

**Department of Mechanical Engineering**

**Third Semester**

Sl. No.	Course type	Course Code	Course Title	Teaching Dept.	Teaching Hours / Week					Total Credits	Examination		
					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	BSC	22MAC131	Fourier Series, Transforms, Numerical and Statistical Techniques	MAT	2	2	-	-	4	3	50	50	100
2	PCC	22MEC132	Material Science & Metallurgy	ME	3	-	-	-	3	3	50	50	100
3	PCC	22MEC133	Mechanics of Materials	ME	2	2	-	-	4	3	50	50	100
4	PCI	22MEC134	Fluid Mechanics & Pneumatics	ME	3	-	2	-	5	4	50	50	100
5	PCI	22MEC135	Machine Drawing and GD & T	ME	3	-	2	-	5	4	50	50	100
6	PBL	22MEL136	Mechanical Characterization	ME	-	-	2	2	4	2	50	50	100
7	HSS	22CIP137	Constitution of India and Professional Ethics	HSS	1	-	-	-	1	1	100	-	100
8	AEC	22SFT138	Soft Skill -1	HSS	-	2	-	-	2	1	100	-	100
9	IPL	22MEI139	Innovative Project Lab	ME	-	-	2	-	2	1	100	-	100
<b>Total</b>					<b>14</b>	<b>6</b>	<b>8</b>	<b>2</b>	<b>30</b>	<b>22</b>	<b>600</b>	<b>300</b>	<b>900</b>

BSC- Basic Science	PCC- Professional Core Course	PCI- Professional Core Course with Integrated lab	PBL- Project Based Learning	IPL- Innovative Project Lab	AEC – Ability Enhancement Course
MAT- Mathematics	ME- Mechanical Engineering		HSS- Humanities		

AICTE Activity Points to be earned by students admitted to BE day college programme (For more details refer to Chapter 6, AICTE Activity Point Programme, Model Internship Guidelines):

Over and above the academic grades, every Day College regular student admitted to the 4 years Degree programme and every student entering 4 years Degree programme through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Programme. Students transferred from other institutions and Universities to the fifth semester are required to earn 50 Activity Points from the year of entry to BNMIT. The Activity Points earned shall be reflected on the student's eighth semester Grade Card. The activities can be spread over the years, anytime during the semester weekends and holidays, as per the liking and convenience of the student from the year of entry to the programme. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression. In case students fail to earn the prescribed activity Points, Eighth semester Grade Card shall be issued only after earning the required activity Points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.

**Department of Mechanical Engineering**

**Fourth Semester**

Sl. No.	Course type	Course Code	Course Title	Teaching Dept.	Teaching Hours / Week					Total Credits	Examination		
					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	BSC	22MAC141	Complex Analysis, Probability and Random Process	MAT	2	2	-	-	4	3	50	50	100
2	PCC	22MEC142	Additive and Subtractive Manufacturing	ME	3	-	-	-	3	3	50	50	100
3	PCI	22MEC143	Thermal Engineering	ME	3	-	2	-	5	4	50	50	100
4	PCI	22MEC144	Python Programming for Mechanical Engineers	ME	3	-	2	-	5	4	50	50	100
5	PBL	22MEL145	Manufacturing Technology & 3D Printing	ME	-	-	2	2	4	2	50	50	100
6	PCC	22MEC146	Hybrid and Electric Vehicles	ME	1	2	-	-	3	2	50	50	100
7	AEC	22SFT147	Soft Skill-II	HSS	-	2	-	-	2	1	100	-	100
8	INT	22MEI148	Internship-I / IPL	ME	-	-	4	-	4	2	100	-	100
<b>Total</b>					<b>12</b>	<b>6</b>	<b>10</b>	<b>2</b>	<b>30</b>	<b>21</b>	<b>500</b>	<b>300</b>	<b>800</b>

BSC- Basic Science	PCC- Professional Core Course	PCI- Professional Core Course with Integrated lab	PBL- Project Based Learning	INT- Internship	AEC – Ability Enhancement Course	EVS-Environmental Science
MAT- Mathematics	ME- Mechanical Engineering		HSS- Humanities			

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**Department of Mechanical Engineering**  
**Fifth Semester**

