Curriculum and Syllabi

Semesters I to IV

Regulations 2023

(for 2023 Batch only)

Programme:	B.E Electrical and Electronics Engineering
Curriculum and Syllabi: Semester I to IV	
Recommended by Board of Studies on:	05.01.2024
Approved by Academic Council on:	23.03.2024

Action	Responsibility	Signature of Authorized Signatory
Designed and Developed By	BoS-Electrical and Electronics Engineering	
Compiled By	Office of Controller of Examination	
Approved By	Principal	

Department of Electrical & Electronics Engineering

Vision

We develop globally competent Electrical and Electronics Engineer to solve real time problems of the industry and society and conduct research for the application of knowledge to the society

Mission:

In order to foster growth and empowerment, we commit ourselves to

- Develop electrical and electronics engineers of high caliber to meet the expectations of industries through effective teaching-learning process
- Improve career opportunities in core areas of electrical and electronics engineering.
- Inculcate leadership qualities with ethical and social responsibilities

Programme Educational Objectives (PEOs)

B.E. Electrical and Electronics Engineering graduates will:

PEO1.Technical Expertise: Acquire a professional career and personal development in industries / higher studies / research assignments / entrepreneurs.

PEO2.Life-long learning: Sustain to develop their knowledge and skills throughout their career.

PEO3. Ethical Knowledge: Exhibit professionalism, ethical attitude, communication skills, team work and adapt to Current trends.

Programme Outcomes (POs) - Regulations 2023

On successful completion of B.E. Electrical and Electronics Engineering programme, graduating students/graduates will be able to:

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, review 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 for complex problems.

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

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 Team Work: 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 Specific Outcomes (PSOs)

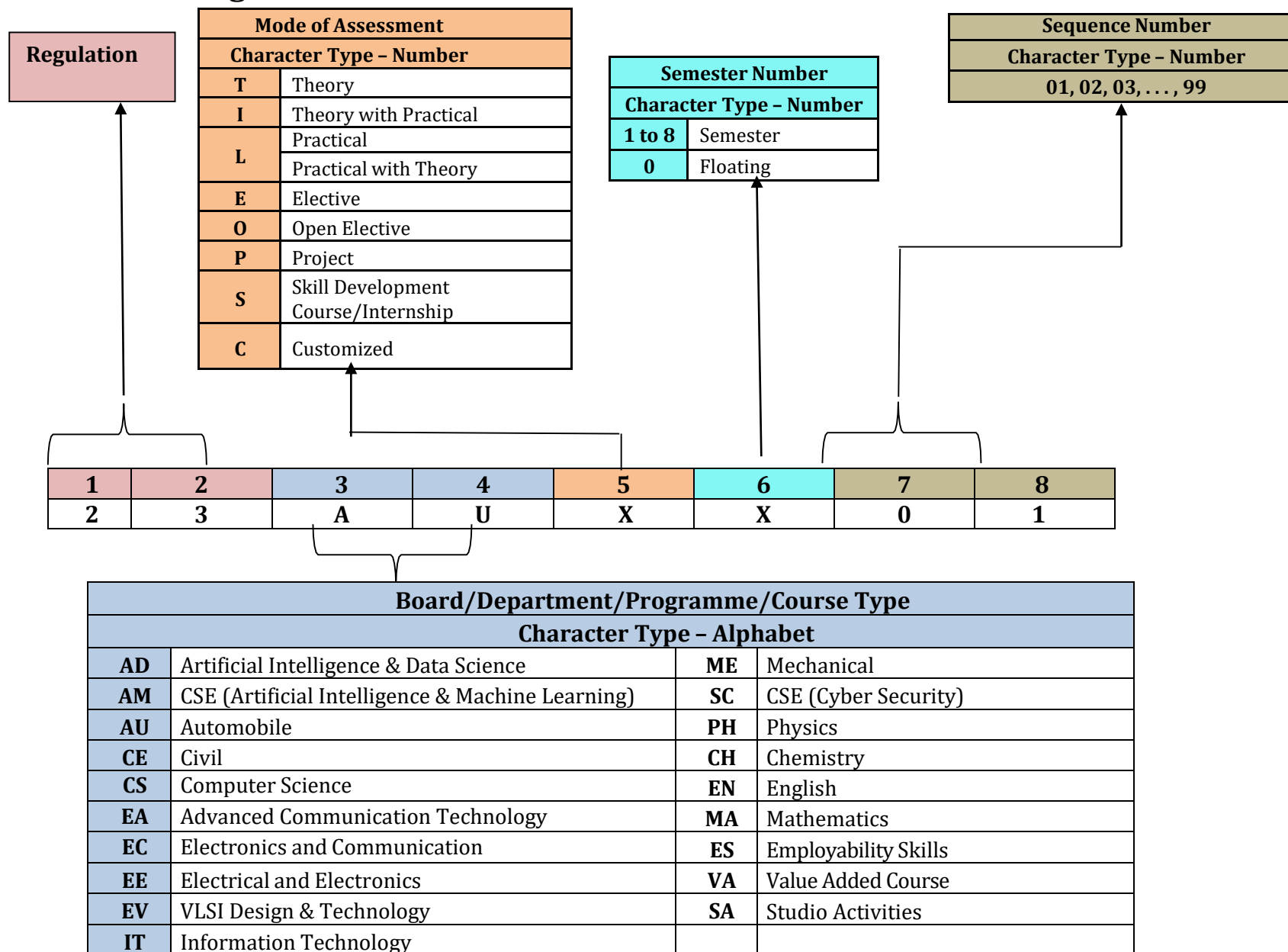On successful completion of B.E. Electrical and Electronics Engineering programme, graduating students/graduates will be able to:
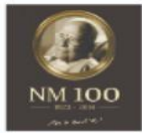
PSO1. Design and analyze systems associated with power sector, semiconductor, automotive, and automation industries.

