



# 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 Automobile 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-PH101	Physics	3	1	0	4
2	BS	BS-M101	Mathematics-I	3	1	0	4
3	ES	ES-EE101	Basic Electrical & Electronics Engineering	3	1	0	4
4	HM	HM-HU101	English	2	0	0	2
<i>Total Theory</i>				<b>11</b>	<b>3</b>	<b>0</b>	<b>14</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	BS	BS-PH191	Physics Laboratory	0	0	3	1.5
2	ES	ES-EE191	Basic Electrical & Electronics Engineering Lab	0	0	4	2
3	ES	ES-ME191	Engineering Graphics & Design	1	0	4	3
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>1</b>	<b>0</b>	<b>11</b>	<b>6.5</b>
<b>Total of First Semester</b>				<b>12</b>	<b>3</b>	<b>11</b>	<b>20.5</b>

Second Semester (First Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	BS	BS-CH201	Chemistry	3	1	0	4
2	BS	BS-M201	Mathematics-II	3	1	0	4
3	ES	ES-CS201	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/ Mandatory Course</b>							
1	BS	BS-CH291	Chemistry Laboratory	0	0	3	1.5
2	ES	ES-CS291	Programming for Problem Solving Lab	0	0	4	2
3	ES	ES-ME292	Workshop/ Manufacturing Practices	1	0	4	3
4	HM	HM-HU291	Language Laboratory	0	0	2	1
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>1</b>	<b>0</b>	<b>13</b>	<b>7.5</b>
<b>Total of Second Semester</b>				<b>10</b>	<b>2</b>	<b>13</b>	<b>18.5</b>



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## 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-AUE301	Engineering Mechanics	3	1	0	4
4	ES	ES-AUE302	Fluid Mechanics & Hydraulic Machines	4	0	0	4
5	PC	PC-AUE301	Applied Thermodynamics	3	1	0	4
6	PC	PC-AUE302	Manufacturing Methods	4	0	0	4
<i>Total Theory</i>				<b>18</b>	<b>3</b>	<b>0</b>	<b>21</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	PC	PC-AUE391	Machine Drawing	0	0	3	1.5
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>0</b>	<b>0</b>	<b>3</b>	<b>1.5</b>
<b>Total of Third Semester</b>				<b>18</b>	<b>3</b>	<b>3</b>	<b>22.5</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	ES	ES-AUE401	Materials Engineering	3	0	0	3
3	PC	PC-AUE401	Strength of Materials	3	1	0	4
4	PC	PC-AUE402	Machine Tools and Machining Technology	3	0	0	3
5	PC	PC-AUE403	Theory of Machines	3	1	0	4
6	PC	PC-AUE404	Metrology & Instrumentation	3	0	0	3
<i>Total Theory</i>				<b>17</b>	<b>2</b>	<b>0</b>	<b>19</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	PC	PC-AUE491	Manufacturing & Testing Lab	0	0	3	1.5
2	MC	MC471	Environmental Sciences	2	0	0	0
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>0</b>	<b>0</b>	<b>5</b>	<b>1.5</b>
<b>Total of Fourth Semester</b>				<b>19</b>	<b>2</b>	<b>3</b>	<b>20.5</b>



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Fifth Semester (Third Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PC	PC-AUE501	Automotive Engines	3	0	0	3
2	PC	PC-AUE502	Automotive Body & Chassis Engineering	3	0	0	3
3	PC	PC-AUE503	Heat Transfer	3	0	0	3
4	PC	PC-AUE504	Design of Machine Element	3	1	0	4
5	HM	HM-HU501	Economics for Engineers	3	0	0	3
<i>Total Theory</i>				<b>15</b>	<b>1</b>	<b>0</b>	<b>16</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	PC	PC-AUE591	Fluid Mechanics & Heat Transfer Lab	0	0	3	1.5
2	PC	PC-AUE592	Automobile Engineering Lab-I (Engine & Chassis Component Lab)	0	0	3	1.5
3	HM	HM-HU591	Soft Skill Development Lab	0	0	2	1
4	PW	PW-AUE581	Project-I (Mini Project-30 hrs. Total)	0	0	2	1
5	MC	MC571	Aptitude Skill Development-I	2	0	0	0
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>2</b>	<b>0</b>	<b>10</b>	<b>5</b>
<b>Total of Fifth Semester</b>				<b>17</b>	<b>1</b>	<b>10</b>	<b>21</b>



