

## BRANCH VI: DIPLOMA IN MECHATRONICS

| Course Code | Course Title                                          | Hours/Week |          |           | Credits | Maximum Marks |     |       |
|-------------|-------------------------------------------------------|------------|----------|-----------|---------|---------------|-----|-------|
|             |                                                       | Lecture    | Tutorial | Practical |         | CA            | FE  | Total |
| SEMESTER 1  |                                                       |            |          |           |         |               |     |       |
| THEORY      |                                                       |            |          |           |         |               |     |       |
| X21101      | ENGINEERING MATHEMATICS-I                             | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| X21102      | PHYSICS                                               | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| X21103      | CHEMISTRY                                             | 4          | -        | -         | 4       | 25            | 75  | 100   |
| X21104      | ENGLISH                                               | 4          | -        | -         | 4       | 25            | 75  | 100   |
| L21105      | ENGINEERING GRAPHICS-I                                | 2          | -        | 3         | 3.5     | 25            | 75  | 100   |
| PRACTICALS  |                                                       |            |          |           |         |               |     |       |
| X21151      | PHYSICS LABORATORY                                    | -          | -        | 2         | 1       | 25            | 75  | 100   |
| X21152      | CHEMISTRY LABORATORY                                  | -          | -        | 2         | 1       | 25            | 75  | 100   |
| L21153      | FITTING, SHEETMETAL & WIRING WORKSHOP                 | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21154      | INPLANT TRAINING                                      | -          | -        | 3         | 1.5     | -             | -   | GRADE |
| X21155      | PHYSICAL EDUCATION-I                                  | -          | -        | 2         | 1       | -             | -   | GRADE |
|             | TOTAL                                                 | 18         | 2        | 15        | 27.5    | 200           | 600 | 800   |
| SEMESTER 2  |                                                       |            |          |           |         |               |     |       |
| THEORY      |                                                       |            |          |           |         |               |     |       |
| X21201      | ENGINEERING MATHEMATICS-II                            | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| X21202      | CALCULUS AND ITS APPLICATIONS                         | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21203      | ENGINEERING PHYSICS                                   | 4          | -        | -         | 4       | 25            | 75  | 100   |
| L21204      | CHEMISTRY OF ENGINEERING MATERIALS                    | 4          | -        | -         | 4       | 25            | 75  | 100   |
| L21205      | ENGINEERING GRAPHICS-II                               | 2          | -        | 3         | 3.5     | 25            | 75  | 100   |
| PRACTICALS  |                                                       |            |          |           |         |               |     |       |
| L21251      | ENGINEERING PHYSICS LABORATORY                        | -          | -        | 2         | 1       | 25            | 75  | 100   |
| L21252      | CHEMISTRY OF ENGINEERING MATERIALS LABORATORY         | -          | -        | 2         | 1       | 25            | 75  | 100   |
| L21253      | FOUNDRY AND WELDING WORKSHOP                          | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21254      | COMMUNICATIVE ENGLISH LABORATORY                      | 1          | -        | 2         | 2       | 25            | 75  | 100   |
| X21255      | PHYSICAL EDUCATION-II                                 | -          | -        | 2         | 1       | -             | -   | GRAD  |
|             | TOTAL                                                 | 19         | 2        | 14        | 28      | 225           | 675 | 900   |
| SEMESTER 3  |                                                       |            |          |           |         |               |     |       |
| THEORY      |                                                       |            |          |           |         |               |     |       |
| L21301      | PROBABILITY AND STATISTICS                            | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21302      | APPLIED MECHANICS                                     | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21303      | BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING      | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21304      | MANUFACTURING TECHNOLOGY                              | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| PRACTICALS  |                                                       |            |          |           |         |               |     |       |
| L21351      | CAD LABORATORY                                        | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21352      | STRENGTH OF MATERIALS LABORATORY                      | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21353      | ELECTRICAL CIRCUITS AND ELECTRONIC DEVICES LABORATORY | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21354      | WORK SHOP – LATHE AND SPECIAL MACHINES                | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21355      | PROGRAMMING IN C & PYTHON LABORATORY                  | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
|             | TOTAL                                                 | 16         | 4        | 15        | 27.5    | 225           | 675 | 900   |

