



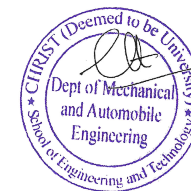
School of Engineering and Technology
Department of Mechanical and Automobile Engineering
Curriculum Feedback Analysis 2023-24

The Department of Mechanical and Automobile Engineering revises its curriculum for the programmes offered every year based on the relevant trends in industry and emerging technologies by considering the feedback provided by all its stakeholders on the curriculum. This report is an analysis of the feedback collected from the various stakeholders like students, alumni and faculty members and this report shall be forwarded to the Department Curriculum Design and Development Cell (CDC) for consideration while revising the curriculum.

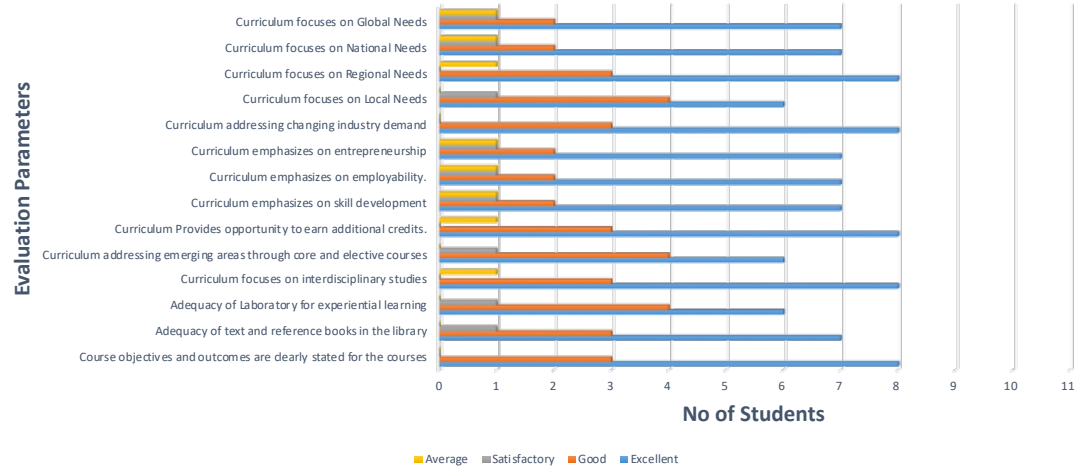
This academic year feedback was collected from a total of 112 students, 31 faculty members, 19 alumni, 9 employers and 50 parents. This feedback was analyzed and this report contains the analysis and recommendations to CDC based on the analysis carried out.

Students Feedback on Curriculum

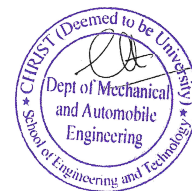
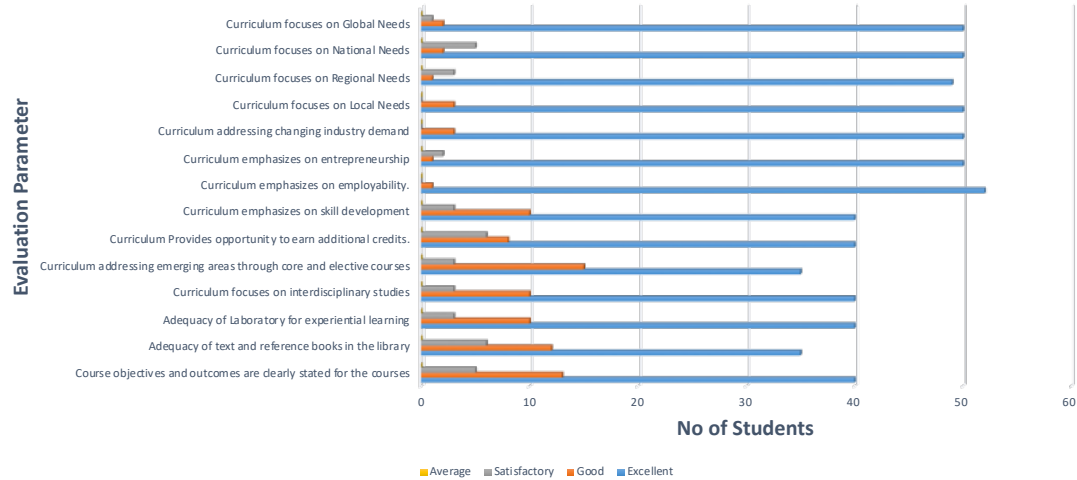
Student feedback on curriculum has been taken from 112 students. Out of 112 students 11 students from BTech Mechanical Engineering, 53 students from BTech Automobile Engineering ,39 students from BTech Robotics and Mechatronics and 09 students from M Tech machine designed Participated. The questionnaire and the number of responses for each year of study was as follows .

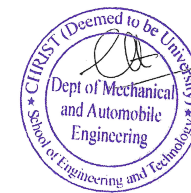
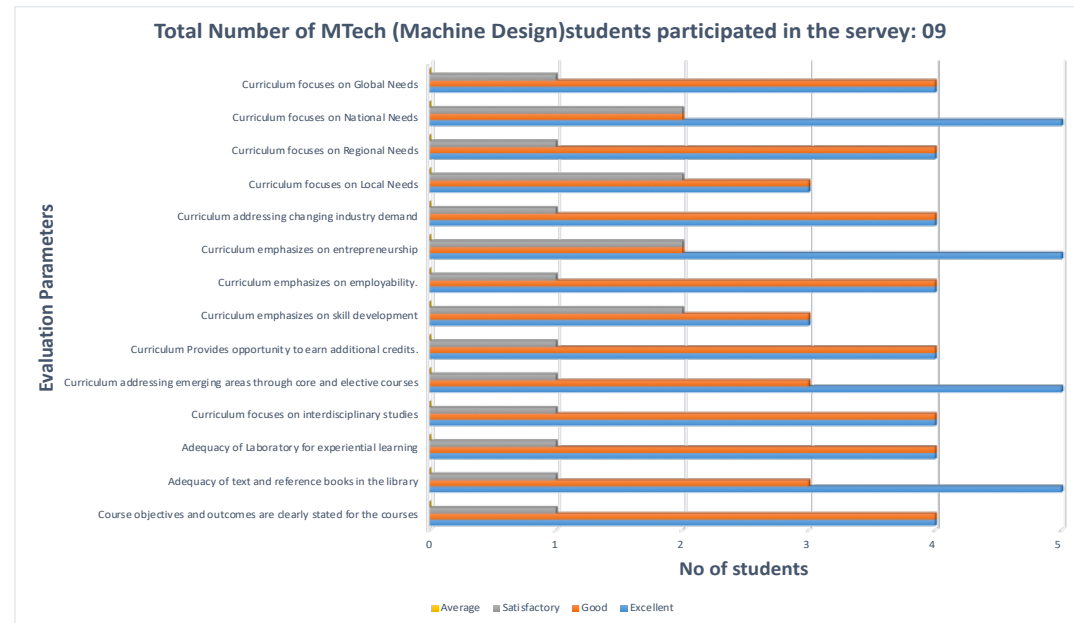
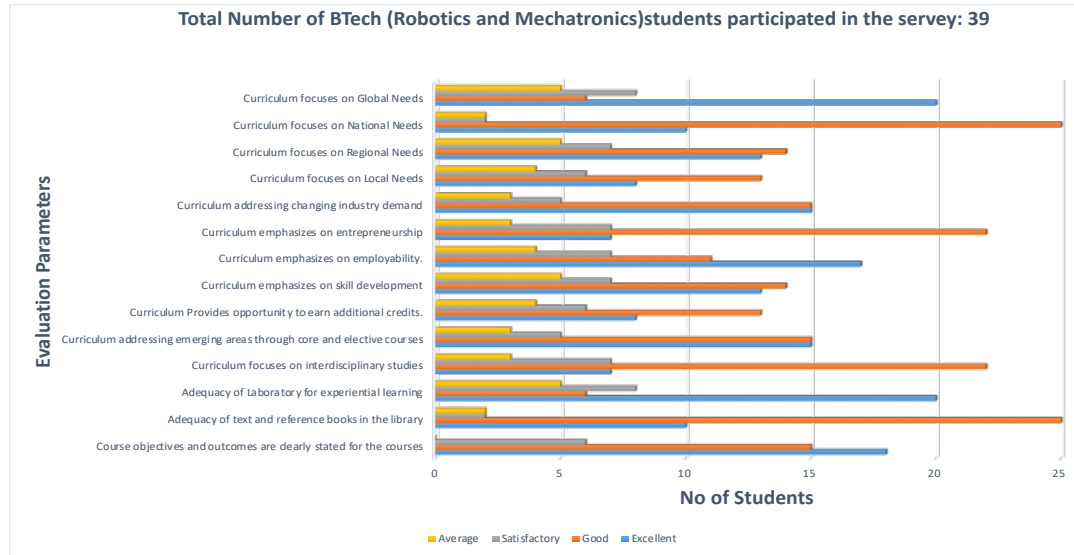


Total Number of BTech (Mechanical Engineering) students participated in the survey: 11)



Total Number of BTech (Automobile Engineering) students participated in the survey: 53)





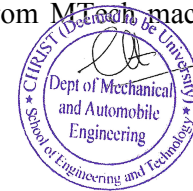
The above graph is a representation of the feedback responses given by the students as per the questionnaire. The graph given below depicts the overall expectation meeting of the students from all years as far as syllabus is concerned. From the graph it can be seen that the students have given a feedback where 95% of the students are satisfied with the curriculum being offered. However, when the general comments and suggestions were analyzed, the following were the main points given by the students.

