V.S.B. College of Engineering Technical Campus
(An Autonomous Institution)
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai
NAAC Accredited Institution, NBA Accredited Courses
Coimbatore to Pollachi Road NH -209, Ealur Privu, Kinathukadavu Taluk,
Coimbatore - 642109, Tamilnadu, India. Email:office@vsbcetc.com website : www.vsbcetc.com

REGULATIONS 2024

CHOICE BASED CREDIT SYSTEM

B.E- MECHANICAL ENGINEERING

I. ABOUT THE DEPARTMENT

Welcome to the Department of Mechanical Engineering at V.S.B. College of Engineering Technical Campus, Coimbatore. It occupies a prominent place in the records of the college due to its good academic history. It offers a 4-year B.E. Mechanical Engineering Programme, the most sought-after one among all the Programme since the Institution was founded in 2012. All our constituents are continually evaluating and improving departmental activities to fulfill our mission of excellence in engineering education. In 2012, the department was started with 60 students; later, the intake was increased to 120 and 180 subsequently because of the continuous good academic efforts and care taken by the department. The Mechanical department was accredited by the National Board of Accreditation(NBA) for a period of three years (2019-2022) and again accredited for a period of three years (2022-2025). In the years that followed, the department continued its success in education, placement, and research. These activities centered around and continued to include the traditional areas of Mechanical Engineering, namely Basics of Engineering, Fluid Mechanics, Thermodynamics, Manufacturing Technology, Heat, and Mass Transfer, Strength of Materials, Kinematics and Dynamics, Internal Combustion Engines and Robotics.

II. VISION OF THE DEPARTMENT:

To be recognized as a Centre of Excellence in Mechanical Engineering Education and Research

III. MISSION OF THE DEPARTMENT:

The Department strives to contribute to the expansion of knowledge in the discipline of Mechanical Engineering by,

- To impart quality education to the students with practical exposure by developing linkages with industries.
- To enhance the students' skills through imparting fundamental principles in Mechanical Engineering to make them globally competitive Mechanical Engineers and to prepare them for diverse careers.
- To motivate students to excel by augmenting their entrepreneurial skills to serve the society better.
- To promote research activities through encouraging the faculty members and students to do innovative projects, attend conferences, development programs and to accomplish publications on emerging trends.

IV. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- **PEO1:** Graduates will be a technically advanced workforce as successful professionals in the wide range of Mechanical Engineering and related fields.
- **PEO2:** Graduates will be effective collaborators and innovators, leading in efforts to address social, technical and business issues.
- **PEO3:** Graduates will engage in life-long learning and professional development through self- study, continuing education or graduate and professional studies in engineering and business.

V. PROGRAM OUTCOMES (POs)

PO 1:Engineering knowledge

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO 7: Environment and sustainability

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication

Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and finance

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

VI. PROGRAM SPECIFIC OUTCOMES (PSOs)

The Students will be able to

PSO1 - Enable the students to design, analyze and evaluate the mechanical engineering components through innovative projects.

PSO2 - Enable the students to take up career in prominent industries or to pursue higher studies in mechanical and interdisciplinary programs.

B.E.MECHANICAL ENGINEERING

CHOICE BASED CREDIT SYSTEM

CURRICULA FOR SEMESTERS I TO VIII AND SYLLABI FOR SEMESTERS III AND IV

SEMESTER I

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
1.	24IP101	Induction Programme	-	-	-	-	-	-	0
THEORY									
2.	24HST101	Professional English -I	HSMC	40/60	3	0	0	3	3
3.	24MAT101	Matrices and Calculus	BSC	40/60	3	1	0	4	4
4.	24PHT101	Engineering Physics	BSC	40/60	3	0	0	3	3
5.	24CYT101	Engineering Chemistry	BSC	40/60	3	0	0	3	3
6.	24GET101	Problem Solving and Python Programming	ESC	40/60	3	0	0	3	3
7.	24GET102	தமிழர் மரபு/Heritage of Tamils	HSMC	40/60	1	0	0	1	1
PRACTICALS									
8.	24GEP101	Problem Solving and Python Programming Laboratory	ESC	75 / 25	0	0	4	4	2
9.	24BSP101	Physics and Chemistry Laboratory	BSC	75 / 25	0	0	4	4	2
10.	24GEP102	English Laboratory[$]	EEC	75 / 25	0	0	2	2	1
TOTAL				**900**	**16**	**1**	**10**	**27**	**22**

