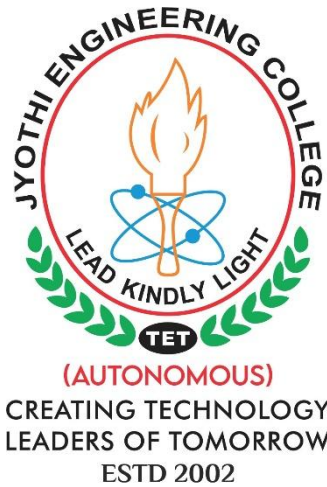


# B. TECH CURRICULUM - 2025



Semester I to VIII

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## Mechatronics Engineering

Branch Code: MR

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Approved by the Academic Council on 25-08-2025. (Ref: JEC/2025/AC/MOM/01/AC/01/A2)



**Jyothi**  
Engineering College  
(AUTONOMOUS)

Reaccredited with NAAC (Grade A) and  
NBA Programmes\* (\*CE, CS, EC, EE, ME, MR)  
Jyothi Hills, P. O. Vettikkattiri, Cheruthuruthy  
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A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur



## VISION & MISSION OF THE INSTITUTE

**VISION :** Creating eminent and ethical leaders through quality professional education with emphasis on holistic excellence.

### MISSION

- To emerge as an institution par excellence of global standards by imparting quality engineering and other professional programmes with state-of-the-art facilities.
- To equip the students with appropriate skills for a meaningful career in the global scenario.
- To inculcate ethical values among students and ignite their passion for holistic excellence through social initiatives.
- To participate in the development of society through technology incubation, entrepreneurship and industry interaction.

## VISION & MISSION OF THE DEPARTMENT

**VISION:.** Create eminent and ethical leaders committed to profession and society in the field of Mechatronics through quality professional education to excel in industrial automation and innovation.

### MISSION

- To impart orientation to meet the challenges of the modern industry and provide motivation for research.
- To provide quality education to create graduates with professional and social commitment.



## PROGRAMME EDUCATIONAL OBJECTIVES

- Graduates shall possess fundamental and advanced knowledge in electronics, electrical and mechanical along with fundamental knowledge in mathematics, basic sciences and computer programming to analyze and solve the challenges related to automation.
- Graduates shall have ability to design and create novel solutions with modern tool usage which lead to a lifelong learning or higher qualification, making them experts in their profession.
- Graduates shall have the ability to work in a multidisciplinary environment with good professional and ethical commitment

## PROGRAMME SPECIFIC OUTCOMES

- Professional skills: Associate the concepts related to electrical, electronics, Mechanical, Robotics, Control and Instrumentation to solve the challenges of modern industries.
- Problem solving ability: Analyze and design systems with modern tools for the benefit of the society.



## PROGRAMME OUTCOMES

- PO1. Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop the solution of complex engineering problems
- PO2. Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
- PO3. Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
- PO4. Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8)
- PO5. Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
- PO6. The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7)
- PO7. Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
- PO8. Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
- PO9. Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
- PO10. Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
- PO11. Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

**FIRST SEMESTER (July-December): Mechatronics Engineering**

**10 Days Compulsory Induction Program and UHV**

Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MAT102	BSC	GC	Mathematics for Physical Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	25PHT103	BSC	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
		25CHT102			Chemistry for Physical Science									
3	C	25EST106	ESC	GC	Engineering Mechanics	3	0	0	0	4.5	40	60	3	3
4	D	25EST107	ESC	GC	Introduction to Mechanical Engineering & Civil Engineering (Part1: Mechanical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Civil Engineering)	2	0	0	0	3	20	30		
5	F	25EST105	ESC	UC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	25ESL108	ESC	GC	Engineering Workshop	0	0	2	0	1	50	50	1	2
7	I* S1/ S2	25HUT106	HWP	UC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		25HUT107	HMC		Life Skills and Professional Communication	2	0	1	0	3	100	0		
8	S1/ S2	25SEC101	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
<b>Total</b>									<b>30/ 32</b>			<b>20</b>	<b>24/ 25</b>	
<b>Bridge Course (Mathematics or Introduction to Computer Science) *:</b>										<b>Total 15 Hrs.</b>				

\*Valuation for HMC courses will be done at college level, Question papers will be provided by the University.