In the curriculum of B.Tech in Mechanical Engineering, B.Tech in Automobile Engineering, B.Tech Robotics and Mechatronics and M.Tech in Machine Design, no major concerns were present based on the feedback. The major suggestion given by the students as follows.

- Reoriented towards the industry's current needs, with a heightened emphasis on practical application.
- Proposals for integrating software-based training into manufacturing, thermal, and design curricula to enhance concept realization.
- Incorporating discussions on industry-specific challenges and solutions, along with entrepreneurship opportunities, within select subjects.
- Integrating automation tailored to industry requirements and incorporating Python and Java programming languages into the curriculum.

Faculty Feedback on Curriculum

The backbone of any higher education institution lies within its faculty members, whose feedback is invaluable for curriculum analysis and updates. As part of our standard practice, the department gathers feedback from each faculty member responsible for teaching courses. The following section presents an analysis of the questionnaire distributed among 30 faculty members, focusing on the following key questions and soliciting suggestions/recommendations for the courses they teach in the even semester of 2022- 23 and odd semester of 2023-24. Out of 31 Faculties 13 Faculties on BTech Mechanical Engineering course, 04 on BTech Automobile Engineering course ,08 on BTech Robotics and Mechatronics course and 6 from M.Tech machine designed Course Participated. The synopsis of the same is given below.



The major suggestion given by the faculties are as follows.

- Refining the syllabus to synchronize with contemporary industry demands and obstacles is essential. Incorporating real-world industry challenges will amplify its relevance and equip students with the necessary skills for their prospective careers.
- Focus on designing of international Curriculum .This ensures a global perspective of international students educational journey, fostering an environment that values diversity and encourages cross-cultural understanding.
- The sequencing of interconnected courses such as Python Programming and AIML might benefit from restructuring.
- The course curriculum for Mechatronics now includes topics on Programmable Logic Controllers (PLCs).
- The curriculum now incorporates courses covering smart and digital manufacturing, robotics, automation, Artificial Intelligence, and Additive Manufacturing (3D printing) technology
- Elective courses now explore the role of IoT (Internet of Things) in Mechanical, Automobile, and Robotics disciplines.

Feedback from Alumni, Parents and External Experts

Feedback from Alumni, Industry experts, parents along with faculties and students is most important to improve the curriculum for ensuring an education that is outcome based for betterment of students as well as meet the expectations of our stakeholders. We thankful to our stakeholder to give their time and valuable feedback.

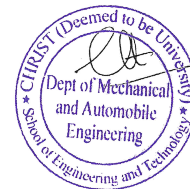
In addition to the above feedback collected from faculty members, feedbacks were also collected from alumni, employers and parents. The major suggestions as given by these stakeholders are as follows

- The curriculum should undergo updates to reflect emerging technologies, with a focus on integrating more open-source frameworks in Robotics to benefit students. Increased emphasis on practical-oriented sessions would be highly valued.
- Expanding the number of workshops focused on Robotics would enhance student engagement and interest.
- Proposing collaborations with esteemed organizations to enhance internship and placement opportunities.
- introducing AutoCAD, Microsoft Office (expert level), and Revit software is imperative as they are crucial for the job roles of white-collar employees in the mechanical engineering sector. Conversely, software such as MATLAB and others (excluding SolidWorks) may not be as essential initially but can be learned if required, possibly through company-provided training. Mastery of the aforementioned software suites can significantly enhance graduates' exposure to the design sector .
- There's a necessity to introduce a new curriculum that encompasses tools such as Vericut, SolidCAM, CNC programming, Zoller Tool Management Systems, and Quality Management Systems (QMS) aligned with industry standards like NADCAP and AS9100D. This initiative aims to foster industry growth by ensuring graduates are well-equipped with relevant skills and knowledge.



- Enhancements in the internship program and final year projects are imperative. Integrating a project based on internship experiences, with a focus on automation, including basic PLC and robotics knowledge, would significantly augment students' preparedness for their professional careers.
- Balancing hands-on training and software education is paramount. Additionally, prioritizing soft skills development beyond placement training is crucial for students' holistic professional growth.
- Although the department provides valuable exposure, there's room for enhancement in the internship program and final year projects. Introducing a project based on internship experiences, with a focus on automation and incorporating basic PLC and robotics knowledge, would greatly improve students' preparedness for their professional endeavours.
- The syllabus should incorporate experiential and project-based learning components to offer hands-on experiences. It should also address both local and global needs to provide a well-rounded education.
- Programmable logic controllers (PLC) can be added as part of automation. Industry based problems/circuits can be added.
- Exploring Python Applications for Industrial Robotics & Automation

This analysis report on all the feedbacks collected from the students, faculty members, alumni and verticals shall be presented to the Department CDC for discussion and deliberation to be recommended to the Department Board of Studies for the academic year 2024-25 to be held in the month of February/March 2024.

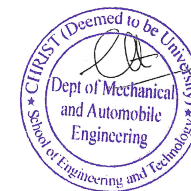


School of Engineering and Technology
Department of Mechanical and Automobile Engineering Action Taken Report on Curriculum Feedback Analysis 2023-24

The Department of Mechanical and Automobile Engineering collects analyses and acts based on the feedback received from all the stakeholders as far as curriculum is concerned. The stakeholders from whom the feedback is collected are

1. Students
2. Teachers
3. Alumni
4. Parents
5. Industry Experts

The Curriculum Design and Development Cell (CDC) of the Department initiates this feedback collection, also analyses the same, and prepares a feedback analysis report on the curriculum every academic year. These are then proposed to the Department Board of Studies (BoS) for their approval to be included in the curriculum for the subsequent academic year. This report highlights the action taken in the below mentioned courses which have been revised as per the feedbacks received from the stakeholders.



Annexure B Changes in Curriculum

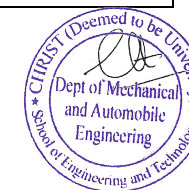
School: School of Engineering and Technology
 Department: Department of Mechanical and Automobile Engineering
 Programme: B.Tech in Mechanical Engineering

SN	Particulars I: Change in	Indicate “Yes”/ “No”	Particulars II	Brief Detail (if changes are incorporated)
1	Course Code/s	NO	Mention all the revised Course Codes:	
2	Course Title/s	Yes	Mention all the revised Course Title/s along with the Course Code/s ME533P-Energy Systems ME633P- Mechanical Vibrations and Control.	Suggested by external expert
3.	Course Outcome	NO	Mention the course code where course outcome changes have been incorporated	
3	Semester/s	NO	Mention New Course Codes where Semester changes have been made	
4	Credits	NO	Mention Course Codes where Credit changes have been made	
5	Marks	NO	Mention the Course Codes where Marks changes have been made	

6	CIA Pattern	NO	Mention the Course Codes where CIA pattern changes have been made	
7	ESE Pattern	NO	Mention the Course Codes where ESE pattern changes have been made	
8	Course Type: Theory/Practical	NO	Mention the Course Codes where course type changes have been made	
9	Syllabus	YES	Mention the total % of syllabus change made in the programme (support document - Calculation of Syllabus change to be attached as an annexure): ME151/251 Workshop Practice lab- 20% ME744E4 Rapid Prototyping- 20% HS345E4 Innovation and Entrepreneurship- 20% ME135/235 Basic Mechanical Engineering- 20%	Suggested by external expert and stake holders