[$]Skill Based Course

SEMESTER II

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
THEORY									
1.	24HST201	Professional English- II	HSMC	40 / 60	2	0	0	2	2
2.	24MAT201	Statistics and Numerical Methods	BSC	40 / 60	3	1	0	4	4
3.	24PHT205	Material Science	BSC	40 / 60	3	0	0	3	3
4.	24BET202	Basic Electrical and Electronics Engineering	ESC	40 / 60	3	0	0	3	3
5.	24GET201	Engineering Graphics	ESC	40 / 60	2	0	4	6	4
6.	24GET202	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	HSMC	40 / 60	1	0	0	1	1
7.		NCC Credit Course Level 1[#]	-	-	2	0	0	2	2#
PRACTICALS									
8.	24GEP201	Engineering Practices Laboratory	ESC	75 / 25	0	0	4	4	2
9.	24BEP202	Basic Electrical and Electronics Engineering Laboratory	ESC	75/25	0	0	4	4	2
10.	24GEP202	Communication Laboratory / Foreign Language[$]	EEC	75 / 25	0	0	4	4	2
TOTAL				**900**	**17**	**1**	**16**	**34**	**23**

NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

$ Skill Based Course

SEMESTER III

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
THEORY									
1.	24MAT302	Transforms and Partial Differential Equations	BSC	40/60	3	1	0	4	4
2.	24MET301	Engineering Mechanics	ESC	40/60	3	0	0	3	3
3.	24MET302	Engineering Thermodynamics	PCC	40/60	3	0	0	3	3
4.	24CET301	Fluid Mechanics and Machinery	ESC	40/60	3	1	0	4	4
5.	24MET303	Engineering Materials and Metallurgy	PCC	40/60	3	0	0	3	3
6.	24MET304	Manufacturing Processes	PCC	40/60	3	0	0	3	3
PRACTICALS									
7.	24MEP301	Computer Aided Machine Drawing	ESC	75/25	0	0	4	4	2
8.	24MEP302	Manufacturing Technology Laboratory	PCC	75/25	0	0	4	4	2
9.	24GEP301	Professional Development[$]	EEC	-	0	0	2	2	1
TOTAL				**800**	**18**	**02**	**10**	**30**	**25**

[$]Skill Based Course

SEMESTER IV

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
THEORY									
1.	24MET401	Theory of Machines	PCC	40/60	3	0	0	3	3
2.	24MET402	Thermal Engineering	PCC	40/60	4	0	0	4	4
3.	24MET403	Hydraulics and Pneumatics	PCC	40/60	3	0	0	3	3
4.	24MET404	Manufacturing Technology	PCC	40/60	3	0	0	3	3
5.	24MET405	Strength of Materials	PCC	40/60	3	0	0	3	3
6.	24GET401	Environmental Sciences and Sustainability	BSC	40/60	2	0	0	2	2
7.		National Cadet Corps (NCC)**	-	-	0	0	2	2	2#
PRACTICALS									
8.	24MEP401	Strength of Materials and Fluid Machinery Laboratory	PCC	75/25	0	0	4	4	2
9.	24MEP402	Thermal Engineering Laboratory	PCC	75/25	0	0	4	4	2
TOTAL				**800**	**18**	**0**	**8**	**26**	**22**

NCC Credit Course level 1 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.

SEMESTER V

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
THEORY									
1.	24MET501	Design of Machine Elements	PCC	40/60	4	0	0	4	4
2.	24MET502	Metrology and Measurements	PCC	40/60	3	0	0	3	3
3.		Professional Elective –I	PEC	40/60	-	-	-	-	3
4.		Professional Elective -II	PEC	40/60	-	-	-	-	3
5.		Professional Elective -III	PEC	40/60	-	-	-	-	3
6.		Mandatory Course-I[&]	MC	-	3	0	0	3	0
PRACTICALS									
7.	24MEP501	Summer Internship[*]	EEC	75/25	0	0	0	0	1
8.	24MEP502	Metrology and Dynamics Laboratory	PCC	75/25	0	0	4	4	2
TOTAL				**700**	**-**	**-**	**-**	**-**	**19**

[&]Mandatory Course-I is a Non-credit Course (Student shall select one course from the list given under Mandatory Course-I)

*Two weeks Summer Internship carries one credit and it will be done during IV semester summer vacation and same will be evaluated in V semester.

SEMESTER VI

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
THEORY									
1.	24MET601	Heat and Mass Transfer	PCC	40/60	3	1	0	4	4
2.		Professional Elective -IV	PEC	40/60	-	-	-	-	3
3.		Professional Elective -V	PEC	40/60	-	-	-	-	3
4.		Professional Elective –VI	PEC	40/60	-	-	-	-	3
5.		Professional Elective -VII	PEC	40/60	-	-	-	-	3
6.		Open Elective – I*	OEC	40/60	3	0	0	3	3
7.		Mandatory Course-II&	MC	-	3	0	0	3	0
8.		NCC Credit Course Level 3#		-	3	0	0	3	3#
PRACTICALS									
8.	24MEP601	CAD/CAM Laboratory	PCC	75/25	0	0	4	4	2
9.	24MEP602	Heat Transfer Laboratory	PCC	75/25	0	0	4	4	2
TOTAL				**800**	**-**	**-**	**-**	**-**	**23**

*Open Elective – I shall be chosen from the list of open electives offered by other Programmes

& Mandatory Course-II is a Non-credit Course (Student shall select one course from the list given under Mandatory Course-II)

SEMESTER VII / VIII*

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
					L	T	P		
THEORY									
1.	24MET701	Mechatronics and IoT	PCC	40/60	3	0	0	3	3
2.	24MET702	Computer Integrated Manufacturing	PCC	40/60	3	0	0	3	3
3.	24GET701	Human Values and Professional Ethics	HSMC	40/60	2	0	0	2	2
4.	24MGT701	Industrial Management	HSMC	40/60	3	0	0	3	3
5.		Open Elective – II**	OEC	40/60	3	0	0	3	3
6.		Open Elective – III***	OEC	40/60	3	0	0	3	3
		Open Elective – IV***	OEC	40/60	3	0	0	3	3
PRACTICALS									
7.	24MEP701	Mechatronics and IoT Laboratory	PCC	75/25	0	0	4	4	2
8.	24MEP702	Summer Internship*	EEC	75/25	0	0	0	0	1
TOTAL				**800**	**20**	**0**	**4**	**24**	**23**

*If students undergo internship in Semester VII, then the courses offered during semester VII will be offered during semester VIII.

** Open Elective II - IV (Shall be chosen from the list of open electives offered by other Programmes).

Elective - Management shall be chosen from the Elective Management courses.

SEMESTER VIII / VII*

S.No	COURSE CODE	COURSE TITLE	CATEGORY	INT / EXT	PEROIDS PER WEEK			TOTAL CONTACT S PERIOD	CREDITS
					L	T	P		
PRACTICALS									
1.	24MEP801	Project Work/Internship	EEC	75/25	0	0	20	20	10
TOTAL				**100**	**0**	**0**	**20**	**20**	**10**

*If students undergo internship in Semester VII, then the courses offered during semester VII will be offered during semester VIII.

TOTAL CREDITS: 167

MANDATORY COURSES I

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24MXT01	Introduction to Women and Gender Studies	MC	3	0	0	3	0
2.	24MXT02	Elements of Literature	MC	3	0	0	3	0
3.	24MXT03	Film Appreciation	MC	3	0	0	3	0
4.	24MXT04	Disaster Management	MC	3	0	0	3	0

MANDATORY COURSES II

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24MXT05	Well Being with traditional practices (Yoga, Ayurveda and Siddha)	MC	3	0	0	3	0
2.	24MXT06	History of Science and Technology in India	MC	3	0	0	3	0
3.	24MXT07	Political and Economic Thought for a Humane Society	MC	3	0	0	3	0
4.	24MXT08	State, Nation Building and Politics in India	MC	3	0	0	3	0
5.	24MXT09	Industrial Safety	MC	3	0	0	3	0

PROFESSIONAL ELECTIVE COURSES: VERTICALS

MODERN MOBILITY SYSTEMS	PRODUCT AND PROCESS DEVELOPMENT	ROBOTICS AND AUTOMATION	DIGITAL AND GREEN MANUFACTURING	PROCESS EQUIPMENT AND PIPING DESIGN	CLEAN AND GREEN ENERGY TECHNOLOGIES	COMPUTATIONAL ENGINEERING
Automotive Materials, Components, Design & Testing	Value Engineering	Sensors and Instrumentation	Digital Manufacturing and IoT	Design of Pressure Vessels	Bioenergy Conversion Technologies	Computational Solid Mechanics
Conventional and Futuristic Vehicle Technology	Additive Manufacturing	Electrical Drives and Actuators	Lean Manufacturing	Failure Analysis and NDT Techniques	Carbon Footprint estimation and reduction techniques	Computational Fluid Dynamics and Heat transfer
Renewable Powered Off Highway Vehicles and Emission Control Technology	CAD/CAM	Embedded Systems and Programming	Modern Robotics	Material Handling and solid processing Equipment	Energy Conservation in Industries	Theory on Computation and Visualization
Vehicle Health Monitoring, Maintenance and Safety	Design For X	Robotics	Green Manufacturing Design and Practices	Rotating Machinery Design	Energy Efficient Buildings	Computational Bio-Mechanics
CAE and CFD Approach in Future Mobility	Ergonomics in Design	Smart Mobility and Intelligent Vehicles	Environment Sustainability and Impact Assessment	Thermal and Fired Equipment design	Energy Storage Devices	Advanced Statistics and Data Analytics
Hybrid and Electric Vehicle Technology	New Product Development	Haptics and Immersive Technologies	Energy Saving Machinery and Components	Industrial Layout Design and Safety	Renewable Energy Technologies	CAD and CAE
Thermal Management of Batteries and Fuel Cells	Product Life Cycle Management	Drone Technologies	Green Supply Chain Management	Design Codes and Standards	Equipment for Pollution Control	Machine Learning for Intelligent Systems
-	-	-	-	Dynamics of Ground Vehicles	-	Operational Research

Registration of Professional Elective Courses from Verticals:

Professional Elective Courses will be registered in Semesters V and VI. These courses are listed in groups called verticals that represent a particular area of specialization / diversified group. Students are permitted to choose all the Professional Electives from a particular vertical or from different verticals. Further, only one Professional Elective course shall be chosen in a semester horizontally (row-wise). However, two courses are permitted from the same row, provided one course is enrolled in Semester V and another in semester VI.The registration of courses for B.E./B.Tech (Honours) or Minor degree shall be done from Semester V to VIII. The procedure for registration of courses explained above shall be followed for the courses of B.E/B.Tech (Honours) or Minor degree also. For more details on B.E./B.Tech (Honours) or Minor degree refer to the Regulations 2021, Clause 4.10.

PROFESSIONAL ELECTIVE COURSES: VERTICALS

VERTICAL 1 : MODERN MOBILITY SYSTEMS

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1.	24MEET01	Automotive Materials, Components, Design & Testing	PEC	2	0	2	4	3
2.	24MEET02	Conventional and Futuristic Vehicle Technology	PEC	3	0	0	3	3
3.	24MEET03	Renewable Powered Off Highway Vehicles and Emission Control Technology	PEC	3	0	0	3	3
4.	24MEET04	Vehicle Health Monitoring, Maintenance and Safety	PEC	3	0	0	3	3
5.	24MEET05	CAE and CFD Approach in Future Mobility	PEC	2	0	2	4	3
6.	24MEET06	Hybrid and Electric Vehicle Technology	PEC	3	0	0	3	3
7.	24MEET07	Thermal Management of Batteries and Fuel Cells	PEC	3	0	0	3	3

VERTICAL 2 : PRODUCT AND PROCESS DEVELOPMENT

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1.	24MEET08	Value Engineering	PEC	3	0	0	3	3
2.	24MEET09	Additive Manufacturing	PEC	2	0	2	4	3
3.	24MEET10	CAD/CAM	PEC	3	0	0	3	3
4.	24MEET11	Design For X	PEC	3	0	0	3	3
5.	24MEET12	Ergonomics in Design	PEC	3	0	0	3	3
6.	24MEET13	New Product Development	PEC	3	0	0	3	3
7.	24MEET14	Product Life Cycle Management	PEC	3	0	0	3	3

VERTICAL 3 : ROBOTICS AND AUTOMATION

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1.	24MEET15	Sensors and Instrumentation	PEC	3	0	0	3	3
2.	24MEET16	Electrical Drives and Actuators	PEC	3	0	0	3	3
3.	24MEET17	Embedded Systems and Programming	PEC	2	0	2	4	3
4.	24MEET18	Robotics	PEC	3	0	0	3	3
5.	24MEET19	Smart Mobility and Intelligent Vehicles	PEC	3	0	0	3	3
6.	24MEET20	Haptics and Immersive Technologies	PEC	3	0	0	3	3
7.	24MEET21	Drone Technologies	PEC	3	0	0	3	3

VERTICAL 4: DIGITAL AND GREEN MANUFACTURING

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1.	24MEET22	Digital Manufacturing and IoT	PEC	2	0	2	4	3
2.	24MEET23	Lean Manufacturing	PEC	3	0	0	3	3
3.	24MEET24	Modern Robotics	PEC	2	0	2	4	3
4.	24MEET25	Green Manufacturing Design and Practices	PEC	3	0	0	3	3
5.	24MEET26	Environment Sustainability and Impact Assessment	PEC	3	0	0	3	3
6.	24MEET27	Energy Saving Machinery and Components	PEC	3	0	0	3	3
7.	24MEET28	Green Supply Chain Management	PEC	3	0	0	3	3

VERTICAL 5: PROCESS EQUIPMENT AND PIPING DESIGN

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1.	24MEET29	Design of Pressure Vessels	PEC	3	0	0	3	3
2.	24MEET30	Failure Analysis and NDT Techniques	PEC	2	0	2	4	3
3.	24MEET31	Material Handling and Solid Processing Equipment	PEC	3	0	0	3	3
4.	24MEET32	Rotating Machinery Design	PEC	3	0	0	3	3
5.	24MEET33	Thermal and Fired Equipment Design	PEC	3	0	0	3	3

6.	24MEET34	Industrial Layout Design and Safety	PEC	2	0	2	4	3
7.	24MEET35	Design Codes and Standards	PEC	3	0	0	3	3

VERTICAL 6: CLEAN AND GREEN TECHNOLOGIES

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24MEET36	Bioenergy Conversion Technologies	PEC	3	0	0	3	3
2.	24MEET37	Carbon Footprint Estimation and Reduction Techniques	PEC	3	0	0	3	3
3.	24MEET38	Energy Conservation in Industries	PEC	3	0	0	3	3
4.	24MEET39	Energy Efficient Buildings	PEC	3	0	0	3	3
5.	24MEET40	Energy Storage Devices	PEC	3	0	0	3	3
6.	24MEET41	Renewable Energy Technologies	PEC	3	0	0	3	3
7.	24MEET42	Equipment for Pollution Control	PEC	3	0	0	3	3

VERTICAL 7: COMPUTATIONAL ENGINEERING

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24MEET43	Computational Solid Mechanics	PEC	3	0	0	3	3
2.	24MEET44	Computational Fluid Dynamics and Heat transfer	PEC	3	0	0	3	3
3.	24MEET45	Theory on Computation and Visualization	PEC	3	0	0	3	3
4.	24MEET46	Computational Bio-Mechanics	PEC	3	0	0	3	3
5.	24MEET47	Advanced Statistics and Data Analytics	PEC	3	0	0	3	3
6.	24MEET48	CAD and CAE	PEC	2	0	2	4	3
7.	24MEET49	Machine Learning for Intelligent Systems	PEC	3	0	0	3	3

VERTICAL 8: LOGISTICS AND SUPPLYCHAIN MANAGEMENT

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24MEET50	Automation in Manufacturing	PEC	3	0	0	3	3
2.	24MEET51	Warehousing Automation	PEC	3	0	0	3	3
3.	24MEET52	Material Handling Equipment, Repair and Maintenance	PEC	3	0	0	3	3
4.	24MEET53	Robotics	PEC	3	0	0	3	3
5.	24MEET54	Container Logistics	PEC	3	0	0	3	3
6.	24MEET55	Logistics in Manufacturing, Supply Chain and Distribution	PEC	3	0	0	3	3
7.	24MEET56	Data Science	PEC	3	0	0	3	3

VERTICAL 9: DIVERSIFIED COURSES GROUP 1

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24MEET57	Automobile Engineering	PEC	3	0	0	3	3
2.	24MEET58	Measurements and Controls	PEC	3	0	0	3	3
3.	24MEET59	Design Concepts in Engineering	PEC	3	0	0	3	3
4.	24MEET60	Composite Materials and Mechanics	PEC	3	0	0	3	3
5.	24MEET61	Electrical Drives and Control	PEC	3	0	0	3	3
6.	24MEET62	Power Plant Engineering	PEC	3	0	0	3	3
7.	24MEET63	Refrigeration and Air Conditioning	PEC	3	0	0	3	3
8.	24MEET64	Dynamics of Ground Vehicles	PEC	3	0	0	3	3

VERTICAL 10: DIVERSIFIED COURSES GROUP 2

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24MEET65	Turbo Machines	PEC	3	0	0	3	3
2.	24MEET66	Non-traditional Machining Processes	PEC	3	0	0	3	3
3.	24MEET67	Industrial safety	PEC	3	0	0	3	3
4.	24MEET68	Design of Transmission System	PEC	3	0	0	3	3
5.	24MEET69	Thermal Power Engineering	PEC	3	0	0	3	3
6.	24MEET70	Design for Manufacturing	PEC	3	0	0	3	3
7.	24MEET71	Power Generation Equipment Design	PEC	3	0	0	3	3

VERTICAL 11: DIVERSIFIED COURSES GROUP 3

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24MEET72	Advanced Vehicle Engineering	PEC	3	0	0	3	3
2.	24MEET73	Advanced Internal Combustion Engineering	PEC	3	0	0	3	3
3.	24MEET74	Casting and Welding Processes	PEC	3	0	0	3	3
4.	24MEET75	Process Planning and Cost Estimation	PEC	3	0	0	3	3
5.	24MEET76	Surface Engineering	PEC	3	0	0	3	3
6.	24MEET77	Precision Manufacturing	PEC	3	0	0	3	3
7.	24MEET78	Gas Dynamics and Jet Propulsion	PEC	3	0	0	3	3
8.	24MEET79	Operational Research	PEC	3	0	0	3	3

OPEN ELECTIVES

(Students shall choose the open elective courses, such that the course contents are not similar to any other course contents/title under other course categories).

OPEN ELECTIVE I AND II (EMERGING TECHNOLOGIES)

To be offered other than Faculty of Information and Communication Engineering

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24OCS351	Artificial Intelligence and Machine Learning Fundamentals	OEC	2	0	2	4	3
2.	24OCS352	IoT Concepts and Applications	OEC	2	0	2	4	3
3.	24OCS353	Data Science Fundamentals	OEC	2	0	2	4	3
4.	24OCS354	Augmented and Virtual Reality	OEC	2	0	2	4	3

OPEN ELECTIVE III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24OHS351	English for Competitive Examinations	OEC	3	0	0	3	3
2.	24OCE353	Lean Concepts, Tools And Practices	OEC	3	0	0	3	3
3.	24OMG352	NGOs and Sustainable Development	OEC	3	0	0	3	3
4.	24OMG353	Democracy and Good	OEC	3	0	0	3	3

		Governance						
5.	24OME353	Renewable Energy Technologies	OEC	3	0	0	3	3
6.	24OME354	Applied Design Thinking	OEC	2	0	2	4	3
7.	24OMF351	Reverse Engineering	OEC	3	0	0	3	3
8.	24OAS352	Space Engineering	OEC	3	0	0	3	3
9.	24OIE354	Quality Engineering	OEC	3	0	0	3	3
10.	24OSF351	Fire Safety Engineering	OEC	3	0	0	3	3
11.	24OAE352	Fundamentals of Aeronautical Engineering	OEC	3	0	0	3	3
12.	24OGI351	Remote Sensing Concepts	OEC	3	0	0	3	3
13.	24OAI351	Urban Agriculture	OEC	3	0	0	3	3
14.	24OEN351	Drinking Water Supply and Treatment	OEC	3	0	0	3	3
15.	24OCH351	Nano Technology	OEC	3	0	0	3	3
16.	24OCH352	Functional Materials	OEC	3	0	0	3	3
17.	24OBT352	Biomedical Instrumentation	OEC	3	0	0	3	3
18.	24OFD352	Traditional Indian Foods	OEC	3	0	0	3	3
19.	24OFD353	Introduction to food processing	OEC	3	0	0	3	3
20.	24OPY352	IPR for Pharma Industry	OEC	3	0	0	3	3
21.	24OTT351	Basics of Textile Finishing	OEC	3	0	0	3	3
22.	24OTT352	Industrial Engineering for Garment Industry	OEC	3	0	0	3	3
23.	24OTT353	Basics of Textile Manufacture	OEC	3	0	0	3	3
24.	24OPE351	Introduction to Petroleum Refining and Petrochemicals	OEC	3	0	0	3	3
25.	24OPE352	Energy Conservation and Management	OEC	3	0	0	3	3
26.	24OPT351	Basics of Plastics Processing	OEC	3	0	0	3	3
27.	24OEC351	Signals and Systems	OEC	3	0	0	3	3
28.	24OEC352	Fundamentals of Electronic Devices and Circuits	OEC	3	0	0	3	3
29.	24OBM351	Foundation Skills in integrated product Development	OEC	3	0	0	3	3
30.	24OBM352	Assistive Technology	OEC	3	0	0	3	3

31.	24OMA352	Operations Research	OEC	3	0	0	3	3
32.	24OMA353	Algebra and Number Theory	OEC	3	0	0	3	3
33.	24OMA354	Linear Algebra	OEC	3	0	0	3	3

