V.S.B. Engineering College

(Recognition of College under Section 2 (f) & 12 (B) of the UGC Act, 1956)
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai
NAAC Accredited & ISO 9001 : 2015 Certified Institution
Karudayampalayam Post, KARUR - 639 111. Tamilnadu.

CHOICE BASED CREDIT SYSTEM

B.E ELECTRICAL AND ELECTRONICS ENGINEERING

ABOUT THE DEPARTMENT:

The Department of Electrical and Electronics Engineering was established in the year 2002. It offers a UG Course namely B.E Electrical and Electronics Engineering, which was started in the year 2002 with a sanctioned intake of 60. B.E. Electrical and Electronics Engineering was accredited by the National Board of Accreditation for a period of three years (2022-2025). It offers PG Courses, namely, M.E. Power Systems Engineering, which was started in the year 2012 with a sanctioned intake of 18.The department strongly, believes in working towards a goal to make the students from engineer to skilled professional. The department of Electrical and Electronics Engineering in V.S.B. Engineering College is a centre of erudition, where we nurture young talents in different fields of Engineering. Our major emphasis of imparting technical training is to encourage curiosity and innovativeness among our students and lay a foundation from where they can acquire quick learning ability and adapt to the fast changing needs of the industry.

VISION OF THE DEPARTMENT:

- To create dynamic and challenging electrical engineers with social responsibilities.

MISSION OF THE DEPARTMENT:

- To provide technical proficiency by adopting well defined teaching learning process.
- To create an environment to practice ethical codes.
- To prepare the graduates to be professionally competent to meet out the industrial needs.
- To motivate the students to pursue higher studies and research activities.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO #1: Have a successful career in core and allied engineering or associated industries or in higher education or as entrepreneurs or in research.

PEO#2: Provide the optimal solution for complex engineering problems in chosen Technical areas.

PEO#3: Exhibit continuous improvement in their profession through life-long learning.

PROGRAMME OUTCOMES (POs):

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

2. **Problem analysis**: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

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.

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.

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.

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.

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.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

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.

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.

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.

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1: Provide optimal solution in the field of Power sector.

PSO2: Apply suitable Electronic controllers for Power conversion, Control and Automation.

PSO3: Make use of appropriate technique and modern tools to analyze and evaluate the performance of Electrical machines and Electronic circuits

PROPOSED CURRICULUM AND SYLLABI AFTER IMPLEMENTATION OF AUTONOMOUS CHOICE BASED CREDIT SYSTEM
B.E ELECTRICAL AND ELECTRONICS ENGINEERING

CURRICULUM FOR SEMESTERS I TO VIII AND SYLLABI FOR SEMESTER I AND II

SEMESTER – I

S.NO.	COURSE CODE	COURSE TITLE	CATE-GORY	Int/Ext	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
					L	T	P		
1.	23IP101	Induction Programme				-	-	-	0
THEORY									
2.	23HST101	Professional English-I	HSMC	40/60	3	0	0	3	3
3.	23MAT101	Matrices and Calculus	BSC	40/60	3	1	0	4	4
4.	23PHT101	Engineering Physics	BSC	40/60	3	0	0	3	3
5.	23CYT101	Engineering Chemistry	BSC	40/60	3	0	0	3	3
6.	23GET101	Programming in C	ESC	40/60	3	0	0	3	3
7.	23GET102	தமிழர் மரபு / Heritage of Tamils	HSMC	100	1	0	0	1	1
PRACTICALS									
8.	23GEP101	Programming in C Laboratory	ESC	75/25	0	0	4	4	2
9.	23BSP101	Physics and Chemistry Laboratory	BSC	75/25	0	0	4	4	2
10.	23HSP102	English Laboratory $	EEC	100	0	0	2	2	1
				Total	**16**	**1**	**10**	**27**	**22**