1. Course Code Change

SN	Existing Semester, Code and Course Title	Proposed Code	Reasons for Change	Applicable to Batch
	-	-	-	-



2. Course Title Change

<i>SN</i>	<i>Existing Code and Course Title</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	ME533P- Energy systems and Technologies	ME533P-Energy Systems	Suggested by External Expert since there are no technology topics in the curriculum	2023,2024
2	ME633P - Vibrations and control	ME633P- Mechanical Vibrations and Control.	Suggested by External Expert to specifying the domain	2022,2023,2024

3. Course Outcome Change

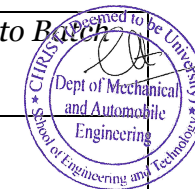
<i>SN</i>	<i>Existing Code and Course Title</i>	<i>Proposed Change</i>	<i>Reasons for Change (Kindly justify using the programme outcomes)</i>	<i>Applicable to Batch</i>
1	-	-	-	-
2	-	-	-	-

4. Semester Change

<i>SN</i>	<i>Existing Semester Details with Course Code</i>	<i>Proposed Change in Semester</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
	-	-	-	-

5. Credits Change

<i>SN</i>	<i>Existing Credit Details with Course Codes</i>	<i>Proposed Credit Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-
2	-	-	-	-



6. Marks Change

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Marks Details</i>	<i>Proposed Marks Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-
2	-	-	-	-	-

7. CIA Pattern

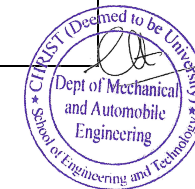
<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

8. ESE Pattern

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

9. Course Type Theory/Practical

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-



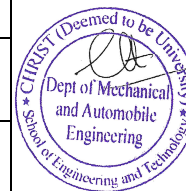
Course Structure

SEMESTER I

Sl. No	Type	Course No	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	BSC	MA131	Mathematics - I	3	0	2	100	3	0	1	4
2	BSC	CH132P	Chemistry	3	0	0	100	3	0	0	3
3	ESC	EC133P	Basic Electronics	3	0	2	100	3	0	1	4
4	ESC	CS134P	Computer Programming	3	0	2	100	3	0	1	4
5	ESC	ME135	Basic Mechanical Engineering	3	0	0	100	3	0	0	3
6	ESC	HS136	Technical English	0	0	2	50	0	0	1	1
7	HSMC	ME151	Workshop Practice Lab	2	0	0	50	2	0	0	2
8	HSMC	HOL111	Holistic Education-I	1	0	0	-	1	0	0	1
9	OEC	OEC171	Ability Enhancement course-1	0	0	2	50	0	0	1	1
Total				18	0	10	650	18	0	5	23

SEMESTER II

Sl. No	Type	Course No	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	BSC	MA231	Mathematics - II	3	0	2	100	3	0	1	4
2	BSC	PH232P	Physics	3	0	2	100	3	0	1	4
3	BSC	EE233P	Basic Electrical Engineering	2	0	0	100	2	0	0	2
4	ESC	CE234P	Basics of Civil Engineering & Engineering Mechanics	3	0	2	100	3	0	1	4
5	ESC	EG235	Engineering Graphics	3	0	0	100	3	0	0	3
6	ESC	BS236	Biology for Engineers	2	0	2	50	3	0	0	3
7	HSMC	HOL211	Holistic Education-II	1	0	0	-	1	0	0	1



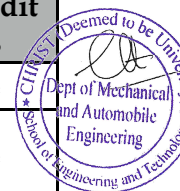
8	OEC	OEC271	Ability Enhancement course-2	0	0	2	-	0	0	1	1
Total				17	0	9	550	18	0	4	22

SEMESTER III

Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	BSC	MA331	Mathematics-III	3	0	0	100	3	0	0	3
2	PCC	ME332	Thermal Engineering -I	3	0	0	100	3	0	0	3
3	PCC	ME333P	Strength of Materials	3	0	2	100	3	0	1	4
4	PCC	ME334P	Manufacturing Processes	3	0	2	100	3	0	1	4
5	HSMC		Humanities Electives-I	2	0	0	50	2	0	0	2
6	HSMC	HOL311	Holistic Education-III	1	0	0	---	1	0	0	1
7	PCC	ME351	Foundary and Forging lab	0	0	2	50	0	0	1	1
8	BSC	BS351	Engineering Biology Lab	0	0	2	50	0	0	1	1
9	ESC	ES331P	Sustainable Green Technology	1	0	2	50	1	0	1	2
10	OEC	OEC371	Ability Enhancement course-3	0	0	1	-	0	0	1	1
11	MC	EVS321	Environmental Science	2	0	0	---	0	0	0	--
Total				18	0	11	600	16	0	6	22

SEMESTER IV

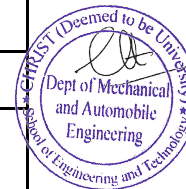
Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	ME431	Thermal Engineering-II	3	1	0	100	3	1	0	4
2	PCC	ME432P	Material Engineering and Metrology	3	0	2	100	3	0	1	4
3	PCC	ME433P	Fluid Mechanics and Machines	3	0	2	100	3	0	1	4



4	PCC	ME434P	Automation in Manufacturing	3	0	1	100	3	0	1	4
5	PCC	ME451	Simulation Lab (MATLAB)	0	0	2	50	0	0	1	1
6	HSMC	HOL411	Holistic Education-IV	1	0	0	---	1	0	0	1
7	ESC	ES431P	AR/VR/MR	1	0	2	50	1	0	1	2
8	OEC	OEC471	Ability Enhancement course-4	0	0	1	-	0	0	1	1
9	MC	CY421	Cyber Security	2	0	0	---	0	0	0	--
			Total	17	1	8	500	15	1	5	21

SEMESTER V

Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	ME531	Kinematics & Theory of Machines	3	1	0	100	3	1	0	4
2	PCC	ME532	Design of Machine Elements	3	1	0	100	3	1	0	4
3	PCC	ME533P	Computer Aided Machine Drawing	3	0	0	100	3	0	0	3
4	PCC	ME534P	Energy Systems	3	0	2	100	3	0	1	4
5	HSMC		Humanities Electives-II	3	0	0	100	3	0	0	3
6	PCC	ME551	Engines lab	0	0	2	50	0	0	1	1
7	PCC	ME552	Automation Lab	0	0	2	50	0	0	1	1
8	ESC	ES531P	Robotics and Mechatronics	2	0	0	50	2	0	0	2
9	OEC	OEC571	Ability Enhancement course-5	0	0	1	-	0	0	1	1
10	MC	IC521	Indian Constitution	2	0	0	---	0	0	0	0
			Total	19	2	7	650	17	2	4	23

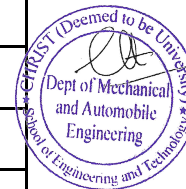


SEMESTER VI

Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	ME631P	Finite Element Analysis	3	0	2	100	3	0	1	4
2	PCC	ME632	Design of Transmission systems	3	1	0	100	3	1	0	4
3	PCC	ME633P	Mechanical Vibration and Control	3	0	2	100	3	0	1	4
4	PCC	ME634P	Heat Transfer	3	0	2	100	3	0	1	4
5	Project	ME637	Service Learning	0	0	4	50	0	0	2	2
6	ESC	ES631P	Sensors and IOT	2	0	0	50	2	0	0	2
7	OEC	OEC671	Ability Enhancement course-6	0	0	1	-	0	0	1	1
8	GE		Global Elective	2	0	0	50	2	0	0	2
			Total	16	1	11	550	16	1	6	23

SEMESTER VII

Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PEC	ME741E	Program Elective - 1	3	0	0	100	3	0	0	3
2	PEC	ME742E	Program Elective*- 2	3	0	0	100	3	0	0	3
3	PEC	ME743E	Program Elective* - 3	3	0	0	100	3	0	0	3
4	PEC	ME744E	Program Elective - 4	3	0	0	100	3	0	0	3
5	HSMC		Humanities Electives-III*	3	0	0	100	3	0	0	3



6	Project	ME781	Project Work Phase-I	0	0	8	200	0	0	4	4
7	Internship	ME782	Internship*	0	0	2	50	0	0	2	2
			Total	12	0	10	650	12	0	6	21

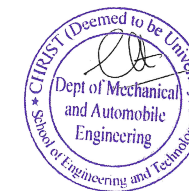
***VII sem Program Electives (3 nos) may be taken up from III to VI sem by fast Learners to be free during VII sem**

