



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)



**DEPARTMENT
OF
ELECTRICAL AND ELECTRONICS ENGINEERING**

Minutes of 7th Meeting of BoS (UG)

Venue : Seminar Hall, Third Floor
Department of Electrical and Electronics Engineering
Engineering Block,
Sri Manakula Vinayagar Engineering College

Date and Time : 29th February at 10.30 A.M



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Minutes of 7th Meeting of BoS (UG)

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Minutes of 7th Meeting of Board of Studies (UG)

The Seventh meeting of Board of Studies in Electrical and Electronics Engineering Department was held on **29th February 2024 at 10:30 A.M** in the EEE Seminar Hall, Department of Electrical and Electronics Engineering, Sri Manakula Vinayagar Engineering College, with Head of Department in the Chair.

The following members were present for the BoS meeting

Sl. No.	Name of the Member	Designation
1. Head of the Department concerned (Chairperson)		
1	Dr. P. Jamuna, M.E., Ph.D., Professor Specialization: Power Electronics and Drives Years of Experience: 18 Sri Manakula Vinayagar Engineering College jamuna@smvec.ac.in 9789544379	Chairperson
2. All faculty members of the Department		
2	Dr. D. Raja, M.Tech., Ph.D., Professor Specialization: Electrical Drives and Control Years of Experience: 17 Sri Manakula Vinayagar Engineering College rajaapeee@gmail.com 9944337970	Member
3	Dr. S. Ganesh Kumaran, M.E., Ph.D., Associate Professor Specialization: Electrical Machines Years of Experience:13 Sri Manakula Vinayagar Engineering College ganeshphd4u@gmail.com 9677624378	Member
4	Dr. D. Sivaraj, M. Tech., Ph.D., Associate Professor Specialization: Electric Drives and Control Years of Experience:14 Sri Manakula Vinayagar Engineering College sivarajdeee@smvec.ac.in 9043117533	Member

5	<p>Mr.B. Parthiban. M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience:17 Sri Manakula Vinayagar Engineering College parthibaneee@smvec.ac.in 9842102111</p>	Member
6	<p>Mr.S.John Powl, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:16 Sri Manakula Vinayagar Engineering College johnpowl@smvec.ac.in 9894817748</p>	Member
7	<p>Mr. A. Janagiraman, M.E. Assistant Professor Specialization: Power Electronics and Drives Years of Experience:16 Sri Manakula Vinayagar Engineering College janagiraman16@smvec.ac.in 9965597940</p>	Member
8	<p>Mr.K. Thangaraj, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:12 Sri Manakula Vinayagar Engineering College thangaraj@smvec.ac.in 8056477840</p>	Member
9	<p>Mr.J.Muruganandham, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:12 Sri Manakula Vinayagar Engineering College muruganandham,jeeva@smvec.ac.in 9994358048</p>	Member
10	<p>Mr.C.Adrien Perianayagam, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:15 Sri Manakula Vinayagar Engineering College adrienferen@smvec.ac.in 9952472285</p>	Member
11	<p>Mr. R. Ragupathy, M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 9 Sri Manakula Vinayagar Engineering College ragupathy@smvec.ac.in 9600785649</p>	Member

12	<p>Mr.I.Shivasankkar, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:7 Sri Manakula Vinayagar Engineering College shivasankkar@smvec.ac.in 8682936091</p>	Member
13	<p>Mr.G.Rajavel, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:10 Sri Manakula Vinayagar Engineering College g.rajavel61@gmail.com 7871678713</p>	Member
14	<p>Mr.R.Vignesh, M.E., Assistant Professor Specialization: High Voltage Engineering Years of Experience:7 Sri Manakula Vinayagar Engineering College vickieeee21@gmail.com 9791058626</p>	Member
15	<p>Ms.T.Abinayasaraswathy, M.Tech., Assistant Professor Specialization: Power Electronics and Drives Years of Experience:8 Sri Manakula Vinayagar Engineering College abinayasaraswathy.eee@smvec.ac.in 9487639243</p>	Member
16	<p>Mr. S. Elanthamizh. M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 5 Sri Manakula Vinayagar Engineering College elanthamizh.eee@smvec.ac.in 6381903843</p>	Member
17	<p>Mrs. D.Meena, M.E., (Ph.D) Assistant Professor Specialization: Power Electronics and Drives Years of Experience:8 Sri Manakula Vinayagar Engineering College meena.eee@smvec.ac.in 8148547731</p>	Member
18	<p>Mr. J. Gnanavel, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:9 Sri Manakula Vinayagar Engineering College gnanavel.eee@smvec.ac.in 9944354561</p>	Member

19	Mr. C. Rajesh Kumar, M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 9 Sri Manakula Vinayagar Engineering College rajeshz.kumar73@gmail.com 7812864351	Member
20	Mrs. A. S. Amathullah, M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 0.6 Sri Manakula Vinayagar Engineering College amathullah.eee@smvec.ac.in 9943858320	Member
21	Dr. K. Raja Associate Professor, Dept. of Mathematics, SMVEC raja@smvec.ac.in 9361122495	Member
22	Mrs. S. Parameswari Assistant Professor, Dept. of Chemistry, SMVEC parameswari.sas@smvec.ac.in 9655481494	Member
23	Dr. P. Rajeswari Associate Professor, Dept. of English, SMVEC rajeswary18@gmail.com 6381555356	Member
24	Mrs. S. Geetha Assistant Professor, Dept. of Physics, SMVEC geethaphysics@smvec.ac.in 9942355656	Member
3. Two subject experts from outside the Parent University are nominated by the Academic Council.		
25	Dr. R. Gunabalan, M. Tech, Ph.D., Professor Specialization: Electrical Drives and Control Years of Experience:20 School of Electrical Engineering, Vellore Institute of Technology Chennai -600127. gunabalan.r@vit.ac.in 9894919269	Subject Expert
26	Dr. S. Karthick, M.E., Ph.D., Professor / EEE Specialization: Applied Electronics Years of Experience:22 Erode Sengunthar Engineering College (Autonomous) Perundurai, Erode – 638 057. resumekarthick@gmail.com 9486937253 / 9842557879	Subject Expert

4. One expert is nominated by the Vice-Chancellor from a panel of six recommended by the Autonomous College Principal as a University Nominee.		
27	Dr. M. Sudhakaran, M.E., Ph.D., Professor Specialization: Smart Grid Years of Experience:23 Department of EEE, Puducherry Technological University, Puducherry-605 014. sudhakaran@ptuniv.edu.in 9994071997	Subject Expert
5. One representative from industry/corporate sector/allied areas is nominated by the Principal as a Industry Nominee.		
28	Dr. Raghu Selvaraj, M.Tech., Ph.D., Scientist, Years of Experience:10 CSIR-Central Mechanical Engineering Research Institute Mahatma Gandhi Avenue, Durgapur - 713209, West Bengal. r.selvaraj@cmeri.res.in, 946063240	Member
6. One member of the College alumni is nominated by the Principal.		
29	Dr. Srinivasan Pradabane, M.E., Ph.D., Assistant Professor Years of Experience:14 Department of Electrical Engineering National Institute of Technology, Warangal. spradabane@nitw.ac.in, 8702462244, 8332969289	Member
7. Experts from outside the Autonomous College, whenever special courses of studies are to be formulated, is nominated by the Principal.		
30	Dr. P. Samundiswary, M.Tech., Ph.D., Professor / ECE Specialization: Wireless Communication & Networks, VLSI Design and Optical Communication Years of Experience:25 Department of Electronics Engineering, School of Engineering and Technology, Pondicherry University sam.dee@pondiuni.edu.in 9443268949	Member

Agenda of the Meeting

Agenda 1/ BoS / 7 / 2024 /EEE /UG	Welcome Address, To Apprise about Preamble of the College.
Agenda 2/ BoS / 7 / 2024 /EEE /UG	To Apprise about college Highlights such as Infrastructure Facilities, Centre of Excellence, Idea Lab, Research and Development, Training and Placements, Accreditation details, etc.,
Agenda 3/ BoS / 7 / 2024 /EEE /UG	To Apprise about the Achievements of College and Department.
Agenda 4/ BoS / 7 / 2024 /EEE /UG	To Apprise about the Composition of Governing body, Academic Council and Finance Committee as per UGC Regulations 2018 and 2023
Agenda 5/ BoS / 7 / 2024 /EEE /UG	To Apprise about the Composition of Previous Board of Studies as per UGC Regulations 2018 and Details of Previous meetings held.
Agenda 6/ BoS / 7 / 2024 /EEE /UG	To Apprise about the Composition of New Board of Studies as per UGC Regulations 2023.
Agenda 7/ BoS / 7 /2024 /EEE /UG	To Apprise about the Highlights of R-2020 Regulations, Curriculum and Syllabus.
Agenda 8/ BoS / 7 /2024 /EEE /UG	To Apprise about the suggestions received from previous meetings of BoS, Curriculum Advisory Committee and Stake holders for Revision of R-2020 Regulations, Curriculum and Syllabus.
Agenda 9/ BoS / 7 /2024 /EEE /UG	To Apprise about the Regulations, Curriculum Structure and Approved Syllabus (I and II Semester) of R-2023
Agenda 10/ BoS / 7 /2024 /EEE /UG	To Apprise about the minutes of 6 th meeting of BoS
Agenda 11/ BoS / 7 /2024 /EEE /UG	To discuss the syllabi of III and IV semesters, under Autonomous Regulations R-2023 for the B. Tech – Electrical and Electronics Engineering students admitted from the Academic Year 2023-24.
Agenda 12/ BoS / 7 /2024/EEE /UG	To discuss the syllabus of Course offered in IV Semester for Honour Degree programme.
Agenda 13/ BoS / 7 /2024 /EEE /UG	To discuss the common courses offered to the III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 regulations.
Agenda 14 / BoS / 7 /2024 /EEE /UG	To approve the Academic Calendar for the even Semester of Academic year 2023-24.
Agenda 15 / BoS / 7 /2024 /EEE /UG	To approve the online SWAYAM / MOOCS courses for the III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 Regulations.
Agenda 16 / BoS / 7 /2024 /EEE /UG	To approve the Professional and Open Elective courses offered to the II year (Batch: 2022 – 2026), III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 Regulations.

Agenda 17 / BoS / 7 /2024 /EEE /UG	To approve the Certification Courses offered to the II year (Batch: 2022 – 2026), III year (Batch: 2021 – 2025) students under R-2020 regulations and I Year (Batch: 2023 – 2027) Students under R-2023 regulations.
Agenda 18 / BoS / 7 /2024 /EEE /UG	To apprise about the Pass Percentage of batches 2017-2021, 2018-2022 (Pondicherry University R-2013) and 2019-2023(SMVEC R-2019)
Agenda 19 / BoS / 7 /2024 /EEE /UG	To apprise the Result Analysis for the Academic year 2022-23.
Agenda 20/ BoS / 7 /2024 /EEE /UG	To discuss about the 25 th Silver Jubilee Celebration in our college.
Agenda 21 / BoS / 7 /2024 /EEE /UG	To discuss and recommend the panel of examiners to the Academic Council.
Agenda 22 / BoS / 7 /2024 /EEE /UG	Any other additional points to be discussed with the permission of Chair.

Minutes of the Meeting

Dr. P. Jamuna, Chairperson, BoS opened the meeting by welcoming the External members, the Internal members and the meeting thereafter deliberated on agenda items that had been approved by the Chairperson.

Agenda 1 / BoS / 7 / 2024 / EEE / UG

To Apprise about Preamble of the College.

Chairperson of BoS, apprised the college preamble, Year of Establishment, Board of Management members, Administrators and various Schools under SMVEC to the Newly constituted BoS members and the **BoS noted the Agenda.**

Agenda 2 / BoS / 7 / 2024 / EEE / UG

To Apprise about college Highlights such as Infrastructure Facilities, Centre of Excellence, Idea Lab, Research and Development, Training and Placements, Accreditation details, etc.,

The highlights of college such as Accreditation details, Infrastructure Facilities, Centre of Excellence, Idea Lab, Research and Development, Training and Placements were presented by the Chairperson to the BoS members and the **BoS noted the Agenda.**

Agenda 3 / BoS / 7 / 2024 / EEE / UG

To Apprise about the Achievements of College and Department.

The achievements of Institution, students and staff achievements of department were presented and the **BoS noted the Agenda.**

Agenda 4 / BoS / 7 / 2024 / EEE / UG

To Apprise about the Composition of Governing body, Academic Council and Finance Committee as per UGC Regulations 2018 and 2023.

The Composition of Governing body, Academic Council and Finance Committee as per UGC Regulations 2018 and 2023 were presented and the **BoS noted the Agenda.**

Agenda 5 / BoS / 7 / 2024 / EEE / UG

To Apprise about the Composition of Previous Board of Studies as per UGC Regulations 2018 and Details of Previous meetings held

The composition of previous board of Studies as per UGC Regulations 2018 (**given in Annexure- I**) and the details of BoS conduction (**given in Table-1**) were presented by the chairperson and the **BoS noted the Agenda.**

Table 1: Details of BoS Conduction

S. No	BoS Meeting	Date and Time of Conduction
1	First Meeting	18.07.2020 / 11.00 AM
2	Second Meeting	31.03.2021 / 10.00 AM
3	Third Meeting	18.08.2021 / 10.00 AM
4	Special Meeting	17.09.2021 / 10.00 AM
5	Fourth Meeting	22.02.2022 / 10.00 AM
6	Fifth Meeting	13.09.2022 / 10.00 AM
7	Sixth Meeting	19.07.2023 / 10.00 AM

Agenda 6 / BoS / 7 / 2024 / EEE / UG

To Apprise about the Composition of New Board of Studies as per UGC Regulations 2023.

The composition of New Board of Studies as per UGC Regulations 2023 (**given in Annexure- II**) was presented and the **BoS noted the Agenda.**

Agenda 7 / BoS / 7 / 2024 / EEE / UG

To Apprise about the Highlights of R-2020 Regulations, Curriculum and Syllabus.

The chairperson of BoS apprised the Highlights of R-2020 Regulations, Curriculum and Syllabi to the BoS members and the **BoS noted the Agenda.**

Agenda 8 / BoS / 7 / 2024 / EEE / UG

To Apprise about the suggestions received from previous meetings of BoS, Curriculum Advisory Committee and Stake holders for Revision of R-2020 Regulations, Curriculum and Syllabus.

The Suggestions received from the previous meetings of BoS, Curriculum Advisory Committee (CAC) and Various Stakeholders (**given in Annexure-III**) for Revision of R-2020 Regulations, Curriculum and Syllabi were presented and the **BoS noted the Agenda.**

Agenda 9 / BoS / 7 / 2024 / EEE / UG

To Apprise about the Regulations, Curriculum Structure and Approved Syllabus (I and II Semester) of R-2023

The SMVEC Autonomous Regulations R-2023, Curriculum for I to VIII semesters (**given in Annexure-IV**) and Syllabi of I and II semesters of B.Tech – Electrical and Electronics Engineering were presented to the BoS members and the **BoS noted the Agenda.**

Agenda 10 / BoS / 7 / 2024 / EEE / UG

To Apprise about the minutes of 6th meeting of BoS

Chairperson confirmed the Minutes of 6th meeting of BoS and its implementation.

BoS noted the Agenda.

Agenda 11 / BoS / 7 / 2024 / EEE / UG

To discuss the syllabi of III and IV semesters, under Autonomous Regulations R-2023 for the B. Tech – Electrical and Electronics Engineering students admitted from the Academic Year 2023-24.

The modifications to be carried out in the syllabi of II year (III and IV semesters) of R-2023 Regulations are discussed and the following suggestions are given by BoS members

S. No.	Regulation	Year / Semester	Course Name with Code	Unit	Changes Incorporated
1.	R-2023	II / III	ELECTROMAGNETIC THEORY U23EET304	-	Course outcomes are modified and Text books are updated to its latest edition.
2.	R-2023	II / III	ELECTRONICS III U23EET306	I	The topic “ Logic families ” is Included.
				II	The topics “ V to I and I to V converter ” are included and “ Clippers, Clampers ” are removed.
				III	The topics “ Butterworth, State space, switched capacitor filter ” is removed due to vast content.
				IV	The topics “ MPY634, LM2524 ” are removed.
				V	The topics “ SN74AH, CD4093 ” are removed.
3.	R-2023	II / III	ELECTRIC CIRCUIT ANALYSIS U23EEB301	-	Course outcomes are modified.
4.	R-2023	II / III	ELECTRICAL MACHINES – I LABORATORY U23EEP304	-	In Electrical Machines - I Laboratory, one experiment is removed. The details are <ul style="list-style-type: none"> • Separation of Losses in DC machine
5.	R-2023	II / IV	Transmission and Distribution U23EET408	-	<ul style="list-style-type: none"> • Units are rearranged as per transmission and distribution of Power system.
6.	R-2023	II / IV	Control Systems U23EEB402	-	Course outcomes are modified
7.	R-2023	II / IV	Electrical Machines - II Laboratory U23EEP405	-	In Electrical Machines - II Laboratory course, one experiment is removed. The details are <ul style="list-style-type: none"> • Synchronization of Three phase alternator with infinite busbar.
8.	R-2023	II / IV	Electronics - III Laboratory U23EEP406	-	<ul style="list-style-type: none"> • Course outcomes are modified.

The above corrections were incorporated and the updated Syllabi of III and IV Semesters under Autonomous regulations R-2023 were approved by the BoS members for the students admitted from the Academic Year 2023-24 onwards. (given in Annexure- V)

Agenda 12 / BoS / 7 / 2024 / EEE / UG

To discuss the syllabus of Course offered in IV Semester for Honour Degree programme.

The honour degree programme is introduced in the autonomous regulations R-2023. The interested students those who are fulfilling the requirements can undergo the honour degree programme by completing 5 additional courses (18 to 20 Credits) which will be offered from IV Semester onwards.

The syllabus of first course **Advanced Power Train Engineering** offered in IV Semester was discussed and approved by the BoS members. **(given in Annexure- VI)**

Agenda 13 / BoS / 7 / 2024 / EEE / UG

To discuss the common courses offered to the III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 regulations

The common courses offered to the III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 Regulations were apprised and the **BoS noted the agenda. (given in Annexure-VII)**

Agenda 14 / BoS / 7 / 2024 / EEE / UG

To approve the Academic Calendar for the even Semester of Academic year 2023-24.

The Academic Calendars for EVEN Semester of Academic year 2023-24 which includes the schedule for CAT, Model Exam, QCM, Various Events, Internal Marks distributions, were presented and approved by the BoS members. **(given in Annexure-VIII).**

Agenda 15 / BoS / 7 / 2024 / EEE / UG

To approve the online SWAYAM / MOOCS courses for the III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 Regulations.

- The details of online SWAYAM / MOOCS courses completed by the Faculties and students for the past three years were presented to the BoS members.
- The details of online SWAYAM / MOOCs courses registered by the Faculty and students during the period January 2024 to May 2024 was presented and approved by the BoS members. **(given in Annexure- IX)**

Agenda 16 / BoS / 7 / 2024 / EEE / UG

To approve the Professional and Open Elective courses offered to the II year (Batch: 2022 – 2026), III year (Batch: 2021 – 2025) and IV year (Batch: 2020 – 2024) students under R-2020 Regulations.

The Professional and Open Elective courses opted by the students of II year / IV semester (Batch: 2022 – 2026), III year / VI semester (Batch: 2021 – 2025) and IV year / VIII semester (Batch: 2020 – 2024) students under R-2020 regulations were presented **(given in Table 2)** and approved by the BoS members. **(given in Annexure- X)**

Table 2: List of Professional and Open Elective Courses opted by the Students

S. No.	Year/Sem	Course Name	Course Code
Professional Elective – I			
1	II / IV	Electrical Safety Engineering	U20EEE401
2	II / IV	Energy Storage Technology	U20EEE405
Open Elective – I			
1	II / IV	Web Development	U20CSO401

2	II / IV	Introduction to Communication Systems	U20CCO402
Professional Elective – II			
1	III / VI	Robotics and Automation	U20ECCM02
Open Elective – II			
1	III / VI	Mobile App Development	U20ITO604
Professional Elective – V			
1	IV / VIII	SMPS and UPS	U20EEE823
2	IV / VIII	Fundamentals of Solar photovoltaic system and applications	U20EEE825
Open Elective – VI			
1	IV / VIII	Smart Grid	U20EEE826
2	IV / VIII	EHV AC and DC transmission	U20EEE827

Agenda 17 / BoS / 7 / 2024 / EEE / UG

To approve the Certification Courses offered to the II year (Batch: 2022 – 2026), III year (Batch: 2021 – 2025) students under R-2020 regulations and I Year (Batch: 2023 – 2027) Students under R-2023 regulations.

The Certification courses offered to the II year (Batch: 2022 – 2026), III year (Batch: 2021 – 2025) students under R-2020 regulations and I year (Batch: 2023 – 2027) students under R-2023 regulations were presented (**given in Table 3**) and approved by the BoS members.

Table 3: Certification Courses for Even Semester

S. No.	Regulations	Year/Sem	Course Name	Course Code
Certification Course – II				
1	R-2023	I / II	Autodesk Fusion	U23EEC210
2	R-2023	I / II	Web Applications, Development (HTML, CSS, JS)	U23EEC276
Certification Course – IV				
1	R-2020	II / IV	JAVA Programming	U20EEC460
Certification Course – VI				
1	R-2020	III / VI	Artificial Intelligence with Edge Computing	U20EEC610

Agenda 18 / BoS / 7 / 2024 / EEE / UG

To apprise about the Pass Percentage of batches 2017-2021, 2018-2022 (Pondicherry University R-2013) and 2019-2023(SMVEC R-2019)

The pass percentage for the 2017-2021, 2018-2022 and 2019-2023 batches were presented and the **BoS noted the Agenda.**

Agenda 19 / BoS / 7 / 2024 / EEE / UG

To apprise the Result Analysis for the Academic year 2022-23.

The Result Analysis of both ODD and EVEN Semesters of I year (Batch: 2022 – 2026), II year (Batch: 2021 – 2025), III year (Batch: 2020 – 2024) and IV year (Batch: 2019 – 2023) for the Academic year 2022-23 was presented and the **BoS noted the Agenda.**

Agenda 20 / BoS / 7 / 2024 / EEE / UG

To discuss about the 25th Silver Jubilee Celebration in our college.

The Silver Jubilee celebration is planned to celebrate with various activities around the year in four different quarters from June 2024 to May 2025 (**given in Annexure-XI**) was presented and the **BoS noted the Agenda.**

Agenda 21 / BoS / 7 / 2024 / EEE / UG

To discuss and recommend the panel of examiners to the Academic Council.


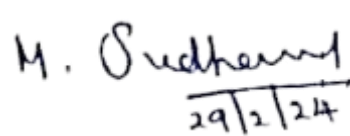

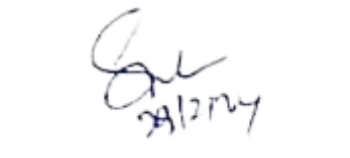

The list of Question Paper Setters and Evaluators (**given in Annexure-XII**) were presented and recommended by the BoS members to the academic council.

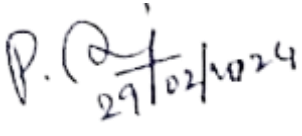


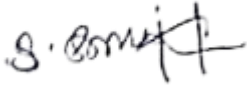





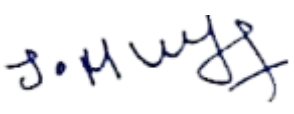
Agenda 22 / BoS / 7 / 2024 / EEE / UG


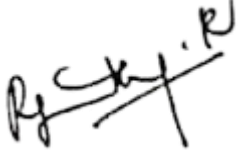
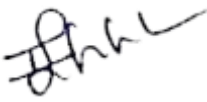



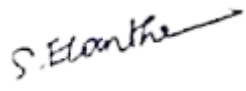



Any other additional points to be discussed with the permission of Chair.

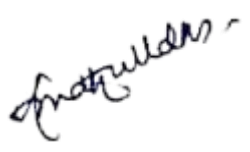
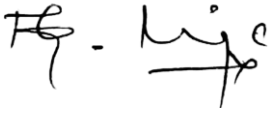



The details of EEE Equivalent papers of R2020 regulations in R2023 regulations (**given in Annexure-XIII**) were presented and the **BoS noted the Agenda.**

The seventh Meeting of BoS approval was concluded at 2.30 P.M by Dr. P. Jamuna, Chairperson, Board of Studies, Department of Electrical and Electronics Engineering, Sri Manakula Vinayagar Engineering College.

Sl. No.	Name of the Member	Designation	Signature
1.	Dr. P. Jamuna, M.E., Ph.D., Professor Sri Manakula Vinayagar Engineering College jamuna@smvec.ac.in 9789544379	Chairperson	
2.	Dr. M. Sudhakaran, M.E., Ph.D., Professor Department of EEE, Puducherry Technological University, Puducherry-605 014. sudhakaran@ptuniv.edu.in 9994071997	Subject Expert (University Nominee)	
3.	Dr. R. Gunabalan, M. Tech, Ph.D., Professor School of Electrical Engineering, Vellore Institute of Technology Chennai -600127. gunabalan.r@vit.ac.in 9894919269	Subject Expert (Academic Council Nominee)	
4.	Dr. S. Karthick, M.E., Ph.D., Professor / EEE Erode Sengunthar Engineering College (Autonomous) Perundurai, Erode – 638 057. resumekarthick@gmail.com 9486937253 / 9842557879	Subject Expert (Academic Council Nominee)	
5.	Dr. Raghu Selvaraj, MTech., Ph.D., Scientist, CSIR-Central Mechanical Engineering Research Institute Mahatma Gandhi Avenue, Durgapur - 713209, West Bengal. r.selvaraj@cmeri.res.in, 946063240	Industry Nominee	

6.	Dr. Srinivasan Pradabane, M.E., Ph.D., Assistant Professor Department of Electrical Engineering National Institute of Technology, Warangal. spradabane@nitw.ac.in, 8702462244, 8332969289	Alumnus Nominee	
7.	Dr. P. Samundiswary, M.Tech., Ph.D., Professor / ECE Department of Electronics Engineering, School of Engineering and Technology, Pondicherry University sam.dee@pondiuni.edu.in 9443268949	Academic Expert	
8.	Dr. D. Raja, M.Tech., Ph.D., Professor Sri Manakula Vinayagar Engineering College rajaapee@gmail.com 9944337970	Member	
9.	Dr. S. Ganesh Kumaran, M.E., Ph.D., Associate Professor Sri Manakula Vinayagar Engineering College ganeshphd4u@gmail.com 9677624378	Member	
10.	Dr. D. Sivaraj, M. Tech., Ph.D., Associate Professor Sri Manakula Vinayagar Engineering College sivarajdeee@smvec.ac.in 9043117533	Member	
11.	Mr.B. Parthiban. M.E., Assistant Professor Sri Manakula Vinayagar Engineering College parthibaneee@smvec.ac.in 9842102111	Member	
12.	Mr.S.John Powl, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College johnpowl@smvec.ac.in 9894817748	Member	
13.	Mr. A. Janagiraman, M.E. Assistant Professor Sri Manakula Vinayagar Engineering College janagiraman16@smvec.ac.in 9965597940	Member	
14.	Mr.K. Thangaraj, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College thangaraj@smvec.ac.in 8056477840	Member	
15.	Mr.J.Muruganandham, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College muruganandham,jeeva@smvec.ac.in 9994358048	Member	

16.	Mr.C.Adrien Perianayagam, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College adrienferen@smvec.ac.in 9952472285	Member	
17.	Mr. R. Ragupathy, M.E., Assistant Professor Sri Manakula Vinayagar Engineering College ragupathy@smvec.ac.in 9600785649	Member	
18.	Mr.I.Shivasankkar, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College shivasankkar@smvec.ac.in 8682936091	Member	
19.	Mr.G.Rajavel, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College g.rajavel61@gmail.com 7871678713	Member	
20.	Mr.R.Vignesh, M.E., Assistant Professor Sri Manakula Vinayagar Engineering College vickiee21@gmail.com 9791058626	Member	
21.	Ms.T.Abinayasaraswathy, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College abinayasaraswathy.eee@smvec.ac.in 9487639243	Member	
22.	Mr. S. Elanthamizh. M.E., Assistant Professor Sri Manakula Vinayagar Engineering College elanthamizh.eee@smvec.ac.in 6381903843	Member	
23.	Mrs. D.Meena, M.E., (Ph.D) Assistant Professor Sri Manakula Vinayagar Engineering College meena.eee@smvec.ac.in 8148547731	Member	
24.	Mr. J. Gnanavel, M.Tech., Assistant Professor Sri Manakula Vinayagar Engineering College gnanavel.eee@smvec.ac.in 9944354561	Member	
25.	Mr. C. Rajesh Kumar, M.E., Assistant Professor Sri Manakula Vinayagar Engineering College rajeshz.kumar73@gmail.com 7812864351	Member	

26.	Mrs. A. S. Amathullah, M.E., Assistant Professor Sri Manakula Vinayagar Engineering College amathullah.eee@smvec.ac.in 9943858320	Member	
27.	Dr. K. Raja Associate Professor, Dept. of Mathematics, SMVEC raja@smvec.ac.in 9361122495	Member	
28.	Mrs. S. Parameswari Assistant Professor, Dept. of Chemistry, SMVEC parameswari.sas@smvec.ac.in 9655481494	Member	
29.	Dr. P. Rajeswari Associate Professor, Dept. of English, SMVEC rajeswary18@gmail.com 6381555356	Member	
30.	Mrs. S. Geetha Assistant Professor, Dept. of Physics, SMVEC geethaphysics@smvec.ac.in 9942355656	Member	

Annexure – I

COMPOSITION OF BOARD OF STUDIES (UGC Regulations 2018)



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE (An Autonomous Institution)

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi, ISO 9001:2000 Certified Institution &
Accredited by NAAC with "A" Grade)



Madagadipet, Puducherry - 605 107

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING FIRST COMPOSITION OF BOARD OF STUDIES

SL.NO.	MEMBERS AS PER UGC NORMS	MEMBERS NOMINATED
1.	Head of the Department concerned (Chairman)	Dr. S. Anbumalar, M.E., Ph.D., Professor and Head/EEE/SMVEC
2.	Entire faculty of each specialization	1. Dr. K. Suresh, M.E., Ph.D., Professor/EEE/SMVEC 2. Dr.P.Jamuna, M.E., Ph.D., Professor/EEE/SMVEC 3. Dr.M.Susithra, M.E., Ph.D., Associate Professor/EEE/SMVEC 4. Dr.S.GaneshKumaran, M.E., Ph.D., Associate Professor/EEE 5. Mrs.M.Sugasini Assistant Professor, Dept. of Mathematics 6. Dr.K.Kathikeyan Associate Professor, Dept. of Chemistry 7. Mrs.G.Namita Associate Professor, Dept. of English 8. Dr.D.Mohan Radheep Associate Professor, Dept. of Physics
3.	Two experts in the subject from outside the college nominated by the Academic Council	1. Dr. J. Kanakaraj, M.E., Ph.D., Professor & Head, Department of EEE, PSG College of Technology (Autonomous) Coimbatore – 641 004. 2. Dr. P. Lakshmi, M.E., Ph.D., Professor, Department of EEE, College of Engineering, Guindy, Anna University, Chennai. 600 025.
4.	One Expert nominated by the Vice Chancellor from a panel of six recommended by the college Principal	Dr.A.Kavitha, M.Tech., Ph.D Professor, Department of EEE, College of Engineering Guindy, Anna University, Chennai-600025
5	One representative from industry / corporate sector/allied area relating to placement	Er.S. Selva Kumar, B.Tech. Validation Engineer Infineon Technologies India Private Limited Bengaluru, Karnataka - 560001
6	One Post Graduate meritorious alumnus nominated by the Principal	Er.K.Ramraj, M.Tech Technical Director, LED FORSE India, Poornankuppam, Puducherry – 605 007.

Annexure – II

COMPOSITION OF BOARD OF STUDIES (UGC Regulations 2023)



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Annexure -I

COMPOSITION OF BOARD OF STUDIES


Sl. No.	Name of the Member	Designation
1. Head of the Department concerned (Chairperson)		
1	Dr. P. Jamuna, M.E., Ph.D., Professor Specialization: Power Electronics and Drives Years of Experience: 18 Sri Manakula Vinayagar Engineering College jamuna@smvec.ac.in 9789544379	Chairperson
2. All faculty members of the Department		
2	Dr. D. Raja, M.Tech., Ph.D., Professor Specialization: Electrical Drives and Control Years of Experience: 17 Sri Manakula Vinayagar Engineering College rajaapeee@gmail.com 9944337970	Member
3	Dr. S. Ganesh Kumaran, M.E., Ph.D., Associate Professor Specialization: Electrical Machines Years of Experience: 13 Sri Manakula Vinayagar Engineering College ganeshphd4u@gmail.com 9677624378	Member
4	Dr. D. Sivaraj, M. Tech., Ph.D., Associate Professor Specialization: Electric Drives and Control Years of Experience: 14 Sri Manakula Vinayagar Engineering College sivarajdeee@smvec.ac.in 9043117533	Member
5	Mr.B. Parthiban. M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 17 Sri Manakula Vinayagar Engineering College parthibaneee@smvec.ac.in 9842102111	Member

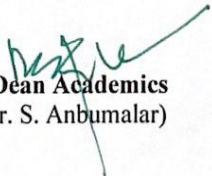
6	<p>Mr.S.John Powl, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:16 Sri Manakula Vinayagar Engineering College johnpowl@smvec.ac.in 9894817748</p>	Member
7	<p>Mr. A. Janagiraman, M.E. Assistant Professor Specialization: Power Electronics and Drives Years of Experience:16 Sri Manakula Vinayagar Engineering College janagiraman16@smvec.ac.in 9965597940</p>	Member
8	<p>Mr.K. Thangaraj, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:12 Sri Manakula Vinayagar Engineering College thangaraj@smvec.ac.in 8056477840</p>	Member
9	<p>Mr.J.Muruganandham, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:12 Sri Manakula Vinayagar Engineering College muruganandham.jeeva@smvec.ac.in 9994358048</p>	Member
10	<p>Mr.C.Adrien Perianayagam, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:15 Sri Manakula Vinayagar Engineering College adrienferen@smvec.ac.in 9952472285</p>	Member
11	<p>Mr. R. Ragupathy, M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 9 Sri Manakula Vinayagar Engineering College ragupathy@smvec.ac.in 9600785649</p>	Member
12	<p>Mr.I.Shivasankkar, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:7 Sri Manakula Vinayagar Engineering College shivasankkar@smvec.ac.in 8682936091</p>	Member

13	<p>Mr.G.Rajavel, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:10 Sri Manakula Vinayagar Engineering College g.rajavel61@gmail.com 7871678713</p>	Member
14	<p>Mr.R.Vignesh, M.E., Assistant Professor Specialization: High Voltage Engineering Years of Experience:7 Sri Manakula Vinayagar Engineering College vickiee21@gmail.com 9791058626</p>	Member
15	<p>Ms.T.Abinayasaraswathy, M.Tech., Assistant Professor Specialization: Power Electronics and Drives Years of Experience:8 Sri Manakula Vinayagar Engineering College abinayasaraswathy.eee@smvec.ac.in 9487639243</p>	Member
16	<p>Mr. S. Elanthamizh. M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 5 Sri Manakula Vinayagar Engineering College elanthamizh.eee@smvec.ac.in 6381903843</p>	Member
17	<p>Mrs. D.Meena, M.E., (Ph.D) Assistant Professor Specialization: Power Electronics and Drives Years of Experience:8 Sri Manakula Vinayagar Engineering College meena.eee@smvec.ac.in 8148547731</p>	Member
18	<p>Mr. J. Gnanavel, M.Tech., Assistant Professor Specialization: Electrical Drives and Control Years of Experience:9 Sri Manakula Vinayagar Engineering College gnanavel.eee@smvec.ac.in 9944354561</p>	Member
19	<p>Mr. C. Rajesh Kumar, M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 9 Sri Manakula Vinayagar Engineering College rajeshz.kumar73@gmail.com 7812864351</p>	Member

20	Mrs. A. S. Amathullah, M.E., Assistant Professor Specialization: Power Electronics and Drives Years of Experience: 0.6 Sri Manakula Vinayagar Engineering College amathullah.eee@smvec.ac.in 9943858320	Member
21	Dr. K. Raja Associate Professor, Dept. of Mathematics, SMVEC raja@smvec.ac.in 9361122495	Member
22	Mrs. S. Parameswari Assistant Professor, Dept. of Chemistry, SMVEC parameswari.sas@smvec.ac.in 9655481494	Member
23	Dr. P. Rajeswari Associate Professor, Dept. of English, SMVEC rajeswary18@gmail.com 6381555356	Member
24	Mrs. S. Geetha Assistant Professor, Dept. of Physics, SMVEC geethaphysics@smvec.ac.in 9942355656	Member
3. Two subject experts from outside the Parent University are nominated by the Academic Council.		
25	Dr. R. Gunabalan, M.Tech, Ph.D., Professor Specialization: Electrical Drives and Control Years of Experience:20 School of Electrical Engineering, Vellore Institute of Technology Chennai -600127. gunabalan.r@vit.ac.in 9894919269	Subject Expert
26	Dr. S. Karthick, M.E., Ph.D., Professor / EEE Specialization: Applied Electronics Years of Experience:22 Erode Sengunthar Engineering College (Autonomous) Perundurai, Erode – 638 057. resumekarthick@gmail.com 9486937253 / 9842557879	Subject Expert

4. One expert is nominated by the Vice-Chancellor from a panel of six recommended by the Autonomous College Principal as a University Nominee.		
27	Dr. M. Sudhakaran, M.E., Ph.D., Professor Specialization: Smart Grid Years of Experience:23 Department of EEE, Puducherry Technological University, Puducherry-605 014. sudhakaran@ptuniv.edu.in 9994071997	Subject Expert
5. One representative from industry/corporate sector/allied areas is nominated by the Principal as a Industry Nominee.		
28	Dr. Raghu Selvaraj, MTech., Ph.D., Scientist, Years of Experience:10 CSIR-Central Mechanical Engineering Research Institute Mahatma Gandhi Avenue, Durgapur - 713209, West Bengal. r.selvaraj@cmeri.res.in, 946063240	Member
6. One member of the College alumni is nominated by the Principal.		
29	Dr. Srinivasan Pradabane, M.E., Ph.D., Assistant Professor Years of Experience:14 Department of Electrical Engineering National Institute of Technology, Warangal. spradabane@nitw.ac.in, 8702462244, 8332969289	Member
7. Experts from outside the Autonomous College, whenever special courses of studies are to be formulated, is nominated by the Principal.		
30	Dr. P. Samundiswary, M.Tech., Ph.D., Professor / ECE Specialization: Wireless Communication & Networks, VLSI Design and Optical Communication Years of Experience:25 Department of Electronics Engineering, School of Engineering and Technology, Pondicherry University sam.dee@pondiuni.edu.in 9443268949	Member


Dr.P.Jamuna
Chairperson - BoS(EEE)


Dean Academics
(Dr. S. Anbumalar)


Director cum Principal
(Dr.V.S.K.Venkatachalapathy)

Annexure – III

Consolidated Feedback Received from Various Stakeholders



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi, Accredited by NAAC with 'A' Grade)
Madagadipet, Puducherry - 605 107



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING Minutes of Curriculum Advisory Committee Meeting

Details of Meeting:

Mode of meeting	Blended Mode
Date	02.03.2023
Time	10.00 AM to 12.00 PM
Platform	Google Meet
Venue / Link details	HoD room / https://meet.google.com/cyk-ouqi-ueh

Curriculum Advisory Committee Members List

S. No	Membership	Name	Present/ Absent
1	Chairperson	Dr. S. Anbumalar Dean Academics and HoD/EEE	Present
2	Faculty Members	Dr.P.Jamuna Professor/EEE	Present
3		Dr.D.Raja Professor/EEE	Present
4		Dr.S.Ganeshkumaran Associate Professor	Present
5		Dr.D.Sivaraj Assistant Professor	Present
6		Mr.A.Janagiraman Assistant Professor	Present
7		Mr.K.Thangaraj Assistant Professor	Present
8		Mr.J.Muruganandham Assistant Professor	Present
9		Mr.C.Adrien Periyanyagam Assistant Professor	Present
10		Mr.R.Ragupathy Assistant Professor	Present
11		Mr.I.Shivasankkar Assistant Professor	Present
12		Mr.R.Vignesh Assistant Professor	Present
13		Mr.G.Rajavel Assistant Professor	Present
14		Ms.K.Kavinlavu Assistant Professor	Present
15		Ms.T.Abinaya saraswathy Assistant Professor	Present
16		Mr.S.Elanthamizh Assistant Professor	Present

17	Subject experts from outside Institute	Dr. R. Sridhar Professor / EEE Specialization: Power Electronics, Converters, Renewable Energy Years of Experience:19 Department of Electrical and Electronics Engineering, SRM College of Engineering & Technology, Kattankulathur - Chennai sridharr@srmist.edu.in 9841752907 / 9176652907	Present
18		Dr . S. Kart hick Professor / EEE Specialization: Applied Electronics Years of Experience:22 Erode Sengunthar Engineering College (Autonomous) Perundurai, Erode – 638 057. resumekarthick@gmail.com 9486937253 / 9842557879	Present
19		Dr. J. Raja Assistant Director/Placement Officer National Power Training Institute (SR) Ministry of Power, Govt. of India Block No. 14, Neyveli - 607 803, Tamil Nadu jrajaj1980@gmail.com Mobile: 8800124789	Present
20	Representative from Industry, Corporate sector, Allied area relating to placement	Dr. S.R. Sivarasu, Managing Partner , Ram- kalam Centre for Energy Consultancy and Training BEE Certified Energy Auditor Lead Auditor-ISO: 14001:2015 (EMS), sivarasu.s.r@sece.ac.in 8056719372/9942029372	Present
21		Er. Anandh Krishnamoorthy Manager, Technical documentation PDM and CAD development Vestas Technology R & D. anacr@vestas.com 9500057834	Present
22		Er. S. Selva Kumar, Senior Engineer Qualcomm India Private Limited Bengaluru, Karnataka – 560001 selvakumarsam95@gmail.com 7358850881	Present
23		Er. P. Megavaruman Founder & Director Magronic Contrivance Pvt Ltd (Hardware Bio-Tech Company) Co-Founder & COO – Exor Robotics Pvt Ltd (Ed-Tech Startup)	Present

		Head, Marketing & Outreach – Pristyn Automations Pvt Ltd (Green Energy Start up) megavarumann@gmail.com 9944517026	
24	Meritorious alumnus/alumna	Er. S.Bhuvanesh Senior Software Engineer, Bank of America Bhuvaneshselvam25@gmail.com 9791305446	Present
25		Er. J.Krishna Chandhar Senior Engineer, Aspire systems. krishna.jeevaratnam@aspire.com/krishkrizz@gmail.com 9840243613	Present
26		Er. R.Balaji Senior Engineer, Aspire Systems India Pvt.Ltd balajiramesh1412@gmail.com 8870081180	Present
27		Er. G.Praveen System Engineer, Tata Consultancy Services pravin.pdy@gmail.com 9489110032	Present
28		Er. R .Dhanushvarma System Engineer, TCS dhanushvarmarajaram@gmail.com 7598722036	Present
29	Final Year Students	V. Sathyanarayanan ZOHO corporation vsvs2209@gmail.com 9943081321	Present
30		A. Abdul Razaak CTS GENC PRO raz190202@gmail.com 8695153704	Present
31		G. Lokeswari TCS lokeswarigunasegaran@gmail.com 9500205917	Present
32		S.Delli Babu TCS-Digital dellibabu1662278@gmail.com 9360411012	Present
33		N.Ari Prasath Hexaware ariprasath6767@gmail.com 8825941947	Present

Minutes of Meeting:

The Curriculum Advisory Committee (CAC) is conducted in the department of Electrical and Electronics Engineering on 02.03.2023 and discussed the following Agendas. The Chairman of Curriculum Advisory Committee opened the meeting by welcoming the external and internal members and presented on agenda items deliberately. The Curriculum Advisory Committee members shared their experience and approved the following:

Agendas:

1. Welcome Address and Introduction of Curriculum Advisory Committee Members
2. To discuss the Existing Autonomous Regulations R-2020
3. To discuss the Existing Autonomous Curriculum and Syllabi R-2020 for the B. Tech – Electrical and Electronics Engineering
4. To discuss the suggestions for framing the new Curriculum and Syllabi for the B. Tech – Electrical and Electronics Engineering
5. Any other additional points to be discussed

Consolidated report:

1. New Courses Introduced:

S. No.	Title of the New course	Course Code
1	Communicative English	-
2	Engineering Drawing and CAD	-
3	AICTE IDEA Lab	-
4	Universal Human Values –II	-
5	Design Thinking lab	-
6	Problem Solving using Python	-
7	Python Programming Lab	-
8	Internet of Things (IoT)	-
9	Micro Project	-
10	Mini Project	-

2. Courses Removed:

S. No.	Title of the New course	Course Code
1.	Electric Circuit Analysis Lab	U20EEP203
2.	Numerical Methods and Optimization	U20BST542
3.	Numerical Methods and Optimization Lab	U20BSP543
4.	Control System Lab	U20EEP510
5.	Electrical Software Simulation Lab	U20EEP717

3. Components Introduced:

S. No.	Title of the course	Course Code	Unit No.	Components Introduced
-				

4. Components Removed:

S. No.	Title of the course	Course Code	Unit No.	Components removed
-				

5. Courses/Components Modified:

S. No.	Title of the course	Course Code	Unit No.	Components Modified
1.	Electronics Circuits Lab	-	-	Electric circuit analysis lab and Electronics Circuits Lab will be combined.
2.	Data Structures and Object Oriented Programming	-	-	In Data Structures, the 5 units will be reduced to 3 units and for 2 units the OOPS Concepts will be included.
3.	Data Structures and Object Oriented Programming Lab	-	-	Out of 15 Experiments, 8 Experiments will be allotted for Data Structure and 7 Experiments will be allotted for OOPS concepts.
4.	Measurement and Control System Lab	-	-	Measurement and Instrumentation and Control System Lab will be combined.
5.	Business Basics and Entrepreneurship Management	-	-	3 units of Business Basics for Entrepreneur and 3 units of Entrepreneurship Management courses will be combined as 5 units.