$ Skill Based Course

SEMESTER – II

S.NO.	COURSE CODE	COURSE TITLE	CATE-GORY	Int/Ext	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
					L	T	P		
THEORY									
1.	23HST201	Professional English-II	HSMC	40/60	2	0	0	2	2
2.	23MAT202	Laplace Transform and Numerical methods	BSC	40/60	3	1	0	4	4
3.	23PHT203	Physics for Electrical Engineering	BSC	40/60	3	0	0	3	3
4.	23BET201	Basic Civil and Mechanical Engineering	ESC	40/60	3	0	0	3	3
5.	23GET201	Engineering Graphics	ESC	40/60	2	0	4	6	4
6.	23EET201	Electric Circuit Analysis	PCC	40/60	3	1	0	4	4
7.		NCC Credit Course Level1#	-	40/60	2	0	0	2	2#
8.	23GET202	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	HSMC	40/60	1	0	0	1	1
PRACTICALS									
9.	23EEP201	Electric Circuits Laboratory	PCC	75/25	0	0	4	4	2
10.	23GEP201	Engineering Practices Laboratory	ESC	75/25	0	0	4	4	2
11.	23GEP202	Communication Laboratory/ Foreign Language$	EEC	75/25	0	0	4	4	2
Total					**17**	**2**	**16**	**35**	**27**

 # 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	CATE GORY	Int/Ext	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
					L	T	P		
THEORY									
1.	23MAT301	Transforms and Partial Differential Equations	BSC	40/60	3	1	0	4	4
2.	23EET301	Electromagnetic Fields	PCC	40/60	3	0	0	3	3
3	23EET302	Electrical Machines - I	PCC	40/60	3	1	0	4	4
4.	23EET303	Electron Devices and Circuits	PCC	40/60	3	0	0	3	3
5.	23EET304	Digital Logic Circuits	PCC	40/60	3	0	0	3	3
6.	23CST201	Problem Solving and Python Programming	PCC	40/60	3	0	0	3	3
PRACTICALS									
7.	23EEP301	Electrical Machines Laboratory – I	PCC	75/25	0	0	3	3	1.5
8.	23EEP302	Electronic Devices and Circuits Laboratory	PCC	75/25	0	0	3	3	1.5
9.	23CSP201	Problem Solving and Python Programming laboratory	PCC	75/25	0	0	3	3	1.5
10.	23GEP301	Professional Development[$]	EEC	100	0	0	2	2	1
Total					**18**	**2**	**11**	**31**	**25.5**

$ Skill Based Course

SEMESTER IV

S.NO.	COURSE CODE	COURSE TITLE	CATEGORY	Int/Ext	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
					L	T	P		
THEORY									
1.	23GET401	Environmental Science and	BSC	40/60	2	0	0	2	2

		Sustainability							
2.	23EET401	Electrical Machines - II	PCC	40/60	3	0	0	3	3
3.	23EET402	Transmission and Distribution	PCC	40/60	3	0	0	3	3
4.	23EET403	Control System	PCC	40/60	3	0	0	3	3
5.	23EET404	Linear Integrated Circuits	PCC	40/60	3	0	0	3	3
6.	23EET405	Measurements and Instrumentation	PCC	40/60	3	0	0	3	3
7.		NCC Credit Course Level 2#			3	0	0	3	3#
PRACTICALS									
8.	23EEP401	Electrical Machines Laboratory - II	PCC	75/25	0	0	4	4	2
9.	23EEP402	Control and Instrumentation Laboratory	PCC	75/25	0	0	4	4	2
10.	23EEP403	Linear and Digital Circuits Laboratory	PCC	75/25	0	0	3	3	1.5
TOTAL					**17**	**0**	**11**	**28**	**22.5**

 # NCC Credit Course level 2 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	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
					L	T	P		
THEORY									
1.	23EET501	Power System Analysis	PCC	40/60	3	0	0	3	3
2.	23EET502	Power Electronics	PCC	40/60	3	0	0	3	3
3.	23EET503	Microprocessor and Microcontroller	PCC	40/60	3	0	0	3	3
4.		Professional Elective I	PEC	40/60	3	0	0	3	3
5.		Professional Elective II	PEC	40/60	3	0	0	3	3
6.		Professional Elective III	PEC	40/60	3	0	0	3	3
7.		Mandatory Course-I[&]	MC		3	0	0	3	0
PRACTICALS									
8.	23EEP501	Power Electronics Laboratory	PCC	75/25	0	0	4	4	2
9.	23EEP502	Microprocessor and Microcontroller laboratory	PCC	75/25	0	0	4	4	2
				TOTAL	**21**	**0**	**8**	**29**	**22**