SEMESTER VIII

Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	EEC-PROJ	ME881	Project Work Phase-II	0	0	16	300	0	0	8	8

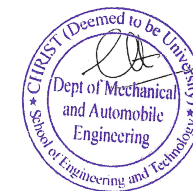
Elective List

Track:1 Design	
SI No	Subject Name
1	Advanced Engineering Mechanics
2	Theory Of Elasticity
3	Tribology
4	Ergonomics In Design
5	Product Design And Manufacturing
6	Experimental Stress Analysis
7	Industrial Piping Engineering
8	Design Of Fire And Life Safety Systems For Buildings



Track:2 Manufacturing	
SI No	Subject Name
1	Intelligent Automation
2	Flexible Manufacturing systems
3	Rapid manufacturing
4	Lean Manufacturing
5	Sustainable Manufacturing
6	Digital Manufacturing
7	Non traditional machining
8	Industry 4.0 in Manufacturing

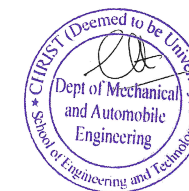
Track:3 Thermal	
SI No	Subject Name
1	Energy Management
2	Refrigeration And Air Conditioning
3	Heating Ventilation And Airconditioning
4	Fuel Cells For Automotive Applications
5	Alternative Fuels And Applications
6	Electric And Hybrid Vehicles
7	Power Plant Engineering - An Industrial Context
8	Power Plant Boiler & Auxiliary Systems



Track:4 Materials	
SI No	Subject Name
1	Nano Materials & Nanotechnology
2	Smart Materials And Structures
3	Materials For Energy Applications
4	Advanced Materials Processing And Characterization Techniques
5	Composite Materials And Structures
6	Corrosion Science And Engineering
7	Nanotechnology For Agriculture And Environment
8	Nano Materials & Nano Technology

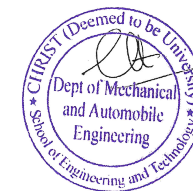
Track: 5 Others	
SI No	Subject Name
1	Total Quality Management
2	Product life cycle management
3	Design Process Planning and Management
4	Design of Experiments
5	Design Thinking and Value Engineering
6	Sustainable Engineering
7	Safety Engineering

Track:6 Interdisciplinary	
SI No	Subject Name
1	Introduction To Aerospace Engineering
2	Marine Technology
3	Mechanical And Rail Technology



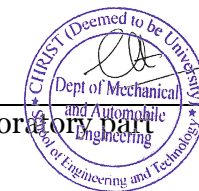
4	Farm Machinery And Power Engineering
5	Artificial Intelligence And Machine Learning
6	Python for Engineers

Track: 7 Robotics and Mechatronics	
SI No	Subject Name
1	Robotics and Automation
2	Basic Concepts of Mechatronics
3	Mobile Robotics
4	Field and Service Robots
5	Design of Mechatronics System
6	Under Water Robotics
7	Autonomous Vehicles
8	Industrial Robotics and Material Handling Systems

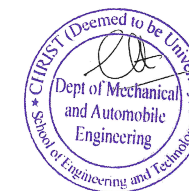


School: School of Engineering and Technology
 Department: Department of Mechanical and Automobile Engineering
 Programme: **B.Tech in Robotics and Mechatronics**

SN	Particulars I: Change in	Indicate “Yes”/ “No”	Particulars II	Brief Detail (if changes are incorporated)
1	Course Code/s	NO	Mention all the revised Course Codes:	
2	Course Title/s	Yes	Mention all the revised Course Title/s along with the Course Code/s RM333P- Electrical Drives and Actuators RM434P Industrial Robotics RM534P Fundamentals of Python Programming and ROS RM531P Data Acquisition and Robotic Vision RM552 Robot Operating System Laboratory RM751Automation and PLC laboratory	Added advanced topics and modified the titles.
3.	Course Outcome	No	Mention the course code where course outcome changes have been incorporated	
3	Semester/s	YES	Mention New Course Codes where Semester changes have been made RM552 Robot Operating System Laboratory RM633- Internet of Robotic Things	
4	Credits	YES	Mention Course Codes where Credit changes have been made RM532P Mobile Robotics	Added Laboratory Data
5	Marks	No	Mention the Course Codes where Marks changes have been made	



6	CIA Pattern	No	Mention the Course Codes where CIA pattern changes have been made RM552 Robot Operating System Laboratory	
7	ESE Pattern	No	Mention the Course Codes where ESE pattern changes have been made	
8	Course Type: Theory/Practical	No	Mention the Course Codes where course type changes have been made	
9	Syllabus	YES	Mention the total % of syllabus change made in the programme (support document - Calculation of Syllabus change to be attached as an annexure): ME151/251 Workshop Practice lab- 20% RM333P- Electrical Drives and Actuators- 40% RM334P- Basic concepts of Mechatronics and PLC- 20% RM434P Industrial Robotics- 80% RM534P Fundamentals of Python Programming and ROS - 20% RM531P Data Acquisition and Robotic Vision - 60% RM552 Robot Operating System Laboratory- 100% RM643E3 Mobile application Development - 40% RM633- Internet of Robotic Things- 100% RM751Automation and PLC laboratory-80%	Modification has done based on the stake holders feedback

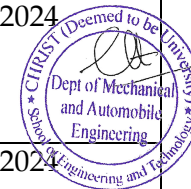


1. Course Code Change

<i>SN</i>	<i>Existing Semester, Code and Course Title</i>	<i>Proposed Code</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
	-	-	-	-

2. Course Title Change

<i>SN</i>	<i>Existing Code and Course Title</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	RM333P- Electrical Machines and Drives	RM333P- Electrical Drives and Actuators	Suggested by stakeholders	2023 and 2024
2	ME633P - Robotics and automation	RM434P Industrial Robotics	Suggested by stakeholders	2023 and 2024
3	RM534P Fundamentals of Python Programming	RM534P Fundamentals of Python Programming and ROS	Suggested by stakeholders	2023 and 2024
4	RM531P Data Acquisition and Vision system in robotics	RM531P Data Acquisition and Robotic Vision	Suggested by stakeholders	2023 and 2024
5	RM552 Automation system Design Laboratory	RM552 Robot Operating System Laboratory	Suggested by stakeholders	2023 and 2024



6	RM751Automation system design laboratory	RM751Automation and PLC lab	Suggested by experts	2021 and 2022
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3. Course Outcome Change

<i>SN</i>	<i>Existing Code and Course Title</i>	<i>Proposed Change</i>	<i>Reasons for Change (Kindly justify using the programme outcomes)</i>	<i>Applicable to Batch</i>
1	-	-	-	-

4. Semester Change

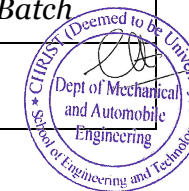
<i>SN</i>	<i>Existing Semester Details with Course Code</i>	<i>Proposed Change in Semester</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>

5. Credits Change

<i>SN</i>	<i>Existing Credit Details with Course Codes</i>	<i>Proposed Credit Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	RM532P Mobile Robotics=3	4	Added Laboratory part	2023 and 2024

6. Marks Change

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Marks Details</i>	<i>Proposed Marks Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-



7. CIA Pattern

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>

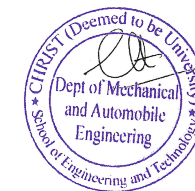
1	-	-	-	-	-
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8. ESE Pattern

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

9. Course Type Theory/Practical

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	RM532 Mobile Robotics	No Lab	RM532P Mobile Robotics	Lab part added	2024 and 2025

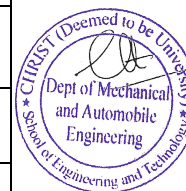


**Program Structure
SEMESTER I**

Sl. No	Type	Course No	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	BSC	MA131	Mathematics - I	3	0	2	100	3	0	1	4
2	BSC	CH132P	Chemistry	3	0	0	100	3	0	0	3
3	ESC	EC133P	Basic Electronics	3	0	2	100	3	0	1	4
4	ESC	CS134P	Computer Programming	3	0	2	100	3	0	1	4
5	ESC	ME135	Basic Mechanical Engineering	3	0	0	100	3	0	0	3
6	ESC	HS136	Technical English	0	0	2	50	0	0	1	1
7	HSMC	ME151	Workshop Practice Lab	2	0	0	50	2	0	0	2
8	HSMC	HOL111	Holistic Education-I	1	0	0	-	1	0	0	1
9	OEC	OEC171	Ability Enhancement course-1	0	0	2	50	0	0	1	1
Total				18	0	10	650	18	0	5	23

