

STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
I YEAR: I SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | C |
|---------------|---------------------|---|--------------|------------|-------------|------------------|
| THEORY | | | | | | |
| 1 | BPH1701/ BCY1701 | Physics/Chemistry | 3 | 1 | 3 | 5.5 |
| 2 | BMA1001 | Mathematics | 3 | 1 | 0 | 4 |
| 3 | BEE1701/ BCS1701 | Basic Electrical Engineering/Programming for solving Problems | 3 | 1 | 2 | 5 |
| 4 | BME1701/BME1702 | Engineering Graphics and Design/Working Practice | 1 | 0 | 4 | 3 |
| 5 | XESX601/BHU1701 | Environmental Science*/English | 2/2 | 0/0 | 0/2 | 0/3 |
| TOTAL | | | 12/12 | 3/3 | 9/11 | 17.5/20.5 |

* - Mandatory Non-Credit Course

L - Lecture

T - Tutorial

P - Practical

C - Credit

STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
I YEAR: II SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | C |
|---------------|---------------------|--|--------------|------------|-------------|------------------|
| THEORY | | | | | | |
| 1 | BCY2701/BPH2701 | Chemistry /Physics | 3 | 1 | 3 | 5.5 |
| | BMA2001 | Mathematics | 3 | 1 | 0 | 4 |
| 2 | BCS2701/ BEE2701 | Programming for solving Problems /Basic Electrical Engineering | 3 | 1 | 2 | 5 |
| 3 | BME2702/BME2701 | Working Practice /Engineering Graphics and Design | 1 | 0 | 4 | 3 |
| 4 | BHU2701/XESX601 | English /Environmental Science* | 2/2 | 0/0 | 0/2 | 0/3 |
| TOTAL | | | 12/12 | 3/3 | 11/9 | 20.5/17.5 |

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STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
II YEAR: III SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | CIE | ESE | TOTAL | C |
|--------------|--------------|---|-----------|----------|----------|------------|------------|------------|-----------|
| 1 | BME 3005 | Engineering Mechanics | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 2 | BME 3006 | Thermodynamics | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 3 | BEC 3016 | Basic Electronics Engineering | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 4 | BPH 3004-ME | Physics II (ME) | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 5 | BMA 3010-ME | Mathematics III (ME) | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 6 | BSS3001 | Soft Skills & Interpersonal Communication | 2 | 0 | 0 | 100 | 00 | 100 | 2 |
| TOTAL | | | 17 | 5 | 0 | 300 | 300 | 600 | 22 |

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C - Credit

STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
II YEAR: IV SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | CIE | ESE | TOTAL | C |
|--------------|--------------|---|-----------|----------|----------|-----------------------------|------------|------------|-----------|
| 1 | BME 4006 | Applied Thermodynamics | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 2 | BME 4007 | Fluid Mechanics and Fluid Machines | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 3 | BME 4008 | Strength of Materials | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 4 | BME 4009 | Instrumentation and Control | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 5 | BME 4010 | Materials Engineering | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 6 | BBT 4023 | Biology | 2 | 0 | 0 | 40 | 60 | 100 | 2 |
| 7 | XME X601 | Industrial Visit | - | - | - | Satisfactory/Unsatisfactory | | | 0 |
| 8 | XHU X602 | Essence of Indian Traditional Knowledge | 2 | 0 | 0 | Satisfactory/Unsatisfactory | | | 0 |
| TOTAL | | | 19 | 4 | 0 | 240 | 360 | 600 | 21 |

