

**CHOICE BASED CREDIT SYSTEM
EVALUATION SCHEME
AND
COURSE OF STUDY
(According to AICTE Model Curriculum)**



**B. TECH.
IN
MECHANICAL ENGINEERING**

BATCH: 2020 - 2024

**FACULTY OF ENGINEERING AND TECHNOLOGY
GURUKULA KANGRI (DEEMED TO UNIVERISTY),
HARIDWAR**

Gurukula Kangri Vishwavidyalaya, Haridwar
Faculty of Engineering & Technology
Mechanical Engineering
B. Tech. I Year

(Semester – I)

| S.NO. | COURSE CODE | COURSE OPTED | SUBJECT | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|-------------|---------------------|-------------------------------------|----------------------|---|---|-------------------|----|-------|-----------|--------|---------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BAC-C102 | BSC-1 | Engineering Chemistry | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 2 | BEM-C102 | BSC-2 | Engineering Mathematics-I | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 3 | BME-C103 | ESC-1 | Basic Mechanical Engineering | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 4 | BCE-C102 | ESC-2 | Programming for Problem Solving | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 5 | BEN-A103 | HSMC-1 | Environment Studies | 2 | 0 | 0 | 20 | 10 | 30 | 70 | 0 | 100 |
| 6 | | Induction Programme | | Three weeks duration | | | | | | | | |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 7 | BAC-C151 | BSC-1 Lab | Engineering Chemistry Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 8 | BME-C153 | ESC-1 Lab | Engineering Graphics and Design Lab | 1 | 0 | 2 | 10 | 5 | 15 | 35 | 2 | 50 |
| 9 | BCE-C151 | ESC-2 Lab | Programming for Problem Solving Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 10 | BEG-A151 | HSMC Lab | Technical Communication Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| TOTAL | | | | 15 | 3 | 8 | 140 | 70 | 210 | 490 | 20 | 700 |

L-Lecture; T-Tutorial; P-Practical; CT-Cumulative Test; TA- Teacher Assessment; ESE-End Semester Examination; BSC-Basic Science Course; ESC- Engineering Science Courses; PEC-Program Elective Course; SEC- Skill Enhancement Course; AECC- Ability Enhancement Compulsory Course; HSMC-Humanities, Social Science & Management Course

Grading & Grade Points: O(Outstanding)= 10; A+(Excellent)= 9; A(Very Good)= 8; B+(Good)= 7; B(Above Average)= 6; C(Average)= 5; P(Pass)= 4; F(Fail)= 0; Ab(Absent)= 0

Gurukula Kangri Vishwavidyalaya, Haridwar
Faculty of Engineering & Technology
Mechanical Engineering
B. Tech. I Year

(Semester – II)

| S.NO. | COURSE CODE | COURSE OPTED | SUBJECT | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|-------------|--------------|----------------------------------|-----------------|---|----|-------------------|----|-------|-----------|--------|---------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BAP-C202 | BSC-3 | Engineering Physics | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 2 | BEM-C202 | BSC-4 | Engineering Mathematics-II | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 3 | BEE-C202 | ESC-3 | Basic Electrical Engineering | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 4 | BET-C202 | ESC-4 | Electronics Devices | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 5 | BHU-S202 | SEC-1 | Vedic Science and Engineering | 2 | 0 | 0 | 20 | 10 | 30 | 70 | 0 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 6 | BAP-C251 | BSC-3 Lab | Engineering Physics Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 7 | BEE-C251 | ESC-3 Lab | Basic Electrical Engineering Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 8 | BET-C251 | ESC-4 Lab | Electronic Devices lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 9 | BME-C252 | ESC-5 Lab | Workshop Practice | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 10 | BSP-S251 | SEC-2 Lab | Physical Training and Yoga | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 0 | 50 |
| TOTAL | | | | 14 | 4 | 10 | 150 | 75 | 225 | 525 | 20 | 750 |

