

**SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY,
COIMBATORE-641008
B.E. MECHATRONICS ENGINEERING
REGULATION 2022
CHOICE-BASED CREDIT SYSTEM
I – VIII SEMESTER CURRICULUM AND SYLLABI**

SEMESTER I							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT101	Production Technology	3/0/0	3	3	60/40	ESC
2.	22MA105	Matrices and Calculus I	3/1/0	4	4	60/40	BSC
3.	22EN101	Technical Communication Skills	2/0/2	4	3	50/50	HSMC
4.	22CS101	Problem Solving using C++	3/0/2	5	4	50/50	ESC
5.	22PH104	Applied Physics	3/0/2	5	4	50/50	BSC
6.	22MT102	Computer Aided Drawing Laboratory for Mechatronics	0/0/3	3	1.5	40/60	ESC
7.	22MT103	Production Technology Laboratory	0/0/3	3	1.5	40/60	ESC
8.	22MC1XX	Mandatory Course – I	Three Weeks		0	0/100	MC
Total			14/1/12	27	21	800	

SEMESTER II							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT201	Applied Mechanics	3/0/0	3	3	60/40	ESC
2.	22GE201	Universal Human Values	3/0/0	3	3	60/40	HSMC
3.	22MT202	Analog and Digital Electronics	3/0/0	3	3	60/40	ESC
4.	22MA204	Calculus II and Transforms	3/1/0	4	4	60/40	BSC
5.	22TA101	Heritage of Tamils	1/0/0	1	1	60/40	HSMC
6.	22CS201	Data Structures and Algorithms	3/0/2	5	4	50/50	ESC
7.	22CH101	Engineering Chemistry	3/0/2	5	4	50/50	BSC
8.	22MT203	Analog and Digital Electronics Laboratory	0/0/2	2	1	40/60	ESC
9.	22MC1XX	Mandatory Course – II	2/0/0	2	0	0/100	MC
Total			21/1/6	28	23	900	

SEMESTER III							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT301	Control Systems for Mechatronics	3/0/0	3	3	60/40	PCC
2.	22MT302	Electrical Machines for Mechatronics	3/0/0	3	3	60/40	PCC
3.	22MT303	Design and Modelling of Mechatronics Systems	3/0/0	3	3	60/40	PCC
4.	22MT304	Theory of Machines	3/0/0	3	3	60/40	PCC
5.	22MA305	Fourier Series and Partial Differential Equations	3/1/0	4	4	60/40	BSC
6.	22TA201	Tamils and Technology	1/0/0	1	1	60/40	HSMC
7.	22IT311	Introduction to Python Programming	1/0/4	5	3	50/50	ESC
8.	22MT305	Electrical Machines for Mechatronics Laboratory	0/0/2	2	1	40/60	PCC
9.	22MT306	Mechanics of Machines and Materials Laboratory	0/0/2	2	1	40/60	PCC
10.	22MC1XX	Mandatory Course – III	2/0/0	2	0	0/100	MC
Total			19/1/8	28	22	1000	

SEMESTER IV							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT401	Computer Networks and Cyber Security	3/0/0	3	3	60/40	PCC
2.	22MT402	Basics of Digital Signal Processing	3/0/0	3	3	60/40	PCC
3.	22XX0XX	Open Elective – I	1/0/4 or 3/0/0	5 or 3	3	50/50 or 60/40	OEC
4.	22MT403	Microcontroller and Its Applications	3/0/0	3	3	60/40	PCC
5.	22MA402	Probability and Computational Methods	3/1/0	4	4	60/40	BSC
6.	22MT404	Sensors, Measurements, and Instrumentation	3/0/2	5	4	50/50	PCC
7.	22MT405	Microcontroller Laboratory for Mechatronics	0/0/2	2	1	40/60	PCC
8.	22MT406	Basics of Digital Signal Processing Laboratory	0/0/2	2	1	40/60	PCC
9.	22MC1XX	Mandatory Course – IV	2/0/0	2	0	0/100	MC
Total			18/1/10 or 20/1/6	29 or 27	22	900	

SEMESTER V							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT501	Machine Design	3/0/0	3	3	60/40	PCC
2.	22MT502	Robotic Systems	3/0/0	3	3	60/40	PCC
3.	22MT503	Power Electronics and Drives	3/0/0	3	3	60/40	PCC
4.	22MT9XX	Professional Elective – I	3/0/0	3	3	60/40	PEC
5.	22XX0XX	Open Elective -II	1/0/4 or 3/0/0	5 or 3	3	50/50 or 60/40	OEC
6.	22MT504	Artificial Intelligence for Robotics	3/0/2	5	4	50/50	PCC
7.	22MT505	Power Electronics and Drives Laboratory	0/0/2	2	1	40/60	PCC
8.	22MT506	Robotic Systems Laboratory	0/0/2	2	1	40/60	PCC
9.	22MT507	Mini Project	0/0/2	2	1	40/60	PROJ
Total			16/0/12 or 18/0/8	28 or 26	22	900	