\*No Grade Points will be awarded for the MOOC course and I slot course.

- L-T-P-R: Lecture-Tutorial-Practical-Project
- SS (Self Study) Hours= 1.5L+0.5 T+0.5P+R
- CIA: Continuous Internal Assessment, ESE: End Semester Examination

Digital 101 (NASSCOM)		
Sl. No:	Technologies Covered	Hours
1	Artificial Intelligence and Big Data Analytics (AI/BDA)	11
2	Internet of Things (IoT)	2.5
3	Cyber Security	2.5
4	Block Chain	2.5
5	Robotic Process Automation	1.5
6	Augmented and Virtual Reality (AR and VR)	2.5
7	Cloud Computing	2.5
8	3 D Printing and Modelling	2
9	Web, Mobile Dev and Marketing	2
10	Responsible AI	1
<b>Total Hours</b>		<b>30</b>

**Note:** Engineering Physics, Engineering Chemistry, Health and Safety and Life skill and Universal Human Values shall be offered in both S1 and S2. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Engineering Physics/ Health and wellness in S1 and Engineering Chemistry/ Life Skills and Professional Communication in S2 & vice versa.

SECOND SEMESTER (January-June): Mechatronics Engineering														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MAT202	BSC	GC	Mathematics for Physical Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	25PHT103	BSC	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
		25CHT102			Chemistry for Physical Science									
3	C	25EST103	ESC	GC	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	25EST205	ESC	GC	Basic Electrical & Electronics Engineering (Part 1: Electrical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Electronics Engineering)									
5	E	25MRT205	PC	PC	Transducers & Measurements	3	1	0	0	5	40	60	4	4
6	F	25EST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	60	40	3	3
7	I* S1/S2	25HUT106	PW	UC	Health and Wellness	1	0	1	0	0	50	0	1	2/3
		25HUT107	HMC		Life Skills and Professional Communication									
8	L	25ESL107	ESC	GC	Basic Electrical and Electronics Engineering Workshop	0	0	2	0	1	50	50	1	2
9	S1/ S2	25SEC101	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
<b>Total</b>									<b>34</b>			<b>24</b>	<b>27/ 28</b>	

\*No Grade Points will be awarded for the MOOC course and I slot course.

THIRD SEMESTER (July-December)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIA	ESE		
1	A	25MAT302	BSC	GC	Mathematics for Physical Science-3	3	0	0	0	4.5	40	60	3	3
2	B	25MRT302	PC	PC	Electrical Machines & Drives	3	1	0	0	5	40	60	4	4
3	C	25MRT303	PC	PC	Mechanics of Solids	3	1	0	0	5	40	60	4	4
4	D	25MRZ304	PC-PBL	PB	Analog Electronics	3	0	0	1	5.5	60	40	4	4
5	F	25EST305	ESC	GC	Introduction to Artificial Intelligence and Data Science	3	1	0		5	40	60	4	4
6	G S3/S4	25HUT346	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		25HUT347			Engineering Ethics and Sustainable Development									
7	L	25MRL307	PCL	PC	Electrical Technology Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25MRL308	PCL	PC	Instrumentation Lab	0	0	3	0	1.5	50	50	2	3
9	R/M		VAC		REMEDIAL/MINOR/COURSE	3	1	0	0	5			4*	4*
<b>Total</b>									<b>31/36</b>		<b>25/29*</b>	<b>27/31*</b>		
<b>Bridge Course for Lateral Entry Students: Total 15 Hrs.</b>														