6. Discussion on inter disciplinary Courses, Open Elective Courses

Skill oriented courses/Audit courses/others:

S. No.	Type of the course to be introduced/removed			Title of the course	Hours of Course / Week	Credit	Name of the Dept. to which it is Offered	Semester
	Category of the Course	To be Introduced (yes/no)	To be Removed (yes/no)					
1	Interdisciplinary /Allied Course							
2	Open Elective Course							
3	Any other (if applicable)	Industry oriented Skill enhancement courses			2	1		

7. List of courses having focus on Employability/Entrepreneurship/Skill development

Course Code	Title of the course	Focus on		
		Employability	Entrepreneurship	Skill development
-	AICTE IDEA Lab	-	-	Yes
-	Design Thinking Lab	-	-	Yes
-	Business Basics and Entrepreneurship Management	-	Yes	-

8. Title of the courses in which 20% &more in terms of content were modified

Course Code	Title of the course	% of content variation	Remarks
-	Electronic Devices	20	Power devices in Unit 5 will be replaced by Special device
-	Data Structures and Object Oriented Programming	40	40% of the Data Structure topics will be replaced by oops concept
-	Data Structures and Object Oriented Programming Lab	40	40% of experiments will be added from OOPS concept using C++
-	Business Basics and Entrepreneurship Management	30	Practical Courses will be converted as Theory Course

9. List of Courses for which titles were changed and content were not modified

Course Code	Title of the course
-	-
-	-

10. Consolidated feedback received from various stakeholders (Students, Alumni, Academic experts, Employers and Parents)

Sl. No.	Category of Stakeholder	Number of feedbacks collected	Collective feedback
1	Academic experts	External -7 Internal - 10	Industry oriented One credit (15 Hours) and two credit (30 Hours) courses can be introduced into curriculum and it should be taken only by Industrial experts
			To enhance practical exposure, IoT Lab can be included along with theory course in the Curriculum
			Control System, Transmission and Distribution, Power Electronics Courses are in Fifth semester, since all these are analytical Courses, suggestion given to shift Control system Course from fifth to fourth semester
			Curriculum should be align with NEP
2	Employers	6	A Lab Session can be Included for the Electrical Machine Design. Fusion 360 Software is recommended.
			Power Plant Engineering – Generation and Distribution along with Smart Grid can be Included.
			Programing in Java – DBMS (Data Base Management System) can be Included. MySql is recommended.
			Embedded System (U20EET616) – Operating System can be Included. Linux is Recommended.
			Industrial Automation and Control – HMI (Human Machine Interface) should be proposed as a Separate Unit.
			Workshops should be Conducted for Every 2 Semesters.
			Programming in C – Introduction of C++ can be Included as 5 th Unit.
3	Parents	27	UHV courses can be included in the curriculum as mandatory course
			VLSI course may be added in the curriculum
			Onsite training may be included. Entrepreneurship management course can be made as a mandatory course
4	Students	72	Programming languages in accordance to the current trends
			8085 microprocessor may be removed as it is outdated
			Advancement in e-mobility and electric vehicles can be included
			Advancement in IoT and industry automation can be included
			Software related courses used in core industry can be included
			More practical Courses may be included Robotics, virtual reality, Electronics in AI, Data science, Augmented reality can be included

			HTML, CSS, Python, Front end develop, PCB design courses can be included
			Elective courses can be selected based on industrial requirements
			The training for competitive exam can be arranged
			Engineering Courses related to agriculture may be included
			Open elective courses may be reduced and may increase more core courses
5	Alumni	30	Professional and Open elective courses can be pooled college wise instead of within department
			C and C++ courses can be combined together
			GATE training can be included as a Skill Development Course
			Industrial automation and control (Theory and Lab) courses can be shifted to Sixth semester instead of Seventh Semester to place the students in Automation industries
			Renewable Energy Sources (Theory and Lab) courses can be shifted to Seventh semester instead of Sixth Semester
			Digital Signal Processing Course can be included in Seventh Semester as a core course which will be helpful for the GATE exam
			Python Programming Course can be included
			Programming languages in current IT trends can be included
			The courses like AI and Automation can be included
			Verilog course can be included in the curriculum
			Electric circuit analysis lab and Electrical Engineering lab can be combined together


11. Total credits and subject category wise % of credits distribution in existing curriculum:


Sl. No	Course Category	Existing EEE - R2020		
		No. of Credits	No. of Courses	Percentage
1	Humanities and Social Sciences including Management Courses	7	5	04.27
2	Basic Science Courses	16	6	09.76
3	Engineering Science Courses including workshop, drawing, basics of electronics / electrical /mechanical /computer etc.,	18	8	10.98
4	Professional Core Courses	84	40	51.21
5	Professional Elective Courses relevant to chosen specialization/branch	18	6	10.98
6	Open subjects – Electives from other technical and/or emerging subjects	9	3	05.48
7	Project work, Seminar and Internship in Industry or elsewhere	12	3	7.32
8	Employability Enhancement Courses (EEC*)	-	15	-
9	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	-	7	-
Total Credits			164	

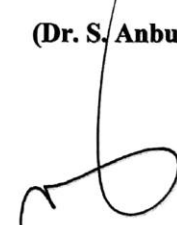
12. Total credits and subject category wise % of credits distribution in proposed curriculum:

Sl. No	Course Category	Proposed EEE - R2023		
		No. of Credits	No. of Courses	Percentage
1	Humanities and Social Sciences including Management Courses	10	4	5.89
2	Basic Science Courses	15	5	8.82
3	Engineering Science Courses including workshop, drawing, basics of electronics / electrical /mechanical /computer etc.,	37	19	21.77
4	Professional Core Courses	69	31	40.59
5	Professional Elective Courses relevant to chosen specialization/branch	15	5	8.82
6	Open subjects – Electives from other technical and/or emerging subjects	09	3	5.29
7	Project work, Seminar and Internship in Industry or elsewhere	15	6	8.82
8	Ability Enhancement Courses (AEC*)	-	9	-
9	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Knowledge Tradition]	-	7	-
Total Credits		170		


(Dr. P. Jamuna)


Dean Academics
(Dr. S. Anbumalar)


Signature of Chairperson
(Dr. S. Anbumalar)


Director cum Principal
(Dr. V.S.K. Venkatachalapathy)

Annexure – IV

R-2023 Curriculum



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(An Autonomous Institution)

Puducherry

B.TECH. ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC REGULATIONS 2023
(R-2023)

CURRICULUM AND SYLLABI
Volume – I



STRUCTURE FOR UNDERGRADUATE ENGINEERING PROGRAMME

Sl. No	Course Category	Breakdown of Credits
1	Humanities and Social Sciences including Management courses (HS)	15
2	Basic Science Courses (BS)	20
3	Engineering Science including workshop, drawing, basics of electrical / mechanical / computer etc. (ES)	24
4	Professional Core Courses (PC)	71
5	Professional Electives Courses (PE)	18
6	Open Electives Courses (OE)	09
7	Project Work and Internship (PA)	13
8	Ability Enhancement Courses (AEC*)	-
9	Mandatory Courses (MC*)	-
Total		170

SCHEME OF CREDIT DISTRIBUTION – SUMMARY

Sl. No	AICTE Suggested Course Category	Credits per Semester								Total Credits
		I	II	III	IV	V	VI	VII	VIII	
1	Humanities and Social Science (HS)	3	5	1	1	2	-	-	3	15
2	Basic Sciences(BS)	7	4	5	4	-	-	-	-	20
3	Engineering Sciences (ES)	4	8	4	4	4	-	-	-	24
4	Professional Core (PC)	8	4	13	11	8	15	12	-	71
5	Professional Electives (PE)	-	-	-	3	3	3	3	6	18
6	Open Electives (OE)	-	-	-	-	3	3	3	-	09
7	Project Work (PA)	-	-	-	-	1	1	2	8	12
8	Internship (PA)	-	-	-	-	-	-	1	-	01
9	Ability Enhancement Courses (AEC*)	-	-	-	-	-	-	-	-	-
10	Mandatory courses (MC*)	-	-	-	-	-	-	-	-	-
Total		22	21	23	23	21	22	21	17	170

* AEC and MC are not included for CGPA calculation

HONOURS DEGREE PROGRAMME:

The student is permitted to opt for earning an honours degree in the same discipline of engineering in addition to the degree in his/her own discipline. To earn an honours degree the student is required to earn an additional 18 - 20 credits (over and above the total 170 credits prescribed in the curriculum) starting from fourth semester onwards by completing 5 additional courses offered in respective semesters. A student is eligible to exercise this option if he/she has passed all the courses offered upto third semester in the first attempt itself and has earned a CGPA / GPA* (*for lateral entry) of not less than 8.0. The prescribed courses offered for Honours degree are given in Annexure - IV



B.Tech. Electrical and Electronics Engineering

SEMESTER – I										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23MATC01	Engineering Mathematics – I	BS	3	1	0	4	25	75	100
2	U23BSTC01	Physical Science for Engineers	BS	3	0	0	3	25	75	100
3	U23ESTC02	Engineering Mechanics	ES	2	1	0	3	25	75	100
4	U23EET101	Electrical Engineering	PC	3	0	0	3	25	75	100
5	U23EET102	Electronics – I	PC	3	0	0	3	25	75	100
Theory cum Practical										
6	U23ENBC01	Communicative English – I	HS	2	0	2	3	50	50	100
Practical										
7	U23ESPC02	Design Thinking and IDEA Lab	ES	0	0	2	1	50	50	100
8	U23EEP101	Electrical Engineering Laboratory	PC	0	0	2	1	50	50	100
9	U23EEP102	Electronics – I Laboratory	PC	0	0	2	1	50	50	100
Ability Enhancement Course										
10	U23EEC1XX	Certification Course – I**	AEC	0	0	4	-	100	-	100
Mandatory Course										
11	U23EEM101	Induction Programme (UHV- I)	MC	2 Weeks			-	-	-	-
							22	425	575	1000

SEMESTER – II										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23MATC02	Engineering Mathematics – II	BS	3	1	0	4	25	75	100
2	U23CSTC01	Programming in C	ES	3	0	0	3	25	75	100
3	U23ESTC01	Basics of Civil and Mechanical Engineering	ES	3	0	0	3	25	75	100
4	U23EET203	Electronics – II	PC	3	0	0	3	25	75	100
5	U23HSTC01	Universal Human Values – II	HS	2	0	0	2	25	75	100
Theory cum Practical										
6	U23ENBC02	Communicative English – II	HS	2	0	2	3	50	50	100
Practical										
7	U23ESPC03	Engineering Graphics using AutoCAD	ES	0	0	2	1	50	50	100
8	U23CSPC01	Programming in C Laboratory	ES	0	0	2	1	50	50	100
9	U23EEP203	Electronics – II Laboratory	PC	0	0	2	1	50	50	100
Ability Enhancement Course										
10	U23EEC2XX	Certification Course – II **	AEC	0	0	4	-	100	-	100
Mandatory Course										
11	U23EEM202	Sports Yoga and NSS	MC	0	0	2	-	100	-	100
							21	525	575	1100

* Professional Electives are to be selected from the list given in Annexure I

\$ Open electives are to be selected from the list given in Annexure II

** Certification courses are to be selected from the list given in Annexure III (A)

* Skill Enhancement Courses (I and II) are to be selected from the list given in Annexure III (B)



SEMESTER – III										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23MATC03	Probability and Statistics	BS	3	1	0	4	25	75	100
2	U23ADTC01	Programming in Python	ES	3	0	0	3	25	75	100
3	U23EET304	Electromagnetic Theory	PC	2	1	0	3	25	75	100
4	U23EET305	Electrical Machines – I	PC	3	0	0	3	25	75	100
5	U23EET306	Electronics – III	PC	3	0	0	3	25	75	100
Theory cum Practical										
6	U23EEB301	Electric Circuit Analysis	PC	2	0	2	3	50	50	100
Practical										
7	U23ENPC01	General Proficiency – I	HS	0	0	2	1	50	50	100
8	U23MAPC01	Engineering Mathematics Laboratory	BS	0	0	2	1	50	50	100
9	U23ADPC01	Programming in Python Laboratory	ES	0	0	2	1	50	50	100
10	U23EEP304	Electrical Machines – I Laboratory	PC	0	0	2	1	50	50	100
Ability Enhancement Course										
11	U23EEC3XX	Certification Course – III **	AEC	0	0	4	-	100	-	100
12	U23EES301	Skill Enhancement Course – I*	AEC	0	0	2	-	100	-	100
Mandatory Course										
13	U23EEM303	Climate Change	MC	2	0	0	-	100	-	100
							23	675	625	1300

SEMESTER – IV										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23MATC04	Numerical Methods and Optimization	BS	3	1	0	4	25	75	100
2	U23CSTC03	Data Structures	ES	3	0	0	3	25	75	100
3	U23EET407	Electrical Machines – II	PC	3	0	0	3	25	75	100
4	U23EET408	Transmission and Distribution	PC	2	1	0	3	25	75	100
5	U23EEE4XX	Professional Elective - I*	PE	3	0	0	3	25	75	100
Theory cum Practical										
6	U23EEB402	Control Systems	PC	2	0	2	3	50	50	100
Practical										
7	U23ENPC02	General Proficiency – II	HS	0	0	2	1	50	50	100
8	U23CSPC02	Data Structures Laboratory	ES	0	0	2	1	50	50	100
9	U23EEP405	Electrical Machines - II Laboratory	PC	0	0	2	1	50	50	100
10	U23EEP406	Electronics - III Laboratory	PC	0	0	2	1	50	50	100
Ability Enhancement Course										
11	U23EEC4XX	Certification Course – IV **	AEC	0	0	4	-	100	-	100
12	U23EES402	Skill Enhancement Course – II*	AEC	0	0	2	-	100	-	100
Mandatory Course										
13	U23EEM404	Right to Information and Good Governance	MC	2	0	0	-	100	-	100
							23	675	625	1300



SEMESTER – V										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23HSTC02	Research Methodology	HS	2	0	0	2	25	75	100
2	U23ITTC03	Programming in Java	ES	3	0	0	3	25	75	100
3	U23EET509	Electrical Measurements and Instrumentation	PC	3	0	0	3	25	75	100
4	U23EET510	Microprocessor and Microcontroller	PC	3	0	0	3	25	75	100
5	U23EEE5XX	Professional Elective - II [*]	PE	3	0	0	3	25	75	100
6	U23XXO5XX	Open Elective - I ³	OE	3	0	0	3	25	75	100
Practical										
7	U23ITPC03	Programming in Java Laboratory	ES	0	0	2	1	50	50	100
8	U23EEP507	Electrical Measurements and Instrumentation Laboratory	PC	0	0	2	1	50	50	100
9	U23EEP508	Microprocessor and Microcontroller Laboratory	PC	0	0	2	1	50	50	100
Project Work										
10	U23EEW501	Micro Project	PA	0	0	2	1	100	-	100
Ability Enhancement Course										
11	U23EEC5XX	Certification Course – V ^{**}	AEC	0	0	4	-	100	-	100
Mandatory Course										
12	U23EEM505	Essence of Indian Traditional Knowledge	MC	2	0	0	-	100	-	100
							21	600	600	1200

SEMESTER – VI										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23EET611	Power System Analysis	PC	2	1	0	3	25	75	100
2	U23EET612	Embedded System	PC	3	0	0	3	25	75	100
3	U23EET613	Power Electronics	PC	3	0	0	3	25	75	100
4	U23EEE6XX	Professional Elective - III [*]	PE	3	0	0	3	25	75	100
5	U23XXO6XX	Open Elective – II ³	OE	3	0	0	3	25	75	100
Theory cum Practical										
6	U23EEB603	Electrical Machine Design	PC	2	0	2	3	50	50	100
Practical										
7	U23EEP609	Power System Analysis Laboratory	PC	0	0	2	1	50	50	100
8	U23EEP610	Embedded System Laboratory	PC	0	0	2	1	50	50	100
9	U23EEP611	Power Electronics Laboratory	PC	0	0	2	1	50	50	100
Project Work										
10	U23EEW602	Mini Project	PA	0	0	2	1	100	-	100
Ability Enhancement Course										
11	U23EEC6XX	Certification Course – VI ^{**}	AEC	0	0	4	-	100	-	100
Mandatory Course										
12	U23EEM606	Gender Equality	MC	2	0	0	-	100	-	100
							22	625	575	1200



SEMESTER – VII										
Sl. No	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23EET714	Industrial Automation and Control	PC	3	0	0	3	25	75	100
2	U23EET715	Renewable Energy Sources	PC	3	0	0	3	25	75	100
3	U23EET716	Electric Vehicles	PC	3	0	0	3	25	75	100
4	U23EEE7XX	Professional Elective – IV [#]	PE	3	0	0	3	25	75	100
5	U23XXO7XX	Open Elective – III [§]	OE	3	0	0	3	25	75	100
Practical										
6	U23EEP712	Industrial Automation and Control Laboratory	PC	0	0	2	1	50	50	100
7	U23EEP713	Renewable Energy Sources Laboratory	PC	0	0	2	1	50	50	100
8	U23EEP714	Electric Vehicles Laboratory	PC	0	0	2	1	50	50	100
Project Work										
9	U23EEW703	Project Phase – I	PA	0	0	4	2	50	50	100
10	U23EEW704	Internship / Inplant Training	PA	0	0	2	1	100	-	100
							21	425	575	1000

SEMESTER – VIII										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23HSTC03	Entrepreneurship and Business Management	HS	3	0	0	3	25	75	100
2	U23EEE8XX	Professional Elective – V [#]	PE	3	0	0	3	25	75	100
3	U23EEE8XX	Professional Elective – VI [#]	PE	3	0	0	3	25	75	100
Project Work										
4	U23EEW805	Project Phase – II	PA	0	0	16	8	50	100	150
							17	125	325	450



Annexure – I
PROFESSIONAL ELECTIVE COURSES

Professional Elective – I (Offered in Semester IV)		
Sl. No.	Course Code	Course Title
1	U23EEDC01	Electrical Safety Engineering
2	U23EEE402	Nano Electronics
3	U23EEE403	Power Plant Engineering
4	U23EEE404	Energy Storage Technology
5	U23EEE405	Digital Logic Design using VHDL
Professional Elective – II (Offered in Semester V)		
Sl. No.	Course Code	Course Title
1	U23EEE506	Utilization of Electrical Energy
2	U23EEE507	Special Electrical Machines
3	U23EEE508	High Voltage Engineering
4	U23EEE509	Automotive Electronics for Electrical Engineering
5	U23ECEC04	VLSI System
Professional Elective – III (Offered in Semester VI)		
Sl. No.	Course Code	Course Title
1	U23EEE611	Finite Element Analysis
2	U23EEE612	SMPS and UPS
3	U23EEE613	Flexible AC Transmission System
4	U23ICEC02	Soft Computing Techniques
5	U23EEE615	Internet of Things for Smart System
Professional Elective – IV (Offered in Semester VII)		
Sl. No.	Course Code	Course Title
1	U23EEE716	Electrical Energy Audit and Conservation
2	U23EEE717	Multilevel Power Converters
3	U23ICEC01	Virtual Instrumentation
4	U23EEE719	Modern Control System
5	U23EEE720	Robotics and Automation
Professional Elective – V (Offered in Semester VIII)		
Sl. No.	Course Code	Course Title
1	U23EEE821	Electric Traction
2	U23EEE822	Advanced Electric Drives and Control
3	U23EEE823	Protection and Switchgear
4	U23EEE824	Digital Signal Processing for Electrical Engineering
5	U23EEE825	AI Techniques in Electrical System
Professional Elective – VI (Offered in Semester VIII)		
Sl. No.	Course Code	Course Title
1	U23EEE826	Industrial Electrical System
2	U23EEE827	Power Electronics for Renewable Energy Systems
3	U23EEE828	Power System Operation and Control
4	U23EEE829	Optimization Techniques
5	U23EEE830	Smart Grid



Annexure – II**OPEN ELECTIVE COURSES**

Sl. No.	Course Code	Course Title	Offering Department	Permitted Department
Open Elective – I / Open Elective – II (Offered in Semester V for CSE, IT, MECH, Mechatronics, AI&DS) (Offered in Semester VI for EEE, ECE, ICE, CIVIL, BME, CCE, FT)				
1.	U23EEDC01	Electrical Safety Engineering	EEE	ECE, ICE, MECH, CIVIL, MCTR, CCE, BME, IT, CSE, FT, AI&DS,CSBS
2.	U23EEOC02	Solar Photovoltaic Fundamental and Applications	EEE	ECE, ICE, MECH, CIVIL, MCTR, CCE, BME, IT, CSE, FT, AI&DS,CSBS
Open Elective – III (Offered in Semester VII)				
1.	U23EEOC03	Electric and Hybrid Vehicles	EEE	ECE, ICE, MECH, MCTR, CCE, BME, AI&DS
2.	U23EEOC04	Energy Conservation and Management	EEE	ECE, ICE, MECH, CIVIL, MCTR, CCE, BME, IT, CSE, AI&DS

Annexure – III**ABILITY ENHANCEMENT COURSES – (A) CERTIFICATION COURSES**

S. No	Course Code	Course Title
1	U23EECX01	Adobe Photoshop
2	U23EECX02	Adobe Animate
3	U23EECX03	Adobe Dreamweaver
4	U23EECX04	Adobe After Effects
5	U23EECX05	Adobe Illustrator
6	U23EECX06	Adobe InDesign
7	U23EECX07	Autodesk AutoCAD -ACU
8	U23EECX08	Autodesk Inventor - ACU
9	U23EECX09	Autodesk Revit - ACU
10	U23EECX10	Autodesk Fusion 360 - ACU
11	U23EECX11	Autodesk 3ds Max - ACU
12	U23EECX12	Autodesk Maya - ACU
13	U23EECX13	Cloud Security Foundations
14	U23EECX14	Cloud Computing Architecture
15	U23EECX15	Cloud Foundation



16	U23EECX16	Cloud Practitioner
17	U23EECX17	Cloud Solution Architect
18	U23EECX18	Data Engineering
19	U23EECX19	Machine Learning Foundation
20	U23EECX20	Robotic Process Automation / Medical Robotics
21	U23EECX21	Advance Programming Using C
22	U23EECX22	Advance Programming Using C ++
23	U23EECX23	C Programming
24	U23EECX24	C++ Programming
25	U23EECX25	CCNP Enterprise: Advanced Routing
26	U23EECX26	CCNP Enterprise: Core Networking
27	U23EECX27	Cisco Certified Network Associate - Level 2
28	U23EECX28	Cisco Certified Network Associate- Level 1
29	U23EECX29	Cisco Certified Network Associate- Level 3
30	U23EECX30	Fundamentals Of Internet of Things
31	U23EECX31	Internet Of Things / Solar and Smart Energy System with IoT
32	U23EECX32	Java Script Programming
33	U23EECX33	NGD Linux Essentials
34	U23EECX34	NGD Linux I
35	U23EECX35	NGD Linux II
36	U23EECX36	Advance Java Programming
37	U23EECX37	Android Programming / Android Medical App Development
38	U23EECX38	Angular JS
39	U23EECX39	Catia
40	U23EECX40	Communication Skills for Business
41	U23EECX41	Coral Draw
42	U23EECX42	Data Science Using R
43	U23EECX43	Digital Marketing
44	U23EECX44	Embedded System Using C
45	U23EECX45	Embedded System with IOT / Arduino
46	U23EECX46	English For IT
47	U23EECX47	Plaxis
48	U23EECX48	Sketch Up
49	U23EECX49	Financial Planning, Banking and Investment Management
50	U23EECX50	Foundation Of Stock Market Investing
51	U23EECX51	Machine Learning / Machine Learning for Medical Diagnosis
52	U23EECX52	IOT Using Python



53	U23EECX53	Creo (Modelling & Simulation)
54	U23EECX54	Soft Skills, Verbal, Aptitude
55	U23EECX55	Software Testing
56	U23EECX56	MX-Road
57	U23EECX57	CLO 3D
58	U23EECX58	Solid works
59	U23EECX59	Staad Pro
60	U23EECX60	Total Station
61	U23EECX61	Hydraulic Automation
62	U23EECX62	Industrial Automation
63	U23EECX63	Pneumatics Automation
64	U23EECX64	Agile Methodologies
65	U23EECX65	Block Chain
66	U23EECX66	Devops
67	U23EECX67	Artificial Intelligence
68	U23EECX68	Cloud Computing
69	U23EECX69	Computational Thinking
70	U23EECX70	Cyber Security
71	U23EECX71	Data Analytics
72	U23EECX72	Databases
73	U23EECX73	Java Programming
74	U23EECX74	Networking
75	U23EECX75	Python Programming
76	U23EECX76	Web Application Development (HTML, CSS, JS)
77	U23EECX77	Network Security
78	U23EECX78	MATLAB
79	U23EECX79	Azure Fundamentals
80	U23EECX80	Azure AI (AI-900)
81	U23EECX81	Azure Data (DP -900)
82	U23EECX82	Microsoft 365 Fundamentals (SS-900)
83	U23EECX83	Microsoft Security, Compliance and Identity (SC-900)
84	U23EECX84	Microsoft Power Platform (PI-900)
85	U23EECX85	Microsoft Dynamics Fundamentals 365 – CRM
86	U23EECX86	Microsoft Excel
87	U23EECX87	Microsoft Excel Expert
88	U23EECX88	Securities Market Foundation
89	U23EECX89	Derivatives Equity



90	U23EECX90	Research Analyst
91	U23EECX91	Portfolio Management Services
92	U23EECX92	Cyber Security
93	U23EECX93	Cloud Security
94	U23EECX94	PMI – Ready
95	U23EECX95	Tally – GST & TDS
96	U23EECX96	Advance Tally
97	U23EECX97	Associate Artist
98	U23EECX98	Certified Unity Programming
99	U23EECX99	VR Development

ABILITY ENHANCEMENT COURSES – (B) SKILL ENHANCEMENT COURSES

Sl. No.	Course Code	Course Title
1	U23EES301	Skill Enhancement Course 1 *
		1) Testing of Electronics Devices and PCB Board Designing
		2) Design of Solar power plant and Installation
		3) Demonstration / Troubleshooting of Electrical and Electronics Equipments
2	U23EES402	Skill Enhancement Course 2 *
		1) Mobile Phone Servicing
		2) Autonomous Robotics
		3) Repair and Maintenance of Power Supply, Inverter and UPS

* Any one course to be selected from the list



Annexure – IV

Honours Programme - Electric Vehicle Technology

COURSE DETAILS											
Sl. No.	Semester	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
					L	T	P		CAM	ESM	Total
Theory											
1	IV	U23EEH401	Advanced Power Train Engineering	PC	3	1	0	4	25	75	100
2	V	U23EEH502	Energy Storage and Management in Electric Vehicles	PC	3	1	0	4	25	75	100
3	VI	U23EEH603	Electrical Drives and Controllers for EV	PC	3	1	0	4	25	75	100
4	VII	U23EEH704	Noise,Vibration and Harshness in Electric Vehicles	PC	3	1	0	4	25	75	100
5	VIII	U23EEH805	Autonomous and Connected Vehicles	PC	3	1	0	4	25	75	100
Total								20	125	375	500
Equivalent NPTEL courses**											
1	Course Code U23EEHN01		Electric Vehicles and Renewable Energy					3	12 WEEK Course		
2			Electrochemical Energy Storage					3			
3			Design of Photovoltaic Systems					3			
4			Design of Electric Motors					3			
5			Digital Control in Switched Mode Power Converters and FPGA -based Prototyping					3			

** The student shall be given an option to earn 3 credits through one 12 week NPTEL course (Equivalent) instead of any one course listed for honours degree programme and shall be completed before the commencement of eighth semester. The equivalent courses are subject to change based on its availability as per NPTEL course list.



Annexure - V

Department	Mathematics		Programme: B.Tech.							
Semester	III		Course Category : BS			*End Semester Exam Type: TE				
Course Code	U23MATC03		Periods/Week			Credit	Maximum Marks			
			L	T	P	C	CAM	ESE	TM	
Course Name	PROBABILITY AND STATISTICS		3	1	0	4	25	75	100	
(Common to all Branches Except CSBS)										
Prerequisite	Basic Probability									
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Apply the concept of probability							K3	
	CO2	Solve the problem on Random variables							K3	
	CO3	Evaluate the correlation and Regression							K3	
	CO4	Find Correlation between variables							K3	
	CO5	Analyze the problems in small samples							K3	
UNIT – I	Theory of Probability					Periods:12				
Random Experiments - Sample Space - Exhaustive events- Axioms of probability – Conditional probability – Total probability – Bayes theorem.									CO1	
UNIT – II	Random Variables					Periods:12				
Moments–Moment generating functions and their properties. Binomial distribution – Poisson distribution – Exponential distribution – Normal distribution (Excluding Derivation of Mean, Variance and MGF)									CO2	
UNIT – III	Design of Experiments					Periods:12				
Analysis of variance: One way and two-way classifications. Correlation – Rank correlation and Regression.									CO3	
UNIT – IV	Large Samples					Periods:12				
Large Samples: Single Propositions – Difference of Proportions – Single Mean – Difference of Mean – Difference of Standard Deviations									CO4	
UNIT – V	Small Samples					Periods:12				
Test for Mean – Test for Ratio of Variances – Chi-Square test for Goodness of Fit and Independence of Attributes.									CO5	
Lecture Periods:45			Tutorial Periods:15			Practical Periods:-		Total Periods:60		
Text Books										
<ol style="list-style-type: none"> 1. B.S. Grewal, "Higher Engineering Mathematics", Khanna publishers, 3rd Edition, 2017. 2. T. Veerarajan, "Probability, Statistics and Random Processes", Tata McGraw-Hill, 3rd Edition, 2008. 3. A. Singaravelu, "Probability and Statistics", Meenakshi Agency, 2019. 										
Reference Books										
<ol style="list-style-type: none"> 1. Ravish R. Singh, Mukul Bhatt "Engineering Mathematics", McGraw-Hill, 1st Edition, 2017. 2. William Mendenhall, Robert J. Beaver and Barbara M. Beaver: "Introduction to Probability & Statistics", Cengage Learning, 15th Edition, 2019. 3. Richard. A. Johnson, Irwin Miller and John E. Freund, "Probability and Statistics for Engineers", Pearson Education, Asia, 9th Edition, 2018. 4. Vijay K. Rohatgi and A.K. Md. Ehsanes Saleh, "An Introduction to Probability and Statistics", Wiley, 3rd Edition 2008. 										
Web References										
<ol style="list-style-type: none"> 1. www.stat110.net 2. http://www.nptel.ac.in/courses/111105035 (R.V) 3. http://www.probabilitycourse.com. 4. www.edx.org/Probability 5. http://www2.aueb.gr/users/demos/pro-stat.pdf 										

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	1	1	-	-	-	-	-	-	-	1	1	1	1
2	3	2	1	1	-	-	-	-	-	-	-	1	1	1	1
3	2	2	-	-	-	1	-	-	-	-	-	1	1	1	1
4	3	2	1	1	-	1	-	-	-	-	-	1	1	1	1
5	3	2	1	1	-	1	-	-	-	-	-	1	1	1	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Artificial Intelligence and Data Science		Programme : B.Tech						
Semester	III		Course Category : ES			End Semester Exam Type: TE			
Course Code	U23ADTC01		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	PROGRAMMING IN PYTHON		3	0	0	3	25	75	100
(Common to All Branches)									
Prerequisite	NIL								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Interpret the basic concepts of Python programs.						K2	
	CO2	Articulate the concepts of Sets, Dictionaries and Object-Oriented concepts.						K2	
	CO3	Experiment with Numpy package.						K3	
	CO4	Apply and analyze Data Manipulation with Pandas.						K3	
	CO5	Illustrate programming concept for Visualization with Matplotlib.						K3	
UNIT- I	Introduction to Python					Periods:09			
Structure of Python Program – Underlying mechanism of Module Execution – Branching and Looping – Problem Solving Using Branches and Loops – Functions – Lambda Functions – Lists and Mutability – Problem Solving Using Lists and Functions.									CO1
UNIT- II	Sequence Data types and Object-Oriented Programming					Periods:09			
Sequences – Mapping and Sets – Dictionaries. Classes: Classes and Instances – Inheritance – Exception Handling – Introduction to Regular Expressions using “re” module.									CO2
UNIT- III	Using Numpy					Periods:09			
Basics of NumPy – Computation on NumPy – Aggregations – Computation on Arrays – Comparisons – Masks and Boolean Arrays – Fancy Indexing – Sorting Arrays – Structured Data: NumPy's Structured Array.									CO3
UNIT- IV	Data Manipulation with Pandas					Periods:09			
Introduction to Pandas Objects – Data indexing and Selection – Operating on Data in Pandas – Handling Missing Data – Hierarchical Indexing – Combining Data Sets. Aggregation and Grouping – Pivot Tables – Vectorized String Operations – Working with Time Series – High Performance Pandas – eval() and query().									CO4
UNIT- V	Visualization With Matplotlib					Periods:09			
Basic functions of Matplotlib – Simple Line Plot – Scatter Plot – Density and Contour Plots – Histograms – Binnings and Density – Customizing Plot Legends – Colour Bars – Three-Dimensional Plotting in Matplotlib.									CO5
Lecture Periods:45		Tutorial Periods:		Practical Periods:-			Total Periods:45		
Text Books									
<ol style="list-style-type: none"> 1. Jake VanderPlas, “Python Data Science Handbook - Essential Tools for Working with Data”, O'Reilly Media Inc, 2016. 2. Zhang.Y, “An Introduction to Python and Computer Programming”, Springer Publications, 2016. 3. Wesley J Chun, “Core Python Programming”, Pearson Education, 2nd Edition, 2006. 									
Reference Books									
<ol style="list-style-type: none"> 1. John Paul Mueller, Luca Massaron, “Python for Data Science for Dummies”, 2nd Edition, John Wiley& Sons, 2019. 2. Jesus Rogel-Salazar, “Data Science and Analytics with Python”, CRC Press Taylor and Francis Group, 2017. 3. Brian Draper, “Python Programming A Complete Guide for Beginners to Master and Become an Expert in Python Programming Language”, CreateSpace Independent Publishing Platform, 2016. 4. Mark Lutz, Laura Lewin, Frank Willison, “Programming Python”, O'Reilly Media, 3rd Edition, 2006. 5. Gowrishankar S, Veena A, “Introduction to Python Programming”, CRC Press, 2018. 									
Web References									
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/106/106/106106212/ 2. https://www.geeksforgeeks.org/data-analysis-visualization-python/ 3. https://www.coursera.org/learn/python-data-analysis 4. https://www.python.org/ 5. https://www.programiz.com/python-programming 									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	1	-	-	3	-	-	-	-	-	-	-	3	-	3
2	2	2	1	3	-	-	-	-	-	-	-	2	2	2	3
3	3	2	2	3	-	-	-	-	-	-	-	2	3	2	3
4	3	3	2	3	-	-	-	-	-	-	-	3	3	3	3
5	3	3	2	3	-	-	-	-	-	-	-	2	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B.Tech.						
Semester	III		Course Category: PC			*End Semester Exam Type: TE			
Course Code	U23EET304		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	ELECTROMAGNETIC THEORY		2	1	0	3	25	75	100
EEE									
Prerequisite	Mathematics, Physical Science for Engineers, Electrical Engineering								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Interpret the basic mathematical concepts related to electrostatic and electromagnetic fields.						K2	
	CO2	Explain the basic concepts of electrical potential, electric dipole, energy density and their applications.						K2	
	CO3	Predict the magnetic field for the analysis of electrical machines.						K3	
	CO4	Illustrate the behaviour of magnetic fields at the interface of two different materials and their applications to electrical engineering						K3	
	CO5	Gain knowledge about the relation between electric and magnetic fields with help of Maxwell's Equation and analyze Electromagnetic Wave propagation, Poynting Vector and Poynting Theorem.						K2	
UNIT- I	Electrostatic Field					Periods:09			
Review of Scalar and Vector Fields: Cartesian, Cylindrical and Spherical – Scalar and vector product. Del Operator: Divergence, Curl and Gradient -Divergence Theorem – Stoke's Theorem. Electrostatics: Coulomb's law -Electric field – Electric field intensity(E) due to point, line, surface and volume charge distribution - Electric flux density (D),Gauss's Law and its applications								CO1	
UNIT- II	Electric Fields in Material Space					Periods:09			
Electric potential and potential gradient - Electric dipole and dipole moment - Nature of Dielectrics and Conductors - Polarization in dielectrics - Electric field in multiple dielectrics - Boundary conditions for electrostatic field - Poisson's and Laplace's Equations – Capacitance-Energy density. Applications: Electrostatic Precipitators, Xerography.								CO2	
UNIT- III	Magnetostatic Field - I					Periods:09			
Biot-Savart law - Magnetic field intensity (H) and magnetic flux density (B) - Ampere's Circuital Law, magnetic flux density in a finite and infinite conductor, solenoid and toroid - Magnetic dipole - Scalar and vector magnetic potential. Application: LF Magnetic shielding.								CO3	
UNIT- IV	Magnetostatic Field - II					Periods:09			
Boundary condition for magneto static fields - Magnetic field in matter and magnetic circuits. Lorentz Force – Force Between Two Parallel Current Carrying Conductors – potential energy and force on magnetic energy - Inductance of solenoid, toroid and transmission lines – Application of magnetic field in induction heating.								CO4	
UNIT- V	Electromagnetic and Wave Propagations					Periods:09			
Maxwell's equation: displacement current - continuity equation, Differential and integral forms. Wave parameters: velocity, intrinsic impedance, wavelength, propagation constant-Wave propagation in lossless media, good conductor and dielectrics. Flow of electromagnetic Power and Poynting vector: instantaneous and average power densities. Applications: Electromagnetic interference in high voltage transmission line								CO5	
Lecture Periods:30		Tutorial Periods: 15		Practical Periods: -		Total Periods:45			
Text Books									
1. Mathew N. O. Sadiku & S. V. Kulkarni, "Principles of Electromagnetics", Oxford University Press Inc., 6 th Edition, 2015. 2. Ashutosh Pramanik, "Electromagnetism Applications - Vol. 2: Magnetic Diffusion and Electromagnetic Waves", PHI Learning Private Limited, New Delhi, 2014. 3. William H. Hayt and John A. Buck, "Engineering Electromagnetics", Tata McGraw Hill, 9 th Edition, 2018.									
Reference Books									
1. Joseph. A. Edminister, Schaum's, "Outline of Electromagnetics", (Schaum's Outline Series), Tata McGraw Hill, 4 th Edition, 2014 2. Kraus and Fleish, "Electromagnetics with Applications", McGraw Hill International Editions, 5 th Edition, 2010. 3. Bhag Singh Guru and Hüseyin R. Hiziroglu, "Electromagnetic field theory Fundamentals", Cambridge University Press, 2 nd Revised Edition, 2009.									