PSO2. Develop hardware and software solutions to cater the societal and industrial needs considering recent technological developments in Electrical & Electronics Engineering.

Dr. Mahalingam College of Technology, Pollachi
2023 Regulations - Course Code Generation Procedure for UG Courses

Regulation

Mode of Assessment	
Character Type – Number	
T	Theory
I	Theory with Practical
L	Practical
	Practical with Theory
E	Elective
O	Open Elective
P	Project
S	Skill Development Course/Internship
C	Customized

Semester Number	
Character Type – Number	
1 to 8	Semester
0	Floating

Sequence Number
Character Type – Number
01, 02, 03, . . . , 99

1	2	3	4	5	6	7	8
2	3	A	U	X	X	0	1

Board/Department/Programme/Course Type					
Character Type – Alphabet					
AD	Artificial Intelligence & Data Science		**ME**	Mechanical	
AM	CSE (Artificial Intelligence & Machine Learning)		**SC**	CSE (Cyber Security)	
AU	Automobile		**PH**	Physics	
CE	Civil		**CH**	Chemistry	
CS	Computer Science		**EN**	English	
EA	Advanced Communication Technology		**MA**	Mathematics	
EC	Electronics and Communication		**ES**	Employability Skills	
EE	Electrical and Electronics		**VA**	Value Added Course	
EV	VLSI Design & Technology		**SA**	Studio Activities	
IT	Information Technology				

Dr. MAHALINGAM
COLLEGE OF ENGINEERING AND TECHNOLOGY
Udumalai Road, Pollachi, Coimbatore District - 642003
Established in 1998 ♦ Approved by AICTE ♦ Affiliated to Anna University
(A DIVISION OF NIA EDUCATIONAL INSTITUTIONS)

NAAC A++ GRADE
Cycle 3 (2023–2030)
The Highest Grade

Programme: B.E Electrical and Electronics Engineering
2023 Regulations

Type of Course	Course Code	Course Title	Duration	Credits	Marks
VAC	23VAL101	Induction Program	3 Weeks	-	100

Semester I

Type of Course	Course Code	Course Title	L	T	P	Credits	Marks	Common to Programmes
AEC	23ENI101	Communication Skills I	2	0	2	3	100	All
Minor	23MAI102	Matrices and Calculus	3	0	2	4	100	AU, EA, EC, EE, EV, ME
Minor	23CHI101	Chemistry for Electrical Sciences	3	0	2	4	100	EC, EE, EV
Major	23EET101	Basics of Electrical Engineering	3	0	0	3	100	-
Multi Disciplinary	23MEL001	Engineering Drawing	1	0	3	2.5	100	AD, AM, AU, CS, EA, EC, EE, EV, IT, ME, SC
SEC	23EEL101	Workshop Practice for Electrical Engineers	0	0	3	1.5	100	-
VAC	23VAL102	Wellness for Students	0	0	2	1	100	All
VAC	23VAT101	தமிழர்மரபு /Heritage of Tamils	1	0	0	1	100	All
AEC	23SAL101	Studio Activities	0	0	2	-	-	All
Total			**13**	**0**	**16**	**20**	**800**	**-**

Semester II

Type of Course	Course Code	Course Title	L	T	P	Credits	Marks	Common to Programmes
AEC	23ENI201	Communication Skills II	2	0	2	3	100	All
	23FLT201	Foreign Language-Japanese	3	0	0	3		
	23FLT202	Foreign Language-German	3	0	0	3		
Minor	23MAI202	Complex Variables and Transforms	3	0	2	4	100	AU, EC, EE, EV, ME
Minor	23PHI201	Physics for Electrical Sciences	3	0	2	4	100	EA, EC, EE, EV
Major	23EET201	Solid State Devices	3	0	0	3	100	-
Multi Disciplinary	23CSI201	Problem Solving using Python Programming	3	0	2	4	100	-
Major	23EEL201	Introduction to Programming with IoT	0	0	3	1.5	100	-
Major	23EEL202	Electron Devices Laboratory	0	0	3	1.5	100	-
SEC	23ESL201	Professional Skills 1:Problem solving skills & Logical Thinking 1	0	0	2	1	100	All
VAC	23VAT201	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	1	0	0	1	100	All
Multi Disciplinary	23CHT202	Environmental Sciences	1	0	0	-	100	All
AEC	23SAL201	Studio Activities	0	0	2	-	-	All
Total			**16**	**0**	**18**	**23**	**1000**	**-**

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   **BOS Chairman**

Semester III

Type of Course	Course Code	Course Title	Hours/Week			Credits	Marks	Common to Programmes
			L	T	P			
Minor	23MAT303	Numerical Methods and Linear Algebra	3	1	0	4	100	EC,EE
Major	23EET301	DC Machines and Transformers	3	0	0	3	100	-
Major	23EET302	Electric Circuits	3	1	0	4	100	-
Major	23EET303	Digital Electronics	3	0	0	3	100	-
Multi Disciplinary	23CST304	Programming in C	3	0	0	3	100	-
Major	23EEL301	DC Machines and Transformers Laboratory	0	0	3	1.5	100	-
Multi Disciplinary	23CSL302	Programming in C Laboratory	0	0	3	1.5	100	-
SEC	23ESL301	Professional Skills 2: Problem solving skills & Logical Thinking 2	0	0	2	1	100	All
VAC	23VAT301	Universal Human Values 2: Understanding Harmony	2	1	0	3	100	All
AEC	23SAL301	Studio Activities	-	-	2	-	-	All
		Total	**17**	**3**	**10**	**24**	**900**	-

Semester IV

Type of Course	Course Code	Course Title	Hours/Week			Credits	Marks	Common to Programmes
			L	T	P			
Minor	23MAT401	Probability and Statistics	3	1	0	4	100	-
Major	23EET401	Synchronous and Induction Machines	3	0	0	3	100	-
Major	23EET402	Electronic Circuits	3	0	0	3	100	-
Multi Disciplinary	23CSI402	Data Structures and Algorithms	2	0	2	3	100	-
Major	23EET403	Measurement and Instrumentation	3	0	0	3	100	-
Major	23EEL401	Synchronous and Induction Machines Laboratory	0	0	3	1.5	100	-
Major	23EEL402	Analog and Digital Electronics Laboratory	0	0	3	1.5	100	-
SEC	23ESL401	Professional Skills 3 : Professional Development and Etiquette	0	0	2	1	100	-
AEC	23SAL401	Studio Activities	0	0	2	-	-	All
		Total	**14**	**1**	**12**	**20**	**800**	-

Type of Course	Type of Course	Course Title	Duration	Credits	Marks	Common to Programmes
Internship	23XXXXXX	Internship – 1/Community Internship /Skill Development Program	2 Weeks	1	100	-

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Tentative Curriculum from Semester V to VIII

Semester V

Type of Course	Course Code	Course Title	Hours/Week			Credits	Marks	Common to Programmes
			L	T	P			
Major	23XXXXXX	Control Systems	3	1	0	4	100	-
Major	23XXXXXX	Microcontroller and Interfacing	3	0	0	3	100	-
Major	23XXXXXX	Linear Integrated Circuits	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - I	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - II	3	0	0	3	100	-
Major	23XXXXXX	Integrated Circuits Laboratory	0	0	3	1.5	100	-
Major	23XXXXXX	Microcontroller and Interfacing Laboratory	0	0	3	1.5	100	-
SEC	23XXXXXX	Professional Skills 4	0	0	2	1	100	-
Research Project	23XXXXXX	Reverse Engineering Project	0	0	6	3	100	-
AEC	23SAL501	Studio Activities	0	0	2	-	-	All
Total			**15**	**1**	**16**	**23**	**900**	-

Semester VI

Type of Course	Course Code	Course Title	Hours/Week			Credits	Marks	Common to Programmes
			L	T	P			
Major	23XXXXXX	Generation, Transmission and Distribution	3	0	0	3	100	-
Major	23XXXXXX	Digital Signal Processing	3	1	0	4	100	-
Major	23XXXXXX	Power Electronics	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - III	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - IV	3	0	0	3	100	-
Minor	23XXXXXX	Open Elective-I	3	0	0	3	100	-
Major	23XXXXXX	Power Electronics Laboratory	0	0	4	2	100	-
SEC	23XXXXXX	Professional Skills 5	0	0	2	1	100	-
AEC	23SAL601	Studio Activities	0	0	2	-	-	All
Total			**18**	**1**	**8**	**22**	**800**	-

Type of Course	Course Code	Course Title	Duration	Credits	Marks	Common to Programmes
SEC	23XXXXXX	Internship-2/ Research Internship/ Skill Development	2 or 4 Weeks	1	100	-

Semester VII

Type of Course	Course Code	Course Title	Hours/Week			Credits	Marks	Common to Programmes
			L	T	P			
Major	23XXXXXX	Power System Analysis and Stability	3	1	0	4	100	-
Major	23XXXXXX	Electric Drives and Control	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - V	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - VI	3	0	0	3	100	-
Minor	23XXXXXX	Open Elective - II	3	0	0	3	100	-
Major	23XXXXXX	Power System Lab	0	0	3	1.5	100	-
Major	23XXXXXX	Electric Drives and Control lab	0	0	3	1.5	100	-
Research Project	23XXXXXX	Project-Phase 1	0	0	8	4	100	-
Total			**15**	**1**	**14**	**23**	**800**	**-**

Semester VIII

Type of Course	Course Code	Course Title	Hours/Week			Credits	Marks	Common to Programmes
			L	T	P			
Major	23XXXXXX	Professional Elective - VII	3	0	0	3	100	-
Major	23XXXXXX	Professional Elective - VIII	3	0	0	3	100	-
Research Project	23XXXXXX	Project-Phase 2	0	0	12	6	200	-
	23XXXXXX	Internship/Skill Development Program	8 or 16 Weeks			4	100	-
Total			**6**	**0**	**12**	**16**	**500**	**-**

Total Credits: 173

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SEMESTER I

Course Code:23VAL101		Course Title: Induction Program (Common to all B.E/B.Tech Programmes)
Course Category: VAC		Course Level: Introductory
Duration: 3 weeks	Mandatory Non-Credit Course	Max Marks:100

Pre–requisites

> NIL

Course Objectives

The course is intended to:

1. Explain various sources available to meet the needs of self, such as personal items and learning resources
2. Explain various career opportunities, opportunity for growth of self and avenues available in the campus
3. Explain the opportunity available for professional development
4. Build universal human values and bonding amongst all the inmates of the campus and the society.

List of Activities:

1. History of Institution and Management: Overview on NIA Educational Institutions – Growth of MCET – Examination Process –OBE Practices –Code of Conduct – Centre of Excellence.
2. Lectures, interaction sessions and Motivational Talks by Eminent people, Alumni, Employer and Industry Experts
3. Familiarisation of Department / Branch:HoD's & Senior Interaction- Department Association
4. Universal Human Value Modules : Aspirations and concerns, Self Management, Relations Social and Natural Environment.
5. Orientation on Professional Skills Courses
6. Proficiency Modules : Mathematics, English, Physics and Chemistry
7. Introduction to various Chapters, Cells, Clubs and its events
8. Creative Arts : Painting, Music and Dance
9. Physical Activity :Games, Sports and Yoga
10. Group Visits: Visit to local area and Campus Tour

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Course Outcomes	Cognitive
At the end of this course, students will be able to:	Level
CO1 : Explain various sources available to meet the needs of self, such as personal items and learning resources through visit to local areas and campus	Understand
CO2: Explain various career opportunities and avenues available in the campus through orientation sessions	Understand
CO3: Explain the opportunity available for professional development through professional skills, curricular, co-curricular and extracurricular activities	Understand
CO4: Build universal human values and bonding amongst all the inmates of the campus and society for having a better life	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	-	-	-	-	-	-	2	1	2	-	-	-	-
CO2	1	-	-	-	-	-	-	2	1	2	-	-	-	-
CO3	1	-	-	-	-	-	-	2	1	2	-	-	-	-
CO4	2	-	-	-	-	-	-	2	1	2	-	-	-	-

High : 3, Medium :2, Low: 1

Text Book(s):

T1. Reading material, Workbook prepared by PS team of the college

Reference Book(s):

R1. Sean Covey, "Seven habits of highly effective teenagers", Simon & Schuster Uk, 2004.

R2. Vethathiri Maharishi Institute For Spiritual and Intuitional Education, aliyar, "value educat harmonious life (Manavalakalai Yoga)", Vethathri Publications, Erode, 2010.

R3. Dr.R.Nagarathna, Dr.H.R. Nagendra, " Integrated approach of yoga therapy for positive Swami Vivekananada Yoga Prakashana Bangalore,2008 Ed.

Web References:

1. https://youtube.com/playlist?list=PLYwzG2fd7hzc4HerTNkc3pS_IvcCfKznV

2. https://www.youtube.com/watch?v=P4vjfEVk&list=PLWDeKF97v9SO0frdgmpaghDMjkom1

3. https://fdp-si.aicte-india.org/download/AboutSIP/About%20SIP.pdf

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Course Code: 23ENI101	Course Title: Communication Skills I (Common to all B.E/B.Tech Programmes)		
Course Category: AEC	Course Level: Introductory		
L:T:P(Hours/Week) 2:0:2	Credits: 3	Total Contact Hours:60	Max Marks:100

Course Objectives

The course is intended to impart formal and informal language effectively and accurately in various real-life contexts on par with B1 level of CEFR Scale.

Module I   **20 Hours**

Grammar: Synonyms & Antonyms -Tense forms - Modals - Passives – Reported Speech – Comparatives and Descriptive adjectives.

Listening: Listening for gist and specific information - Listening to past events, experiences and job preferences - Listening to descriptions of monuments - Listening for excuses - Listening to description: transportation systems and public places.

Speaking: Introducing oneself - Exchanging personal information – Effective Conversations: Role Play Situations (Describing personality traits - Describing landmarks, monuments and festivals - Making polite requests and excuses - Discussing facts - Asking for and giving information – Expressing wishes - Talking about lifestyle changes - Talking about transportation and its problems - Describing positive and negative features of things and places - Making comparisons)

Reading: Skimming and Scanning - Reading Comprehension - Reading and comprehending online posts and emails – Case Studies

Writing: Letter writing (Permission letters - Online cover letter for job applications) - Instructions - Recommendations - Write a blog (General) - Report Writing (Industrial Visit Report and Event Reports) - formal and informal emails.

Module II   **20 Hours**

Grammar: Sequence adverbs - Phrasal verbs - Relative clauses – Imperatives - Infinitives - Conditionals.

Listening: Listening to review of food items - Listening to results of surveys- Listening to motivational talks & podcasts

Speaking: Expressing likes and dislikes - Describing a favourite snack - Giving advices and suggestions - Speculating about past and future Events – Group Discussion

Reading: Reading different expository texts - Reading to factual texts - Print and online media- Reading Comprehension

Writing: Process Descriptions – Email Writing (Requesting for information) -   Reviewing Movie – Social media feeds/posts (Any Social Media)

List of Experiments: 20 Hours

1. Mini Presentation and Picture Prompt Discussion
2. Debate Tournament
3. Listening, Mind Mapping & Summarization
4. Listening to Stories and Providing the Innovative Climax
5. Reading Comprehension
6. Writing - Interpretation of Visuals

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1 : Utilize the basic English grammar and vocabulary to acquire professional communication skills.	Apply
CO 2 : Develop listening and speaking skills through classroom activities based on listening comprehension, recapitulation, interpretation and debate on the same	Apply
CO 3 : Read and write social media posts and comments	Apply
CO 4 : Perform as a member of a team and engage in individual presentation	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO4	-	-	-	-	-	-	-	-	2	3	-	-	-	-

High-3; Medium-2;Low-1

Textbooks:

T1. Jack C. Richards, Jonathan Hull, and Susan Proctor, "Interchange - Student's book 2", 5thEdition, Cambridge University Press, South Asia Edition, 2022.

T2. Jack C. Richards, Jonathan Hull, and Susan Proctor, "Interchange - Student's Book 1", 5thEdition, Cambridge University Press, South Asia Edition, 2022.

Reference Book(s):

R1. David Bohlke, Jack C. Richards, "Four Corners", 2nd Edition, Cambridge University Press,2018.

R2. Adrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis-Jones, Graham Burton,Empower B1 – Student's Book, Cambridge University Press, 2020.

R3. Raymond Murphy, "Intermediate English Grammar" 30th Edition, Cambridge University Press,2022.

Web References:

1. https://speakandimprove.com/
2. https://writeandimprove.com/
3. https://www.cambridgeenglish.org/exams-and-tests/linguaskill/

Course Code: 23MAI102	Course Title: Matrices and Calculus (Common to AU, EA, EC, EE, EV & ME)		
Course Category: Minor	Course Level: Introductory		
L:T:P(Hours/Week) 3:0 :2	Credits: 4	Total Contact Hours:75	Max Marks:100

Course Objectives:
The course is intended to impart knowledge on the use of matrix algebra techniques for practical applications, familiarize with differential calculus and acquire knowledge of mathematical tools to evaluate multiple integrals.

Module I   **23 Hours**

Matrices
Definitions and examples of symmetric, skew symmetric and orthogonal matrices - Eigenvalues and Eigenvectors – Properties of Eigenvalues and Eigenvectors-Diagonalization of matrices through orthogonal transformation - Cayley-Hamilton Theorem (without proof) – verification problems and properties - Transformation of quadratic forms to canonical forms through orthogonal transformation.

Differential and Integral Calculus
Curvature – Radius of curvature –Centre of curvature- Circle of curvature - Evolutes and Involutes - Evaluation of definite and improper integrals - Beta and Gamma functions – Properties and applications.

Multivariable Differentiation I
Limit – continuity - Mean value theorems and partial derivatives - Taylor's series and Maclaurin's series – Jacobian of functions of several variables.

Module II   **22 Hours**

Multivariable Differentiation II
Maxima, Minima and saddle points of functions of several variables - Method of Lagrange's multipliers.

Multiple Integral
Multiple Integration: Double integrals - Change of order of integration in double integrals - Change of variables (Cartesian to polar, Cartesian to spherical and Cartesian to cylindrical) - Triple integrals - Applications: Finding areas and volumes.

Ordinary Differential Equations Of Second and Higher Orders
Second and higher order linear differential equations with constant coefficients – Second order linear differential equations with variable coefficients (Cauchy - Euler equation, Legendre's equation) – Method of variation of parameters – Solution of first order simultaneous linear ordinary differential equations

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List of Experiments: **30 Hours**

1. Introduction to MATLAB.
2. Rank of matrix and solution of system of linear algebraic equations.
3. Finding Eigen values and Eigen vectors of a matrix.
4. Solving ordinary differential equation.
5. Gram Schmidt Procedure.
6. Finding Maxima, Minima of a function.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Determine the canonical form of a quadratic form using orthogonal transformation.	Apply
CO2: Identify the evolute of a curve and solve the improper integrals using beta gamma functions.	Apply
CO3: Examine the extreme value of multivariate functions.	Apply
CO4: Evaluate the area and volume using multiple integrals and solve the higher order differential equations.	Apply
CO5: Demonstrate the understanding of calculus concepts through modern tools.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO5	-	-	-	-	3	-	-	-	-	-	-	-	1	-

High-3; Medium-2;Low-1

Text Book(s):

T1. Erwinkreyzig, Advanced Engineering Mathematics, 9th edition, John Wiley& Sons, 2006.