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

SEMESTER VI

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	Int/Ext	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
					L	T	P		
THEORY									
1.	23EET601	Protection and Switchgear	PCC	40/60	3	0	0	3	3
2.	23EET602	Power System Operation and Control	PCC	40/60	3	0	0	3	3
3.		Open Elective – I*	OEC	40/60	3	0	0	3	3
4.		Professional Elective IV	PEC	40/60	3	0	0	3	3
5.		Professional Elective V	PEC	40/60	3	0	0	3	3
6.		Professional Elective VI	PEC	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									
9.	23EEP601	Power System Laboratory	PCC	75/25	0	0	4	4	2
TOTAL					**21**	**0**	**4**	**25**	**20**

*** Open Elective – I shall be chosen from the emerging technologies**

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

 # NCC Credit Course level 3 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

MANDATORY COURSES I

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23MXT01	Introduction to Women and Gender Studies	MC	3	0	0	3	0
2.	23MXT02	Elements of Literature	MC	3	0	0	3	
3.	23MXT03	Film Appreciation	MC	3	0	0	3	
4.	23MXT04	Disaster Management	MC	3	0	0	3	

MANDATORY COURSES II

S. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23MXT05	Well Being with Traditional Practices (Yoga, Ayurveda and Siddha)	MC	3	0	0	3	0
2.	23MXT06	History of Science and Technology in India	MC	3	0	0	3	
3.	23MXT07	Political and Economic Thought for a Humane Society	MC	3	0	0	3	
4.	23MXT08	State, Nation Building and Politics in India	MC	3	0	0	3	
5.	23MXT09	Industrial Safety	MC	3	0	0	3	

ELECTIVE - MANAGEMENT COURSES

SL. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTA CONTACT PERIODS	CREDITS
				L	T	P		
1.	23GET01	Principles of Management	HSMC	3	0	0	3	3
2.	23GET02	Total Quality Management	HSMC	3	0	0	3	3
3.	23GET03	Engineering Economics and Financial Accounting	HSMC	3	0	0	3	3
4.	23GET04	Human Resource Management	HSMC	3	0	0	3	3
5.	23GET05	Knowledge Management	HSMC	3	0	0	3	3
6.	23GET06	Industrial Management	HSMC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES: VERTICALS

Professional Elective	Vertical I Power Engineering	Vertical II Converters and Drives	Vertical III Embedded Systems	Vertical IV Electric Vehicle Technology	Vertical V Advanced Control	Vertical VI (Diversified Courses)
1.	Utilization and Conservation of Electrical Energy	Special Electrical Machines	Embedded System Design	Electric Vehicle Architecture	Process Modeling and Simulation	Energy Storage Systems
2.	Under Ground Cable Engineering	Analysis of Electrical Machines	Embedded C-Programming	Design of Motor and Power Converters for Electric Vehicles	Computer Control of Processes	Hybrid Energy Technology
3.	Substation Engineering and Substation and Substation Automation	Multilevel Power Converters	Embedded Processors	Electric Vehicle Design, Mechanics and Control	System Identification	Design and Modelling of Renewable Energy Systems
4.	HVDC and FACTS	Electrical Drives	Embedded Control for Electrical Drives	Design of Electric Vehicle Charging System	Model Based Control	Grid integrating Techniques and Challenges
5.	Energy Management andAuditing	SMPS and UPS	Smart System Automation	Testing of Electric Vehicles	Non Linear Control	Sustainable and Environmental Friendly HV Insulation System
6.	Power Quality	Power Electronics for Renewable Energy Systems	Embedded System for Automotive Applications.	Grid Integration of Electric Vehicles	Optimal Control	Power System Transients
7.	Smart Grids	Control of Power Electronics Circuits	VLSI Design	Intelligent control of Electric Vehicles.	Adaptive Control	PLC Programming
8.	Restructured Power Market	-	MEMS and NEMS	Battery Management Systems	Machine Monitoring System	Big Data Analytics
9.	-	-	Digital Signal Processing System	-	-	AI in Electrical Engineering

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 specialisation / 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.