SEMESTER II

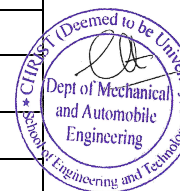
Sl. No	Type	Course No	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	BSC	MA231	Mathematics - II	3	0	2	100	3	0	1	4
2	BSC	PH232P	Physics	3	0	2	100	3	0	1	4
3	BSC	EE233P	Basic Electrical Engineering	2	0	0	100	2	0	0	2
4	ESC	CE234P	Basics of Civil Engineering & Engineering Mechanics	3	0	2	100	3	0	1	4
5	ESC	EG235	Engineering Graphics	3	0	0	100	3	0	0	3
6	ESC	BS236	Biology for Engineers	2	0	2	50	3	0	0	3
7	HSMC	HOL211	Holistic Education-II	1	0	0	-	1	0	0	1
8	OEC	OEC271	Ability Enhancement course-2	0	0	2	-	0	0	1	1



				Total	17	0	9	550	18	0	4	22
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III Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	BSC	MA335	Mathematics-III	3	0	0	100	3	0	0	3
2	PCC	RM332P	Analog and Digital Electronics	3	0	2	100	3	0	1	4
3	PCC	RM333P	Electrical Drives and Actuators	3	0	2	100	3	0	1	4
4	PCC	RM334P	Basic Concepts of Mechatronics and PLC	3	0	2	100	3	0	1	4
5	PCC	RM335	Manufacturing Technology	3	0	0	100	3	0	0	3
6	BSC	BS351	Engineering Biology Laboratory	0	0	2	50	0	0	1	1
7	HSMC	HOL311	Holistic Education-III	1	0	0	---	1	0	0	1
8	ESC	ES331P	AR/VR/MR or Sustainable Green Technology	1	0	2	50	1	0	1	2
9	OEC	OEC371	Ability Enhancement Course-3	0	0	1	-	0	0	1	1
10	MC	EVS 321	Environmental Science	2	0	0	---	0	0	0	--
			Total	19	0	11	600	17	0	6	23

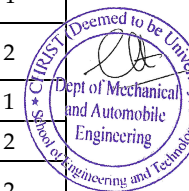
IV Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	RM431P	Embedded Systems	3	0	2	100	3	0	1	4
2	PCC	RM432P	Solid and Fluid Mechanics	3	0	2	100	3	0	1	4
3	PCC	RM433	Kinematics and Theory of Machines	3	0	0	100	3	0	0	3
4	PCC	RM434P	Industrial Robotics	3	0	2	100	3	0	1	4
5	HSMC		Humanities Electives-I	2	0	0	50	2	0	0	2
6	HSMC	HOL411	Holistic Education-IV	1	0	0	---	1	0	0	1
7	ESC	ES431P	AR/VR/MR or Sustainable Green Technology	2	0	0	50	2	0	0	2



8	OEC		Ability Enhancement Course-4	0	0	1	-	0	0	1	1
9	MC	CY421	Cyber Security	2	0	0	---	0	0	0	--
Total				19	0	7	500	17	0	4	21

V Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	RM531P	Data Acquisition and Robotic Vision	3	0	2	100	3	0	1	4
2	PCC	RM532P	Mobile Robotics	3	0	2	100	3	0	1	4
3	PCC	RM533	Design of Machine Elements	3	0	0	100	3	0	0	3
4	PCC	RM534P	Fundamentals of Python Programming and ROS	3	0	2	100	3	0	1	4
5	PCC	RM551	Digital Manufacturing Laboratory	0	0	2	50	0	0	1	1
6	HSMC		Humanities Electives-II	3	0	0	100	3	0	0	3
7	PCC	RM552	Robot Operating System Laboratory	0	0	2	50	0	0	1	1
8	ESC	ES531P	Robotics and Mechatronics or Sensors and IoT	2	0	0	50	2	0	0	2
9	OEC	OEC571	Ability Enhancement Course-5	0	0	1	-	0	0	1	1
10	MC	IC521	Indian Constitution	2	0	0	---	0	0	0	0
Total				19	0	13	650	17	0	6	23

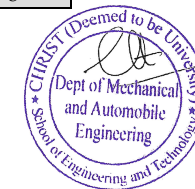
VI Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	RM631P	Fluid Power Automation	3	0	2	100	3	0	1	4
2	PCC	RM632	Control System	3	0	0	100	3	0	0	3
3	PCC	RM633	Internet of Robotic Things	3	0	0	100	3	0	0	3
4	PCC	RM634P	Artificial Intelligence and Machine Learning	3	0	2	100	3	0	1	4
5	OEC - Global		Global Elective	2	0	0	50	2	0	0	2
6	PCC	RM651	Modelling and Analysis Laboratory	0	0	2	50	0	0	1	1
8	Project	RM637	Service Learning	0	0	4	50	0	0	2	2
9	ESC	ES631P	Robotics and Mechatronics or Sensors and IoT	2	0	0	50	2	0	0	2
10	OEC	OEC671	Ability Enhancement Course-6	0	0	1	-	0	0	1	1
Total				16	0	11	600	16	0	6	22



VII Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PEC	RM741E	Program Elective *- 1	3	0	0	100	3	0	0	3
2	PEC	RM742E	Program Elective*- 2	3	0	0	100	3	0	0	3
3	PEC	RM743E	Program Elective* - 3	3	0	0	100	3	0	0	3
4	PEC	RM744E	Program Elective* - 4	3	0	0	100	3	0	0	3
5	HSMC		Humanities Electives*-III	3	0	0	100	3	0	0	3
6	PROJECT	RM781	Project Work Phase - I	0	0	4	100	0	0	4	4
7	INTERNSHIP	RM782	Internship*	0	0	4	50	0	0	2	2
Total				15	0	6	650	15	0	5	20

**VII sem Electives may be taken up from III to VI sem by fast Learners to be free during VII sem*

VIII Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PROJECT	RM881	Project Work Phase - II	0	0	16	300	0	0	8	8
Total				0	0	16	300	0	0	8	8

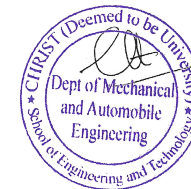


Program Electives

Sl. No	Robotics
1	Robot Dynamics and Control
2	Autonomous Vehicles
3	Under Water Robotics
4	Soft Robotics
5	NPTEL/Swayam*

Sl. No	Mechatronics
1	Mechatronics System Design
2	Mechatronics modelling of Hybrid Vehicles
3	Industry 4.0 in Manufacturing
4	Micro Electro Mechanical Systems
5	NPTEL/Swayam*

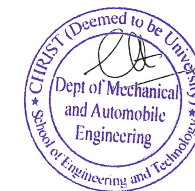
Sl. No	Mechanical
1	Material Science and Technology
2	Additive manufacturing
3	Product Design and Development
4	Sustainable Manufacturing
5	Computer Integrated Manufacturing Systems
6	Finite Element Method
7	Energy and Heat Transfer
8	Fuels Cell Technology



9	Mechanical Vibrations
10	Thermodynamics
11	NPTEL/Swayam*

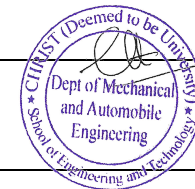
Sl. No	Others
1	Total Quality Management
2	Optimization Techniques
3	Operation Research
4	Industrial Engineering and Management
5	Process Planning and Cost Estimation
6	Supply Chain Management
7	Engineering Economics and Financial Management
8	NPTEL/Swayam*

Sl. No	Interdisciplinary
1	Data Structure
2	Mobile Application Development
3	Linear Integrated Circuits
4	Neural Networks and Fuzzy Systems
5	Wireless Sensors Networks for Robotics
6	Industrial Networking
7	Computer Vision and Deep Learning
8	Digital Twin and Industry 5.0
9	NPTEL/Swayam*



School: School of Engineering and Technology
 Department: Department of Mechanical and Automobile Engineering
 Programme: **B.Tech in Automobile Engineering**