FOURTH SEMESTER (January-June)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./ Week
						L	T	P	R		CIA	ESE		
1	A	25MAT403	BSC	GC	Mathematics for Physical Science-4	3	0	0	0	4.5	40	60	3	3
2	B	25MRT402	PC	PC	Digital Electronics	3	1	0	0	5	40	60	4	4
3	C	25MRT403	PC	PC	Computer Architecture and Microcontroller	3	1	0	0	5	40	60	4	4
4	D	25MRZ404	PC-PBL	PB	Manufacturing Process	3	0	0	1	5.5	60	40	4	4
5	E	25MRT41N	PE	PE	PE-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	25HUT346	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		25HUT347			Engineering Ethics and Sustainable Development									
7	L	25MRL407	PCL	PC	Analog and Digital Electronics Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25MRL408	PCL	PC	Mechanical Engineering Lab	0	0	3	0	1.5	50	50	2	3
9	R/M /H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
<b>Total</b>									<b>31/36</b>		<b>24/ 28*</b>	<b>26/ 30*</b>		

**Note:** Economics for Engineers and Engineering Ethics and Sustainable Development shall be offered in both S3 and

S4. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Economics for Engineers in S3 and Engineering Ethics & Sustainable Development in S4 and vice versa.

**PROGRAM ELECTIVE I: 25MRT41N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	25MRT411	Industrial Engineering	3-0-0-0	3	3
	25MRT412	Biomedical Instrumentation	3-0-0-0		3
	25MRT413	Automobile Engineering	3-0-0-0		3
	25MRT414	Network Theory	3-0-0-0		3
	25MRT415	Object Oriented Programming	3-0-0-0		5/3

*Note : Level 5 courses in the B. Tech curriculum carry a total of 5 credits, consisting of 3 credits for the Programme Elective and 2 additional credits. The additional 2 credits shall be awarded only if the student meets the eligibility conditions specified in the B. Tech. -2025 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course.*

FIFTH SEMESTER (July-December)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MRT501	PC	PC	Linear Control Systems	3	1	0	0	5	40	60	4	4
2	B	25MRT502	PC	PC	Thermodynamics	3	1	0	0	5	40	60	4	4
3	C	25MRT503	PC	PC	Industrial Hydraulics & Pneumatics	3	0	0	0	4.5	40	60	3	3
4	D	25MRZ504	PC-PBL	PB	Signal Processing & Communication	3	0	0	1	5.5	60	40	4	4
5	E	25MRT52N	PE	PE	PE-2	3	0	0	0	4.5	40	60	3	3
6	I*	25HUX506	HMC	UC	Constitution of India (MOOC)	-	-	-	-	2	-	-	1	-
7	L	25MRL507	PCL	PC	CAD Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25MRL508	PCL	PC	Microcontroller Lab	0	0	3	0	1.5	50	50	2	3
9	R/M/H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
	S <sub>5</sub> /S <sub>6</sub>	Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
<b>Total</b>										<b>30 / 35</b>		<b>23/27*</b>	<b>24/28*</b>	

\*No Grade Points will be awarded for the MOOC course and I slot course.

**PROGRAM ELECTIVE 2: 25MRT52N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>E</b>	25MRT521	Power Electronics	3-0-0-0	3	3
	25MRT522	Design of Manufacture	3-0-0-0		3
	25MRT523	Operational Research	3-0-0-0		3
	25MRT524	Numerical Computation using Python	3-0-0-0		3
	25MRT526	Metallurgy and Material Engineering	3-0-0-0		3
	25MRT525	IoT & Applications	3-0-0-0		5/3

SIXTH SEMESTER (July-December)															
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure					SS	Total Marks		Credits	Hrs/Week
						L	T	P	R	CIA		ESE			
1	A	25MRT601	PC	PC	Robotics & Machine Vision	3	1	0	0	5	40	60	4	4	
2	B	25MRT602	PC	PC	Autotronics	3	0	0	0	4.5	40	60	3	3	
3	C	25MRT63N	PE	PE	PE-3	3	0	0	0	4.5	40	60	3	3	
4	D	25MRZ604	PC-PBL	PB	PLC & Data Acquisition System	3	0	0	1	5.5	60	40	4	4	
5	F	25EST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2	
6	O	25MRT61N /25MRI61N	OE/ILE	OE/IE	OE/ILE-1	3	0	0	0	4.5	40	60	3	3	
7	L	25MRL607	PCL	PC	Mechatronics Systems & PLC lab	0	0	3	0	1.5	50	50	2	3	
8	P	25MRP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	3	50	50	2	3	
10	R/M/H		VAC		Remedial/Minor/Honours Course	3	0	0	0	4.5			3*	3*	
	S5/S6	Industrial Visit (Maximum of 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training													
<b>Total</b>										<b>32/36</b>			<b>23/26*</b>	<b>25/28*</b>	

Note: Open Electives are such courses which will be offered by other departments. Like CSE department students have to opt open electives from ECE/ME/EEE etc. departments.

**PROGRAM ELECTIVE 3: 25MRT63N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>C</b>	25MRT631	Network & Data Security	3-0-0-0	3	3
	25MRT632	Renewable Energy	3-0-0-0		3
	25MRT633	Advanced Automation	3-0-0-0		3
	25MRT634	Wireless & Sensors Networks	3-0-0-0		3
	25MRT636	Embedded Systems	3-0-0-0		3
	25MRT637	Mechanics of Machinery	3-0-0-0		3
	25MRT635	Soft Computing	3-0-0-0		5/3

**OPEN ELECTIVE 1: 25MRT61N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>O</b>	25MRT611	Transducers & Measurements	3-0-0-0	3	3
	25MRT612	PLC & Data Acquisition System	3-0-0-0		3

SEVENTH SEMESTER (July-December)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/Week
						L	T	P	R		CIA	ESE		
1	A	25MRT74N / 25MRX74N	PE	PE	PE-4 (Internship Students: Self Study/MOOC Approved by the Academic Council / Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	25MRT75N/ 25MRX75N	PE	PE	PE-5 (Internship Students: Self Study/MOOC Approved by the Academic Council /Online Classes)	3	0	0	0	4.5	40	60	3	3
3	O	25MRT72N /25MRI72N/ 25MRX72N	OE/ ILE	OE/IE	OE/ILE-2 (Internship Students: Self Study/MOOC Approved by the Academic Council /Online Classes)	3	0	0	0	4.5	40	60	3	3
4	I*	25HUT704 / 25HUX70N	HMC	UE	Elective (Internship Students: Self Study/MOOC Approved by the Academic Council/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	25MRS705	PS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	25MRP706/ 25MRI706	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	8	8	100	0	4	8
7	R/H		VAC		Remedial/Honours Course	3	0	0	0	4.5			3*	3*
<b>Total</b>										<b>26/31</b>			<b>17/20*</b>	<b>22/25*</b>

\*No Grade Points will be awarded for the I slot courses

\*The students can take the internship option either in 7<sup>th</sup> or in 8<sup>th</sup> semester.

\* Option 1: Work on a Project in the institute/department under the mentorship of faculty members. Option 2: Full semester Internship in Industry/organization (7<sup>th</sup> or 8<sup>th</sup> semester)

Note: Open Electives are such courses which will be offered by other departments.

**PROGRAM ELECTIVE 4: 25MRT74N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>A</b>	25MRT741	Fluid Mechanics & Machinery	3-0-0-0	3	3
	25MRT742	Machine learning	3-0-0-0		3
	25MRT743	Entrepreneurship	3-0-0-0		3
	25MRT744	MEMS	3-0-0-0		3
	25MRT746	Energy Management & Auditing	3-0-0-0		3
	25MRT745	Smart Manufacturing	3-0-0-0		5/3

**PROGRAM ELECTIVE 5: 25MRT75N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>B</b>	25MRT751	Computer Networks	3-0-0-0	3	3
	25MRT752	Six Sigma	3-0-0-0		3
	25MRT753	Nano Electronics	3-0-0-0		3
	25MRT754	Theory of Metal Cutting	3-0-0-0		3
	25MRT756	Dynamics & Machinery	3-0-0-0		3
	25MRT755	Digital Image Processing	3-0-0-0		5/3

**OPEN ELECTIVE 2: 25MRT72N**

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>O</b>	25MRT721	Basics of Robotics & Automation	3-0-0-0	3	3
	25MRT722	Industrial Hydraulics & Pneumatics	3-0-0-0		3