OPEN ELECTIVE – IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	24OHS352	Project Report Writing	OEC	3	0	0	3	3
2.	24OCE354	Basics of Integrated Water Resources Management	OEC	3	0	0	3	3
3.	24OMA355	Advanced Numerical Methods	OEC	3	0	0	3	3
4.	24OMA356	Random Processes	OEC	3	0	0	3	3
5.	24OMA357	Queuing and Reliability Modelling	OEC	3	0	0	3	3
6.	24OMG354	Production and Operations Management for Entrepreneurs	OEC	3	0	0	3	3
7.	24OMG355	Multivariate Data Analysis	OEC	3	0	0	3	3
8.	24OME352	Additive Manufacturing	OEC	3	0	0	3	3
9.	24OME353	New Product Development	OEC	3	0	0	3	3
10.	24OME355	Industrial Design & Rapid Prototyping Techniques	OEC	2	0	2	4	3
11.	24OMF352	Micro and Precision Engineering	OEC	3	0	0	3	3
12.	24OAS353	Space Vehicles	OEC	3	0	0	3	3
13.	24OIM352	Management Science	OEC	3	0	0	3	3
14.	24OSF352	Industrial Hygiene	OEC	3	0	0	3	3
15.	24OSF353	Chemical Process Safety	OEC	3	0	0	3	3
16.	24OML352	Electrical, Electronic and Magnetic materials	OEC	3	0	0	3	3
17.	24OML353	Nanomaterials and applications	OEC	3	0	0	3	3
18.	24ORA353	Concepts in Mobile Robotics	OEC	3	0	0	3	3
19.	24OMV351	Marine Propulsion	OEC	3	0	0	3	3
20.	24OMV352	Marine Merchant Vehicles	OEC	3	0	0	3	3

21.	24OMV353	Elements of Marine Engineering	OEC	3	0	0	3	3
22.	24OGI352	Geographical Information System	OEC	3	0	0	3	3
23.	24OAI352	Agriculture Entrepreneurship Development	OEC	3	0	0	3	3
24.	24OEN352	Biodiversity Conservation	OEC	3	0	0	3	3
25.	24OCH353	Energy Technology	OEC	3	0	0	3	3
26.	24OCH354	Surface Science	OEC	3	0	0	3	3
27.	24OBT353	Environment and Agriculture	OEC	3	0	0	3	3
28.	24OFD354	Fundamentals of Food Engineering	OEC	3	0	0	3	3
29.	24OFD355	Food safety and Quality Regulations	OEC	3	0	0	3	3
30.	24OPY353	Nutraceuticals	OEC	3	0	0	3	3
31.	24OTT354	Basics of Dyeing and Printing	OEC	3	0	0	3	3
32.	24OTT355	Fibre Science	OEC	3	0	0	3	3
33.	24OTT356	Garment Manufacturing Technology	OEC	3	0	0	3	3

SUMMARY

NAME OF THE PROGRAMME: B.E. MECHANICAL ENGINEERING										
S.NO	**SUBJECT AREA**	**CREDITS PER SEMESTER**								**TOTAL CREDITS**
		I	**II**	**III**	**IV**	**V**	**VI**	**VII/VIII**	**VIII/VII**	
1.	**HSMC**	**4**	**3**					**5**		**12**
2.	**BSC**	**12**	**7**	**4**	**2**					**25**
3.	**ESC**	**5**	**11**	**9**						**24**
4.	**PCC**			**11**	**20**	**9**	**8**	**8**		**56**
5.	**PEC**					**9**	**12**			**21**
6.	**OEC**						**3**	**9**		**12**
7.	**EEC**	**1**	**2**	**1**		**1**		**1**	**10**	**13**
8.	**Non-Credit /(Mandatory)**					√	√			
Total		**22**	**23**	**25**	**22**	**19**	**23**	**23**	**10**	**167**

ENROLLMENT FOR B.E. / B. TECH. (HONOURS) / MINOR DEGREE (OPTIONAL)

A student can also optionally register for additional courses (18 credits) and become eligible for the award of B.E. / B. Tech. (Honours) or Minor Degree.For B.E. / B. Tech. (Honours), a student shall register for the additional courses (18 credits) from semester V onwards. These courses shall be from the same vertical or a combination of different verticals of the same programme of study only. For minor degree, a student shall register for the additional courses (18 credits) from semester V onwards. All these courses have to be in a particular vertical from any one of the other programmes, Moreover, for minor degree the student can register for courses from any one of the following verticals also.

Complete details are available in clause 4.10 of Regulations 2021.

