GOVT.POLYTECHNIC,JAGATSINGHPUR

LESSON PLAN

|  |  |  |
| --- | --- | --- |
| **Discipline : Mechanical**  **Engg.** | **Semester: 5th Sem** | **Name of the Teaching Faculty: Dibya Jyoti Panda,PTGF(Mechanical)** |
| Subject: Mechatronics | No. Of Days/Week Class Allotted | Semester From Date: 15/09/2022 to 22/12/2022 No. Of Weeks : 15 |
| **Week** | **Class Day** | **Theory/Practical Topics** |
| 1st | 1st | **INTRODUCTION TO MECHATRONICS:**  Definition, Advantages & disadvantages of Mechatronics. |
|  | 2nd | Application of Mechatronics, Importance of mechatronics in automation. |
|  | 3rd | Components of a Mechatronics System |
|  | 4th | Review class and Discussion |
| 2nd | 1st | Assignment Evaluation & Class Test |
|  | 2nd | **SENSORS AND TRANSDUCERS**:  Definition and classification of transducer |
|  | 3rd | Classification of Transducer |
|  | 4th | Electromechanical Transducers |
| 3rd | 1st | Transducers Actuating Mechanisms |
|  | 2nd | Sensors and its classifications |
|  | 3rd | Displacement &Positions Sensors |
|  | 4th | Electromechanical Transducers |
| 4th | 1st | Transducers Actuating Mechanisms |
|  | 2nd | Sensors and its classifications |
|  | 3rd | Displacement &Positions Sensors |
|  | 4th | Velocity and Motion sensors |
| 5th | 1st | Force and Pressure sensors. |
|  | 2nd | Temperature sensors |
|  | 3rd | Light sensors |
|  | 4th | Review class and Discussion |
| 6th | 1st | Assignment Evaluation & Class Test |
|  | 2nd | **ROBOTICS:**  Definition, Function and laws of robotics |

|  |  |  |
| --- | --- | --- |
|  | 3rd | Types of industrial robots, Advantages, Disadvantages and Applications of robots |
|  | 4th | Robotic systems |
| 7th | 1st | Review class and Discussion |
|  | 2nd | Assignment Evaluation & Class Test |
|  | 3rd | **ELEMENTS OF CNC MACHINES:** Introduction to Numerical Control of machines |
|  | 4th | NC machines |
| 8th | 1st | CNC machine |
|  | 2nd | CAD and CAM |
|  | 3rd | Software and hardware for CAD/CAM, Functioning of CAD/CAM system |
|  | 4th | Features and characteristics of CAD/CAM system, Application areas for CAD/CAM |
| 9th | 1st | Review class and Discussion |
|  | 2nd | **Introduction to CNC Machines,**  Elements of CNC machines |
|  | 3rd | Machine Structure |
|  | 4th | Guideways/Slide ways and its types |
| 10th | 1st | Drives and types, Spindle drives |
|  | 2nd | Feed drive |
|  | 3rd | Spindle and Spindle Bearings |
|  | 4th | Review class and Discussion |
| 11th | 1st | Assignment Evaluation & Class Test |
|  | 2nd | **PROGRAMMABLE LOGIC CONTROLLERS(PLC):** |
|  | 3rd | Introduction, Definition and Advantages of PLC, Selection and uses of PLC |
|  | 4th | Architecture basic internal structures |
| 12th | 1st | Input/output Processing and Programming |
|  | 2nd | Mnemonics, Master and Jump Controllers |
|  | 3rd | Review class and Discussion |
|  | 4th | Assignment Evaluation & Class Test |
| 13th | 1st | **MECHANICAL ACTUATORS:** |
|  | 2nd | Machine, Kinematic Link, Kinematic Pair |
|  | 3rd | Mechanism, Slider crank Mechanism |
|  | 4th | Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear |
| 14th | 1st | Belt & Belt drive |
|  | 2nd | **Electrical Actuator:** Switches and relays, Solenoids |
|  | 3rd | D.C Motors |

|  |  |  |
| --- | --- | --- |
|  | 4th | A.C Motors |
| 15th | 1st | Stepper Motors, Specification and control of stepper motors |
|  | 2nd | Servo Motors D.C & A.C |
|  | 3rd | Review class |
|  | 4th | Assignment Evaluation & Class Test |
|  |  | Revision |
|  |  | Revision |

.