SEMESTER VI							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT601	Autotronics and Vehicle Intelligence	3/0/0	3	3	60/40	PCC
2.	22MT602	Industrial Management and Professional Ethics	3/0/0	3	3	60/40	HSMC
3.	22MT603	Hydraulics and Pneumatics System	3/0/0	3	3	60/40	PCC
4.	22MT9XX	Professional Elective – II	3/0/0	3	3	60/40	PEC
5.	22MT9XX	Professional Elective – III	3/0/0	3	3	60/40	PEC
6.	22MTXXX	Emerging Elective- I	3/0/0	3	3	60/40	EEC
7.	22MT604	Hydraulics and Pneumatics System Laboratory	0/0/2	2	1	40/60	PCC
8.	22MT605	Industrial Field Training	0/0/2	2	1	0/100	PROJ
Total			18/0/4	22	20	800	

SEMESTER VII							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT701	Computer Integrated Manufacturing	3/0/0	3	3	60/40	PCC
2.	22MT702	Industrial Automation	3/0/0	3	3	60/40	PCC
3.	22MT9XX	Professional Elective – IV	3/0/0	3	3	60/40	PEC
4.	22MT9XX	Professional Elective – V	3/0/0	3	3	60/40	PEC
5.	22MT9XX	Professional Elective – VI	3/0/0	3	3	60/40	PEC
6.	22MTXXX	Emerging Elective – II	3/0/0	3	3	60/40	EEC
7.	22MT703	Computer Integrated Manufacturing Laboratory	0/0/2	2	1	40/60	PCC
8.	22MT704	Industrial Automation Laboratory	0/0/2	2	1	40/60	PCC
9.	22EES01	Employability Enhancement Skills	-	-	2	0/100	EES
Total			18/0/4	22	22	900	

SEMESTER VIII							
S. No.	Course Code	Course	L/T/P	Contact hrs/week	Credit	Ext/Int	Category
1.	22MT801	Industrial Project	0/0/24	24	12	40/60	PROJ
Total			0/0/24	24	12	100	

PROFESSIONAL ELECTIVES (PE):

S. No.	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
Stream I: AI & ROBOTICS						
1.	22MT901	IoT based Augmented Reality	3/0/0	3	3	PEC
2.	22MT902	Introduction to Machine Learning	3/0/0	3	3	PEC
3.	22MT903	Mobile Robotics	3/0/0	3	3	PEC
4.	22MT904	Soft and Swarm Robotics	3/0/0	3	3	PEC
5.	22MT905	Bio-Mechatronics	3/0/0	3	3	PEC
6.	22MT906	Robot Operating System	3/0/0	3	3	PEC
7.	22MT907	Robot Control System	3/0/0	3	3	PEC
8.	22MT908	Micro Robotics	3/0/0	3	3	PEC
9.	22MT909	Data Analytics for Robotics and Automation	3/0/0	3	3	PEC

S. No	Course Code	Course Title	L/T/P	Contact Hrs/ Wk	Credits	Category
Stream II: Automation and Networking						
1.	22MT910	Embedded System for Automation	3/0/0	3	3	PEC
2.	22MT911	Robotic Process Automation	3/0/0	3	3	PEC
3.	22MT912	Industrial Networking	3/0/0	3	3	PEC
4.	22MT913	Design Thinking and Product Development	3/0/0	3	3	PEC
5.	22MT914	Virtual Instrumentation and its Applications	3/0/0	3	3	PEC
6.	22MT915	Micro and Nano Mechatronics Systems	3/0/0	3	3	PEC
7.	22MT916	Digital Manufacturing	3/0/0	3	3	PEC
8.	22MT917	Adaptive and Predictive Control of Mechatronics Systems	3/0/0	3	3	PEC
9.	22MT918	CNC Machines and Part Programming	3/0/0	3	3	PEC