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1. <http://hyperphysics.phy-astr.gsu.edu/hbase/emcon.html#emcon>
2. <https://www.youtube.com/watch?v=9Tm2c6NjH4Y>
3. <https://www.youtube.com/watch?v=HcPDc23ZLEs>
4. <http://scienceworld.wolfram.com/physics/ElectromagneticForce.html>
5. <https://www.witpress.com/contents/c40637.pdf>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	1	-	1	-	-	-	-	1	3	2	2
2	3	3	3	2	1	-	1	-	-	-	-	1	3	2	2
3	3	3	3	2	1	-	1	-	-	-	-	1	3	3	3
4	3	3	3	2	1	-	1	-	-	-	-	1	3	3	3
5	3	3	3	2	1	-	1	-	-	-	-	1	2	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B.Tech.						
Semester	III		Course Category : PC			*End Semester Exam Type: TE			
Course Code	U23EET305		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	ELECTRICAL MACHINES – I		3	0	0	3	25	75	100
EEE									
Prerequisite	Physical Science for Engineers, Electrical Engineering								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Describe the magnetic circuit calculations and principles of Electromechanical energy conversion							K2
	CO2	Predict the performance of DC machines under various operating conditions using their characteristics.							K3
	CO3	Interpret the efficiency of DC machines by conducting Suitable tests.							K2
	CO4	Illustrate the performance of transformers by equivalent circuits.							K3
	CO5	Summarize the efficiency of Transformers by conducting Suitable tests and analyze the characteristics of special transformers.							K2
UNIT- I	Magnetic Circuits and Electromechanical Energy Conversion					Periods:09			
Basic magnetic circuit analysis - B-H Relationship – Magnetically induced emf and force – Faraday's law of electromagnetic induction - Hysteresis and Eddy current losses. Electromechanical energy conversion concept–Single and multiple excited systems.									CO1
UNIT- II	DC Generators					Periods:09			
DC Generators: Construction of DC Machine – Principle of operation – Types of Windings – EMF equation - Armature Reaction – Commutation - methods of improving commutation – DC Generator types –magnetization and load characteristics – Losses – efficiency – Condition for maximum efficiency - Power stages - Applications.									CO2
UNIT- III	DC Motors					Periods:09			
DC Motors: Principle of operation - Back emf - Torque equation – types - Performance characteristics. Starters: Need for starter – types – two, three, four point starters. Speed control: Armature and field control. Electric braking - Power stages - Applications. Testing of DC Machines: Load test - Swinburne's test - Hopkinson's test - Retardation test.									CO3
UNIT- IV	Single Phase Transformers					Periods:09			
Single Phase Transformers: Construction - Types – Principle of operation - EMF equation - Equivalent circuit - phasor diagram - Parallel operation- Losses - Efficiency - Condition for maximum efficiency - all day efficiency – voltage regulation. Auto transformer: Principle of operation - copper savings. Applications. Testing: Load test - OC and SC test – Sumpner's test.									CO4
UNIT- V	Polyphase Transformers and Special Transformers					Periods:09			
Three Phase Transformers: Construction – Principle of operation – Types of connections – Open delta – Scott connection – three phase to two phase conversion –Tap changing transformers. Testing: Load test - OC and SC test. Applications. Special Transformers: Variable frequency transformer– audio frequency Transformer – Pulse transformer – Isolation transformer – Instrument Transformer.									CO5
Lecture Periods:45			Tutorial Periods:-			Practical Periods:-		Total Periods:45	
Text Books									
1. A. E. Fitzgerald, Charles Kingsley, Stephen. D. Umans, "Electric Machinery", Tata McGraw Hill, New Delhi, 7 th Edition, 2017. 2. P. S. Bimbhra, "Electrical Machinery", Khanna Publishers, New Delhi, 7 th Edition, 2018. 3. B. L. Theraja and A. K. Theraja, "A Textbook of Electrical Technology-Vol. II", S. Chand & Co. Ltd., New Delhi, 23 rd Multicolor Edition, 2016.									
Reference Books									
1. Stephen J. Chapman, "Electric Machinery Fundamentals", McGraw Hill Education Pvt. Ltd, 5 th Edition, 2012. 2. D. P. Kothari and I.J. Nagrath, "Electric Machines", Tata McGraw Hill, New Delhi, 5 th Edition, 2017. 3. Vincent Del Toro, "Basic Electric Machines", Pearson India Education, 1 st Edition, 2016. 4. Irving. L. Kosow, "Electrical Machines and Transformers", PHI, 2 nd Edition, 2007. 5. Albert E. Clayton, "The performance and design of direct current machines", Tata McGraw Hill Publishing Company Limited, New Delhi, 3 rd Edition, 2004.									

Web References

1. <https://ndl.iitkgp.ac.in>
2. <https://nptel.ac.in/courses/108/105/108105017/>
3. <https://www.studocu.com/>
4. <http://electrical-engineering-portal.com/>
5. <http://www.electrical4u.com>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	2	2	2	1	-	-	-	-	-	1	3	3	3
2	3	3	2	2	2	1	-	-	-	-	-	1	3	3	3
3	3	3	2	2	2	1	-	-	-	-	-	1	3	3	3
4	3	3	2	2	2	1	-	-	-	-	-	1	3	3	3
5	3	3	2	2	2	1	-	-	-	-	-	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering			Programme: B.Tech.						
Semester	III			Course Category : PC		*End Semester Exam Type: TE				
Course Code	U23EET306			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	ELECTRONICS - III			3	0	0	3	25	75	100
EEE										
Prerequisite	Electronics									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Describe the IC fabrication process of devices and various logic families.							K2	
	CO2	Apply OP AMP based circuits for applications like ADC, DAC etc.							K3	
	CO3	Analyze filters and waveform generator circuits using OP AMP.							K4	
	CO4	Categorize the regulators for various power supply circuits.							K4	
	CO5	Illustrate multivibrator circuits using 555 timer and classify memory devices.							K3	
UNIT- I	IC Fabrication and Logic Families						Periods:09			
IC Fabrication Process: Basic Planar Process – Fabrication of Resistance – Diode – Capacitance – BJT– FET– HFET – CMOS technology. Logic families: DTL – HTL– RTL– TTL– I ² L – ECL– NMOS – PMOS – CMOS – Performance criteria – Comparison – Applications – Advantages. CO1										
UNIT- II	Operational Amplifiers and Applications						Periods:09			
OP-AMP LM741: Block Diagram – Equivalent circuit – AC and DC characteristics – Open and closed loop configuration – Applications: Inverting , Non Inverting amplifier and Voltage Follower – Adder and Subtractor – Integrator, Differentiator and Multiplier – V to I and I to V converter – Comparator – Instrumentation Amplifier – A/D and D/A converter – Properties of practical op-amps (LM124, OP07, TL082). CO2										
UNIT- III	Active Filters and Waveform Generator using OP AMP						Periods:09			
First and Second order Active filter – Low pass, high pass, wide band pass and band stop – Waveform generator: RC Phase shift and Wien bridge oscillators – Triangular and Saw tooth wave generator – Effect of Slew Rate on waveform generation – Schmitt trigger and Multivibrators. CO3										
UNIT- IV	Analog IC Applications						Periods:09			
Series op-amp regulator – Fixed voltage regulators: LM78XX, LM79XX – Adjustable voltage regulators: LM317 – LM 723 – Dual tracking regulators – SMPS – V/F converter – F/V converter – INA121 Instrumentation Amplifier – Comparator IC LM311– ADC TLC0820 and DAC TLC7524 ICs. CO4										
UNIT- V	555 Timer, Phase Locked Loop and Memories						Periods:09			
IC555 timer: Functional diagram – Applications: Multivibrators – Schmitt trigger. PLL: Functional diagram – Phase Comparator – Application of Motor speed control. Memory structure: RAM – ROM – PROM – EPROM – EEPROM. Programmable Logic Devices: Programmable Logic Array (PLA) – Programmable Array Logic (PAL). CO5										
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -			Total Periods:45	
Text Books										
1. D. Roy Choudhary, Sheil. B. Jani, "Linear Integrated Circuits", New Age Publication, 5 th Edition, 2018. 2. Sergio Franco, "Design with Operational Amplifiers and Analog Integrated Circuits", McGraw Hill, 1 st Edition, 2018. 3. Robin Shannon, "Linear Integrated Circuits", Scientific e-Resources, ISBN - 1839472413, 2019										
Reference Books										
1. Shrikrishna Yawale, Sangita Yawale, "Operational Amplifier Theory and Experiments", Springer Nature Singapore, 2022. 2. Bruce Carter, Ron Mancini, "Op Amps for Everyone", Newnes Publication, 5 th Edition, 2017. 3. Ramakant A. Gayakward, "Op-amps and Linear Integrated Circuits", Pearson Education, 5 th Edition, 2015. 4. J. Michael Jacob, "Applications and Design with Analog Integrated Circuits", Prentice Hall of India, New Delhi, 2 nd Edition, 2010. 5. James M. Fiore, "Opamps and Linear Integrated Circuits Concepts and Applications", Cengage learning, 1 st , Edition, 2010.										
Web References										
1. https://nptel.ac.in/courses/117103064/ 2. https://nptel.ac.in/courses/117105/117105080/ 3. https://nptel.ac.in/courses/117108/117108040/ 4. https://nptel.ac.in/courses/108/108/108108111/ 5. https://nptel.ac.in/courses/117107/117107094/										

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	3	3	-	-	-	-	-	-	1	3	3	3
2	3	3	3	3	3	-	-	-	-	-	-	1	3	3	3
3	3	3	3	3	3	-	-	-	-	-	-	1	3	3	3
4	3	3	3	3	3	-	-	-	-	-	-	1	3	3	3
5	3	3	3	3	3	-	-	-	-	-	-	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B. Tech.						
Semester	III		Course Category: PC			End Semester Exam Type : TE			
Course Code	U23EEB301		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	ELECTRIC CIRCUIT ANALYSIS		2	0	2	3	50	50	100
EEE									
Prerequisite	Engineering Mathematics, Electrical Engineering								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Solve DC and AC networks using various network theorems.							K3
	CO2	Predict the behavior of three phase circuits for different types of load under balanced and unbalanced conditions							K3
	CO3	Categorize the steady state and transient response of various circuits with DC and AC excitations.							K4
	CO4	Examine various electrical circuits using simulation software							K3
	CO5	Demonstrate the behaviour of magnetically coupled circuits for series and parallel connections using simulation software							K3
UNIT – I	Circuit Analysis and Network Theorems					Periods:10			
DC and AC Circuits : Review of Mesh and Nodal method - Network Theorems – Superposition, Thevenin's, Norton's, Maximum power transfer and Reciprocity									CO1
UNIT – II	Three Phase Circuits and Transient Analysis					Periods:10			
Three phase circuits: Three phase balanced - unbalanced voltage sources – analysis of three phase 3-wire and 4-wire circuits with star and delta connected balanced and unbalanced loads. Transient Analysis: Transient response of RL, RC and RLC circuits for DC and AC excitation - Natural and forced oscillations - Laplace transform application for transient solution.									CO2
UNIT – III	Resonance , Network Topology and Coupled Circuits					Periods:10			
Resonance circuits: Series, parallel and series – parallel circuits – Relationship between Q - factor, resonant frequency and bandwidth. Network Topology: Graph, branch, chord, Tree, incidence matrix, tie-set and cut-set. Coupled circuits: Self-inductance, mutual inductance – coefficient of coupling – dot convention – analysis of coupled circuits - single tuned and double tuned circuits.									CO3
UNIT – IV	Electric Circuit Practice - I					Periods:15			
<ol style="list-style-type: none"> 1. Verification of Mesh and Nodal method for Electric Circuits 2. Verification of electrical circuits using Superposition theorem 3. Verification of electrical circuits using Thevenin's and Norton's theorem 4. Verification of electrical circuits using Compensation theorem 5. Verification of electrical circuits using Millman's theorem 6. Verification of electrical circuits using Tellegan's theorem 									CO4
UNIT – V	Electric Circuit Practice - II					Periods:15			
<ol style="list-style-type: none"> 1. Verification of voltage, current and power in three phase balanced star and delta connected loads. 2. Verification of time response of R – L and R – C circuit for DC and AC excitation 3. Verification of time response of RLC circuit 4. Verification of Series and Parallel Resonance circuit 5. Verification of self inductance and mutual inductance 6. Verification of Single and Double tuned circuit for electrical network 									CO5
Lecture Periods: 30		Tutorial Periods: -			Practical Periods: 30		Total Periods: 60		
Text Books									
<ol style="list-style-type: none"> 1. William H. Hayt Jr., Jack E. Kemmerly , Jamie D. Phillips and Steven M. Durbin, "Engineering Circuit Analysis", McGraw Hill, 9th Edition, 2020. 2. Charles K. Alexander and Matthew N. Q. Sadiku, "Fundamentals of Electric Circuits", McGraw-Hill International Edition, 7th Edition, 2022. 3. Dr. M.Arumugam, Dr. N. Premkumaran, "Electric Circuit Theory", Khanna Publishers, 5th Edition, 2015. 									

Reference Books

1. J. Nagrath and Kothari, "Theory and Problems of Basic Electrical Engineering", PHI Learning Private Limited, Delhi, 2nd Edition, 2016.
2. A. Sudhakar, Shyammohan S. Palli, "Circuits and Networks: Analysis and Synthesis", McGraw Hill Publications, 5th Edition, 2017.
3. Allan H. Robbins, Wilhelm C. Miller, "Circuit Analysis Theory and Practice", Cengage Learning India, 5th Edition, 2013.
4. Mahmood Nahvi, Joseph Edminister, "Electric Circuits (Schaum's Easy Outline series)", McGraw-Hill Publications, 1st Edition, 2020.
5. Sukhija and Nagsarkar, "Circuits and Networks", Oxford University Press, 2nd Edition, 2016.

Web References

1. <https://nptel.ac.in/courses/108/108/108108076/>
2. <https://www.electronics-tutorials.ws/accircuits/series-circuit.html>
3. <https://www.youtube.com/watch?v=83lVK6i8EB0&list=PLX2gX-ftPVXUkVZ2eafafDwcs5nDldeBD>
4. <https://www.youtube.com/watch?v=zDcXt9Vx34o>
5. <https://www.youtube.com/watch?v=YLGrugmDvc0>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	3	-	-	-	2	-	-	2	3	3	3
2	3	3	3	2	3	-	-	-	2	-	-	2	3	3	3
3	3	3	3	2	3	-	-	-	2	-	-	2	3	2	3
4	3	3	3	2	3	-	-	-	2	-	-	2	3	2	3
5	3	3	3	2	3	-	-	-	2	-	-	2	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM) – Maximum 50 Marks										End Semester Examination (ESE) Marks (Theory)	Total Marks
	Continuous Assessment (Theory)					Continuous Assessment (Practical)						
	CAT 1	CAT 2	Model	Attendance	Total	Conduction of Practical	Report	Viva	Total	[#] End Semester Examination (ESE) Marks (Practical – Internal Evaluation)		
Marks	5	5	5	5	20*	15	10	5	30*		75**	-
	<i>*To be weighted for 10 Marks</i>				10	<i>*To be weighted for 10 Marks</i>			10	30	<i>**To be weighted for 50 Marks</i>	100

Final End semester practical exam to be conducted with internal and external examiner assigned by Head of the Institution and HoD.

Department	English		Programme: B.Tech.						
Semester	III		Course Category : HS			*End Semester Exam Type: LE			
Course Code	U23ENPC01		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	GENERAL PROFICIENCY- I		0	0	2	1	50	50	100
(Common to ALL Branches except CSBS)									
Prerequisite	Basics of English Language								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Interpret meaning and apply reading strategies in technical and non-technical context						K3	
	CO2	Develop interpersonal communication skills professionally						K4	
	CO3	Demonstrate various forms of formal writing						K3	
	CO4	Decode graphical data coherently						K2	
	CO5	Apply the techniques of verbal aptitude in competitive exams						K3	
UNIT- I	Comprehension Analysis					Periods:6			
Listening: Dialogue based on social contexts (IELTS based) - Speaking: Break the iceberg (IELTS based) Submitting Video Recording - Reading: Reading technical passage (IELTS based) - Writing: Writing Task: 2 (IELTS Academic) - Vocabulary: Synonyms (IELTS)								CO1	
UNIT- II	Personality Development					Periods:6			
Listening: Monologue about the everyday social issues (IELTS based) - Interview Videos - Speaking: Speak about the topic in the Flash Card (IELTS based) - Reading: British & American Vocabulary - Writing: SWOT Analysis - Vocabulary: Idioms and Phrases (IELTS)								CO2	
UNIT- III	Inferential Learning					Periods:6			
Listening: Conversation between 4 people regarding education (IELTS based), Anecdotes - Speaking: Structure Discussion (IELTS based) - Reading: Distinguish between facts & opinions (IELTS based), - Writing: Writing Conversation to different context - Vocabulary: Phrasal Verbs (IELTS)								CO3	
UNIT- IV	Interpretation and Functional Writing					Periods:6			
Listening: Monologue on an academic subject (IELTS based), Group Discussion videos - Speaking: Group Discussion Practice - Reading: Read and review (Books, Magazines) - Writing: Writing Task 1: (IELTS Academic: Graph/ chart/tables description) - Vocabulary: Collocations (IELTS)								CO4	
UNIT-V	Verbal Aptitude - I					Periods:6			
Language Enhancement: Articles, Preposition, Conjunction Verbal Ability Enhancement: Ordering of sentences, Blood Relation, Completing Statements- Cloze test, Spotting Errors - Sentence Improvement, Word Analogy, Word Groups (GATE)								CO5	
Lecture Periods: -		Tutorial Periods: -		Practical Periods:30			Total Periods:30		
Reference Books									
1. Lewis, Norman, "Word Power Made Easy". Goyal Publishers and Distributors Pvt.Ltd., Latest Edition, 2020. 2. Patterson, Kerry, Joseph Grenny, Ron McMillan, Al Switzler, "Crucial Conversation Tools for talking when Stakes are High", Kindle Publication, 2 nd Edition, 2011. 3. Comfort, Jeremy, et.al. "Speaking Effectively: Developing Speaking Skills for Business English", Cambridge University Press, Cambridge: Reprint 2011. 4. Agarwal, R. S. "A Modern Approach to Verbal & Non Verbal Reasoning". S. Chand, 2010. 5. Wren, Percival Christopher, and Wren Martin. "High School English Grammar and Composition". S Chand, 2005.									
Web References									
1. https://www.ielts-exam.net/grammar/ 2. https://ieltsfocus.com/2017/08/02/collocations-ielts/ 3. https://www.fresherslive.com/online-test/blood-relations-questions-and-answers 4. https://www.toppr.com/guides/english-language/reading-comprehension/cloze-test/ 5. https://www.examsbook.com/word-analogy-test-questions-with-answers									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
2	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
3	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
4	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
5	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1

Correlation Level: 1-Low, 2-Medium, 3-High

Evaluation Methods

Practical					
Continuous Assessment Internal Evaluation			End Semester External Evaluation		Total Marks
50 marks			50 marks		100
Conduction of Practical (Assignment 1&2 -10 Marks Performance in practical classes - 5 Marks)	15		Listening (L)	20	
Record	5		Speaking(S)	10	
Viva	5		Reading(R)	10	
Model Practical Examination (Model Exam is conducted for 50 Marks that will be converted to 15 Marks)	15		Writing(W)	10	
Attendance	10				

Department	Mathematics		Programme: B.Tech.						
Semester	III		Course Category: BS			*End Semester Exam Type: LE			
Course Code	U23MAPC01		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	ENGINEERING MATHEMATICS LABORATORY		0	0	2	1	50	50	100
(Common to all Branches Except CSBS)									
Prerequisite	Matrices, Fourier Transforms, Laplace Transforms								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Perform and evaluate Matrix Operations							K3
	CO2	Solve Differential and Integral Equations							K3
	CO3	Construct Fourier series and Fourier Transforms of the given function							K3
	CO4	Find the Measures of Central tendency							K3
	CO5	Analyze Correlation and Regression lines							K3
List of Experiments:									
<ol style="list-style-type: none"> Find the Inverse, Rank, Eigen values and Eigen Vectors of the matrix. Solve the first order differential equation. Find the integration of $\int_a^b f(x) dx$. Find the Fourier series of $f(x)$. Find the Fourier Transform of $f(x)$. Find the Laplace Transform of $f(x)$. Find the Mean, Median and Mode. Construct the Pie and Bar Diagram. Find the Correlation coefficient. Find the Regression lines. 									
Lecture Periods:- -			Tutorial Periods:- -			Practical Periods:30		Total Periods:30	
Reference Books									
<ol style="list-style-type: none"> T. Veerarajan, "Engineering Mathematics, Tata McGraw Hill Education (India) Private Limited Chennai 2nd Edition Paperback – 1 January 2018. M.K. Venkataraman, "Engineering Mathematics, The National Publishing Company, Madras, 2016. Dr. A. Singaravelu, "Probability and Statistics", Meenakshi Agency, Paperback – 1, 2019. 									
Web References									
<ol style="list-style-type: none"> https://www.mccormick.northwestern.edu/documents/students/undergraduate/introduction-to-matlab.pdf https://www.nrigroupindia.com/niiist/wp-content/uploads/sites/6/2022/02/lab-manual-it406matlab.pdf https://www.studocu.com/row/document/comsats-university-islamabad/signals-and-systems/lab-lab-manual/38332410 									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	1	1	1	-	1	-	-	-	-	-	1	1	1	1
2	3	2	1	1	-	1	-	-	-	-	-	1	1	1	1
3	2	1	-	-	-	1	-	-	-	-	-	1	1	1	1
4	2	1	-	-	-	1	-	-	-	-	-	1	1	1	1
5	3	2	1	1	-	1	-	-	-	-	-	1	1	1	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	Viva				
Marks	15	5	5	15	10	50	100

Department	Artificial Intelligence and Data Science		Programme: B.Tech						
Semester	III		Course Category : ES			End Semester Exam Type : LE			
Course Code	U23ADPC01		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	PROGRAMMING IN PYTHON LABORATORY		0	0	2	1	50	50	100
(Common to All Branches)									
Prerequisite	NIL								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Describe common Python functionality and features used for data science.							K2
	CO2	Query Data Frame structures for cleaning and processing.							K2
	CO3	Configure your programming environment							K3
	CO4	Experiment the concept using data visualization.							K3
	CO5	Analyze real time datasets.							K3
List of Exercises									
<ol style="list-style-type: none"> Build a python program to implement Fibonacci series. Build a python program to get a range of numbers from user and to separate even numbers and odd numbers respectively. Build a function in Python to check duplicate letters. It must accept a string, i.e., a sentence. The function should return True if the sentence has any word with duplicate letters, else return False. Build a program to perform arithmetic operations using lambda function. Build a Python program that takes a list of numbers as input and returns a new list containing only the even numbers from the input list. Build a python program to create a class called Car with attributes Company, model, and year. Implement a method that returns the age of the car in years. Build a python program to create a base class called Shape that has a method called area which returns the area of the shape (set it to 0 for now). Then, create two derived classes Rectangle and Circle that inherit from the Shape class to calculate the area of derived classes. Build a python program to implement aggregation using Numpy. Build a python program to perform Indexing and Sorting. Build a python program to perform Handling of missing data. Build a python program to perform usage of Pivot table using Titanic datasets Build a python program to perform use of eval () and query () Build a python program to perform Scatter Plot Build a python program to perform 3D plotting Implement an application to process a real time data. 									
Lecture Periods:			Tutorial Periods:			Practical Periods:30		Total Periods:30	
Reference Books									
<ol style="list-style-type: none"> Chirag Shah, "A Hands-On Introduction to Data Science", Cambridge University Press, 2020. Siddhartha Chatterjee, Michal Krystyanczuk, "Python Social Media Analytics", Packt Publishing, 2017. Jake VanderPlas, "Python Data Science Handbook - Essential Tools for Working with Data", O'Reilly Media Inc, 2016. Zhang.Y, "An Introduction to Python and Computer Programming", Springer Publications, 2016. Wesley J Chun, "Core Python Programming", Pearson Education, 2nd Edition, 2006. 									
Web References									
<ol style="list-style-type: none"> https://nptel.ac.in/courses/106/106/106106212/ https://www.geeksforgeeks.org/data-analysis-visualization-python/ https://www.coursera.org/learn/python-data-analysis https://www.python.org/ https://www.programiz.com/python-programming 									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	2	1	3	-	-	-	-	-	-	-	2	2	2
2	2	3	2	2	3	-	-	-	-	-	-	-	2	3	2
3	3	3	3	2	3	-	-	-	-	-	-	-	3	3	3
4	3	3	3	3	3	-	-	-	-	-	-	-	3	3	3
5	3	3	3	3	3	-	-	-	-	-	-	-	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	Viva				
Marks	15	5	5	15	10	50	100

Department	Electrical and Electronics Engineering	Programme: B.Tech.						
Semester	III	Course Category: PC			*End Semester Exam Type : LE			
Course Code	U23EEP304	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	ELECTRICAL MACHINES – I LABORATORY	0	0	2	1	50	50	100

EEE

Prerequisite	Electrical Engineering Laboratory							
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Test the performance of DC machines and transformers by conducting suitable experiments						K4
	CO2	Predetermine the different performance characteristics of DC machines and transformers.						K3
	CO3	Analyze the various speed control techniques and electrical braking of DC shunt motor.						K4
	CO4	Infer the load sharing of single phase transformers by parallel operation.						K4
	CO5	Experiment the performance of DC machine for various applications.						K3

List of Experiments:

DC Machines

- 1) Load test on DC Series Motor
- 2) Load test on DC Shunt / Compound Motor
- 3) Speed control of DC Shunt Motors: Field control, Armature control
- 4) Open Circuit Characteristics and Load test on self / separately excited DC Generator
- 5) Load test on DC series Generator
- 6) Swinburne's Test
- 7) Electrical Braking in DC shunt motor
- 8) Assembling and Testing of DC machines

Transformers

- 9) Load test on single phase transformer
- 10) O.C and S.C test on single phase transformer
- 11) Parallel operation of single phase transformers
- 12) Load test on three phase transformer
- 13) O.C and S.C test on three phase transformer

Lecture Periods:-	Tutorial Periods:-	Practical Periods: 30	Total Periods: 30
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Reference Books

1. D. P. Kothari, B. S. Umre, "Laboratory Manual for Electrical Machines", I.K. International Publishing House, New Delhi, 2nd Edition, 2017.
2. D. R Kohli and S.K Jain, "A laboratory course in electrical machines", New Chand and Bros, Roorkee, 2nd Edition, 2000.
3. Dr. D. K. Chaturvedi, "Electrical Machines Lab Manual with MATLAB Programs", Laxmi Publications Pvt. Limited, 1st Edition, 2015.
4. A. E. Fitzgerald, Charles Kingsley, Stephen. D. Umans, "Electric Machinery", Tata McGraw Hill, New Delhi, 7th Edition, 2013.
5. Albert E. Clayton, "The performance and design of direct current machines", Tata McGraw Hill Publishing Company Limited, New Delhi, 3rd Edition, 2004.

Web References

1. <http://em-coep.vlabs.ac.in/>
2. http://vlabs.iitb.ac.in/vlabs-dev/vlab_bootcamp/bootcamp/Sadhya/index.php
3. <http://em-iitr.vlabs.ac.in/>
4. <https://ndl.iitkgp.ac.in>
5. <https://nptel.ac.in/courses/108/105/108105017/>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	1	3	2	-	-	-	2	-	-	-	3	3	3
2	2	2	1	3	2	-	-	-	2	-	-	-	3	3	3
3	2	2	1	3	2	-	-	-	2	-	-	-	3	3	3
4	2	2	1	3	2	-	-	-	2	-	-	-	3	3	3
5	2	2	1	3	2	-	-	-	2	-	-	-	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	Viva				
Marks	15	5	5	15	10	50	100

Department	Electrical and Electronics Engineering	Programme: B. Tech.						
Semester	III	Course Category: AEC			End Semester Exam Type : -			
Course Code	U23EEC3XX	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	CERTIFICATION COURSE - III	0	0	4	-	100	-	100

EEE

Prerequisite -

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass / Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate Fails, he / she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)		Total Marks
	Attendance	MCQ Test	
Marks	10	90	100

U23EES301	SKILL ENHANCEMENT COURSE - I (Choose anyone of the below three courses)	L	T	P	C	Hrs
		0	0	2	-	30
1. TESTING OF ELECTRONIC DEVICES AND PCB BOARD DESIGNING						
Course Contents:						
Testing of Electronics Devices:						
<ol style="list-style-type: none"> 1. Identification of components and its symbols 2. Testing of semiconductor devices (Diodes, BJT, SCR, DIAC, TRIAC, MOSFET and IGBT) 3. Testing of multimeter, function generator and regulated power supply 4. Identification and testing of resistors, capacitors and inductors 						
PCB -Through Hole Technology Mounting (THT):						
<ol style="list-style-type: none"> 5. Schematic capture of Electronic Circuits and PCB Design 6. Fabrication of PCB for Clapping and IR switching circuits 7. Fabrication of PCB for cell, battery and mobile charger 						
PCB - Surface Mount Technology:						
<ol style="list-style-type: none"> 8. Calculation of Surface mounts device (SMD) resistor values. 9. Identification and testing of SMD Components (Capacitor, Fuse, Coil, Diode, Transistor and Crystals) 10. Practice of SMT Integrated Circuits-package types (SOIC, SOP, QFP, PLCC and BGA) 11. Practice of different SMT solder joints and soldering methods 12. Assembling Process of SMT 13. Design and implementation of Microcontroller Development board using SMT 						
2. DESIGN OF SOLAR POWER PLANT AND INSTALLATION						
Course Contents:						
<ol style="list-style-type: none"> 1. Familiarization of Subsidy scheme for Solar Photovoltaic in Urban sector, water pumping system and house rooftop. 2. Selection of PV module technology 3. Design of solar PV system for fan and LED lamps. 4. Connection of PV Module (Series and Parallel Circuit) 5. Preparation of single line diagram and plant array layout diagram. 6. Calculation of battery capacity for household appliance 7. Selection and sizing of Inverter and controller 8. Selection and sizing of AC and DC Cables 9. Net Metering and Introduction to Smart grid 10. Cost estimation and payback period calculation for solar power plant 						

3. DEMONSTRATION / TROUBLESHOOTING OF ELECTRICAL AND ELECTRONICS EQUIPMENTS

Course Contents:

1. Demonstration of electrical safety and electricity tariff calculation for household appliances.
2. Single phase house wiring, Fuse calculation and Extension box fitting
3. Demonstration of electrical measuring instruments (Ammeter, Voltmeter, CRO, DSO and Multimeter)
4. a) Electrical wiring for fan and tube light
b) Demonstration of coil rewinding of ceiling fan
5. Troubleshooting of electrical and electronic home appliances - (Electric water heater, Iron box)
6. Troubleshooting of electrical and electronic home appliances - (Rice cooker, Vacuum cleaner)
7. Troubleshooting of electrical and electronic home appliances –(Washing machine, Mixer)
8. Troubleshooting of electrical and electronic home appliances-(Air conditioner, Grinder)
9. Troubleshooting of electrical and electronic home appliances- Induction stove
10. Demonstration of water level indicator for domestic purpose.
11. Troubleshooting Steps for Common TV Problems
12. Construction of series and parallel connection of LED for decoration purpose.
13. Demonstration and design of inductive coil for required specification

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)			Total Marks
	Attendance	Report	Presentation/Demo/Skill Test	
Marks	10	40	50	100

Department	Electrical and Electronics Engineering			Programme: B.Tech.						
Semester	III			Course Category: MC		*End Semester Exam Type:-				
Course Code	U23EEM303			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	CLIMATE CHANGE			2	0	0	-	100	-	100
EEE										
Prerequisite	NIL									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Inspect the characteristics and Temperature profile of the atmosphere							K2	
	CO2	Analyze past climate, human influence on global warming, and predict future climates							K3	
	CO3	Analyze the impact of climate change and the risk of Irreversible Changes							K3	
	CO4	Outline the carbon credits and evidences of changes in Environment							K2	
	CO5	Acquire knowledge on clean development mechanism and mitigation technologies							K2	
UNIT- I	Atmosphere and its Components					Periods:06				
Importance of Atmosphere-Physical Chemical Characteristics of Atmosphere- Vertical structure of the atmosphere-Composition of the atmosphere-Atmospheric stability-Temperature profile of the atmosphere-Lapse rates-Temperature inversion-effects of inversion on pollution dispersion.										CO1
UNIT- II	Global Climate					Periods:06				
Account of past climate- Environmental indicators and instrumental records – Human Footprints on global warming- Predicting future climates- Temperature regime – Extreme climate events.										CO2
UNIT- III	Impacts of Climate Change					Periods:06				
Causes of Climate change : Change of Temperature in the environment-Melting of ice Pole-sea level rise-Impacts of Climate Change on various sectors – Agriculture, Forestry and Ecosystem – Water Resources – Human Health – Industry, Settlement and Society – Methods and Scenarios – Projected Impacts for Different Regions- Uncertainties in the Projected Impacts of Climate Change – Risk of Irreversible Changes.										CO3
UNIT- IV	Observed Changes and its Causes					Periods:06				
Climate change and Carbon credits- Initiatives in India-Kyoto Protocol-Intergovernment Panel on Climate change- Climate Sensitivity and Feedbacks -The Montreal Protocol – UNFCCC – IPCC – Evidences of Changes in Climate and Environment – on a Global Scale and in India.										CO4
UNIT-V	Climate Change and Mitigation Measures					Periods:06				
Clean Development Mechanism -Carbon Trading- examples of future Clean Technology – Biodiesel – Natural Compost – Eco-Friendly Plastic – Alternate Energy – Hydrogen – Bio-fuels --- Mitigation Efforts in India and Adaptation funding. Key Mitigation Technologies and Practices- Carbon sequestration – Carbon capture and storage (CCS)- International and Regional cooperation- Remedial measures.										CO5
Lecture Periods:30			Tutorial Periods:-			Practical Periods:-			Total Periods:30	
Text Books										
<ol style="list-style-type: none"> Joan Fitzgerald, "Greenovation: Urban Leadership on Climate Change", Oxford University Press, 2020. J. David Neelin, "Climate change and climate modelling", Cambridge University press, 2011. Robin Moilveen, "Fundamentals of weather and climate", Oxford University Press, 2nd Edition, 2010. Andrew Dessler and Edward A. Parson, "The Science and Politics of Global Climate Change", Cambridge University press, 3rd Edition, 2019. Dash Sushil Kumar, "Climate Change – An Indian Perspective", Cambridge University Press India Pvt. Ltd, 2007. 										
Reference Books										
<ol style="list-style-type: none"> Bill McKibben, "The Global Warming Reader: A Century of writing about Climate Change", Penguin, 2012. Jason Smerdon, "Climate Change: The Science of Global Warming and our Energy Future", Columbia University, 2009 Adaptation and mitigation of climate change-Scientific Technical Analysis, Cambridge University Press, 2006. J.M. Wallace and P.V. Hobbs, "Atmospheric Science", Elsevier/ Academic Press, 2006. Jan C. van Dam, Impacts of "Climate Change and Climate Variability on Hydrological Regimes", Cambridge University Press, 2003. 										

Web References

1. <https://nptel.ac.in/courses/105102089/>
2. <https://www.warmheartworldwide>
3. <https://nptel.ac.in/content/storage>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	2	2	-	3	3	-	-	-	-	2	1	1	1
2	3	3	2	2	-	3	3	-	-	-	-	2	1	1	1
3	3	3	2	2	-	3	3	-	-	-	-	2	1	1	1
4	3	3	2	2	-	3	3	-	-	-	-	2	1	1	1
5	3	3	2	2	-	3	3	-	-	-	-	2	1	1	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			Total Marks
	Attendance	MCQ Test	Presentation / Activity / Assignment	
Marks	10	30	60	100

Department	Mathematics		Programme: B.Tech.						
Semester	IV		Course Category : BS			*End Semester Exam Type: TE			
Course Code	U23MATC04		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	NUMERICAL METHODS AND OPTIMIZATION		3	1	0	4	25	75	100
(Common to EEE, ECE, ICE, BME, MECH, CIVIL & MECHATRONICS)									
Prerequisite	Basic Mathematics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Solve Algebraic and Transcendental equations							K3
	CO2	Solve Simultaneous Equations by various Numerical Techniques.							K3
	CO3	Apply the Numerical Techniques of interpolation in various Intervals.							K3
	CO4	Solve Linear programming problems by using Optimization Techniques.							K3
CO5	Find the solution of Transportation and Assignment Problems.							K3	
UNIT – I	Solution of Algebraic and Transcendental Equations and Eigen Value Problems					Periods:12			
Solution of Algebraic and Transcendental equations – Bisection method - Method of False position – Newton Raphson method – Eigen value and Eigen vector by Power method.									CO1
UNIT – II	Linear Simultaneous Equations					Periods:12			
Solutions of Linear simultaneous equations and Matrix Inversion – Gauss Elimination and Gauss - Jordan methods – Iterative methods – Gauss Jacobi – Gauss Seidel.									CO2
UNIT – III	Interpolation and Solution of Ordinary Differential Equations					Periods:12			
Interpolation by Newton's Forward and Backward Difference formula for equal intervals – Lagrange's method for unequal intervals – Integration by Trapezoidal and Simpson's rules (Single integration only) – Fourth order Runge-Kutta method for solving first order Differential Equations.									CO3
UNIT – IV	Linear Programming Problems					Periods:12			
Linear Programming Problems – Graphical Method – Simplex Method – Big M method.									CO4
UNIT – V	Transportation and Assignment Problems					Periods:12			
Transportation Problems – Initial basic feasible solution using North-West Corner rule, Least Cost Method, Vogel's Approximation Method – Optimality in Transportation Problem by Modified Distribution (MODI) Method. Assignment Problems – Solutions of Assignment Problems by Hungarian Method – Unbalanced Assignment Problems.									CO5
Lecture Periods:45			Tutorial Periods:15			Practical Periods:-		Total Periods:60	
Text Books									
<ol style="list-style-type: none"> 1. P. Kandasamy, K. Thilagavathy, K. Gunavathi, "Numerical Methods", S. Chand Limited, 2008. 2. R. Panneerselvam "Operations Research" Prentice Hall of India, 2nd Edition, 2004. 3. P.K. Gupta, D.S. Hira, "Operations Research", S. Chand, 5th Edition, 2018. 									
Reference Books									
<ol style="list-style-type: none"> 1. AtulGoyal, Madhuchanda RakshitSuchet Kumar, "Numerical Methods", New India publishing Agency, 1st Edition, 2019. 2. Rajesh Kumar Gupta, "Numerical Methods - Fundamental and Applications", Cambridge University Press, 1st Edition, 2019. 3. S.Kalavathy, "Operation Research" ,Vikas Publishing house,4th Edition,2012. 4. Kevin J. Hastings, "Introduction to the Mathematics of Operations Research with Mathematica", Taylor and Francis, 2nd Edition, 2019. 5. T. Veerarajan, "Operations Research", McGraw Hill, 1st Edition, 2018. 									

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1. <https://nptel.ac.in/courses/111106101/>
2. <https://www.geektonight.com/operation-research-notes-pdf/#.XrXzoP8za00>
3. <https://freecomputerbooks.com/Numerical-Methods-with-Applications.html>
4. <https://www.pphmj.com/journals/IJNMA.htm>
5. <https://nptel.ac.in/courses/106/108/106108056/>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	2	1	-	1	-	-	-	-	-	1	1	1	1
2	3	3	3	2	-	1	-	-	-	-	-	1	1	1	1
3	3	3	3	2	-	1	-	-	-	-	-	1	1	1	1
4	3	3	3	2	1	1	1	-	-	-	1	1	1	1	1
5	3	3	3	2	1	1	1	-	-	-	1	1	1	1	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering		Programme: B.Tech.						
Semester	IV		Course Category: ES		*End Semester Exam Type: TE				
Course Code	U23CSTC03		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	DATA STRUCTURES		3	0	0	3	25	75	100
(Common to all Branches)									
Prerequisite	Any Programming Knowledge								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Compute time and space complexity for given problems							K3
	CO2	Demonstrate stack, queue and its operation.							K3
	CO3	Illustrate the various operations of linked list.							K3
	CO4	Use the concepts of tree for various applications.							K3
CO5	Outline the various Tables, Graphs and Sets techniques.							K3	
UNIT - I	Basic Terminologies of Data Structures					Periods: 9			
Introduction: Basic Terminologies – Asymptotic Notations: Complexity analysis. Array and its operations - Searching: Linear Search and Binary Search Techniques. Sorting: Bubble Sort – Selection Sort – Insertion Sort – Heap Sort – Shell Sort. Performance and Comparison among the sorting methods.									CO1
UNIT - II	Stack and Queue Operations					Periods: 9			
Stacks and Queues: ADT Stack and its operations. Applications of Stacks: Expression Conversion and evaluation. ADT Queue and its operations. Types of Queue: Simple Queue – Circular Queue – Priority Queue – Deque.									CO2
UNIT - III	Linked List Operations					Periods: 9			
Linked Lists: Singly linked list: Representation in memory. Algorithms of several operations: Traversing – Searching – Insertion – Deletion. Linked representation of Stack and Queue. Doubly linked list: operations. Circular Linked Lists: operations.									CO3
UNIT - IV	Trees					Periods: 9			
Trees: Basic Tree Terminologies. Different types of Trees: Binary Tree – Threaded Binary Tree – Binary Search Tree – Binary Tree Traversals – AVL Tree- Red Black Tree.									CO4
UNIT - V	Graphs , Tables and Sets					Periods: 9			
Graph: Basic Terminologies and Representations – Graph traversal algorithms. Tables: Different types of tables – Hash Table and its operations - Applications. Sets: Representation of Sets- Operations and its applications.									CO5
Lecture Periods: 45			Tutorial Periods: -		Practical Periods: -		Total Periods: 45		
Text Books									
<ol style="list-style-type: none"> 1. Ellis Horowitz, SartajSahni, "Fundamentals of Data Structures", Illustrated Edition, Computer Science Press, 2018. 2. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", PHI, Third Edition, 2010. 3. Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft, "Data Structures and Algorithms", 4th Edition, 2009. 									
Reference Books									
<ol style="list-style-type: none"> 1. D.Samanta, "Classic Data Structures", Prentice-Hall of India, Second Edition, 2012. 2. Robert Kruse, C.L. Tondo and Bruce Leung, "Data Structures and Program Design in c" . Prentice-Hall of India, Second Edition, 2007. 3. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", Pearson Education, Second. Edition,2006. 4. Mark Allen Weiss," Algorithms, Data Structures and Problem Solving with C++", Illustrated Edition, Addison-Wesley Publishing Company, 1995. 5. Mark Allen Weiss," Algorithms, Data Structures and Problem Solving with C++", Addison- Wesley Publishing Company, Illustrated Edition, 1995. 									
Web References									
<ol style="list-style-type: none"> 1. https://www.geeksforgeeks.org/data-structures/ 2. https://www.javatpoint.com/data-structure-tutorial/ 3. https://www.studytonight.com/data-structures/ 4. https://www.tutorialspoint.com/data_structures_algorithms/ 5. https://www.w3schools.in/data-structures-tutorial/intro/ 									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
2	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
3	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
4	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
5	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B.Tech.						
Semester	IV		Course Category: PC			*End Semester Exam Type: TE			
Course Code	U23EET407		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	Electrical Machines - II		3	0	0	3	25	75	100
EEE									
Prerequisite	Electrical Engineering, Electromagnetic Theory, Electrical Machines - I								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Predict the performance of induction motor using equivalent circuits and circle diagram.						K3	
	CO2	Apply suitable starting and speed control methods to enhance the performance of three phase induction motors.						K3	
	CO3	Examine the performance characteristics of alternator and compute voltage regulation with different methods.						K3	
	CO4	Illustrate the characteristics of synchronous motor and its performance with effect of varying load and excitation.						K3	
	CO5	Differentiate the characteristics of special machines as well as choose an appropriate motor for industrial application.						K2	
UNIT- I	INDUCTION MOTOR					Periods:09			
<p>Single phase Induction Motors: Construction – Principle of operation - Double revolving field theory - Torque-speed characteristics – starting methods – Applications.</p> <p>Three phase Induction Motors: Construction – principle of operation – Types - Effect of slip on rotor parameters – Torque equation - phasor diagram - effect of voltage variation and rotor resistance on torque slip characteristics - Power Stages - equivalent circuit -Circle diagram –Separation of no load losses - Losses and efficiency – Applications</p>									CO1
UNIT- II	STARTERS AND SPEED CONTROL OF THREE PHASE INDUCTION MOTOR					Periods:09			
<p>Starters: Need for starters – Starting methods. Speed control: Stator side – Rotor side. Cogging and Crawling - Electric Braking - deep bar and double cage rotor – Synchronous induction motor – Induction generator - DFIG – Applications.</p>									CO2
UNIT- III	ALTERNATOR					Periods:09			
<p>Alternator: Construction – Principle of operation – EMF equation – Synchronous reactance – Armature reaction - Alternator on load – phasor diagram. Voltage regulation: EMF, MMF, ZPF. Synchronizing and parallel operation– Two reaction theory of Salient pole machines – slip test - power angle diagram – Applications.</p>									CO3
UNIT- IV	SYNCHRONOUS MOTOR					Periods:09			
<p>Construction - principle of operation - starting methods - Torque and power equations - speed control– phasor diagram – effect of varying load and excitation - 'V' and inverted 'V' curves - hunting – synchronous condenser – Applications.</p>									CO4
UNIT- V	SPECIAL MACHINES					Periods:09			
<p>Stepper motors - Reluctance motor - Hysteresis motor– Servo motor– Linear induction motor– AC series motor - switched reluctance motor – BLDC motor and its types – PMSM – Applications (Qualitative approach only).</p>									CO5
Lecture Periods:45		Tutorial Periods:-			Practical Periods:-			Total Periods:45	
Text Books									
<ol style="list-style-type: none"> 1. A. E. Fitzgerald, Charles Kingsley, Stephen. D. Umans, "Electric Machinery", Tata McGraw Hill, New Delhi, 7th Edition, 2017. 2. P. S. Bimbhra, "Electrical Machinery", Khanna Publishers, New Delhi, 7th Edition, 2018. 3. B. L. Theraja and A. K. Theraja, "A Textbook of Electrical Technology", Vol. II, S. Chand & Co. Ltd., New Delhi, 23rd Edition, 2016. 									
Reference Books									
<ol style="list-style-type: none"> 1. R. K. Rajput, "Electrical Machines", Laxmi publications Pvt. Ltd, New Delhi, 6th Edition, 2008. 2. P. C. Sen, "Principles of Electric Machines and Power Electronics", John Wiley & Sons, 3rd Edition, 2013. 3. Alexander S. Langsdorf, "Theory of Alternating-Current Machinery", McGraw Hill Publications, 2nd Edition, 2001. 4. D. P. Kothari and I. J. Nagrath, "Electric Machines", Tata McGraw Hill, New Delhi, 5th Edition, 2017. 5. Theodore Wildi, "Electrical Machines, Drives, and Power Systems", Pearson Education, 6th Edition, 2006. 									

