SARALA BIRLA UNIVERSITY

Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f) of UGC Act. 1956

CURRICULUM
FOR
B.Tech
in
Mechanical Engineering

(Specialization with Automotive Technologies)

(Based on UGC & AICTE- CBCS)

Effective from 2021-22

Breakup of Credits

Sl. No.	Category	Credits
1	Humanities & Social Sciences including Management courses	6
2	Basic Science courses	23
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	33
4	Professional Core Courses	52
5	Professional Elective Courses for Specialization	39
6	Open subjects – Electives from other technical and /or emerging subjects	11
7	Project work, seminar and internship in industry or elsewhere	16
8	Mandatory Courses	2
Total Credits:		**182**

CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE)

Semester	HSMC	BSC	ESC	PCC	PECS	OEC	PROJECT	MC	Total Credit Semester-wise
1st	3	9.5	13	0	0	0	0	0	**25.5**
2nd	3	9.5	13	0	0	0	0	2	**27.5**
3rd	0	4	5	14	0	0	0	0	**23**
4th	0	0	2	19	0	3	0	0	**24**
5th	0	0	0	9	10	3	0	0	**22**
6th	0	0	0	10	8	5	2	0	**25**
7th	0	0	0	0	13	0	5	0	**18**
8th	0	0	0	0	8	0	9	0	**17**
Total Credit Course-wise	**6**	**23**	**33**	**52**	**39**	**11**	**16**	**2**	**182**

Definition of Credit

1 Hr. Lecture (L) Per Week	1 Credit
1 Hr. Tutorial (T) Per Week	1 Credit
1 Hr. Practical (P) Per Week	0.5 Credit
2 Hr. Practical (P) Per Week	1 Credit

Course Code Definitions

Course code	Definitions
BSC	Basic Science Course
ESC	Engineering Science Course
HSMC	Humanities & Social Sciences including Management Course
MC	Mandatory Course
PCC-ME	Professional Core Course
PECS-ME	Professional Elective Courses for Specialization
OEC	Open Electives Course
MOOC'S	Massive Open Online Courses
PDP	Personality Development Programme
ME-P1	Project Stage-I
ME-P2	Project Stage-II
ME-P3	Project Stage-III

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT COURSE							
Sl. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Preferred Semester**
			L	**T**	**P**		
1	HSMC-101	English	3	0	0	3	I
2	HSMC-102	Technical Communication	2	0	0	2	II
3	HSMC-103	Technical Communication Lab	0	0	2	1	II
			Total Credit:			**6**	

BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-101	Chemistry	3	1	0	4	I
2	BSC-102	Chemistry Lab	0	0	2	1.5	I
3	BSC-103	Physics	3	1	0	4	II
4	BSC-104	Physics Lab	0	0	2	1.5	II
5	BSC-105	Mathematics-I	3	1	0	4	I
6	BSC-106	Mathematics-II	3	1	0	4	II
7	BSC-107	Mathematics-III	3	1	0	4	III
			Total Credit:			**23**	

ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	ESC-101	Basic Electrical & Electronics Engineering	3	1	0	4	I
2	ESC-102	Basic Electrical & Electronics Engineering Lab	0	0	2	1	I
3	ESC-103	Introduction to Unix & C Programming	3	1	0	4	I
4	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	I
5	ESC-105	Engineering Graphics & Design	1	0	4	3	I
6	ESC-106	Electronic Devices	3	0	0	3	II
7	ESC-107	Electronic Devices Lab	0	0	2	1	II
8	ESC-108	Data Structure	3	1	0	4	II
9	ESC-109	Data Structure Lab	0	0	2	1	II
10	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	II
11	ESC-111	Engineering Mechanics	3	1	0	4	III
12	ESC-112	Programming using MATLAB	0	0	2	1	III
13	ESC-113	Python Programming	1	0	2	2	VI
			Total Credit			**32**	