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **BSC**-Basic Science Course; **ESC**- Engineering Science Courses; **PEC**-Program Elective Course; **SEC**- Skill Enhancement Course; **AECC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: **O**(Outstanding)= 10; **A⁺**(Excellent)= 9; **A**(Very Good)= 8; **B⁺**(Good)= 7; **B**(Above Average)= 6; **C**(Average)= 5; **P**(Pass)= 4; **F**(Fail)= 0; **Ab**(Absent)= 0

Gurukula Kangri Vishwavidyalaya, Haridwar
Faculty of Engineering & Technology
Mechanical Engineering

B. Tech. II Year

(Semester – III)

| S.N O. | COURSE CODE | COURSE OPTED | SUBJECT | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|----------------|-----------------|-----------------------------|--------------------|---|---|-------------------|----|-------|--------------|--------|------------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BEM-C302 | BSC-5 | Engineering Mathematics-III | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 2 | BME-C306 | ESC-6 | Materials Engineering | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 3 | BME-C307 | ESC-7 | Applied Thermodynamics | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 4 | BME-C308 | ESC-8 | Engineering Mechanics | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 5 | BEE-C306 | ESC-9 | Electrical Machines | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 6 | BME-C356 | ESC-6 Lab | Materials Engineering Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 7 | BME-C357 | ESC-7 Lab | Applied Thermodynamics Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 8 | BME-C358 | ESC-8 Lab | Engineering Mechanics Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 9 | BEE-C356 | ESC-9 Lab | Electrical Machines Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| TOTAL | | | | 18 | 4 | 8 | 160 | 80 | 240 | 560 | 22 | 700 |

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination;
BSC-Basic Science Course; **ESC**- Engineering Science Courses; **PEC**-Program Elective Course; **SEC**- Skill
Enhancement Course; **AECC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: O(Outstanding)= 10; **A⁺**(Excellent)= 9; **A**(Very Good)= 8; **B⁺**(Good)= 7; **B**(Above
Average)= 6; **C**(Average)= 5; **P**(Pass)= 4; **F**(Fail)= 0; **Ab**(Absent)= 0

Gurukula Kangri Vishwavidyalaya, Haridwar
Faculty of Engineering & Technology
Mechanical Engineering

B. Tech. II Year

(Semester – IV)

| S.N O. | COURSE CODE | COURSE OPTED | SUBJECT | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|----------------|-----------------|--|--------------------|----------|----------|-------------------|-----------|------------|--------------|-----------|------------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BME-C406 | ESC-10 | Fluid Mechanics and Fluid Machines | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 2 | BME-C407 | ESC-11 | Manufacturing Science and Process | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 3 | BME-C408 | ESC-12 | Kinematics & Dynamics of Machines | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 4 | BME-C409 | ESC-13 | Strength of Materials | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 5 | BME-C410 | ESC-14 | Principle and Practices of Management | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 6 | BKT-A403 | HSMC-2 | Indian Knowledge Tradition | 2 | 0 | 0 | 20 | 10 | 30 | 70 | 0 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 7 | BME-C456 | ESC-10 Lab | Fluid Mechanics and Fluid Machines Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 8 | BME-C457 | ESC-11 Lab | Manufacturing Science and Process Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 9 | BME-C458 | ESC-12 Lab | Theory of Machine lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| 10 | BME-C459 | ESC-15 Lab | Machine Drawing Lab | 0 | 0 | 2 | 10 | 5 | 15 | 35 | 1 | 50 |
| TOTAL | | | | 17 | 5 | 8 | 140 | 80 | 240 | 560 | 22 | 800 |

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Grading & Grade Points: O(Outstanding)= **10**; **A⁺**(Excellent)= **9**; **A**(Very Good)= **8**; **B⁺**(Good)= **7**; **B**(Above Average)= **6**; **C**(Average)= **5**; **P**(Pass)= **4**; **F**(Fail)= **0**; **Ab**(Absent)= **0**