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1. <https://ndl.iitkgp.ac.in>
2. <https://nptel.ac.in/courses/108/105/108105131/>
3. <http://electrical-engineering-portal.com/>
4. <http://shodhganga.inflibnet.ac.in/>
5. <http://www.electrical4u.com>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
2	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
3	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
4	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
5	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B.Tech.						
Semester	IV		Course Category : PC			*End Semester Exam Type: TE			
Course Code	U23EET408		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	TRANSMISSION AND DISTRIBUTION		2	1	0	3	25	75	100
EEE									
Prerequisite	Electrical Engineering, Electromagnetic Theory, Electric Circuit Analysis								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Calculate the line parameters and interpret the effects in the transmission system							K3
	CO2	Model on different types of transmission lines (short, medium, long) and its performance.							K3
	CO3	Use the adaptable types of insulators and cables for distribution systems.							K3
	CO4	Categorize and gain knowledge on High Voltage AC and DC systems							K4
	CO5	Describe various schemes of electrification and recent trends in transmission line.							K2
UNIT- I	Line Parameters and Effects On Transmission System					Periods:09			
Structure of electric power systems - Single Line Diagram. Transmission System: Resistance, inductance and capacitance of single and three phase transmission lines - symmetrical and unsymmetrical spacing – transposition - single and double circuits - stranded and bundled conductors - application of self and mutual GMD– Introduction to Skin, Proximity and Corona effect - inductive and radio interference.									CO1
UNIT- II	Performance Analysis on Transmission Systems					Periods:09			
Development of equivalent circuits for short, medium and long lines – Calculation of efficiency and voltage regulation – Tuned power lines - Power circle diagrams for sending and receiving ends - transmission capacity, steady state stability limit – voltage control of lines.									CO2
UNIT- III	Insulators and Cables for Distribution Systems					Periods:09			
Insulators: types and comparison – voltage distribution in string insulator – string efficiency – Methods of improving string efficiency – Stress and sag calculations – effect of wind and ice – supports at different levels. Cables: types – capacitance of cables – insulation resistance - dielectric stress and grading - dielectric loss - thermal characteristics - capacitance of three core cables.									CO3
UNIT- IV	Distribution Systems					Periods:09			
Need for power system interconnections systems – Components of a HVDC system - Types of DC links — Comparison of HVDC and HVAC Transmission - Comparison of distribution systems – Radial and Ring main – DC two wire, AC single phase and three phase systems – Selection of Feeders and Distributors – secondary distribution system - Kelvin’s law and its limitations. Isolation and service restoration, Outage management.									CO4
UNIT- V	Recent Trends in Transmission					Periods:09			
Transmission Automation, Distribution Automation, Estimating and mitigating blackout, Design of Rural distribution, planning and design of town electrification schemes – Modern trends in DC Transmission systems – Introduction to FACTS - Grounding methods in power stations.									CO5
Lecture Periods:30			Tutorial Periods:15			Practical Periods:-		Total Periods:45	
Text Books									
<ol style="list-style-type: none"> 1. V. K. Metha and Rohit Metha, “Principles of Power System”, S. Chand, 3rd Edition, 2023. 2. C.L.Wadhwa, Electrical Power Sytems, 6th edition, New Age International (P) Limited, New Delhi, 2018. 3. R. Padiyar, “HVDC Power Transmission Systems – Technology and System Interactions”, New Age International Publishers, 2012. 									
Reference Books									
<ol style="list-style-type: none"> 1. Hadi Saadat, ‘Power System Analysis,’ PSA Publishing; 3rd Edition, 2010. 2. J.Brian, Hardy and Colin R.Bayliss ‘Transmission and Distribution in Electrical Engineering’, Newnes, 4th Edition, 2012. 3. Luces M.Fualken berry Walter Coffe, ‘Electrical Power Distribution and Transmission’, Pearson Education, 2007. 4. A. K. Theraja and B. L. Theraja, “Text Book of Electrical Technology: Volume 3: Transmission, Distribution and Utilization”, S. Chand, 23rd Edition, 2022. 									

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2. https://swayam.gov.in/nd1_noc20_ee86/preview
3. <https://www.eei.org/ourissues/ElectricityTransmission/Documents/>
4. https://www.osha.gov/SLTC/etools/electric_power/illustrated_glossary/index.html
5. http://solareis.anl.gov/documents/docs/APT_61117_EVS_TM_08_4.pdf

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	2	-	-	-	-	-	-	3	3	2	3
2	3	3	3	2	2	-	-	-	-	-	-	3	3	2	3
3	3	3	3	2	2	-	-	-	-	-	-	3	3	2	3
4	3	3	3	2	2	-	-	-	-	-	-	3	3	2	3
5	3	3	3	2	2	-	-	-	-	-	-	3	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B. Tech.						
Semester	IV		Course Category: PC			End Semester Exam Type : TE			
Course Code	U23EEB402		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	CONTROL SYSTEMS		2	0	2	3	50	50	100
EEE									
Prerequisite	Electrical Engineering, Engineering Mathematics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Interpret different electrical and mechanical systems with its modeling							K2
	CO2	Predict the time and frequency domain parameters for stability							K3
	CO3	Demonstrate with the tuning procedures of P/I/D controllers for various applications							K3
	CO4	Determine the transfer function of control system and verification through simulation							K3
	CO5	Evaluate the stability of the systems by various plots through simulation							K5
UNIT – I	Modeling of Linear Time Invariant Systems					Periods:10			
Control systems: Open loop and Closed loop – Transfer functions – Feedback control system characteristics - Mathematical modeling of Electrical and Electro-Mechanical systems - electrical analogues systems - Block diagram - reduction techniques - Signal flow graphs									CO1
UNIT – II	Time and Frequency Domain Analysis					Periods:10			
Time Domain Analysis: Standard test signals – Transient analysis of first order systems using step input - Time responses – Time domain specifications – Stability analysis - Concept of stability – Routh Hurwitz stability criterion. Frequency Domain Analysis: Frequency response analysis – Correlation between frequency response and time-response analysis - frequency domain specifications - Bode plot, Nyquist stability criterion.									CO2
UNIT – III	Controller Design and State Variable Analysis					Periods:10			
Controller Design: Introduction - P-I-D controllers - Tuning methods - Ziegler-Nichol's Tuning - Performance criteria – Compensator design: Lead, Lag compensation using Bode Plot. State Space Representation: Concept of state variables – State models for linear and time invariant Systems – Jordan Canonical Forms - Solution of State Equation – Transfer function to State space model.									CO3
UNIT – IV	Control Systems Practice - I					Periods:15			
<ol style="list-style-type: none"> Simulation of Mechanical physical systems Simulation for Time domain analysis of second order system Verification of steady state error Mathematical modeling of Transfer functions of a separately excited DC Motor Simulation Analysis of Root Locus plot Frequency Domain Analysis using Polar Plot 									CO4
UNIT – V	Control Systems Practice - II					Periods:15			
<ol style="list-style-type: none"> Design and Simulation of Lead-Lag Compensator for DC Motor Simulation of Open loop and closed loop control of single phase half wave controlled rectifier Simulation and Analysis of Time Response of Systems with P, PI, and PID Controllers Simulation of Controllability and Observability of a system Simulation of State space model for classical transfer function State space analysis of second order system by simulation method 									CO5
Lecture Periods: 30			Tutorial Periods: -			Practical Periods: 30		Total Periods: 60	
Text Books									
<ol style="list-style-type: none"> I. J. Nagarath and M. Gopal, "Control Systems Engineering", New Age International Publishers, 6th Edition, 2018. Katsuhiko Ogata, "Modern Control Engineering", Pearson, 5th Edition, 2015. Hasan Saeed, "Automatic Control Systems (With MATLAB Programs)", S. K. Kataria & Son, 6th Edition, 2010 									

Reference Books

1. M. Gopal, "Control Systems- Principles and Design", Tata McGraw Hill, 4th Edition, 2016.
2. Benjamin C. Kuo, "Automatic Control Systems", PHI Learning Private Ltd, 9th Edition, 2014.
3. John J. D'Azzo, Constantine H. Houpis and Stuart N. Sheldon, "Linear Control System Analysis and Design with MATLAB", CRC Taylor and Francis Reprint, 6th Edition, 2014.
4. R. Anandha Natarajan and B. Ramesh Babu."Control System Engineering" 3rd Edition, Scitech Publication 2009.

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1. http://saadat.us/control_systems_labs.html
2. <https://www.quanser.com/solution/control-systems/>
3. <http://ncr.mae.ufl.edu/papers/te02.pdf>
4. <https://futureengineering.in/control-system-lab/>
5. <http://vlabs.iitb.ac.in/vlab>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	3	-	-	-	2	-	-	2	3	3	3
2	3	3	3	2	3	-	-	-	2	-	-	2	3	3	3
3	3	3	3	2	3	-	-	-	2	-	-	2	3	2	3
4	3	3	3	2	3	-	-	-	2	-	-	2	3	2	3
5	3	3	3	2	3	-	-	-	2	-	-	2	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM) – Maximum 50 Marks										End Semester Examination (ESE) Marks (Theory)	Total Marks
	Continuous Assessment (Theory)					Continuous Assessment (Practical)						
	CAT 1	CAT 2	Model	Attendance	Total	Conduction of Practical	Report	Viva	Total	#End Semester Examination (ESE) Marks (Practical – Internal Evaluation)		
Marks	5	5	5	5	20*	15	10	5	30*		75**	-
	<i>*To be weighted for 10 Marks</i>				10	<i>*To be weighted for 10 Marks</i>			10	30	<i>**To be weighted for 50 Marks</i>	100

Final End semester practical exam to be conducted with internal and external examiner assigned by Head of the Institution and HoD.

Department	English		Programme: B.Tech.						
Semester	IV		Course Category : HS			*End Semester Exam Type : LE			
Course Code	U23ENPC02		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	GENERAL PROFICIENCY - II		0	0	2	1	50	50	100
(Common to ALL Branches except CSBS)									
Prerequisite	Basics of English Language								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Infer ideas to attend international standardized test by broadening receptive and productive skills							K2
	CO2	Interpret the types of writing in different state of affairs							K3
	CO3	Acquire meticulous exposure in speaking and get rid of performance anxiety							K2
	CO4	Articulate the ideas and opinions effectively and coherently							K2
	CO5	Progress the skills to compete in various competitive exams like GATE, GRE, UPSC, etc.							K4
UNIT- I	Career Skills					Periods:6			
Listening: Listening at specific contexts - Speaking: Demonstrative speaking practice using visual aids (charts, graphs, maps) - Reading: Read and Review -Newspaper, Advertisement, Company Handbooks, and Guidelines (IELTS based) - Writing: Integrated Writing Task (TOEFL) - Vocabulary: Synonyms and Antonyms (IELTS)									CO1
UNIT- II	Corporate Skills					Periods:6			
Listening: Listening English news and reproducing in own words - Speaking: Team Presentation - Reading: Short texts and Longer Passages (cloze reading) - Writing: Analytical Writing: Analyzing an issue and Argument task (GRE based) - Vocabulary: Prefix and Suffix									CO2
UNIT- III	Functional Skills					Periods:6			
Listening: Listening TED Talks - Speaking: Brainstorming & Individual Presentation - Reading: Text Completion (GRE Based) - Writing: Picture Inference - Vocabulary: Word Formation									CO3
UNIT- IV	Transferrable Skills					Periods:6			
Listening: Listening Documentaries and making notes - Speaking: Mock Interview - Reading: Read texts on emerging trends - Writing: Agreeing & Disagreeing Essay (IELTS) - Vocabulary: Euphemism, Redundancy, Clichés and Intensifiers									CO4
UNIT- V	Verbal Aptitude - II					Periods:6			
Transformational Grammar: Tenses, Change of Voice, Concord Verbal Ability Enhancement: Letter Series, Coding &Decoding, Sentence Equivalence (GRE)Analytical Reasoning and Logical Reasoning(GATE), Syllogism, One-word Substitution, Jumbled Sentences									CO5
Lecture Periods: -		Tutorial Periods: -		Practical Periods:30			TotalPeriods:30		
Reference Books									
<ol style="list-style-type: none"> 1. Cullen, Pauline, Amanda French, and Vanessa Jakeman. "The official Cambridge guide to IELTS for academic & general training". Cambridge, 2014. 2. Prasad, Hari Mohan, Sinha, Uma Rani, "Objective English for Competitive Examinations", Tata Mc Graw Hill: Noida,2010. 3. Lougheed, Lin. "Barron's Writing for the TOEFL IBT: With Audio CD". Barron's Educational series, 2008. 4. Grussendorf, Marion, "English for Presentations", Oxford University Press, Oxford, 2007. 5. Murphy, Raymond English Grammar in Use with answers: Reference and Practice for Intermediate students, Cambridge: CUP, 2004. 									
Web References									
<ol style="list-style-type: none"> 1. https://www.englishclub.com/grammar/nouns-compound.htm 2. https://lofoya.com/Verbal-Test-Questions-and-Answers/Sentence-Completion/l3p1 3. https://www.grammarwiz.com/phrases-and-clauses-quiz.html 4. https://www.clarkandmiller.com/25-english-euphemisms-for-delicate-situations/ 5. http://www.englishvocabularyexercises.com/general-vocabulary/ 									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
2	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
3	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
4	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1
5	1	-	-	-	-	-	-	1	-	3	-	2	1	1	1

Correlation Level: 1-Low, 2-Medium, 3-High

Evaluation Methods

Practical					
Continuous Assessment Internal Evaluation			End Semester External Evaluation		Total Marks
50 marks			50 marks		100
Conduction of Practical (Assignment 1&2 -10 Marks Performance in practical classes – 5 Marks)	15		Listening (L)	20	
Record	5		Speaking(S)	10	
Viva	5		Reading(R)	10	
Model Practical Examination (Model Exam is conducted for 50 Marks that will be converted to 15 Marks)	15		Writing(W)	10	
Attendance	10				

Department	Computer Science and Engineering	Programme: B.Tech.						
Semester	IV	Course Category: ES			*End Semester Exam Type: LE			
Course Code	U23CSPC02	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	DATA STRUCTURES LABORATORY	0	0	2	1	50	50	100

(Common to all Branches)

Prerequisite	Basic Programming Knowledge							
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Analyse the algorithm's / program's efficiency in terms of time and space complexity.					K3	
	CO2	Solve the given problem by identifying the appropriate Data Structure.					K3	
	CO3	Solve the problems of searching and sorting techniques.					K3	
	CO4	Solve problems in linear Data Structures.					K4	
	CO5	Solve problems in non-linear Data Structures.					K4	

List of Experiments:

- Write a C program to implement recursive and non-recursive i) Linear search ii) Binary Search.
- Write a C program to implement i) Bubble sort ii) Selection sort iii) Insertion sort iv) Shell sort v) Heap sort.
- Write a C program to implement the following using an array. a) Stack ADT b) Queue ADT
- Write a C program to implement list ADT to perform following operations a) Insert an element into a list. a) Delete an element from list b) Search for a key element in list c) count number of nodes in list.
- Write a C program to implement the following using a singly linked list. a) Stack ADT b) Queue ADT.
- Write a C program to implement the dequeue (double ended queue) ADT using a doubly linked list and an array.
- Write a C program to perform the following operations:
 - Insert an element into a binary search tree.
 - Delete an element from a binary search tree.
 - Search for a key element in a binary search tree.
- Write a C program that use recursive functions to traverse the given binary tree in
 - Preorder b) Inorder c) Postorder.
- Write a C program to perform the AVL tree operations.
- Write a C program to implement Graph Traversal Techniques.
- Write a C program to implement the Set operations.
 - Union b) Intersection c) Difference.

Lecture Periods:	-	Tutorial Periods:	-	Practical Periods:	30	Total Periods:	30
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Reference Books

- Yashavant Kanetkar, "Data Structures through C", BPB Publications, 3rd Edition, 2019.
- Tenebaum Aaron M, "Data Structures using C", Pearson Publisher, 1st Edition, 2019.
- Manjunath Aradhya M and Srinivas Subramiam, "C Programming and Data Structures", Cengage" India 1st Edition, 2017.
- Reema Thareja, "Data structures using C", Oxford University, 2nd Edition, 2014.
- Gav.pai, "Data Structures and Algorithms", McGraw-Hill India, 1st Edition, 2013.

Web References

- https://www.tutorialspoint.com/data_structures_algorithms/
- <https://www.w3schools.in/data-structures-tutorial/intro/>
- <https://nptel.ac.in/courses/106103069/>
- https://swayam.gov.in/nd1_noc20_cs70/preview
- <https://nptel.ac.in/courses/106103069/>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
2	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
3	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
4	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3
5	3	2	1	1	-	-	-	-	-	-	-	-	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	Viva				
Marks	15	5	5	15	10	50	100

Department	Electrical and Electronics Engineering			Programme: B.Tech.						
Semester	IV			Course Category : PC		*End Semester Exam Type: LE				
Course Code	U23EEP405			Periods/Week		Credit	Maximum Marks			
				L	T	P	C	CAM	ESE	TM
Course Name	Electrical Machines - II Laboratory			0	0	2	1	50	50	100
EEE										
Prerequisite	Electrical Engineering , Electrical Machines									
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Assess the performance of induction and synchronous machines by conducting suitable experiments.								K5
	CO2	Predetermine the performance characteristics of a three-phase induction motor.								K3
	CO3	Analyse the various strategies for controlling speed and electrical braking systems for induction motors.								K4
	CO4	Examine the performance of Universal motor by conducting suitable test.								K4
	CO5	Develop prototype modules in Induction and Synchronous machines for various applications.								K6
List of Experiments:										
<ol style="list-style-type: none"> Load test on single phase induction motor Load test on three phase squirrel cage / slip ring induction motor No load and blocked rotor tests on three phase induction motor and separate it's no load losses. Speed control of slip ring induction motor <ol style="list-style-type: none"> Stator voltage control Rotor resistance control Load test on induction generator Load test on Single phase alternator Voltage regulation of alternator using EMF and MMF methods Voltage regulation of alternator using ZPF method Slip test on three phase salient pole alternator V and inverted V curves of synchronous motor Performance Characteristics of Universal Motor Electrical Braking of Induction Motor (i) Dynamic Braking, (ii) Plugging (iii) Regenerative Braking Assembling and Testing of AC machines 										
Lecture Periods:-			Tutorial Periods:-			Practical Periods: 30		Total Periods: 30		
Reference Books										
<ol style="list-style-type: none"> D. P. Kothari, B. S. Umre, "Laboratory Manual for Electrical Machines", I.K. International Publishing House, New Delhi, 2nd Edition, 2017. D.R. Kohli and S.K Jain, "A laboratory course in electrical machines", New Chand & Bros, Roorkee, 2nd Edition, 2000. Dr. D. K. Chaturvedi, "Electrical Machines Lab Manual with MATLAB Programs", Laxmi Publications Pvt Limited, 1st Edition, 2015. E. Fitzgerald, Charles Kingsley, Stephen. D. Umans, "Electric Machinery", Tata McGraw Hill, New Delhi, 7th Edition, 2013. M. G. Say, "Alternating Current Machines", Pitman Publishing, 5th Edition, 2002. P.C. Sen, "Principles of Electric Machines and Power Electronics", John Wiley & Sons, 3rd Edition, 2013. Alexander S. Langsdorf, "Theory of Alternating-Current Machinery", McGraw Hill Publications, 2nd Edition, 2001. Theodore Wildi, "Electrical Machines, Drives, and Power Systems", Pearson Education, 6th Edition, 2006. 										
Web References										
<ol style="list-style-type: none"> http://em-coep.vlabs.ac.in/ http://vlabs.iitb.ac.in/vlabs-dev/vlab_bootcamp/bootcamp/Sadhya/index.php http://em-iitr.vlabs.ac.in/ http://vem-iitg.vlabs.ac.in/ https://nptel.ac.in/courses/108/105/108105131 										

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	2	3	1	-	-	-	3	-	-	1	3	3	3
2	3	3	2	3	1	-	-	-	3	-	-	1	3	3	3
3	3	3	2	3	1	-	-	-	3	-	-	1	3	3	3
4	3	3	2	3	1	-	-	-	3	-	-	1	3	3	3
5	3	3	2	3	1	-	-	-	3	-	-	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	Viva				
Marks	15	5	5	15	10	50	100

Department	Electrical and Electronics Engineering			Programme: B.Tech.							
Semester	IV			Course Category : PC		*End Semester Exam Type: LE					
Course Code	U23EEP406			Periods / Week			Credit	Maximum Marks			
				L	T	P	C	CAM	ESE	TM	
Course Name	ELECTRONICS - III LABORATORY			0	0	2	1	50	50	100	
(Common to Branches)											
Prerequisite	ELECTRONICS										
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)		
	CO1	Demonstrate the application circuits like ADC, DAC and amplifiers using OPAMP.								K3	
	CO2	Experiment various waveform generation circuits using OPAMP.								K3	
	CO3	Design and test regulator circuits for power supplies using voltage regulator ICs								K6	
	CO4	Determine the frequency response of active filters.								K3	
	CO5	Illustrate the output waveforms and timing characteristics of multivibrator circuits using IC555.								K4	
List of Experiments:											
<ol style="list-style-type: none"> Determination of DC characteristics of OPAMP 741. Design and verification of Inverting, non-inverting amplifiers and Voltage follower using OPAMP 741. Design and verification of Adder and Subtractor using OPAMP 741. Design and verification of Integrator and Differentiator using OPAMP 741. Design and verification of V to I converter and I to V converter using OPAMP 741. Design and verification of Instrumentation amplifier and comparator circuits using OPAMP 741. Design and verification of wein-bridge oscillator using OPAMP 741. Design and verification of RC phase shift oscillator using OPAMP 741. Design and analysis of Triangular wave generator using OPAMP 741. Design and analysis of filter circuit (First order & Second order) using OPAMP 741. Design and analysis of voltage regulators using <ol style="list-style-type: none"> Fixed Voltage Regulator LM7805 Adjustable Voltage Regulator LM317 Design and verification of low and high voltage regulators using IC 723. Design and analysis of Monostable and Astable multivibrator using IC555. 											
Lecture Periods: -			Tutorial Periods: -			Practical Periods:30		Total Periods:30			
Reference Books											
<ol style="list-style-type: none"> R. M. Marston, "Op-Amp Circuits Manual", Elsevier, 2016. Ron Mancini, "Op Amps for Everyone: Design Reference", Newnes, 2nd Edition, 2003. Walt Jung, "Op Amp Applications Handbook", Newnes, 1st Edition, 2005. Shrikrishna Yawale, Sangita Yawale, "Operational Amplifier Theory and Experiments", Springer Nature Singapore, 2022. Ramakant A. Gayakward, "Op-amps and Linear Integrated Circuits", Pearson Education, 5th Edition, 2015. James M. Fiore, "Opamps and Linear Integrated Circuits Concepts and Applications", Cengage learning, 1st Edition, 2010. Floyd, Buchla, "Fundamentals of Analog Circuits", Pearson Education, 2nd Edition, 2013. 											
Web References											
<ol style="list-style-type: none"> https://nptel.ac.in/courses/108/108/108108114/ http://musicfromouterspace.com/analogsynth_new/ELECTRONICS/TECHBENCH/TECHBENCH.php https://www.circuitlab.com/circuit/bkg2qg/op-amp-inverting-amplifier/ https://electrosome.com/723-voltage-regulator/ https://www.electronicshub.org/how-555-timer-ic-testing-circuit-works/ http://www.infocobuild.com/education/audio-video-courses/electronics/op-amp-practical-applications-iiscbangalore.html 											

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	1	-	-	-	3	-	-	1	3	3	3
2	3	3	3	2	1	-	-	-	3	-	-	1	3	3	3
3	3	3	3	2	1	-	-	-	3	-	-	1	3	3	3
4	3	3	3	2	1	-	-	-	3	-	-	1	3	3	3
5	3	3	3	2	1	-	-	-	3	-	-	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	Viva				
Marks	15	5	5	15	10	50	100

Department	Electrical and Electronics Engineering	Programme: B. Tech.						
Semester	IV	Course Category: AEC			End Semester Exam Type : -			
Course Code	U23EEC4XX	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	CERTIFICATION COURSE - IV	0	0	4	-	100	-	100

EEE

Prerequisite -

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)		Total Marks
	Attendance	MCQ Test	
Marks	10	90	100

U23EES402	SKILL ENHANCEMENT COURSE - II (Choose anyone of the below three courses)	L	T	P	C	Hrs
		0	0	2	-	30
1. MOBILE PHONE SERVICING						
Course Contents:						
<ol style="list-style-type: none"> 1. Fundamentals of Mobile Phone Technology. 2. Addressing Mobile phone Charging issues. 3. Assembling and disassembling of various models of mobile phones. 4. Practice of various tools and equipment used in mobile phone repairs. 5. Practice of Printed Circuit Board (Motherboard) and various components on PCB. 6. Reheating and mounting of various BGA and SMD chips. 7. Addressing Phone Freezing or Apps Crashing issues. 8. Introduction of various flasher boxes and software. 9. Unlocking of handsets through codes or software. 10. Water damaged repair techniques. 11. Addressing Quick Battery Drain problem 12. Addressing Overheating problem 						
2. AUTONOMOUS ROBOTICS						
Course Contents:						
<ol style="list-style-type: none"> 1. Introduction, features and applications to Robotics 2. Building the PC Controlled Robot 3. Programming the PC Controlled Robot 4. Building the Line Follower Robot 5. Programming and testing of Line Follower Robot 6. Building the Obstacle Avoiding Robot 7. Programming and testing of Obstacle Avoiding Robot 8. Building the Pit Avoiding Robot 9. Programming and testing of Pit Avoiding Robot 10. Building the Light Following Robot 11. Programming and testing of Light Following Robot 						

3. REPAIR AND MAINTENANCE OF POWER SUPPLY, INVERTER AND UPS

Course Contents:

1. Practice of appropriate repair tools and Equipments
2. Identify, place, solder, de-solder and test different SMD discrete components
3. Rework on PCB after identifying defects from SMD soldering and de-soldering
4. Identify different front panel controls and connectors of the given power supply.
5. Open the power supply and identify major sections and power components with heat sinks.
6. Identify various input and output sockets/ connectors of the given SMPS and measure its outputs using a multimeter
7. Identify and replace the faulty components in SMPS used in TVs and PCs
8. Identify front panel control and indicators of Inverter and also understand the use of back panel sockets and connections.
9. Testing of battery mode (Battery – Inverter – Load) in interconnected system
10. Open Top cover and identify various circuit boards in Inverter and also monitor voltages at various test points.
11. Troubleshooting of inverter
12. Identify front and back panel control, indicators, sockets and connections of UPS
13. Identify various circuit boards in UPS and monitor voltages at various test points
14. Troubleshooting of UPS
15. Calculation of C rating of battery

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)			Total Marks
	Attendance	Report	Presentation/Demo/Skill Test	
Marks	10	40	50	100

Department	EEE		Programme: B.Tech.						
Semester	IV		Course Category: MC			End Semester Exam Type:-			
Course Code	U23EEM404		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	RIGHT TO INFORMATION AND GOOD GOVERNANCE		2	0	0	-	100	-	100
(Common to ALL Branches except CSBS)									
Prerequisite	NIL								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Describe and analyze concept and legislative provisions related to RTI							K2
	CO2	Develop critical thinking skills to identify instances where public authorities have failed to meet their obligations							K3
	CO3	Critically assess the challenges and limitations faced by Central and State Information Commissions							K2
	CO4	Analyze the structure and functioning of the judiciary at different levels - local, regional, national.							K2
	CO5	Analyze the impact of the RTI Act on promoting transparency, accountability, and citizen empowerment in India							K2
UNIT- I	Introduction					Periods:06			
Conceptual background – Right to know – Open Government – Transparency in governance and accountability – Right to information under the Indian Constitution – Article 19(1)(a) and Article 21 of the Constitution – Role of NGOs and movement for right to information – Right to Information Act, 2005- Scope and objectives.									CO1
UNIT- II	Obligation of Public Authorities					Periods:06			
Obligations of public authorities: Section 4 - Designation of Public Information Officers: Section 5 - Disposal of request: Section 7 -Exemption from disclosure of information: Section 8 - Grounds for rejection to access in certain cases: Section 9 - Severability: Section 10 - Third party information: Section 11									CO2
UNIT- III	Central and State Information Commission					Periods:06			
Constitution of Central and State Information Commissions - Terms of office and conditions of service - Removal of Chief Information Commissioner or Information Commissioner - Powers and functions of Information Commissions.									CO3
UNIT- IV	Judiciary and Right to Information Act					Periods:06			
Protection of right to access the information- Role of the Supreme Court and High Courts – Recent attempts of dilution of the right to information Law									CO4
UNIT- V	Right to Information Act, 2005 and its relevance to other laws					Periods:06			
Public Records Act, 1993 - Whistle Blowers Protection Act, 2014 - Official Secrets Act, 1923									CO5
Lecture Periods:30		Tutorial Periods: -		Practical Periods:			Total Periods:30		
Text Books									
1. Virender Negi, Monika Negi, "Right to Information: Key to Good Governance", Indu Book Services Pvt. Limited, 2019 2. R. M. Pal, Somen Chakraborty "Human Rights Education in India" Indian Social Institute, 2000 3. Sairam Bhat, "Right to Information and Good Governance - Volume 3 of NLSIU book series" National Law School of India University, 2016									
Reference Books									
1. Sairam Bhat [ed], Right to Information and Good Governance, NLSIU Book Series-3, 2016. [ISBN-9789383363452] 2. Sairam Bhat, Right to Information, Eastern Book House, 2012. [ISBN-978838021553] 3. Praveen Dala; Consumer Protection and Right to Information; Central Information Commission, 2007.									
Web References									
1. https://archive.nptel.ac.in/courses/129/106/129106001/ 2. https://onlinecourses.nptel.ac.in/noc20_lw01/preview 3. https://www.classcentral.com/course/swayam-right-to-information-and-good-governance-19988									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1	-	-	-	-	-	-	-	-	3	-	1	-	-	-
2	1	-	-	-	-	-	-	-	-	3	-	1	-	-	-
3	1	-	-	-	-	-	-	-	-	3	-	1	-	-	-
4	1	-	-	-	-	-	-	-	-	3	-	1	-	-	-
5	1	-	-	-	-	-	-	-	-	3	-	1	-	-	-

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			Total Marks
	Attendance	MCQ Test	Presentation / Activity / Assignment	
Marks	10	30	60	100

Department	Electrical and Electronics Engineering		Programme: B.Tech.						
Semester	IV		Course Category: PE			End Semester Exam Type: TE			
Course Code	U23EEDC01		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	ELECTRICAL SAFETY ENGINEERING		3	0	0	3	25	75	100
EEE									
Prerequisite	Physical Science for Engineers, Electrical Engineering								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Describe the Indian Electricity (IE) acts and various rules for electrical safety.							K2
	CO2	Interpret safety measures to prevent electrical shock in handling of domestic electrical appliances.							K2
	CO3	Demonstrate the safety aspects during installation of plant and equipment.							K3
	CO4	Explain the various hazardous area and application of electrical safety in various places.							K2
	CO5	Summarize the importance of electrical safety training to improve quality management in electrical systems.							K2
UNIT- I	Concepts and Statutory Requirements					Periods:09			
Objective and scope of electrical safety - National electrical Safety code -Statutory requirements — Safety electrical one line diagram - General requirements for electrical safety as per IE rules -International standards on electrical safety -Safe limits of current and voltage - Grounding of electrical equipment of low voltage and high voltage systems - Safety policy - Electrical safety certificate requirement.									
UNIT - II	Electrical Shocks and their Prevention					Periods:09			
Primary and secondary electrical shocks - Possibilities of getting electrical shock and its severity - Effect of electrical shock of human being - Firing shock - Prevention of shocks - Safe guards for operators - Do's and Don'ts for safety in the use of domestic electrical appliances - Lightning Strokes on Overhead Transmission Lines and Outdoor Substations - Safety Precautions in Small LV Installations in Residential Buildings, Shops, Multi storied building - purpose of system grounding - grounding electrode system-grounding conductor connection to electrodes.									
UNIT- III	Safety During Installation, Testing and Commissioning, Operation and Maintenance					Periods:09			
Need for inspection and maintenance - Preliminary preparations - Field quality and safety - Personal protective equipment - Risks during installation of electrical plant and equipment - Effect of lightning current on installation and buildings - Safety aspects during installation -Safety during installation of electrical rotating machines - Importance of earthing in installation.									
UNIT- IV	Hazardous Zone					Periods:09			
Primary and secondary hazards - Hazardous area classification and of electrical equipments (IS, NFPA, API and OSHA standards) - Explosive gas area classifications: Class I (Division 1) - Zone 0, Zone 1, zone 2 classified locations, Design Philosophy for Equipment and installations - Classification of equipment enclosure for various hazardous gases and vapors - flash hazard calculation and approach distances- flash and thermal protection, head and eye protection - rubber insulating equipment.									
UNIT- V	Safety Management of Electrical Systems					Periods:09			
Principles of Safety Management - Occupational safety and health administration standards - Safety organization - Safety auditing - Employee electrical safety teams - Electrical safety training to improve Quality management - Total quality control and management – Importance of high load factor - Causes of low power factor - Disadvantages of low power factor - Power factor improvement - Importance of P.F. improvement - Case studies of electrical workplace safety practices.									
Lecture Periods:45		Tutorial Periods:-			Practical Periods:-			Total Periods:45	
Text Books									
1. John Cadick, Mary Capelli Schellpfeffer, Dennis Neitzel, AlWinfield, "Electrical Safety Handbook", McGraw-Hill Education, 4 th Edition, 2012.									
2. Madden, M. John, "Electrical Safety and the Law: A Guide to Compliance", Wiley publications, 4 th Edition, 2002.									
3. Mohamed A.El-Sharkawi, "Electric Safety: Practice and Standards",CRCPress;1 st Edition,2013									
Reference Books									
1. Rob Zachariason, "Electrical Safety", Delmar Cengage Learning, 1 st Edition, 2011.									
2. Peter E.Sutherland, "Principles of Electrical Safety", Wiley- IEEE Press; 1 st Edition, 2014.									

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1. <https://www.apeasternpower.com/downloads/elecact2003.pdf>
2. <https://safetyculture.com/topics/electrical-hazards/>
3. <https://www.jove.com/science-education/10114/electrical-safety-precautions-and-basic-equipment>
4. <https://electrical-engineering-portal.com/21-safety-rules-for-working-with-electrical-equipment>
5. <https://www.electrical4u.com/safety-precautions-for-electrical-system/>

COs/POs/PSOs Mapping

COs	Program Outcomes(POs)												Program Specific Outcomes(PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	3	2	-	-	-	-	-	-	1	3	3	3
2	3	3	3	3	2	-	-	-	-	-	-	1	3	3	3
3	3	3	3	3	2	-	-	-	-	-	-	1	3	3	3
4	3	3	3	3	2	-	-	-	-	-	-	1	3	3	3
5	3	3	3	3	2	-	-	-	-	-	-	1	3	3	3

Correlation Level: 1– Low, 2–Medium,3– High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering			Programme: B. Tech.						
Semester	IV			Course Category: PE		End Semester Exam Type : TE				
Course Code	U23EEE402			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	NANO ELECTRONICS			3	0	0	3	25	75	100
EEE										
Prerequisite	Physical Science for Engineers, Electronics									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Describe the basics of nano electronics including quantum wires, dots and wells							K2	
	CO2	Interpret the spintronic devices like spin transistors, spin diodes, and spin filters							K2	
	CO3	Summarize the techniques for designing low-power nanoelectronic transistors							K2	
	CO4	Examine the key performance aspects of tunneling and superconducting nano electronic devices							K3	
	CO5	Apply the knowledge in the development of memory devices and sensors							K3	
UNIT – I	Introduction						Periods:09			
Scaling to nano - Electrons as waves and particles - origin of quantum mechanics - principles of quantum mechanics - Moore's law and continued miniaturization - Time independent Schrodinger wave equation - Electron confinement - Quantum dots - wires and well spin-Classification of Nanostructures										CO1
UNIT – II	Spintronics						Periods:09			
Overview - History & Background -Generation of Spin Polarization - Theories of spin Injection - spin relaxation and spin dephasing -Spintronic devices and applications - spin filters - spin diodes - spin transistors										CO2
UNIT – III	Nano Electronic Transistors						Periods:09			
Coulomb blockade: Coulomb blockade in Nano capacitors - Coulomb blockade in tunnel junctions - Single electron transistors (SETs) - Semiconductor nanowire FETs - Molecular SETs and molecular electronics - Memory cell										CO3
UNIT – IV	Nano Electronic Tunneling and Super Conducting Devices						Periods:09			
Tunnel effect - Tunneling element - Tunneling diode - Resonant tunneling diode - Three terminal resonant tunneling devices- Superconducting switching devices - Cryotron - Josephson tunneling device - transport in nano MOSFET - transport in molecular structures										CO4
UNIT – V	Memory Devices and Sensors						Periods:09			
Nano ferroelectrics - Ferroelectric random access memory - Fe-RAM circuit design - Fullerenes - Types of nanotubes - Carbon Nanotube - Formation of nanotubes - calorimetric sensors - electrochemical cells - surface and bulk acoustic devices - gas sensitive FETs - resistive semiconductor gas sensors - electronic noses - identification of hazardous solvents and gases - semiconductor sensor array										CO5
Lecture Periods: 45		Tutorial Periods: -			Practical Periods: -			Total Periods: 45		
Text Books										
<ol style="list-style-type: none"> Hanson, "Fundamentals of Nanoelectronics", Pearson education, 1st Edition, 2009. Jan Dienstuhl, Karl Gosser, and Peter Glösekötter, "Nanoelectronics and Nanosystems: From Transistors to Molecular and Quantum Devices", Springer-Verlag Berlin and Heidelberg GmbH & Co. K, 1st Edition, 2004. Robert Puers, LivioBaldi, Marcel Van de Voorde and Sebastiaan E. Van Nooten, "Nanoelectronics: Materials, Devices, Applications", Wiley-VCH, 1st Edition, 2017. 										
Reference Books										
<ol style="list-style-type: none"> Mircea Dragoman and Daniela Dragoman, "Nanoelectronics: Principles and Devices", 2nd Edition, Artech House, 2009. Brajesh Kumar Kaushik, "Nanoelectronics: Devices, Circuits and Systems", Elsevier science, 1st Edition, 2018. 										
Web References										
<ol style="list-style-type: none"> https://nptel.ac.in/courses/117108047 http://www.sze.hu/~bertam/Nanoelektronika/Nanoelectronics.pdf https://www.sciencedirect.com/topics/materials-science/nanoelectronics https://www.physics.mcgill.ca/~peter/nanoelectronics.htm https://www.circuitstoday.com/nanoelectronics 										

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	2	2	2	2	-	-	-	-	-	2	3	2	2
2	3	3	2	2	2	2	-	-	-	-	-	2	3	2	2
3	3	3	2	2	2	2	-	-	-	-	-	2	3	2	2
4	3	3	2	2	2	2	-	-	-	-	-	2	3	2	2
5	3	3	2	2	2	2	-	-	-	-	-	2	3	2	2

Correlation Level: 1 – Low, 2 – Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering		Programme: B.Tech.						
Semester	IV		Course Category : PE			*End Semester Exam Type: TE			
Course Code	U23EEE403		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	POWER PLANT ENGINEERING		3	0	0	3	25	75	100
EEE									
Prerequisite	Electrical Engineering, Basics of Civil and Mechanical Engineering								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Differentiate the various conventional energy systems and factors affecting their site selection							K2
	CO2	Illustrate power generation using steam power plants with the detailed review on it							K3
	CO3	Explain about the nuclear energy production and its safety measures							K2
	CO4	Interpret and compare the construction, working principle of diesel, gas turbine and combined cycle power plants							K3
	CO5	Predict the economic feasibility and formulate tariff structure for power generating units							K3
UNIT- I	Introduction to Power Plants					Periods:09			
Conventional and Non-Conventional Sources of Energy and their availability in India - Different Types of Power Plants - Choice of Power Generation - Basic schemes and constituents of Steam, Nuclear, Diesel and Gas Turbine power stations - Factors to be considered for selection of site - Power Plants in India.									CO1
UNIT - II	Steam Power Plant					Periods:09			
Layout and types of Steam Power Plants - Fuel and Ash handling systems - Dust collectors – combustion equipment for steam boilers – Economizer and Air pre heater - Mechanical stokers – Pulverizes – Electrostatic precipitator – Draughts – Steam condensers - Cooling Ponds and Cooling Towers - Pollution Controls - Methods of Feed water treatment – Generating efficiency - Power generation capacities of various plants in India									CO2
UNIT- III	Nuclear Power Plants					Periods:09			
Nuclear energy - Fission and Fusion reaction - Layout and subsystems of Nuclear Power Plants, Working of Nuclear Reactors - Boiling Water Reactor (BWR), Pressurized Water Reactor (PWR), CANada Deuterium - Uranium reactor (CANDU), Breeder Reactor, Gas Cooled and Liquid Metal Cooled Reactors - Safety measures for Nuclear Power plants - Case study: Comparison of various nuclear power plants in India									CO3
UNIT- IV	Diesel, Gas Turbine and Combined Cycle Power Plants					Periods:09			
Layout of Diesel power plants and components - Selection of engine – types and applications - Gas Turbine power plant – Classifications - Layout – Merits – fuels – Combined Cycle Power Plants -Integrated Gasified based Combined Cycle systems - Introduction to Energy storage – Case study: Decentralized Power technologies									CO4
UNIT- V	Power Plant Economics					Periods:09			
Economics of Power generation - Cost of Electrical Energy, Expression for cost of electrical energy, interest, depreciation - Power tariff - types - Load distribution parameters - Load curve - load duration Curve – Effect of load on power plant design – Load forecasting – Peak load pricing - Comparison of site selection criteria - Relative merits and demerits - Capital and Operating Cost of different power plants.									CO5
Lecture Periods:45			Tutorial Periods:-			Practical Periods:-		Total Periods:45	
Text Books									
<ol style="list-style-type: none"> 1. El-Wakil, "Power Plant Technology", McGraw-Hill, 1st Edition, 2010. 2. Frederick T. Morse, "Power Plant Engineering", Affiliated East-West Press Pvt Ltd, 7th Edition, 2008. 3. R. K. Rajput, "Power Plant Engineering", Laxmi Publications, 4th Edition, 2016. 									
Reference Books									
<ol style="list-style-type: none"> 1. Leonjard L. Grigsby, "Electric Power Generation, Transmission and Distribution", CRC Press, 3rd Edition, 2012. 2. Bernhardt G.A. Skrotzki, "Power Station Engineering and Economy", Tata McGraw Hill, Indian Edition, 2001. 3. Thomas C. Elliott, Kao Chen and Robert C. Swanekamp, "Standard Handbook of Power Plant Engineering", McGraw Hill, 2nd Edition, 2012. 4. P.K. Nag, "Power plant Engineering", Tata McGraw-Hill, 4th Edition, 2017. 									