SL. No	Course Code	Slot I: HMC Elective
1	25HUT704	Project Management: Planning, Execution, Evaluation and Control
2	25HUX701	Proficiency Course in French. (MOOC) (B1 level)
3	25HUX702	Proficiency Course in German (B1 Level). (MOOC)
4	25HUX703	Proficiency Course in Spanish (B1 Level). (MOOC)
5	25HUX704	Introduction to Japanese Language and Culture (N5 level). (MOOC)

EIGHT SEMESTER (January-June)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/Week
						L	T	P	R		CIA	ESE		
1	A	25MRT86N / 25MRX86N	PE	PE	PE-6 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	O	25MRT83N /25MRI83 N/ 25MRX83N	OE/ILE	OE/IE	OE/ILE-3 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	I*	25HUT803 / 25HUX80N	HMC	UC	Organizational Behavior and Business Communication (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	1	2
4	P	25MRP806 / 25MRI806/ 25MRP807	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project Phase -II (For the students who have not opted for internship in S7/S8)	0	0	0	8	8	100	0	4	8
<b>Total</b>										<b>20</b>			<b>11</b>	<b>16</b>

\*No Grade Points will be awarded for the I slot courses

\* Option 2: Full semester Internship in Industry/organization (7<sup>th</sup> or 8<sup>th</sup> semester)

#### PROGRAM ELECTIVE 6: 25MRT86N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>B</b>	25MRT861	Bio Mechatronics	3-0-0-0	3	3
	25MRT862	Hybrid & Electric Vehicles	3-0-0-0		3
	25MRT863	Operations Management	3-0-0-0		3
	25MRT864	Ergonomics	3-0-0-0		3
	25MRT865	Industrial Instrumentation	3-0-0-0		5/3

#### OPEN ELECTIVE 3: 25MRT83N

SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
<b>O</b>	25MRT831	Autotronics	3-0-0-0	3	3
	25MRT832	Advanced Automation	3-0-0-0		3

<b>HMC Courses</b>			
<b>Sl. No:</b>	<b>Semester</b>	<b>Course Area</b>	<b>Credits</b>
1	<b>S1/S2</b>	Life Skills and Professional Communication	1
2	<b>S3 /S4</b>	Economics for Engineers	2
3		Engineering Ethics and Sustainable Development	2
4	<b>S5</b>	Constitution of India. (MOOC)	1
5	<b>S7</b>	Elective (Project Management/Foreign Languages)	2
6	<b>S8</b>	Organizational Behavior and Business Communication	1
<b>Total Credits</b>			<b>9</b>

<b>BSC Courses</b>			
<b>Sl. No:</b>	<b>Semester</b>	<b>Course Area</b>	<b>Credits</b>
1	<b>S1</b>	Group Specific Mathematics-1	<b>3</b>
2	<b>S1/S2</b>	Physics for Engineers	4
3		Chemistry for Engineers	4
4	<b>S2</b>	Group Specific Mathematics-2	3
5	<b>S3</b>	Group Specific Mathematics-3	3
6	<b>S4</b>	Group Specific Mathematics-4	3
<b>Total Credits</b>			<b>20</b>

<b>ESC Courses (Group C)</b>			
<b>Sl. No:</b>	<b>Semester</b>	<b>Course Area</b>	<b>Credits</b>
<b>1</b>	<b>S1</b>	Engineering Mechanics	<b>3</b>
2		Introduction to Mechanical Engineering/ Civil Engineering	4
3		Algorithmic Thinking with Python	4
4		Engineering Workshop	1
5	<b>S2</b>	Engineering Graphics and Computer Aided Drawing	3
6		Basic Electrical and Electronics Engineering	4
7		Engineering Entrepreneurship and IPR	3
8		Basic Electrical and Electronics Engineering Workshop	1
9	<b>S3</b>	Introduction to Artificial Intelligence and Data Science	4
10	<b>S6</b>	Design Thinking and Creativity	2
<b>Total Credits</b>			<b>29</b>