Total number of courses per vertical may change in the each programme of study as 6 or 7 or 8. If there is shortage of courses in a vertical the same may be chosen from another vertical of the same programme.

PROFESSIONAL ELECTIVE COURSES : VERTICALS

VERTICAL I : POWER ENGINEERING

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET01	Utilization and Conservation of ElectricalEnergy	PEC	3	0	0	3	3
2.	23EET02	Under Ground CableEngineering	PEC	3	0	0	3	3
3.	23EET03	Substation Engineeringand Substation and Substation Automation	PEC	3	0	0	3	3
4.	23EET04	HVDC and FACTS	PEC	2	0	2	4	3
5.	23EET05	Energy Management andAuditing	PEC	3	0	0	3	3
6.	23EET06	Power Quality	PEC	3	0	0	3	3
7.	23EET07	Smart Grids	PEC	3	0	0	3	3
8.	23EET08	Restructured PowerMarket	PEC	3	0	0	3	3

VERTICAL II : CONVERTERS AND DRIVES

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET09	Special Electrical Machines	PEC	2	0	2	4	3
2.	23EET10	Analysis of Electrical Machines	PEC	2	0	2	4	3
3.	23EET11	Multilevel Power Converters	PEC	2	0	2	4	3
4.	23EET12	Electrical Drives	PEC	2	0	2	4	3
5.	23EET13	SMPS and UPS	PEC	2	0	2	4	3
6.	23EET14	Power Electronics for Renewable Energy Systems	PEC	2	0	2	4	3
7.	23EET15	Control of Power Electronics Circuits	PEC	1	0	4	5	3

VERTICAL III : EMBEDDED SYSTEMS

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET16	Embedded System Design	PEC	2	0	2	4	3
2.	23EET17	Embedded C-programming	PEC	2	0	2	4	3
3.	23EET18	Embedded Processors	PEC	2	0	2	4	3
4.	23EET19	Embedded Control for Electrical Drives	PEC	2	0	2	4	3
5.	23EET20	Smart System Automation	PEC	2	0	2	4	3
6.	23EET21	Embedded System for Automotive Applications.	PEC	2	0	2	4	3
7.	23EET22	VLSI Design	PEC	2	0	2	4	3
8.	23EET23	MEMS and NEMS	PEC	2	0	2	4	3
9.	23EET24	Digital Signal ProcessingSystem	PEC	2	0	2	4	3

VERTICAL IV : ELECTRIC VEHICLE TECHNOLOGY

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET25	Electric Vehicle Architecture	PEC	2	0	2	4	3
2.	23EET26	Design of Motor and Power Converters for Electric Vehicles	PEC	1	0	4	5	3
3.	23EET27	Electric Vehicle Design, Mechanics and Control	PEC	2	0	2	4	3
4.	23EET28	Design of Electric Vehicle Charging System	PEC	2	0	2	4	3
5.	23EET29	Testing of Electric Vehicles	PEC	3	0	0	3	3
6.	23EET30	Grid Integration of Electric Vehicles	PEC	3	0	0	3	3
7.	23EET31	Intelligent Control ofElectric Vehicles	PEC	1	0	4	5	3

VERTICAL V : ADVANCED CONTROL

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET32	Process Modeling andSimulation	PEC	3	0	0	3	3
2.	23EET33	Computer Control of Processes	PEC	3	0	0	3	3
3.	23EET34	System Identification	PEC	3	0	0	3	3
4.	23EET35	Model Based Control	PEC	3	0	0	3	3
5.	23EET36	Nonlinear Control	PEC	3	0	0	3	3
6.	23EET37	Optimal Control	PEC	3	0	0	3	3
7.	23EET38	Adaptive Control	PEC	3	0	0	3	3
8.	23EET39	Machine Monitoring System	PEC	3	0	0	3	3

VERTICAL VI - (DIVERSIFIED COURSES)