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STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
III YEAR: V SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | CIE | ESE | TOTAL | C |
|--------------|--------------|---|-----------|----------|----------|-----------------------------|-----|-------|-------------|
| 1 | BME 5006 | Heat Transfer | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 2 | BME 5506 | Mechanical Engineering Laboratory (Thermal) I | 0 | 0 | 3 | 80 | 20 | 100 | 1.5 |
| 3 | BME 5007 | Solid Mechanics | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 4 | BME 5008 | Manufacturing Processes | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 5 | BME 5009 | Kinematics and Theory of Machines | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 6 | - | Open Elective -I | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 7 | BME 5507 | Seminar | 0 | 0 | 2 | 100 | - | 100 | 1 |
| 8 | BAP 5501 | Aptitude and Reasoning & Online Test | 0 | 0 | 0 | Satisfactory/Unsatisfactory | | | 0 |
| 9 | XLA X601 | Constitution of India | 2 | 0 | 0 | Satisfactory/Unsatisfactory | | | 0 |
| TOTAL | | | 17 | 3 | 5 | | | | 20.5 |
| | BME 5001-DE | *Mechanical Vibrations and Control | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| | BME 5001-TE | ** MOOC: Turbomachinery | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| | BME 5001-PE | *** MOOC: Theory and Practices of Non Destructive Testing | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| | BME 5001-IE | ****MOOC: Concurrent Engineering | 3 | 1 | 0 | 40 | 60 | 100 | 4 |

Specialization Streams

- * Design Engineering – DE
- ** Thermal Engineering – TE
- *** Production Engineering – PE
- **** Industrial Engineering – IE

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STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
III YEAR: VI SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | CIE | ESE | TOTAL | C |
|--------------|--------------|---|-----------|----------|----------|-----------------------------|------------|------------|-------------|
| 1 | BME 6004 | Manufacturing Technology | 4 | 0 | 0 | 40 | 60 | 100 | 4 |
| 2 | BME 6005 | Design of Machine Elements | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| 3 | BME 6506 | Mechanical Engineering Laboratory (Design) II | 0 | 0 | 3 | 80 | 20 | 100 | 1.5 |
| 4 | - | Department Elective-I | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 5 | - | Department Elective-II | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 6 | - | Open Elective -II | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 7 | BAP 6601 | Aptitude and Reasoning & Online Test | 0 | 0 | 0 | Satisfactory/Unsatisfactory | | | 0 |
| TOTAL | | | 16 | 1 | 3 | 280 | 320 | 600 | 18.5 |
| | BME 6001-DE | *Engineering Optimization | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| | BME 6001-TE | ** MOOC: Advanced Concepts in Fluid Mechanics | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| | BME 6001-PE | ***Micro Manufacturing | 3 | 1 | 0 | 40 | 60 | 100 | 4 |
| | BME 6001-IE | **** MOOC: Quality Design and Control | 3 | 1 | 0 | 40 | 60 | 100 | 4 |

Specialization Streams

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STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
IV YEAR: VII SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | CIE | ESE | TOTAL | C |
|--------------|--------------|---|-----------|----------|-----------|------------|------------|------------|-------------|
| 1 | BME 7005 | Automation in Manufacturing | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 2 | BME 7506 | Mechanical Engineering Laboratory (Manufacturing) III | 0 | 0 | 3 | 80 | 20 | 100 | 1.5 |
| 3 | - | Department Elective-III | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 4 | - | Department Elective-IV | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 5 | - | Open Elective –III | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 6 | BME 7503 | Summer Training | 0 | 0 | 2 | 100 | 0 | 100 | 1 |
| 7 | BME 7507 | Project-I | 0 | 0 | 12 | 100 | 0 | 100 | 6 |
| TOTAL | | | 12 | 0 | 17 | 440 | 260 | 700 | 20.5 |
| | BME 7001-DE | *Theory of Elasticity | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7002-DE | *Experimental Stress Analysis | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7001-TE | **Turbulent Flows | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7002-TE | **Computational Fluid Dynamics | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7002-PE | *** MOOC: Rapid Manufacturing | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7001-PE | ***Design for Manufacturing | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7001-IE | ****Management Information System | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 7002-IE | **** Operations Strategy | 3 | 0 | 0 | 40 | 60 | 100 | 3 |

