



MAHARAJA POLYTECHNIC, TARABAI, BHUBANESWAR.
LESSON PLAN

NAME OF FACULTY:-DEEPAK SAMAL
BRANCH & SEMESTER:-MECHANICAL ENGG& 5TH SEM
TOTAL NO. OF STUDENT IN THE CLASS:-
TOTAL NO. OF CLASSES REQUIRED:-60
SESSION:-2022-23

SUBJECT NAME:- MECHATRONICS
SUBJECT CODE:- TH.4

| Sl. No. | Topics to be covered | Topics covered on date | Total no. of students present | Verified by HoD | Verified by the principal | Remark |
|---------|--|------------------------|-------------------------------|-----------------|---------------------------|--------|
| | UNIT:1 INTRODUCTION TO MECHATRONICS | | | | | |
| 1. | Definition of Mechatronics | | | | | |
| 2. | Advantages & disadvantages of Mechatronics | | | | | |
| 3. | Application of Mechatronics | | | | | |
| 4. | Scope of Mechatronics in Industrial Sector | | | | | |
| 5. | Components of a Mechatronics System | | | | | |
| 6. | Importance of mechatronics in automation | | | | | |
| 7. | UNIT:2 SENSORS AND TRANSDUCERS | | | | | |
| 8. | Defination of Transducers | | | | | |
| 9. | Classification of Transducers | | | | | |
| 10. | Electromechanical Transducers | | | | | |
| 11. | Transducers Actuating Mechanisms | | | | | |
| 12. | Displacement & Positions Sensors | | | | | |
| 13. | Velocity, motion, force and pressure sensors | | | | | |
| 14. | Temperature and light sensors. | | | | | |
| 15. | UNIT:3 ACTUATORS-MECHANICAL, ELECTRICAL | | | | | |

| | | | | | | |
|-----|--|--|--|--|--|--|
| 16. | Machine, Kinematic Link, Kinematic Pair | | | | | |
| 17. | Mechanism, Slider crank Mechanism | | | | | |
| 18. | Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear | | | | | |
| 19. | Belt & Belt drive | | | | | |
| 20. | Bearings | | | | | |
| 21. | Switches and relay | | | | | |
| 22. | Solenoid | | | | | |
| 23. | D.C Motors | | | | | |
| 24. | A.C Motors | | | | | |
| 25. | Stepper Motors | | | | | |
| 26. | Specification and control of stepper motors | | | | | |
| 27. | Servo Motors D.C & A.C | | | | | |
| 28. | UNIT:4 PROGRAMMABLE LOGIC CONTROLLERS(PLC) | | | | | |
| 29. | Introduction | | | | | |
| 30. | Advantages of PLC | | | | | |
| 31. | Selection and uses of PLC | | | | | |
| 32. | Architecture basic internal structures | | | | | |
| 33. | Input/output Processing and Programming | | | | | |
| 34. | Mnemonics | | | | | |
| 35. | Master and Jump Controllers | | | | | |
| 36. | UNIT:5 ELEMENTS OF CNC MACHINES | | | | | |
| 37. | NC machines | | | | | |
| 38. | CNC machines | | | | | |
| 39. | CAD | | | | | |
| 40. | CAM | | | | | |
| 41. | Software and hardware for CAD/CAM | | | | | |
| 42. | Functioning of CAD/CAM system | | | | | |
| 43. | Features and characteristics of CAD/CAM system | | | | | |
| 44. | Application areas for CAD/CAM | | | | | |

| | | | | | | |
|-----|---|--|--|--|--|--|
| 45. | elements of CNC machines | | | | | |
| 46. | Machine Structure | | | | | |
| 47. | Guideways/Slide ways and Types of Guideways | | | | | |
| 48. | Factors of design of guideways | | | | | |
| 49. | Spindle drives | | | | | |
| 50. | Feed drive | | | | | |
| 51. | Spindle and Spindle Bearings | | | | | |
| 52. | UNIT:06 ROBOTICS | | | | | |
| 53. | Definition, Function and laws of robotics | | | | | |
| 54. | Types of industrial robots | | | | | |
| 55. | Robotic systems | | | | | |
| 56. | Advantages and Disadvantages of robots | | | | | |

SIGN OF FACULTY

SIGN OF HOD

SIGN OF PRINCIPAL