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET40	Energy Storage Systems	PEC	3	0	0	3	3
2.	23EET41	Hybrid Energy Technology	PEC	2	0	2	4	3
3.	23EET42	Design and Modeling of Renewable Energy Systems	PEC	2	0	2	4	3
4.	23EET43	Grid integrating Techniques and Challenges	PEC	2	0	2	4	3
5.	23EET44	Sustainable and Environmental Friendly HV Insulation System	PEC	3	0	0	3	3
6.	23EET45	Power System Transients	PEC	3	0	0	3	3
7.	23EET46	PLC Programming	PEC	3	0	0	3	3
8.	23EET47	Big Data Analytics	PEC	3	0	0	3	3

OPEN ELECTIVES

(Students shall choose the open elective courses, such that the course contents are notsimilar 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.	23OCST351	Artificial Intelligence and Machine Learning Fundamentals	OEC	2	0	2	4	3
2.	23OCST352	IoT Concepts and Applications	OEC	2	0	2	4	3
3.	23OCST353	Data Science Fundamentals	OEC	2	0	2	4	3
4.	23OCST354	Augmented and Virtual Reality	OEC	2	0	2	4	3
5	23OCST355	Data structures in Programming	OEC	2	0	2	4	3

OPEN ELECTIVES – III

SL. NO.	COURSE CODE	COURSE TITSLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23OHST351	English for Competitive Examinations	OEC	3	0	0	3	3
2.	23OMGT352	NGOs and Sustainable Development	OEC	3	0	0	3	3
3.	23OMGT353	Democracy and Good Governance	OEC	3	0	0	3	3
4.	23OMET353	Renewable Energy Technologies	OEC	3	0	0	3	3
5.	23OMET354	Applied Design Thinking	OEC	2	0	2	4	3
6.	23OMFT351	Reverse Engineering	OEC	3	0	0	3	3
7.	23OMFT353	Sustainable Manufacturing	OEC	3	0	0	3	3
8.	23OAUT351	Electric and Hybrid Vehicle	OEC	3	0	0	3	3
9.	23OAST352	Space Engineering	OEC	3	0	0	3	3
10.	23OIMT351	Industrial Management	OEC	3	0	0	3	3
11.	23OIET354	Quality Engineering	OEC	3	0	0	3	3
12.	23OSFT351	Fire Safety Engineering	OEC	3	0	0	3	3

13.	23OMLT351	Introduction to non-destructive testing	OEC	3	0	0	3	3
14.	23OMRT351	Mechatronics	OEC	3	0	0	3	3
15.	23ORAT351	Foundation of Robotics	OEC	3	0	0	3	3
16.	23OAET352	Fundamentals of Aeronautical engineering	OEC	3	0	0	3	3
17.	23OGIT351	Remote Sensing Concepts	OEC	3	0	0	3	3
18.	23OAIT351	Urban Agriculture	OEC	3	0	0	3	3
19.	23OENT351	Drinking Water Supply and Treatment	OEC	3	0	0	3	3
20.	23OCET353	Lean Concepts, Tools And Practices	OEC	3	0	0	3	3
21.	23OEIT353	Introduction to PLC Programming	OEC	3	0	0	3	3
22.	23OCHT351	Nano Technology	OEC	3	0	0	3	3
23.	23OCHT352	Functional Materials	OEC	3	0	0	3	3
24.	23OBT352	Biomedical Instrumentation	OEC	3	0	0	3	3
25.	23OFDT352	Traditional Indian Foods	OEC	3	0	0	3	3
26.	23OFDT353	Introduction to food processing	OEC	3	0	0	3	3
27.	23OPYT352	IPR for Pharma Industry	OEC	3	0	0	3	3
28.	23OTTT351	Basics of Textile Finishing	OEC	3	0	0	3	3
29.	23OTTT352	Industrial Engineering for Garment Industry	OEC	3	0	0	3	3
30.	23OTT353	Basics of Textile Manufacture	OEC	3	0	0	3	3
31.	23OPET351	Introduction to Petroleum Refining and Petrochemicals	OEC	3	0	0	3	3
32.	23OPET352	Energy Conservation and Management	OEC	3	0	0	3	3
33.	23OPTT351	Basics of Plastics Processing	OEC	3	0	0	3	3
34.	23OECT351	Signals and Systems	OEC	3	0	0	3	3
35.	23OECT352	Fundamentals of Electronic Devices and Circuits	OEC	3	0	0	3	3
36.	23OBMT351	Foundation Skills in integrated product Development	OEC	3	0	0	3	3
37.	23OBMT352	Assistive Technology	OEC	3	0	0	3	3
38.	23OMAT352	Operations Research	OEC	3	0	0	3	3