Specialization Streams

* Design Engineering – DE

** Thermal Engineering – TE

*** Production Engineering – PE

**** Industrial Engineering – IE

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STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING
IV YEAR: VIII SEMESTER

| S. NO. | SUBJECT CODE | SUBJECT | L | T | P | CIE | ESE | TOTAL | C |
|--------------|--------------|--|-----------|----------|-----------|------------|------------|------------|-----------|
| 1 | - | Department Elective V | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 2 | - | Department Elective VI | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 3 | - | Open Elective-IV | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 4 | - | Open Elective-V | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| 5 | BME 8503 | Project-II | 0 | 0 | 14 | 80 | 20 | 100 | 7 |
| TOTAL | | | 12 | 0 | 14 | 240 | 260 | 500 | 19 |
| | BME 8001-DE | *Fracture Mechanics | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8002-DE | * MOOC: Robotics | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8002-TE | ** MOOC: Heat Exchangers: Fundamentals and Design Analysis | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8001-TE | **Solar Energy Technologies | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8001-PE | ***Mechanics of Sheet Metal Forming | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8002-PE | ***Advances in Material Removal Processes | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8001-IE | **** MOOC: Six Sigma | 3 | 0 | 0 | 40 | 60 | 100 | 3 |
| | BME 8002-IE | **** MOOC: Operations and Supply Chain Management | 3 | 0 | 0 | 40 | 60 | 100 | 3 |

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STUDY & EVALUATION SCHEME
B.TECH: MECHANICAL ENGINEERING

LIST OF ELECTIVES

List of Open Electives

| S. No. | Subject Code | Subject | Department | Semester |
|--------------------------|--------------|--|------------|----------|
| Open Elective-I | BHU 5301 | Organizational Psychology | Humanities | V |
| | BHU 5302 | Organizational Sociology | Humanities | V |
| Open Elective-II | BMG 6302 | Principle of Management | IMCE | VI |
| | BMG 6301 | Economics | IMCE | VI |
| Open Elective-III | BMA 7301 | Operations Research | INSH | VII |
| | BCM 7301 | Finance and Accounting | IMCE | VII |
| Open Elective-IV | BME 8306 | Operations Planning and Control | FoME | VIII |
| | BME 8302 | Project Management | FoME | VIII |
| Open Elective-V | BME 8307 | Total Quality Management | FoME | VIII |
| | BME 8308 | Maintenance Engineering and Management | FoME | VIII |
| | BME 8309 | Six Sigma | FoME | VIII |

List of Department Electives

| S. No. | Subject Code | Subject | Semester |
|--------------------------------|--------------|--|----------|
| Department Elective-I | BME 6001-DE1 | Mechatronics System | VI |
| | BME 6002-DE1 | Refrigeration and Air Conditioning | VI |
| | BME 6003-DE1 | Composite Materials | VI |
| | BME 6004-DE1 | Operations Management –I | VI |
| Department Elective-II | BME 6001-DE2 | Finite Element Analysis | VI |
| | BME 6002-DE2 | Unconventional Manufacturing Processes | VI |
| | BME 6003-DE2 | I.C Engine | VI |
| | BME 6004-DE2 | Maintenance Engineering and Management | VI |
| Department Elective-III | BME 7001-DE3 | Computer Aided Design | VII |
| | BME 7002-DE3 | Power Plant Engineering | VII |
| | BME 7003-DE3 | Computer Aided Manufacturing | VII |

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|-------------------------------|--------------|-------------------------------------|------|
| | BME 7004-DE3 | Operation Management II | VII |
| Department Elective-IV | BME 7001-DE4 | Analysis and Synthesis of Mechanism | VII |
| | BME 7002-DE4 | Gas Dynamics and Jet Propulsion | VII |
| | BME 7003-DE4 | Micro Machining | VII |
| | BME 7004-DE4 | Project Management | VII |
| Department Elective-V | BME 8001-DE5 | Design of Transmission System | VIII |
| | BME 8002-DE5 | Automobile Engineering | VIII |
| | BME 8003-DE5 | Advance Foundry Technology | VIII |
| | BME 8004-DE5 | Lean Manufacturing | VIII |
| Department Elective-VI | BME 8001-DE6 | Design of Thermal System | VIII |
| | BME 8002-DE6 | Energy Conservation and Management | VIII |
| | BME 8003-DE6 | Advanced Welding Technology | VIII |
| | BME 8004-DE6 | Total Quality Management | VIII |