



# 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 II: Course Structure & Semester wise Credit Distribution

First Semester (First Year)							
Mandatory Induction Program- 3 Weeks Duration							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	BS	BS-CH101	Chemistry	3	1	0	4
2	BS	BS-M101	Mathematics-I	3	1	0	4
3	ES	ES-CS101	Programming for Problem Solving	3	0	0	3
<i>Total Theory</i>				<b>9</b>	<b>2</b>	<b>0</b>	<b>11</b>
<b>Practical/ Sessional</b>							
1	BS	BS-CH191	Chemistry Laboratory	0	0	3	1.5
2	ES	ES-CS191	Programming for Problem Solving Lab	0	0	4	2
3	ES	ES-ME192	Workshop/ Manufacturing Practices	1	0	4	3
4	HM	HM-HU191	Language Laboratory	0	0	2	1
<i>Total Practical/ Sessional</i>				<b>1</b>	<b>0</b>	<b>13</b>	<b>7.5</b>
<b>Total of First Semester</b>				<b>10</b>	<b>2</b>	<b>13</b>	<b>18.5</b>

Second Semester (First Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	BS	BS-PH201	Physics	3	1	0	4
2	BS	BS-M201	Mathematics-II	3	1	0	4
3	ES	ES-EE201	Basic Electrical and Electronics Engineering	3	1	0	4
4	HM	HM-HU201	English	2	0	0	2
<i>Total Theory</i>				<b>11</b>	<b>3</b>	<b>0</b>	<b>14</b>
<b>Practical/ Sessional</b>							
1	BS	BS-PH291	Physics Laboratory	0	0	3	1.5



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2	ES	ES-EE291	Basic Electrical & Electronics Engineering Lab	0	0	4	2
3	ES	ES-ME291	Engineering Graphics & Design	1	0	4	3
<i>Total Practical/ Sessional</i>				<b>1</b>	<b>0</b>	<b>10</b>	<b>6.5</b>
<b>Total of Second Semester</b>				<b>13</b>	<b>3</b>	<b>10</b>	<b>20.5</b>

Third Semester (Second Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	BS	BS-M303	Mathematics-III	2	1	0	3
2	BS	BS-BIO301	Biology	2	0	0	2
3	ES	ES-ME301	Materials Engineering	3	0	0	3
4	ES	ES-ME302	Engineering Mechanics	3	1	0	4
5	PC	PC-ME301	Thermodynamics	3	1	0	4
6	PC	PC-ME302	Basic Manufacturing Processes	4	0	0	4
<i>Total Theory</i>				<b>17</b>	<b>3</b>	<b>0</b>	<b>20</b>
<b>Practical/ Sessional</b>							
1	PC	PC-ME391	Basic Manufacturing Processes Lab	0	0	3	1.5
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>3</b>	<b>1.5</b>
<b>Total of Third Semester</b>				<b>17</b>	<b>3</b>	<b>3</b>	<b>21.5</b>

Fourth Semester (Second Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	BS	BS- M404	Numerical methods	2	0	0	2
2	PC	PC-ME401	Applied Thermodynamics	3	1	0	4
3	PC	PC-ME402	Fluid Mechanics and Fluid Machines	3	1	0	4
4	PC	PC-ME403	Strength of Materials	3	1	0	4
5	PC	PC-ME404	Metrology and Instrumentation	4	0	0	4
<i>Total Theory</i>				<b>15</b>	<b>3</b>	<b>0</b>	<b>18</b>
<b>Practical/ Sessional</b>							
1	PC	PC-ME491	Metrology and Instrumentation Lab	0	0	3	1.5
2	PC	PC-ME492	Machine Drawing-I	0	0	3	1.5



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3	MC	MC471	Environmental Science	2	0	0	0
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>6</b>	<b>3</b>
<b>Total of Fourth Semester</b>				<b>17</b>	<b>3</b>	<b>6</b>	<b>21</b>

Fifth Semester (Third Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	HM	HM-HU503	Effective Technical Communication	3	0	0	3
2	PC	PC-ME501	Heat Transfer	3	1	0	4
3	PC	PC-ME502	Solid Mechanics	3	1	0	4
4	PC	PC-ME503	Kinematics and Theory of Machines	3	1	0	4
<i>Total Theory</i>				<b>12</b>	<b>3</b>	<b>0</b>	<b>15</b>
<b>Practical/ Sessional</b>							
1	PC	PC-ME591	Mechanical Engineering Laboratory-I (Thermal)	0	0	3	1.5
2	PC	PC-ME592	Machine Drawing-II	0	0	3	1.5
3	PW	PW-ME581	Project-I (30 hrs. Total)	0	0	2	1
5	MC	MC571	Aptitude Skill Development-I	2	0	0	0
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>8</b>	<b>4</b>
<b>Total of Fifth Semester</b>				<b>14</b>	<b>3</b>	<b>8</b>	<b>19</b>