BME C101 → Semester
 → 0, 5 & 6 stands for theory, Practical & Seminar /Project respectively
 → Paper Code

Gurukula Kangri (Deemed to be University), Haridwar
Faculty of Engineering & Technology
Mechanical Engineering

B. Tech. III Year

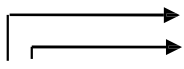
(Semester – V)

| S.NO. | COURSE CODE | COURSE OPTED | Course Name | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|-------------|--------------|-----------------------------|-----------------|----------|----------|-------------------|-----------|------------|------------|-----------|---------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BME-C511 | PCC | Heat Transfer | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 2 | BME-C512 | PCC | Measurement & Metrology | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 3 | BME-C513 | PCC | Solid Mechanics | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 4 | BME-P5XX | PEC | Program Elective-I | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 5 | BME-O5XX | OEC | Open Elective-I | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 6 | BME-M001 | HSMC | Universal Human Values | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 0 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 7 | BME-C561 | PCC Lab | Heat Transfer Lab | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| 8 | BME-C562 | PCC Lab | Measurement & Metrology Lab | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| 9 | BME-C570 | PCC Lab | Project-I (Summer Training) | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| TOTAL | | | | 18 | 4 | 6 | 150 | 75 | 225 | 525 | 20 | 750 |

- ❖ For the Summer Training and Internship program done in summer break after IV semester examination, A certificate of completion to be submitted along with the report and presentation in the department. In case a student is unable to do an internship in some company, he may do any one extra online skill enhancement course

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **PCC**- Program Core Course; **PEC**-Program Elective Course; **OEC**-Open Elective Course; **SEC**- Skill Enhancement Course; **AECC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: O(Outstanding)= **10**; **A⁺**(Excellent)= **9**; **A** (Very Good) = **8**; **B⁺**(Good) = **7**; **B** (Above Average) = **6**; **C**(Average)= **5**; **P**(Pass)= **4**; **F**(Fail)= **0**; **Ab**(Absent)= **0**

Semester

1, 6 & 7 stands for theory, Practical & Seminar /Project respectively
BME-C511 → Paper Code

Program Elective -I (Fifth semester)

| | |
|----------|-------------------------------------|
| BME-P521 | Manufacturing System Design |
| BME-P522 | Soft Computing Techniques |
| BME-P523 | Advanced Engineering Thermodynamics |
| BME-P524 | Machine Tool Design |
| BME-P525 | Applied Elasticity and Plasticity |

Open Elective -I (Fifth semester)

| | |
|-------------------|--------------------------|
| BME-O531 | Engineering Economy |
| BME-O532/BCE-C514 | Cloud Computing |
| BME-O533 | Automatic Control System |
| BME-O534 | Composite Materials |
| BME-O535 | Machine Learning |

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **PCC**- Program Core Course; **PEC**-Program Elective Course; **OEC**-Open Elective Course; **SEC**- Skill Enhancement Course; **AEEC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: O(Outstanding)= **10**; **A⁺**(Excellent)= **9**; **A** (Very Good) = **8**; **B⁺**(Good) = **7**; **B** (Above Average) = **6**; **C**(Average)= **5**; **P**(Pass)= **4**; **F**(Fail)= **0**; **Ab**(Absent)= **0**

 Semester
 1, 6 & 7 stands for theory, Practical & Seminar /Project respectively
BME-C511 → Paper Code

Gurukula Kangri (Deemed to be University), Haridwar
Faculty of Engineering & Technology
Mechanical Engineering

B. Tech. III Year

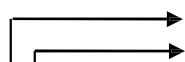
(Semester – VI)

| S.NO. | COURSE CODE | COURSE OPTED | COURSE NAME | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|-------------|--------------|-----------------------------------|-----------------|----------|----------|-------------------|-----------|-----------|------------|-----------|---------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BME-C611 | PCC | Design of Machine Elements | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 2 | BME-C612 | PCC | Internal Combustion Engines | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 4 | 100 |
| 3 | BME-P62X | PEC | Program Elective-II | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 4 | BME-P62X | PEC | Program Elective-III | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 5 | BME-O63X | OEC | Open Elective-II | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 6 | BME-C661 | PCC | Mechanical Engineering Design Lab | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| 7 | BME-C662 | PCC | Internal Combustion Engines Lab | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| 8 | BME-C670 | PCC | Project-II | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| TOTAL | | | | 15 | 4 | 6 | 130 | 65 | 95 | 455 | 20 | 650 |