Professional Core Courses(Sem-III & IV)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ME-201	Fundamental of Thermodynamics and Heat transfer	3:01:00	4	III/IV
2	PCC-ME-202	Thermal Engineering Lab	0:00:02	1	III/IV
3	PCC-ME-203	Production Technology	3:01:00	4	III/IV
4	PCC-ME-204	Mechanics of Solid	3:01:00	4	III/IV
5	PCC-ME-205	Mechanics of Solid Lab	0:00:02	1	III/IV
6	PCC-ME-206	Fluid Mechanics and Hydraulic Machinery	3:01:00	4	III/IV
7	PCC-ME-207	Fluid Mechanics and Hydraulic Machinery Lab	0:00:02	1	III/IV
8	PCC-ME-208	Material Technology	3:01:00	4	III/IV
9	PCC-ME-209	Fundamental Of CAD / CAM	3:01:00	4	III/IV
10	PCC-ME-210	Fundamental Of CAD / CAM Lab	0:00:02	1	III/IV
11	PCC-ME-211	Internal Combustion Engine	3:01:00	4	III/IV
12	PCC-ME-212	Internal Combustion Engine Lab	0:00:02	1	III/IV
			Total Credit:	**33**	

Professional Core Courses(Sem-V & VI)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ME-301	Kinematics & Theory of Machines	3:01:00	4	V/VI
2	PCC-ME-302	Theory of Machine Lab	0:00:02	1	V/VI
3	PCC-ME-303	Power Plant Engineering	3:01:00	4	V/VI
4	PCC-ME-304	Design of Machine Element	3:01:00	4	V/VI
5	PCC-ME-305	Production Technology Lab	0:00:02	1	V/VI
6	PCC-ME-306	Refrigeration & Air Conditioning	3:01:00	4	V/VI
7	PCC-ME-307	Refrigeration & Air Conditioning Lab	0:00:02	1	V/VI
			Total Credit:	**19**	

Professional Elective Courses for Specialization

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester	Selection of Courses
1	PECS-ME-313	Automobile Engineering	3:01:00	4	V/VI	Student can opt any Two Course in Sem-V and Two Courses in Sem-VI
2	PECS-ME-314	Automobile Engineering Lab	0:00:02	1		
3	PECS-ME-315	Microprocessors & Microcontroller	3:01:00	4		
4	PECS-ME-316	Microprocessors & Microcontroller Lab	0:00:02	1		
5	PECS-ME-317	Sensor and Actuator Technology	3:01:00	4		
6	PECS-ME-318	Electric & Hybrid Vehicles	3:01:00	4		
7	PECS-ME-319	Numerical Analysis	3:01:00	4		
8	PECS-ME-320	Numerical Analysis Lab	0:00:02	1		
9	PECS-ME-321	Automotive Mechatronic Systems	3:01:00	4		
10	PECS-ME-322	Automotive Engine Component Design	3:01:00	4		
11	PECS-ME-323	Alternative Fuel & Energy System	3:01:00	4		
12	PECS-ME-324	Non-Conventional Energy Sources				
1	PECS-ME-413	Vehicle Maintenance	3:01:00	4	VII/VIII	Student can opt any Three Course in Sem-VII and Two Courses in Sem-VIII
2	PECS-ME-414	Design of Automotive Components	3:01:00	4		
3	PECS-ME-415	Vehicle Dynamics	3:01:00	4		
4	PECS-ME-416	Vehicle Maintenance Laboratory	0:00:02	1		
5	PECS-ME-417	Automotive Aerodynamics	3:01:00	4		
6	PECS-ME-418	Automotive Electrical and Electronics	3:01:00	4		
7	PECS-ME-419	Computational Fluid Dynamics	3:01:00	4		
8	PECS-ME-420	Computational Fluid Dynamics lab	3:01:00	4		
9	PECS-ME-421	Automotive Pollution & its control	3:01:00	4		
10	PECS-ME-422	Metro Rail Technology	3:01:00	4		
11	PECS-ME-423	Alternative Fuels and Advances in IC Engines	3:01:00	4		
12	PECS-ME-424	Vehicle Body Engineering	3:01:00	4		

