

## Curriculum B.Tech Mechanical Smart Manufacturing

(According to 30<sup>th</sup> Senate meeting held on 22<sup>nd</sup> March 2016)

| <b>Semester 1</b>  |          |          |           |                 |
|--|----------|----------|-----------|-----------------|
| <b>Course Name</b>   | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Calculus   | 3        | 0        | 3         | BSC             |
| Engineering Mechanics  | 3        | 0        | 3         | BSC             |
| Computational Engineering / Basic Electrical & Electronics Engineering   | 3        | 0        | 3         | BEC/ BEC        |
| Concepts in Engineering Design/ Science and Engineering of Materials     | 3        | 0        | 3         | DES/BEC         |
| English for Communication  | 2        | 0        | 2         | HMC             |
| Earth, Environment & Design/ Professional Ethics for Engineers           | 2        |          | P/F       | DES/HMC         |
| Engineering Skills Practice  | 0        | 3        | 2         | BEC             |
| Materials & Mechanics Practice   | 0        | 3        | 2         | BSC             |
| Computational Engineering Practice/ Measurement & Data Analysis Practice | 0        | 3        | 2         | BEC/BSC         |
| Engineering Graphics   | 1        | 3        | 3         | BEC             |
| <b>Total</b>   |          |          | <b>23</b> |                 |
| <b>Semester 2</b>  |          |          |           |                 |
| <b>Course Name</b>   | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Differential Equations   | 3        | 0        | 3         | BSC             |
| Engineering Electromagnetism   | 3        | 0        | 3         | BSC             |
| Basic Electrical & Electronics Engineering/ Computational Engineering    | 3        | 0        | 3         | BEC/BEC         |
| Science and Engineering of Materials / Concepts in Engineering Design    | 3        | 0        | 3         | BEC/DES         |
| Design History   | 2        | 0        | 2         | DES             |
| Professional Ethics for Engineers/ Earth, Environment & Design           | 2        | 0        | P/F       | HMC/DES         |
| Measurement & Data Analysis Practice/ Computational Engineering Practice | 0        | 3        | 2         | BSC/BEC         |
| Industrial Design Sketching  | 0        | 3        | 2         | DES             |
| Engineering Electromagnetics Practice                                    | 0        | 3        | 2         | BSC             |
| Design Realization   | 0        | 3        | 2         | DES             |
| <b>Total</b>   |          |          | <b>22</b> |                 |
| <b>Semester 3</b>  |          |          |           |                 |
| <b>Course Name</b>   | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Probability and Statistics   | 3        | 0        | 3         | BSC             |
| Engineering Economics  | 2        | 0        | 2         | HMC             |
| Data Structures and Algorithms   | 3        | 0        | 3         | PEC             |
| Thermal Concepts for Manufacturing Engineers                             | 3        | 0        | 3         | PEC             |
| Manufacturing Processes I  | 3        | 0        | 3         | PEC             |
| Manufacturing Processes Practice I                                       | 0        | 3        | 2         | PEC             |
| Production Drawing and Manufacturability Analysis                        | 1        | 3        | 3         | PEC             |
| Electrical Drives  | 1        | 3        | 3         | PEC             |
| Data Structures and Algorithms Practice                                  | 0        | 3        | 2         | PEC             |
| <b>Total</b>   |          |          | <b>24</b> |                 |

| <b>Semester 4</b>                                  |          |          |           |                 |
|--|----------|----------|-----------|-----------------|
| <b>Course Name</b>                                 | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Free Elective (Maths category)                     | 3        | 0        | 3         | BSC             |
| Operations and Supply Chain Management             | 3        | 0        | 3         | HMC             |
| Database Management Systems                        | 3        | 0        | 3         | PEC             |
| Manufacturing Processes II                         | 3        | 0        | 3         | PEC             |
| Sensors and Controls                               | 3        | 0        | 3         | PEC             |
| Sensors and Controls Practice                      | 0        | 3        | 2         | PEC             |
| Manufacturing Processes Practice II                | 0        | 3        | 2         | PEC             |
| Machine to Machine Communication Practice          | 1        | 3        | 3         | PEC             |
| <b>Total</b>                                       |          |          | <b>22</b> |                 |
| <b>Semester 5</b>                                  |          |          |           |                 |
| <b>Course Name</b>                                 | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Entrepreneurship and Management Functions          | 2        | 0        | 2         | HMC             |
| Manufacturing Systems                              | 3        | 0        | 3         | PEC             |
| Robotics and Automation                            | 3        | 0        | 3         | PEC             |
| Quality Engineering                                | 3        | 0        | 3         | PEC             |
| Mechanical Design Concepts                         | 3        | 0        | 3         | PEC             |
| Robotics and Automation Practice                   | 0        | 3        | 2         | PEC             |
| Quality Inspection and Product Validation Practice | 0        | 3        | 2         | PEC             |
| Embedded Systems Practice                          | 1        | 3        | 3         | PEC             |
| <b>Total</b>                                       |          |          | <b>21</b> |                 |
| <b>Semester 6</b>                                  |          |          |           |                 |
| <b>Course Name</b>                                 | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Operations Research                                | 2        | 0        | 2         | HMC             |
| Smart Connected Systems                            | 3        | 0        | 3         | PEC             |
| Special Manufacturing Processes                    | 3        | 0        | 3         | PEC             |
| Computer Aided Design and Manufacturing            | 3        | 0        | 3         | PEC             |
| Elective I   | 3        | 0        | 3         | ELE             |
| Elective II  | 3        | 0        | 3         | ELE             |
| Computer Aided Design and Manufacturing Practice   | 0        | 3        | 2         | PEC             |
| Smart Connected Systems Practice                   | 0        | 3        | 2         | PEC             |
| Product Design Practice                            | 0        | 3        | 2         | DES             |
| <b>Total</b>                                       |          |          | <b>23</b> |                 |
| <b>Semester 7</b>                                  |          |          |           |                 |
| <b>Course Name</b>                                 | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Internship   | 0        | -        | 5         | PCD*            |
| Data Analytics                                     | 2        | 0        | 2         | HMC             |
| Free Elective – I                                  | 3        | 0        | 3         | ELE             |
| Design and Manufacturing Project                   | 0        | 6        | 5         | PCD             |
| <b>Total</b>                                       |          |          | <b>15</b> |                 |
| <b>Semester 8</b>                                  |          |          |           |                 |
| <b>Course Name</b>                                 | <b>I</b> | <b>P</b> | <b>C</b>  | <b>Category</b> |
| Free Elective (Management category)                | 2        | 0        | 2         | HMC             |
| Elective – III                                     | 3        | 0        | 3         | ELE             |
| Free Elective-II                                   | 3        | 0        | 3         | ELE             |
| Project  | 0        | -        | 10        | PCD             |
| <b>Total</b>                                       |          |          | <b>18</b> |                 |