SN	Particulars I: Change in	Indicate "Yes"/"No"	Particulars II	Brief Detail (if changes are incorporated)
1	Course Code/s	NO	Mention all the revised Course Codes:	
2	Course Title/s	NO	Mention all the revised Course Title/s along with the Course Code/s	
3.	Course Outcome	NO	Mention the course code where course outcome changes have been incorporated	
3	Semester/s	NO	Mention New Course Codes where Semester changes have been made	
4	Credits	NO	Mention Course Codes where Credit changes have been made	
5	Marks	NO	Mention the Course Codes where Marks changes have been made	
6	CIA Pattern	NO	Mention the Course Codes where CIA pattern changes have been made	
7	ESE Pattern	NO	Mention the Course Codes where ESE pattern changes have been made	



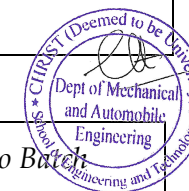
8	Course Type: Theory/Practical	NO	Mention the Course Codes where course type changes have been made	
9	Syllabus	YES	Mention the total % of syllabus change made in the programme (support document - Calculation of Syllabus change to be attached as an annexure): ME151/251 Workshop Practice lab- 20% ME135/235 Basic Mechanical Engineering- 20% AU431 Automotive Power Train= 20% AU433 Automotive Electrical and Electronic Systems- 20% AU436 Entrepreneurship Development- 20% AU734 Engineering Economics and Automotive Cost Estimation- 20%	

1. Course Code Change

SN	Existing Semester, Code and Course Title	Proposed Code	Reasons for Change	Applicable to Batch
	-	-	-	-

2. Course Title Change

SN	Existing Code and Course Title	Proposed Change	Reasons for Change	Applicable to Batch
	-	-	-	-



3. Course Outcome Change

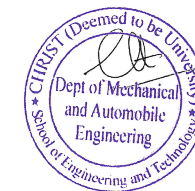
<i>SN</i>	<i>Existing Code and Course Title</i>	<i>Proposed Change</i>	<i>Reasons for Change (Kindly justify using the programme outcomes)</i>	<i>Applicable to Batch</i>
1	-	-	-	-
2	-	-	-	-

4. Semester Change

<i>SN</i>	<i>Existing Semester Details with Course Code</i>	<i>Proposed Change in Semester</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
	-	-	-	-

5. Credits Change

<i>SN</i>	<i>Existing Credit Details with Course Codes</i>	<i>Proposed Credit Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-
2	-	-	-	-



6. Marks Change

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Marks Details</i>	<i>Proposed Marks Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-
2	-	-	-	-	-

7. CIA Pattern

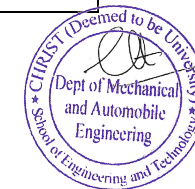
<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

8. ESE Pattern

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

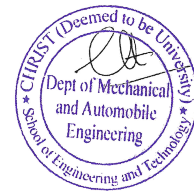
9. Course Type Theory/Practical

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

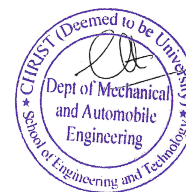


Programme Structure
B.Tech in Automobile Engineering

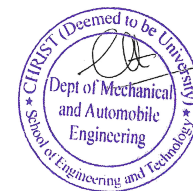
III Semester											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	BSC	MA331	Mathematics-III	3	0	0	100	3	0	0	3
2	PCC	AU332 P	Thermodynamics and Thermal Engineering	3	0	2	100	3	0	1	4
3	PCC	AU333 P	Strength of Materials	3	0	2	100	3	0	1	4
4	PCC	AU334 P	Fluid Mechanics and Machines	3	0	2	100	3	0	1	4
5	HSMC		Humanities Elective-I	2	0	0	50	2	0	0	2
6	HSMC	HOL31 1	Holistic Education-III	1	0	0	---	1	0	0	1
7	BSC	BS351	Engineering Biology Laboratory	0	0	2	50	0	0	1	1
8	ESC	ES331P	AR/VR/MR or Sustainable Green Technology	1	0	2	50	1	0	1	2
9	OEC	OEC37 1	Ability Enhancement Course-3	0	0	1	-	0	0	1	1
10	MC	EVS321	Environmental Science	2	0	0	---	0	0	0	--
Total				18	0	11	550	16	0	6	22



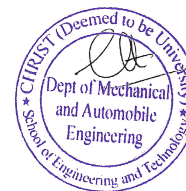
IV Semester											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	AU431 P	Automotive Materials and Metallurgy	3	0	2	100	3	0	1	4
2	PCC	AU432	Automotive Power Train	2	0	2	50	2	0	1	3
3	PCC	AU433 P	Manufacturing Process	3	0	2	100	3	0	1	4
4	PCC	AU434	Computer Aided Machine Drawing	3	0	0	100	3	0	0	3
5	PCC	AU435 P	Automotive Engines	3	0	2	100	3	0	1	4
6	HSMC	HOL41 1	Holistic Education-IV	1	0	0	---	1	0	0	1
7	ESC	ES431P	AR/VR/MR or Sustainable Green Technology	2	0	0	50	2	0	0	2
8	OEC	OEC47 1	Ability Enhancement Course-4	0	0	1	-	0	0	1	1
9	MC	CY421	Cyber Security	2	0	0	---	0	0	0	--
Total				19	0	9	500	17	0	5	22



V Semester											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	AU531	Kinematics & Theory of Machines	3	0	0	100	3	0	0	3
2	PCC	ME532	Design of Machine Elements	3	0	0	100	3	0	0	3
3	PCC	AU533	Automotive Chassis and Suspension	3	0	0	100	3	0	0	3
4	PCC	AU534P	Hybrid Electric Vehicles	3	0	2	100	3	0	1	4
5	HSMC		Humanities Elective-II	3	0	0	100	3	0	0	3
6	PCC	AU551	Foundry and Forging lab	0	0	2	50	0		1	1
7	PCC	AU552	Automotive Servicing and Tear down lab	0	0	2	50	0	0	1	1
8	ESC	ES531P	Robotics and Mechatronics or Sensors and IoT	2	0	0	50	2	0	0	2
9	OEC	OEC571	Ability Enhancement Course-5	0	0	1	-	0	0	1	1
10	MC	IC521	Indian Constitution	2	0	0	---	0	0	0	0
Total				19	0	7	650	17	0	4	21

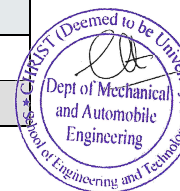


VI Semester											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	AU631P	Finite Element Method	3	0	2	100	3	0	1	4
2	PCC	AU632	Design of Automotive Components	3	0	0	100	3	0	0	3
3	PCC	AU633	Vehicle Body Engineering and Safety	3	0	0	100	3	0	0	3
4	PCC	AU634	Noise Vibration and Harshness	3	0	0	100	3	0	0	3
5	PCC	AU635	Automotive Electrical and Electronics system	3	0	0	100	3	0	0	3
6	PCC	AU651	Advanced Manufacturing Lab	0	0	2	50	0	0	1	1
7	GE		Global Elective	2	0	0	50	2	0	0	2
8	ESC	ES631P	Robotics and Mechatronics or Sensors and IoT	2	0	0	50	2	0	0	2
9	OEC	OEC671	Ability Enhancement Course-6	0	0	1	-	0	0	1	1
10	Project	ME637	Service Learning	0	0	4	50	0	0	2	2
			Total	19	0	9	500	19	0	5	24



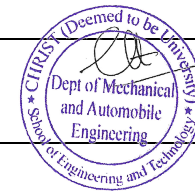
VII Semester											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PEC	AU741E	Program elective*-1	3	0	0	100	3	0	0	3
2	PEC	AU741E	Program Elective*-2	3	0	0	100	3	0	0	3
3	PEC	AU742E	Program Elective*-3	3	0	0	100	3	0	0	3
4	PEC	AU744E	Program Elective*-4	3	0	0	100	3	0	0	3
5	HSMC		Humanities Elective*-III	3	0	0	100	2	0	0	3
6	PROJECT	AU781	Project Work Phase-I	0	0	4	100	0	0	4	4
7	INTERNSHIP	AU782	Internship*	0	0	2	50	0	0	2	2
			Total	15	0	6	650	14	0	6	21

VIII Semester											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PROJ	AU881	Project Work Phase-II	0	0	16	300	0	0	8	8
			Total	0	0	16	300	0	0	8	8



School: School of Engineering and Technology
 Department: Department of Mechanical and Automobile Engineering
 Programme: M.Tech in Machine Design

SN	Particulars I: Change in	Indicate "Yes"/ "No"	Particulars II	Brief Detail (if changes are incorporated)
1	Course Code/s	NO	Mention all the revised Course Codes:	-
2	Course Title/s	NO	Mention all the revised Course Title/s along with the Course Code/s	-
3.	Course Outcome	NO	Mention the course code where course outcome changes have been incorporated	-
3	Semester/s	NO	Mention New Course Codes where Semester changes have been made	-
4	Credits	NO	Mention Course Codes where Credit changes have been made	-
5	Marks	NO	Mention the Course Codes where Marks changes have been made	-
6	CIA Pattern	NO	Mention the Course Codes where CIA pattern changes have been made	-
7	ESE Pattern	NO	Mention the Course Codes where ESE pattern changes have been made	-



8	Course Type: Theory/Practical	NO	Mention the Course Codes where course type changes have been made	
9	Syllabus	NO	Mention the total % of syllabus change made in the programme (support document - Calculation of Syllabus change to be attached as an annexure):	

Section II (Detailed)

Note: In Section II, do not combine the tables. If a particular field table is not applicable, please leave it blank.