Open Elective Course

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester	Selection of Courses
1	OEC-101	Philosophy	3:00:00	3	IV	Student can opt any one Course
2	OEC-102	Introduction to Psychology	3:00:00	3		
3	OEC-103	Entrepreneurship & Startups	3:00:00	3		
4	OEC-104	Economics for Engineers	3:00:00	3		
5	OEC-105	Organisational Behaviour	3:00:00	3		
6	OEC-106	Principles of Management	3:00:00	3		
7	OEC-107	Supply Chain Management	3:00:00	3		
8	OEC-108	Intellectual Property Rights	3:00:00	3		
9	OEC-109	Digital & Social Media Marketing	3:00:00	3		
10	OEC-110	Consumer Behaviour	3:00:00	3		
11	OEC-121	Sanskrit	3:00:00	3	V	Student can opt any one Course
12	OEC-122	Indian Constitution	3:00:00	3		
13	OEC-123	Vedic Mathematics	3:00:00	3		
14	OEC-124	Essence of Indian Traditional Knowledge	3:00:00	3		
15	OEC-125	Indian Classical Music	3:00:00	3		
16	OEC-126	Mass Media and Society	3:00:00	3		
17	OEC-127	Values & Ethics	3:00:00	3		
18	OEC-141	Computer Networks	3:01:00	4	VII	Student can opt any one Course
19	OEC-142	Computer Networks Lab	3:01:00	1		
20	OEC-143	Fundamentals of Cyber Laws	3:01:00	4		
21	OEC-144	Artificial Intelligence with Python	3:01:00	4		
22	OEC-145	Data Mining	3:01:00	4		
23	OEC-146	Applied Linear Algebra	3:01:00	4		
24	OEC-147	Cloud Computing and Information Security	3:01:00	4		
25	OEC-148	Control System	3:01:00	4		
26	OEC-149	Control System Lab	3:01:00	4		

Mandatory Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-101	Induction Programme	0	0	0	0	I
2	MC-102	Environmental Science	2	0	0	2	IV
3	MC-103	PDP-I	2	0	0	0	I
4	MC-104	PDP-II	2	0	0	0	II
5	MC-105	PDP-III	2	0	0	0	III
6	MC-106	PDP-IV	2	0	0	0	IV
7	MC-107	PDP-V	2	0	0	0	V
8	MC-108	PDP-VI	2	0	0	0	VI
9	MC-109	PDP-VII	2	0	0	0	VII
10	MC-110	PDP-VIII	2	0	0	0	VIII
11	MC-111	PT & Games/NSS/NCC-I	0	0	0	0	I
12	MC-112	PT & Games/NSS/NCC-II	0	0	0	0	II
					Total Credit:	**2**	

Massive Open Online Courses

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits
1	MOOCs -101	Artificial Intelligence for Real-World Application	3:01:00	4
2	MOOCs -102	Applications of Deep Learning & Neural Networks	3:01:00	4
3	MOOCs -103	Usability Design of Software Applications	3:01:00	4
4	MOOCs -104	Applied Cloud Computing	3:01:00	4
5	MOOCs -105	Information Security - Practitioner's Perspective	3:01:00	4
6	MOOCs -106	Innovation & Entrepreneurship	3:01:00	4
7	MOOCs -107	Practical Approach to Data Mining & Analytics	3:01:00	4
8	MOOCs -108	IoT & its Applications	3:01:00	4
9	MOOCs -109	Intelligent Game Design & its Applications	3:01:00	4
10	MOOCs -110	Industrial Mechatronic Systems	3:01:00	4
11	MOOCs -111	Solar Energy Technology & its Applications	3:01:00	4

Note: A student will be eligible to get Under Graduate degree with Honours or additional Minor Engineering, if he/she completes an additional 20 credits. These could be acquired through MOOCs.