S. No	Course Code	Course Title	L/T/P	Contact Hrs/Wk	Credits	Category
Stream III: Autonomous and E-Vehicle						
1.	22MT919	AI for Electric and Hybrid Vehicles	3/0/0	3	3	PEC
2.	22MT920	Advanced Driver Assistance Systems	3/0/0	3	3	PEC
3.	22MT921	Vehicle Ergonomics and Human Comfort	3/0/0	3	3	PEC
4.	22MT922	Unmanned Aerial Vehicles	3/0/0	3	3	PEC
5.	22MT923	Battery Management System	3/0/0	3	3	PEC
6.	22MT924	Autonomous Underwater Vehicles	3/0/0	3	3	PEC
7.	22MT925	Automotive Materials and Metallurgy	3/0/0	3	3	PEC
8.	22MT926	Design of Lightweight Electric Hybrid Vehicles	3/0/0	3	3	PEC
9.	22MT927	Internet of Things for Mechatronics	3/0/0	3	3	PEC

OPEN ELECTIVES (OE): Offered to other departments

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22MT001	Basics of Robotics	3/0/0	3	3	OEC
2.	22MT002	Basics of Automation Systems	3/0/0	3	3	OEC
4.	22MT003	Smart Sensors for IoT	3/0/0	3	3	OEC
5.	22MT004	Drone Technology	3/0/0	3	3	OEC
6.	22MT005	Basics of Arduino and Raspberry pi	3/0/0	3	3	OEC

EMERGING ELECTIVES (EE): Offered to MCT

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22MT007	Industry X.0 for Mechatronics	3/0/0	3	3	EEC
2.	22MT008	Quantum Computing in Robotics	3/0/0	3	3	EEC
3.	22MT009	Humanoid Robots	3/0/0	3	3	EEC
4.	22MT010	Blockchain Technology for Robotics Applications	3/0/0	3	3	EEC
5.	22MT011	Cognitive Robotics	3/0/0	3	3	EEC
6.	22MT012	Image Processing and Machine Vision System	3/0/0	3	3	EEC

MANDATORY COURSES (MC):

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22MC101	Induction Programme	3 weeks		0	MC
2.	22MC102	Environmental Sciences	2/0/0	2	0	MC
3.	22MC103	Soft Skills	2/0/0	2	0	MC
4.	22MC104	Management Organizational Behavior	2/0/0	2	0	MC
5.	22MC105	General Aptitude	2/0/0	2	0	MC
6.	22MC106	Life Skills and Ethics	2/0/0	2	0	MC
7.	22MC107	Stress Management	2/0/0	2	0	MC
8.	22MC108	Constitution of India	2/0/0	2	0	MC
9.	22MC109	Essence of Indian Traditional Knowledge	2/0/0	2	0	MC
10.	22MC110	Biology	2/0/0	2	0	MC

VALUE ADDED COURSES (VAC):

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1	22VA600	Solidworks	0/0/2	2	1	VAC
2	22VA601	MATLAB programming	0/0/2	2	1	VAC
3	22VA602	Android Studio	0/0/2	2	1	VAC
4	22VA603	Intellectual Property Rights & Entrepreneurship	2/0/0	2	2	VAC
5	22VA604	Financial Literacy	2/0/0	2	2	VAC
6	22VA605	Automation Studio	0/0/2	2	1	VAC
7	22VA606	Electric Vehicle Design & Fabrication	2/0/0	2	2	VAC

HUMANITIES AND MANAGEMENT COURSES (11 Credits)

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22GE201	Universal Human Values	3/0/0	3	3	HSMC
2.	22EN101	Technical Communication Skills	2/0/2	4	3	HSMC
3.	22MT602	Industrial Management and Professional Ethics	3/0/0	3	3	HSMC
4.	22TA101	Heritage of Tamils	1/0/0	1	1	HSMC
5.	22TA201	Tamils and Technology	1/0/0	1	1	HSMC

BASIC SCIENCE COURSES (24 Credits)

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22MA105	Matrices and Calculus I	3/1/0	4	4	BSC
2.	22MA204	Calculus II and Transforms	3/1/0	4	4	BSC
3.	22MA305	Fourier Series and Partial Differential Equations	3/1/0	4	4	BSC
4.	22CH101	Engineering Chemistry	3/0/2	5	4	BSC
5.	22PH104	Applied Physics	3/0/2	5	4	BSC
6.	22MA402	Probability and Computational Methods	3/1/0	4	4	BSC

ENGINEERING SCIENCE COURSES (25 Credits)