1. Course Code Change

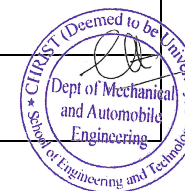
SN	Existing Semester, Code and Course Title	Proposed Code	Reasons for Change	Applicable to Batch
	-	-	-	-

2. Course Title Change

SN	Existing Code and Course Title	Proposed Change	Reasons for Change	Applicable to Batch
	-	-	-	-

3. Course Outcome Change

SN	Existing Code and Course Title	Proposed Change	Reasons for Change (Kindly justify using the programme outcomes)	Applicable to Batch
1	-	-	-	-



4. Semester Change

<i>SN</i>	<i>Existing Semester Details with Course Code</i>	<i>Proposed Change in Semester</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
	-	-	-	-

5. Credits Change

<i>SN</i>	<i>Existing Credit Details with Course Codes</i>	<i>Proposed Credit Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-

6. Marks Change

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Marks Details</i>	<i>Proposed Marks Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

7. CIA Pattern

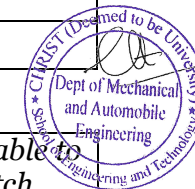
<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

8. ESE Pattern

<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-

9. Course Type Theory/Practical

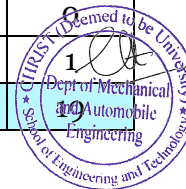
<i>SN</i>	<i>Existing Code and Course</i>	<i>Existing Details</i>	<i>Proposed Change</i>	<i>Reasons for Change</i>	<i>Applicable to Batch</i>
1	-	-	-	-	-



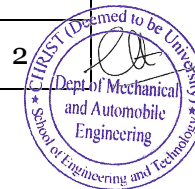
Programme Structure

M.Tech in Machine Design

I Semester							
Sl.No	Course Code	Course Name	L	T	P	Hrs/Week	Credits
1	MTME131	Advanced Design of Mechanical System	3	0	0	3	3
2	MTME132	Theory of Applied Stress	3	0	0	3	3
3	MTME133E	1. Advanced Engineering Material 2. Mathematical Methods in Engineering 3. Computer Aided Design	3	0	0	3	3
4	MTME134E	1. Experimental Stress Analysis 2. Robotics 3. Optimization Techniques in Design 4. Design for Manufacturing	3	0	0	3	3
5	MTME151	Advanced CAD Laboratory	2	0	0	2	2
6	MTME152	Simulation Laboratory	0	0	4	4	2
7	MTME135	Research Methodology and IPR	0	0	4	4	2
8	Audit	Audit-I	2	0	0	2	0
9	HOL111K	Holistic Education - I	1	0	0	1	1
Total			17	0	8	25	

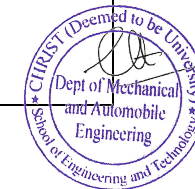


II Semester							
Sl.No	Course Code	Course Name	L	T	P	Hrs/Week	Credits
1	MTME231	Advanced Finite Element method	3	0	0	3	3
2	MTME232	Advanced Theory of Vibrations	3	0	0	3	3
3	MTME233E	1.Tribology in Bearing Design	3	0	0	3	3
		2.Condition Based Monitoring					
		3.Theory of Plates and shells					
4	MTME234E	1. Product Design and Value Engineering	3	0	0	3	3
		Design for Manufacturing					
		2.Analysis and Synthesis of Mechanism					
		3.Multi body Dynamics					
		4. Computer Simulation and Machines					
5	MTME251	Advanced Design Laboratory	0	0	4	4	2



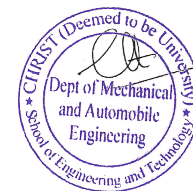
6	MTME252	Analysis Laboratory	0	0	4	4	2
7	MTME271	Mini Project	0	0	4	4	2
8	Audit	Audit-II	2	0	0	2	0
9	HOL211K	Holistic Education - II					
		Total	15	0	12	27	19

III Semester							
Sl.No	Course Code	Course Name	L	T	P	Hrs/Week	Credits
1	MTME331E	1.Fracture Mechanics	3	0	0	3	3
		2.Advanced Metallurgy					
		3. Machine Tool Design					
		4. Vibration and Condition Monitoring					
2	MTME332E	1.Business Analytics	3	0	0	3	3
	(Open Elective)	2.Industrial Safety					
		3.Operation Research					
		4.Cost Management of Engineering Projects					
		5.Mechanics of Composite material					



		6.Renewable Energy					
		7. Fundamentals of python programming					
3	MTME371	Dissertation Phase-I	0	0	20	20	10
		Total	6	0	20	26	16

IV Semester							
Sl.No	Course Code	Course Name	L	T	P	Hrs/Week	Credits
1	MTME471	Dissertation Phase-II	0	0	32	32	16
		Total	0	0	32	32	16



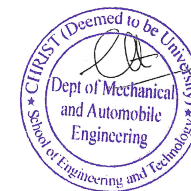
School: School of Engineering and Technology
 Department: Mechanical and Automobile Engineering
 Programme: B.Tech in Mechanical Engineering



CHRIST
 (DEEMED TO BE UNIVERSITY)
 BANGALORE, INDIA

Semester: I/II
 Course: Workshop Practice lab
 Course Code: **ME151/251**

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
ME151/ME251 Workshop Practice	Demonstration •Study and demonstration of Smithy and Lathe. •Study and demonstration of MIG welding. •Study and demonstration of TIG welding. •Study and demonstration of 3D printing.	Demonstration •Study and demonstration of Smithy and Lathe. • Study and demonstration of Automotive systems. •Study and demonstration of MIG welding. •Study and demonstration of TIG welding. •Study and demonstration of 3D printing.	Inclusion of Bosch Automotive Lab equipments for the understanding of students in wheel balancing, tyre replacement, ac cooling systems.	Applicable for Batch 2024-25

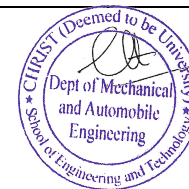


Semester: I/II
 Course: Basic Mechanical Engineering
 Course Code: ME135/235

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-2 Unit-4	Unit-2 Energy Convertors UNIT-4 Introduction Robotics	Unit-2 Introduction IC Engines and Electric Vehicles UNIT-4 Introduction to Robotics and Mechatronics	New emerging topics	Applicable for Batch 2024-2025

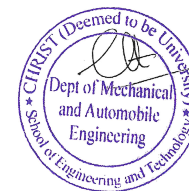
Semester: IV
 Course: Entrepreneurship Development
 Course Code: ME 434

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-4	UNIT-4: Financing and Accounting Need	UNIT-4: Financing and Accounting Need Added new topics Marketing - Introduction to Marketing management, Marketing Mix- 4P's and Services Marketing.	Marketing is one of the major and inevitable topics in subject.	Applicable for Batch 2023-2024



Semester: VII
 Course: Rapid Prototyping
 Course Code: ME744E4

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-3	Unit-3: Concepts Modelers and Rapid Tooling Unit-4: Rapid tooling Techniques	. Unit-3: Concepts Modelers and Rapid Tooling Added new topics Copper polyamide, Rapid Tool, DMILS, Prometal, Sand casting tooling, Laminate tooling soft Tooling vs. hard tooling. Unit-4: Rapid tooling Techniques Added new topics Additive Manufacturing processes – Advanced materials: Electronic Materials, Bioprinting, Food Printing	Addition of advanced topics in Unit-4 to be made known to students as per Industrial Applications.	Applicable for all Batch