Project Work

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	ME-P1	Project Stage-I (Mini Project/ Industrial Training)	0:00:04	2	VI
2	ME-P2	Project Stage-II (Minor Project) **(To be continued in next Semester)**	0:00:10	5	VII
3	ME-P3	Project Stage-III (Major Project Work & Dissertation)	0:00:18	9	VIII
		Total Credits:		**16**	

COURSE STRUCTURE

SEMESTER-I (1st YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-101	Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-105	Mathematics-I	3	1	0	4	30	70	100
3	Engineering Science Course	ESC-101	Basic Electrical & Electronics	3	1	0	4	30	70	100
4	Engineering Science Course	ESC-103	Introduction to Unix & C Programming	3	1	0	4	30	70	100
5	Humanities & Social Sciences including Management Course	HSMC-101	English	3	0	0	3	30	70	100
						Total(A)	**19**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-105	Engineering Graphics & Design	1	0	4	3	30	20	50
2	Basic Science Course	BSC-102	Chemistry Lab	0	0	3	1.5	30	20	50
3	Engineering Science Course	ESC-102	Basic Electrical & Electronics Lab	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	30	20	50
						Total(B)	**6.5**	**120**	**80**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-101	Induction Programme	0	0	0	0	0	0	0
2	Mandatory Course	MC-110	PT & Games/NSS/NCC-I	0	0	2	0	0	0	0
3	Mandatory Course	MC-103	PDP-I	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25.5**	**270**	**430**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-II (1st YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-106	Mathematics-II	3	1	0	4	30	70	100
2	Humanities & Social Sciences including Management Course	HSMC-102	Technical Communication	2	0	0	2	30	70	100
3	Engineering Science Course	ESC-106	Electronic Devices	3	1	0	4	30	70	100
4	Basic Science Course	BSC-103	Physics	3	1	0	4	30	70	100
5	Engineering Science Course	ESC-108	Data Structures	3	1	0	4	30	70	100
			Total(A)				**18**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	30	20	50
2	Engineering Science Course	ESC-107	Electronic Devices Lab	0	0	2	1	30	20	50
3	Basic Science Course	BSC-104	Physics Lab	0	0	3	1.5	30	20	50
4	Humanities & Social Sciences including Management Course	HSMC-103	Technical Communication Lab	0	0	2	1	30	20	50
5	Engineering Science Course	ESC-109	Data Structures Lab	0	0	2	1	30	20	50
			Total(B)	**1**	**0**	**13**	**7.5**	**150**	**100**	**250**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-102	Environmental Science	2	0	0	2	30	70	100
2	Mandatory Course	MC-111	PT & Games/NSS/NCC-II	0	0	2	0	0	0	0
3	Mandatory Course	MC-104	PDP-II	2	0	0	0	0	0	0
			Total(C)				**2**	**30**	**70**	**100**
Grand Total (A+B+C)							**27.5**	**330**	**520**	**850**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-III (2nd YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-107	Mathematics-III	3	1	0	4	30	70	100
2	Engineering Science Course	ESC-112	Engineering Mechanics	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-201	Fundamental of Thermodynamics and Heat transfer	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-203	Production Technology	3	1	0	4	30	70	100
5	Professional Core Course	PCC-ME-204	Mechanics of Solid	3	1	0	4	30	70	100
						Total(A)	**20**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ME-205	Mechanics of Solid Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-111	Programming using MATLAB	0	0	2	1	30	20	50
3	Professional Core Course	PCC-ME-202	Thermal Engineering Lab	0	0	2	1	30	20	50
						Total(B)	**3**	**90**	**60**	**150**
Mandatory Courses/MOOC'S										
2	Mandatory Course	MC-105	PDP-III	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**23**	**240**	**410**	**650**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-IV (2nd YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-ME-206	Fluid Mechanics and Hydraulic Machinery	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-208	Material Technology	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-209	Fundamental Of CAD / CAM	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-211	Internal Combustion Engine	3	1	0	4	30	70	100
5	Open Elective Course	OEC-103	Entrepreneurship & Startups	3	0	0	3	30	70	100
						Total(A)	**19**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ME-207	Fluid Mechanics and Hydraulic Machinery Lab	0	0	2	1	30	20	50