Legend: **CA**–Continuous Assessment; **FE**–Final Examination;

| Course Code | Course Title                              | Hours/Week |          |           | Credits | Maximum Marks |     |       |
|-------------|-------------------------------------------|------------|----------|-----------|---------|---------------|-----|-------|
|             |                                           | Lecture    | Tutorial | Practical |         | CA            | FE  | Total |
| SEMESTER 4  |                                           |            |          |           |         |               |     |       |
| THEORY      |                                           |            |          |           |         |               |     |       |
| L21401      | ANALOG AND DIGITAL ELECTRONICS            | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21402      | SENSORS AND INTERFACING                   | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21403      | ELECTRICAL MACHINES AND DRIVES            | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21404      | HYDRAULICS AND PNEUMATICS                 | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| PRACTICALS  |                                           |            |          |           |         |               |     |       |
| L21451      | ANALOG AND DIGITAL ELECTRONICS LABORATORY | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21452      | SENSORS AND INTERFACING LABORATORY        | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21453      | CIRCUIT SIMULATION LABORATORY             | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21454      | FLUID AUTOMATION LABORATORY               | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21455      | TECHNICAL COMMUNICATION LABORATORY        | 1          | -        | 2         | 2       | 25            | 75  | 100   |
| L21456      | INTERNSHIP <sup>#</sup>                   | -          | -        | -         | 3       | -             | -   | GRADE |
|             | TOTAL                                     | 17         | 4        | 14        | 31      | 225           | 675 | 900   |
| SEMESTER 5  |                                           |            |          |           |         |               |     |       |
| THEORY      |                                           |            |          |           |         |               |     |       |
| L21501      | MICROCONTROLLER                           | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21502      | ROBOTICS                                  | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21Exx      | ELECTIVE THEORY-I                         | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| PRACTICALS  |                                           |            |          |           |         |               |     |       |
| L21551      | MICROCONTROLLER LABORATORY                | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21552      | EMBEDDED SYSTEM PROGRAMMING LABORATORY    | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21553      | PLC LABORATORY                            | 2          | -        | 3         | 3.5     | 25            | 75  | 100   |
| L21554      | ELECTRICAL MACHINES LABORATORY            | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21555      | MINI PROJECT AND ENTREPRENEURSHIP         | 3          | -        | 3         | 4       | 25            | 75  | 100   |
|             | TOTAL                                     | 17         | 3        | 15        | 27      | 200           | 600 | 800   |
| SEMESTER 6  |                                           |            |          |           |         |               |     |       |
| THEORY      |                                           |            |          |           |         |               |     |       |
| L21601      | INDUSTRIAL AUTOMATION                     | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| L21602      | CNC TECHNOLOGY                            | 4          | -        | -         | 5       | 25            | 75  | 100   |
| L21Exx      | ELECTIVE THEORY-II                        | 4          | 1        | -         | 5       | 25            | 75  | 100   |
| PRACTICALS  |                                           |            |          |           |         |               |     |       |
| L21651      | INDUSTRIAL AUTOMATION LABORATORY          | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21652      | CNC LABORATORY                            | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21653      | TECHNICAL 3D MODELING LABORATORY          | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21654      | ROBOTICS LABORATORY                       | -          | -        | 3         | 1.5     | 25            | 75  | 100   |
| L21655      | PROJECT WORK AND VIVA VOCE                | -          | -        | 9         | 4       | 25            | 75  | 100   |
|             | TOTAL                                     | 12         | 2        | 21        | 25      | 200           | 600 | 800   |

**ELECTIVE COURSES (Two to be opted)**

| Course Code | Course Title                                 | Hours/Week |          |           | Credits | Maximum Marks |    |       |
|-------------|----------------------------------------------|------------|----------|-----------|---------|---------------|----|-------|
|             |                                              | Lecture    | Tutorial | Practical |         | CE            | FE | Total |
| THEORY      |                                              |            |          |           |         |               |    |       |
| L21E01      | CAD/CAM AND FMS                              | 4          | 1        | -         | 5       | 25            | 75 | 100   |
| L21E02      | ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS | 4          | 1        | -         | 5       | 25            | 75 | 100   |
| L21E03      | MACHINE VISION IN AUTOMATION                 | 4          | 1        | -         | 5       | 25            | 75 | 100   |
| L21E04      | AUTOMOTIVE MECHATRONICS                      | 4          | 1        | -         | 5       | 25            | 75 | 100   |
| L21E05      | EMBEDDED SYSTEM PROGRAMMING                  | 4          | 1        | -         | 5       | 25            | 75 | 100   |

Legend: **CA**–Continuous Assessment; **FE**–Final Examination;  
<sup>#</sup> -Internship will be arranged for 4 weeks during the vacation at the end of 4<sup>th</sup> semester