**GOVERNMENT COLLEGE OF ENGINEERING, JALGAON**

**(An Autonomous Institute of Government of Maharashtra)**

**Ninth Meeting:- BOARD OF STUDIES IN SCIENCE AND HUMANITIES**

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**Minutes of Meeting:-**

Date :- Wednesday February. 03, 2021

Time:- 11.00 am

Venue:- Applied Science Department ( Room No.25 )

**Present Members:-**

Dr. M.S.Phalak:-Chairman of BoS

Prof. S.D.Ahirrao: Member of Secretary

Smt. Y. S. Patil:- Member

Prof. V.M. Kanke:- Member

Prof. N. M. Gosavi:- Member

Dr.V.S. Kulkarni:- Member

Dr. B. R. Sankapal:- Member

Dr. P. A. Narkhede:- Member

Dr. A.Y. Badgujar:- Invitee

Dr. P. P. Mahurlikar:- Invitee

Shri. S. Y. Prabhudesai:- Invitee

Prof. S. R. Zope:- Invitee

Prof. S. S. Patil:- Invitee

As per telephonic and email conversation Shri. S. Y. Prabhudesai, Dr. P. P. Mahurlikar and Prof. N. M. Gosavi asked for leave for ninth BoS meeting to BoS Chairman and were sanctioned.

**Proceedings:**

The meeting started at 11.00 am. Dr. M S Phalak greeted all the members of the BoS and explained the reason of the meeting.

Prof. S.D.Ahirrao read agenda of Ninth meeting of Board of Studies.

**Item No. 1:**

**To read and confirmed the Minutes of eighth meeting of Board of Studies held in meeting hall of institute on Wednesday February 3, 2021 at 11.00 am.**

Prof. S.D.Ahirrao read Agenda of the ninth meeting of Board of Studies and all the members approved it.

**Item No.2:**

**To Note & approve the action taken by Department on the Agenda Points discussed and resolved in second meeting of Board of Studies.**

Prof. S.D.Ahirrao read action taken of the eighth meeting of Board of Studies and all the members approved it.

**Item No.3:**

**To discuss and approved the revised syllabi of the course of second year UG Programme of Science and Humanities.**

Chairman- BoS, Dr M. S. Phalak discussed the detailed structure of 1st Year all branches.

**3.1]** Dr.V.S.Kulkarni suggested that the syllabus of mathematics should be changed as per AICTE guidelines. As per suggestion given by Prof. S.D.Ahirrao, name of the course SH101U Differential Calculus is not justifying the content of course SH101U Differential calculus and name of the course SH151U Integral Calculus is also not justified the content of the same. So it is requested that change the name of the course SH101U Differential Calculus to SH101U Engineering Mathematics – I and SH151U Integral Calculus to SH151U Engineering Mathematics – II so that the name and content will match.

All the members agreed with it and those rights are given to BoS chairman-Science and Humanities and approve it unanimously.

**3.2]** Dr. B. R. Sankapal suggested topic of capacitors should be included in energy science unit also he suggested XRD spectroscopy basic should be included in syllabus of SH-102U Engineering Chemistry Theory.

Following changes has been done

|  |  |  |
| --- | --- | --- |
|  | **Old Syllabus** | **Topic Removed** |
| 1 | **Polymer Chemistry:** Classification based on applications, Copolymerization, melting point and glass transition, Viscoelasticity, Synthesis, properties and applications of selected polymers (polyvinyl chloride, polyethylene (HDPE and LDPE), polystyrene polypropylene(PP), polytetrafluroethylene (PTFE/Teflon), epoxy resin, polyvinyl acetate, polycarbonate(PC), Phenol formaldehyde resin. Adhesives, adhesive mechanism and applications. Composites: characteristics, types and applications. Nanocomposites. Metallic and non-metalic fillers. | Metallic and non-metalic fillers. |
| 2 | **Environmental Chemistry:** Introduction units of hardness, impurities in water and their effects, drinking water or municipal water treatment- removal of microorganisms by adding bleaching powder, chlorination, disinfection by ozone, reverse osmosis. Air, Water and noise pollution. Optimum levels of pollution. Significance and determination of COD and BOD. Solid waste treatment of collection of NKP. Greenhouse effect and global warming. e-waste. Radioactive pollution. | Solid waste treatment of collection of NKP. Greenhouse effect and global Warming Greenhouse effect and global warming .e-waste. Radioactive pollution. |
| **New Topics Added**  Introduction to Green chemistry and 12 principal of green chemistry 3R’s- Reduce, Reuse and Recycle, Disposal of plastics, Hardness & Chloride content- methods & numerical on Determination of hardness of water and DO, BOD, COD |
| 3 | **Energy Science-**  Fuel, Classification of fuel, Analysis of coal, liquid fuels, Petroleum refining, knocking, anti- knock agents, cracking of oils, limitation of fossil fuels. Alternative and non-conventional sources of energy-solar, wind, geo, hydro-power and biomass. Advantages and disadvantages. Nuclear energy, reactors and nuclear waste disposal. Safety measures for nuclear reactors. | Limitation of fossil fuels. Alternative and non-conventional sources of energy-solar, wind, geo, hydro-power and biomass. Advantages and disadvantages. Nuclear energy, reactors and nuclear waste disposal. Safety measures for nuclear reactors. |
| **New Topics Added**  Basic principles and electrochemistry, Batteries- characteristics, Li- ion batteries, Fuel cells- Principle of Fuel Cell, Components of a fuel cell. Hydrogen production, Hydrogen storage system |
| 4 | **Modern analytical techniques**  Mass spectrometry. Thermal analysis. Electron microscopy, scanning tunneling microscope and atomic force microscope. Sensors. | Mass spectrometry. Electron microscopy, microscope and atomic force microscope. |
| **New Topics Added**  Basic principal and Applications of FTIR XRD ,UV visible , H1NMR Electron microscopy, SEM Basic Idea of Sensors and different types of sensors and their application |