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2. https://swayam.gov.in/nd1_noc20_me87/preview
3. https://swayam.gov.in/nd1_noc20_me40/preview
4. https://swayam.gov.in/nd1_noc20_me33/preview
5. https://swayam.gov.in/nd1_noc20_ee86/preview

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	1	2	2	-	1	-	-	-	-	-	-	3	2	3
2	3	1	2	2	-	1	-	-	-	-	-	-	3	2	3
3	3	1	2	2	-	1	-	-	-	-	-	-	3	2	3
4	3	1	2	2	-	1	-	-	-	-	-	-	3	2	3
5	3	1	2	2	-	1	-	-	-	-	-	-	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Electrical and Electronics Engineering			Programme: B.Tech.						
Semester	IV			Course Category : PE *End Semester Exam Type: TE						
Course Code	U23EEE404			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	ENERGY STORAGE TECHNOLOGY			3	0	0	3	25	75	100
EEE										
Prerequisite	Physical Science for Engineers, Electrical Engineering									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Summarize the need and importance of energy storage							K2	
	CO2	Analyze the various energy storage techniques in the form of electrical, magnetic and chemical systems							K3	
	CO3	Examine the different batteries and its characteristics used for storing the energy in electric vehicles, nano-tubes etc.							K3	
	CO4	Interpret the concepts of Superconducting Magnet Energy Storage Systems and super-capacitors in digital cameras, PC cards, electric vehicles, medical applications etc.							K3	
	CO5	Classify the various energy storage techniques used in Electric vehicles and its hybridization concepts, power grid stabilization, rail-system power models etc.							K4	
UNIT- I	Introduction to Energy Storage						Periods:09			
Energy Storage – Need - Different modes of Energy Storage - Potential energy - Pumped hydro storage - Kinetic Energy and Compressed gas system - Flywheel storage, compressed air energy storage - Environmental and sustainability issues.										CO1
UNIT- II	Energy Storage Types						Periods:09			
Electrical and Magnetic energy storage, Capacitors, electromagnets - Chemical Energy storage - Thermal energy storage (TES) - Thermo-chemical, fossil fuels and synthetic fuels - Hydrogen for energy storage, Solar Ponds for energy storage. Electrochemical Energy Storage Systems, Case study on perovskite solar cell.										CO2
UNIT- III	Batteries						Periods:09			
Batteries - Primary, Secondary, Lithium, Solid-state and molten solvent batteries - Lead acid batteries - Nickel Cadmium Batteries - Li ion battery, Ni metal hydride battery - Advanced Batteries - Role of carbon nano-tubes in electrodes - Flow battery operation - Flexible fiber battery- air batteries										CO3
UNIT- IV	Superconducting Magnet Energy Storage Systems						Periods:09			
Superconducting Magnet Energy Storage(SMES) systems - Capacitor and Batteries: Comparison and application - Super capacitor - Electrochemical Double Layer Capacitor (EDLC), principle of working, structure, performance and application, role of activated carbon and carbon nano-tube - Super Capacitors - power calculation – operation and design.										CO4
UNIT- V	Vehicular Energy Storage Systems						Periods:09			
Energy storage technologies in hybrid vehicles – flywheel, hydraulic, fuel cell and hybrid fuel cell energy storage system – ultra capacitors – comparison – battery charging control										CO5
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -			Total Periods:45	
Text Books										
<ol style="list-style-type: none"> Jiujun Zhang, Lei Zhang, Hansan Liu, Andy Sun, Ru-Shi Liu, “Electrochemical Technologies for Energy Storage and Conversion-2 Volume set”, John Wiley and Sons, 1st Edition, 2011. DetlefStolten, “Hydrogen and Fuel Cells: Fundamentals, Technologies and Applications”, Wiley, 1st Edition, 2010. Andrei G. Ter-Gazarian, “Energy Storage for Power Systems”, Institution of Engineering and Technology, 3rd Edition, 2020. 										
Reference Books										
<ol style="list-style-type: none"> Francois Beguin and Elzbieta Frackowiak, “Super capacitors: Materials, Systems and Applications”, Wiley-VCH, 1st Edition, 2013. Doughty Liaw, Narayan and Srinivasan, “Batteries for Renewable Energy Storage”, The Electrochemical Society, New Jersey, 2010. Ali Emadi, Mehrdad Ehsani, John M. Miller, “Vehicular Electric Power Systems: Land, Sea, Air and Space Vehicles”, CRC Press, 1st Edition, 2003. Chris Mi, M. AbulMasrur, David Wenzhong Gao, “Hybrid Electric Vehicles: Principles and Applications with Practical Perspectives”, Wiley, 1st Edition, 2011. Robert Huggins, “Energy Storage: Fundamentals, Materials and Applications”, Springer, 2nd Edition, 2016. 										

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4. <https://www.sciencedirect.com/topics/engineering/energy-storage-technology>
5. https://en.wikipedia.org/wiki/Energy_storage

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
2	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
3	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
4	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3
5	3	3	3	2	1	-	-	-	-	-	-	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	EEE		Programme: B.Tech.						
Semester	IV		Course Category: PE			End Semester Exam Type: TE			
Course Code	U23EEE405		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	DIGITAL LOGIC DESIGN USING VHDL		3	0	0	3	25	75	100
Prerequisite	Electronics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Use modern development tools to design complex digital circuits.							K2
	CO2	Analyze syntax and behavior of the VHDL language in combinational circuits							K4
	CO3	Apply the VHDL for sequential logic circuits.							K3
	CO4	Examine the performance of circuits with Programmable logic devices.							K3
	CO5	Demonstrate the functions using Field Programmable Gate Array							K3
UNIT - I	Introduction to VHDL					Periods: 9			
Introduction to Packages – Subprograms – Introduction to Hardware Description Languages (HDL) - HDL based design, VHDL- Variables, Signals and constants, Arrays, VHDL operators – VHDL Modules-VHDL Libraries - Predefined Attributes – Configurations – VHDL Synthesis – constraints and attributes.									CO1
UNIT - II	Combinational Circuit Design with VHDL					Periods: 9			
VHDL description of combinational circuits - Design of a serial adder with accumulator, Design of a binary multiplier, Multiplication of signed binary numbers, Design of a binary divider-VHDL models for a multiplexer, demultiplexer									CO2
UNIT - III	Sequential Circuit Design with VHDL					Periods: 9			
VHDL description of sequential circuits-Modeling flip-flops, counters, Compilation and simulation of VHDL code, Modeling a sequential machine - Registers – Simple Processor.									CO3
UNIT - IV	Implementation Technology with Programmable Logic Devices					Periods: 9			
Memory structure: RAM - ROM – PROM – EPROM – EEPROM – Programmable logic arrays (PLAs), Programmable array logic (PALs), Other sequential programmable logic devices (PLDs), Design of a keypad scanner									CO4
UNIT - V	Implementation Technology of FPGA					Periods: 9			
Implementation of function using FPGA-Xilinx 3000 series FPGAs, Designing with FPGAs, Xilinx 4000 series FPGAs using a one hot state assignment, Altera complex programmable logic devices (CPLDs), Altera FELX 10K series COLDS.									CO5
Lecture Periods: 45		Tutorial Periods:-			Practical Periods:-			Total Periods: 45	
Text Books									
<ol style="list-style-type: none"> 1. M. Morris Mano and Michael D.Ciletti, "Digital Design: With an Introduction to the Verilog HDL, VHDL, and System Verilog, 6th Edition, May 2018. 2. Charles H. Roth, J, "Digital Systems Design using VHDL", Pearson Education, 11th Edition, 2020. 3. Comer "Digital Logic & State Machine Design", Oxford, 5th Edition, 2018. 									
Reference Books									
<ol style="list-style-type: none"> 1. D. P. Kothari, J. S. Dhillon, "Digital circuits and Design", Pearson Education, 6th Edition, 2018. 2. Tocci R.J., Neal S. Widmer, 'Digital Systems: Principles and Applications', Pearson Education Asia, 12th Edition, 2020. 3. Roger L.Tokheim, "Digital Electronics: Principles and Applications", McGraw Hill Education, 8th Edition, 2018. 4. Donald P Leach, Albert Paul Malvino, Goutam Sha, 'Digital Principles and Applications', Tata McGraw Hill, 7th Edition, 2018. 5. Volnei A. Pedroni, "Circuit Design and Simulation with VHDL", Pearson Education, 11th Edition, 2018. 									
Web References									
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/117103064/ 2. https://nptel.ac.in/courses/117/105/117105080/ 3. https://nptel.ac.in/courses/117/108/117108040/ 4. http://www.nptelvideos.in/2012/12/digital-circuits-and-systems.html 5. http://nptel.unipune.ac.in/LocalG/listLectures.php?cid=70cfb15a91cff73d&bid=927d7542627865a3 									

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	2	2	2	3	2	-	-	-	-	-	-	-	2	2	2
2	2	2	2	3	2	-	-	-	-	-	-	-	2	2	2
3	2	2	2	3	2	-	-	-	-	-	-	-	2	2	2
4	2	2	2	3	2	-	-	-	-	-	-	-	2	2	2
5	2	2	2	3	2	-	-	-	-	-	-	-	2	2	2

Correlation Level: 1 – Low, 2 – Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Annexure - VI

Department	Electrical and Electronics Engineering		Programme: Honour Degree						
Semester	IV		Course Category: PC			*End Semester Exam Type: TE			
Course Code	U23EEH401		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	ADVANCED POWER TRAIN ENGINEERING		3	1	0	4	25	75	100
EEE									
Prerequisite	Engineering Mechanics, Electrical Machines								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Describe about Conventional Vehicle Performance and Fuel Consumption							K2
	CO2	Explain the different models of vehicle dynamics							K2
	CO3	Differentiate the configurations of power train and transmission systems							K2
	CO4	Examine the different types and architecture of hybrid vehicles.							K3
	CO5	Illustrate the various Modelling of Hybrid Electric Vehicle System							K3
UNIT- I	Conventional Vehicle Performance and Fuel Consumption					Periods:12			
Fundamentals of conventional vehicles-Base Engine Model, Gasoline Engine model, Diesel Engine Model. Battery Electric Vehicle Performance & Energy Consumption. Series Hybrid Electric Vehicle Performance & Fuel Consumption									CO1
UNIT- II	Vehicle Dynamics					Periods:12			
Lateral Vehicle Dynamics- Kinematic Model of Lateral Vehicle Motion- Bicycle Model of Lateral Vehicle Dynamics- Dynamic Model in Terms of Error with Respect to Load, Yaw rate and Slip angle- Longitudinal Vehicle dynamics- Drive line Dynamics									CO2
UNIT- III	Introduction to Power Train Technology and Transmission systems					Periods:12			
Introduction to power train technology, drive line system, Classical, hybrid and electrical power train configuration model. Overview about Hybrid power train configurations - Classical, hybrid and electrical power train configuration model. Transmission systems – Manual Gear Transmission (MT)- Automatic Transmission- Continuously Variable Transmission - Infinitely Variable Transmissions- Dedicated Hybrid Transmission (DHT). Minimum Power train Efficiency, Average Power Requirements									CO3
UNIT- IV	Hybrid Vehicle					Periods:12			
Hybrid Electric vehicles – Classification – Micro, Mild, Full, Plug-in, EV; Layout and Architecture – Series, Parallel and Series-Parallel Hybrid, Torque-Coupling and Speed-Coupling -Propulsion systems and components; Regenerative Braking, Economy, Vibration and Noise reduction; Hybrid Electric Vehicles System – Analysis and its Types, Controls.									CO4
UNIT- V	Hybrid Electric Vehicle System Modeling					Periods:12			
Modeling of an Internal Combustion Engine- Modeling of an Electric Motor- Modeling of the Battery System- Modeling of the Transmission System- Modeling of a Multi-mode Electrically Variable Transmission- Lever Analogy as a Tool for ECVT Kinematic Analysis-Modeling of the Vehicle Body- Modeling of the Final Drive and Wheel- PID-based Driver Model									CO5
Lecture Periods:45			Tutorial Periods:-15			Practical Periods:-		Total Periods:60	
Text Books									
1. Mehrdad ehsani, Yimin Gao Stefano Iango, "Modern Electric hybrid vehicle and fuel cell", CRC Press, 3 rd Edition, 2018.									
2. Rajesh Rajamani , "Vehicle dynamics and control", springer, 2 nd Edition, 2012									
3. Wei Liu, 'Hybrid Electric Vehicle System Modelling and Control', General Motors, USA, John Wiley & Sons, Inc., 2017.									
Reference Books									
1. Tom Denton, Taylor & Francis, "Electric and Hybrid Vehicles", 2018									
2. Teresa Donato, 'Hybrid Electric Vehicles', ExLi4EvA, 2017									
3. Gianfranco Pistoia Consultant, 'Electric and Hybrid Vehicles Power Sources, Models, Sustainability, Infrastructure and the Market', Elsevier Publications, 2017									
4. Iqbal Husain, "Electric and hybrid vehicle design fundamentals,3 rd Edition, CRC Press,2021									

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2. <https://www.sciencedirect.com/topics/engineering/vehicledynamics#:~:text=The%20vehicle%20dynamics%20is%20the,the%20mechanics%20of%20vehicle%20motion.>
3. <https://www.studocu.com/in/document/galgotias-university/engineering-mechanics/hvp-notes-unit-13-conventional-vehicle-performance/21029281>
4. <https://www.sciencedirect.com/science/article/abs/pii/S2213138822001394>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	3	3	1	2	-	1	-	-	-	1	1	3	2	-
2	3	3	3	1	2	-	1	-	-	-	1	1	3	2	-
3	3	3	3	1	2	-	1	-	-	-	1	1	3	2	-
4	3	3	3	1	2	-	1	-	-	-	1	1	3	2	-
5	3	3	3	1	2	-	1	-	-	-	1	1	3	2	-

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Annexure – VII

Common course



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi, Accredited by NAAC with "A" Grade)
Maagadipet, Puducherry - 605 107



DEPARTMENT OF EEE, ECE, ICE, BME and CCE

Report on common Courses

Regulations: R-2020

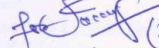
SL.No	Course Name	Existing Course Code	Year / Sem/Dept.	Deviations Identified	Justifications if there is no modification	Proposed Modifications	Common syllabus Applicable Departments	Common Course Name with Code	
1	Linear Control Systems	U20ICT408	II/IV/ICE	Same title for EEE and ECE	IV sem was completed. So Modifications for ICE is possible only in the next Regulations.	-	-	-	
	Control Systems	U20EET514	III/V/EEE			Syllabus is different for EEE and ECE with same title.	Course Title of ECE department is changed as "Control systemsEngineering" (U20ECT612)	-	-
	Control Systems	U20ECT612	III/VI/ECE						
2	Biomedical Instrumentation	U20BMT511	III/V/BME	Syllabus are different with same title	-	Course Title of ICE department is changed as "Medical Instrumentation" (U20ICT613)	-	-	
	Biomedical Instrumentation	U20ICT613	III/VI/ICE						
3	Advanced Control Systems	U20EEE717	IV/VII/EEE (PE-IV)	Three units are different for EEE and ICE	Syllabus is different for EEE and ICE. So, there is no possibilities of making as a common syllabus	Course Title of ICE department is changed as "Non-Linear control system" (U20ICE507)	-	-	
	Advanced Control System	U20ICE507	III/V/ICE (PE-II)						

4	Renewable Energy Sources	U20EET617	III/VI/EEE	80% of the Syllabus is common for EEE and ICE.	-	Agreed to follow EEE syllabus for both EEE and ICE departments with the course Title "Renewable Energy Sources" in 6 th semester	EEE and ICE	Renewable Energy Sources U20EECM01
	Renewable Energy Resources	U20ICE827	IV/VIII/ICE					
5	Electric and Hybrid Vehicle	U20EET721	IV/VII/EEE	80% of the Syllabus is common for all branches	-	Course Title of EEE department is changed as "Electric Vehicle Technology"	EEE,ECE, Mechatronics, MECH	Electric Vehicle Technology U20EECM02
	Hybrid and Electrical Vehicle	U20EEO705	Open Elective			Agreed to follow EEE syllabus for EEE,ECE, Mechatronics, MECH		
	Electric and Hybrid Vehicles	U20ICE402	II/IV/ICE (PE-I)			IV sem was completed. So Modifications for ICE is possible only in the next Regulations.		
6	Vehicular Communication	U20CCE506	III/V/CCE (PE-II)	90% of the Syllabus is common	-	Agreed to follow ECE syllabus for both ECE and CCE in V Semester	ECE and CCE	Vehicular Communication U20ECCM01
	Vehicular Communication	U20ECE507	III/V/ECE (PE-II)					
7	Robotics and Control	U20EEE830	IV/VIII/EEE (PE-VI)	80% of the Syllabus is common	-	Agreed to follow common syllabus for EEE, ECE and ICE departments with the course title "Robotics and Automation" in 5 th semester for ECE and in 6 th semester for EEE & ICE	EEE, ECE, ICE	Robotics and Automation U20ECCM02
	Robotics and Control	U20ECE510	III/V/ECE (PE-II)					
	Robotics and Automation	U20ICE613	III/VI/ICE (PE-III)					

8	Digital Image Processing	U20ECT614	III/VI/ECE	90% of the Syllabus is common for ECE and CCE.	-	Agreed to follow ECE syllabus for both ECE and CCE departments with the course Title "Digital Image Processing" in 6 th semester	ECE and CCE	Digital Image Processing U20ECCM03
	Digital Image Processing	U20CCE719	IV/VII/CCE					
9	IoT and Applications	U20CCT613	III/VI/CCE	90% of the Syllabus is common for all branches	-	Agreed to follow ECE syllabus for all the departments in 6 th and 7 th semester.	ECE, ICE, CCE EEE, CSE, MECH, IT, CIVIL, FT	Internet of Things U20ECCM04
10	IoT for Automation	U20ICT615	III/VI/ICE					
	IoT and its Applications	U20ECO705	Open Elective					
	Internet of Things	U20ECT717	IV/VII/ECE					
10	Satellite Communication	U20CCE611	III/VI/CCE (PE-III)	90% of the Syllabus is common	-	Agreed to follow ECE syllabus for both ECE and CCE in VII Semester	ECE and CCE	Satellite Communication U20ECCM05
	Satellite Communication	U20ECE717	III/VII/ECE (PE-IV)					
11	Fuzzy and Neural Systems	U20EEE615	III/VI/EEE (PE-III)	80% of the Syllabus is common	-	Agreed to follow common syllabus for all departments with course title as "Fuzzy Logic and Neural Networks" in 5 th semester for CCE and in 7 th semester for ECE & EEE.	EEE ECE, CCE, CSE, IT, CIVIL, BME, AI&DS	Fuzzy Logic and Neural Networks U20ICCM01
	Fuzzy logic and Neural Network	U20ECE718	IV/VII/ECE (PE-IV)					
	Neural Networks and Fuzzy Logic	U20CCE510	III/V/CCE (PE-II)					
	Fuzzy logic and neural networks	U20ICO503/ U20ICO603	Open elective (CSE, IT,					
12	Principles of Virtual Instrumentation	U20EEE826	IV/VIII/EEE (PE-VI)	80% of the Syllabus is common for	-	Agreed to follow ICE syllabus for both EEE and ICE departments	EEE and ICE	Virtual Instrumentation U20ICCM02

Virtual Instrumentation	U20ICE612	IV/VI/ICE (PE-IV)	EEE and ICE.	-	with the course Title "Virtual Instrumentation" in 6 th semester.		
Applied soft Computing	U20ICE611	III/VI/ICE (PE-III)	90% of the Syllabus is common	-	Agreed to follow BME syllabus for all departments with the course Title "Soft Computing"	ICE, ECE, BME and CCE	Soft Computing U20BMCM01
Soft Computing	U20ECE615	III/VI/ECE (PE-III)					
Soft Computing Techniques	U20BME613	III/VI/BME (PE-III)					
Soft computing	U20CCE615	III/VI/CCE (PE-III)					

Heads of the Departments

EEE -  (Dr. P. JAMUNA)

ECE -  (Dr. P. RAJA)

ICE -  (Dr. L. M. Kalatehmi)

BME -  (Dr. A. Vijayalabshmi)

CCE -  (Dr. V. BHARATHI)


Dean Academics


DIRECTOR CUM PRINCIPAL
SRI MANJUNATHA UNNAYAGAR ENGINEERING COLLEGE
[An Autonomous Institution]
Madagadipet, Puducherry-605 107.

Annexure – VIII

Academic calendar – I Year / II Sem

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
Madagadipet, Puducherry - 605 107

I year / II sem



February 2024				March 2024				April 2024				May 2024				June 2024			
Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day
1	Thu			1	Fri		9	1	Mon	CAT - I	32	1	Wed	May Day	Holiday	1	Sat		Holiday
2	Fri			2	Sat	Holiday		2	Tue		33	2	Thu	Assignment - 2	55	2	Sun		Holiday
3	Sat	Holiday		3	Sun	Holiday		3	Wed		34	3	Fri	QCM-2/Syllabus Coverage	56	3	Mon	Submission of Model Result Analysis, Attendance and Assessment Record	79
4	Sun	Holiday		4	Mon	National Safety Day	10	4	Thu		35	4	Sat	Coal Miners Day/Int. Firefighter's Day	Holiday	4	Tue		80
5	Mon			5	Tue		11	5	Fri		36	5	Sun		Holiday	5	Wed	World Environment Day	81
6	Tue			6	Wed		12	6	Sat		Holiday	6	Mon	CAT - II	57	6	Thu		82
7	Wed			7	Thu		13	7	Sun		Holiday	7	Tue		58	7	Fri		83
8	Thu			8	Fri	International Women's Day	14	8	Mon		37	8	Wed		59	8	Sat		84
9	Fri			9	Sat		15	9	Tue		38	9	Thu		60	9	Sun		Holiday
10	Sat			10	Sun		Holiday	10	Wed		39	10	Fri		61	10	Mon	Tentative ESE Practicals	85
11	Sun		Holiday	11	Mon		16	11	Thu	Ramzan	Holiday	11	Sat	National Technology Day	62	11	Tue		86
12	Mon	National Productivity Day		12	Tue		17	12	Fri		40	12	Sun		Holiday	12	Wed		87
13	Tue			13	Wed		18	13	Sat	Submission of CAT I Result Analysis, Attendance and Assessment Record	41	13	Mon		63	13	Thu		88
14	Wed			14	Thu		19	14	Sun	Tamil New Year	Holiday	14	Tue		64	14	Fri		89
15	Thu			15	Fri		20	15	Mon		42	15	Wed		65	15	Sat		Holiday
16	Fri			16	Sat		Holiday	16	Tue		43	16	Thu	Submission of CAT II Result Analysis, Attendance and Assessment Record	66	16	Sun		Holiday
17	Sat		Holiday	17	Sun		Holiday	17	Wed		44	17	Fri	Online feedback-3	67	17	Mon	Last working day	90
18	Sun		Holiday	18	Mon		21	18	Thu		45	18	Sat		Holiday	18	Tue		
19	Mon			19	Tue		22	19	Fri		46	19	Sun		Holiday	19	Wed		
20	Tue			20	Wed		23	20	Mon	World Earth Day	47	20	Mon	Assignment - 3	68	20	Thu		
21	Wed	Commencement of Classes / International Mother Language Day	1	21	Thu		24	21	Sun		Holiday	21	Tue	QCM-3/Syllabus Coverage	69	21	Fri	International Yoga Day	
22	Thu	World Thinking Day	2	22	Fri		25	22	Mon		Holiday	22	Wed	Model Exam	70	22	Sat		
23	Fri		3	23	Sat		26	23	Tue		48	23	Thu		71	23	Sun		Holiday
24	Sat		4	24	Sun		Holiday	24	Wed		49	24	Fri		72	24	Mon		
25	Sun		Holiday	25	Mon	Online feedback-1	28	25	Thu		50	25	Sat		73	25	Tue		
26	Mon		5	26	Tue	Assignment - 1	29	26	Fri		51	26	Sun		Holiday	26	Wed	Tentative ESE Theory	
27	Tue		6	27	Wed	Submission of QCM-1/Syllabus Coverage	30	27	Sat		52	27	Mon		74	27	Thu		
28	Wed	National Science Day	7	28	Thu		30	28	Sun	World Day for Safety & Health at work	52	28	Tue		75	28	Fri		
29	Thu		8	29	Fri	Good Friday	Holiday	29	Mon		53	29	Wed	Model Practicals	76	29	Sat		
30	Fri			30	Sat		31	30	Tue	Online feedback-2	54	30	Thu		77	30	Sun		Holiday
31	Sun			31	Sun		Holiday	31	Fri		78	31	Fri		78				

Total number of working days : 8
Total number of holiday : 01

Total number of working days : 23
Total number of holiday : 08

Total number of working days : 23
Total number of holiday : 07

Total number of working days : 24
Total number of holiday : 07

Total number of working days : 12
Total number of holiday : 05

Electronics course to be completed before CAT 1

Use of Cell Phones

It has been decided not to permit cell phones inside the college campus. If any student is found using the cell phone inside the college campus, it would be confiscated and will not be returned back on any circumstances. Hence the students are instructed not to attend the college with the mobile phones.

Dress Code

The students are requested to attend the college neatly dressed. While the male students should attend the college with the shirts neatly tucked in and with the shoes, the female students are permitted to come with churidar and dupatta properly pinned. Students wearing full hand shirts should wear it as such without folding it to half etc. Casual wears like jeans, T-shirts etc. both for boys and girls are strictly prohibited inside the campus. Each department has prescribed uniforms for the labs. The students are requested to strictly adhere to the dress codes as well as the rules and regulations of the college.

Maintenance of Discipline

Discipline is an important factor that shapes one's personality. It is considered as a golden key capable of opening many doors. This institution expects each and every student to follow the rules and regulations in total. Maintaining discipline in the campus will promote a conducive environment for studies.

Working hours

I hour	08.45 a.m to 09.35 a.m
II hour	09.35 a.m to 10.25 a.m
III hour	10.25 a.m to 11.15 a.m
Break	11.15 a.m to 11.30 a.m
IV hour	11.30 a.m to 12.20 p.m
V hour	12.20 p.m to 01.10 p.m
VI hour	01.50 p.m to 02.40 p.m
VII hour	02.40 p.m to 03.30 p.m
VIII hour	03.30 p.m to 04.20 p.m
Lunch break	1.10 p.m. to 1.50 p.m.

Table 1 Assessment method for Theory Courses

Assessment	Continuous Assessment Marks (CAM)				End Semester Examination (ESM) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Attendance		
Marks	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Table 2 Question Paper pattern for CAT 1 and CAT 2 - Theory Courses

2 Mark Questions	5 Mark Questions	10 Mark Questions	Total Marks
5	4	2 (out of 3 question)	50

Table 3 Model and End Semester Examination Question Paper pattern for 5 unit courses

2 Mark Questions	5 Mark Questions	10 Mark Questions	Total Marks
10 (two questions from each unit)	5 (one question from each unit)	3 (out of 5 questions one from each unit)	75

Table 4 Model and End Semester Examination Question Paper pattern for 6 unit courses

Course	2 Mark Questions	5 Mark Questions	8/9 Mark Questions	Total Marks
Part A	5	2 (out of 3 questions, one from each unit)	2 (9 mark questions out of 3 questions, one from each unit)	38
Part B	5	2 (out of 3 questions, one from each unit)	1 (8 mark questions out of 2 questions, one from unit IV & unit V) 1 (9 mark questions (compulsory) questions from unit VI)	37

Table 5 Assessment Method for Practical Courses

Assessment	Continuous Assessment Marks (CAM)				End Semester Examination (ESM) Marks	Total Marks
	Performance in practical classes	Record work	Model Exam	Practical Examination		
Marks	15	5	5	15	10	100

Table 6 Assessment Method for Theory cum Practical Courses

Assessment	Continuous Assessment Marks (CAM) - Maximum 50 Marks					End Semester Examination (ESM) Marks	Total Marks			
	Continuous Assessment (Theory)		Continuous Assessment (Practical)							
Marks	5	5	5	20*	15	10	5	30*	75**	100
*To be weighted for 10 Marks **To be weighted for 10 Marks **To be weighted for 5 Marks										

Table 7 Question Paper pattern for CAT 1 and CAT 2 (Theory cum Practical course)

2 Mark Questions	5 Mark Questions	10 Mark Questions	Total Marks
5	4	2 (out of 3 question)	50

Table 8 Question paper pattern for Model and End Semester Examination (Theory cum Practical course)

2 Mark Questions	5 Mark Questions	10 Mark Questions	Total Marks
9 (3 questions from each unit)	3 (one question from each unit)	1 (Compulsory question (with sub-section questions in any of the unit)) 2 (out of 3 questions, one from each unit with sub-section)	75*

Requirements for Appearing End Semester Examination

A student is expected to maintain 100% attendance in all courses as attendance also carries internal marks. A student will be qualified to appear for end semester examinations of a semester only if he/she satisfies the below mentioned requirements. The student is permitted to appear for End Semester Examinations, only if he/she maintains minimum 75% of attendance. If he/she secured attendance greater than or equal to 60% and less than 75% has to pay the necessary condonation prescribed by the college authority with necessary supporting documents for his/her absence.

Redo Category

A student who secures overall attendance less than 60% has to repeat the course with the approval, when it is next offered. A student secures attendance greater than or equal to 60% and less than 75% will be promoted to next higher semester only if loss of attendance is due to medical reasons (hospitalization/accident/illness) or participation in sports event or any competitions or NCC or NSS activities with prior permission from the Head of Institution through the Head of the department with necessary supporting documents and payment of necessary condonation fee as prescribed by the college authority. However student secures more than 75% of attendance in the current semester will be moved to next higher semester.

Women Empowerment Cell

For the Welfare of the girl students, a Women Cell has been constituted in the college. The girl students may approach the member secretary for assistance. Mail id : wec@smvec.ac.in

Grievance Redressal Committee

There is a Grievance Redressal committee in our college and the details are available in the website. Students can approach the member of the committee to redress their grievances if any. Mail id : grievance@smvec.ac.in

Internal Complaints Committee

The objective of this committee is to avoid sexual harassment of students and women employees in the college by preventing it, recording complaints, and taking appropriate action in response. It also aims to eliminate gender-based discrimination by creating a safe physical and social environment that deters sexual harassment and enforcing the necessary disciplinary actions. For complaints : Mail id : icc@smvec.ac.in

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

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Madagadipet, Puducherry - 605 107

Academic Calendar

February 2024 to June 2024

ELECTRICAL AND ELECTRONICS ENGG.

Programme / Regulation : B.Tech / R-2023
Year / Sem : I year / II semester

About Autonomous

Sri Manakula Vinayagar Engineering College has been conferred with Autonomous Status by the University Grants Commission on 26th September 2019 and the same was approved by Pondicherry University on 19th June 2020. SMVEC Autonomous Regulations R-2023 is followed for the students admitted from the Academic Year 2023-2024.

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

MISSION

- M1: Quality Education: To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.
- M2: Research and Innovation: To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.
- M3: Employability and Entrepreneurship: To inculcate the employability and entrepreneurial skills through value and skill based training.
- M4: Ethical Values: To instill deep sense of human values by blending socially righteousness with academic professionalism for the growth of society.

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR: 2023-2024
(February 2024 to June 2024)

BATCH: 2023-2027 YEAR/SEM: I / II

DEPARTMENT VISION AND MISSION

Vision

To promote proficiency in the field of Electrical and Electronics Engineering by creating a stimulating environment for research, innovation and entrepreneurship

Mission

M1: Quality Education:
To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies.

M2: Industrial and Societal Needs:
To cater the dynamic needs of the industry and society by strengthening industry-institute interaction.

M3: Research and Innovation:
To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.

M4: Placement and Entrepreneurship:
To inculcate the professionalism in career by advancing synergistic skills to compete in the corporate world.

PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge:
Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:
Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

PO4: 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.

PO5: Modern tool usage:

CO5: Apply state reduction techniques to simplify and design synchronous and asynchronous sequential circuits. (K3)

U23HSTC01 - UNIVERSAL HUMAN VALUES - II
Course Outcomes

CO1: Evaluate the significance of value inputs in formal education and start applying them in their life and profession (K2)

CO2: Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc. (K2)

CO3: Analyze the value of harmonious relationship based on trust and respect in their life and profession (K2)

CO4: Examine the role of a human being in ensuring harmony in society and nature. (K2) **CO5:** Apply the understanding of ethical conduct to formulate the strategy for ethical life and profession. (K2)

U23ENBC02 - COMMUNICATIVE ENGLISH - II
Course Outcomes

CO1: Draft effective written communication in professional environment (K2)

CO2: Apply the mechanics of creative writing with precision and clarity (K3)

CO3: Acquire language skills professionally to groom the overall personality through sensitizing various etiquettes in real time situation (K2)

CO4: Develop language fluency and gain self-confidence (K3)

CO5: Express thoughts and ideas with clarity and focus (K2)

U23ESPC03 - ENGINEERING GRAPHICS USING AUTOCAD
Course Outcomes

CO1: Familiarize with the fundamentals and standards of engineering graphics. (K3)

CO2: Perform drawing of basic geometrical constructions and multiple views of objects. (K2)

CO3: Visualize the isometric and perspective sections of simple solids. (K3)

CO4: Connect side view associate on front view. (K4)

CO5: Correlate sectional views and lateral surface developments of various solids. (K4)

U23CSPC01 - PROGRAMMING IN C LABORATORY
Course Outcomes

CO1: Implement logical formulations to solve simple problems leading to specific applications. (K3)

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

PO6: The engineer and society:
Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: 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.

PO8: Ethics:
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and teamwork:
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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 environment.

PO12: 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.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Professional Knowledge:
To possess strong educational foundation in Electrical and Electronics Engineering to attain successful career with professional responsibility.

PEO2: Innovative Skills:
To enrich the skills to design and develop innovative solutions for engineering problems in a multidisciplinary environment.

PEO3: Ethics:
To actively embrace leadership qualities for achieving professional goals with ethical values

PEO4: Adaptability:

CO2: Execute C programs for simple applications making use of basic constructs, arrays and strings. (K3)

CO3: Experiment C programs involving functions, recursion, pointers, and structures. (K3)

CO4: Demonstrate applications using sequential and random-access file processing. (K3)

CO5: Build solutions for online coding challenges. (K3)

U23EEP203 - ELECTRONICS - II LABORATORY
Course Outcomes

CO1: Analyze frequency response of the transistor amplifiers and the concept of bandwidth. (K4)

CO2: Design and implement multivibrator circuits for PWM and clock generation. (K3) **CO3:** Implement oscillator circuits for signal generation and sweep circuits for testing electronic components. (K3)

CO4: Develop proficiency in utilizing flip flops for effective design and implementation of sequential logic circuits for various digital applications. (K4)

CO5: Acquire the skills to construct shift registers for efficient storage and shifting of data in digital circuits. (K4)

MANDATORY COURSE

U23EEM202 - SPORTS YOGA AND NSS
Course Outcomes

CO1: Practice Physical activities and Hatha Yoga focusing on yoga for strength, flexibility and relaxation (K2)

CO2: Understand basic skills associated with yoga and physical activities including strength and flexibility, balance and coordination. (K2)

CO3: Develop understanding of psychological problems associated with age and lifestyle. (K2)

CO4: Recognize the importance of national service in community development. (K2)

CO5: Convert existing skills into socially relevant life skills. (K2)

ABILITY ENHANCEMENT COURSE

U23EEC2XX - CERTIFICATION COURSE II

Students shall choose an international certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence. Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

To enhance intellectual competency along with technical skills by adapting to the current trends through eternal learning.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Core Proficiency:
Utilize the engineering core knowledge to identify, formulate, design, and investigate the complex engineering problems of Power Electronics, Electrical Machines and Power Systems.

PSO2: Cutting Edge Technologies:
Explore the new cutting-edge technologies in the field of Electric Vehicle, Automation, Artificial Intelligence, Robotics and Renewable Energy to compete in global market.

PSO3: Design and Evolution:
Capability to comprehend the technological advancements with the usage of modern design tools for analysing and designing systems to confront the rapid pace of industrial innovations.

I Year / II Sem Curriculum under R- 2023

Regulations				
SEMESTER - II				
Sl. No	Course Code	Course Title	Category	Credits
Theory				
1	U23MATC02	Engineering Mathematics-II	BS	4
2	U23CSTC01	Programming in C	ES	3
3	U23ESTC01	Basics of Civil and Mechanical Engineering	ES	3
4	U23EET203	Electronics-II	PC	3
5	U23HSTC01	Universal Human Values-II	HS	2
Theory cum Practical				
6	U23ENBC02	Communicative English-II	HS	3
Practical				
7	U23ESPC03	Engineering Graphics using AutoCAD	ES	1
8	U23CSPC01	Programming in C Laboratory	ES	1
9	U23EEP203	Electronics-II Laboratory	PC	1
Ability Enhancement Course				
10	U23EEC2XX	Certification Course-II	AEC	-
Mandatory Course				
11	U23EEM202	Sports, Yoga and NSS	MC	-
Total Credits				21

U23MATC02 - ENGINEERING MATHEMATICS - II

Course Outcomes

CO1: Convert a periodic function into series form. (K2)

CO2: Compute Fourier transforms of various functions. (K3)

CO3: Solve Differential Equations using Laplace transforms. (K3)

CO4: Apply inverse Laplace transform of simple functions. (K3)

CO5: Solve difference equations using Z - transforms. (K3)

U23CSTC01 - PROGRAMMING IN C
Course Outcomes

CO1: Comprehend the basics of Computers. (K2)

CO2: Illustrate the concepts of control structures and looping. (K2)

CO3: Implement programs using arrays and functions. (K3)

CO4: Demonstrate programs using Structure and Pointers. (K3)

CO5: Build the programs using Union and File management Operations. (K3)

U23ESTC01 - BASICS OF CIVIL AND MECHANICAL ENGINEERING
Course Outcomes

CO1: Understand the types of buildings and materials. (K2)

CO2: Summarize on the various components of buildings and surveying concepts (K2)

CO3: Identify the various infrastructure facilities (K2)

CO4: Familiarize the working principles of IC engines and automobile systems (K2)

CO5: Understand about the power generation systems and its components (K2)

CO6: Acquire knowledge about the various machining process. (K2)

U23EET203 - ELECTRONICS II
Course Outcomes

CO1: Gain knowledge about small signal and large signal amplifier circuits for audio and radio frequency applications. (K4)

CO2: Comprehend the operation of tuned amplifiers in frequency selective circuits and analyze time base circuits for oscillator applications. (K2)

CO3: Analyze the performance of oscillators and feedback amplifiers for signal generation and processing. (K4)

CO4: Develop the ability to use flip-flops in counters and shift registers to build complex digital circuits. (K3)

Academic calendar – II Year / IV Sem



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institutions)
Madagadipet, Puducherry - 605 107

II year / IV sem

February 2024				March 2024				April 2024				May 2024				June 2024			
Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day
1	Thu			1	Fri		9	1	Mon		32	1	Wed	May Day	Holiday	1	Sat		Holiday
2	Fri			2	Sat		Holiday	2	Tue		33	2	Thu		55	2	Sun		Holiday
3	Sat		Holiday	3	Sun		Holiday	3	Wed		34	3	Fri	Submission of CAT II Result Analysis, Attendance and Assessment Record	56	3	Mon	Submission of Model Result Analysis, Attendance and Assessment Record	79
4	Sun		Holiday	4	Mon	National Safety Day	10	4	Thu		35	4	Sat	Coal Miners Day/Int. Firefighter's Day	Holiday	4	Tue		80
5	Mon			5	Tue		11	5	Fri		36	5	Sun		Holiday	5	Wed	World Environment Day	81
6	Tue			6	Wed		12	6	Sat		Holiday	6	Mon		57	6	Thu		82
7	Wed			7	Thu	Online feedback-1	13	7	Sun		Holiday	7	Tue		58	7	Fri		83
8	Thu			8	Fri	Assign-1/Int.Women's Day	14	8	Mon		37	8	Wed		59	8	Sat		84
9	Fri			9	Sat	QCM-1/Syllabus Coverage	15	9	Tue		38	9	Thu		60	9	Sun		Holiday
10	Sat			10	Sun		Holiday	10	Wed		39	10	Fri		61	10	Mon	Tentative ESE Practicals	85
11	Sun		Holiday	11	Mon		16	11	Thu	Ramzan	Holiday	11	Sat	National Technology Day	62	11	Tue		86
12	Mon	National Productivity Day		12	Tue		17	12	Fri		40	12	Sun		Holiday	12	Wed		87
13	Tue			13	Wed	CAT - I	18	13	Sat		41	13	Mon		63	13	Thu		88
14	Wed			14	Thu		19	14	Sun	Tamil New Year	Holiday	14	Tue		64	14	Fri		89
15	Thu			15	Fri		20	15	Mon	Online feedback-2	42	15	Wed		65	15	Sat		Holiday
16	Fri			16	Sat		Holiday	16	Tue	Assignment - 2	43	16	Thu		66	16	Sun		Holiday
17	Sat		Holiday	17	Sun		Holiday	17	Wed	QCM-2/Syllabus Coverage	44	17	Fri	Online feedback-3	67	17	Mon	Last working day	90
18	Sun		Holiday	18	Mon		21	18	Thu		45	18	Sat		Holiday	18	Tue		
19	Mon			19	Tue		22	19	Fri		46	19	Sun		Holiday	19	Wed		
20	Tue			20	Wed		23	20	Sat		Holiday	20	Mon	Assignment - 3	68	20	Thu		
21	Wed	Commencement of Classes / International Mother Language Day	1	21	Thu		24	21	Sun		Holiday	21	Tue	QCM-3/Syllabus Coverage	69	21	Fri	International Yoga Day	
22	Thu	World Thinking Day	2	22	Fri		25	22	Mon	CAT - II / World Earth Day	47	22	Wed	Model Exam	70	22	Sat		
23	Fri		3	23	Sat		26	23	Tue		48	23	Thu		71	23	Sun		Holiday
24	Sat		4	24	Sun		Holiday	24	Wed		49	24	Fri		72	24	Mon		
25	Sun		Holiday	25	Mon	Submission of CAT I Result Analysis, Attendance and Assessment Record	27	25	Thu		50	25	Sat		73	25	Tue		
26	Mon			26	Tue		28	26	Fri		51	26	Sun		Holiday	26	Wed	Tentative ESE Theory	
27	Tue			27	Wed		29	27	Sat		52	27	Mon		74	27	Thu		
28	Wed	National Science Day	7	28	Thu		30	28	Sun	World Day for Safety & Health at work	Holiday	28	Tue		75	28	Fri		
29	Thu		8	29	Fri	Good Friday	Holiday	29	Mon		53	29	Wed	Model Practicals	76	29	Sat		
30	Fri			30	Sat		31	30	Tue		54	30	Thu		77	30	Sun		Holiday
31	Sat			31	Sun		Holiday					31	Fri		78				
Total number of working days : 8 Total number of holiday : 01				Total number of working days : 23 Total number of holiday : 04				Total number of working days : 23 Total number of holiday : 07				Total number of working days : 24 Total number of holiday : 07				Total number of working days : 12 Total number of holiday : 05			

Ethnotech course to be completed before CAT I and CAT 2

Use of Cell Phones

It has been decided not to permit cell phones inside the college campus. If any student is found using the cell phone inside the college campus, it would be confiscated and will not be returned back on any circumstances. Hence the students are instructed not to attend the college with the mobile phones.

