

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	21MAC131	Fourier Series, Transforms, Numerical and Statistical Techniques	MAT	2	2	-	-	4	3	50	50	100
2	PCC	21MEC132	Material Science & Metallurgy	ME	3	-	-	-	3	3	50	50	100
3	PCC	21MEC133	Mechanics of Materials	ME	2	2	-	-	4	3	50	50	100
4	PCI	21MEC134	Fluid Mechanics& Pneumatics	ME	3	-	2	-	5	4	50	50	100
5	PCI	21MEC135	Machine Drawing and GD &T	ME	3	-	2	-	5	4	50	50	100
6	PBL	21MEL136	Mechanical Characterization Lab	ME	-	-	2	2	4	2	50	50	100
7	HSS	21KAN1371/ 21KAN1372	Samskruthika Kannada / Balake kannada	HSS	1	-	-	-	1	1	100	-	100
8	AEC	21SFT138	Soft Skill -1	HSS	-	2	-	-	2	1	100	-	100
9	IPL	21MEI139	Innovative Project Lab	ME	-	-	2	-	2	1	100	-	100
Total					14	6	8	2	30	22	600	300	900

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	

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs													
10	BSC	21MATDIP131	Bridge Mathematics-I	MAT	3	-	-	-	-	NCMC	100	-	100
a) The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/ fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE. b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.													

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.

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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	21MAC141	Complex Analysis, Probability and Random Process	MAT	2	2	-	-	4	3	50	50	100
2	PCC	21MEC142	Additive and Subtractive Manufacturing	ME	3	-	-	-	3	3	50	50	100
3	PCI	21MEC143	Thermal Engineering	ME	3	-	2	-	5	4	50	50	100
4	PCI	21MEC144	Python Programming for Mechanical Engineers	ME	3	-	2	-	5	4	50	50	100
5	PBL	21MEL145	Manufacturing Technology & 3D Printing Lab	ME	-	-	2	2	4	2	50	50	100
6	HSS	21CIP146	Constitution of India and Professional Ethics	HSS	1	-	-	-	1	1	100	-	100
7	EVS	21EVS147	Environmental Studies	HSS	-	2	-	-	2	1	100	-	100
8	AEC	21SFT148	Soft Skill-II	HSS	-	2	-	-	2	1	100	-	100
9	INT	21MEI149	Internship-I / IPL	ME	-	-	4	-	4	2	100	-	100
Total					12	6	10	2	30	21	650	250	900

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		

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs													
10	BSC	21MATDIP141	Bridge Mathematics - II	MAT	3	-	-	-	NCMC	-	100	-	100
a) The mandatory non – credit courses Additional Mathematics I and II prescribed for III and IV semesters respectively, to the lateral entry Diploma holders admitted to III semester of BE/B. Tech programs, shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the University examination. In case, any student fails to register for the said course/ fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have secured F grade. In such a case, the students have to fulfill the requirements during subsequent semester/s to appear for SEE. b) These Courses shall not be considered for vertical progression, but completion of the courses shall be mandatory for the award of degree.													

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

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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.

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	21MEC151	Design of Machine Elements	ME	2	2	-	-	4	3	50	50	100
2	PCC	21MEC152	Smart Materials and MEMS	ME	3	-	-	-	3	3	50	50	100
3	PCI	21MEC153	Kinematics and Dynamics of Mechanical Systems	ME	3	-	1	1	5	4	50	50	100
4	PCI	21MEC154	Block Chain and Supply Chain Management	ME	3	-	2	-	5	4	50	50	100
5	PBL	21MEL155	Mechatronics System Design	ME	-	-	2	2	4	2	50	50	100
6	POE	21MEC156	Open Elective –I	ME	3	-	-	-	3	3	50	50	100
7	AEC	21MEC157	Employability Skill-1(Technical)	ME	-	2	-	-	2	1	100	-	100
8	INT	21MEI158	Internship-II	ME	-	-	4	-	4	2	100	-	100
Total					14	4	9	3	30	22	500	300	800

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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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	21MEC161	CAD, CAM and CIM	ME	2	2	-	-	4	3	50	50	100
2	PCC	21MEC162	AI&ML for Mechanical Engineering	ME	2	1	-	1	4	3	50	50	100
3	PCI	21MEC163	Finite Element Analysis	ME	3	-	1	1	5	4	50	50	100
4	PBL	21MEL164	CIM and Robotics	ME	-	-	2	2	4	2	50	50	100
5	PEC	21MEC165	Professional Elective-I	ME	3	-	-	-	3	3	50	50	100
6	PEC	21MEC166	Professional Elective-II	ME	3	-	-	-	3	3	50	50	100
7	POE	21MEC167	Open Elective –II	ME	3	-	-	-	3	3	50	50	100
8	AEC	21MEC168	Employability & Entrepreneurial Skill-2 (Technical)	ME	-	-	2	-	2	1	100	-	100
Total					16	3	5	4	28	22	450	350	800

Stream	Professional Elective I		Stream	Professional Elective II	
	Course Code	Course Title		Course Code	Course Title
Computer science	MEC1651	Data Structures	Computer science	MEC1661	Object oriented JAVA programming
Design	MEC1652	Mechanics of Composite Materials	Design	MEC1662	Continuum Mechanics
AI and ML	MEC1653	IOT with Machine Learning	AI and ML	MEC1663	Deep Learning and Neural Network
Robotics	MEC1654	Introduction to Robotics	Robotics	MEC1664	Mechanics of Robots
Manufacturing	MEC1655	Industrial Automation	Manufacturing	MEC1665	Flexible Manufacturing System
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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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	21MEC171	Mechanical Vibrations and Control Systems	ME	2	2	-	-	4	3	50	50	100
2	PEC	21MEC172	Professional Elective – III	ME	3	-	-	-	3	3	50	50	100
3	PEC	21MEC173	Professional Elective –IV	ME	3	-	-	-	3	3	50	50	100
4	AEC	21MEC174	Research Methodology & IPR	ME	1	2	-	-	3	2	50	50	100
5	PPW	21MEP175	Project Phase –I	ME	-	-	-	10	10	5	100	-	100
Total					9	4	-	10	23	16	300	200	500

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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Eighth Semester

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					L	T	P	J	Hours/Week		CIA	SEA	Total Marks
1	PEC	21MEC181	Professional Elective V	ME	3	-	-	-	3	3	50	50	100
2	INT	21MEI182	Internship-III	ME	-	-	8	-	8	4	50	50	100
3	PPW	21MEP183	Project Phase –II	ME	-	-	-	20	20	10	50	50	100
Total					3	-	8	20	31	17	150	150	300

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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Open Electives List

Open Elective I		Open Elective II	
Course Code	Course Title	Course Code	Course Title
21MEC1561	Product Design using SOLIDWORKS	21MEC1671	Reverse Engineering
21MEC1562	Automotive Mechanics	21MEC1672	3D Printing
21MEC1563	Sustainable Energy Technology	21MEC1673	Industry 4.0
21MEC1564	Engineering Measurements	21MEC1674	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

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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.