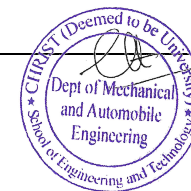


School: School of Engineering and Technology
 Department: Mechanical and Automobile Engineering
 Programme: B.Tech in Robotics and Mechatronics

Semester: I/II
 Course: Workshop Practice lab
 Course Code: ME151/251

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
ME151/ME251 Workshop Practice	Demonstration <ul style="list-style-type: none"> •Study and demonstration of Smithy and Lathe. •Study and demonstration of MIG welding. •Study and demonstration of TIG welding. •Study and demonstration of 3D printing. 	Demonstration <ul style="list-style-type: none"> •Study and demonstration of Smithy and Lathe. •Study and demonstration of Automotive systems. •Study and demonstration of MIG welding. •Study and demonstration of TIG welding. •Study and demonstration of 3D printing. 	Inclusion of Bosch Automotive Lab equipments for the understanding of students in wheel balancing, tyre replacement, ac cooling systems.	Applicable for Batch 2024-25

Semester: I/II

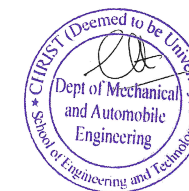


Course: Basic Mechanical Engineering
 Course Code: ME135/235

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-2 Unit-4	Unit-2 Energy Convertors UNIT-4 Introduction Robotics	Unit-2 Introduction IC Engines and Electric Vehicles UNIT-4 Introduction to Robotics and Mechatronics	New emerging topics	Applicable for Batch 2024-2025

Semester: III
 Course: Electrical Machines and Drives
 Course Code: RM333P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
All Units	Electrical Machines and Drives	Electrical Drives and Actuators	Basics of Servo and Stepper motors principles for the Robotics and Mechatronics students very important	Applicable for Batch 2023-24, 2024-25



Semester: III

Course: Basic concepts of Mechatronics and PLC

Course Code: RM334P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-4 Unit-5	Unit IV: Smart Materials Unit V: Programmable Logic Controllers:	Unit IV: Programmable Logic Controllers Unit V: Basics of PLC Programming	Industry demands PLC Programming	Applicable for Batch 2023-24, 2024-25

Semester: IV

Course: Industrial Robotics

Course Code: RM434P

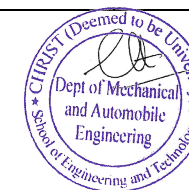
Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
All units	Title: Robotics and Automation	Title: Industrial Robotics	Repetition of the topics	Applicable for Batch 2023-24, 2024-25

Semester: V

Course: Fundamentals of Python Programming and ROS

Course Code: RM534P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-5	Unit V: Design with classes and Functions	Unit V: Robot Operating System	Industry demands ROS	Applicable for Batch 2024-25 and 2023-24

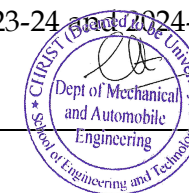


Semester: V
 Course: Data Acquisition and Robotic Vision
 Course Code: RM531P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
All Units	Title: Data Acquisition and Vision System in Robotics Unit1: Introduction and Sensing Element Unit2: Signal Conditioning Unit3: Interfacing circuits Unit4: Data Acquisition system Unit5: Machine Vision	Title: Data Acquisition and Robotic Vision Unit1: Introduction to data acquisition Unit2: Sensor for robotic vision Unit3: Data acquisition technique Unit4: Image Processing Fundamentals Unit5: Integration of Data Acquisition and Robotic Vision	To provide the digital layer given more importance to Vision part	Applicable for Batch 2022-23, 2023-24, 2024-25

Semester: V
 Course: Robot Operating System Laboratory
 Course Code: RM552

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
New lab	Automation System Design Laboratory	Robot Operating Systems	Automation part studying in Fluid Power system course, hence introduced ROS lab as per industry needs	2023-24 and 2024-25

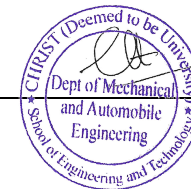


Semester: V
 Course: Mobile Robotics
 Course Code: RM532P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
New lab	Mobile Robotics	Practical part included	Lab part added to theory	Applicable for Batch 2024-25

Semester: VI
 Course: Mobile Application Development
 Course Code: RM644E3

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-2 Unit-3 Unit-4 Unit-5	Unit2: Basic Design Unit-3: Advanced Design Unit-4: Technology I - Android Unit-5: Technology II - IOS	Unit -2 Cross-Platform App Development using Ionic Unit 3 : Introduction to Kotlin Programming Unit 4: Introduction - Establishing the development environment - Android architecture - Activities and views - Interacting with UI - Persisting data using SQLite.	To understand the app development from the basics, To understand the sensors in android which can be used in developing the robotics	Applicable for Batch 2024-25 2023-24 2022-23



		Unit 5: Android Sensors		
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Semester: VI

Course: Internet of Robotic Things

Course Code: RM633

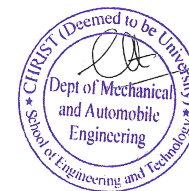
Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
New Course	Field and Service Robotics	Internet of Robotic Things	Industry demands IoT concepts for the robotics application	Applicable for Batch 2023-24 and 2024-25

Semester: VII

Course: Internet of Robotic Things

Course Code: RM751

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
New lab	Automation system design laboratory	Automation and PLC laboratory	Industry demands PLC programming	Applicable for Batch 2021-22 and 2022-23



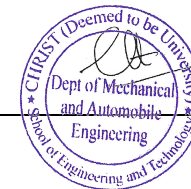


CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE, INDIA

School: School of Engineering and Technology
Department: Mechanical and Automobile Engineering
Programme: B.Tech in Automobile Engineering

Semester: I/II
Course: Workshop Practice lab
Course Code: **ME151/251**

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
ME151/ME251 Workshop Practice	Demonstration •Study and demonstration of Smithy and Lathe. •Study and demonstration of MIG welding. •Study and demonstration of TIG welding. •Study and demonstration of 3D printing.	Demonstration •Study and demonstration of Smithy and Lathe. • Study and demonstration of Automotive systems. •Study and demonstration of MIG welding. •Study and demonstration of TIG welding. •Study and demonstration of 3D printing.	Inclusion of Bosch Automotive Lab equipments for the understanding of students in wheel balancing, tyre replacement, ac cooling systems.	2024-25



Semester: I/II

Course: Basic Mechanical Engineering

Course Code: ME135/235

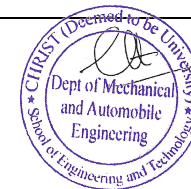
Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
UNIT-2 UNIT-4	Unit-2 Energy Convertors UNIT-4 Introduction Robotics	Unit-2 Introduction IC Engines and Electric Vehicles UNIT-4 Introduction to Robotics and Mechatronics	New emerging topics	2024-2025

Semester: IV

Course: Entrepreneurship Development

Course Code: AU436

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
UNIT-4	UNIT-4: Financing and Accounting Need	UNIT-4: Financing and Accounting Need Added new topics Marketing - Introduction to Marketing management, Marketing Mix- 4P's and Services Marketing.	Marketing is one of the major and inevitable topics in subject.	2023-2024



Semester: IV

Course: Automotive power train

Course Code: AU431

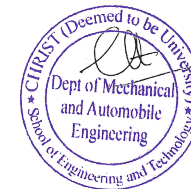
Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
UNIT-5	Unit5: Automatic Transmission	Unit5: Automatic Transmission Fundamentals of Power train for Hybrid vehicles, Hydrogen powered vehicles, Fuel cell powered vehicles	CurrAdded new topics to curriculum updating curriculum Updation towards existing technology	2023-2024

Semester: IV

Course: Automotive electrical and electric systems

Course Code: AU433P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
UNIT-5	Unit5: Sensors and Actuators	Unit5: Sensors and Actuators Implementation of IOT and AI in Automotive applications	Added new topics to curriculum updating towards recent advancements in Automobile vehicles	2023-24



Semester: VII

Course: Engineering Economics and Automotive Cost Estimation

Course Code: AU433P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
UNIT-5	Unit5: Cost Estimation Estimation of material cost and manufacturing cost of simple automotive components, Estimation of cost of overhauling and servicing of automotive components - cylinder, valves, valve seats, crankshaft, FIP, Brake drum, body building, different types of repairs, Numerical problems.	Unit5: Cost Estimation Cost estimation tools. Case studies on automobile cost estimation	The existing content has become obsolete	2022-23