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **PCC**- Program Core Course; **PEC**-Program Elective Course; **OEC**-Open Elective Course; **SEC**- Skill Enhancement Course; **AEEC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: O(Outstanding)= **10**; **A⁺**(Excellent)= **9**; **A** (Very Good) = **8**; **B⁺**(Good) = **7**; **B** (Above Average) = **6**; **C**(Average)= **5**; **P**(Pass)= **4**; **F**(Fail)= **0**; **Ab**(Absent)= **0**

Semester



1, 6 & 7 stands for theory, Practical & Seminar /Project respectively

BME-C511

Paper Code

Program Elective -II & III (Sixth semester)

| | |
|----------|---------------------------------------|
| BME-P621 | Smart Materials & Structures |
| BME-P622 | Vibration & Noise Control |
| BME-P623 | Mechatronics |
| BME-P624 | Control Theory & Applications |
| BME-P625 | Product Design & Development |
| BME-P626 | Computational Fluid Dynamics |
| BME-P627 | Environmental Pollution and Abatement |
| BME-P628 | Integrated Design and Manufacturing |
| BME-P629 | Production Planning & Control |

Open Elective -II (Sixth semester)

| | |
|----------|------------------------|
| BME-O631 | Numerical Analysis |
| BME-O632 | Industrial Engineering |
| BME-O633 | Operations Research |
| BME-O634 | Concurrent Engineering |
| BME-O635 | Quality Management |

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **PCC**- Program Core Course; **PEC**-Program Elective Course; **OEC**-Open Elective Course; **SEC**- Skill Enhancement Course; **AEEC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: O(Outstanding)= **10**; **A⁺**(Excellent)= **9**; **A** (Very Good) = **8**; **B⁺**(Good) = **7**; **B** (Above Average) = **6**; **C**(Average)= **5**; **P**(Pass)= **4**; **F**(Fail)= **0**; **Ab**(Absent)= **0**

Semester
1, 6 & 7 stands for theory, Practical & Seminar /Project respectively
BME-C511 Paper Code

Gurukula Kangri (Deemed to be University), Haridwar
Faculty of Engineering & Technology
Mechanical Engineering

B. Tech. IV Year

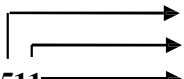
(Semester – VII)

| S.NO. | COURSE CODE | COURSE OPTED | COURSE NAME | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|-------------|--------------|--------------------------------------|-----------------|---|----|-------------------|----|-------|-----------|--------|---------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BME-C711 | PCC | Refrigeration & Air Conditioning | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 2 | BME-C712 | PCC | Maintenance Management | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 3 | BME-P72X | PEC | Program Elective-IV | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 4 | BME-P72X | PEC | Program Elective-V | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 5 | BME-O73X | OEC | Open Elective-III | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 6 | BME-C761 | PCC | Refrigeration & Air Conditioning Lab | 0 | 0 | 2 | 10 | 05 | 15 | 35 | 1 | 50 |
| 8 | BME-C770 | PCC | Project-III | 0 | 0 | 8 | 40 | 20 | 60 | 140 | 4 | 200 |
| TOTAL | | | | 15 | 0 | 10 | 150 | 75 | 225 | 525 | 20 | 750 |

NOTE: Electives will be offered depending upon the availability of teaching staff and minimum thirty students should opt for a particular elective.