2	Professional Core Course	PCC-ME-212	Internal Combustion Engine Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-111	Python Programming	1	0	2	2	30	20	50
4	Professional Core Course	PCC-ME-210	Fundamental Of CAD / CAM Lab	0	0	2	1	30	20	50
						Total(B)	**5**	**120**	**80**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-105	PDP-IV	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**24**	**270**	**430**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-V (3rd YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Courses for Specialization	PECS-ME-313	Automobile Engineering	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-301	Kinematics & Theory of Machines	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-303	Power Plant Engineering	3	1	0	4	30	70	100
4	Professional Elective Courses for Specialization	PECS-ME-315	Microprocessors & Microcontroller	3	1	0	4	30	70	100
5	Open Elective Course	OEC-122	Indian Constitution	3	0	0	3	30	70	100
						Total(A)	**19**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ME-302	Theory of Machine Lab	0	0	2	1	30	20	50
2	Professional Core Course	PECS-ME-314	Automobile Engineering Lab	0	0	2	1	30	20	50
3	Professional Elective Courses for Specialization	PECS-ME-316	Microprocessors & Microcontroller Lab	0	0	2	1	30	20	50
						Total(B)	**3**	**90**	**60**	**150**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-107	PDP-V	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**22**	**240**	**410**	**650**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VI (3rd YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-ME-304	Design of Machine Element	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-306	Refrigeration & Air Conditioning	3	1	0	4	30	70	100
3	Professional Elective Courses for Specialization	PECS-ME-317	Sensor and Actuator Technology	3	1	0	4	30	70	100
4	Professional Elective Courses for Specialization	PECS-ME-318	Electric & Hybrid Vehicles	3	1	0	4	30	70	100
5	Open Elective Course	OEC-148	Control System	3	1	0	4	30	70	100
						Total(A)	**20**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ME-307	Refrigeration and Air conditioning Lab	0	0	2	1	30	20	50
2	Professional Core Course	PCC-ME-305	Production Technology Lab	0	0	2	1	30	20	50
3	Open Elective Course	OEC-149	Control System Lab	0	0	2	1	30	20	50
4	Project Work	ME-P1	Project Stage-I (Mini Project/ Industrial Training)	0	0	4	2	75	25	100
						Total(B)	**5**	**165**	**85**	**250**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VI	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25**	**315**	**435**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VII (4th YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Courses for Specialization	PECS-ME-413	Vehicle Maintenance	3	1	0	4	30	70	100
2	Professional Elective Courses for Specialization	PECS-ME-414	Design of Automotive Components	3	1	0	4	30	70	100
3	Professional Elective Courses for Specialization	PECS-ME-415	Vehicle Dynamics	3	1	0	4	30	70	100
						Total(A)	**12**	**90**	**210**	**300**
Practical/Drawing/Design										
2	Professional Elective Courses for Specialization	PECS-ME-416	Vehicle Maintenance Laboratory	0	0	2	1	30	20	50
3	Project Work	ME-P2	Project Stage-II (Minor Project)	0	0	10	5	75	25	100
						Total(B)	**6**	**105**	**45**	**150**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VII	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**18**	**195**	**255**	**450**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VIII (4th YEAR)

Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Courses for Specialization	PECS-ME-417	Automotive Aerodynamics	3	1	0	4	30	70	100
2	Professional Elective Courses for Specialization	PECS-ME-418	Automotive Electrical and Electronics	3	1	0	4	30	70	100
Practical/Drawing/Design							**8**	**60**	**140**	**200**
Practical/Drawing/Design										
1	Project Work	ME-P3	Project Stage-III (Major Project Work & Dissertation)	0	0	18	9	75	25	100
Total(B)							**9**	**75**	**25**	**100**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-110	PDP-VIII	2	0	0	0	0	0	0
Total(C)							**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**17**	**135**	**165**	**300**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination