**Department of Electronics & Communication Engineering**

**MIT ART DESIGN & TECHNOLOGY UNIVERSITY, PUNE**

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**MIT SCHOOL OF ENGINEERING, PUNE**

**STRUCTURE & SYLLABUS (160 CREDITS)**

**FOR**

# B. Tech. Electronics and

# Computer Engineering

**UNDER FACULTY OF TECHNOLOGY**

**(w.e.f. 2019-2020)**

**UNDER FACULTY OF TECHNOLOGY**

**M. Tech. Mechanical Engineering (Mechatronics)**

**2017-Course**

**Admin**

**SEMESTER I**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Course code** | **Category** | **Subject** | **L** | **T** | **P** | **Credits** | **Scheme of Examination** | | **Total Marks** |
| **CA** | **FE** |
| 1 | 18BTMT101 | BSC | Linear Algebra and Calculus (T) | 3 | 1 | 0 | 4 | 40 | 60 | 100 |
| 2 | 18BTPY002 | BSC | Engineering Physics (T) | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 3 | 18BTEC005 | ESC | Basics of Electrical and Electronics Engineering(T) | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 4 | 18BTME011 | ESC | Engineering Graphics | 1 | 0 | 4 | 3 | 50 | 50 | 100 |
| 5 | 18BTEG104 | HSM | English Communication for Engineers | 2 | 0 | 0 | 2 | 50 | -- | 50 |
| 6 | 18BTPY012 | BSC | Physics Laboratory | 0 | 0 | 2 | 1 | 40 | 60^ | 100 |
| 7 | 18BTEC015 | ESC | Basics of Electrical and Electronics Engineering Laboratory | 0 | 0 | 2 | 1 | 40 | 60^ | 100 |
| 8 | 18BTEG114 | HSM | English Communication Laboratory | 0 | 0 | 2 | 1 | 50 | -- | 50 |
|  |  |  | **Total** | **12** | **1** | **10** | **18** |  | | **700** |

**SEMESTER II**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Course code** | **Category** | **Subject** | **L** | **T** | **P** | **Credits** | **Scheme of Examination** | | **Total Marks** |
| **CA** | **FE** |
| 1 | 18BTMT201 | BSC | Ordinary Differential Equations and Advanced Calculus(T) | 3 | 1 | 0 | 4 | 40 | 60 | 100 |
| 2 | 18BTCH003 | BSC | Engineering Chemistry(T) | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 3 | 18BTCS006 | ESC | Programming for Problem Solving(T) | 2 | 0 | 0 | 2 | 40 | 60 | 100 |
| 4 | 18BTEC202 | DCC | Electronics Device and Circuits(T) | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 5 | 18BTCH013 | BSC | Chemistry Laboratory | 0 | 0 | 2 | 1 | 40 | 60^ | 100 |
| 6 | 18BTCS016 | ESC | Programming Laboratory | 0 | 0 | 4 | 2 | 40 | 60^ | 100 |
| 7 | 18BTME017 | ESC | Engineering Workshop | 0 | 0 | 4 | 2 | 50 | -- | 50 |
| 8 | 18BT(branch code)212 | DCC | Electronic Devices and Circuits Laboratory  \* | 0 | 0 | 2 | 1 | 40 | 60^ | 100 |
|  |  |  | **Total** | **11** | **1** | **12** | **18** |  | | **750** |

**SEMESTER III**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Hours/week** | | | | **Maximum Marks** | | |
| **Lecture** | **Tutorial** | **Practical** | **Credits** | **CA** | **FE** | **Total** |
| 18BTMT301 | Integral Calculus and Transform Techniques | 3 | 1 | 0 | 4 | 40 | 60 | 100 |
| 18BTEC302 | Electronics Circuit Analysis | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTEC303 | Signals & Systems | 3 | 1 | 0 | 4 | 40 | 60 | 100 |
| 18BTEC304 | Digital Logic Design | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTEC305 | Network Theory | 3 | 1 | 0 | 4 | 40 | 60 | 100 |
| 18BTEC311 | Electronic Instrumentation Laboratory | 0 | 0 | 2 | 1 | 40 | 60\*\* | 100 |
| 18BTEC312 | Circuit Analysis & Digital Logic Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 19BTEC321 | Mini Project –I | 0 | 0 | 2 | 1 | 100 | -- | 100 |
| **Total** | | **15** | **3** | **8** | **22** | **380** | **420** | **800** |