VERTICALS FOR MINOR DEGREE

(In addition to all the verticals of other programmes)

Vertical I Fintech and Block Chain	**Vertical II Entrepreneurship**	**Vertical III Public Administration**	**Vertical IV Business Data Analytics**	**Vertical V Environmental and Sustainability**
Financial Management	Foundations of Entrepreneurship	Principles of Public Administration	Statistics for Management	Sustainable infrastructure Development
Fundamentals of Investment	Team Building & Leadership Management for Business	Constitution of India	Datamining for Business Intelligence	Sustainable Agriculture and Environmental Management
Banking, Financial Services and Insurance	Creativity & Innovation in Entrepreneurship	Public Personnel Administration	Human Resource Analytics	Sustainable Bio Materials
Introduction to Blockchain and its Applications	Principles of Marketing Management for Business	Administrative Theories	Marketing and Social Media Web Analytics	Materials for Energy Sustainability
Fintech Personal Finance and Payments	Human Resource Management for Entrepreneurs	Indian Administrative System	Operation and Supply Chain Analytics	Green Technology
Introduction to Fintech	Financing New Business Ventures	Public Policy Administration	Financial Analytics	Environmental Quality Monitoring and Analysis
-	-	-	-	Integrated Energy Planning for Sustainable Development
-	-	-	-	Energy Efficiency for Sustainable Development

(Choice of courses for Minor degree is to be made from any one vertical of other programmes or from anyone of the following verticals)

VERTICAL 1: FINTECH AND BLOCK CHAIN

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24CMG331	Financial Management	PEC	3	0	0	3	3
2.	24CMG332	Fundamentals of Investment	PEC	3	0	0	3	3
3.	24CMG333	Banking,Financial Services and Insurance	PEC	3	0	0	3	3
4.	24CMG334	Introduction to Blockchain and its Applications	PEC	3	0	0	3	3
5.	24CMG335	Fintech Personal Finance and Payments	PEC	3	0	0	3	3
6.	24CMG336	Introduction to Fintech	PEC	3	0	0	3	3

VERTICAL 2: ENTREPRENEURSHIP

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24CMG337	Foundations of Entrepreneurship	PEC	3	0	0	3	3
2.	24CMG338	Team Building &Leadership Management for Business	PEC	3	0	0	3	3
3.	24CMG339	Creativity & Innovation in Entrepreneurship	PEC	3	0	0	3	3
4.	24CMG340	Principles of Marketing Management For Business	PEC	3	0	0	3	3
5.	24CMG341	Human Resource Management for Entrepreneurs	PEC	3	0	0	3	3
6.	24CMG342	Financing New Business Ventures	PEC	3	0	0	3	3

VERTICAL 3: PUBLIC ADMINISTRATION

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24CMG343	Principles of Public Administration	PEC	3	0	0	3	3
2.	24CMG344	Constitution of India	PEC	3	0	0	3	3
3.	24CMG345	Public Personnel Administration	PEC	3	0	0	3	3
4.	24CMG346	Administrative Theories	PEC	3	0	0	3	3
5.	24CMG347	Indian Administrative System	PEC	3	0	0	3	3
6.	24CMG348	Public Policy Administration	PEC	3	0	0	3	3

VERTICAL 4: BUSINESS DATA ANALYTICS

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24CMG349	Statistics for Management	PEC	3	0	0	3	3
2.	24CMG350	Datamining For Business Intelligence	PEC	3	0	0	3	3
3.	24CMG351	Human Resource Analytics	PEC	3	0	0	3	3
4.	24CMG352	Marketing And Social Media Web Analytics	PEC	3	0	0	3	3
5.	24CMG353	Operation And Supply Chain Analytics	PEC	3	0	0	3	3
6.	24CMG354	Financial Analytics	PEC	3	0	0	3	3

VERTICAL 5: ENVIRONMENT AND SUSTAINABILITY

S.No	COURSE CODE	COURSE TITLE	CATEGORY	PEROIDS PER WEEK			TOTAL CONTACTS PERIOD	CREDITS
				L	T	P		
1.	24CES331	Sustainable infrastructure Development	PEC	3	0	0	3	3
2.	24CES332	Sustainable Agriculture and Environmental Management	PEC	3	0	0	3	3
3.	24CES333	Sustainable Bio Materials	PEC	3	0	0	3	3
4.	24CES334	Materials for Energy Sustainability	PEC	3	0	0	3	3
5.	24CES335	Green Technology	PEC	3	0	0	3	3
6.	24CES336	Environmental Quality Monitoring and Analysis	PEC	3	0	0	3	3
7.	24CES337	Integrated Energy Planning for Sustainable Development	PEC	3	0	0	3	3
8.	24CES338	Energy Efficiency for Sustainable Development	PEC	3	0	0	3	3