Dress Code

The students are requested to attend the college neatly dressed. While the male students should attend the college with the shirts neatly tucked in and with the shoes, the female students are permitted to come with churidar and dupatta properly pinned. Students wearing full hand shirts should wear it as such without folding it to half etc. Casual wears like jeans, T-shirts etc., both for boys and girls are strictly prohibited inside the campus. Each department has prescribed uniforms for the labs. The students are requested to strictly adhere to the dress codes as well as the rules and regulations of the college.

Maintenance of Discipline

Discipline is an important factor that shapes one's personality. It is considered as a golden key capable of opening many doors. This institution expects each and every student to follow the rules and regulations in total. Maintaining discipline in the campus will promote a conducive environment for studies.

Working hours

I hour	09.00 a.m to 09.50 a.m
II hour	09.50 a.m to 10.40 a.m
Break	10.40 a.m to 10.55 a.m
III hour	10.55 a.m to 11.45 a.m
IV hour	11.45 a.m to 12.35 p.m
V hour	01.15 p.m to 02.05 p.m
VI hour	02.05 p.m to 02.55 p.m
Break	02.55 p.m to 03.10 p.m
VII hour	03.10 p.m to 04.00 p.m
VIII hour	04.00 p.m to 04.50 p.m
Lunch break 12.35 p.m. to 1.15 p.m.	

Marks Distribution of Continuous Assessment Marks (CAM) and End Semester Examination Marks (ESM) Scheme for Continuous Assessment Test (CAT)

S. No	Course Type	Continuous Assessment components							Total		
		Test Marks	Average of pre/post test/viva for each experiment	Average of marks for report for each experiment	Model Exam / Report	Assignment	Review - 1	Review - 2		Review - 3	Attendance
1.	Theory	15	-	-	-	5	-	-	-	5	25
2.	Practical	-	10	15	15	-	-	-	-	10	50
3.	Project Phase-I	-	-	-	-	-	15	15	20	-	50
4.	Project Phase-II	-	-	-	-	-	10	10	20	-	40

The internal marks will be provided fully based on the continuous assessment tests
Weightage of Assessment for Theory Course

S.No.	Test	Portion for Test	Test Marks	Duration of Test	Weightage for Internal
1	CAT 1	1½ Units	50	1 ½ hours	10
2	CAT 2	1½ Units	50	1 ½ hours	
3	Model	5 Units	75	3 hours	05
Continuous Assessment for Theory Course					15

Question Paper Pattern

Question paper for CAT and ESE will be based on the pattern shown in Table (a) and (b)
Table (a) Question Paper pattern for CAT/Model Exam

Test Type	2 Marks	5 Marks	10 Marks	Total Marks
CAT 1 / CAT 2	5 (questions) (10 Marks)	4 (questions) (20 Marks)	2 (questions) (20 Marks)	50
Model	End Semester Examination Question Paper			75

Table (b) Question paper pattern for End semester Examination(ESE)

2 Marks	5 Marks	10 Marks	Total Marks
10(20 Marks)	5 (25 Marks) (one question from each unit)	3 (30 Marks) (out of 5 questions, one question from each unit)	75

End Semester Examination Question Paper Pattern for Six Units Courses

Course	2 Mark	5 Mark	8/9 Mark	Total Marks
Part A	5 (out of 3 questions, one from each unit)	2 (out of 2 questions from Unit I and Unit II)	one 8 mark question (One 9 mark question (compulsory question from unit III)	37
Part B	5 (out of 3 questions, one from each unit)	2 (out of 3 questions from IV, V & VI)	Two 9 mark questions	38

Requirements for Appearing End Semester Examination

A student is expected to maintain 100% attendance in all courses as attendance also carries internal marks. A student will be qualified to appear for end semester examinations of a semester only if he/she satisfies the below mentioned requirements. The student is permitted to appear for End Semester Examinations, only if he/she maintains minimum 75% of attendance. If he/she secured attendance greater than or equal to 60% and less than 75% has to pay the necessary condonation prescribed by the college authority with necessary supporting documents for his/her absence.

Redo Category

A student who secures overall attendance less than 60% has to repeat the course with the approval, when it is next offered. A student secures attendance greater than or equal to 60% and less than 75% will be promoted to next higher semester only if loss of attendance is due to medical reasons(hospitalization/accident/illness) or participation in sports event or any competitions or NCC or NSS activities with prior permission from the Head of Institution through the Head of the department with necessary supporting documents and payment of necessary condonation fee as prescribed by the college authority. However student secures more than 75% of attendance in the current semester will be moved to next higher semester.

Women Empowerment Cell

For the Welfare of the girl students, a Women Cell has been constituted in the college. The girl students may approach the member secretary for assistance.
Mail id : wec@smvec.ac.in

Grievance Redressal Committee

There is a Grievance Redressal committee in our college and the details are available in the website. Students can approach the member of the committee to redress their grievances if any. Mail id : grievance@smvec.ac.in

Internal Complaints Committee

The objective of this committee is to avoid sexual harassment of students and women employees in the college by preventing it, recording complaints, and taking appropriate action in response. It also aims to eliminate gender-based discrimination by creating a safe physical and social environment that deters sexual harassment and enforcing the necessary disciplinary actions. For complaints :
Mail id : icc@smvec.ac.in

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

Accredited by NBA/NATE, New Delhi and

Accredited by AACSB with "A" Grade

Madagadipet, Puducherry - 605 107



Academic Calendar

February 2024 to June 2024

ELECTRICAL AND ELECTRONICS ENGG.

Programme / Regulation : B.Tech / R-2020

Year / Sem : II year / IV semester

About Autonomous

Sri Manakula Vinayagar Engineering College has been conferred with Autonomous Status by the University Grants Commission on 26th September 2019 and the same was approved by Pondicherry University on 19th June 2020. SMVEC Autonomous Regulations R-2020 is followed for the students admitted from the Academic Year 2020-2021.

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

MISSION

- M1: Quality Education:** To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.
- M2: Research and Innovation:** To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.
- M3: Employability and Entrepreneurship:** To inculcate the employability and entrepreneurial skills through value and skill based training.
- M4: Ethical Values:** To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.

Vision

To promote proficiency in the field of Electrical and Electronics Engineering by creating a stimulating environment for research, innovation and entrepreneurship

Mission

M1: Quality Education:
To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies.

M2: Industrial and Societal Needs:
To cater the dynamic needs of the industry and society by strengthening industry-institute interaction.

M3: Research and Innovation:
To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.

M4: Placement and Entrepreneurship:
To inculcate the professionalism in career by advancing synergistic skills to compete in the corporate world.

PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge:
Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:
Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

PO4: 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.

PO5: Modern tool usage:

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

PO6: The engineer and society:
Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: 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.

PO8: Ethics:
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and teamwork:
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Professional Knowledge:
To possess strong educational foundation in Electrical and Electronics Engineering to attain successful career with professional responsibility.

PEO2: Innovative Skills:
To enrich the skills to design and develop innovative solutions for engineering problems in a multidisciplinary environment.

PEO3: Ethics:
To actively embrace leadership qualities for achieving professional goals with ethical values

PEO4: Adaptability:
To enhance intellectual competency along with technical skills by adapting to the current trends through eternal learning.

CO5 - Describe multiple access techniques and advanced communication systems. (K2)

U20HSP402- GENERAL PROFICIENCY - II

Course Outcomes
CO1 - Infer ideas to attend international standardized test by broadening receptive and productive skills. (K2)
CO2 - Interpret the types of writing in different state of affairs. (K2)
CO3 - Develop language skills professionally to groom the overall personality through sensitizing various etiquettes in real time situation. (K3)
CO4 - Identify the rules of grammar in academic discourse settings. (K3)
CO5 - Extend the skills to compete in various competitive exams like GATE, GRE, CAT, UPSC, etc. (K2)

U20ESP468- PROGRAMMING IN JAVA LAB

Course Outcomes
CO1 - Apply and practice logical formulations to solve simple problems leading to specific applications. (K3)
CO2 - Demonstrate the use of inheritance, interface and package in relevant applications. (K3)
CO3 - Create java applications using exception handling, multithread. (K3)
CO4 - Build java distributed applications using Collections and IO streams. (K3)
CO5 - Develop simple database programs. (K3)

U20EEP408- MEASUREMENTS AND INSTRUMENTATION LAB

Course Outcomes
CO1 - Realize the advantages and the necessity of measurement systems in all Engineering and Scientific works. (K2)
CO2 - Measure Resistance, Inductance and capacitance using AC and DC bridges. (K3)
CO3 - Determine the magnetization characteristics and hysteresis loss of Iron specimen using BH curve. (K3)
CO4 - Calibrate single phase and three phase energy meters used in domestic and commercial applications. (K3)
CO5 - Determine the characteristics of RTD, thermostat, strain gauge and LVDT transducers and to apply for the physical quantities measurements. (K3)

U20EEP409- MICROCONTROLLER AND ITS APPLICATIONS LAB

Course Outcomes
CO1 - Develop assembly language program for microprocessor 8085. (K3)
CO2 - Analyze various platforms for programming by knowing the complete hardware configurations. (K4)
CO3 - Analyze abstract problems and apply a combination of hardware and software to address the problem. (K4)
CO4 - Design a control algorithm for various applications using microcontrollers. (K3)

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Core Proficiency:
Utilize the engineering core knowledge to identify, formulate, design, and investigate the complex engineering problems of Power Electronics, Electrical Machines and Power Systems.
PSO2: Cutting Edge Technologies:
Explore the new cutting edge technologies in the field of Electric Vehicle, Automation, Artificial Intelligence, Robotics and Renewable Energy to compete in global market.
PSO3: Design and Evolution:
Capability to comprehend the technological advancements with the usage of modern design tools for analysing and designing systems to confront the rapid pace of industrial innovations.

II Year / IV Sem Curriculum under R- 2020 Regulations

SEMESTER - IV				
Sl. No	Course Code	Course Title	Category	Credits
Theory				
1	U20BST430	Probability and Statistics	BS	3
2	U20EST467	Programming in JAVA	ES	3
3	U20EET411	Measurements and Instrumentation for Electrical Engineering	PC	3
4	U20EET412	Microprocessor and Microcontroller	PC	3
5	U20EEE4XX	Professional Elective - I'	PE	3
6	U20XXO4XX	Open Elective - I'	OE	3
Practical				
7	U20HSP402	General Proficiency - II	HS	1
8	U20ESP468	Programming in JAVA Lab	ES	1
9	U20EEP408	Measurements and Instrumentation Lab	PC	1
10	U20EEP409	Microcontroller and its applications Lab	PC	1
Employability Enhancement Course				
11	U20EEC4XX	Certification Course - IV **	EEC	-
12	U20EES403	Skill Development Course 3*	EEC	-
Mandatory Course				
13	U20EEM404	NSS / NCC	MC	-
Total Credits				22

U20BST430- PROBABILITY AND STATISTICS

Course Outcomes
CO1 - Apply the concept of probability in random variables. (K3)
CO2 - Apply the basic rules of continuous random variables. (K3)
CO3 - Understand the basic concepts of Statistics. (K2)
CO4 - Derive the inference for various problems using testing of hypothesis in large samples. (K3)
CO5 - Solve the problems related to testing of hypothesis in small samples. (K3)

U20EST467- PROGRAMMING IN JAVA

Course Outcomes
CO1 - Write a maintainable java Program for a given algorithm and implement the same. (K2)
CO2 - Demonstrate the use of inheritance, interface and package in relevant applications. (K3)
CO3 - Create java applications using exception handling, thread and generic programming. (K3)
CO4 - Build java distributed applications using Collections and IO streams. (K3)
CO5 - Exemplify simple graphical user interfaces using GUI components and database programs. (K3)

U20EET411- MEASUREMENTS AND INSTRUMENTATION FOR ELECTRICAL ENGINEERING

Course Outcomes
CO1 - Acquire knowledge on the characteristics of measuring instruments and their classification. (K2)
CO2 - Conversant in construction, working of A.C / D.C meters and their proficient use. (K3)
CO3 - Acquire knowledge in various methods of digital meters and its measurement. (K3)
CO4 - Acquire knowledge on construction and working principle of various types of display devices and bridge comparison methods for R, L and C measurement. (K3)
CO5 - Demonstrate the various types of transducers used for physical measurements. (K3)

U20EET412- MICROPROCESSOR AND MICROCONTROLLER

Course Outcomes
CO1 - Illustrate the architecture of microprocessor and to develop skills in writing assembly language program. (K3)
CO2 - Have a clear understanding of microcontroller architecture with functional details of each pin. (K3)
CO3 - Write and debug Assembly and C programs for 8 bit Microcontroller. (K3)
CO4 - Interface input/output peripheral devices and to implement the advanced communication protocol like I2C and SPI using PIC Microcontroller. (K4)
CO5 - Design and develop microcontroller based real-time applications. (K4)

PROFESSIONAL ELECTIVE - I

U20EEE401- ELECTRICAL SAFETY ENGINEERING

Course Outcomes
CO1 - Describe the Indian Electricity (IE) acts and various rules for electrical safety. (K1)
CO2 - Expose safety measures to prevent electrical shock in handling of domestic electrical appliances. (K2)
CO3 - Evaluate the safety aspects during installation of plant and equipment. (K3)
CO4 - Describe the various hazardous area and application of electrical safety in various places. (K1)
CO5 - Acquire knowledge about importance of electrical safety training to improve quality management in electrical systems. (K2)

U20EEE405- ENERGY STORAGE TECHNOLOGY

Course Outcomes
CO1 - Familiarize the need for energy storing. (K2)
CO2 - Analyze the various energy storage techniques in the form of electrical, magnetic and chemical systems. (K3)
CO3 - Analyze the different batteries and its characteristics used for storing the energy in electric vehicles, nano-tubes etc. (K4)
CO4 - Impart the concepts of Superconducting Magnet Energy Storage Systems and super-capacitors in digital cameras, PC cards, electric vehicles, medical applications etc. (K3)
CO5 - Analyze the various energy storage techniques used in Electric vehicles and its hybridization concepts, power grid stabilization, rail-system power models etc. (K4)

OPEN ELECTIVE - I

U20CSO401- WEB DEVELOPMENT

Course Outcomes
CO1 - Develop basic web applications. (K5)
CO2 - Design the web applications using CSS. (K5)
CO3 - Validate the web pages using java scripts functions. (K5)
CO4 - Demonstrate the web 2.0 application to advance scripts. (K3)
CO5 - Update the knowledge of XML Data. (K4)

U20CCO402- INTRODUCTION TO COMMUNICATION SYSTEMS

Course Outcomes
CO1 - Comprehend the basic Characteristics of the signals. (K2)
CO2 - Comprehend needs of modulation and various analog modulation techniques. (K2)
CO3 - Illustrate pulse modulation and multiplexing. (K3)
CO4 - Explain Digital transmission techniques. (K2)

CO5 - Design and generate pulses for real time electrical applications. (K3)

EMPLOYABILITY ENHANCEMENT COURSE

U20EEC4XX- CERTIFICATION COURSE - IV'

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence. Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

U20EES403- SKILL DEVELOPMENT COURSE 3

1. MOBILE PHONE SERVICING
Course Content:
 1. Fundamentals of Mobile Phone Technology
 2. Assembling and disassembling of various models of mobile phones.
 3. Study of various tools and equipment used in mobile phone repairs.
 4. Study of Printed Circuit Board (Motherboard) and various components on PCB
 5. Study and testing of various parts, components and different ICs (chips) used on the motherboard.
 6. Reheating and mounting of various BGA and SMD chips.
 7. Detailed study of various faults arising due to corrupt software.
 8. Introduction of various flasher boxes and software.
 9. Flashing of various brands of handsets.
 10. Procedure to remove virus from infected phones.
 11. Unlocking of handsets through codes and/or software.
 12. Use of various secret codes
 13. Water damaged repair techniques.
 14. Circuit tracing, jumper techniques and solutions.
 15. Use of internet for troubleshooting faults.
 16. Advanced troubleshooting techniques.

2. AUTONOMOUS ROBOTICS

Course Content:
 1. Introduction, features and applications to Robotics
 2. Building the PC Controlled Robot
 3. Programming the PC Controlled Robot and testing it
 4. Building the Line Follower Robot
 5. Programming the Line Follower Robot and testing it
 6. Building the Obstacle Avoiding Robot
 7. Programming the Obstacle Avoiding Robot and testing it
 8. Building the Pit Avoiding Robot
 9. Programming the Pit Avoiding Robot and testing it

10. Building the Light Following Robot
 11. Programming the Light Following Robot and testing it
 12. Troubleshooting of Robotics

3. REPAIR AND MAINTENANCE OF POWER SUPPLY, INVERTER AND UPS

Course Content:
 1. Study on use of appropriate repair tools and Equipments.
 2. Identify, place, solder, de-solder and test different SMD discrete components
 3. Rework on PCB after identifying defects from SMD soldering and de-soldering
 4. Identify different front panel controls and connectors of the given power supply
 5. Open the power supply and identify major sections and power components with heat sinks.
 6. Identify various input and output sockets/ connectors of the given SMPS and measure its outputs using a multimeter.
 7. Identify and replace the faulty components in SMPS used in TVs and PCs
 8. Identify front panel control and indicators of Inverter and also understand the use of back panel sockets and connections.
 9. Testing of battery mode (Battery - Inverter - Load) in interconnected system
 10. Open Top cover and identify various circuit boards in Inverter and also monitor voltages at various test points.
 11. Troubleshooting of inverter
 12. Identify front and back panel control, indicators, sockets and connections of UPS
 13. Identify various circuit boards in UPS and monitor voltages at various test points
 14. Troubleshooting of UPS.

MANDATORY COURSE

U20EEM404- NSS / NCC

1. The above activities will include Practical/field activities/Extension lectures.
 2. The above activities shall be carried out outside class hours.
 3. In the above activities, the student participation shall be for a minimum period of 30 hours.
 4. The above activities will be monitored by the respective faculty in-charge.
 5. Pass /Fail will be determined on the basis of participation, attendance, performance and behavior. If a candidate fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

Academic calendar – III Year / VI Sem

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE



(An Autonomous Institutions)
Madagadipet, Puducherry - 605 107

III year / VI sem

February 2024				March 2024				April 2024				May 2024				June 2024			
Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day
1	Thu			1	Fri		20	1	Mon	CAT - II	43	1	Wed	May Day	Holiday	1	Sat		Holiday
2	Fri			2	Sat		Holiday	2	Tue		44	2	Thu		66	2	Sun		Holiday
3	Sat		Holiday	3	Sun		Holiday	3	Wed		45	3	Fri		67	3	Mon	Last working day	90
4	Sun		Holiday	4	Mon	National Safety Day	21	4	Thu		46	4	Sat	Coal Miners Day / Fr. Freshly's Day	Holiday	4	Tue	Tentative ES Practical	
5	Mon			5	Tue		22	5	Fri		47	5	Sun		Holiday	5	Wed	World Environment Day	
6	Tue			6	Wed		23	6	Sat		Holiday	6	Mon		68	6	Thu		
7	Wed	Commencement of Classes	1	7	Thu		24	7	Sun		Holiday	7	Tue		69	7	Fri		
8	Thu		2	8	Fri	International Women's Day	25	8	Mon		48	8	Wed		70	8	Sat		
9	Fri		3	9	Sat	Submission of CAT I Result Analysis, Attendance and Assessment Record	26	9	Tue		49	9	Thu	Online feedback-3	71	9	Sun		Holiday
10	Sat		4	10	Sun		Holiday	10	Wed		50	10	Fri	Assignment - 3	72	10	Mon		
11	Sun		Holiday	11	Mon		27	11	Thu	Ramzan	Holiday	11	Sat	QCM-35% Col' National Tech Day	73	11	Tue		
12	Mon	National Productivity Day	5	12	Tue		28	12	Sun		Holiday	12	Sun		Holiday	12	Wed		
13	Tue		6	13	Wed		29	13	Sat	Submission of CAT II Result Analysis, Attendance and Assessment Record	52	13	Mon	Model Exam	74	13	Thu		
14	Wed		7	14	Thu		30	14	Sun	Tamil New Year	Holiday	14	Tue		75	14	Fri		
15	Thu		8	15	Fri		31	15	Mon		53	15	Wed		76	15	Sat		Holiday
16	Fri		9	16	Sat		Holiday	16	Tue		54	16	Thu		77	16	Sun		Holiday
17	Sat		Holiday	17	Sun		Holiday	17	Wed		55	17	Fri		78	17	Mon		
18	Sun		Holiday	18	Mon		32	18	Thu		56	18	Sat		Holiday	18	Tue		
19	Mon		10	19	Tue		33	19	Fri		57	19	Sun		Holiday	19	Wed		
20	Tue		11	20	Wed	Career Development Training	34	20	Sat		Holiday	20	Mon		79	20	Thu		
21	Wed	International Mother Language Day	12	21	Thu		35	21	Sun		Holiday	21	Tue		80	21	Fri	International Yoga Day	
22	Thu	World Thinking Day	13	22	Fri		36	22	Mon	World Earth Day	58	22	Wed	Model Practical	81	22	Sat		
23	Fri	Online feedback-1	14	23	Sat		37	23	Tue		59	23	Thu		82	23	Sun		Holiday
24	Sat	Assignment - 1	15	24	Sun		Holiday	24	Wed		60	24	Fri	Submission of Model Result Analysis, Attendance and Assessment Record	83	24	Mon	Tentative ES Theory	
25	Sun		Holiday	25	Mon		38	25	Thu		61	25	Tue		84	25	Tue		
26	Mon	Submission of QCM-1/Syllabus Coverage	16	26	Tue	Online feedback-2	39	26	Fri		62	26	Sun		Holiday	26	Wed		
27	Tue		17	27	Wed	Assignment - 2	40	27	Sat		63	27	Mon		85	27	Thu		
28	Wed	National Science Day	18	28	Thu	QCM-2/Syllabus Coverage	41	28	Sun	World Day for Safety & Health at work	Holiday	28	Tue		86	28	Fri		
29	Thu	CAT I	19	29	Fri	Good Friday	Holiday	29	Mon		64	29	Wed		87	29	Sat		
				30	Sat		42	30	Tue		65	30	Thu		88	30	Sun		Holiday
				31	Sun		Holiday	31	Wed		65	31	Fri		89				
Total number of working days : 19 Total number of holiday : 04				Total number of working days : 23 Total number of holiday : 08				Total number of working days : 23 Total number of holiday : 07				Total number of working days : 24 Total number of holiday : 07				Total number of working days : 01 Total number of holiday : 02			

Ethnotech course to be completed between CAT 2 and Model exam

Use of Cell Phones

It has been decided not to permit cell phones inside the college campus. If any student is found using the cell phone inside the college campus, it would be confiscated and will not be returned back on any circumstances. Hence the students are instructed not to attend the college with the mobile phones.

Dress Code

The students are requested to attend the college neatly dressed. While the male students should attend the college with the shirts neatly tucked in and with the shoes, the female students are permitted to come with churidar and dupatta properly pinned. Students wearing full hand shirts should wear it as such without folding it to half etc. Casual wears like jeans, T-shirts etc., both for boys and girls are strictly prohibited inside the campus. Each department has prescribed uniforms for the labs. The students are requested to strictly adhere to the dress codes as well as the rules and regulations of the college.

Maintenance of Discipline

Discipline is an important factor that shapes one's personality. It is considered as a golden key capable of opening many doors. This institution expects each and every student to follow the rules and regulations in total. Maintaining discipline in the campus will promote a conducive environment for studies.

Working hours

I hour	09.00 a.m to 09.50 a.m
II hour	09.50 a.m to 10.40 a.m
Break	10.40 a.m to 10.55 a.m
III hour	10.55 a.m to 11.45 a.m
IV hour	11.45 a.m to 12.35 p.m
V hour	01.15 p.m to 02.05 p.m
VI hour	02.05 p.m to 02.55 p.m
Break	02.55 p.m to 03.10 p.m
VII hour	03.10 p.m to 04.00 p.m
VIII hour	04.00 p.m to 04.50 p.m
Lunch break	12.35 p.m. to 1.15 p.m.

Marks Distribution of Continuous Assessment Marks (CAM) and End Semester Examination Marks (ESM) Scheme for Continuous Assessment Test (CAT)

S. No	Course Type	Continuous Assessment components							Total			
		Test Marks	Average of pre-report test / post-report test / experiment	Percentage of marks for management report for each experiment	Model Exam / Report	Assignment	Review - 1	Review - 2		Review - 3	Attendance	
1.	Theory	15	-	-	5	-	-	5	-	-	5	25
2.	Practical	-	10	15	15	-	-	-	-	-	10	50
3.	Project Phase-I	-	-	-	-	-	-	-	-	-	20	50
4.	Project Phase-II	-	-	-	-	-	-	10	10	20	-	40

The internal marks will be provided fully based on the continuous assessment tests

Weightage of Assessment for Theory Course

S.No.	Test	Portion for Test	Test Marks	Duration of Test	Weightage for Internal
1	CAT 1	1½ Units	50	1 ½ hours	10
2	CAT 2	1½ Units	50	1 ½ hours	10
3	Model	5 Units	75	3 hours	05
Continuous Assessment for Theory Course					15

Question Paper Pattern

Question paper for CAT and ESE will be based on the pattern shown in Table (a) and (b)

Table (a) Question Paper pattern for CAT/Model Exam

Test Type	2 Marks	5 Marks	10 Marks	Total Marks
CAT 1 / CAT 2	5 (questions) (10 Marks)	4 (questions) (20 Marks)	2 (questions) (20 Marks)	50
Model	End Semester Examination Question Pattern			75

Table (b) Question paper pattern for End semester Examination (ESE)

2 Marks	5 Marks	10 Marks	Total Marks
10 (20 Marks)	5 (25 Marks) (one question from each unit)	3 (30 Marks) (out of 5 questions, one question from each unit)	75

End Semester Examination Question Paper Pattern for Six Units Courses

Course	2 Mark	5 Mark	8 / 9 Mark	Total Marks
Part A	5	2 (out of 3 questions, one from each unit)	one 8 mark question (out of 2 questions from Unit I and Unit II) One 9 mark question (compulsory question from unit III)	37
Part B	5	2 (out of 3 questions, one from each unit)	Two 9 mark questions (out of 3 questions from IV, V & VI)	38

Requirements for Appearing End Semester Examination

A student is expected to maintain 100% attendance in all courses as attendance also carries internal marks. A student will be qualified to appear for end semester examinations of a semester only if he/she satisfies the below mentioned requirements. The student is permitted to appear for End Semester Examinations, only if he/she maintains minimum 75% of attendance. If he/she secured attendance greater than or equal to 60% and less than 75% has to pay the necessary condonation prescribed by the college authority with necessary supporting documents for his/her absence.

Redo Category

A student who secures overall attendance less than 60% has to repeat the course with the approval, when it is next offered. A student secures attendance greater than or equal to 60% and less than 75% will be promoted to next higher semester only if loss of attendance is due to medical reasons/hospitalization/accident/illness) or participation in sports event or any competitions or NCC or NSS activities with prior permission from the Head of Institution through the Head of the department with necessary supporting documents and payment of necessary condonation fee as prescribed by the college authority. However student secures more than 75% of attendance in the current semester will be moved to next higher semester.

Women Empowerment Cell

For the Welfare of the girl students, a Women Cell has been constituted in the college. The girl students may approach the member secretary for assistance. Mail id : wec@smvec.ac.in

Grievance Redressal Committee

There is a Grievance Redressal committee in our college and the details are available in the website. Students can approach the member of the committee to redress their grievances if any. Mail id : grievance@smvec.ac.in

Internal Complaints Committee

The objective of this committee is to avoid sexual harassment of students and women employees in the college by preventing it, recording complaints, and taking appropriate action in response. It also aims to eliminate gender-based discrimination by creating a safe physical and social environment that deters sexual harassment and enforcing the necessary disciplinary actions. For complaints : Mail id : icc@smvec.ac.in

SRI MANAKULA VINAYAGAR

ENGINEERING COLLEGE

(An Autonomous Institution)
(Accredited by NBA-AICTE, New Delhi and
Approved by MAAC with 'A' Grade)
Madagadipet, Puducherry - 605 107



Academic Calendar

February 2024 to June 2024

ELECTRICAL AND ELECTRONICS ENGG.

Programme / Regulation : B.Tech / R-2020

Year / Sem : III year / VI semester

About Autonomous

Sri Manakula Vinayagar Engineering College has been conferred with Autonomous Status by the University Grants Commission on 26th September 2019 and the same was approved with prior permission from the Head of Institution through the Head of the department with necessary supporting documents and payment of necessary condonation fee as prescribed by the college authority. However student secures more than 75% of attendance in the current semester will be moved to next higher semester.

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

MISSION

- M1: Quality Education:** To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.
- M2: Research and Innovation:** To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.
- M3: Employability and Entrepreneurship:** To inculcate the employability and entrepreneurial skills through value and skill based training.
- M4: Ethical Values:** To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.

DEPARTMENT VISION AND MISSION

Vision

To promote proficiency in the field of Electrical and Electronics Engineering by creating a stimulating environment for research, innovation and entrepreneurship

Mission

M1: Quality Education:
To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies.

M2: Industrial and Societal Needs:
To cater the dynamic needs of the industry and society by strengthening industry-institute interaction.

M3: Research and Innovation:
To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.

M4: Placement and Entrepreneurship:
To inculcate the professionalism in career by advancing synergistic skills to compete in the corporate world.

PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge:
Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:
Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

PO4: 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.

PO5: Modern tool usage:
Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society:
Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: 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.

PO8: Ethics:
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and teamwork:
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Professional Knowledge:
To possess strong educational foundation in Electrical and Electronics Engineering to attain successful career with professional responsibility.

PEO2: Innovative Skills:
To enrich the skills to design and develop innovative solutions for engineering problems in a multidisciplinary environment.

PEO3: Ethics:
To actively embrace leadership qualities for achieving professional goals with ethical values

PEO4: Adaptability:
To enhance intellectual competency along with technical skills by adapting to the current trends through eternal learning.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Core Proficiency:
Utilize the engineering core knowledge to identify, formulate, design, and investigate the complex engineering

problems of Power Electronics, Electrical Machines and Power Systems.

PSO2: Cutting Edge Technologies:
Explore the new cutting-edge technologies in the field of Electric Vehicle, Automation, Artificial Intelligence, Robotics and Renewable Energy to compete in global market

PSO3: Design and Evolution:
Capability to comprehend the technological advancements with the usage of modern design tools for analysing and designing systems to confront the rapid pace of industrial innovations.

III Year / VI Sem Curriculum under R- 2020

Regulations				
SEMESTER – VI				
Sl. No	Course Code	Course Title	Category	Credits
Theory				
1	U20EET616	Embedded system	PC	3
2	U20EECM01	Renewable Energy sources	CM	3
3	U20EET618	Power System Analysis	PC	3
4	U20EET619	Electrical Machine Design	PC	3
5	U20EEE6X X	Professional Elective- III	PE	3
6	U20XXO6X X	Open Elective- III	OE	3
Practical				
7	U20EEP612	Embedded System Lab	PC	1
8	U20EEP613	Renewable Energy Lab	PC	1
9	U20EEP614	Power System Analysis Lab	PC	1
Employability Enhancement Course				
10	U20EE6CX X	Certification Course – VI **	EEC	-
11	U20EES606	Skill Development Course 6: Foreign Language/ IELTS- II	EEC	-
12	U20EES607	Skill Development Course 7: Technical Seminar	EEC	-
13	U20EES608	Skill Development Course 8: NPTEL/ MOOC- I	EEC	-
Mandatory Course				
14	U20EEM606	Essence of Indian Traditional Knowledge	MC	-
Total Credits				21

U20EET616- EMBEDDED SYSTEM

Course Outcomes
CO1 - Explain the basic building process of embedded system. (K2)
CO2 - Analyze any type of Microcontroller Architecture in detail. (K4)
CO3 - Apply the instruction sets to program ARM processor using Embedded C in KEIL software/ Micro C. (K3)
CO4 - Provides the experience to integrate hardware and software for any microprocessor / microcontroller for product designing such as smart-phones, microcomputers etc. (K4)
CO5 - Impart the concepts of RTOS in accessing shared resources for optimized CPU performance, timing-based operations, video streaming and audio streaming etc. (K3)

U20EECM01-RENEWABLE ENERGY SOURCES

Course Outcomes
CO1 - Analyze the national and international energy scenario of renewable energy Sources. (K2)
CO2 - Design the aerodynamics of wind turbines and calculate their energy production. (K3)
CO3 - Analyze electrical power generation from biomass, geothermal, tidal, wave etc. (K2)
CO4 - Analyze technical and sustainability issues involved in the integration of renewable energy systems. (K2)
CO5 - Compare the cost economics of using renewable energy sources with non-renewable energy sources. (K2)

U20EET618-POWER SYSTEM ANALYSIS

Course Outcomes
CO1 - Compute the reactance diagram and network matrices. (K4)
CO2 - Apply the iterative techniques to solve the power flow analysis used in power system planning. (K3)
CO3 - Analyze the Sequence networks using positive, negative and zero sequence network. (K4)
CO4 - Carry out short circuit studies to design the circuit breaker ratings in power system. (K4)
CO5 - Analyze stability problems in power system during pre-fault and post-fault conditions. (K4)

U20EET618- ELECTRICAL MACHINE DESIGN

Course Outcomes
CO1 - Design the machines with proper thermal rating and insulation requirements. (K3)
CO2 - Analyze and evaluate the various design parameters of a DC machine for variable speed motor applications in industry. (K4)
CO3 - Analyze the various parameters of transformer and to design distribution and power transformers for real time applications. (K4)
CO4 - Analyze and formulate the suitable design for three phase induction motor. (K4)

CO5 - Apply the design concepts of Synchronous machines and BLDC motors. (K3)

PROFESSIONAL ELECTIVE-III

U20EECM02-ROBOTICS AND AUTOMATION
Course Outcomes
CO1 - Describe the components required for robotics (K2)
CO2 - Demonstrate control mechanism required for Robotics (K3)
CO3 - Explain path planning of Robotics (K2)
CO4 - Demonstrate forward and inverse kinematics (K3)
CO5 - Demonstrate application of Robots in industrial and other application (K3)

OPEN ELECTIVE-III

U20ITO604-MOBILE APP DEVELOPMENT
Course Outcomes
CO1 - Explain the basics of mobile telecommunication system (K2)
CO2 - Articulate the required functionality at each layer for given application (K2)
CO3 - Identify solution for all functionality at each layer. (K2)
CO4 - Use simulator tools and design Ad hoc networks (K3)
CO5 - Develop a mobile application (K3)

U20EEP612- EMBEDDED SYSTEM LAB

Course Outcomes
CO1 - Explain the working of ARM Processor, FPGA and raspberry pi. (K3)
CO2 - Interface ARM7 Processor, FPGA and raspberry pi Microcontrollers with external Peripheral devices. (K4)
CO3 - Handle interrupts for real time control applications using ARM Processor. (K4)
CO4 - Generate PWM signals for motor control applications. (K4)
CO5 - Design and develop interface between controller and device. (K4)

U20EEP613-RENEWABLE ENERGY LAB

Course Outcomes
CO1 - Familiarize with the parameters that affect the performance of renewable energy systems. (K2)
CO2 - Analyze the variety of issues in harnessing Renewable Energy. (K2)
CO3 - Simulate and predict the performance of various energy utilities. (K3)
CO4 - Model and simulate the various generators used in renewable energy conversion. (K3)
CO5 - Design the Intelligent Controllers for the various renewable energy conversion systems. (K3)

U20EEP614- POWER SYSTEM ANALYSIS LAB

Course Outcomes
CO1 - Calculate the reactance values of power system components

CO2 - Formulate Bus Admittance and Impedance matrices, used in power flow analysis.
CO3 - Analyze the voltage and power flow condition of power system using Gauss Seidel and Newton Raphson methods.
CO4 - Analyze Symmetrical and Unsymmetrical faults in power system used to design relays and circuit breakers.
CO5 - Develop the load and load duration curves for calculating average load, unit generated load factor, etc.

EMPLOYABILITY ENHANCEMENT COURSE

U20EE6CX-CERTIFICATION COURSE – VI
 Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence. Pass / Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

U20EES606- SKILL DEVELOPMENT COURSE 6
 Student should choose the Foreign Language/IELTS course like Japanese/French/ Germany/IELTS, etc. approved by the Department committee comprising of HoD, Programme Academic Coordinator, Class advisor and language Experts. The courses are to be approved by Academic Council on the recommendation of HoD at the beginning of the semester if necessary, subject to ratification in the next Academic council meeting. Students have to complete the courses successfully. The Committee will monitor the progress of the student and recommend the grade (100% Continuous Assessment pattern) based on the completion of course. The marks attained for this course is not considered for CGPA calculation.

U20EES607- SKILL DEVELOPMENT COURSE 7
Course Outcomes
CO1 - Review, prepare and present technological developments.
CO2 - Face the placement interviews.

U20EES608-SKILL DEVELOPMENT COURSE 8
 Student should register online courses like MOOC / SWAYAM / NPTEL etc. approved by the Department committee comprising of HoD, Programme Academic Coordinator, Class advisor and Subject Experts. Students have to complete the relevant online courses successfully. The list of online courses is to be approved by Academic Council on the recommendation of HoD at the beginning of the semester if necessary, subject to ratification in the next

Academic council meeting. The Committee will monitor the progress of the student and recommend the grade (100% Continuous Assessment pattern) based on the completion of course / marks secured in online examinations. The marks attained for this course is not considered for CGPA calculation.

MANDATORY COURSE

U20EEM606- ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE
Course Outcomes
CO1 - Familiarize with the philosophy of Indian culture. (K1)
CO2 - Distinguish the Indian languages and literature. (K2)
CO3 - Learn the philosophy of ancient, medieval and modern India. (K1)
CO4 - Acquire the information about the fine arts in India. (K1)
CO5 - Know the contribution of scientists of different eras. (K1)

Academic calendar – IV Year / VIII Sem



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institutions)
Madagadipet, Puducherry - 605 107

IV year / VIII sem

February 2024				March 2024				April 2024				May 2024				June 2024			
Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day
1	Thu			1	Fri		20	1	Mon	Model Exam	43	1	Wed	May Day	Holiday	1	Sat		Holiday
2	Fri			2	Sat		Holiday	2	Tue		44	2	Thu	Tentative ES Practical	66	2	Sun		Holiday
3	Sat		Holiday	3	Sun		Holiday	3	Wed		45	3	Fri		67	3	Mon		
4	Sun		Holiday	4	Mon	National Safety Day	21	4	Thu		46	4	Sat	Coal Miners Day/Int. Firefighter's Day	Holiday	4	Tue		
5	Mon			5	Tue	Phase II Review 1	22	5	Fri		47	5	Sun		Holiday	5	Wed	World Environment Day	
6	Tue			6	Wed	Online feedback-2	23	6	Sat		Holiday	6	Mon		68	6	Thu		
7	Wed	Commencement of Classes	1	7	Thu	Assignment - 2	24	7	Sun		Holiday	7	Tue		69	7	Fri		
8	Thu		2	8	Fri	QCM-25yl Conf Int. Women's Day	25	8	Mon		48	8	Wed		70	8	Sat		
9	Fri		3	9	Sat	Submission of CAT I Result Analysis, Attendance and Assessment Record	26	9	Tue		49	9	Thu		71	9	Sun		Holiday
10	Sat		4	10	Sun		Holiday	10	Wed		50	10	Fri		72	10	Mon		
11	Sun		Holiday	11	Mon		27	11	Thu	Ramzan	Holiday	11	Sat	National Technology Day	73	11	Tue		
12	Mon	National Productivity Day	5	12	Tue		28	12	Sat	Submission of Model Result Analysis, Attendance and Assessment Record	52	12	Sun		Holiday	12	Wed		
13	Tue		6	13	Wed	CAT - II	29	13	Thu		53	13	Mon		74	13	Thu		
14	Wed		7	14	Thu		30	14	Sun	Tamil New Year	Holiday	14	Tue		75	14	Fri		
15	Thu		8	15	Fri		31	15	Mon		53	15	Wed		76	15	Sat		Holiday
16	Fri		9	16	Sat		Holiday	16	Tue		54	16	Thu		77	16	Sun		Holiday
17	Sat		Holiday	17	Sun		Holiday	17	Wed		55	17	Fri	Last working day	78	17	Mon		
18	Sun		Holiday	18	Mon		32	18	Thu	Phase II Review 3	56	18	Sat		Holiday	18	Tue		
19	Mon			19	Tue		33	19	Fri		57	19	Sun		Holiday	19	Wed		
20	Tue			20	Wed		34	20	Sat		Holiday	20	Mon	Tentative ES Theory Exam		20	Thu		
21	Wed	International Mother Language Day	12	21	Thu		35	21	Sun		Holiday	21	Tue			21	Fri	International Yoga Day	
22	Thu	World Thinking Day	13	22	Fri	Phase II Review 2	36	22	Mon	World Earth Day	58	22	Wed			22	Sat		
23	Fri	Online feedback-1	14	23	Sat	Sub of CAT II Result Analysis Attend and Asses. Rec	37	23	Tue		59	23	Thu			23	Sun		Holiday
24	Sat	Assignment - 1	15	24	Sun		Holiday	24	Wed	Model practical	60	24	Fri			24	Mon		
25	Sun		Holiday	25	Mon	Online feedback-3	38	25	Thu		61	25	Sat		Holiday	25	Tue		
26	Mon	Submission of QCM-1/Syllabus Coverage	16	26	Tue	Assignment - 3	39	26	Fri		62	26	Thu			26	Wed		
27	Tue		17	27	Wed	QCM-3/Syllabus Coverage	40	27	Sat		63	27	Mon			27	Thu		
28	Wed	CAT I National Science Day	18	28	Thu		41	28	Sun	World Day for Safety & Health at work	Holiday	28	Tue			28	Fri		
29	Thu		19	29	Fri	Good Friday	Holiday	29	Mon		64	29	Wed			29	Sat		
				30	Sat		42	30	Tue		65	30	Thu			30	Sun		Holiday
				31	Sun		Holiday	31	Wed										
Total number of working days : 19 Total number of holiday : 04				Total number of working days : 23 Total number of holiday : 08				Total number of working days : 23 Total number of holiday : 07				Total number of working days : 13 Total number of holiday : 04				Total number of working days : Total number of holiday :			

Ethnotech course to be completed before CAT I

Use of Cell Phones

It has been decided not to permit cell phones inside the college campus. If any student is found using the cell phone inside the college campus, it would be confiscated and will not be returned back on any circumstances. Hence the students are instructed not to attend the college with the mobile phones.

