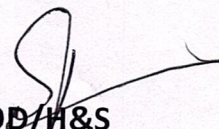
- Understand the importance of ultrasound assisted Green synthesis

Textbooks:

1. Engineering Chemistry, Fundamentals and Applications, Shikha Agarwal
2. Green Chemistry: Theory & Practice, Oxford University Press, Oxford publication, 1998
3. Green chemistry, Stanley E. Manahan, ChemChar Research, Inc publishers 2005.
4. Introduction to Green Chemistry, Second edition, Albert Matlack, CRC Press 2016

References:

1. Text Book of Engineering Chemistry by S.S. Dara & Mukkati S. Chand & Co Publishers, New Delhi, 2006.
2. Handbook of Green chemistry and technology, James H. Clark, Duncan J. MacQuarrie, Blackwell, Abingdon, 2002
3. An Introduction Text on Green Chemistry, Indu Tucker Sidhwani, Rakesh K. Sharma, Wiley Publications
4. Green Organic Chemistry in Lecture and laboratory, Andrew P. Dicks & Michael C. Cann, T&F India publications.



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Head of Humanities & Sciences
KSRM College of Engineering
KADAPA 515 005



HOD H&S

chandramati shankar

agdamu01 damu

Nandyala MallikarjunaYadav

Dr K Venkata Ramana

Prashanthi Badvel

Prof. G.V. Subba Reddy

You

5:03 PM | BOS Meeting June 2023



People

Add people

IN MEETING

- Contributors 8
- Mary Jasmine (You)
 - agdamu01 damu
 - chandramati shankar
 - Dr K Venkata Ramana
 - HOD H&S Meeting host
 - Nandyala MallikarjunaYa...
 - Prashanthi Badvel

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Unit-3: Water Quality parameters and its Analysis:

Various water quality parameters- drinking & industrial water. Experimental methods for measuring Hardness of water by EDTA method, DO by Winkler's method, Chlorides, Alkalinity, & TDS. Waste water treatment; domestic waste water-aerobic and anaerobic treatment, and industrial waste water treatment- Open Pond system.

Learning Outcomes:

- List various parameters for water quality analysis
- Explain water analysis methods
- Outline the waste water treatment methods

Unit-4: Soil Pollution

Soil pollution - agricultural pollution - use of chemical fertilizers - Organic chemicals and environment-Agrochemicals-Pesticides, insecticides and herbicides, effects of various pesticides in agriculture on excessive use.

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Re: Invitation: BOS Meeting June 2023 @ Wed Jun 14, 2023 5pm - 6pm (IST)
(agdamu01@gmail.com)

1 message

Tue, Jun 13, 2023 at 3:15 PM

agdamu01 damu <agdamu01@gmail.com>

To: HOD H&S <hod.hs@ksrmce.ac.in>

Cc: rajendra.p@ksrmce.ac.in, spvramana.butterfly@gmail.com, prashanthi@ksrmce.ac.in,
gopireddy.chemistry@jntua.ac.in, drkvr@ksrmce.ac.in, jasmine@ksrmce.ac.in, pchandra20@gmail.com, suresh reddy
<csrsvu@gmail.com>

I will attend the meeting.

On Tue, Jun 13, 2023, 12:57 PM <hod.hs@ksrmce.ac.in> wrote:

Join with Google Meet

Meeting link

meet.google.com/njr-bbbv-kqb

When

Wednesday Jun 14, 2023 · 5pm – 6pm (India Standard Time - Kolkata)

Guests

hod.hs@ksrmce.ac.in - organizer
rajendra.p@ksrmce.ac.in
spvramana.butterfly@gmail.com
agdamu01@gmail.com
prashanthi@ksrmce.ac.in
gopireddy.chemistry@jntua.ac.in
drkvr@ksrmce.ac.in
jasmine@ksrmce.ac.in
pchandra20@gmail.com
csrsvu@gmail.com

[View all guest info](#)

Reply for agdamu01@gmail.com

Yes

No

Maybe

More options

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You are receiving this email because you are subscribed to calendar notifications. To stop receiving these emails, go to Calendar settings, select this calendar, and change "Other notifications".

Forwarding this invitation could allow any recipient to send a response to the organizer, be added to the guest list, invite others regardless of their own invitation status, or modify your RSVP. [Learn more](#)

Re: Invitation: BOS Meeting June 2023 @ Wed Jun 14, 2023 5pm - 6pm (IST)
(pchandra20@gmail.com)

1 message

chandramati shankar <pchandra20@gmail.com>

Wed, Jun 14, 2023 at 8:39 AM

To: HOD H&S <hod.hs@ksrmce.ac.in>

Cc: rajendra.p@ksrmce.ac.in, Sri Purushottam Venkata Ramana <spvramana.butterfly@gmail.com>, agdamu01 damu <agdamu01@gmail.com>, prashanthi <prashanthi@ksrmce.ac.in>, gopireddy.chemistry@jntua.ac.in, VENKATA RAMANA <drkvr@ksrmce.ac.in>, Mary Jasmine <jasmine@ksrmce.ac.in>, suresh reddy <csrsvu@gmail.com>

I will attend the meeting.

On Tue, 13 Jun, 2023, 12:57 pm , <hod.hs@ksrmce.ac.in> wrote:

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View all guest info

Reply for pchandra20@gmail.com

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Re: Invitation: BOS Meeting June 2023 @ Wed Jun 14, 2023 5pm - 6pm (IST)
(spvramana.butterfly@gmail.com)

1 message

Sri Purushottam Venkata Ramana <spvramana.butterfly@gmail.com>

Tue, Jun 13, 2023 at 12:58
PM

To: HOD H&S <hod.hs@ksrmce.ac.in>

Cc: rajendra.p@ksrmce.ac.in, agdamu01 damu <agdamu01@gmail.com>, Prashanthi Badvel <prashanthi@ksrmce.ac.in>, gopireddy.chemistry@jntua.ac.in, drkvr@ksrmce.ac.in, jasmine@ksrmce.ac.in, chandramati shankar <pchandra20@gmail.com>, suresh reddy <csrsvu@gmail.com>

Dear sir
I will attend the meeting.
With regards
Dr. S.P. Venkata Ramana

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Reply for spvramana.butterfly@gmail.com

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