

**GOVERNMENT POLYTECHNIC JAGATSINGHPUR**

**CHEMICAL ENGINEERING DEPARTMENT  
LESSON PLAN**

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| Discipline :-<br><b>CHEMICAL</b>                     | Semester:- <b>5<sup>th</sup></b>                  | Name of the Teaching Faculty<br><b>Dr. SUSHANTA KUMAR BEHERA</b>  |
| Subject:-<br><b>Chemical Process Industries – II</b> | No of Days/per Week Class<br><b>Allotted :-04</b> | Semester From:- <b>September</b> To:- <b>December</b>   |
| Course Code :<br><b>TH 3</b>                         |   |   |
| <b>Week</b>  | <b>Class Day</b>                                  | <b>Theory/ Practical Topics</b>   |
| 1 <sup>st</sup>                                      | 1 <sup>st</sup>                                   | <b>CHAPTER-1: PESTICIDES</b><br>Introduction  |
|  | 2 <sup>nd</sup>                                   | Pesticides, Classification  |
|  | 3 <sup>rd</sup>                                   | Manufacture of DDT  |
|  | 4 <sup>th</sup>                                   | DDT flow sheet description & application  |
| 2 <sup>nd</sup>                                      | 1 <sup>st</sup>                                   | <b>CHAPTER-2: PAINTS AND VARNISHES</b><br>Introduction about paint, varnishes, lacquers, enamels and their components |
|  | 2 <sup>nd</sup>                                   | Constituents of paints and their characteristics  |
|  | 3 <sup>rd</sup>                                   | Manufacturing process of paints and varnishes.  |
|  | 4 <sup>th</sup>                                   | Failure of paints   |
| 3 <sup>rd</sup>                                      | 1 <sup>st</sup>                                   | Advance technologies in paint industries  |
|  | 2 <sup>nd</sup>                                   | <b>CHAPTER-3: EXPLOSIVES</b><br>Introduction about explosives   |
|  | 3 <sup>rd</sup>                                   | Classification of different explosives  |
|  | 4 <sup>th</sup>                                   | Manufacture of cellulose nitrate  |
| 4 <sup>th</sup>                                      | 1 <sup>st</sup>                                   | Broad application of cellulose nitrate  |
|  | 2 <sup>nd</sup>                                   | Manufacture nitroglycerine and dynamite   |
|  | 3 <sup>rd</sup>                                   | <b>CHAPTER-4: PLASTICS</b><br>Introduction about plastics, types  |
|  | 4 <sup>th</sup>                                   | Differentiate between thermoplastic and thermosetting   |
| 5 <sup>th</sup>                                      | 1 <sup>st</sup>                                   | Classification of plastics  |
|  | 2 <sup>nd</sup>                                   | Properties and manufacture of phenol formaldehyde and its application   |
|  | 3 <sup>rd</sup>                                   | Properties and manufacture of urea formaldehyde and its application   |
|  | 4 <sup>th</sup>                                   | Properties and Manufacture of polyethylene and its application  |
| 6 <sup>th</sup>                                      | 1 <sup>st</sup>                                   | Properties and Manufacture of P.V.C and its application   |
|  | 2 <sup>nd</sup>                                   | <b>CHAPTER-5: SYNTHETIC FIBERS</b><br>Introduction about fibre and its classification                                 |
|  | 3 <sup>rd</sup>                                   | Properties of polyamides  |
|  | 4 <sup>th</sup>                                   | Manufacture of Nylon and its application  |
| 7 <sup>th</sup>                                      | 1 <sup>st</sup>                                   | Properties and Manufacture of Viscose rayon and its application   |
|  | 2 <sup>nd</sup>                                   | Properties and Manufacture of Cupro ammonium rayon and its application  |

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|                  | 3 <sup>rd</sup> | Properties and Manufacture of Acetate rayon and its application                         |
|                  | 4 <sup>th</sup> | Properties and Manufacture of Polyester and its application                             |
| 8 <sup>th</sup>  | 1 <sup>st</sup> | <b>CHAPTER-6: RUBBER</b><br>Introduction about rubber and its classification            |
|                  | 2 <sup>nd</sup> | Vulcanization of rubber   |
|                  | 3 <sup>rd</sup> | Natural and synthetic rubber  |
|                  | 4 <sup>th</sup> | Manufacture of SBR and their properties   |
| 9 <sup>th</sup>  | 1 <sup>st</sup> | Manufacture of Nitrile rubber and their properties                                      |
|                  | 2 <sup>nd</sup> | <b>CHAPTER-7: SUGAR</b><br><b>Introduction</b>  |
|                  | 3 <sup>rd</sup> | Manufacture of sugar from sugarcane   |
|                  | 4 <sup>th</sup> | Manufacture of industrial alcohol and uses  |
| 10 <sup>th</sup> | 1 <sup>st</sup> | Classification of alcoholic beverages   |
|                  | 2 <sup>nd</sup> | Properties of Alcohols  |
|                  | 3 <sup>rd</sup> | Manufacture of Beer   |
|                  | 4 <sup>th</sup> | Cont..  |
| 11 <sup>th</sup> | 1 <sup>st</sup> | <b>CHAPTER-8: OILS AND FATS</b><br>Classify different types of oil                      |
|                  | 2 <sup>nd</sup> | Manufacture of vegetable oil  |
|                  | 3 <sup>rd</sup> | Differentiate edible and essential oil  |
|                  | 4 <sup>th</sup> | Differentiate oil and fats  |
| 12 <sup>th</sup> | 1 <sup>st</sup> | Hydrogenation of oil and application  |
|                  | 2 <sup>nd</sup> | Advance technologies in oil production  |
|                  | 3 <sup>rd</sup> | <b>CHAPTER-9: SOAPS AND DETERGENTS</b><br>Introduction on soaps and detergent           |
|                  | 4 <sup>th</sup> | Differentiate between soap and detergent  |
| 13 <sup>th</sup> | 1 <sup>st</sup> | Properties of surfactant  |
|                  | 2 <sup>nd</sup> | Cleaning action of soap   |
|                  | 3 <sup>rd</sup> | Types of soap   |
|                  | 4 <sup>th</sup> | Manufacture of soap and uses  |
| 14 <sup>th</sup> | 1 <sup>st</sup> | Manufacture of detergent and uses   |
|                  | 2 <sup>nd</sup> | Industrial application of surfactants   |
|                  | 3 <sup>rd</sup> | <b>CHAPTER-10: PHARMACEUTICAL INDUSTRY</b><br>Classification of pharmaceutical industry |
|                  | 4 <sup>th</sup> | Major pharmaceutical industry in India  |
| 15 <sup>th</sup> | 1 <sup>st</sup> | Pharmaceutical industry products  |
|                  | 2 <sup>nd</sup> | Properties and structure of penicillin  |
|                  | 3 <sup>rd</sup> | Manufacture of penicillin by fermentation   |
|                  | 4 <sup>th</sup> | Application of penicillin   |