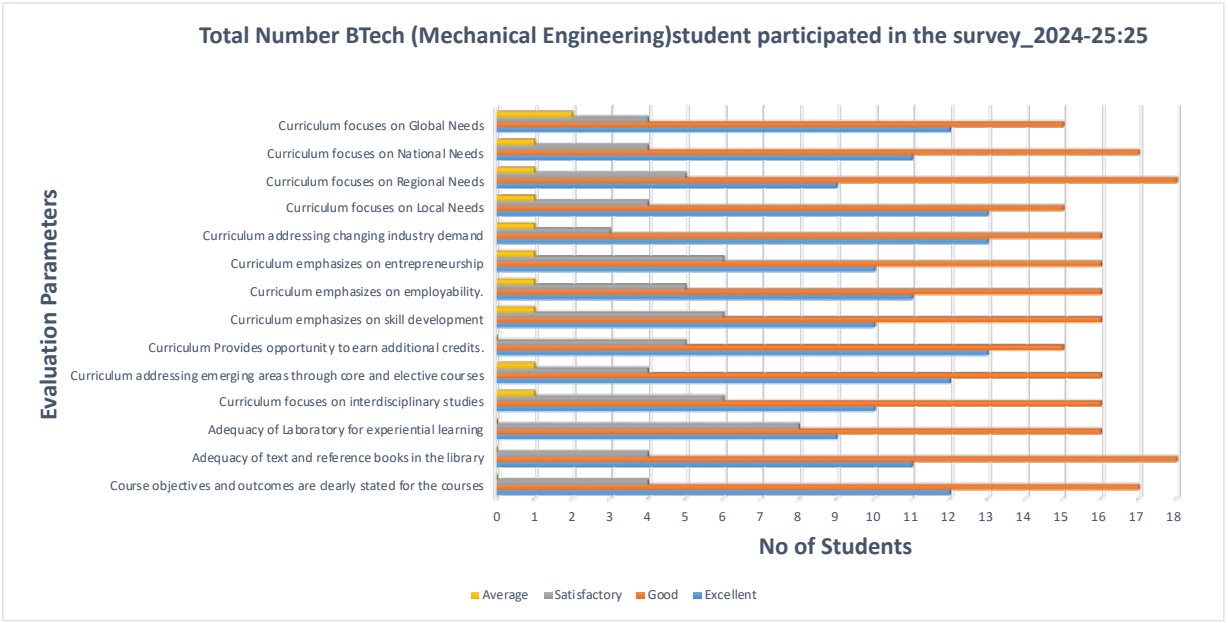
School of Engineering and Technology
Department of Mechanical and Automobile Engineering
Curriculum Feedback Analysis 2024-25

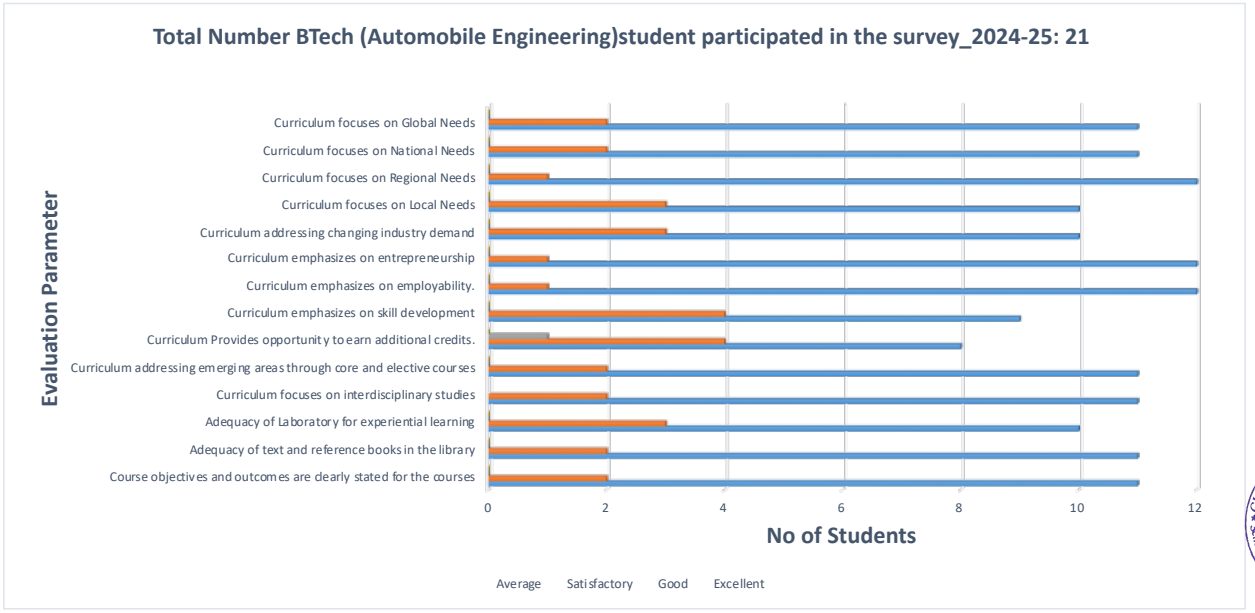
The Department of Mechanical and Automobile Engineering revises its curriculum for the programmes offered every year based on the relevant trends in industry and emerging technologies by considering the feedback provided by all its stakeholders on the curriculum. This report is an analysis of the feedback 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 99 students, 27 faculty members, 17 alumni, 58 employers,8 External experts and 14 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 99 students. Out of 99 students 25 students from BTech Mechanical Engineering, 21 students from BTech Automobile Engineering ,47 students from BTech Robotics and Mechatronics and 06 students from M Tech machine designed Participated. The questionnaire and the number of responses for each year of study was as follows .


Total Number BTech (Mechanical Engineering)student participated in the survey_2024-25:25
Evaluation Parameters
Curriculum focuses on Global Needs
Curriculum focuses on National Needs
Curriculum focuses on Regional Needs
Curriculum focuses on Local Needs
Curriculum addressing changing industry demand
Curriculum emphasizes on entrepreneurship
Curriculum emphasizes on employability.
Curriculum emphasizes on skill development
Curriculum Provides opportunity to earn additional credits.
Curriculum addressing emerging areas through core and elective courses
Curriculum focuses on interdisciplinary studies
Adequacy of Laboratory for experiential learning
Adequacy of text and reference books in the library
Course objectives and outcomes are dearly stated for the courses
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
No of Students
Average
Satisfactory
Good
Excellent


Total Number BTech (Automobile Engineering)student participated in the survey_2024-25: 21
Evaluation Parameter
Curriculum focuses on Global Needs
Curriculum focuses on National Needs
Curriculum focuses on Regional Needs
Curriculum focuses on Local Needs
Curriculum addressing changing industry demand
Curriculum emphasizes on entrepreneurship
Curriculum emphasizes on employability.
Curriculum emphasizes on skill development
Curriculum Provides opportunity to earn additional credits.
Curriculum addressing emerging areas through core and elective courses
Curriculum focuses on interdisciplinary studies
Adequacy of Laboratory for experiential learning
Adequacy of text and reference books in the library
Course objectives and outcomes are dearly stated for the courses
0 2 4 6 8 10 12
No of Students
Average
Satisfactory
Good
Excellent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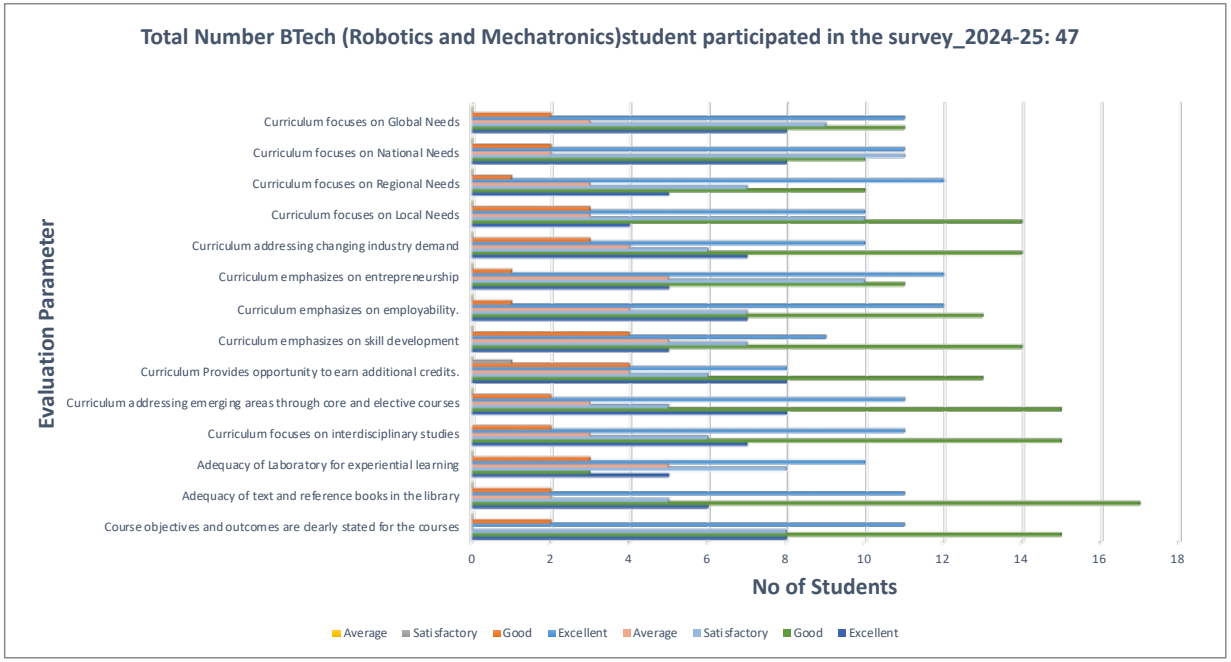
Dept of Mechanical and Automobile Engineering
School of Engineering and Technology



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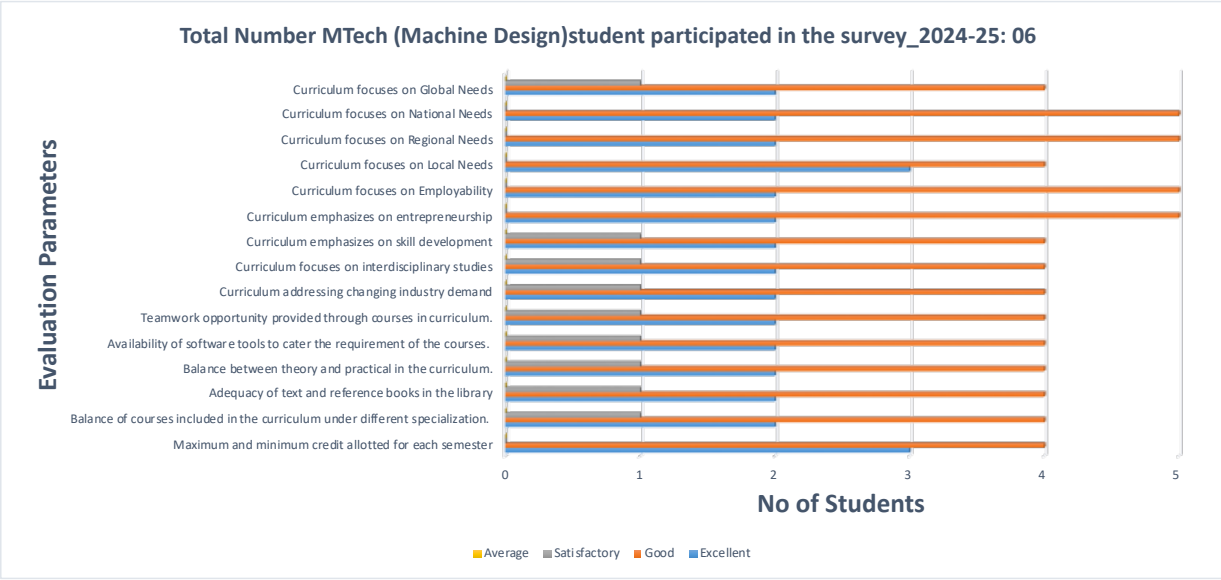

The graph above represents student feedback collected through a structured questionnaire, specifically reflecting their overall satisfaction with the current curriculum across all academic years. According to the data, approximately 95% of the students expressed satisfaction with the syllabus being offered.

Upon further analysis of the general comments and suggestions provided by the students, the following key insights were identified:

For the **B.Tech programs in Mechanical Engineering, Automobile Engineering, Robotics and Mechatronics**, as well as the **M.Tech program in Machine Design**, no major concerns were highlighted in the feedback. However, students did provide constructive suggestions aimed at enhancing the curriculum.

The primary suggestion is summarized below:

- **Curriculum Alignment with Industry Needs:**

Students recommended a stronger orientation of the curriculum towards current industry demands, with increased emphasis on practical, hands-on learning experiences.

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- **Software-Based Training Integration:**
There were proposals to incorporate software tools and applications into core areas such as manufacturing, thermal engineering, and design, to aid in better conceptual understanding and real-world application.

- **Industry-Relevant Content and Entrepreneurship:**
Students suggested the inclusion of modules or discussions focused on real-world industry challenges, case studies, and potential solutions. Additionally, they expressed interest in exploring entrepreneurship opportunities within relevant subjects.

- **Automation and Programming Skills:**
The integration of automation concepts aligned with industry practices was recommended, along with the inclusion of programming languages such as Python and Java to enhance students' technical competencies.

Faculty Feedback on Curriculum

The strength of any higher education institution lies in its faculty members, whose insights are crucial for effective curriculum evaluation and continuous improvement. As part of the department's regular process, feedback is systematically collected from faculty members responsible for delivering various courses. This section presents an analysis based on the responses to a structured questionnaire circulated among 27 faculty members. The feedback specifically pertains to the courses taught during the even semester of 2023–24 and the odd semester of 2024–25, with a focus on key questions and solicited suggestions or recommendations for curriculum enhancement.

Key Suggestions and Recommendations from Faculty Feedback:

- Greater emphasis should be placed on research activities, along with the integration of advanced design analysis within the curriculum.
- Subjects related to sensor technologies for automotive applications should be introduced.
- Concepts such as smart factories and digital twins should be incorporated into relevant courses to align with emerging industry trends.
- Faculty members are encouraged to include industry-relevant topics to better prepare students for practical challenges.
- There is a need to introduce more interdisciplinary subjects to broaden the students' knowledge base across domains.
- Industrial IoT (Internet of Things) modules should be added to enhance technical competencies in smart manufacturing.
- Topics under digital manufacturing should be expanded to cover advanced welding techniques.
- Stronger industry collaboration is needed for internships and placements; a few courses may require restructuring to better meet industry expectations.
- The inclusion of case studies as part of the teaching-learning process was recommended to improve content delivery and align with industry standards.

Feedback from Alumni, Parents and External Experts

Feedback from alumni, industry experts, parents, faculty members, and students plays a crucial role in strengthening and enhancing the curriculum. It ensures that the education imparted is outcome-based, aligning with the evolving needs of students and meeting the expectations of all stakeholders. We sincerely thank our stakeholders for their time and for providing valuable feedback.

In addition to the feedback collected from faculty members, inputs were also gathered from alumni, employers, and parents. The key suggestions provided by these stakeholders are summarized below.

- While the overall syllabus is strong, there is a need to better align it with current industry requirements.
- It is recommended to introduce postgraduate programs focusing on Electric Vehicle (EV) Technology.
- The curriculum should place greater emphasis on industry-driven skills and knowledge areas.
- Audit courses on Artificial Intelligence (AI) and Machine Learning (ML) should be added to enhance student competencies in emerging technologies.
- Greater focus should be placed on electronics, remote control technologies, and automation within the curriculum.
- A future-ready Automobile Engineering curriculum should integrate fundamental principles with new-age technologies, foster industry collaboration, and provide extensive hands-on experience. Core focus areas should include electric mobility, AI-driven vehicles, and sustainable design to prepare students for the rapidly evolving automotive sector.
- Courses on ERP systems, contracts management, business ethics, and corporate communications should be incorporated into the curriculum.
- There is a need to link the syllabus more closely with AI and ML to enhance student placement opportunities and meet industry demands.
- The current syllabus is well-structured, balancing theory and practice. However, integrating advanced topics such as AI and ML in the mechanical and automotive domains, along with increased project-based assessments and internships, would better prepare students for real-world challenges.
- To maintain a competitive edge, it is recommended to add emerging topics such as digital twins, cyber-physical systems, and advanced propulsion technologies. Expanding internship opportunities, including international internships, would further boost student readiness.
- The curriculum effectively balances credits, theoretical and practical components, and specialization courses while promoting skill development, employability, entrepreneurship, and interdisciplinary learning. However, enhancing hands-on training opportunities, offering more certifications, and providing entrepreneurial support could further strengthen its impact.
- In the Research Methodology and Intellectual Property Rights (IPR) syllabus, it is suggested to increase the emphasis on patents, given their critical importance in research and innovation, compared to the current greater focus on trademarks and copyrights.

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 2025-26 to be held in the month of February/March 2025.

School of Engineering and Technology
Department of Mechanical and Automobile Engineering

Action Taken Report on Curriculum Feedback Analysis 2024-25

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 (BS) 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.

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

Semester: III
Course: Manufacturing Processes
Course Code: ME334P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
V	Jigs and Fixtures	Jigs, Fixture and Measurements	New Topic Added	Applicable for Batch 2024 and 2025

Semester: IV
Course: Engineering Materials and Applications
Course Code: ME432

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
II	Phase Diagrams	Mechanical Properties and Testing	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025
III	Ferrous and Non-ferrous material & Surface modification	Metal and Alloys, Heat Treatment	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025
IV	Static Failure Theories & Fracture Mechanics	Polymers, Ceramics and Composites	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025
V	Standards of Measurement & Mechanical Property Measurement	Electrical and Magnetic Materials	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025

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Semester: ME433P
Course: Fluid Mechanics and Machinery
Course Code: ME334P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
II	Fluid Dynamics , Dimensional Analysis and Losses in pipes	**Buoyancy & Floatation, Fluid Kinematics**	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025
III	Hydraulic Turbines	**Fluid Dynamics and Losses in Pipes**	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025
IV	Hydraulic Pumps	**Dimensional analysis, and Flow Past Immerse bodies**	Revamped the syllabus as suggestion by BOS expert	Applicable for Batch 2024 and 2025

Semester: VII
Course: Advanced Automotive Engineering
Course Code: ME741E6

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
I	Introduction	Introduction and Supply Systems For SI and CI Engine	New Topic Added	Applicable for Batch 2023 and 2024

School: School of Engineering and Technology
Department: Mechanical Engineering
Programme: Robotics and Mechatronics

Semester: IV
Course: Strength of Materials
Course Code: RM432P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
III	Fluid – definition, real and ideal fluids - Distinction between solid and fluid - Units and dimensions - Properties of fluids - density, specific weight, specific volume, specific gravity, viscosity, capillary and surface tension, compressibility and vapour pressure – Temperature influence on fluid properties - Fluid statics – hydrostablic pressure concept and distribution on plane surfaces – Absolute and gauge pressures – pressure measurements by manometers and pressure gauges. Fluid Kinematics - Flow visualization - types of flow – lines of flow - velocity field and acceleration	**Deflection of Beams** - Relationship between moment, slope and deflection, Double integration method, Macaulay's method. Use of these methods to calculate slope and deflection for cantilever and simply supported beams subjected to point load, UDL, UVL and Couple.	Suggested by Stakeholders	Applicable for Batch 2024 and 2025
IV	Fluid dynamics – Euler's equation of motion – Euler's equation of motion along a streamline – Bernoulli equation and its application – Venturi, orifice and flow nozzle meters – pitot tube – notches and weirs –	**Simple Torsional Theory -** Derivation of torsion equation and its assumptions. Applications of the equation of the hollow and solid circular shafts, torsional rigidity, Combined torsion.	Suggested by Stakeholders	

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	Rectangular, Triangular and trapezoidal wears. Fluid flow - flow through pipes - Darcy -weisbach equation - friction factor – major and minor losses – Hydraulic and energy gradients – Flow thorough pipes in series and in parallel – Equivalent pipes			
V	Hydro turbines - definition, types and classifications – Pelton, Francis and Kaplan turbines - velocity triangles – and simple applications - work done - specific speed – efficiency. Pumps - definition and classifications - Centrifugal pumps - classifications, and working principle - velocity triangles, work done – specific speed – Efficiency. Reciprocating pump – working principle and classification - indicator diagram - Air vessels - cavitations in pumps	**Thick and Thin Cylinders** - Axial and hoop stresses in cylinders subjected to internal pressure, deformation of thick and thin cylinders, deformation in spherical shells subjected to internal pressure.	Suggested by Stakeholders	

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

Semester: IV
Course: Manufacturing process
Course Code: AU433P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
V	Jigs and Fixtures	Jigs, Fixture and Measurements	New Topic Added	Applicable for Batch 2024 and 2025

Semester: IV
Course: Automotive Engines
Course Code: AU435P

Unit	Existing Syllabus	Proposed Syllabus	Reasons for Change	Remarks
Unit-5	Unit-5: MEASUREMENT TECHNIQUES, EMISSION STANDARDS AND TEST PROCEDURES NDIR, FID, Chemiluminescent analyzers, Gas Chromatograph, smoke meters, emission standards, driving cycles - USA, Japan, Euro and India. Test procedures - ECE, FTP Tests. SHED Test – Chassis dynamometers, dilution tunnels. List of Experiments (If any): PART - A	Unit-5: Hybrid Technology, Alternative and emergy fuels for IC engines List of Experiments (If any): PART - A 1. Dismantling and study of Multi-cylinder Petrol/Diesel Engine 2. Assembling of Multi-cylinder Petrol/Diesel Engines.	Hybrid Technology new topics are introduced. New experiments are Added	Applicable for Batch 2024 and 2025

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	1. Dismantling and study of Multi-cylinder Petrol/Diesel Engine 2. Assembling of Multi-cylinder Petrol/Diesel Engines. 3. Study of Petrol/Diesel engine fuel system 4. Performance of CI and SI engine 5. Temperature dependence of viscosity of lubrication oil by Redwood Viscometer. 6. Viscosity Index of lubricating oil by Saybott Viscometer. 7. Flash and Fire points of Diesel, K-Oil, Bio-Diesel. 8. Flash and Fire points of lubricants. 9. Drop point of grease and mechanical penetration in grease. 10. Calorific value of liquid fuel. 11. Calorific value of gaseous fuel 12. Study of semi-solid lubrication in various Automobile Unit & Joints 13. Study of analytical equipment for oil analysis. 14. Study of lubrication in transmission, final drive, steering gearbox.	3. Study of Petrol/Diesel engine fuel supply system 4. Determination of Flashpoint and Fire point of lubricating oil using Abel Pensky and Martin [closed] / Cleavland [Open Cup] Apparatus. 5. Determination of Calorific value of solid/liquid fuels. 6. Determination of viscosity of a lubricating oil using Redwoods and Saybolts viscometer. 7.Valve Timing/port opening diagram of an I.C. engine [4 stroke/2 stroke]. 8. Performance Tests on I.C. Engines, Calculations of IP, BP, Thermal efficiencies, SFC, FP, heat balance sheet for (a) Four Stroke Diesel Engine. (b) Four Stroke Petrol Engine. (c) Multi Cylinder Diesel/Petrol Engine [Morse test]. (d) Two stroke Petrol Engine. (e) Variable Compression Ratio I.C. Engine.		

Annexure B
Changes in Curriculum

School: School of Engineering and Technology
Department: Mechanical 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**	ME432-Engineering Materials and Applications ME433P- Fluid Mechanics and Machinery	
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	**Yes**	ME435-Computer Aided Machine Drawing-02	
5	Marks	**Yes**	ME435-Computer Aided Machine Drawing-50Marks	
6	CIA Pattern		Mention the Course Codes where CIA pattern changes have been made	
7	ESE Pattern		Mention the Course Codes where ESE pattern changes have been made	
8	Course Type: Theory/Practical		Mention the Course Codes where course type changes have been made	
9	Syllabus	**Yes**	20%- ME334P- Manufacturing Processes 80%- ME432- Engineering Materials and Applications 60%- ME433P- Fluid Mechanics and Machinery 20%- ME741E6- Advanced Automotive Engineering 100%- ME436P- Modern Internal Combustion Engines 100%- ME742E6- Design Thinking 100%- ME742E9- Advanced Metallurgy for Engineers	Syllabus is revised New courses are introduced

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1. Course Code Change

SN	*Existing Semester, Code and Course Title*	*Proposed Code*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-

2. Course Title Change

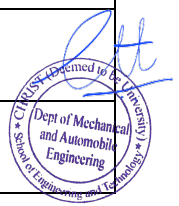
SN	*Existing Code and Course Title*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	ME432P- Material Engineering and Metrology	ME432-Engineering Materials and Applications	Suggested by stakeholders	2024-28, 2025-29
2	ME433P- Fluid Mechanics and Machines	ME433P- Fluid Mechanics and Machinery	Suggested by stakeholders	2024-28, 2025-29

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	-	-	-	-
2	-	-	-	-

4. Semester Change

SN	*Existing Semester Details with Course Code*	*Proposed Change in Semester*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-



5. Credits Change

SN	*Existing Credit Details with Course Codes*	*Proposed Credit Change*	*Reasons for Change*	*Applicable to Batch*
1	ME435-Computer Aided Machine Drawing-03	02	To balance basic course	2024-25, and 2025-59

6. Marks Change

SN	*Existing Code and Course*	*Existing Marks Details*	*Proposed Marks Change*	*Reasons for Change*	*Applicable to Batch*
1	ME435-Computer Aided Machine Drawing	100	50	To balance basic course	2024-25, and 2025-59

7. CIA Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

8. ESE Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

9. Course Type Theory/Practical

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

Programme structure

I SEMESTER – CHEMISTRY CYCLE

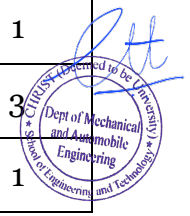
Sl. No	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
			L	T	P		L	T	P	
1	MA131	Mathematics – I	3	0	0	100	3	0	0	3
2	CH132P	Chemistry	3	0	2	100	3	0	1	4
3	EC133P	Basic Electronics	3	0	2	100	3	0	1	4
4	CSE134P	Computer Programming	2	0	2	100	2	0	1	3
5	ME135	Basic Mechanical Engineering	3	0	0	100	3	0	0	3
6	ME151	Workshop Practice Lab	0	0	2	50	0	0	1	1
7	HS136	English Language and Communication Skills for Engineers	2	0	0	50	2	0	0	2
8	HOL111	Holistic Education-I	1	0	0	--'	1	0	0	1
9	OEC171	Ability Enhancement Course 1	0	0	2	--'	0	0	1	1
		Total				600				22

II SEMESTER – PHYSICS CYCLE

Sl. No	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
			L	T	P		L	T	P	
1	MA231	Mathematics – II	3	0	0	100	3	0	0	3

2	PH232P	Physics	3	0	2	100	3	0	1	4
3	EE233P	Basic Electrical Engineering	3	0	2	100	3	0	1	4
4	CE234P	Basics of Civil Engineering and Engineering Mechanics	3	0	2	100	3	0	1	4
5	EG235P	Engineering Graphics	2	0	2	100	2	0	1	3
6	CSE236P	Python Programming	2	0	2	100	2	0	1	3
7	HOL211	Holistic Education-II	1	0	0	--'	1	0	0	1
8	OEC271	Ability Enhancement Course 2	0	0	2	--'	0	0	1	1
		Total				600				23

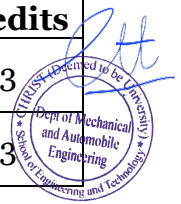
III Semester											
Sl No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	BSC	MA331	Mathematics-III	3	0	0	100	3	0	0	3
2	PCC	ME332	Thermal Engineering -I	3	0	0	100	3	0	0	3
3	PCC	ME333P	Strength of Materials	3	0	2	100	3	0	1	4
4	PCC	ME334P	Manufacturing Processes	3	0	2	100	3	0	1	4
5	HSMC	ME335	Professional Ethics	2	0	0	50	2	0	0	2
6	HSMC	HOL311	Holistic Education-III	1	0	0	---	1	0	0	1
7	PCC	ME351	Foundry and Forging Laboratory	0	0	2	50	0	0	1	1
8	BSC	BS351	Engineering Biology Laboratory	0	0	2	50	0	0	1	1
9	OEC	OEC	Common Course-1(L&T)	3	0	0	100	3	0	0	3
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	**20**	**0**	**9**	**650**	**18**	**0**	**5**	**23**

IV Semester											
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	0	0	100	3	0	0	3
2	PCC	ME432	Engineering Materials and Applications	3	0	0	100	3	0	0	3
3	PCC	ME433P	Fluid Mechanics and Machinery	3	0	2	100	3	0	1	4
4	PCC	ME434P	Automation in Manufacturing	3	0	2	100	3	0	1	4
5	PCC	ME435	Computer Aided Machine Drawing	2	0	0	50	2	0	0	2
6	PCC	ME436P	Modern Internal Combustion Engines	2	0	2	100	2	0	1	3
7	HSMC	HOL411	Holistic Education-IV	1	0	0	---	1	0	0	1
8	OEC	OEC	Common Course-1(L&T)	3	0	0	100	3	0	0	3
9	OEC	OEC471	Ability Enhancement Course-4	0	0	1	-	0	0	1	1
10	MC	CY421	Cyber Security	2	0	0	---	0	0	0	--
			Total	**22**	**0**	**7**	**650**	**20**	**0**	**4**	**24**

V Semester											
Sl No	**Type**	**Course No**	**Course Name**	**Hours**			**Total Marks**	**Credits**			**Total Credits**
				L	**T**	**P**		**L**	**T**	**P**	
1	PCC	ME531	Kinematics and 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



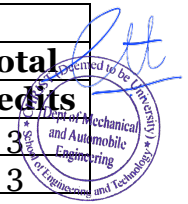
3	PCC	ME533	Computer Aided Machine Drawing	3	0	0	100	3	0	0	3
4	PCC	ME534P	Automation in Manufacturing	3	0	2	100	3	0	1	4
5	PCC	ME535P	Modern Internal Combustion Engines	2	0	2	100	2	0	1	3
5	HSMC	ME536	Innovation and Enterpreneurship	3	0	0	100	3	0	0	3
8	OEC		L&T Course	2	0	0	50	2	0	0	2
9	OEC	OEC571	Ability Enhancement Course-5	0	0	1	-	0	0	1	1
10	MC	IC521	Indian Constitution	2	0	0	---	0	0	0	0
			Total	**21**	**0**	**5**	**650**	**19**	**0**	**3**	**22**

VI Semester

Sl No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	ME631P	Finite Element Method	3	0	2	100	3	0	1	4
2	PCC	ME632	Design of Transmission systems	3	0	0	100	3	0	0	3
3	PCC	ME633P	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	ME681	Service Learning	0	0	4	50	0	0	2	2
6	GE		Global Elective	2	0	0	50	2	0	0	2
7	OEC		L&T Course	2	0	0	50	2	0	0	2
8	OEC	OEC671	Ability Enhancement Course-6	0	0	1	-	0	0	1	1
			Total	**16**	**0**	**11**	**550**	**16**	**0**	**6**	**22**

VII Semester

Sl. No	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PEC	ME741E	Program Elective – 3	3	0	0	100	3	0	0	3
2	PEC	ME742E	Program Elective – 4	3	0	0	100	3	0	0	3



3	PCC	ME733P	Mechanical Vibrations and Control	3	0	2	100	3	0	1	4
4	PEC	ME744E	Program Elective – 5	3	0	0	100	3	0	0	3
5	PCC	ME751	Simulation Lab (MATLAB)	0	0	2	50	0	0	1	1
6	OE		Open Elective – III	3	0	0	100	3	0	0	3
7	EEC-PROJ	ME781	Project Work Phase-I	0	0	2	50	0	0	2	2
8	EEC	ME782	Internship*	0	0	2	50	0	0	2	2
			Total	15	0	8	650	15	0	6	21

VIII Semester											
Sl. No	**Type**	**Course No**	**Course Name**	**Hours**			**Total Marks**	**Credits**			**Total Credits**
				L	**T**	**P**		**L**	**T**	**P**	
1	PEC	ME841E	Program Elective – 6	3	0	0	100	3	0	0	3
2	EEC-PROJ	ME881	Project Work Phase-II	0	0	16	300	0	0	10	10
			Total	3	0	16	400	3	0	10	13

Course code	**Program Elective – 3**
ME741E1	Flexible Manufacturing System
ME741E2	Smart Materials
ME741E3	Experimental Stress Analysis
ME741E4	Plant Layout and Material Handling Systems
ME741E5	Gas Dynamics and Space Propulsion
ME741E6	Advanced Automotive Engineering
ME741E7	Python Programming
ME741E8	Under Water Robotics
ME741E9	Data Communication Networking
ME741E10	Control Engineering

Course code	Program Elective – 4
ME742E1	Operations Management
ME742E2	Management Information System
ME742E3	Gas Turbine and Jet Propulsion
ME742E4	Design of Experiments
ME742E5	Cryogenics
ME742E6	Design Thinking
ME742E7	Theory of Elasticity
ME742E8	Artificial Intelligence and Machine Learning
ME742E9	Advanced Metallurgy for Engineers
ME742E10	Mechatronics System

Course code	Program Elective – 5
ME744E1	Professional Ethics and Intellectual Property Rights
ME744E2	Organizational Behaviour, Communication and Leadership
ME744E3	Theory of Plasticity
ME744E4	Rapid Prototyping
ME744E5	Tribology
ME744E6	Power Plant Engineering
ME744E7	Systems Engineering
ME744E8	Artificial Intelligence for Mechatronics Systems
ME744E9	Operations Research
ME744E10	Lean Manufacturing

Course code	Program Elective – 6
ME841E1	Advanced Machine Design
ME841E2	Fracture Mechanics
ME841E3	Research Methodology
ME841E4	Nano Technology
ME841E5	Green belt Practice
ME841E6	Product Lifecycle Management
ME841E7	Agile Manufacturing
ME841E8	Refrigeration & Air-conditioning

CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE, INDIA

Format for Submitting Changes in Curriculum

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

Section I (Summary)

Table 1: The summary sheet of curriculum/a changes
Note: For Table 1 please provide only basic/essential information of changes as mentioned in the column heads. Do not elaborate.

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**	20%-AU433P-Manufacturing Process 20%-AU435P-Automotive Engines AU633P-Mechatronics and Robotics ME742E6- Design Thinking	Syllabus revised for 20% change New course introduced for 100% syllabus

CHRIST (Deemed to be University) Dept of Mechanical and Automobile Engineering School of Engineering and Technology

			AU742E7-Introduction to Battery Technology and Materials AU744E6-Artificial Intelligence and Machine Learning ME744E7-Systems Engineering ME742E6-Design Thinking CSE236P - Python Programming BS331P - Biology for Engineers BTOE361T1P - AI Principles and Techniques BTOE361T2P - Fundamentals of Data Analytics BTOE361T3P - Cyber Physical Systems for Industrial Applications BTOE361T4P - Industrial Applications of Microcontrollers BTOE461T1P - Python Programming for Data handling and Preprocessing BTOE461T2P - Programming for Data Analytics BTOE461T3P - Applied Industrial IOT BTOE461T4P - Applied Industrial IOT BTOE561T1P - Data Engineering Foundation with SQL and NOSQL BTOE561T2P - Data Engineering Foundation with SQL and NOSQL BTOE561T3P - Drone Technology and its Transformative Applications - A Practitioner's Perspective BTOE561T4P - Fundamentals of Microsoft Azure BTOE661T1P - ML Algorithms and Model Building BTOE661T2P - Data Driven Storytelling and Visualization BTOE661T3P - Artificial Intelligence and Edge Computing BTOE661T4P - Artificial Intelligence and Edge Computing	

.

10. Course Code Change

SN	*Existing Semester, Code and Course Title*	*Proposed Code*	*Reasons for Change*	*Applicable to Batch*
1				
2				

11. Course Title Change

SN	*Existing Code and Course Title*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-

12. Course Outcome Change

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

13. Semester Change

SN	*Existing Semester Details with Course Code*	*Proposed Change in Semester*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-

14. Credits Change

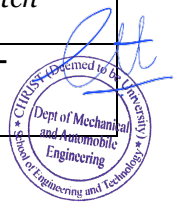
SN	*Existing Credit Details with Course Codes*	*Proposed Credit Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-

15. Marks Change

SN	*Existing Code and Course*	*Existing Marks Details*	*Proposed Marks Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-
2	-	-	-	-	-

16. CIA Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-



17. ESE Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

18. Course Type Theory/Practical

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

Programme structure

I SEMESTER – CHEMISTRY CYCLE

Sl. No	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
			L	T	P		L	T	P	
1	MA131	Mathematics – I	3	0	0	100	3	0	0	3
2	CH132P	Chemistry	3	0	2	100	3	0	1	4
3	EC133P	Basic Electronics	3	0	2	100	3	0	1	4
4	CSE134P	Computer Programming	2	0	2	100	2	0	1	3
5	ME135	Basic Mechanical Engineering	3	0	0	100	3	0	0	3
6	ME151	Workshop Practice Lab	0	0	2	50	0	0	1	1
7	HS136	English Language and Communication Skills for Engineers	2	0	0	50	2	0	0	2
8	HOL111	Holistic Education-I	1	0	0	--'	1	0	0	1
9	OEC171	Ability Enhancement Course 1	0	0	2	--'	0	0	1	1
		Total				600				22

II SEMESTER – PHYSICS CYCLE

Sl. No	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
			L	T	P		L	T	P	
1	MA231	Mathematics – II	3	0	0	100	3	0	0	3
2	PH232P	Physics	3	0	2	100	3	0	1	4

3	EE233P	Basic Electrical Engineering	3	0	2	100	3	0	1	4
4	CE234P	Basics of Civil Engineering and Engineering Mechanics	3	0	2	100	3	0	1	4
5	EG235P	Engineering Graphics	2	0	2	100	2	0	1	3
6	CSE236P	Python Programming	2	0	2	100	2	0	1	3
7	HOL211	Holistic Education-II	1	0	0	--'	1	0	0	1
8	OEC271	Ability Enhancement Course 2	0	0	2	--'	0	0	1	1
		Total				600				23

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	AU332P	Thermodynamics and Thermal Engineering	3	0	2	100	3	0	1	4
3	PCC	ME333P	Strength of Materials	3	0	2	100	3	0	1	4
4	PCC	AU334P	Fluid Mechanics and Machinery	3	0	2	100	3	0	1	4
5	HSMC	ME335	Professional Ethics	2	0	0	50	2	0	0	2
6	HSMC	HOL311	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	OEC	OEC	Common Course-1(L&T)	3	0	0	100	3	0	0	3
9	OEC	OEC371	Ability Enhancement Course-3	0	0	1	-	0	0	1	1
10	MC	EVS321	Environmental Science	2	0	0	---	0	0	0	
			Total	**20**	**0**	**9**	**600**	**18**	**0**	**5**	**23**

IV Semester											
Sl.	**Type**	**Course No**	**Course Name**	**Hours**			**Total Marks**	**Credits**			**Total Credits**
				L	**T**	**P**		**L**	**T**	**P**	
1	PCC	AU431P	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	AU433P	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	AU435P	Automotive Engines	3	0	2	100	3	0	1	4
6	HSMC	HOL411	Holistic Education-IV	1	0	0	---	1	0	0	1
7	OEC	OEC	Common Course-1(L&T)	3	0	0	100	3	0	0	3
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	**20**	**0**	**9**	**550**	**18**	**0**	**5**	**23**

V Semester											
Sl.	**Type**	**Course No**	**Course Name**	**Hours**			**Total Marks**	**Credits**			**Total Credits**
				L	**T**	**P**		**L**	**T**	**P**	
1	PCC	AU531	Kinematics and Theory of Machines	3	0	0	100	3	0	0	3
2	PCC	AU532	Design of Automotive Components	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	2	0	2	100	2	0	1	3

5	PCC	AU535	Vehicle Body Engineering and Safety	3	0	0	100	3	0	0	3
6	HSMC	ME536	Innovation and Enterpreneurship	3	0	0	100	3	0	0	3
7	PCC	AU551	Automotive Servicing and Tear down lab	0	0	2	50	0		1	1
8	PCC	AU552	Foundry and Forging lab	0	0	2	50	0	0	1	1
9	OEC		L&T Course	2	0	0	50	2	0	0	2
10	OEC	OEC571	Ability Enhancement Course-5	0	0	1	-	0	0	1	1
11	MC	IC521	Indian Constitution	2	0	0	---	0	0	0	0
			Total	**21**	**0**	**7**	**750**	**19**	**0**	**4**	**23**

VI Semester											
Sl.	**Type**	**Course No**	**Course Name**	**Hours**			**Total Marks**	**Credits**			**Total Credits**
				L	**T**	**P**		**L**	**T**	**P**	
1	PCC	ME631P	Finite Element Method	3	0	2	100	3	0	1	4
2	PCC	AU632	Vehicle Dynamics	3	0	0	100	3	0	0	3
3	PCC	AU633P	Mechatronics and Robotics	3	0	2	100	3	0	1	4
4	PCC	AU634	Noise Vibration and Harshness	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	OEC		L&T Course	2	0	0	50	2	0	0	2
9	OEC	OEC671	Ability Enhancement Course-6	0	0	1	-	0	0	1	1
10	Project	AU681	Service Learning	0	0	4	50	0	0	2	2
			Total	**16**	**0**	**11**	**600**	**16**	**0**	**6**	**22**

VII Semester											
Sl.	Type	Course No	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	PEC	AU741E	Program Elective – 3	3	0	0	100	3	0	0	3
2	PEC	AU742E	Program Elective – 4	3	0	0	100	3	0	0	3
3	PCC	AU733	Two and Three Wheelers	2	0	0	50	2	0	0	2
5	PEC	AU744E	Program Elective – 5	3	0	0	100	3	0	0	3
4	PCC	AU735	Engineering Economics and Automotive Cost Estimation	2	0	0	50	2	0	0	2
6	PCC	AU751	Automation Laboratory	0	0	2	50	0	0	1	1
7	OE		Basic Automobile Engineering Basic Aerospace Engine Smart Materials and Applications	3	0	0	100	3	0	0	3
8	PCC	AU752	Simulation Laboratory	0	0	2	50	0	0	1	1
9	EEC-PROJ	AU781	Project Work Phase-I	0	0	2	50	0	0	2	2
10	EEC	AU782	Internship*	0	0	2	50	0	0	2	2
			Total	16	0	8	700	16	0	6	22

VIII Semester											
Sl.	Type	Course No	Course Name	Hours			Total	Credits			Total
				L	T	P	Marks	L	T	P	Credits
1	PEC	AU841E	Program Elective – 6	3	0	0	100	3	0	0	3
2	EEC-PROJ	AU881	Project Work Phase-II	0	0	16	300	0	0	10	10
			Total	3	0	16	400	3	0	10	13

Sl. No	Course No	Program Elective – 3
1	AU741E1	Automotive Heating Ventilation & Air-Conditioning
2	AU741E2	Non-Traditional Machining
3	AU741E3	Mechanics of Composite Materials
4	AU741E4	Noise Vibration and Harshness
5	AU741E5	Organisational Behaviour, Communication and Leadership
6	AU741E6	Vehicle body Engineering and safety
7	ME741E7	Python Programming

Sl. No	Course No	Program Elective – 4
1	AU742E1	Quality Assurance and Reliability
2	AU742E2	Total Quality Management
3	AU742E3	Nanotechnology
4	AU742E4	Project and Materials Management
5	AU742E5	Smart Materials
6	ME742E6	Design Thinking
7	AU742E7	Introduction to Battery Technology and Materials

CHRIST (Deemed to be University) Dept of Mechanical and Automobile Engineering School of Engineering and Technology

Sl. No	Course No	Program Elective – 5
1	AU744E1	Vehicle Transport Management
2	AU744E2	Advanced Materials for Green Vehicles
3	AU744E3	Vehicle Dynamics
4	AU744E4	Automotive Testing and Certification
5	AU744E5	Control Engineering
6	AU744E6	Artificial Intelligence and Machine Learning
7	ME744E7	Systems Engineering

Sl. No	Course No.	Program Elective – 6
1	AU841E1	Rapid Prototyping
2	AU841E2	Tribology
3	AU841E3	Fracture Mechanics
4	AU841E4	Non-Destructive Testing
5	AU841E5	Research Methodology
6	AU841E6	Industrial Pollution Control

CHRIST (Deemed to be University) Dept of Mechanical and Automobile Engineering School of Engineering and Technology

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

Section I (Summary)

Table 1: The summary sheet of curriculum/a changes
Note: For Table 1 please provide only basic/essential information of changes as mentioned in the column heads. Do not elaborate.

SN	Particulars I: Change in	Indicate "Yes"/ "No"	Particulars II	Brief Detail (if changes are incorporated)
1	Course Code/s	**Yes**	RM532P, RM631P	Courses are swapped between the 5th and 6th semester
2	Course Title/s	**Yes**	Strength of Materials-RM432P	Syllabus revision has been made for given course
3.	Course Outcome	**No**	Mention the course code where course outcome changes have been incorporated	
4	Semester/s	**Yes**	RM532P, RM631P	Courses are swapped between the 5th and 6th semester
5	Credits	**No**	Mention Course Codes where Credit changes have been made	
6	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**	60%: Strength of Materials-RM432P Deep Learning-RM741E6 Design Thinking-ME742E6 Systems Engineering-ME744E7	Syllabus revised New courses are introduced with 100%

Dept of Mechanical and Automobile Engineering

			CSE236P - Python Programming BS331P - Biology for Engineers BTOE361T1P - AI Principles and Techniques BTOE361T2P - Fundamentals of Data Analytics BTOE361T3P - Cyber Physical Systems for Industrial Applications BTOE361T4P - Industrial Applications of Microcontrollers BTOE461T1P - Python Programming for Data handling and Preprocessing BTOE461T2P - Programming for Data Analytics BTOE461T3P - Applied Industrial IOT BTOE461T4P - Applied Industrial IOT BTOE561T1P - Data Engineering Foundation with SQL and NOSQL BTOE561T2P - Data Engineering Foundation with SQL and NOSQL BTOE561T3P - Drone Technology and its Transformative Applications - A Practitioner's Perspective BTOE561T4P - Fundamentals of Microsoft Azure BTOE661T1P - ML Algorithms and Model Building BTOE661T2P - Data Driven Storytelling and Visualization BTOE661T3P - Artificial Intelligence and Edge Computing BTOE661T4P - Artificial Intelligence and Edge Computing	

1. Course Code Change

SN	*Existing Semester, Code and Course Title*	*Proposed Code*	*Reasons for Change*	*Applicable to Batch*
1	RM631P	RM532P	Pre-requisites are covered in 4th and 5th semester.	2023-27, 2024-28, 2025-29
2	RM532P	RM631P	Pre-requisites are covered in 4th and 5th semester.	2023-27, 2024-28, 2025-29

2. Course Title Change

SN	*Existing Code and Course Title*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	Solid and Fluid Mechanics-RM432P	Strength of Materials-RM432P	Suggestions from stake holders	2024-28, 2025-29

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				
2				

4. Semester Change

SN	*Existing Semester Details with Course Code*	*Proposed Change in Semester*	*Reasons for Change*	*Applicable to Batch*
1	RM631P	RM532P	Pre-requisites are covered in 4th and 5th semester.	2023-27, 2024-28, 2025-29
2	RM532P	RM631P	Pre-requisites are covered in 4th and 5th semester.	2023-27, 2024-28, 2025-29

5. Credits Change

SN	*Existing Credit Details with Course Codes*	*Proposed Credit Change*	*Reasons for Change*	*Applicable to Batch*
1				
2				

6. Marks Change

SN	*Existing Code and Course*	*Existing Marks Details*	*Proposed Marks Change*	*Reasons for Change*	*Applicable to Batch*
1					
2					

7. CIA Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1					

8. ESE Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1					

9. Course Type Theory/Practical

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1					

Program Structure

I SEMESTER – CHEMISTRY CYCLE

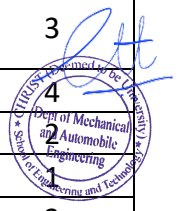
Sl. No	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
			L	T	P		L	T	P	
1	MA131	Mathematics – I	3	0	0	100	3	0	0	3
2	CH132P	Chemistry	3	0	2	100	3	0	1	4
3	EC133P	Basic Electronics	3	0	2	100	3	0	1	4
4	CSE134P	Computer Programming	2	0	2	100	2	0	1	3
5	ME135	Basic Mechanical Engineering	3	0	0	100	3	0	0	3
6	ME151	Workshop Practice Lab	0	0	2	50	0	0	1	1
7	HS136	English Language and Communication Skills for Engineers	2	0	0	50	2	0	0	2
8	HOL111	Holistic Education-I	1	0	0	--'	1	0	0	1
9	OEC171	Ability Enhancement Course 1	0	0	2	--'	0	0	1	1
		Total				600				22

II SEMESTER – PHYSICS CYCLE

Sl. No	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
			L	T	P		L	T	P	
1	MA231	Mathematics – II	3	0	0	100	3	0	0	3
2	PH232P	Physics	3	0	2	100	3	0	1	4
3	EE233P	Basic Electrical Engineering	3	0	2	100	3	0	1	4
4	CE234P	Basics of Civil Engineering and Engineering Mechanics	3	0	2	100	3	0	1	4
5	EG235P	Engineering Graphics	2	0	2	100	2	0	1	3
6	CSE236P	Python Programming	2	0	2	100	2	0	1	3
7	HOL211	Holistic Education-II	1	0	0	--'	1	0	0	1
8	OEC271	Ability Enhancement Course 2	0	0	2	--'	0	0	1	1
		Total				600				23

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	2	0	0	50	2	0	0	2
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	OEC	OEC	Common Course-1(L&T)	3	0	0	100	3	0	0	3
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	**20**	**0**	**9**	**600**	**18**	**0**	**5**	**23**

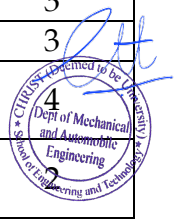
IV Sem											
Sl.	Type	Course No	Course Name	Hours			Total Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PCC	RM431P	Embedded Systems	3	0	2	100	3	0	1	4
2	PCC	RM432P	Strength of Materials	3	0	2	100	3	0	1	4
3	PCC	RM433	Kinematics and Theory of Machines	3	0	0	100	3	0	0	3
4	PCC	RM434P	Industrial Robotics	3	0	2	100	3	0	1	4
5	HSMC	RM435	Professional Ethics	2	0	0	50	2	0	0	2
6	HSMC	HOL411	Holistic Education-IV	1	0	0	---	1	0	0	1
7	OEC	OEC	Common Course-1(L&T)	3	0	0	100	3	0	0	3



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	**20**	**0**	**7**	**550**	**18**	**0**	**4**	**22**

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	Fluid Power Automation	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	Python Programming and ROS	3	0	2	100	3	0	1	4
5	HSMC	ME536	Innovation and Enterpreneurship	3	0	0	100	3	0	0	3
6	PCC	RM551	Robot Operating System Laboratory	0	0	2	50	0	0	1	1
7	OEC		L&T Course	2	0	0	50	2	0	0	2
8	OEC	OEC571	Ability Enhancement Course-5	0	0	1	-	0	0	1	1
9	MC	IC521	Indian Constitution	2	0	0	---	0	0	0	0
			Total	**19**	**0**	**9**	**600**	**17**	**0**	**5**	**22**

VI Sem											
Sl.	**Type**	**Course No**	**Course Name**	**Hours**			**Total Marks**	**Credits**			**Total Credits**
				L	**T**	**P**		**L**	**T**	**P**	
1	PCC	RM631P	Mobile Robotics	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 Elective	2	0	0	50	2	0	0	3



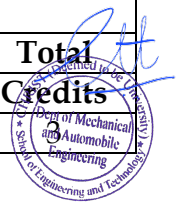
6	PCC	RM651	Modelling and Analysis Laboratory	0	0	2	50	0	0	1	1
7	PCC	RM652	Digital Manufacturing Laboratory	0	0	2	50	0	0	1	1
8	Project	RM681	Service Learning	0	0	4	50	0	0	2	2
9	OEC		L&T Course	2	0	0	50	2	0	0	2
10	OEC	OEC671	Ability Enhancement Course-6	0	0	1	-	0	0	1	1
			Total	**16**	**0**	**13**	**650**	**16**	**0**	**7**	**23**

VII Semester

Sl. No	Type	Course No	Course Name	Hours			Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PEC	RM741E	Program Elective – III	3	0	0	100	3	0	0	3
2	PEC	RM742E	Program Elective – IV	3	0	0	100	3	0	0	3
3	PCC	RM733	Control System	3	0	0	100	3	0	0	3
4	PEC	RM744E	Program Elective – V	3	0	0	100	3	0	0	3
5	OE		Open Elective – III	3	0	0	100	3	0	0	3
6	PCC	RM751	Automation and PLC Laboratory	0	0	2	50	0	0	1	1
7	Project	RM781	Project Work Phase – I	0	0	2	50	0	0	2	2
8	Project	RM782	Internship*	0	0	4	50	0	0	2	2
			Total	15	0	8	650	15	0	5	20

VIII Semester

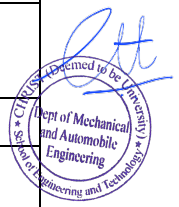
Sl.No	Type	Course No	Course Name	Hours			Marks	Credits			Total Credits
				L	T	P		L	T	P	
1	PEC	RM841E	Program Elective – VI	3	0	0	100	3	0	0	3



2	Project	RM881	Project Work Phase - II	0	0	16	300	0	0	10	10
			Total	3	0	16	400	3	0	10	13

Sl.	**Course No**	**Program Elective – III**
1	RM741E1	Rapid Prototyping
2	RM741E2	Smart Sensors for IoT Applications
3	RM741E3	Linear Integrated Circuits
4	RM741E4	Optimization Techniques
5	RM741E5	Computer Aided Manufacturing
6	RM741E6	Deep Learning

Sl.	**Course No**	**Program Elective – IV**
1	RM742E1	Operation Research
2	RM742E2	Product Design and Development
3	RM742E3	Industrial Engineering and Management
4	RM742E4	Safety Engineering
5	RM742E5	System Modelling and Simulation



6	ME742E6	Design Thinking

Sl.	Course No	Program Elective – V
1	RM744E1	IoT and Cyber Physical Systems
2	RM744E2	Biomedical Signal Processing
3	RM744E3	Hybrid-Electric Vehicles
4	RM744E4	Safety and Security of Automotive Systems
5	RM744E5	Power Electronics
6	RM744E6	Design of Mechatronics System
7	ME744E7	Systems Engineering

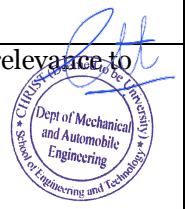
Sl.	Course No	Program Elective – VI
1	RM841E1	Industrial Design
2	RM841E2	Wireless Sensor Networks
3	RM841E3	Metrology and Quality Control

4	RM841E4	Industrial Robotics and Material Handling Systems
5	RM841E5	Process Planning and Cost Estimation

Changes in Curriculum

School: School of Engineering and Technology
Department: Mechanical Engineering
Programme: M.Tech in Mechanical Engineering (Specialization in Machine Design-Digital Twin)

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**	100%- MTME133- Digital Twin Fundamentals and Applications 100%-MTME233P- Artificial Intelligence for Engineering Design 100%-MTME244E5- Cloud Computing and Digital Twin Integration	New courses are introduced based on their relevance to the programme



			100%-MTME244E6- IoT and Sensors in Engineering Systems 100%-MTME251- Digital Twin Simulation Lab 100%-MTME341E5- Data Analytics for Engineering Applications	

1. Course Code Change

SN	*Existing Semester, Code and Course Title*	*Proposed Code*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-

2. Course Title Change

SN	*Existing Code and Course Title*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-
2	-	-	-	-

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	-	-	-	-
2	-	-	-	-

CHRIST (Deemed to be University) Dept of Mechanical and Automobile Engineering School of Engineering and Technology

4. Semester Change

SN	*Existing Semester Details with Course Code*	*Proposed Change in Semester*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-

5. Credits Change

SN	*Existing Credit Details with Course Codes*	*Proposed Credit Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-

6. Marks Change

SN	*Existing Code and Course*	*Existing Marks Details*	*Proposed Marks Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-
2	-	-	-	-	-

7. CIA Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1					

8. ESE Pattern

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

9. Course Type Theory/Practical

SN	*Existing Code and Course*	*Existing Details*	*Proposed Change*	*Reasons for Change*	*Applicable to Batch*
1	-	-	-	-	-

Programme structure

Semester 1								
SN	**Course Type**	**Course Code**	**Course Title**	**Max Marks**	**Hrs/ Week**			**Credits**
					L	**T**	**P**	
1	Core	MTME131	Advanced Design of Mechanical System	100	3	0	0	3
2	Core	MTME132	Theory of Applied Stress	100	3	0	0	3
3	Core	MTME133	Digital Twin Fundamentals and Applications	100	3	0	0	3
4	Elective	MTME144E	1. Experimental Stress Analysis 2. Robotics 3. Optimization Techniques in Design 4. Design for Manufacturing 5. Advance Engineering Materials	100	3	0	0	3
5	Core	MTME151	Advanced CAD Laboratory	50	0	0	4	2
6	Core	MTME152	Simulation Laboratory	50	0	0	4	2
7	Core	MTAS135	Research Methodology and IPR	100	3	0	0	3
8	Ability Enhancement	Audit	Audit-I		1	0	0	0
9	Ability Enhancement	HOL111K	Holistic Education - I	50	1	0	0	1
Total				650	17	0	8	20

Semester 2								
SN	**Course Type**	**Course Code**	**Course Title**	**Max Marks**	**Hrs/ Week**			**Credits**
					L	**T**	**P**	
1	Core	MTME231	Advanced Finite Element method	100	3	0	0	3
2	Core	MTME232	Advanced Theory of Vibrations	100	3	0	0	3
					3	0	0	
3	Core	MTME233P	Artificial Intelligence for Engineering Design	100	3	0	2	4
4	Elective	MTME244E	1. Product Design and Value Engineering	100	3	0	0	3
			2. Tribology in Bearing Design					
			3. Condition Based Monitoring					
			4. Theory of Plates and shells					
			5. Cloud Computing and Digital Twin Integration					
			6. IoT and Sensors in Engineering Systems					
5	Core	MTME251	Digital Twin Simulation Lab	50	0	0	4	2
6	Core	MTME252	Analysis Laboratory	50	0	0	4	2
7	Project	MTME281	Mini Project	50	0	0	4	2
8	Ability Enhancement	Audit	Audit-II		1	0	0	0
9	Ability Enhancement	HOL211K	Holistic Education - II	50	1	0	0	1
Total				600	17	0	14	20

Semester 3								
SN	**Course Type**	**Course Code**	**Course Title**	**Max Marks**	**Hrs/ Week**			**Credits**
					L	**T**	**P**	
1	Elective	MTME341E	1. Fracture Mechanics 2. Advanced Metallurgy 3. Machine Tool Design 4. Vibration and Condition Monitoring 5. Data Analytics for Engineering Applications	100	3	0	0	3
2	Project	MTME381	Dissertation Phase-I	100	0	0	20	10
Total				200	3	0	20	13

Semester 4								
SN	**Course Type**	**Course Code**	**Course Title**	**Max Marks**	**Hrs/ Week**			**Credits**
					L	**T**	**P**	
1	Project	MTME481	Dissertation Phase-II	200	0	0	32	16
Total				200	0	0	32	16