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| RGPV (DIPLOMA WING)BHOPAL |  |  | <b>OBE CURRICULUM FOR THE COURSE</b> |   |  |          | FORMAT -3 |  |
| Branch                    |  | PRPC   |                                      |   |  | SEMESTER |           |  |
| COURSE CODE               |  | COURSE NAME  |                                      | Introduction to petrochemical engineering |  |          |           |  |
| COURSE OUTCOME-1          |  | To be able to explain concept of phase rule, adsorption and colloid's.   |                                      |   |  |          |           |  |
| LEARNING OUTCOME-1        |  | To illustrate concept of phase rule.   |                                      |   |  |          |           |  |
| CONTENTS                  |  | Statement and explanation of phase rule derivation, One component system i.e. water two component system i.e. KI-water and silver lead.  |                                      |   |  |          |           |  |
| ASSESSMENT METHOD         |  |  |                                      |   |  |          |           |  |
| LEARNING OUTCOME-2        |  | To explain adsorption  |                                      |   |  |          |           |  |
|                           |  | Introduction, physical adsorption and ID chemi-sorption, in exchange adsorption, Freundlich and Langmuir adsorption isotherm, application of adsorption.   |                                      |   |  |          |           |  |
| ASSESSMENT METHOD         |  |  |                                      |   |  |          |           |  |
| LEARNING OUTCOME-3        |  | To describe colloids   |                                      |   |  |          |           |  |
| CONTENTS                  |  | Properties of colloidal system thixotropy, emulsification and demulsification their theory and industrial applications.  |                                      |   |  |          |           |  |
| ASSESSMENT METHOD         |  |  |                                      |   |  |          |           |  |
| COURSE OUTCOME-2          |  | To identify properties of various hydrocarbons.  |                                      |   |  |          |           |  |
| LEARNING OUTCOME-1        |  | To identify aliphatic compounds.   |                                      |   |  |          |           |  |
| CONTENTS                  |  | General properties of hydrocarbons methods of preparation, properties and uses of aliphatic and cyclic compounds. Aliphatic and aromatic derivatives Thio, hydroxyl compounds, aldehydes, ketones, carboxylic acid, ethers, cyanometallic compounds. |                                      |   |  |          |           |  |
| ASSESSMENT METHOD         |  |  |                                      |   |  |          |           |  |
| LEARNING OUTCOME-2        |  | To identify aromatic compounds.  |                                      |   |  |          |           |  |
| CONTENTS                  |  | Aromatic hydrocarbons, benzene, Toluene polymeric aromatic hydrocarbons, naphthalene anthracene, heterocyclic sulphur compounds, thiophene, chemistry of waxes, tar and pitch  |                                      |   |  |          |           |  |

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| ASSESSMENT METHOD  |   |  |
| COURSE OUTCOME-3   | To to develop the understanding about fundamental knowledge of petrochemical industry   |  |
| LEARNING OUTCOME-1 | To develop understanding of unit operations.  |  |
| CONTENTS           | Introductions, mechanical separations fluid flow operations their basic principles  |  |
| ASSESSMENT METHOD  |   |  |
| LEARNING OUTCOME-2 | To develop understanding of industrial process.   |  |
| CONTENTS           | Heat transfer operations, mass transfer operation and simultaneous heat and mass transfer operations.   |  |
| ASSESSMENT METHOD  |   |  |
| COURSE OUTCOME-4   | To learn the various processes.   |  |
| LEARNING OUTCOME-1 | To apply different unit process in petrochemical industry.  |  |
| CONTENTS           | Introduction, Nitration, halogenation, alkylation, sulfonation.   |  |
| ASSESSMENT METHOD  |   |  |
| LEARNING OUTCOME-2 | To select the appropriate method.   |  |
| CONTENTS           | Animation, polymerization, oxidation hydrogetion.   |  |
| ASSESSMENT METHOD  |   |  |
| COURSE OUTCOME-5   | To develop understanding of petrochemical industry.   |  |
| LEARNING OUTCOME-1 | To understand various representation of flow process.   |  |
| CONTENTS           | Equipment symbols, processes stream flow lines, instrumentation symbols. objective of process plant location and layout criteria for selection of plant location and layout |  |
| ASSESSMENT METHOD  |   |  |

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| CONTENTS           | Density, Viscosity of liquid and gases vapour fascia, heat capacity of solids liquids and gases deffusivity. Use of nomegrams, effect of temperature on physical properties, graphical calculation |  |
| ASSESSMENT METHOD  |  |  |
| LEARNING OUTCOME-3 | To get familiar with petrochemical field.  |  |
| CONTENTS           | Evolution of petrochemical engineering profession, role of petrochemical engineers opportunities for petrochemical engineers future of petrochemical engineering.                                  |  |
| ASSESSMENT METHOD  |  |  |
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