Dress Code

The students are requested to attend the college neatly dressed. While the male students should attend the college with the shirts neatly tucked in and with the shoes, the female students are permitted to come with churidar and dupatta properly pinned. Students wearing full hand shirts should wear it as such without folding it to half etc. Casual wears like jeans, T-shirts etc., both for boys and girls are strictly prohibited inside the campus. Each department has prescribed uniforms for the labs. The students are requested to strictly adhere to the dress codes as well as the rules and regulations of the college.

Maintenance of Discipline

Discipline is an important factor that shapes one's personality. It is considered as a golden key capable of opening many doors. This institution expects each and every student to follow the rules and regulations in total. Maintaining discipline in the campus will promote a conducive environment for studies.

Working hours

I hour	09.00 a.m to 09.50 a.m
II hour	09.50 a.m to 10.40 a.m
Break	10.40 a.m to 10.55 a.m
III hour	10.55 a.m to 11.45 a.m
IV hour	11.45 a.m to 12.35 p.m
V hour	01.15 p.m to 02.05 p.m
VI hour	02.05 p.m to 02.55 p.m
Break	02.55 p.m to 03.10 p.m
VII hour	03.10 p.m to 04.00 p.m
VIII hour	04.00 p.m to 04.50 p.m
Lunch break	12.35 p.m. to 1.15 p.m.

Marks Distribution of Continuous Assessment Marks (CAM) and End Semester Examination Marks (ESM) Scheme for Continuous Assessment Test (CAT)

S. No	Course Type	Continuous Assessment Components							Total	
		Test Marks	Average of Average of preciproc test/ viva for each experiment	Average of marks for experiment report for each experiment	Model Exam / Report	Assignment	Review - 1	Review - 2		Review - 3
1.	Theory	15	-	-	-	5	-	-	5	25
2.	Practical	-	10	15	15	-	-	-	10	50
3.	Project Phase-I	-	-	-	-	15	15	20	-	50
4.	Project Phase-II	-	-	-	-	10	10	20	-	40

The internal marks will be provided fully based on the continuous assessment tests Weightage of Assessment for Theory Course

S.No.	Test	Portion for Test	Test Marks	Duration of Test	Weightage for Internal
1	CAT 1	1½ Units	50	1 ½ hours	10
2	CAT 2	1½ Units	50	1 ½ hours	
3	Model	5 Units	75	3 hours	
Continuous Assessment for Theory Course					15

Question Paper Pattern

Question paper for CAT and ESE will be based on the pattern shown in Table (a) and (b)
Table (a) Question Paper pattern for CAT/Model Exam

Test Type	2 Marks	5 Marks	10 Marks	Total Marks
CAT 1 / CAT 2	5 (questions) (10 Marks)	4 (questions) (20 Marks)	2 (questions) (20 Marks)	50
Model	End Semester Examination Question Paper			75

Table (b) Question paper pattern for End semester Examination (ESE)

2 Marks	5 Marks	10 Marks	Total Marks
10(20 Marks)	5 (25 Marks) (one question from each unit)	3 (30 Marks) (out of 5 questions, one question from each unit)	75

End Semester Examination Question Paper Pattern for Six Units Courses

Course	2 Mark	5 Mark	8 / 9 Mark	Total Marks
Part A	5	2 (out of 3 questions, one from each unit)	one 8 mark question (out of 2 questions from Unit I and Unit II) One 9 mark question (compulsory question from unit III)	37
Part B	5	2 (out of 3 questions, one from each unit)	Two 9 mark questions (out of 3 questions from IV, V & VI)	38

Requirements for Appearing End Semester Examination

A student is expected to maintain 100% attendance in all courses as attendance also carries internal marks. A student will be qualified to appear for end semester examinations of a semester only if he/she satisfies the below mentioned requirements.
The student is permitted to appear for End Semester Examinations, only if he/she maintains minimum 75% of attendance. If he/she secured attendance greater than or equal to 60 % and less than 75% has to pay the necessary condonation prescribed by the college authority with necessary supporting documents for his/her absence.

Redo Category

A student who secures overall attendance less than 60% has to repeat the course with the approval, when it is next offered. A student secures attendance greater than or equal to 60% and less than 75% will be promoted to next higher semester only if loss of attendance is due to medical reasons(hospitalization/ accident/illness) or participation in sports event or any competitions or NCC or NSS activities with prior permission from the Head of Institution through the Head of the department with necessary supporting documents and payment of necessary condonation fee as prescribed by the college authority. However student secures more than 75% of attendance in the current semester will be moved to next higher semester.

Women Empowerment Cell

For the Welfare of the girl students, a Women Cell has been constituted in the college. The girl students may approach the member secretary for assistance.
Mail id : wec@smvec.ac.in

Grievance Redressal Committee

There is a Grievance Redressal committee in our college and the details are available in the website. Students can approach the member of the committee to redress their grievances if any. Mail id : grievance@smvec.ac.in

Internal Complaints Committee

The objective of this committee is to avoid sexual harassment of students and women employees in the college by preventing it, recording complaints, and taking appropriate action in response. It also aims to eliminate gender-based discrimination by creating a safe physical and social environment that deters sexual harassment and enforcing the necessary disciplinary actions. For complaints
Mail id : icc@smvec.ac.in

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
Madagadipet, Puducherry - 605 107



Academic Calendar

February 2024 to June 2024

ELECTRICAL AND ELECTRONICS ENGG.

Programme / Regulation : B.Tech / R-2020

Year / Sem : IVth year / VIIIth semester

About Autonomous

Sri Manakula Vinayagar Engineering College has been conferred with Autonomous Status by the University Grants Commission on 26th September 2019 and the same was approved by Pondicherry University on 19th June 2020. SMVEC Autonomous Regulations R-2020 is followed for the students admitted from the Academic Year 2020-2021.

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

MISSION

- M1: Quality Education:** To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.
- M2: Research and Innovation:** To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.
- M3: Employability and Entrepreneurship:** To inculcate the employability and entrepreneurial skills through value and skill based training.
- M4: Ethical Values:** To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.

DEPARTMENT VISION AND MISSION

Vision

To promote proficiency in the field of Electrical and Electronics Engineering by creating a stimulating environment for research, innovation and entrepreneurship

Mission

M1: Quality Education:
To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies.

M2: Industrial and Societal Needs:
To cater the dynamic needs of the industry and society by strengthening industry-institute interaction.

M3: Research and Innovation:
To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.

M4: Placement and Entrepreneurship:
To inculcate the professionalism in career by advancing synergistic skills to compete in the corporate world.

PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge:
Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:
Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

PO4: 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.

PO5: Modern tool usage:
Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society:
Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: 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.

PO8: Ethics:
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practices.

PO9: Individual and teamwork:
Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Professional Knowledge:
To possess strong educational foundation in Electrical and Electronics Engineering to attain successful career with professional responsibility.

PEO2: Innovative Skills:
To enrich the skills to design and develop innovative solutions for engineering problems in a multidisciplinary environment.

PEO3: Ethics:

To actively embrace leadership qualities for achieving professional goals with ethical values

PEO4: Adaptability:
To enhance intellectual competency along with technical skills by adapting to the current trends through eternal learning.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Core Proficiency:
Utilize the engineering core knowledge to identify, formulate, design, and investigate the complex engineering problems of Power Electronics, Electrical Machines and Power Systems.

PSO2: Cutting Edge Technologies:
Explore the new cutting-edge technologies in the field of Electric Vehicle, Automation, Artificial Intelligence, Robotics and Renewable Energy to compete in global market.

PSO3: Design and Evolution:
Capability to comprehend the technological advancements with the usage of modern design tools for analysing and designing systems to confront the rapid pace of industrial innovations.

IV Year / VIII Sem Curriculum under R- 2020 Regulations

SEMESTER – VIII				
Sl. No	Course Code	Course Title	Category	Credits
Theory				
1	U20EET822	Protection and Switchgear	PC	3
2	U20EEES83X	Professional Elective - I'	PE	3
3	U20EEES83X	Professional Elective - II'	PE	3
Practical				
4	U20HSP804	Entrepreneurship Management	HS	1
5	U20EEP818	Comprehensive Viva	PC	1
Project Work				
6	U20EEW803	Project Phase -II	PW	8
Employability Enhancement Course				
7	U20EES809	Skill Development Course 9: NPTEL/ MOOC- II	EEC	-
Total Credits				19

U20EET822 - PROTECTION AND SWITCHGEAR

Course Outcomes

- CO1** - Identify the equipment's for protection scheme on Power Systems. (K2)
- CO2** - Analyze the different applications of the relays in power system. (K2)
- CO3** - Interpret the protection of transformer, Bus bar and transmission line. (K3)
- CO4** - Comprehend the various circuit breakers (AC and DC) used in power system. (K2)
- CO5** - Analyze the protection against over voltages and working of lightning arrester. (K2)

**PROFESSIONAL ELECTIVE – V & VI
U20EEES23-SMPS AND UPS**

Course Outcomes

- CO1** - Design the DC-DC converters for different applications. (K2)
- CO2** - Analyze, design and select the converters used for switched mode power supplies in Computers, Laptop, and TV. (K4)
- CO3** - Describe the importance of resonant Converters in reducing power loss and improving the lifetime of the power semiconductor device. (K2)
- CO4** - Conclude the different voltage and harmonics reduction techniques used for DC-AC converters. (K4)
- CO5** - Interpret knowledge on the techniques used to improve the power quality and design of filters for UPS. (K2)

U20EEE825 - FUNDAMENTALS OF SOLAR PHOTOVOLTAIC SYSTEM AND APPLICATIONS

Course Outcomes

- CO1** - Describe the basic concepts of solar cells and its properties. (K2)
- CO2** - Discuss about the selection of interfacing components in solar grid connected systems. (K2)
- CO3** - Review about the various DC/AC equipment's used for stand-alone PV applications through requirements and design calculations. (K2)
- CO4** - Analyze the applications of hybrid systems and define the structure of micro grid system. (K3)
- CO5** - Compute cost analysis of solar PV systems. (K3)

U20EEE826- SMART GRID

Course Outcomes

- CO1** - Compare the conventional electrical grid concepts with smart grid. (K1)
- CO2** - Outline about the protocols and networks used in Smart grid. (K2)
- CO3** - Explain the importance of WAM and energy storage technologies used in smart grid. (K2)

CO4 - Acquire knowledge on distributed generation and micro grids in smart grid. (K3)

CO5 - Analyze the power quality issues in smart grid. (K3).

U20EEE827- EHV-AC AND DC TRANSMISSION

Course Outcomes

- CO1** - Identify the transmission (HV/AC and HVDC) and distribution voltage levels. (K2)
- CO2** - Compute the transmission line parameters. (K3)
- CO3** - Analyze and locate required HVDC transmission in power system. (K3)
- CO4** - Analyze the performance characteristics of FACTS devices and select suitable FACTS devices for various applications. (K3)
- CO5** - Compute electrostatic and magnetic fields of EHV lines. (K3)

U20HSP804 - ENTREPRENEURSHIP MANAGEMENT

Course Outcomes

- CO1** - Develop and demonstrate the business models. (K2)
- CO2** - Practice cash management, brand building and enhancing turnover. (K6)
- CO3** - Understand various schemes and subsidies that are offered by various Government agencies. (K2)
- CO4** - Effectively tackle growth challenges of their venture. (K5)
- CO5** - Manage and grow their business in terms of expansion and look for partnerships. (K3)

U20EEP818 - COMPREHENSIVE VIVA

Students will prepare for objective type questions in all core courses during the semester. The viva/exercise shall normally cover the core courses taught in all the semesters of B. Tech Programme. The internal marks for the students are awarded based on the average of all the components conducted for the entire semester. The students are required to take-up an end semester examination and to obtain a minimum mark for grading the required credit. This end semester examination will be conducted to evaluate the critical thinking of the students and at the standard of national level competitive examinations.

U20EEW803- PROJECT PHASE - II

Course Outcomes

- CO1** - Identify the problem statement for the project work through the literature survey. (K3)
- CO2** - Choose the proper components as per the requirements of the design/system. (K2)
- CO3** - Apply the acquainted skills to develop final model/system. (K2)
- CO4** - Estimate, plan and execute the project as a team. (K3)

CO5 - Defend the finding and conclude with oral/written reports. (K2)

U20EES809- SKILL DEVELOPMENT COURSE 9

Student should register online courses like MOOC / SWAYAM / NPTEL etc. approved by the Department committee comprising of HoD, Programme Academic Coordinator, Class advisor and Subject Experts. Students have to complete the relevant online courses successfully. The list of online courses is to be approved by Academic Council on the recommendation of HoD at the beginning of the semester if necessary, subject to ratification in the next Academic council meeting. The Committee will monitor the progress of the student and recommend the grade (100% Continuous Assessment pattern) based on the completion of course / marks secured in online examinations. The marks attained for this course is not considered for CGPA calculation.

Annexure – IX

NPTEL Courses Details



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

LIST OF FACULTY ENROLLED FOR NPTEL COURSE FOR ACADEMIC YEAR
2023-2024 EVEN SEM

12 weeks	8 Weeks	Total enrollment
20	2	22

S.No	Name	Designation	Name of the course enrolled	Duration of the Course
1.	Dr.P.Jamuna	Professor	EV – Vehicle Dynamics and Electric Motor Drives	08 Weeks
			Intellectual Property	12 Weeks
2.	Dr.D.Raja	Professor	Introduction to Intellectual Property	12 Weeks
3.	Dr.G.GaneshKumaran	Associate Professor		
4.	Dr.D.Sivaraj	Assistant Professor		
5.	Mr.S.John Powl	Assistant Professor		
6.	Mr.B.Parthiban	Assistant Professor	Introduction to Intellectual Property	12 Weeks
			EV – Vehicle Dynamics and Electric Motor Drives	08 Weeks
7.	Mr.A.Janagiraman	Assistant Professor	Introduction to Intellectual Property	12 Weeks
8.	Mr.K.Thangaraj	Assistant Professor		
9.	Mr.J.Muruganandam	Assistant Professor		
10.	Mr.C.Adrien Perianayagam	Assistant Professor		
11.	Mr.R.Ragupathy	Assistant Professor		
12.	Mr.I.Shivashankar	Assistant Professor		
13.	Ms. T.Abinaya saraswathy	Assistant Professor		
14.	Mr. G.Rajavel	Assistant Professor		
15.	Mr.R.Vignesh	Assistant Professor		
16.	Mr.S. Ellanthamizh	Assistant Professor		
17.	Mrs.D. Meena	Assistant Professor		
18.	Mr.Gnanel	Assistant Professor	Intellectual Property	12 Weeks
19.	Mr.Rajesh kumar	Assistant Professor	Introduction to Intellectual Property	
20.	Mrs.Amathullah	Assistant Professor	Intellectual Property	


Coordinator


HOD



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

*List of students enrolled for NPTEL exam for academic year
2023-2024 EVEN SEM*

12 weeks	8 weeks	4 weeks
01	56	02

Final year	Third year
39	20

S.No	Name of the Student	Year/Sec	Name of the course enrolled	Duration of the Course
1	KIRUBHANIDHI T	IV Year/ A Sec	A brief introduction of Micro - Sensors	4 Weeks
2	VENKATESHWARAN R	III Year/ A sec	Advanced Textile Printing Technology	8 Weeks
3	KAVIYA S	III Year/ A sec	Air pollution and Control	8 Weeks
4	ARCHANA	III Year/ A sec	Block chain and its Applications	8 Weeks
5	GOPINATH K	IV Year/B Sec	Cloud computing and distributed systems	8 Weeks
6	YOGARAJAN R	III Year/ A sec	Computer Networks And Internet Protocol	8 Weeks
7	NIJANTHAN S	III Year/ A sec	Electrical Machines - II	8 Weeks
8	SATHISH FRANCIS XAVIER R	III Year/ A sec	Environmental Remediation of Contaminated Sites	8 Weeks
9	KRISHNA KUMAR.R	IV Year/ A Sec	EV - Vehicle Dynamics and Electric Motor Drives	8 Weeks
10	MARAN VIKAS	IV Year/ A Sec		
11	RAGHUL.S	IV Year/B Sec		
12	SIVAGURU S	IV Year/ A Sec		
13	POOBATHI P	IV Year/B Sec	Forests and their Management	12 Weeks
14	NIJANTHAN S	III Year/ A sec	Fundamentals Of Electronic Materials And Devices	8 Weeks
15	P SREE VARDNI	III Year/ A sec	IC Engines And Gas Turbines	8 Weeks
16	ANBARASAN N	IV Year/ A Sec	Introduction to programming in C	8 Weeks
17	SRIMANIKANDAN S	IV Year/ A Sec		
18	VAITHEESWARAN N	IV Year/B Sec		
19	GURUDEVAN L	III Year/ A sec	Introduction to Psychology	8 Weeks
20	KEERTHIRAJ V	III Year/ A sec		
21	RAGHUL R	III Year/ A sec		
22	KASTHURI C	III Year/ A sec	Non-conventional energy Resources	8 Weeks
23	THILAK BASKARAN	III Year/ A sec		
24	GODESHWARAN K	IV Year/B Sec	Plastic waste management	8 Weeks
25	HARIHARAN G	IV Year/B Sec		
26	AKASH SV	IV Year/B Sec		
27	KOUSHIK S	IV Year/ A Sec		
28	SANJAI R	IV Year/B Sec		
29	SASIDHARAN R	IV Year/ A Sec		
30	SRINEVAN V	IV Year/ A Sec		
31	ABDULLAH E K	IV Year/B Sec		
32	V.ARTHI	IV Year/B Sec		
33	BADHMA PRIYA M	IV Year/B Sec		
34	DANUSH BALAJI S	IV Year/B Sec		
35	DHINAKARAN.N.D	IV Year/B Sec		
36	KALPANA DEVI M	IV Year/B Sec		

37	LATCHIAVASAN.M	IV Year/ A Sec		
38	NARESH.S	IV Year/ A Sec		
39	NAVANITHIYAN K	IV Year/ A Sec		
40	PAVITHRAN S	IV Year/B Sec		
41	PREMKUMAR T	IV Year/B Sec		
42	SIVABALAN G	IV Year/ A Sec		
43	VIJAYA BOOPATHY.S	IV Year/ A Sec		
44	KEERTHIRAJ V	III Year/ A sec		
45	A PRIYADHARSHINI	III Year/ A sec		
46	TOM TIJO EDATTUKARAN	III Year/ A sec	Product Design and Manufacturing	8 Weeks
47	VIGHNESHWAR V	IV Year/B Sec	Python for Data Science	4 Weeks
48	KIRUBAGARAN P	IV Year/B Sec		
49	BHUVANESH M	IV Year/B Sec		
50	DEVAPRIYA. D	IV Year/B Sec		
51	KABILAN S	IV Year/B Sec		
52	KIRANKUMAR S	IV Year/B Sec		
53	KOKILAVANI S	IV Year/B Sec		
54	SURENDHAR V	IV Year/B Sec		
55	TAMILVANAN A	IV Year/B Sec		
56	ARUN PRASATH S	III Year/ A sec		
57	A PRIYADHARSHINI	III Year/ A sec		
58	TOM TIJO EDATTUKARAN	III Year/ A sec	Waste to Energy Conversion	8 Weeks
59	SATHISH FRANCIS XAVIER R	III Year/ A sec	Water and waste water treatment	8 Weeks


Coordinator


HOD

Annexure – X

Professional and Open Elective Courses Details II Year / IV Semester / R-2020



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
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Accredited by NAAC with 'A' Grade)
Madagadipat, Puducherry - 605 107



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE COURSE

EVEN SEMESTER – FEB 2024 TO APRIL 2024


Batch: 2022 - 2026


Year/Sem/Sec: II / IV / A & B

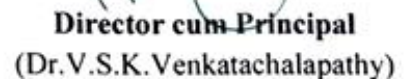
S. No.	Name of the Professional Elective Course	Course Code	No. of Students Opted
1	Electrical Safety Engineering	U20EEE401	56
2	Energy Storage Technology	U20EEE405	52
Total No. of students			108


Class Advisors

(Mr. A. Janagiraman)
(Dr. D. Sivaraj)


HOD
30/1/24
(P. Jamuna)


Dean Academics
(Dr. S. Anbumalar)


Director cum Principal
(Dr. V. S. K. Venkatachalapathy)



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Madagadipat, Puducherry - 605 107



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE COURSE



Batch: 2022 - 2026

Year/Sem/Sec: II / IV / A&B


Name of the Professional Elective: ELECTRICAL SAFETY ENGINEERING
Course Code: U20EEE401

S.NO	Enroll Number	Register Number	Name	Sec
1	220556	22UEE001	ABHINAYAA. M	A
2	221212	22UEE003	AKASH KUMAR. N	B
3	220650	22UEE004	AKASH. N	B
4	220546	22UEE010	ASHWIN KUMAR. S	A
5	220839	22UEE011	ASWINKUMAR. A	A
6	220618	22UEE012	ASWITHA. R	A
7	222096	22UEE016	CHANDRU. A	B
8	220897	22UEE018	DHINISH. N	B
9	220873	22UEE023	GOPIKA. J	B
10	220523	22UEE026	HARINEE. P	A
11	220630	22UEE027	HARINI. L	B
12	221455	22UEE029	HERWIN. W	A
13	220832	22UEE030	ISHWARYA LAKSHMI. S	A
14	220752	22UEE031	IYYAPPAN. R	B
15	220641	22UEE032	JAYALAKSHMI. L	B
16	222010	22UEE033	JEEVITHAA. D	A
17	220879	22UEE034	JENI. K	A
18	220369	22UEE035	KARMUKILAN. A	B
19	220901	22UEE036	KARTHIKRAJA. S	B
20	221414	22UEE037	KAVIMANJARI. L	A
21	220576	22UEE041	LATHIKAA. V	A
22	222136	22UEE043	MADHAN. A	B
23	221002	22UEE045	MADHAV. V	B
24	220820	22UEE046	MAHESH. R	B
25	220620	22UEE047	MATHAN. M	A
26	221677	22UEE049	MOHAMED ABDUL KALAM. K	B
27	220558	22UEE054	NATHESH. NB	B
28	220680	22UEE055	NAVEENKUMAR. D	A
29	220921	22UEE056	NIVETHITHA. B	A
30	220795	22UEE057	PAMPANA KARUNA PRABHAS	B
31	221070	22UEE060	POOJA. R	B
32	220681	22UEE061	POOJITHA. A	A
33	220440	22UEE062	PRASANAA. K	A
34	220526	22UEE064	PUGAZH SELVAN. P	A
35	221048	22UEE066	RAGUL. A	A

36	220923	22UEE070	RAMESH KUMAR. P	B
37	220456	22UEE072	RAMYA. S	B
38	222084	22UEE073	RANDHIGA. L	B
39	220793	22UEE076	SAILESHWAR. T	B
40	220936	22UEE078	SANCHI VENKATESH	A
41	221217	22UEE079	SANJAY. U	B
42	221643	22UEE084	SRILOGESHWARAN. S	A
43	220928	22UEE086	THARANI. S	A
44	220723	22UEE087	THARANITHARAN. M	B
45	220528	22UEE088	THILIPAN SIVA HARI. S	B
46	222064	22UEE089	THIRISHA. N	A
47	220627	22UEE092	UNILKUMAR. D	A
48	220545	22UEE095	VIDHYADHARSHINI. S	A
49	220724	22UEE096	VIDHYASRI. S	A
50	221005	22UEE097	VIGNESH. V	A
51	220789	22UEE098	VIJAY. A	B
52	220792	22UEE100	VISHVA. S	B
53	220979	22UEE101	YUGNADIRAN. R	A
54	220621	22UEE102	YUGANIGAN. J	B
55	231378	22EEL003	GIRIDHARAN. R	B
56	230329	22EEL004	JAYA KUMAR. S	A

A.  
Class Advisors
 (Mr. A. Janagiraman)
 (Dr. D. Sivaraj)


HOD
 30/11/20
 (P. Jamuna)


Dean Academics
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Madagadipet, Puducherry - 605 107



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE COURSE

Batch: 2022 - 2026

Year/Sem/Sec: II / IV / A&B

Name of the Professional Elective: ENERGY STORAGE TECHNOLOGY


Course Code: U20EEE405


S.NO	Enroll Number	Register Number	Name	Sec
1	220408	22UEE002	AFRENA. A	A
2	221578	22UEE005	ANANDHARAMAN. V	A
3	221666	22UEE007	AROKIA ANANDU PRASANTHU. A	A
4	220608	22UEE008	ARUNAISH. R	B
5	221712	22UEE009	ARUNPRADAAP. S	A
6	220883	22UEE013	BALAKUMARAN. A	A
7	221257	22UEE014	BARANIDHARAN. A	B
8	220790	22UEE015	CALLIS JOSEPH. E	A
9	220881	22UEE017	DHANA VEERANESH. J	B
10	222026	22UEE019	DHIVIYA. S	B
11	221134	22UEE020	GANESH. C	B
12	221476	22UEE021	GOKULARAMANANE. S	A
13	220416	22UEE022	GOKULRAJ. R	A
14	220470	22UEE024	GOPIKRISHNAN. P	A
15	222079	22UEE025	GOPINATH. B	B
16	221592	22UEE028	HEMACHANDASANAM. S	B
17	222130	22UEE038	KEERTHANA. G. M	B
18	221785	22UEE039	KUSHAAN ANAND	A
19	220967	22UEE040	LALITH KUMAR. S	A
20	222124	22UEE042	LAVANYA. M	B
21	220515	22UEE044	MADHAN. S	B
22	221740	22UEE048	MOHAMAD KASEEM. M	B
23	220742	22UEE050	MOHAMED HARUN RASHEED. S	B
24	221636	22UEE051	MONIKA. D	B
25	220962	22UEE052	MUKESHKUMAR. R	A
26	220411	22UEE053	MURUGAN. T	B
27	222062	22UEE058	PARAMESH. S	A
28	221627	22UEE059	PAVINTHRAN. U	A
29	220771	22UEE063	PRAVEEN. G	B
30	220495	22UEE065	RAAKESH. K	A
31	220679	22UEE067	RAGUL. V	A
32	221402	22UEE068	RAJANAGESHVARAN. M	B
33	220931	22UEE069	RAJESH. M	A
34	220541	22UEE071	RAMKUMAR. S	A
35	221736	22UEE074	REBEKKAL. R	A


36	221001	22UEE075	REESHMA. R	B
37	221424	22UEE077	SAKTHISHWARI. S	B
38	222025	22UEE080	SARULATHA. T	B
39	220431	22UEE081	SELVAM. S	B
40	222069	22UEE082	SHARANKUMAR. M	A
41	220599	22UEE083	SIVAPOTHIS ALIAS KALICHARAN. M	A
42	220540	22UEE085	SURYA PRAKASH. B	B
43	221023	22UEE090	THIRUVENGADAM. P	A
44	220429	22UEE091	THOGESH. M	B
45	222093	22UEE093	VARSINEE. S	B
46	220992	22UEE094	VARUNESH. S	A
47	220360	22UEE099	VISHVA. P	A
48	230055	22EEL001	BALAJI. L	A
49	230209	22EEL002	BHARATHKUMAR. S	B
50	230145	22EEL005	KARTHIKEYAN. M	A
51	231143	22EEL006	PADMASEELAN. K	B
52	230752	22EEL007	RAMPRASATH. M	B

 & 

Class Advisors
(Mr. A. Janagiraman)
(Dr. D. Sivaraj)


HOD
30/11/24
(P. Jamuna)


Dean Academics
(Dr. S. Anbumalar)


Director cum Principal
(Dr. V. S. K. Venkatachalapathy)



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING


DETAILS OF OPEN ELECTIVE COURSE

EVEN SEMESTER – FEB 2024 TO APRIL 2024


Batch: 2022 - 2026

Year/Sem/Sec: II / IV / A & B

S. No.	Name of the Open Elective Course	Course Code	No of Students Opted
1	Web Development ✓	U20CSO401 ✓	51
2	Introduction to Communication Systems	U20CCO402 ✓	57
Total No. of students			108


Class Advisors
(Mr. A. Janagiraman)
(Dr. D. Sivaraj)


HOD
30/1/24
Dean Academics
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(P. Januna)


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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF OPEN ELECTIVE COURSE

Batch: 2022 – 2026


Year/Sem/Sec: II / IV / A&B


Name of the Open Elective: WEB DEVELOPMENT

Course Code: U20CSO401

S.NO	Enroll Number	Register Number	Name	Sec
1	220408	22UEE002	AFRENA. A	A
2	220650	22UEE004	AKASH. N	B
3	220546	22UEE010	ASHWIN KUMAR. S	A
4	220839	22UEE011	ASWINKUMAR. A	A
5	222096	22UEE016	CHANDRU. A	B
6	220881	22UEE017	DHANA VEERANESH. J	B
7	220897	22UEE018	DHINISH. N	B
8	222026	22UEE019	DHIVIYA. S	B
9	220873	22UEE023	GOPIKA. J	B
10	222079	22UEE025	GOPINATH. B	A
11	220523	22UEE026	HARINEE. P	A
12	221455	22UEE029	HERWIN. W	A
13	220641	22UEE032	JAYALAKSHMI. L	B
14	220879	22UEE034	JENI. K	A
15	220369	22UEE035	KARMUKILAN. A	B
16	220901	22UEE036	KARTHIKRAJA. S	B
17	222130	22UEE038	KEERTHANA. G. M	B
18	220576	22UEE041	LATHIKAA. V	A
19	222124	22UEE042	LAVANYA. M	B
20	222136	22UEE043	MADHAN. A	B
21	220820	22UEE046	MAHESH. R	B
22	220620	22UEE047	MATHAN. M	A
23	221740	22UEE048	MOHAMAD KASEEM. M	B
24	221636	22UEE051	MONIKA. D	B
25	220558	22UEE054	NATHESH. NB	B
26	220921	22UEE056	NIVETHITHA. B	A
27	220795	22UEE057	PAMPANA KARUNA PRABHAS	B
28	221070	22UEE060	POOJA. R	B
29	220681	22UEE061	POOJITHA. A	A
30	220440	22UEE062	PRASANAA. K	A
31	220526	22UEE064	PUGAZH SELVAN. P	A
32	221048	22UEE066	RAGUL. A	A
33	221402	22UEE068	RAJANAGESHVARAN. M	B
34	220541	22UEE071	RAMKUMAR. S	A
35	222084	22UEE073	RANDHIGA. L	B
36	221001	22UEE075	REESHMA. R	B
37	220793	22UEE076	SAILESHWAR. T	B

38	221424	22UEE077	SAKTHISHWARI. S	B
39	220936	22UEE078	SANCHI VENKATESH	A
40	222025	22UEE080	SARULATHA. T	B
41	220599	22UEE083	SIVAPOTHIS@KALICHARAN. M	A
42	220540	22UEE085	SURYA PRAKASH. B	B
43	220723	22UEE087	THARANITHARAN. M	B
44	222064	22UEE089	THIRISHA. N	A
45	221023	22UEE090	THIRUVENGADAM. P	A
46	220429	22UEE091	THOGESH. M	B
47	220627	22UEE092	UNILKUMAR. D	A
48	222093	22UEE093	VARSHINEE. S	B
49	220545	22UEE095	VIDHYADHARSHINI. S	A
50	220724	22UEE096	VIDHYASRI. S	A
51	230329	22EEL004	JAYAKUMAR. S	A


Class Advisors
 (Mr. A. Janagiraman)
 (Dr. D. Sivaraj)


 #HOD
 30/11/24
 (P. Tamuna)


Dean Academics
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF OPEN ELECTIVE COURSE

Batch: 2022 – 2026


Year/Sem/Sec: II / IV / A&B

Name of the Open Elective: INTRODUCTION TO COMMUNICATION SYSTEMS


Course Code: U20CCO402

S.NO	Enroll Number	Register Number	Name	Sec
1	220556	22UEE001	ABHINAYAA. M	A
2	221212	22UEE003	AKASH KUMAR. N	B
3	221578	22UEE005	ANANDHARAMAN. V	A
4	221666	22UEE007	AROKIA ANANDU PRASANTHU. A	A
5	220608	22UEE008	ARUNAISH. R	B
6	221712	22UEE009	ARUNPRADAAP. S	A
7	220618	22UEE012	ASWITHA. R	A
8	220883	22UEE013	BALAKUMARAN. A	A
9	221257	22UEE014	BARANIDHARAN. A	B
10	220790	22UEE015	CALLIS JOSEPH. E	A
11	221134	22UEE020	GANESH. C	B
12	221476	22UEE021	GOKULARAMANANE. S	A
13	220416	22UEE022	GOKULRAJ. R	A
14	220470	22UEE024	GOPIKRISHNAN. P	A
15	220630	22UEE027	HARINI. L	B
16	221592	22UEE028	HEMACHANDASANAM. S	B
17	220832	22UEE030	ISHWARYA LAKSHMI. S	A
18	220752	22UEE031	IYYAPPAN. R	B
19	222010	22UEE033	JEEVITHAA. D	A
20	221414	22UEE037	KAVIMANJARI. L	A
21	221785	22UEE039	KUSHAAN ANAND	A
22	220967	22UEE040	LALITH KUMAR. S	A
23	220515	22UEE044	MADHAN. S	B
24	221002	22UEE045	MADHAV. V	B
25	221677	22UEE049	MOHAMED ABDULKALAM. K	B
26	220742	22UEE050	MOHAMED HARUN RASHEED. S	B
27	220962	22UEE052	MUKESHKUMAR. R	A
28	220411	22UEE053	MURUGAN. T	B
29	220680	22UEE055	NAVEENKUMAR. D	A
30	222062	22UEE058	PARAMESH. S	A
31	221627	22UEE059	PAVINTHRAN. U	A
32	220771	22UEE063	PRAVEEN. G	B
33	220495	22UEE065	RAAKESH. K	A
34	221048	22UEE067	RAGUL. V	A
35	220931	22UEE069	RAJESH. M	A
36	220923	22UEE070	RAMESHKUMAR. P	B
37	220456	22UEE072	RAMYA. S	B

38	221736	22UEE074	REBEKKAL. R	A
39	221217	22UEE079	SANJAY. U	B
40	220431	22UEE081	SELVAM. S	B
41	222069	22UEE082	SHARANKUMAR. M	A
42	221643	22UEE084	SRILOGESHWARAN. S	A
43	220928	22UEE086	THARANI. S	A
44	220528	22UEE088	THILIPAN SIVA HARI. S	B
45	220992	22UEE094	VARUNESH. S	A
46	221005	22UEE097	VIGNESH. V	A
47	220789	22UEE098	VIJAY. A	B
48	220360	22UEE099	VISHVA. P	A
49	220792	22UEE100	VISHVA. S	B
50	220979	22UEE101	YUGANDIRAN. R	A
51	220621	22UEE102	YUGANIGAN. J	B
52	230055	22EEL001	BALAJI. L	A
53	230209	22EEL002	BHARATHKUMAR. S	B
54	231378	22EEL003	GIRIDHARAN. R	B
55	230145	22EEL005	KARTHIKEYAN. M	A
56	231143	22EEL006	PADMASEELAN. K	B
57	230752	22EEL007	RAMPRASATH. M	B


Class Advisors
 (Mr. A. Janagiraman)
 (Dr. D. Sivaraj)


HOD
 30/11/24
 (P. Januna)


Dean Academics
 (Dr. S. Anbumalar)


Director cum Principal
 (Dr. V. S. K. Venkatachalapathy)



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE COURSE

EVEN SEMESTER – FEBRUARY 2024 to MAY 2024

Batch: 2021 - 2025

Year/Sem/Sec: III / VI / A

S.NO	Name of the Professional Elective Course	Course Code	No of students opted
1	Robotics and Automation	U20ECCM02	69
Total no of students			69

Class Advisor
(Dr.S.Ganesh Kumaran)

HOD
(P. Jamuna)

Dean Academics
(Dr.S.Anbimalar)

Director Cum Principal
(Dr.V.S.K.Venkatachalapathy)



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE COURSE

Batch: 2021 - 2025

Year/Sem/Sec: III / VI / A


Name of the Professional Elective: Robotics and Automation


Course Code: U20ECCM02

S.NO	Enroll Number	Register Number	Name	Sec
1.	211101	21UEE001	ABDUL HAFREED H	A
2.	220193	21UEE002	ARCHANA R	A
3.	220200	21UEE004	DEVANATHAN A	A
4.	220209	21UEE005	DHIVYASHREE M	A
5.	210652	21UEE006	DINESH R S	A
6.	220191	21UEE007	ELAMPARUTHI K	A
7.	211853	21UEE008	GANDHAM NAGENDRA KARTHIK	A
8.	220026	21UEE009	GAYATHRY G	A
9.	211845	21UEE010	GLADSON JOSHUA PAULRAJ I	A
10.	220210	21UEE011	GUNAPRIYA S	A
11.	210913	21UEE012	GURUDEVAN L	A
12.	220197	21UEE013	HEMANATHAN D	A
13.	220118	21UEE014	JAYAKUMAR D	A
14.	210639	21UEE015	JEEVASUDHAN G	A
15.	210637	21UEE016	JOTHIKRISHNAN.K	A
16.	220128	21UEE017	KALAIYARASSI M	A
17.	211355	21UEE018	KARTHIKEYAN P	A
18.	210726	21UEE019	KARTHIKRAJA S.D	A
19.	220063	21UEE020	KASTHURI C	A
20.	220168	21UEE021	KAVEEYA K	A
21.	210867	21UEE022	KAVIARASAN M	A
22.	210695	21UEE023	KAVIYA S	A
23.	212011	21UEE024	KEERTHIRAJ. V	A
24.	211591	21UEE025	LOGESH.S	A
25.	211253	21UEE026	LOKESH N	A
26.	210778	21UEE027	LOKESHWARI D	A
27.	210650	21UEE028	MAHEYNDIRAN.S	A
28.	210688	21UEE029	MOHAN LAL S	A

29.	211897	21UEE030	MURUGAN.S	A
30.	211584	21UEE031	NIRMAL D	A
31.	211217	21UEE032	NIVEDHA G	A
32.	211400	21UEE033	PRANAV B	A
33.	220102	21UEE034	PRIYADHARSHINI A	A
34.	211769	21UEE035	RAGHUL R	A
35.	211148	21UEE036	RAHUL T	A
36.	220138	21UEE037	RAMANAKRISHNAN S	A
37.	211606	21UEE038	ROSHAN ARVIND. V	A
38.	211404	21UEE039	SABARIGIREESANE J	A
39.	210787	21UEE040	SABARISH R	A
40.	211291	21UEE041	SAI SIDDARTH T S	A
41.	211433	21UEE042	SANJAI S	A
42.	210680	21UEE043	SANTHANA KRISHNAN E	A
43.	220137	21UEE044	SATHISH FRANCIS XAVIER R	A
44.	211987	21UEE045	SIVAGANESH M	A
45.	220090	21UEE046	SONIYA V	A
46.	210702	21UEE047	SOWMYA.S	A
47.	220100	21UEE048	SREE VARDNI P	A
48.	211973	21UEE049	SRIDHASAN NAMBI	A
49.	210667	21UEE050	SRINIVASAN S	A
50.	211040	21UEE051	SUSANGATI SAMANTARAY	A
51.	211503	21UEE052	SWETHA S	A
52.	211970	21UEE053	THAMIZHARASAN. S	A
53.	220073	21UEE054	THILAK BASKARAN C M	A
54.	210813	21UEE055	TOM TIJO EDATTUKARAN	A
55.	211193	21UEE056	VENKATESHWARAN R	A
56.	211334	21UEE057	VIGNESHWARAN V	A
57.	220119	21UEE058	VIJAYALAKSHMI S	A
58.	220159	21UEE059	VINISHA LAXMI G	A
59.	210716	21UEE061	YOGARAJAN R	A
60.	211975	21UEE062	YOGESH .R	A
61.	221057	21EEL001	ABILASH P	A
62.	220405	21EEL002	GAUTHAM G.D	A
63.	221360	21EEL003	NIJANTHAN S	A
64.	220382	21EEL004	PASUPATHI S	A
65.	220968	21EEL005	PERIASAMY R	A
66.	221959	21EEL006	SESHATHRI N	A

67.	220644	21EEL007	SOWMIYA J	A
68.	221522	21EEL008	VISUVAMOORTHY G	A
69.	220407	21EEL009	YUVARAJ N	A


Class Advisor
 (Dr.S.Ganesh Kumaran)


HOD
 29/11/24
 (P. Jambura)


Dean Academics
 (Dr.S.Anbumalar)


Director Cum Principal
 (Dr.V.S.K.Venkatachalapathy)



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF OPEN ELECTIVE COURSE


EVEN SEMESTER – FEBRUARY 2024 to MAY 2024

Batch: 2021 - 2025

Year/Sem/Sec: III / VI / A

S.NO	Name of the Open Elective Course	Course Code	No of students opted
1	Mobile App Development	U20ITO604	69
Total no of students			69


Class Advisor
(Dr.S.Ganesh Kumaran)


(P. Jassuna)


Dean Academics
(Dr.S.Anbumalar)


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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF OPEN ELECTIVE COURSE