39.	23OMAT353	Algebra and Number Theory	OEC	3	0	0	3	3
40.	23OMAT354	Linear Algebra	OEC	3	0	0	3	3

OPEN ELECTIVES – IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23OHST352	Project Report Writing	OEC	3	0	0	3	3
2.	23OMAT355	Advanced Numerical Methods	OEC	3	0	0	3	3
3.	23OMAT356	Random Processes	OEC	3	0	0	3	3
4.	23OMAT357	Queuing and Reliability Modelling	OEC	3	0	0	3	3
5.	23OMGT354	Production and Operations Management for Entrepreneurs	OEC	3	0	0	3	3
6.	23OMGT355	Multivariate Data Analysis	OEC	3	0	0	3	3
7.	23OMET352	Additive Manufacturing	OEC	3	0	0	3	3
8.	23OMET353	New Product Development	OEC	3	0	0	3	3
9.	23OMET355	Industrial Design & Rapid Prototyping Techniques	OEC	2	0	2	4	3
10.	23OMFT352	Micro and Precision Engineering	OEC	3	0	0	3	3
11.	23OMFT354	Cost Management ofEngineering Projects	OEC	3	0	0	3	3
12.	23OAUT352	Batteries and Management system	OEC	3	0	0	3	3
13.	23OAUT353	Sensors and Actuators	OEC	3	0	0	3	3
14.	23OAST353	Space Vehicles	OEC	3	0	0	3	3
15.	23OIMT352	Management Science	OEC	3	0	0	3	3
16.	23OIMT353	Production Planning and Control	OEC	3	0	0	3	3
17.	23OIET353	Operations Management	OEC	3	0	0	3	3
18.	23OSFT352	Industrial Hygiene	OEC	3	0	0	3	3
19.	23OSFT353	Chemical ProcessSafety	OEC	3	0	0	3	3
20.	23OMLT352	Electrical, Electronic and Magnetic materials	OEC	3	0	0	3	3
21.	23OMLT353	Nanomaterials andapplications	OEC	3	0	0	3	3

22.	23OMRT352	Hydraulics and Pneumatics	OEC	3	0	0	3	3
23.	23OMRT353	Sensors	OEC	3	0	0	3	3
24.	23ORAT352	Foundation of Automation	OEC	3	0	0	3	3
25.	23ORAT353	Concepts in Mobile Robotics	OEC	3	0	0	3	3
26.	23OMVT351	Marine Propulsion	OEC	3	0	0	3	3
27.	23OMVT352	Marine Merchant Vehicles	OEC	3	0	0	3	3
28.	23OMVT353	Elements of Marine Engineering	OEC	3	0	0	3	3
29.	23OAET353	Drone Technologies	OEC	3	0	0	3	3
30.	23OGIT352	Geographical Information System	OEC	3	0	0	3	3
31.	23OAIT352	Agriculture Entrepreneurship Development	OEC	3	0	0	3	3
32.	23OENT352	Biodiversity Conservation	OEC	3	0	0	3	3
33.	23OCET354	Basics of Integrated Water Resources Management	OEC	3	0	0	3	3
34.	23OEIT354	Introduction to Industrial Automation Systems	OEC	3	0	0	3	3
35.	23OCHT353	Energy Technology	OEC	3	0	0	3	3
36.	23OCHT354	Surface Science	OEC	3	0	0	3	3
37.	23OBTT353	Environment and Agriculture	OEC	3	0	0	3	3
38.	23OFDT354	Fundamentals of Food Engineering	OEC	3	0	0	3	3
39.	23OFDT355	Food safety and Quality Regulations	OEC	3	0	0	3	3
40.	23OPYT353	Nutraceuticals	OEC	3	0	0	3	3
41.	23OTTT354	Basics of Dyeing and Printing	OEC	3	0	0	3	3
42.	23OTTT355	Fibre Science	OEC	3	0	0	3	3
43.	23OTTT356	Garment Manufacturing Technology	OEC	3	0	0	3	3
44.	23OPET353	Industrial safety	OEC	3	0	0	3	3

