



# MCKV INSTITUTE OF ENGINEERING

NAAC Accredited "A" Grade Autonomous Institute under UGC Act 1956  
Approved by AICTE & affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal

243 G.T. Road (N), Liluah, Howrah- 711204, West Bengal, India

Ph: +91 33 26549315/17 Fax +91 33 26549318 Web: [www.mckvie.edu.in/](http://www.mckvie.edu.in/)

## Curriculum for Undergraduate Degree (B.Tech.) in Mechanical Engineering (w.e.f. AY: 2020-21)

### Part I: Introduction, Theme & Category wise Credit Distribution

#### A. Definition of Credit:

Sl. No.	Description	Credit
1	1 Hr. Lecture (L) Per Week	1.0
2	1 Hr. Tutorial (T) Per Week	1.0
3	1 Hr. Practical/ Lab (P) Per Week	0.5
4	2 Hrs. Practical/ Lab (P) Per Week	1.0

#### B. Range of Credits:

As per AICTE, a student covering 160 credits during 4 years of studies as per curriculum of the Institute will be eligible to get Under Graduate B.Tech. degree. A student will be eligible to get B.Tech. degree with Honours, if he/ she completes an additional 20 credits. These could be acquired through MOOCs prescribed by the Institute. Every student admitted to the 4 years B.Tech programme is required to earn a minimum of 100 Activity Points under Mandatory Additional Requirement (MAR), in addition to the required academic grades, for getting B.Tech./ B.Tech. (Honours) degree.

#### C. Category wise Credit Distribution:

Sl. No.	Category	Credit Allotted	Credit as per AICTE
1	Humanities and Social Sciences including Management Courses	13	12
2	Basic Science Courses	26	25
3	Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.	24	24
4	Professional Core Courses	57.5	48
5	Professional Elective Courses relevant to chosen specialization/ branch	18	18
6	Open Elective Courses from other technical and / or emerging subjects	9	18
7	Project Work, Seminar and Internship in Industry or elsewhere	12.5	15
8	Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]	Non-Credit	Non-Credit
Total		160	160



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## D. Course Code and Definition:

Sl. No.	Course Code	Definitions
1	L	Lecture
2	T	Tutorial
3	P	Practical
4	BS	Basic Science Courses
5	ES	Engineering Science Courses
6	HM	Humanities and Social Sciences including Management Courses
7	PC	Professional Core Courses
8	PE	Professional Elective Courses
9	OE	Open Elective Courses
10	MC	Mandatory Courses
11	PW	Project/ Internships/ Sessional

## E. Courses in different Category:

Humanities and Social Sciences including Management Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	II	HM-HU201	English	2	0	0	2
2	V	HM-HU502	Effective Technical Communication	3	0	0	3
3	VI	HM-HU 601	Operations Research	4	0	0	4
4	VII	HM-HU701	Economics for Engineers	3	0	0	3
<i>Total Theory</i>				<b>12</b>	<b>0</b>	<b>0</b>	<b>12</b>
<b>Practical/ Sessional</b>							
1	I	HM-HU191	Language Laboratory	0	0	2	1
2	VI	HM-HU691	Soft skill Development Lab	0	0	2	1
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>4</b>	<b>2</b>
<b>Total</b>				<b>12</b>	<b>0</b>	<b>4</b>	<b>14</b>

Basic Science Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	I	BS-CH101	Chemistry	3	1	0	4
2	I	BS-M101	Mathematics-I	3	1	0	4
3	II	BS-PH201	Physics	3	1	0	4
4	II	BS-M201	Mathematics-II	3	1	0	4
5	III	BS-M303	Mathematics-III	2	1	0	3



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6	III	BS-BIO301	Biology	2	0	0	2
7	IV	BS- M404	Numerical methods	2	0	0	2
<b>Total Theory</b>				<b>18</b>	<b>5</b>	<b>0</b>	<b>23</b>
<b>Practical/ Sessional</b>							
1	I	BS-CH191	Chemistry Laboratory	0	0	3	1.5
2	II	BS-PH291	Physics Laboratory	0	0	3	1.5
<b>Total Practical/ Sessional</b>				<b>0</b>	<b>0</b>	<b>6</b>	<b>3</b>
<b>Total</b>				<b>18</b>	<b>5</b>	<b>6</b>	<b>26</b>

<b>Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.</b>							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	I	ES-CS101	Programming for Problem Solving	3	0	0	3
2	II	ES-EE201	Basic Electrical and Electronics Engineering	4	0	0	4
3	III	ES-ME301	Materials Engineering	3	1	0	4
4	III	ES-ME302	Engineering Mechanics	3	0	0	3
<b>Total Theory</b>				<b>13</b>	<b>1</b>	<b>0</b>	<b>14</b>
<b>Practical/ Sessional</b>							
1	I	ES-CS191	Programming for Problem Solving Lab	0	0	4	2
2	I	ES-ME192	Workshop/ Manufacturing Practices	1	0	4	3
3	II	ES-EE291	Basic Electrical and Electronics Engineering Lab	0	0	4	2
4	II	ES-ME291	Engineering Graphics & Design	1	0	4	3
<b>Total Practical/ Sessional</b>				<b>2</b>	<b>0</b>	<b>16</b>	<b>10</b>
<b>Total</b>				<b>15</b>	<b>1</b>	<b>16</b>	<b>24</b>