Sl. No.	Course type	Course Code	Course Title	Teaching Dept.	Teaching Hours / Week					Total Credits	Examination		
					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	PCC	22MEC151	Design of Machine Elements	ME	2	2	-	-	4	3	50	50	100
2	PCC	22MEC152	Smart Materials and MEMS	ME	3	-	-	-	3	3	50	50	100
3	PCI	22MEC153	Kinematics and Dynamics of Mechanical Systems	ME	3	-	1	1	5	4	50	50	100
4	PCI	22MEC154	Block Chain and Supply Chain Management	ME	3	-	2	-	5	4	50	50	100
5	PBL	22MEL155	Mechatronics System Design	ME	-	-	2	2	4	2	50	50	100
6	POE	22MEC156	Open Elective –I	ME	3	-	-	-	3	3	50	50	100
7	AEC	22MEC157	Employability Skill-1(Technical )	ME	-	2	-	-	2	1	100	-	100
8	INT	22MEI158	Internship-II	ME	-	-	4	-	4	2	100	-	100
<b>Total</b>					<b>14</b>	<b>4</b>	<b>9</b>	<b>3</b>	<b>30</b>	<b>22</b>	<b>500</b>	<b>300</b>	<b>800</b>

PCC- Professional Core Course	PCI- Professional Core Course with Integrated lab	PBL- Project Based Learning	POE- Professional Open Elective	AEC – Ability Enhancement Course	INT- Internship
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AICTE Activity Points to be earned by students admitted to BE day college programme (For more details refer to Chapter 6, AICTE Activity Point Programme, Model Internship Guidelines):

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**Department of Mechanical Engineering**

**Sixth Semester**

Sl. No.	Course type	Course Code	Course Title	Teaching Dept.	Teaching Hours / Week					Total Credits	Examination		
					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	PCC	22MEC161	Introduction to AI & ML	ME	2	1	-	1	4	3	50	50	100
2	PCC	22MEC162	Engineering Project Management and Finance	ME	2	2	-	-	4	3	50	50	100
3	PCI	22MEC163	Integrated Computer Aided Manufacturing	ME	2	-	2	-	4	3	50	50	100
4	PCI	22MEC164	Finite Element Analysis	ME	2	-	1	1	4	3	50	50	100
5	PEC	22MEC165	Professional Elective-I	ME	3	-	-	-	3	3	50	50	100
6	PEC	22MEC166	Professional Elective-II	ME	3	-	-	-	3	3	50	50	100
7	POE	22MEC167	Open Elective –II	ME	3	-	-	-	3	3	50	50	100
8	AEC	22MEC168	Employability & Entrepreneurial Skill-2 (Technical)	ME	-	-	2	-	2	1	100	-	100
<b>Total</b>					<b>17</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>27</b>	<b>22</b>	<b>450</b>	<b>350</b>	<b>800</b>

Professional Elective I			Professional Elective II		
Stream	Course Code	Course Title	Stream	Course Code	Course Title
Computer science	MEC1651	Data Structures using C	Computer science	MEC1661	Programming in JAVA
Design	MEC1652	Mechanics of Composite Materials	Design	MEC1662	Theory of Elasticity
AI and ML	MEC1653	IOT with Machine Learning	AI and ML	MEC1663	Deep Learning
Robotics	MEC1654	Introduction to Sensors and Transducers	Robotics	MEC1664	Mechanics and Robot kinematics
Manufacturing	MEC1655	Smart Manufacturing	Manufacturing	MEC1665	Laser Based Manufacturing
Management	MEC1656	Total Quality Management	Management	MEC1666	Strategic Management

PCC- Professional Core Course	PCI- Professional Core Course with Integrated lab	PEC- Professional Elective Course	PBL- Project Based Learning	POE- Professional Open Elective	AEC – Ability Enhancement Course
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AICTE Activity Points to be earned by students admitted to BE day college programme (For more details refer to Chapter 6, AICTE Activity Point Programme, Model Internship Guidelines):

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**Department of Mechanical Engineering**

**Seventh Semester**

Sl. No.	Course type	Course Code	Course Title	Teaching Dept.	Teaching Hours / Week					Total Credits	Examination		
					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	PCC	22MEC171	Mechanical Vibrations and Control Systems	ME	2	2	-	-	4	3	50	50	100
2	PEC	22MEC172	Professional Elective – III	ME	3	-	-	-	3	3	50	50	100
3	PEC	22MEC173	Professional Elective –IV	ME	3	-	-	-	3	3	50	50	100
4	AEC	22MEC174	Research Methodology & IPR	ME	1	2	-	-	3	2	50	50	100
5	PPW	22MEP175	Project Phase -I	ME	-	-	-	10	10	5	100	-	100
<b>Total</b>					<b>9</b>	<b>4</b>	<b>-</b>	<b>10</b>	<b>23</b>	<b>16</b>	<b>300</b>	<b>200</b>	<b>500</b>