45.	23OPET354	Unit Operations in Petro-Chemical Industries	OEC	3	0	0	3	3
46.	23OPTT352	Plastic Materials for Engineers	OEC	3	0	0	3	3
47.	23OPTT353	Properties and Testingof Plastics	OEC	3	0	0	3	3
48.	23OECT353	VLSI Design	OEC	3	0	0	3	3
49.	23OECT354	Industrial IoT and Industry 4.0	OEC	2	0	2	4	3
50.	23OBMT353	Wearable devices	OEC	3	0	0	3	3
51.	23OBMT354	Medical Informatics	OEC	3	0	0	3	3

CREDIT DISTRIBUTION

SL. NO.	SUBJECT AREA	CREDITS PER SEMESTER								TOTAL
		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	9	-	-	-	-	-	-	**14**
4.	PCC	-	6	20.5	20.5	13	8	3	-	**71**
5.	PEC	-	-	-	-	9	9	3	-	**21**
6.	OEC	-	-	-	-	-	3	9	-	**12**
7.	EEC	1	2	1	-	-	-	-	10	**14**
	Total	**22**	**27**	**25.5**	**22.5**	**22**	**20**	**20**	**10**	**169**
8.	Mandatory Course (Non credit)					✓	✓			

CATEGORY		Breakup of Credits
HSMC	Humanities & Social Science Including Management	**12**
BSC	Basic Science Courses	**25**
ESC	Engineering Science Courses	**14**
PCC	Professional Core Courses	**71**
PEC	Professional Elective Courses	**21**
OEC	Open Elective Courses	**12**
EEC	Employment Enhancement Courses	**14**
	Total	**169**

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) 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 verticalsalso.

Complete details are available in clause 4.10 of Regulations 2021.

VERTICALS FOR MINOR DEGREE (In addition to all the verticals of other degree programmes)

Vertical I	Vertical II	Vertical III	Vertical IV	Vertical V
Fintech and Block Chain	**Entrepreneurship**	**Public Administration**	**BusinessData Analytics**	**Environment and Sustainability**
Financial Management	Foundations of Entrepreneurship	Principles of Public Administration	Statistics for Management	Sustainable infrastructure Development
Fundamentals of Investment	Team Building and Leadership Management for Business	Constitution of India	Data mining for Business Intelligence	Sustainable Agriculture and Environmental Management
Banking, Financial Services and Insurance	Creativity and 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 WebAnalytics	Materials for Energy Sustainability
Fintech Personal Finance and Payments	Human Resource Management for Entrepreneurship	Indian Administrative System	Operation and SupplyChain Analytics	Green Technology
Introduction to Fintech	Financing New Business Ventures	Public Policy Administratio n	Financial Analytics	Environmental Quality Monitoring and Analysis
-	-	-	-	Integrated Energy Planning for Sustainable Development
-	-	-	-	Energy Efficiency for Sustainable Development

VERTICALS FOR MINOR DEGREE

(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 I : FINTECH AND BLOCK CHAIN

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET48	Financial Management	PEC	3	0	0	3	3
2.	23EET49	Fundamentals ofInvestment	PEC	3	0	0	3	3
3.	23EET50	Banking, Financial Services and Insurance	PEC	3	0	0	3	3
4.	23EET51	Introduction to Block chain and its Applications	PEC	3	0	0	3	3
5.	23EET52	Fintech Personal Finance and Payments	PEC	3	0	0	3	3
6.	23EET53	Introduction to Fintech	PEC	3	0	0	3	3