Batch : 2021 - 2025

Year/Sem/Sec: III / VI / A


Name of the Open Elective: MOBILE APP DEVELOPMENT


Course Code: U20ITO604

S.NO	Enroll Number	Register Number	Name	Sec
1.	211101	21UEE001	ABDUL HAFREED H	A
2.	220193	21UEE002	ARCHANA R	A
3.	220200	21UEE004	DEVANATHAN A	A
4.	220209	21UEE005	DHIVYASHREE M	A
5.	210652	21UEE006	DINESH R S	A
6.	220191	21UEE007	ELAMPARUTHI K	A
7.	211853	21UEE008	GANDHAM NAGENDRA KARTHIK	A
8.	220026	21UEE009	GAYATHRY G	A
9.	211845	21UEE010	GLADSON JOSHUA PAULRAJ I	A
10.	220210	21UEE011	GUNAPRIYA S	A
11.	210913	21UEE012	GURUDEVAN L	A
12.	220197	21UEE013	HEMANATHAN D	A
13.	220118	21UEE014	JAYAKUMAR D	A
14.	210639	21UEE015	JEEVASUDHAN G	A
15.	210637	21UEE016	JOTHIKRISHNAN.K	A
16.	220128	21UEE017	KALAIYARASSI M	A
17.	211355	21UEE018	KARTHIKEYAN P	A
18.	210726	21UEE019	KARTHIKRAJA S.D	A
19.	220063	21UEE020	KASTHURI C	A
20.	220168	21UEE021	KAVEEYA K	A
21.	210867	21UEE022	KAVIARASAN M	A
22.	210695	21UEE023	KAVIYA S	A
23.	212011	21UEE024	KEERTHIRAJ. V	A
24.	211591	21UEE025	LOGESH.S	A
25.	211253	21UEE026	LOKESH N	A
26.	210778	21UEE027	LOKESHWARI D	A
27.	210650	21UEE028	MAHEYNDIRAN.S	A
28.	210688	21UEE029	MOHAN LAL S	A

29.	211897	21UEE030	MURUGAN.S	A
30.	211584	21UEE031	NIRMAL D	A
31.	211217	21UEE032	NIVEDHA G	A
32.	211400	21UEE033	PRANAV B	A
33.	220102	21UEE034	PRIYADHARSHINI A	A
34.	211769	21UEE035	RAGHUL R	A
35.	211148	21UEE036	RAHUL T	A
36.	220138	21UEE037	RAMANAKRISHNAN S	A
37.	211606	21UEE038	ROSHAN ARVIND. V	A
38.	211404	21UEE039	SABARIGIRESANE J	A
39.	210787	21UEE040	SABARISH R	A
40.	211291	21UEE041	SAI SIDDARTH T S	A
41.	211433	21UEE042	SANJAI S	A
42.	210680	21UEE043	SANTHANA KRISHNAN E	A
43.	220137	21UEE044	SATHISH FRANCIS XAVIER R	A
44.	211987	21UEE045	SIVAGANESH M	A
45.	220090	21UEE046	SONIYA V	A
46.	210702	21UEE047	SOWMYA.S	A
47.	220100	21UEE048	SREE VARDNI P	A
48.	211973	21UEE049	SRIDHASAN NAMBI	A
49.	210667	21UEE050	SRINIVASAN S	A
50.	211040	21UEE051	SUSANGATI SAMANTARAY	A
51.	211503	21UEE052	SWETHA S	A
52.	211970	21UEE053	THAMIZHARASAN. S	A
53.	220073	21UEE054	THILAK BASKARAN C M	A
54.	210813	21UEE055	TOM TIJO EDATTUKARAN	A
55.	211193	21UEE056	VENKATESHWARAN R	A
56.	211334	21UEE057	VIGNESHWARAN V	A
57.	220119	21UEE058	VIJAYALAKSHMI S	A
58.	220159	21UEE059	VINISHA LAXMI G	A
59.	210716	21UEE061	YOGARAJAN R	A
60.	211975	21UEE062	YOGESH .R	A
61.	221057	21EEL001	ABILASH P	A
62.	220405	21EEL002	GAUTHAM G.D	A
63.	221360	21EEL003	NIJANTHAN S	A
64.	220382	21EEL004	PASUPATHI S	A
65.	220968	21EEL005	PERIASAMY R	A
66.	221959	21EEL006	SESHATHRI N	A

67.	220644	21EEL007	SOWMIYA J	A
68.	221522	21EEL008	VISUVAMOORTHY G	A
69.	220407	21EEL009	YUVARAJ N	A


Class Advisor
 (Dr.S.Ganesh Kumaran)


 HOD
 23/11/2024
 (P. Jamuna)


Dean Academics
 (Dr.S.Anbumalar)


Director Cum Principal
 (Dr.V.S.K.Venkatachalapathy)

IV Year / VIII Semester / R-2020



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE COURSES
(PROFESSIONAL ELECTIVE – V)

EVEN SEMESTER – FEB 2024 to MAY 2024

Batch : 2020 - 2024

Year/Sem/Sec: IV / VIII / A&B

S.NO	Name of the Professional Elective – V	Course Code	No of students opted
1	SMPS and UPS	U20EEE823	46
2	Fundamentals of Solar photovoltaic system and applications	U20EEE825	48
Total no of students			94

1.
2.
Class Advisors
(Mr.R.Ragupathy)
(Mr.K.Thangaraj)

HOD
P. Jamuna

Dean Academics
(Dr.S.Anbumalar)

Director Cum Principal
(Dr.V.S.K.Venkatachalapathy)



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE – V

Batch : 2020 - 2024



Year/Sem: IV / VIII

Name of the Professional Elective – V: SMPS and UPS


Subject Code: U20EEE823

S.NO	Enroll Number	Register Number	Name	Sec
1.	210914	20EEL001	AJAYRAJ K	A
2.	210621	20EEL002	AKASH S V	B
3.	211741	20EEL003	ANBARASU A	A
4.	220036	20EEL004	GODESHWARAN K	B
5.	211794	20EEL006	HARIHARAN G	B
6.	211785	20EEL008	KIRUBAGARAN P	B
7.	210829	20EEL013	SASIDHARAN R	A
8.	211796	20EEL014	SRINEVAN V	A
9.	210953	20EEL015	VIGNESHWAR M	B
10.	20098168	20UEE001	AARTHI P	B
11.	20098466	20UEE004	AKSHAYA M	A
12.	210240	20UEE005	ANBARASAN N	A
13.	20098908	20UEE006	ANDAL J	A
14.	20098213	20UEE007	ANJANA BERLIN	B
15.	20098319	20UEE010	ARUN PRASATH S	B
16.	20098569	20UEE015	BHUVANESH M	B
17.	20098411	20UEE016	CHRIS DELISHIA B	A
18.	210428	20UEE018	DEEBIGA D	A
19.	20098332	20UEE022	GIRIDHARAN S B	A
20.	210383	20UEE025	GOPINATH V	A
21.	210172	20UEE026	HARISHRAMAN P S	A
22.	20098090	20UEE027	JENIFER F	A
23.	20098153	20UEE032	KEERTHANA R M	A
24.	20098692	20UEE033	KEERTHIGA M	A
25.	20098916	20UEE036	KOKILAVANI S	B
26.	20098116	20UEE038	LATCHIAVASAN M	A
27.	20098222	20UEE043	MUGILAN P	B
28.	20098180	20UEE044	NARESH S	A

29.	210232	20UEE045	NAVANITHIYAN.K	A
30.	210020	20UEE046	NIDHIKUMAR	B
31.	20098874	20UEE048	PAVITHRAN S	B
32.	210170	20UEE051	PREM KUMAR T	B
33.	210560	20UEE052	RAGHUL S	A
34.	20098903	20UEE053	RAGHUL S	B
35.	210283	20UEE056	ROZALAN J	B
36.	20098350	20UEE059	SANJAY K	A
37.	210276	20UEE062	SIVABALAN G	A
38.	20098517	20UEE064	SIVAPRAKASH B	A
39.	20098064	20UEE066	SRIRAM M	B
40.	210304	20UEE068	SURENDAR V	B
41.	210260	20UEE070	SWETHA M	A
42.	210301	20UEE071	TAMILVANAN A	B
43.	20098260	20UEE072	TARSHAN KUMAR V	A
44.	20098068	20UEE073	THAMIZH SELVAN B	A
45.	20098360	20UEE076	VARUN S	B
46.	20098515	20UEE077	VIGNESHWAR V	B

1. 
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Class Advisors
(Mr.R.Ragupathy)
(Mr.K.Thangaraj)


HOD
(Dr.S.Anbumalar)


Dean Academics
(Dr.S.Anbumalar)


Director Cum Principal
(Dr.V.S.K.Venkatachalapathy)



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE – V

Batch : 2020 - 2024



Year/Sem: IV / VIII


Name of the Professional Elective – V: Fundamentals of Solar photovoltaic system and applications

Subject Code: U20EEE825


S.NO	Enroll Number	Register Number	Name	Sec
1.	210809	20EEL005	GOPINATH K	B
2.	211740	20EEL007	KAMIDI ROOPAK CHANDRA	A
3.	211071	20EEL009	KOUSHIK S	A
4.	210992	20EEL010	KRISHNAKUMAR V	B
5.	211788	20EEL011	SAMUELJABARAJ V	A
6.	210746	20EEL012	SANJAI R	B
7.	20098404	20UEE002	ABDULLAH E K	B
8.	210386	20UEE003	AKASH J	A
9.	20098750	20UEE008	ANUSHA.C	B
10.	210269	20UEE009	ARTHI V	B
11.	20098766	20UEE011	BADHMA PRIYA M	B
12.	210148	20UEE012	BALAMUGESH S	A
13.	210550	20UEE013	BALAMURUGAN G	A
14.	20098178	20UEE014	BHARATH E	A
15.	20098173	20UEE017	DANUSH BALAJI S	B
16.	20098679	20UEE019	DEVAPRIYA D	B
17.	20098091	20UEE020	DEVNATH V	A
18.	20098835	20UEE021	DHINAKARAN N D	B
19.	20098059	20UEE024	GOPI KRISHNA S	A
20.	210140	20UEE028	KABILAN S	B
21.	20098098	20UEE029	KALPANA DEVI M	B
22.	20098496	20UEE030	KANDULURU YUGESH	B
23.	210210	20UEE031	KARTHIKEYAN P	B
24.	20098412	20UEE034	KIRANKUMAR S	B
25.	20098155	20UEE035	KIRUBHANIDHI T	A
26.	20098074	20UEE037	KRISHNA KUMAR R	A
27.	20098106	20UEE039	MARAN VIKAS MARAN PURUSHOTHAMAN	A

28.	20098576	20UEE040	MOHAMED THOFIQUE	B
29.	20098670	20UEE041	MOHAN RAJ P	B
30.	20098107	20UEE042	MOHANRAAJI B	A
31.	20098104	20UEE047	NITHISHKUMAR K	B
32.	210230	20UEE049	POOBATHI P	B
33.	20098598	20UEE050	PRAVEENKUMAR S	B
34.	20098211	20UEE054	RAJASRI S	B
35.	210420	20UEE055	RAMANAN K	B
36.	210011	20UEE057	SAKTHI A	A
37.	210399	20UEE058	SANDHIYA V	A
38.	210404	20UEE060	SAVITHA M	B
39.	20098166	20UEE061	SEDHURAM K	B
40.	210128	20UEE063	SIVAGURU S	A
41.	20098685	20UEE065	SRIMANIKANDAN S	A
42.	20098875	20UEE067	SRISANTHOSH B	B
43.	20098511	20UEE069	SUWATHY M S	A
44.	20098829	20UEE074	THIRUMOORTHY T	A
45.	20098128	20UEE075	VAITHEESWARAN N	B
46.	20098674	20UEE078	VIJAYA BOOPATHY S	A
47.	210266	20UEE079	VIJAYALAKSHMI B	A
48.	20098431	20UEE080	YOGESH G	B



Class Advisors
 (Mr.R.Ragupathy)
 (Mr.K.Thangaraj)


HOD
 (Dr.S.Anbumalar)


Dean Academics
 (Dr.S.Anbumalar)


Director Cum Principal
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



DETAILS OF PROFESSIONAL ELECTIVE COURSES (PROFESSIONAL ELECTIVE – VI)

EVEN SEMESTER – FEB 2024 to MAY 2024

Batch : 2020 - 2024


Year/Sem/Sec: IV / VIII / A&B

S.NO	Name of the Professional Elective – VI	Course Code	No of students opted
1	Smart Grid	U20EEE826	47
2	EHV AC and DC transmission	U20EEE827	47
Total no of students			94

1. 
2. 
Class Advisors
(Mr.R.Ragupathy)
(Mr.K.Thangaraj)


HOD
29/1/24
(P. Jamma)


Dean Academics
(Dr.S.Anbumalar)


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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE – VI

Year/Sem: IV / VIII



Batch : 2020 - 2024

Name of the Professional Elective – VI: Smart Grid ✓

Subject Code: U20EEE826 ✓


S.NO	Enroll Number	Register Number	Name	Sec
1.	210914	20EEL001	AJAYRAJ K ✓	A
2.	210621	20EEL002	AKASH S V ✓	B
3.	211741	20EEL003	ANBARASU A ✓	A
4.	220036	20EEL004	GODESHWARAN K ✓	B
5.	210809	20EEL005	GOPINATH K ✓	B
6.	211794	20EEL006	HARIHARAN G ✓	B
7.	211785	20EEL008	KIRUBAGARAN P ✓	B
8.	210829	20EEL013	SASIDHARAN R ✓	A
9.	211796	20EEL014	SRINEVAN V ✓	A
10.	210953	20EEL015	VIGNESHWAR M ✓	B
11.	20098168	20UEE001	AARTHI P ✓	B
12.	20098404	20UEE002	ABDULLAH E K ✓	B
13.	20098466	20UEE004	AKSHAYA M ✓	A
14.	210240	20UEE005	ANBARASAN N ✓	A
15.	20098766	20UEE011	BADHMA PRIYA M ✓	B
16.	20098332	20UEE022	GIRIDHARAN S B ✓	A
17.	210383	20UEE025	GOPINATH V ✓	A
18.	210140	20UEE028	KABILAN S ✓	B
19.	210210	20UEE031	KARTHIKEYAN P ✓	B
20.	20098153	20UEE032	KEERTHANA R M ✓	A
21.	20098692	20UEE033	KEERTHIGA M ✓	A
22.	20098412	20UEE034	KIRANKUMAR S ✓	B
23.	20098155	20UEE035	KIRUBHANIDHI T ✓	A
24.	20098116	20UEE038	LATCHIAVASAN M ✓	A
25.	20098576	20UEE040	MOHAMED THOFIQUE ✓	B
26.	20098107	20UEE042	MOHANRAAJI B ✓	A
27.	20098222	20UEE043	MUGILAN P ✓	B
28.	20098180	20UEE044	NARESH S ✓	A
29.	210232	20UEE045	NAVANITHIYAN K ✓	A
30.	210020	20UEE046	NIDHIKUMAR ✓	B
31.	20098874	20UEE048	PAVITHRAN S ✓	B

32.	210170	20UEE051	PREM KUMAR T	B
33.	210560	20UEE052	RAGHUL S	A
34.	20098903	20UEE053	RAGHUL S	B
35.	210283	20UEE056	ROZALAN J	B
36.	20098350	20UEE059	SANJAY K	A
37.	210404	20UEE060	SAVITHA M	B
38.	210276	20UEE062	SIVABALAN G	A
39.	20098064	20UEE066	SRIRAM M	B
40.	210304	20UEE068	SURENDAR V	B
41.	20098511	20UEE069	SUWATHY M S	A
42.	210301	20UEE071	TAMILVANAN A	B
43.	20098260	20UEE072	TARSHAN KUMAR V	A
44.	20098068	20UEE073	THAMIZH SELVAN B	A
45.	20098128	20UEE075	VAITHEESWARAN N	B
46.	20098360	20UEE076	VARUN S	B
47.	20098515	20UEE077	VIGNESHWAR V	B

1. 
 2. 
Class Advisors
 (Mr.R.Ragupathy)
 (Mr.K.Thangaraj)


HOD
 (Dr.S.Anbumalar)


Dean Academics
 (Dr.S.Anbumalar)


Director Cum Principal
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF PROFESSIONAL ELECTIVE – VI

Batch : 2020 - 2024



Year/Sem: IV / VIII

Name of the Professional Elective – VI: EHV AC and DC transmission

Subject Code: U20EEE827

S.NO	Enroll Number	Register Number	Name	Sec
1.	211740	20EEL007	KAMIDI ROOPAK CHANDRA	A
2.	211071	20EEL009	KOUSHIK S	A
3.	210992	20EEL010	KRISHNAKUMAR V	B
4.	211788	20EEL011	SAMUELJABARAJ V	A
5.	210746	20EEL012	SANJAI R	B
6.	210386	20UEE003	AKASH J	A
7.	20098908	20UEE006	ANDAL J	A
8.	20098213	20UEE007	ANJANA BERLIN	B
9.	20098750	20UEE008	ANUSHA C	B
10.	210269	20UEE009	ARTHI V	B
11.	20098319	20UEE010	ARUN PRASATH S	B
12.	210148	20UEE012	BALAMUGESH S	A
13.	210550	20UEE013	BALAMURUGAN G	A
14.	20098178	20UEE014	BHARATH E	A
15.	20098569	20UEE015	BHUVANESH M	B
16.	20098411	20UEE016	CHRIS DELISHIA B	A
17.	20098173	20UEE017	DANUSH BALAJI S	B
18.	210428	20UEE018	DEEBIGA D	A
19.	20098679	20UEE019	DEVAPRIYA D	B
20.	20098091	20UEE020	DEVNATH V	A
21.	20098835	20UEE021	DHINAKARAN N D	B
22.	20098059	20UEE024	GOPI KRISHNA S	A
23.	210172	20UEE026	HARISHRAMAN P S	A
24.	20098090	20UEE027	JENIFER F	A
25.	20098098	20UEE029	KALPANA DEVI M	B
26.	20098496	20UEE030	KANDULURU YUGESH	B
27.	20098916	20UEE036	KOKILAVANI S	B
28.	20098074	20UEE037	KRISHNA KUMAR R	A
29.	20098106	20UEE039	MARAN VIKAS MARAN PURUSHOTHAMAN	A
30.	20098670	20UEE041	MOHAN RAJ P	B
31.	20098104	20UEE047	NITHISHKUMAR K	B

32.	210230	20UEE049	POOBATHI P	B
33.	20098598	20UEE050	PRAVEENKUMAR S	B
34.	20098211	20UEE054	RAJASRI S	B
35.	210420	20UEE055	RAMANAN K	B
36.	210011	20UEE057	SAKTHI A	A
37.	210399	20UEE058	SANDHIYA V	A
38.	20098166	20UEE061	SEDHURAM K	B
39.	210128	20UEE063	SIVAGURU S	A
40.	20098517	20UEE064	SIVAPRAKASH B	A
41.	20098685	20UEE065	SRIMANIKANDAN S	A
42.	20098875	20UEE067	SRISANTHOSH B	B
43.	210260	20UEE070	SWETHA M	A
44.	20098829	20UEE074	THIRUMOORTHY T	A
45.	20098674	20UEE078	VIJAYA BOOPATHY S	A
46.	210266	20UEE079	VIJAYALAKSHMI B	A
47.	20098431	20UEE080	YOGESH G	B

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Annexure – XI



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Events Suggestion for 25th Year Silver Jubilee Celebration

Quarter I (June 2024 - August 2024)

S.No	Name of the Event	Tentative Date
1.	Hackathon	3 rd week of July
2.	Workshop, Seminar	2 nd and 3 rd week of August
3.	Symposium	02.08.2024
4.	Cultural	Common Schedule
5.	Alumni Speech	08.06.2024, 21.06.2024, 13.07.2024, 27.07.2024
6.	Short Film on Father's Day	22.06.2024

Quarter II (September 2024 - November 2024)

S.No	Name of the Event	Tentative Date
1.	Teachers Day	05.09.2024
2.	Community Service: beach cleaning, traffic control	14.09.2024, 28.09.2024
3.	Mega Alumni Meet	12.10.2024
4.	HR Meet	26.10.2024
5.	Hands-on Training	30.10.2024 to 31.10.2024
6.	Innovator Day	15.09.2024
7.	Lecture series by Alumni	27.09.2024, 28.09.2024, 08.11.2024, 09.11.2024
8.	Children's Day	14.11.2024
9.	Lecture series by Industrial Experts	06.09.2024, 20.09.2024, 04.10.2024, 18.10.2024, 08.11.2024

Quarter III (December 2024 - February 2025)

S.No	Name of the Event	Tentative Date
1.	Sports: Chess and Kabaddi	2 nd week of December 2024
2.	SMVEC Rolling Trophy Quiz completion	20.12.2024
3.	Energy conservation awareness Program for society through NILA FM	14.12.2024
4.	Tree planation	22.01.2025
5.	Sigarathai Nokki	Common Schedule
6.	Music Show	2 nd week of February 2025

Quarter IV (March 2025 - May 2025)

S.No	Name of the Event	Tentative Date
1.	Women's day celebration	08.03.2025
2.	National level Project contest for polytechnic students	22.03.2025
3.	Lecture series by internal Faculty Experts	4 th Week of April 2025
4.	International conference	18.04.2025 to 19.04.2025
5.	Food Festival	10.05.2025
6.	Mother's Day Run Marathon	11.05.2025

Annexure – XII



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

DETAILS OF EXAMINER

Specialization		Power Electronics and Drives		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1.	Dr.J.Ramesh Rahul	Assistant Professor / EEE, National institute of Technology, Andhra Pradesh	7989923036	rahuljammy1925@gmail.com
2.	Dr.K.K.Saravanan	Assistant Professor / EEE, University College of Engineering, Thirukuvalai campus, Nagapattinam	9789695832	saravanan.santi@gmail.com
3.	Dr. S. Jeyasudha	Professor / EEE, K.Ramakrishnan College of Technology, Trichy,	9629054969	jeayasudhas.eee@krct.ac.in
4.	Dr.S.A.Elankurisil	Professor & Head / EEE, Adhiparasakthi Engineering College, Melmaruvathur.	9442936797	saelankurisil@gmail.com
5.	Dr.V.Vasan Prabhu	Assistant Professor / Department of Automotive Electronics, SRM Institute of Science and Technology, Chennai.	7358682007	vasanprv@srmist.edu.in
6.	Dr.V.Krishna kumar	Associate Professor / EEE, St. Joseph's college of Engineering, Chennai	9944235196	v.krishnakumarsjce@gmail.com
7.	Dr.R.Raja Singh	Associate Professor / Department of Energy and Power Electronics, VIT, Vellore.	9894250650	rrajasingh@vit.ac.in
8.	Dr.C. Kumar	Professor and Head / EEE M Kumarasamy College of Engineering Thalavapalayam Post, Karur Tk,	9994942022	kumarc@bitsathy.ac.in
9.	Dr.Srinivasan Pradabane	Assistant Professor / EEE, National institute of Technology, Warangal, Telgana	8639352033	spradabane@nitw.ac.in
10.	Dr.P.Velmurugan	Associate Professor / EEE, St. Joseph's College of Engineering, Chennai	9976949243	velupriya10@gmail.com
11.	Dr.N.Shobanadevi	Professor, University College of Engineering, Ariyalur.	8778149535	shobanadevi1975@gmail.com
12.	Dr.D.Zamrooth	Asst. Professor, Department of EEE, University college of Engineering, Kanchipuram	9176773605	zam.shireen@gmail.com

13.	Dr.A.Saraswathi	Asst. Professor, Department of EEE, University college of Engineering - Villupuram	9994549910	saraswathiask@gmail.com
14.	Dr.S.Prabhu	Associate Professor, Department of EEE, SreeVidyanikethan Engineering College, SreeSainath Nagar, Tirupati.	9600646211	prabhutajmahal6@gmail.com
15.	Dr.R.Natarajan	Associate Professor / EEE Fatima Michael College of Engineering and Technology, Madurai	9655986026	natarajanrajavel369@gmail.com
16.	Mr.C.Nandakumar	Assistant Professor / EEE Arunai Engineering College, Velu Nagar, Mathur, Tiruvannamalai	9865714571	nandha30electra@gmail.com
17.	Dr.Padmaja Sankala	Asst. Professor / EEE, All India Shri Shivaji memorial Society's College of Engineerng,Pune	9923669024	pkssankala@aissmscoe.com
18.	Dr.S.Priyadharashni,	Assistant Professor / EEE, Arunai Engineering College, Velu Nagar, Mathur, Tiruvannamalai, Tamilnadu.	9994576791	priyamshanmugam@gmail.com
19.	Dr.R.Thamaraiselvi	Assistant Professor/EEE, University College of Engineering, Villupuram	9487363388	r.thamaraiselvi1@gmail.com
20.	Dr.R.Murugesan	Asst. Professor, Department of EEE, Annamacharya Institute of Technology and Sciences Thirupati	9944228455	rmurugesandr@gmail.com
21.	Dr.T.S.Balaji Damodhar	Associate Professor / EEE, Ranipettai Engineering College, Walajah, Vellore	9944665102	balajidamodhar@gmail.com
22.	Dr.C.Kannan	Associate Professor / EEE, Arunai Engineering College, Thiruvannamalai.	9841005438	kannanc305@gmail.com
23.	Dr.K.Sedhuraman	Associate Professor / EEE, Manakula Vinayagar Institute of Technology, Kalitheerthalkuppam, Puducherry.	9092882883	sedhuramaneee@mvit.edu.in
24.	Mr.S.Rajkumar	Assistant Professor / EEE, Manakula Vinayagar Institute of Technology, Kalitheerthalkuppam, Puducherry.	9952628247	rajkumareee@mvit.edu.in
25.	Mr.M.Saravanakumar	Assistant Professor / EEE, Mailam Engineering College, Mailam	9786863566	saravanakumareee@mailame ngg.com
26.	Mr.G.G.Muthukumar	Assistant Professor / EEE, Mailam Engineering College, Mailam	9894762505	muthukumareee@mailameng g.com
27.	Dr.S.Satthiyaraj	Associate Professor / EEE, University College of Engineering, Panruti	9500405949	satthiya@gmail.com
28.	Dr. N. Arunkumar	Associate Professor / EEE, Dhanalakshmi Srinivasan Engineering College, Perambalur	9894949670	narunme26@gmail.com

29.	Mr.A.Vinothkumar	Assistant Professor / EEE, SRI College of Engineering and Technology, Vandavasi.	6379224893	vinothkumareee91@gmail.com
30.	Dr.G.Madhusudanan	Professor / EEE, SRM Nagar, Kattankulathur, Chengalpattu.	9884413903	madhusudanang.eee@valliammai.co.in
31.	Dr.G.Haridoss	Associate Professor/EEE, M. A. M College of Engineering and Technology, Siruganur, Trichy	9865481065	haridoss@gmail.com
32.	Dr.S.Albert Alexander	Associate Professor / EEE, Kongu Engineering College, Perundurai, Erode.	9865931597	ootyalex@gmail.com
33.	Dr.K.Arul Kumar	Assistant Professor / EEE, Madanapalle Institute of Technology & Science, Madanapalle Chittoor District, Andhra Pradesh	9994822651	karuleee@gmail.com
34.	Dr.Mahendran Nagalingam	Professor / HOD, SAINTGITS College of Engineering Kottayam, Kerala	9894243719	drnmpower@gmail.com
35.	Dr.R.Natarajan	Associate Professor /EEE Fatima Michael College of Engineering and Technology, Madurai	9655986026	natarajanrajavel369@gmail.com
36.	Dr.T Suresh Padmanabhan	Associate Professor, Department of ECE, E.G.S Pillay Engineering College, Nagapattinam.	9444025552	drtsp@egspec.org
37.	Dr.Ra. Selvaganapathy	Assistant Professor / EEE, AVC College of Engineering Mayiladuthurai.	9940621275	selvaganapathyeee@avccengg.net
38.	Dr.S.S.Kumaresh	Asst. Prof / EEE, University college of Engineering, Kanchipuram.	9940545961	kumareshlive@gmail.com
39.	Dr.R.Murugesan	Assistant Professor / EEE, Annamacharya Institute of Technology and Sciences, Tirupati	9944228455	rmurugesandr@gmail.com
40.	Dr.S.Arockiaraj	Assistant Professor / EEE, Mepco Schlenk Engineering College, Sivakasi.	9626044699	arockiaraj.s@mepcoeng.ac.in
41.	Dr.C.Kamal	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering, Sriperumbudur – 602117.	9791121025	kamalc@svce.ac.in
42.	Dr.K.Kirubananthan	Professor and Head, Department of EEE, Surya Group of Institutions, Vikravandi	9677062845	kirubananthan81@gmail.com
43.	Dr.A.George Ansfer	Assistant Professor / EEE, St. Xavier's Catholic College of Engineering, Nagercoil.	9488926063	georgeansfer@gmail.com
44.	Dr J Leon Bosco Raj	Assistant Professor / EEE, St. Xavier's Catholic College of Engineering, Nagercoil.	9488218404	sanbosco2006@gmail.com
45.	Dr.D.Periyaazhagar	Associate Professor / EEE, Krishnasamy College of Engineering & Technology, Cuddalore.	9843664423	periyaazhagar@gmail.com

46.	Dr.Ramji Tiwari	Assistant Professor / EEE, Sri Krishna College of Engineering and Technology, Coimbatore.	8220818480	ramjitiwari@skcet.ac.in
47.	Dr.P.Vinoth kumar	Associate Professor / EEE, Sri Krishna College of Engineering and Technology, Coimbatore	9940944235, 9080070126	vinothkumarktp@gmail.com
48.	Dr.S.Sivasakthi	Professor / EEE, Krishnasamy college of Engineering And Technology, Cuddalore.	9842016590	sivasakthi_gayu@yahoo.co.in
49.	Dr.R.Thamaraiselvi	Assistant Professor / EEE University College Engineering, Anna University Villupuram Campus.	9080376056	r.thamaraiselvi75@gmail.com
50.	Dr.S.M.Balamurugan	Associate Professor /EEE, Sri Venkateswara College of Technology, Sriperumbudur.	9994218756	ersmbala@gmail.com

Specialization		Power Systems		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1.	Dr.N.Chidambararaj	Associate Professor / EEE, St.Joseph's College of Engineering, OMR, Chennai	9840826431	chidambararajn@stjosephs.a c.in
2.	Dr.A.Ragavendiran	Asst. Professor / EEE, AVC College of Engineering, Mannampandal Mayiladudurai	8248781797	ragavendiran.as@gmail.com
3.	Dr. V. Subha Seethalakshmi	Associate Professor / EEE, Dhanalakshmi Srinivasan Engineering College, Perambalur	9865724662	vsubha05@gmail.com
4.	Dr.S.P.Mangaiyarkarasi	Asst. Professor, Department of EEE, University college of Engineering, Panruti.	8903678363	mangaisowmeya@gmail.com
5.	Dr.R.Karthikeyan	Asst. Professor, Department of EEE, University college of Engineering, Pattukottai.	9047656765	kar_thamarai82@yahoo.com
6.	Dr.Arul Murugan	Professor & Head / EEE Excel Group of Institutions Erode, Tamil Nadu	9842909393	arulpvp@gmail.com
7.	Dr.P.Sathish Babu	Asst. Professor, Department of EEE, University college of Engineering, Panruti	8667313405	psathishbabu@yahoo.co.in
8.	Dr.V.Arun	Associate Professor, Department of EEE, Sree Vidyanikethan Engineering College, Sree Sainath Nagar, Tirupati.	8667244175	arunphd1986@gmail.com
9.	Dr.S.Durai	Assistant Professor, Department of EEE, Annamalai University	8667264066	abcduraim@gmail.com
10.	Dr.S.Karthikeyan	Assistant Professor Department of EEE, Annamalai University	8825793371	karthikaujee79@gmail.com

11.	Dr.M.Sathya	Assistant Professor, Department of EEE, Government college of Engineering, Srirangam, Trichy	7010271378	mrsathyaa@gces.edu.in
12.	Dr. R. Suresh	Associate Professor / EEE, SKP Engineering College, Thiruvannamalai	9943863622	rsureshskp@gmail.com
13.	Dr.P.Ajay. D.Vimal Raj	Associate Professor Department of EEE, Pondicherry Engineering College.	9486142839	ajayvimal@pec.edu
14.	Ms.V.Logeshwari	Assistant Professor Department of EEE, Government College of Engineering, Sri Rangam.	8778727201	logulagam@gmail.com
15.	Dr. S. A.Elankurisil	Professor and Head/ EEE Adhiprasakthi Engineering College, Melmaruvathur,	9442936797	saelankurisil@gmail.com
16.	Dr.S.Srinivasan	Associate Professor / EEE, K.S.Rangasamy College of Technology, Tiruchengode - 637215	9994143687	srinivasan@ksrct.ac.in
17.	Dr.M.Suman	Associate Professor / EEE, Maha Barathi Engineering College, Chinnasalem – 606201	8248407486	suman.auvdl@gmail.com
18.	Dr.M.Mohanraj	Associate Professor, Department of EEE, Kumaraguru College of Technology, Coimbatore.	9842973377	mohanraj.m.eee@kct.ac.in
19.	Dr.G.Ganesan @ Subramanian	Research Head, Nethaji Subash Chandra bose Group of Institutions, Thiruvaur.	9150409651	researchnscbgoitvr@gmail.com
20.	Dr.V.Kandasamy	Associate professor Department of EEE Kumaraguru college of technology, Coimbatore.	9150205779	kandasamy.v.eee@kct.ac.in
21.	Dr.K.Suresh	Assistant Professor / EEE, Coimbatore institute of Technology, Avinashi. Road, Coimbatore.	9442002145	sureshhayagreeva@gmail.com
22.	Dr.A.Suresh	Professor / EEE, AMET University, Chennai.	7305342590	asurez@gmail.com

Specialization		Electrical Drives and Control		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr.A.Venkadesan,	Assistant Professor / EEE, National Institute of Technology, NH32, Karaikal, Puducherry.	7598566739	venkadesan@nitpy.ac.in
2	Dr. R . Gunabalan	Associate Professor, School of Electrical Engineering, VIT, Vandalur-Kelambakkam Road, Chennai.	9894919269	gunabalan.r@vit.ac.in
3	Dr.V.Krishnakumar	Associate Professor / EEE St.Joseph college of Engineering Chennai.	9944235136	v.krishnakumarjce@gmail.com

4	Dr.D.Lenine	Professor/EEE R.G.M College of Engg. & Tech. Nandyal, Andhra.	9866723784	lenine.eee@gmail.com
5.	Dr.C.Carunaiselvane	Assistant Professor, Department of Automobile Engineering SRM Institute of Science and Technology, KTR Campus, Chennai	8265804594	carunaic@srmist.edu.in
6.	Dr.V.Venkatachalam	Assistant Professor / EEE, Surya Group of Institutions, Vikravandi, Villupuram.	9500999251	venkatsgieee@gmail.com

Specialization		Electrical Engineering		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr.S.Senthikumar	Associate Professor / EEE University College of Engineering, Ariyalur.	7810062427	senthil21575@gmail.com
2	Dr.S.R.Sivarasu,	Professor / EEE, Sri Eshwar College of Engineering (Autonomous) Coimbatore.	8056719372 / 9942029372	sivarasu.s.r@sece.ac.in

Specialization		Image Processing		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr. S. Karthick	Associate Professor / EEE, Sengunthar Engineering College, Thudupathi Post, Perundurai, Erode	9486937253	resumekarthick@gmail.com

Specialization		Very Large-Scale Integration		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr.T.Venish kunmar	Associate Professor / EEE, Sethu Institute of Technology, Pulloor, Kariapatti Virudhunagar, Tamilnadu	9095577477	tvenishkumar@gmail.com

Specialization		Control System and Instrumentation		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr.S.N.Sivaraj	Associate Professor/ EEE Velammal Engineering College, Chennai	9944238133/ 9080801268	sivarajsn@gmail.com
2	Dr. P. Manikannan	Professor / EEE, AKT Memorial College of Engineering and Technology, Kallakurichi	9786658571	p.manikannan@gmail.com
3	Mr.P.Jekan	Assistant Professor / EEE, SRM University, Kattankulathur, Chengalpattu.	9884937734	jeganp@srmist.edu.in
4	Dr.B.Balraj	Associate Professor, Department of ECE, K.Ramakrishnan College of Technology Trichy.	9444295557	balraj.eee@krct.ac.in

Specialization		Applied Electronics		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr. J.P.Srividhya	Associate Professor / EEE, Arunai Engineering College, Tiruvannamalai	9486985422	sriviprakash2007@gmail.com

Specialization		Automotive Technology, Material Science		
S.No	Name of the Examiner	Designation & Institution Name	Mobile No	Mail ID
1	Dr. S. Roseline	Professor / EEE, M. A. M College of Engineering and Technology, Siruganur, Trichy	9443435493	roselines1969@gmail.com

Annexure – XIII

Details of Equivalent courses in R2023 Curriculum for the courses in R 2020



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi, Accredited by NAAC with 'A' Grade)
Madagadipoti, Puducherry – 605 107



DETAILS OF EQUIVALENT COURSES IN R 2023 CURRICULUM FOR THE COURSES IN R 2020 DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Year / Sem	Name of the Course with code under R-2020 Regulations (All the Courses in a semester to be mentioned with course code)	For Question Paper Setting with respect to R-2020 Regulations		
			Equivalent Course Name with Code in R-2023 Regulations (Courses which are not modified / content reduced)	Course is retained with modification in the content / Course content increased)	If Course is Removed (Yes)
1.	I / I	Theory:			
		1.Engineering Mathematics – I Calculus and Linear Algebra (U20BST101)	-	Engineering Mathematics – I (U23MATC01)	-
		2.Programming in C (U20EST101)	-	Programming in C (U23CSTC01)	-
		3.Engineering Mechanics (U20EST119)	-	Engineering Mechanics (U23ESTC02)	-
		4.Electrical Engineering (U20EET101)	-	Electrical Engineering (U23EET101)	-
		5.Electronic Devices (U20EET102)	-	Electronics – I (U23EET102)	-
2	I / II	Theory:			
		1.Engineering Mathematics –II Multiple Integrals and Transforms (U20BST215)	Engineering Mathematics –II (U23MATC02)	-	-
		2.Basic Engineering Science for Electrical Engineering (U20EST238)	-	-	Yes
		3.Electric Circuit Analysis (U20EET203)	-	Electric Circuit Analysis (U23EEB301)	-
		4.Electrical Machines – I (U20EET204)	Electrical Machines – I (U23EET305)	-	-
		5.Electronic Circuits (U20EET205)	-	Electronics – II (U23EET203)	-
		6.Digital Electronics (U20EET206)	-	Yes	

3	II/III	Theory:			
		1.Complex Analysis and Applications of Partial Differential Equations (U20BST320)	-	-	Yes
		2.Data Structures (U20EST356)	-	Data Structures (U23CSTC03)	-
		3.Electrical Machines – II (U20EET307)	-	Electrical Machines – II (U23EET407)	-
		4.Linear Integrated Circuits (U20EET308)	-	Electronics – III (U23EET306)	-
		5.Electromagnetic Theory (U20EET309)	-	Electromagnetic Theory (U23EET304)	-
		6.Power Plant Engineering (U20EET310)	-	Power Plant Engineering (U23EET403)	-
4	III/IV	Theory:			
		1.Probability and Statistics (U20BST430)	-	Probability and Statistics (U23MATC03)	-
		2.Programming in JAVA (U20EST467)	-	Programming in JAVA (U23HTTC03)	-
		3.Measurements and Instrumentation for Electrical Engineering (U20EET411)	-	Electrical Measurements and Instrumentation (U23EET509)	-
		4.Microprocessor and Microcontroller (U20EET412)	-	Microprocessor and Microcontroller (U23EET510)	-
		Professional Elective I			
		5. Electrical Safety Engineering (U20EEE401)	-	Electrical Safety Engineering (U23EEDC01)	-
		6. Energy Storage Technology (U20EEE405)	-	Energy Storage Technology (U23EEE404)	-
Open Electives:					
7. Engineering Computation with MATLAB (U20ECO401)	-	Engineering Computation with MATLAB (U23ECOC01)	-		
8. Web Development (U20CSO401)	-	-	Yes		
5	III/IV	Theory:			
		1.Numerical Methods and Optimization (U20BST542)	Numerical Methods and Optimization (U23MATC04)	-	-
		2.Power Electronics (U20EET513)	-	Power Electronics (U23EET613)	-
		3.Control Systems (U20EET514)	-	Control Systems (U23EEB402)	-

		4. Transmission and Distribution (U20EET515)	-	Transmission and Distribution (U23EET408)	-
		Professional Elective :			
		5. Utilization of Electrical Energy (U20EEE506)	-	Utilization of Electrical Energy (U23EEE506)	-
		6. Automotive Electronics for Electrical Engineering (U20EEE509)	-	Automotive Electronics for Electrical Engineering (U23EEE509)	-
		7. Electrical Energy Audit and Conservation (U20EEE508)	-	Electrical Energy Audit and Conservation (U23EEE716)	-
Open Elective:					
		8. Product Development and Design (U20HSO501)	-	-	Yes
6	III/VI	Theory:			
		1. Embedded System (U20EET616)	-	Embedded System (U23EET612)	-
		2. Renewable Energy Sources (U20EECM01)	-	Renewable Energy Sources (U23EET715)	-
		3. Power System Analysis (U20EET618)	-	Power System Analysis (U23EET611)	-
		4. Electrical Machine Design (U20EET619)	-	Electrical Machine Design (U23EEB603)	-
		Professional Elective :			
		5. Electric Drives (U20EEE613)	-	-	Yes
		6. Robotics and Automation (U20EECM02)	-	Robotics and Automation (U23EEE720)	-
		Open Elective:			
7. Electronic Product Design and Packaging (U20ECO603)	-	-	Yes		
8. Mobile App Development (U20ITO604)	-	-	Yes		
7	IV/ VII	Theory:			
		1. Industrial Automation and Control (U20EET720)	-	Industrial Automation and Control (U23EET714)	-
		2. Electric Vehicle Technology (U20EECM02)	-	Electric Vehicles (U23EET716)	-
		Professional Elective :			
3. Special Electrical Machines (U20EEE720)	-	Special Electrical Machines (U23EEE507)	-		

		4. Fuzzy Logic and Neural Networks (U20ICCM01)	-	-	Yes
		Open Elective:			
		5. Internet of Things (U20ECCM04)	-	IoT and its Applications (U23ECOC03)	-
		6. Artificial Intelligence Applications (U20ADO706)	-	Artificial Intelligence Applications (U23ADOC04)	-
8	IV/ VIII	Theory:			
		1. Protection and Switchgear (U20EET822)	-	Protection and Switchgear (U23EEE823)	-
		Professional Elective :			
		2. SMPS and UPS (U20EEE823)	-	SMPS and UPS (U23EEE612)	-
		3. Fundamentals of Solar photovoltaic system and applications (U20EEE825)	-	Solar Photovoltaic Fundamental and Applications (U23EEOC02)	-
		4. Smart Grid (U20EEE826)	-	Smart Grid (U23EEE830)	-
5. EHV AC and DC transmission (U20EEE827)	-	-	Yes		


 A. Janan
 CAC-Incharge
 (A. JANANIRAMAN)


 Dr. P. Jamuna