Professional Elective III			Professional Elective IV		
Stream	Course Code	Course Title	Stream	Course Code	Course Title
Computer Science	MEC1721	Data Base Management System	Computer Science	MEC1731	Networks
Design	MEC1722	Design of Experiments	Design	MEC1732	Design for Manufacturing and Assembly
AI and ML	MEC1723	Applied Machine Learning	AI and ML	MEC1733	AI&ML in Materials Engineering
Robotics	MEC1724	Microprocessor & Embedded Systems	Robotics	MEC1734	Control of Robotic Systems
Manufacturing	MEC1725	IOT in Manufacturing	Manufacturing	MEC1735	Product Life Cycle Management
Management	MEC1726	Digital Marketing	Management	MEC1736	Accounts and financing for Engineers

PCC- Professional Core Course	PEC- Professional Elective Course	AEC – Ability Enhancement Course	PPW- Professional Project Work	ME- Mechanical Engineering
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**Department of Mechanical Engineering**

**Eighth Semester**

Sl. No.	Course type	Course Code	Course Title	Teaching Dept.	Teaching Hours / Week					Total Credits	Examination		
					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	PEC	22MEC181	Professional Elective V	ME	3	-	-	-	3	3	50	50	100
2	INT	22MEI182	Internship-III	ME	-	-	8	-	8	4	50	50	100
3	PPW	22MEP183	Project Phase –II	ME	-	-	-	20	20	10	50	50	100
<b>Total</b>					<b>3</b>	<b>-</b>	<b>8</b>	<b>20</b>	<b>31</b>	<b>17</b>	<b>150</b>	<b>150</b>	<b>300</b>

Professional Elective V		
Stream	Course Code	Course Title
Computer Science	MEC1811	Web Development
Design	MEC1812	Design of Material Handling Equipment
AI and ML	MEC1813	Cognitive Analytics
Robotics	MEC1814	Robotics and Intelligent Systems
Manufacturing	MEC1815	Industry 4.0
Management	MEC1816	Change and Knowledge Management

PCC- Professional Core Course	PEC- Professional Elective Course	AEC – Ability Enhancement Course	PPW- Professional Project Work	ME- Mechanical Engineering
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**Department of Mechanical Engineering**

**Open Electives List**

Open Elective I		Open Elective II	
Course Code	Course Title	Course Code	Course Title
22MEC1561	Micro-Electromechanical System (MEMS)	22MEC1671	Reverse Engineering
22MEC1562	Sustainable Energy Technology	22MEC1672	3D Printing
22MEC1563	Product Design and Development	22MEC1673	Industry 4.0
		22MEC1674	Human factors and Ergonomics

Students can select any one of the open electives offered by other Departments except those that are offered by the parent Department (For syllabus, please refer to the concerned programme syllabus book).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the program
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives
- A similar course, under any category, is prescribed in the higher semesters of the programme
- Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor

## Internship and project work guide lines

### IV Sem

**Internship:** All the students registered to III year of BE shall have to undergo mandatory internship of 4 weeks during II semester or III semester vacation. Semester End Assessment will be conducted in IV semester and the prescribed credit will be included. Internship shall be considered as a head of passing and shall be considered for the award of degree.

### V Sem

**Internship:** All the students registered to III year of BE shall have to undergo mandatory internship of 4 weeks during IV semester vacation. Semester End Assessment will be conducted in V semester and the prescribed credit will be included. Internship shall be considered as a head of passing and shall be considered for the award of degree.

### VII Sem & VIII Sem

**Project work:** Based on the abilities of the students and recommendations of the mentor, a single discipline or a multidisciplinary project can be assigned to an individual student or to a group having not more than 4 students. In extraordinary cases, like the funded projects requiring students from different disciplines, the project student strength can be 5 or 6.

### VIII Sem

**Internship:** All the students admitted to III year of BE shall have to undergo mandatory internship of 6 months during the vacation of VI semester and during VII semester. End Assessment will be conducted in VIII semester and the prescribed credit shall be included. Internship shall be considered as a head of passing and shall be considered for the award of degree.