**SEMESTER IV**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Hours/week** | | | | **Maximum Marks** | | |
| **Lecture** | **Tutorial** | **Practical** | **Credits** | **CA** | **FE** | **Total** |
| 18BTEC401 | Data Structures and Algorithms | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO402 | System Programming and Operating System | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO403 | Analog Communication | 3 | 0 | 2 | 4 | 40 | 60 | 100 |
| 18BTEC404 | Computer Organization | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO405 | Data Base Management Systems | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO411 | DBMS and SPOS Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 18BTEC412 | Data Structures and Algorithms Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 19BTEC421 | Mini Project-II | 0 | 0 | 2 | 1 | 100 | -- | 100 |
| **Total** | | **15** | **0** | **12** | **21** | **380** | **420** | **800** |

**SEMESTER V**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Hours/week** | | | | **Maximum Marks** | | |
| **Lecture** | **Tutorial** | **Practical** | **Credits** | **CA** | **FE** | **Total** |
| 18BTCO501 | Data Communication | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO502 | Artificial Intelligence | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO503 | Embedded System Design | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO5[31-34] | Elective I | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO505 | Software Engineering | 3 | 1 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO511 | Data Communication and Elective I Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 18BTCO512 | AI & ESD Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 18BTCO521 | Mini Project –III | 0 | 0 | 2 | 1 | 100 | -- | 100 |
| **Total** | | **17** | **1** | **10** | **23** | **380** | **420** | **800** |

**SEMESTER VI**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Hours/week** | | | | **Maximum Marks** | | |
| **Lecture** | **Tutorial** | **Practical** | **Credits** | **CA** | **FE** | **Total** |
| 18BTCO601 | Software Testing & Quality Assurance (STQA) | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO602 | Cloud Computing | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO603 | Machine Learning | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO604 | Economics and Management for Engineers | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO6[31-34] | Elective II | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO611 | STQA and Cloud Computing Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 18BTCO612 | Machine Learning Laboratory | 0 | 0 | 2 | 1 | 40 | 60\*\* | 100 |
| 18BTCO621 | Mini Project-IV | 0 | 0 | 2 | 1 | 100 | -- | 100 |
| **Total** | | **19** | **0** | **8** | **23** | **380** | **420** | **800** |

**SEMESTER VII**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Hours/week** | | | | **Maximum Marks** | | |
| **Lecture** | **Tutorial** | **Practical** | **Credits** | **CA** | **FE** | **Total** |
| 18BTCO701 | Data Science & Application | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO702 | Natural Language Processing | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO703 | Computer Networks | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO7[31-35] | Elective-III | 4 | 0 | 0 | 4 | 40 | 60 | 100 |
| 18BTCO7[36-40] | Elective-IV | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| 18BTCO711 | DSA and BDA Laboratory | 0 | 0 | 4 | 2 | 40 | 60\*\* | 100 |
| 18BTCO712 | Computer Networks Laboratory | 0 | 0 | 2 | 1 | 40 | 60\*\* | 100 |
| 18BTCO721 | Project Phase-I | 0 | 0 | 2 | 1 | 100 | -- | 100 |
| **Total** | | **16** | **0** | **8** | **20** | **380** | **420** | **800** |

**SEMESTER VIII**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Course Name** | **Hours/week** | | | | **Maximum Marks** | | |
| **Lecture** | **Tutorial** | **Practical** | **Credits** | **CA** | **FE** | **Total** |
| 18BTCO821 | Internship and Project Phase-II | 0 | 0 | 24 | 12 | 100 | 300 | 400 |
| 18BTCO801 | Management Courses using online Platform | 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| **Total** | | **3** | **0** | **24** | **15** | **140** | **360** | **500** |

**LIST OF ELECTIVES**

|  |  |  |
| --- | --- | --- |
| **Elective** | **Course Name** | |
|
| Elective-I | 18BTCO531 | Digital Signal Processing |
| 18BTCO532 | Internet of Things |
| 18BTCO533 | Soft Computing |
| 18BTCO534 | Open Electives |
| Elective-II | 18BTCO631 | Digital Image Processing |
| 18BTCO632 | Principles of Compiler Design |
| 18BTCO633 | Wireless Sensor Network |
| 18BTCO634 | Open Electives |
| Elective-III | 18BTCO731 | Wireless Communication |
| 18BTCO732 | Biomedical Signal Processing |
| 18BTCO733 | Computer Vision |
| 18BTCO734 | Power Electronics |
| 18BTCO735 | Open Electives |
| Elective-IV | 18BTCO736 | Computational Intelligence |
| 18BTCO737 | Renewable Energy Systems |
| 18BTCO738 | Audio Video Engineering |
| 18BTCO739 | Information Security |
| 18BTCO740 | Open Electives |