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **PCC**- Program Core Course; **PEC**-Program Elective Course; **OEC**-Open Elective Course; **SEC**- Skill Enhancement Course; **AEECC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: **O**(Outstanding)= 10; **A⁺**(Excellent)= 9; **A** (Very Good) = 8; **B⁺**(Good) = 7; **B** (Above Average) = 6; **C**(Average)= 5; **P**(Pass)= 4; **F**(Fail)= 0; **Ab**(Absent)= 0

Semester

 1, 6 & 7 stands for theory, Practical & Seminar /Project respectively
 BME-C511 → Paper Code

Program Elective -IV & V (Seventh semester)

| | |
|----------|--|
| BME-P721 | Computer Aided Design |
| BME-P722 | Advanced Machining Processes |
| BME-P723 | Advanced Welding Processes |
| BME-P724 | Non-Traditional & Computer Aided Manufacturing |
| BME-P725 | Power Plant Engineering |
| BME-P726 | Simulation of Mechanical Systems |
| BME-P727 | Additive Manufacturing |
| BME-P728 | Finite Element Methods |
| BME-P729 | Automobile Engineering |

Open Elective -III (Seventh semester)

| | |
|----------|--|
| BME-O731 | Nanotechnology and Nano computing |
| BME-O732 | Artificial Intelligence and Robotics |
| BME-O733 | Energy Resources and Management |
| BME-O734 | Engineering System Design Optimization |

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Semester
1, 6 & 7 stands for theory, Practical & Seminar /Project respectively
BME-C511 Paper Code

Gurukula Kangri (Deemed to be University), Haridwar
Faculty of Engineering & Technology
Mechanical Engineering

B. Tech. IV Year

(Semester – VIII)

| S.NO. | COURSE CODE | COURSE OPTED | COURSE NAME | Period per week | | | EVALUATION SCHEME | | | | Credit | Subject TOTAL |
|---------------------------------------|-------------|--------------|--------------------------|-----------------|---|----|-------------------|----|-------|-----------|--------|---------------|
| | | | | L | T | P | SESSIONAL EXAM. | | | EXAM. ESE | | |
| | | | | | | | CT | TA | TOTAL | | | |
| THEORY SUBJECTS | | | | | | | | | | | | |
| 1 | BME-C805 | ESC | Manufacturing Automation | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 2 | BME-C806 | ESC | Entrepreneurship Skills | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 3 | BME-P82X | PEC | MOOC-I | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| 4 | BME-P82X | PEC | MOOC-II | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 3 | 100 |
| PRACTICAL / TRAINING / PROJECT | | | | | | | | | | | | |
| 5 | BME-C 870 | PCC | Project-IV | 0 | 0 | 16 | 80 | 40 | 120 | 280 | 08 | 400 |
| TOTAL | | | | 12 | 0 | 16 | 160 | 80 | 240 | 560 | 20 | 800 |

As per the SWAYAM policies of AICTE, MoE, Government of India, the students can learn the MOOCs courses as per their choice from the list offered by NPTEL/ SWAYAM for Engineering, for which the CREDITS will be transferred to their Marks Card only after the submission of Certificate (MOOCs course completion) to respective departments. The credits/ marks earned by the students in examinations conducted by SWAYAM/ NPTEL will be transferred to their respective marks card.

L-Lecture; **T**-Tutorial; **P**-Practical; **CT**-Cumulative Test; **TA**- Teacher Assessment; **ESE**-End Semester Examination; **PCC**- Program Core Course; **PEC**-Program Elective Course; **OEC**-Open Elective Course; **SEC**-Skill Enhancement Course; **A ECC**- Ability Enhancement Compulsory Course; **HSMC**-Humanities, Social Science & Management Course

Grading & Grade Points: O (Outstanding) = **10**; **A⁺** (Excellent)= **9**; **A** (Very Good) = **8**; **B⁺** (Good) = **7**; **B** (Above Average) = **6**; **C** (Average) = **5**; **P** (Pass) = **4**; **F** (Fail) = **0**; **Ab**(Absent)= **0**