Following changes has been done in SH 103U - Engineering Chemistry Lab.

|  |  |  |
| --- | --- | --- |
|  | **Old Syllabus** | **Topic Removed** |
| 1 | 1. Determination of surface tension and viscosity coefficient  6. Chemical analysis of a salt  7. Adsorption of acetic acid by charcoal  8 .Chemical oscillations-Iodine clock reaction | Determination of chloride content of water  Preparation of some organic intermigates product Schiffs Bases, Benzilidene , Malonitrile etc. Determination of molecular weight of a polymer using Ostwald’s viscometer. |
| 2 | 3. Determination of the partition coefficient of a substance between two immiscible liquids  6. Colligative properties using freezing point depression  10. Models of potential energy surfaces | Laboratory techniques of Thin layerchromatography  Residual Chlorine in tap water  Synthesis of some nanomaterial ZNO and TIO2 (Nano)  Green Synthesis of some medicinally important drugs intermigiates Synthesis of Drug  Determination of calorific value of a fuel using Bomb’s calorimeter |

The course outcomes of SH 103U Engineering Chemistry Lab has been changed.

**Old Course Outcomes of SH 103U Engineering Chemistry Lab**

On successful completion of this course, student shall be able to:

1. Estimate rate constant of reactions from the concentration of reactants/products as a function of time

2. Measure molecular/system properties such as surface tension, viscosity, the conductance of solutions, redoxpotentials, and the chloride content of water, etc

3. Synthesize a small drug molecule and analyze a salt sample

**New Course Outcomes**

On successful completion of this course, student shall be able to:

1. perform experiments to judge suitability of various chemicals, materials and techniques

2. understand molecular/system properties viscosity, surface tension and calculate percentage of carbon, volatile matter in a giver fuel sample.

3. understand complete analysis of a giver water sample

4. prepare of some Biologically important organic Intermigates used as drugs.

5. prepare of some important polymers used in engineering applications.

**New Course Outcomes of SH102U Engineering Chemistry Theory:**

Course Outcomes: The concepts developed in this course will aid in the quantification of several concepts in chemistry that have been introduced at the 10+2 levels in schools. Technology is being increasingly based on the electronic, atomic and molecular level modifications. Upon successful completion of this course, the students will be able to

1. study chemical behavior, mechanism properties and applications of various materials.

2. analyze and choose correct engineering materials for industrial processes the synthesis and application of polymers.

3. study various energy resources and develop techniques for maximum utilization of energy resources.

4. get acquaint with recent development in the field of Nano technology and general concepts of modern analytical techniques.

**Item No. 4:**

**To discussed and approved the constitution of Examination Panel of different Subject in Science and Humanities.**

Prof. S.D.Ahirrao read examination panel of all subjects included in Board of Studies, all the members agreed with it and those rights are given to BoS chairman-Science and Humanities and approve it unanimously.

**Item No 5:**

**Any other point by the permission of chair**

All the finalization of syllabus related to Science and Humanities and changes in the course code, these rights are given to BoS Chairman-Science and Humanities and approve it unanimously. BoS Chairman-Science and Humanities will forward the suggestion to APEC.

All members of BoS are unanimously agreed.

After the discussion by all members, Prof. S.D.Ahirrao gave vote of thanks.

Prof. S. D. Ahirrao Dr. M. S. Phalak

BOS Secretary Chairman,

Board of Science and Humanities,

Government College of Engineering, Jalgaon