Sixth Semester (Third Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PC	PC-ME 601	Manufacturing Technology	4	0	0	4
2	PC	PC-ME 602	Design of Machine Elements	3	1	0	4
3	PE	PE-ME 601	Elective-I	3	0	0	3
4	PE	PE-ME 602	Elective-II	3	0	0	3
5	HM	HM-HU 601	Operations Research	4	0	0	4
<i>Total Theory</i>				<b>17</b>	<b>1</b>	<b>0</b>	<b>18</b>
<b>Practical/ Sessional</b>							



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1	PC	PC-ME691	Mechanical Engineering Laboratory-II (Design)	0	0	3	1.5
2	PW	PW-ME681	Project-II (60 hrs. Total)	0	0	4	2
3	HM	HM-HU691	Soft skill Development Lab	0	0	2	1
4	MC	MC671	Aptitude Skill Development-II	2	0	0	0
5	MC	MC672	Constitution of India	2	0	0	0
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>9</b>	<b>4.5</b>
<b>Total of Sixth Semester</b>				<b>21</b>	<b>1</b>	<b>9</b>	<b>22.5</b>

Seventh Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PC	PC-ME701	Advanced Manufacturing Technology	3	0	0	3
2	PE	PE-ME701	Elective-III	3	0	0	3
3	PE	PE-ME702	Elective-IV	3	0	0	3
4	OE	OE-ME 701	Open Elective-I	3	0	0	3
5	HM	HM-HU701	Economics for Engineers	3	0	0	3
<i>Total Theory</i>				<b>15</b>	<b>0</b>	<b>0</b>	<b>15</b>
<b>Practical/ Sessional</b>							
1	PC	PC-ME791	Mechanical Engineering Laboratory III (Manufacturing)	0	0	3	1.5
2	PW	PW-ME781	Project-III	0	0	6	3
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>9</b>	<b>4.5</b>
<b>Total of Seventh Semester</b>				<b>15</b>	<b>0</b>	<b>9</b>	<b>19.5</b>

Eighth Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PE	PE-ME801	Elective V	3	0	0	3
2	PE	PE-ME802	Elective VI	3	0	0	3
3	OE	OE-ME 801	Open Elective-II	3	0	0	3
4	OE	OE-ME 802	Open Elective-III	3	0	0	3



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	<i>Total Theory</i>			<b>12</b>	<b>0</b>	<b>0</b>	<b>12</b>
<b>Practical/ Sessional</b>							
1	PW	PW-ME881	Project-IV	0	0	8	4
2	PW	PW-ME882	Comprehensive viva-voce	0	0	0	1.5
<i>Total Practical/ Sessional</i>				<b>0</b>	<b>0</b>	<b>8</b>	<b>5.5</b>
<b>Total of Seventh Semester</b>				<b>12</b>	<b>0</b>	<b>8</b>	<b>17.5</b>

List of Professional Electives in “**Semester VI**” for (Elective-I) PE-ME601 and (Elective-II) PE-ME602

Subject Code	Subject Name
<b>Thermo-Fluid Group</b>	
A	Internal Combustion Engines and Gas Turbines
B	Refrigeration and Air Conditioning
C	Turbo Machinery
D	Fluid Power Control
<b>Design Group</b>	
E	Composite Materials
F	Mechatronics
<b>Manufacturing Group</b>	
G	Robotics
H	Material Handling

List of Professional Electives in “**Semester VII**” for (Elective-III) PE-ME 701 and (Elective-IV) PE-ME 702

Subject Code	Subject Name
<b>Thermo-Fluid Group</b>	
A	Automobile Engineering
B	Computational Fluid Dynamics
C	Non-Conventional Energy Sources
<b>Design Group</b>	
D	Finite Element Analysis
E	CAD/CAM
<b>Manufacturing Group</b>	
F	Advanced Welding Technology
G	Additive Manufacturing

List of Open Electives in “**Semester VII**” (OE-ME 701)

Subject Code	Subject Name
A	Industrial Engineering
B	Computational Methods in Engineering



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C	Biomechanics and Biomaterials
D	Artificial Intelligence and Machine Learning

\*\*If a student chooses the paper, Industrial Engineering (Code: A) as an Open Elective-I in Semester VII, its paper code will be OE-ME701A

List of Professional Electives in “**Semester VIII**” for (Elective-V) PE-ME 801 and (Elective-VI) PE-ME 802

Subject Code	Subject Name
<b>Thermo-Fluid Group</b>	
A	Power Plant Engineering
B	Energy Conservation and Management
C	Cryogenics
<b>Design Group</b>	
D	Tribology
E	Materials Testing
<b>Manufacturing Group</b>	
F	Micro-machining
G	Maintenance Engineering

List of Open Electives in “**Semester VIII**” (OE-ME 801 and OE-ME 802)

Subject Code	Subject Name
A	Total Quality Management
B	Entrepreneurship Development
C	Automation and Control