

Session: 2018-2019

Course: B.Tech

Name of the Faculty : _____

Discipline : Btech

Semester : 1ST sem

Subject : Engineering Chemistry

Lesson Plan Duration : 15 Weeks (From August 2018 to November 30)

Work load (Lectures/Practical)

Per week (in hours) : Lectures-04, Practicals-00

| WEEK | THEORY | | PRACTICAL | |
|-----------------|------------------|---|---|-------|
| | LECTURE DAY | TOPIC (including assignment /test) | PRACTICAL DAY | TOPIC |
| 1 ST | 1 st | Phase Rule:-Terminology, One component system (H ₂ O system and CO ₂ - system), | 1. To study the Cochran and Badcock & Wilcox boilers.. | |
| | 2 nd | | | |
| | 3 rd | two components system, Simple eutectic system (Pb-Ag), | | |
| | 4 th | system with congruent melting point (Zn - Mg). point (Na ₂ SO ₄ - H ₂ O) | | |
| 2 ND | 5 TH | system with incongruent melting point (Na ₂ SO ₄ - H ₂ O),Cooling curves. | 2. To study the working and function of mountlings and accessories in boilers | |
| | 6 TH | Assignment-1 | | |
| | 7 TH | Catalysis: Characteristics of catalytic Reactions, Types of catalysis: | | |
| | 8 TH | Homogeneous catalysis | | |
| 3 rd | 9 TH | Heterogeneous catalysis, Autocatalysis and Induced catalysis. Mechanism of Catalytic action (Intermediate compound formation theory & Adsorption theory). | 3. To study Two-stroke & Four-Stroke Diesel Engines. | |
| | 10 TH | | | |
| | 11 TH | Concept of promoters, inhibitors and poisoners. Enzymatic catalysis: its characteristics | 4. To study Two-stroke & Four-Stroke Petrol Engines. | |
| | 12 TH | | | |
| 4 th | 13 TH | factors affecting, Mechanism (lock and key hypothesis and Induced fit hypothesis) Assignment-2 | 5. To study the vapor compression Refrigeration System and determination of its C.O.P | |
| | 14 TH | | | |
| | 15 TH | | | |
| | 16 TH | | | |
| 5 th | 17 TH | Water and its Treatment: Part-I: Sources of water, impurities in water | | |
| | 18 TH | | | |

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| 6 th | 19 TH | | 6. To study the functioning of Window Room Air Conditioner |
| | 20 TH | hardness of water and its determination(EDTA method) , Units of hardness | |
| | 21 TH | alkalinity of water and its determination, related numerical problems | |
| | 22 TH | | |
| | 23 TH 24 TH | scale and sludge formation (composition properties and methods of prevention) Assignment-3 | |
| 7 th | 25 TH 26 TH | Boiler corrosion and caustic embrittlement. Priming and foaming | 7. To study the constructional features and working of peiton wheel Turbine, Francis Turbine and Kaplan Turbine. |
| | 27 TH 28 TH | Water and its Treatment: PART II: Treatment of water for domestic use, | |
| | 29 TH 30 TH | coagulation, sedimentation, filtration and disinfection. water softening : Lime-Soda treatment Assignment-4 | |
| 8 th | 31 TH 32 TH | Zeolite, Ion - exchange process, mixed bed demineralization Desalination (Reverse Osmosis , electro dialysis) & related numerical | 8. To calculate the Mechanical Advantage, Velocity Ratio and Efficiency of single start, Double start and Triple start worm & Worm Wheel. |
| | 33 TH 34 TH | Corrosion and its prevention: Mechanism of Dry and wet corrosion (rusting of iron), types of corrosion. | |
| | 35 TH 36 TH | galvanic corrosion, differential aeration corrosion, stress corrosion. Factors affecting corrosion | |
| | 37 TH 38 TH 39 TH | preventive measures (proper design, Cathodic and Anodic protection, Electroplating, tinning, galvanization) Assignment-5 | |
| 9 th | 40 TH | Lubrication and Lubricants: Introduction, mechanism of lubrication, classification of lubricants, (Liquid, Grease (semi - solid) and solid (MoS ₂ , Graphite). Soil Corrosion, Microbiological Corrosion | 9. To calculate Mechanical Advantage, Velocity Ratio and Efficiency of single purchase and Double purchase winch crab and plot graphs |
| | 41 TH 42 TH | | |
| | 43 TH 44 TH | Additives for lubricants. Properties of lubricants (Flash & Fire point, Saponification number, Iodine value, Acid value. | |
| | 45 TH | | |
| 10 th | 45 TH | | 10. To find the percentage error between observed and calculated values of stresses in the member of a Jib Crane. |
| 11 th | | | 11. To study simple screw jack and compound screw jack and determine their |

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| | 46 TH | Viscosity and Viscosity index Aniline point, Cloud point and pour point) Numerical problems based of viscosity Index. Biodegradable lubricants. Assignment-6 | efficiency. |
| | 47 TH | | |
| | 48 TH | | |
| 13 th | 49 TH | Polymers and polymerization: Introduction & Classification of polymers mechanism of polymerization (Addition, condensation and co- ordination) effect of structure on properties of polymers, | 12. To find the Mechanical Advantage, velocity Ratio and Efficiency of a Differential Wheel and Axle. |
| | 50 TH | | |
| | 51 TH | Bio polymerization, Bio degradable polymerization, preparation properties and technical application of thermo - plastics (PVC, PVA, Teflon)& thermosetting(PF,UF), Natural elastomers and synthetic rubber (SBR,GR -N) . Silicones, Introduction to polymeric composites. | |
| | 52 TH | | |
| 14 th | 53 TH | Principle and application of Thermal methods of Analysis. (TGA, DTA, DSC), Basic concepts of spectroscopy, Lambert and Beers law, Basic concepts of spectroscopy, Lambert and Beers law, Assignment-7 | |
| | 54 TH | | |
| | 55 TH | Absorption and Emission spectroscopy Different spectroscopic Techniques (UV-Visible and IR spectroscopy) elementary discussion on Flame photometry | |
| | 56 TH | | |
| 15 th | | PRE-UNIVERSITY EXAMINATIONS | |