VERTICAL II : ENTREPRENEURSHIP

SL. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET54	Foundations of Entrepreneurship	PEC	3	0	0	3	3
2.	23EET55	Team Building & Leadership Management for Business	PEC	3	0	0	3	3
3.	23EET56	Creativity & Innovationin Entrepreneurship	PEC	3	0	0	3	3
4.	23EET57	Principles of Marketing Management for Business	PEC	3	0	0	3	3

5.	23EET58	Human Resource Management for Entrepreneurs	PEC	3	0	0	3	3
6.	23EET59	Financing New Business Ventures	PEC	3	0	0	3	3

VERTICAL III: PUBLIC ADMINISTRATION

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET60	Principles of Public Administration	PEC	3	0	0	3	3
2.	23EET61	Constitution of India	PEC	3	0	0	3	3
3.	23EET62	Public Personnel Administration	PEC	3	0	0	3	3
4.	23EET63	Administrative Theories	PEC	3	0	0	3	3
5.	23EET64	Indian Administrative System	PEC	3	0	0	3	3
6.	23EET65	Public Policy Administratio n	PEC	3	0	0	3	3

VERTICAL IV : BUSINESS DATA ANALYTICS

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET66	Statistics For Management	PEC	3	0	0	3	3
2.	23EET67	Data mining For BusinessIntelligence	PEC	3	0	0	3	3
3.	23EET68	Human Resource Analytics	PEC	3	0	0	3	3
4.	23EET69	Marketing And SocialMedia Web Analytics	PEC	3	0	0	3	3
5.	23EET70	Operation And SupplyChain Analytics	PEC	3	0	0	3	3
6.	23EET71	Financial Analytics	PEC	3	0	0	3	3

VERTICAL V : ENVIRONMENT AND SUSTAINABILITY

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	23EET72	Sustainable infrastructure Development	PEC	3	0	0	3	3
2.	23EET73	Sustainable Agricultureand Environmental Management	PEC	3	0	0	3	3
3.	23EET74	Sustainable Bio Materials	PEC	3	0	0	3	3
4.	23EET75	Materials for Energy Sustainability	PEC	3	0	0	3	3
5.	23EET76	Green Technology	PEC	3	0	0	3	3
6.	23EET77	Environmental Quality Monitoring and Analysis	PEC	3	0	0	3	3
7.	23EET78	Integrated Energy Planning for Sustainable Development	PEC	3	0	0	3	3
8.	23EET79	Energy Efficiency for Sustainable Development	PEC	3	0	0	3	3

VALUE ADDED COURSES

S.No.	Course Name	Total Hours
1	MATLAB	30 Hrs
2	PLC	30 Hrs
3	Embedded C & Image Processing	30 Hrs
4	Internet of Things	30 Hrs
5	Lab VIEW	30 Hrs
6	Robotics and Automation	30 Hrs
7	SCADA	30 Hrs
8	iOS APP Development	30 Hrs
9	IC testing	30 Hrs
10	System Design using Micro Controllers	30 Hrs

SEMESTER VII/VIII *

S. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
Theory								
1.	EE3701	Renewable Energy Systems	PCC	3	0	0	3	3
2.	GE3791	Human Values and Ethics	HSMC	2	0	0	2	2
3.		Elective – Management[#]	HSMC	3	0	0	3	3
4.		Open Elective – II**	OEC	3	0	0	3	3
5.		Open Elective – III ***	OEC	3	0	0	3	3
6.		Open Elective – IV ***	OEC	3	0	0	3	3
7		Professional Elective VII	PEC	3	0	0	3	3
				20	**0**	**0**	**20**	**20**

***If students undergo internship in Semester VII, then the courses offered during semester VII will be offeredduring semester VIII.**
[#] Elective - Management shall be chosen from the Elective Management Courses
****Open Elective – II shall be chosen from the emerging technologies**
*****Open Elective III and IV (shall be chosen from the list of open electives offered by other Programmes).**

SEMESTER VIII/VII*

S. NO.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
PRACTICALS								
1.	EE3811	Project Work / Internship	EEC	0	0	20	20	10
		Total		**0**	**0**	**20**	**20**	**10**

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