Programme Core Courses (PC)			
Sl. No:	Semester	Course Area	Credits
1	S2	Transducers & Measurements	4
2	S3	Electrical machines & Drives	4
3		Mechanics of Solids	4
4		Electrical Technology Lab	2
5		Instrumentation Lab	2
6		S4	Digital Electronics
7	Computer architecture and microcontroller		4
8	Analog and Digital Electronics Lab		2
9	Mechanical engineering lab		2
10	S5	Linear control systems	4
11		Thermodynamics	4
12		Industrial Hydraulics & Pneumatics	3
13		CAD Lab	2
14		Microcontroller Lab	2
15	S6	Robotics & Machine vision	4
16		Autotronics	3
17		Mechatronics systems & PLC lab	2
<b>Total Credits (Theory -10, Lab-7)</b>			<b>52</b>

Programme Core-Project Based Learning (PBL)			
Sl. No:	Semester	Course Area	Credits
1	S3	Analog Electronics	4
2	S4	Manufacturing Process	4
3	S5	Signal Processing & Communication	4
4	S6	PLC & Data Acquisition System	4
<b>Total Credits</b>			<b>16</b>

Programme Elective Courses (PE)			
Sl. No:	Semester	Course Type	Credits
1	S4	PE-1	3
2	S5	PE-2	3
3	S6	PE-3	3
4	S7	PE-4	3
5		PE-5	3
6	S8	PE-6	3
<b>Total Credits</b>			<b>18</b>

Open Elective Courses/Industry Elective( OE/IEL)			
Sl. No:	Semester	Course Type	Credits
1	S6	OE/ILE-1	3
2	S7	OE/ILE-2	3
3	S8	OE/ILE-3	3
<b>Total Credits</b>			<b>9</b>

Project/ Internship and Seminar			
Sl. No:	Semester	Course Type	Credits
1	S6	Mini Project	2
2	S7	Seminar	2
3		Major Project/Internship	4
4	S8	Major Project/Internship/Research Project	4
<b>Total Credits</b>			<b>12</b>

Activity Points				
Sl. No.	Group	Courses	Credits	Minimum Credit Requirements
1	I	NSS, NCC, NSO (National Sports Organization)	1 (40 Points)	3 Credits (One credit from each Group)
2		Arts/Sports/Games		
3		Union/Club Activities		
4	II	English Proficiency Certification (TOFEL, IELTS, BEC etc.)	1 (40 Points)	
5		Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/ Valid Gate Score.		
6		Short Term Internship (Minimum 2 weeks), Clinical Exposure/Training (Minimum 2 weeks), Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities, Participation in University level/State Level/ National Level Hackathons		
7	III	Journal Publication, Patents, Start-Up, Innovation, Winners of National/ International Level Hackathons	1 (40 Points)	
8		<b>Skilling Certificates</b> (Approved by the University)		

- *Students are required to acquire a minimum of 120 activity points, with at least 40 points per group, to fulfill the curriculum requirement of 3 activity credits.*
- *For B. Tech Lateral Entry students, 30 points per group are required. A minimum of 90 activity points must be acquired to obtain the 3 activity credits mandated by the curriculum.*

<b>Course classifications of the B. Tech Programmes and Overall Credit Structure</b>			
<b>Sl. No</b>	<b>Category</b>	<b>Code</b>	<b>Credits</b>
1	Humanities and Social Sciences including Management Courses	HMC	9
2	Basic Science Courses	BSC	20
3	Engineering Science Courses	ESC	29
4	Programme (Professional) Core Courses	PCC	52
5	Programme (Professional) Core Courses-Project Based Learning	PBL	16
6	Programme Elective Courses	PEC	18
7	Open Elective Courses/Industry Linked Elective	OEC/ILE	9
8	Mini Project, Project Work/Internship and Seminar	PWS	12
9	Health and Wellness	HWP	1
10	Skill Enhancement Courses (Digital 101)	SEC	1
11	Mandatory Student Activities	MSA	3
<b>Total Credits</b>			<b>170</b>