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Sixth Semester (Third Year)							
Sl No.	Category	Course Code	CourseName	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PC	PC-AUE601	Automotive Transmission	3	0	0	3
2	PC	PC-AUE602	Automotive Electrical and Electronic Systems	3	0	0	3
3	PE	PE-AUE601	Professional Elective-I	3	0	0	3
4	HM	HM-HU604	Quantitative Methods for Decision Making	3	0	0	3
<i>Total Theory</i>				<b>12</b>	<b>0</b>	<b>0</b>	<b>12</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	PC	PC-AUE691	Automobile Engineering Lab II (Engine Testing and Pollution Measurement Lab)	0	0	3	1.5
2	PC	PC-AUE692	Automobile Engineering Lab III (Automotive Design Lab)	0	0	3	1.5
3	PC	PC-AUE693	Automobile Engineering Lab IV (Vehicle Maintenance Lab)	0	0	3	1.5
4	MC	MC671	Aptitude Skill Development-II	2	0	0	0
5	MC	MC673	Essence of Indian Knowledge Tradition	2	0	0	0
6	PW	PW-AUE671	Project-II (Summer Internship-90 hrs. Total)	0	0	0	3
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>4</b>	<b>0</b>	<b>9</b>	<b>7.5</b>
<b>Total of Sixth Semester</b>				<b>16</b>	<b>0</b>	<b>9</b>	<b>19.5</b>

List of Elective Courses	
<b>PE-AUE601</b>	<b>Professional Elective-I</b>
PE-AUE601A	Hybrid & Electric Vehicles
PE-AUE601B	Transport Management & Motor Vehicles Act
PE-AUE601C	Tyre Technology



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Seventh Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PC	PC-AUE701	Vehicle Dynamics	3	0	0	3
2	PE	PE-AUE701	Professional Elective-II	3	0	0	3
3	PE	PE-AUE702	Professional Elective-III	3	0	0	3
4	OE	OE-AUE701	Open Elective-I	3	0	0	3
5	HM	HM-HU702	Values & Ethics	2	0	0	2
<i>Total Theory</i>				<b>14</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	PC	PC-AUE791	Automobile Engineering Lab V (Automotive Electrical & Electronics Lab)	0	0	3	1.5
2	PW	PW-AUE781	Project-III	0	0	6	3
3	MC	MC772	Constitution of India	2	0	0	0
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>0</b>	<b>0</b>	<b>9</b>	<b>4.5</b>
<b>Total of Seventh Semester</b>				<b>14</b>	<b>0</b>	<b>9</b>	<b>18.5</b>

List of Elective Courses	
<b>PE-AUE701</b>	<b>Professional Elective-II</b>
PE-AUE701A	Advanced Manufacturing Technology and Management
PE-AUE701B	Advanced Automotive Materials
PE-AUE701C	Finite Element Method & its Applications
<b>PE-AUE702</b>	<b>Professional Elective-III</b>
PE-AUE702A	Automotive Component & System Design
PE-AUE702B	Automotive Pollution control & Alternate Fuels
PE-AUE702C	Two and Three Wheelers
List of Open Elective Courses	
<b>OE-AUE701</b>	<b>Open Elective-I</b>
OE-AUE701A	Quality Control & Reliability Engineering
OE-AUE701B	Mechatronic Systems
OE-AUE701C	Machine Learning
OE-AUE701D	Cloud Computing



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Eighth Semester (Fourth Year)							
Sl No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
<b>Theory</b>							
1	PE	PE-AUE801	Professional Elective-IV	3	0	0	3
2	PE	PE-AUE802	Professional Elective-V	3	0	0	3
3	OE	OE-AUE801	Open Elective-II	3	0	0	3
4	OE	OE-AUE802	Open Elective-III	3	0	0	3
<i>Total Theory</i>				<b>12</b>	<b>0</b>	<b>0</b>	<b>12</b>
<b>Practical/ Sessional/ Mandatory Course</b>							
1	PC	PC-AUE881	Comprehensive Viva Voce	0	0	0	2
2	PW	PW-AUE882	Project-IV	0	0	12	6
<i>Total Practical/ Sessional/ Mandatory Course</i>				<b>0</b>	<b>0</b>	<b>12</b>	<b>8</b>
<b>Total of Eighth Semester</b>				<b>12</b>	<b>0</b>	<b>12</b>	<b>20</b>

List of Elective Courses	
<b>PE-AUE801</b>	<b>Professional Elective-IV</b>
PE-AUE801A	Off Road Vehicles
PE-AUE801B	Automotive Air Conditioning
PE-AUE801C	Battery Technology and Management Systems
PE-AUE801D	Fuel cell Technology
<b>PE-AUE802</b>	<b>Professional Elective-V</b>
PE-AUE802A	Thermal Management of Hybrid Systems
PE-AUE802B	Noise, Vibrations and Harshness
PE-AUE802C	Electric Motors for Automotive Applications
List of Open Elective Courses	
<b>OE-AUE801</b>	<b>Open Elective-II</b>
OE-AUE801A	Tribology
OE-AUE801B	Internet of Things
OE-AUE801C	Soft Computing
<b>OE-AUE802</b>	<b>Open Elective-III</b>
OE-AUE802A	Computational Fluid Dynamics
OE-AUE802B	Entrepreneurship Development
OE-AUE802C	Robotics and Robot Application
OE-AUE 802D	Non-Destructive Testing Methods