<b>Professional Core Courses</b>							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	III	PC-ME301	Thermodynamics	3	1	0	4
2	III	PC-ME302	Basic Manufacturing Processes	4	0	0	4
3	IV	PC-ME401	Applied Thermodynamics	3	1	0	4
4	IV	PC-ME402	Fluid Mechanics and Fluid Machines	3	1	0	4
5	IV	PC-ME403	Strength of Materials	3	1	0	4
6	IV	PC-ME404	Metrology and Instrumentation	3	1	0	4



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7	V	PC-ME501	Heat Transfer	3	1	0	4
8	V	PC-ME502	Solid Mechanics	3	1	0	4
9	V	PC-ME503	Kinematics and Theory of Machines	3	1	0	4
10	VI	PC-ME601	Manufacturing Technology	4	0	0	4
11	VI	PC-ME602	Design of Machine Elements	3	1	0	4
12	VII	PC-ME701	Advanced Manufacturing Technology	3	0	0	3
<b>Total Theory</b>				<b>38</b>	<b>9</b>	<b>0</b>	<b>47</b>
<b>Practical/ Sessional</b>							
1	III	PC-ME391	Practice of Manufacturing Processes	0	0	3	1.5
2	IV	PC-ME491	Metrology and Instrumentation Laboratory	0	0	3	1.5
3	IV	PC-ME492	Machine Drawing-I	0	0	3	1.5
4	V	PC-ME591	Mechanical Engineering Laboratory I (Thermal)	0	0	3	1.5
5	V	PC-ME592	Machine Drawing-II	0	0	3	1.5
6	VI	PC-ME691	Mechanical Engineering Laboratory-II (Design)	0	0	3	1.5
7	VII	PC-ME791	Mechanical Engineering Laboratory-III (Manufacturing)	0	0	3	1.5
<b>Total Practical/ Sessional</b>				<b>0</b>	<b>0</b>	<b>21</b>	<b>10.5</b>
<b>Total</b>				<b>38</b>	<b>9</b>	<b>25</b>	<b>57.5</b>

Professional Elective Courses relevant to chosen specialization/ branch							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	VI	PE-ME601	Elective-I	3	0	0	3
2	VI	PE-ME602	Elective-II	3	0	0	3
3	VII	PE-ME701	Elective III	3	0	0	3
4	VII	PE-ME702	Elective-IV	3	0	0	3
5	VIII	PE-ME801	Elective-V	3	0	0	3
6	VIII	PE-ME802	Elective-VI	3	0	0	3
<b>Total Theory</b>				<b>18</b>	<b>0</b>	<b>0</b>	<b>18</b>
<b>Practical/ Sessional</b>							
1							
<b>Total Practical/ Sessional</b>							
<b>Total</b>				<b>18</b>	<b>0</b>	<b>0</b>	<b>18</b>



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Open Elective Courses from other technical and / or emerging subjects							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	VII	OE-ME 701	Open Elective-I	3	0	0	3
2	VIII	OE-ME 801	Open Elective-II	3	0	0	3
3	VIII	OE-ME 802	Open Elective-III	3	0	0	3
<i>Total Theory</i>				<b>9</b>	<b>0</b>	<b>0</b>	<b>9</b>
<b>Practical/ Sessional</b>							
1							
<i>Total Practical/ Sessional</i>							
<b>Total</b>				<b>9</b>	<b>0</b>	<b>0</b>	<b>9</b>

Project Work, Seminar and Internship in Industry or elsewhere							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	V	PW-ME581	Project-I (30 hrs. Total)	0	0	2	1
2	VI	PW-ME681	Project-II (90 hrs. Total)	0	0	4	2
3	VII	PW-ME781	Project-III	0	0	6	3
4	VIII	PW-ME881	Project-IV	0	0	8	4
<i>Total Theory</i>				<b>0</b>	<b>0</b>	<b>20</b>	<b>10</b>
<b>Practical/ Sessional</b>							
1	VIII	PW-ME882	Comprehensive viva	0	0	0	1.5
<i>Total Practical/ Sessional</i>							
<b>Total</b>				<b>0</b>	<b>0</b>	<b>20</b>	<b>11.5</b>



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Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	IV	MC471	Environmental Science	2	0	0	0
2	V	MC571	Aptitude Skill Development-I	2	0	0	0
3	VI	MC671	Aptitude Skill Development-II	2	0	0	0
4	VI	MC672	Constitution of India	2	0	0	0
<i>Total Theory</i>				<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Practical/ Sessional</b>							
1							
<i>Total Practical/ Sessional</i>							
<b>Total</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>