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22MT101	Production Technology	3/0/0	3	3	ESC
2.	22CS101	Problem Solving using C++	3/0/2	5	4	ESC
3.	22MT102	Computer Aided Drawing Laboratory for Mechatronics	0/0/3	3	1.5	ESC
4.	22MT103	Production Technology Laboratory	0/0/3	3	1.5	ESC
5.	22MT201	Applied Mechanics	3/0/0	3	3	ESC
6.	22MT202	Analog and Digital Electronics	3/0/0	3	3	ESC
7.	22CS201	Data Structures and Algorithms	3/0/2	5	4	ESC
8.	22MT203	Analog and Digital Electronics Laboratory	0/0/2	2	1	ESC
9.	22ITXXX	Python Programming	1/0/4	5	3	ESC

PROFESSIONAL CORE COURSES (59 Credits)

S. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	Credits	Category
1.	22MT301	Control Systems for Mechatronics	3/0/0	3	3	PCC
2.	22MT302	Electrical Machines for Mechatronics	3/0/0	3	3	PCC
3.	22MT303	Design and Modelling of Mechatronics Systems	3/0/0	3	3	PCC
4.	22MT304	Theory of Machines	3/0/0	3	3	PCC
5.	22MT305	Electrical Machines for Mechatronics Laboratory	0/0/2	2	1	PCC
6.	22MT306	Mechanics of Machines and Materials Laboratory	0/0/2	2	1	PCC
7.	22MT401	Computer Networks and Cyber Security	3/0/0	3	3	PCC
8.	22MT402	Basics of Digital Signal Processing	3/0/0	3	3	PCC
9.	22MT403	Microcontroller and Its Applications	3/0/0	3	3	PCC
10.	22MT404	Sensors, Measurements, and Instrumentation	3/0/2	5	4	PCC
11.	22MT405	Microcontroller Laboratory for Mechatronics	0/0/2	2	1	PCC
12.	22MT406	Basics of Digital Signal Processing Laboratory	0/0/2	2	1	PCC

13.	22MT501	Machine Design	3/0/0	3	3	PCC
14.	22MT502	Robotic Systems	3/0/0	3	3	PCC
15.	22MT503	Power Electronics and Drives	3/0/0	3	3	PCC
16.	22MT504	Artificial Intelligence for Robotics	3/0/2	5	4	PCC
17.	22MT505	Power Electronics and Drives Laboratory	0/0/3	3	1.5	PCC
18.	22MT506	Robotic Systems Laboratory	0/0/3	3	1.5	PCC
19.	22MT601	Autotronics and Vehicle Intelligence	3/0/0	3	3	PCC
20.	22MT603	Hydraulics and Pneumatics System	3/0/0	3	3	PCC
21.	22MT604	Hydraulics and Pneumatics System Laboratory	0/0/2	2	1	PCC
22.	22MT701	Computer Integrated Manufacturing	3/0/0	3	3	PCC
23.	22MT702	Industrial Automation	3/0/0	3	3	PCC
24.	22MT703	Computer Integrated Manufacturing Laboratory	0/0/2	2	1	PCC
25.	22MT704	Industrial Automation Laboratory	0/0/2	2	1	PCC

Category wise Comparison of Courses and Credits

S. No.	Category	AICTE- MCT 2020		SKCET-MCT R2022	
		No of Courses	No. of Credits	No of Courses	No. of Credits
1.	Humanities (HSMC)	4	12	5	11
2.	Basic Sciences (BSC)	5	21	6	24
3.	Engineering Sciences (ESC)			9	24
4.	Professional Core (PCC)	44	101	25	59
5.	Professional Electives (PEC)	2	6	6	18
6.	Open Electives (OEC)/ Emerging Elective (EEC)	2	6	4	12
7.	Project Work (PROJ)	7	17	3	14
8.	Employability Enhancement Skill (EES)			1	2
9.	Mandatory Courses (MC)	3	-	4	-
Total		67	163	63	164

Scheme of Credit Distribution- Summary

S. No	Stream	Credits/Semester								Credits	%
		I	II	III	IV	V	VI	VII	VIII		
1.	Humanities (HSMC)	3	4	1			3			11	6.70
2.	Basic Sciences (BSC)	8	8	4	4					24	14.63
3.	Engineering Sciences (ESC)	10	11	3						24	14.63
4.	Professional Core (PCC)			14	15	15	7	8		59	35.97
5.	Professional Electives (PEC)					3	6	9		18	10.97
6.	Open Electives (OEC)/ Emerging Elective (EEC)				3	3	3	3		12	7.31
7.	Project Work (PROJ)					1	1		12	14	8.53
8.	Employability Enhancement Skill (EES)							2		2	1.21
9.	Mandatory Courses (MC)										
Total		21	23	22	22	22	20	22	12	164	100