T2. Veerarajan T., Engineering Mathematics for first year, 3rd edition, Tata McGraw-Hill,

Reference Book(s):

R1. G.B.Thomas and R.L Finney, Calculus and Analytic Geometry, 9th edition, Pearson, Reprint, 2002.

R2. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.

R3. P. Sivaramakrishna Das , C. Vijayakumari , Engineering Mathematics, Pearson India, 2017.

Web References:

1. https://nptel.ac.in/courses/111107112
2. https://nptel.ac.in/courses/111104031

Passed in 17th Board of Studies Meeting held on 05.01.2024

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Course Code: 23CHI101	Course Title: Chemistry for Electrical Sciences (Common to EC, EE & EV)		
Type of Course: Minor	Course Level: Introductory		
L:T:P (Hours/Week) 3: 0:2	Credits:4	Total Contact Hours:75	Max Marks:100

Course Objectives

The course is intended to impart the knowledge of chemistry involved in Electrochemistry, Corrosion and its control, Spectroscopic technique, Fuels and Nanomaterials.

Module: I 23 Hours

Electrochemistry and Batteries:

Electrochemistry - Basic terminologies - Potentiometric titration – Nernst equation – Batteries – Types and Characteristics, Construction, working and applications - Lead –Acid battery, Lithium-ion battery – Fuel cells - Construction, working and applications – Hydrogen Oxygen fuel cell.

Corrosion and its Control:

Corrosion – Dry and Wet corrosion – Mechanism of electrochemical corrosion – Galvanic corrosion and Concentration cell corrosion, Factors influencing corrosion. Corrosion Control methods – Cathodic protection methods, Metallic coating – Galvanizing, Tinning – Chrome plating and Electroless plating of Nickel

Spectroscopic Techniques:

Spectroscopy- Electromagnetic spectrum, Absorption and Emission spectroscopy – Relationship between absorbance and concentration – Derivation of Beer-Lambert's law (problems).

Module: II 22 Hours

Spectroscopic Techniques:

UV - Visible Spectroscopy, Atomic Absorption Spectroscopy, Flame photometry - Principle, Instrumentation, and applications.

Biofuels and Lubricants:

Biomass - Biogas - Constituents, manufacture and uses. General outline of fermentation process - manufacture of ethyl alcohol by fermentation process. Combustion - Calorific values - Gross and Net calorific value - Problems based on calorific value. Lubricants - Classification of lubricants - Properties of liquid lubricants and their significance - Greases - Common grease types and properties. Components of grease – Base oil, additives and thickener.

Synthesis and Applications of Nano Materials:

Introduction - Difference between bulk and Nano materials - size dependent properties. Nano scale materials - Particles, clusters, rods, and tubes. Synthesis of Nanomaterials: Sol-Gel process, Electro deposition, Hydrothermal methods. Applications of Nano materials in Electronics, Energy science and Medicines. Risk and future perspectives of nano materials.

LIST OF EXPERIMENTS: (Any 6 experiments)   **30 Hours**

1. Estimation of Fe^{2+} by potentiometric titration.
2. Determination of corrosion rate by weight loss method.
3. Estimation of iron in water by spectrophotometry
4. Determination of Cloud and Pour Point.
5. Green Synthesis of Silver Nanoparticles by Neem leaf.
6. Conductometric titration of strong acid against strong base.
7. Determination of strength of acid by pH metry.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Understand and explain the chemistry involved in Electrochemistry, Corrosion, Spectroscopic techniques, Fuels and Nanomaterials.	Understand
CO2: Apply the acquired knowledge of chemistry to solve the Engineering problems.	Apply
CO3: Analyze the Engineering problems through the concept of Electro chemistry, Spectroscopic techniques, Fuels, and Nanomaterials.	Apply
CO4: Apply the knowledge of chemistry to investigate Engineering materials by volumetric and instrumental methods and analyze, interpret the data to assess and address the issues of Environmental Pollution	Evaluate

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	-	1
CO4	-	-	-	3	-	-	-	-	-	-	-	-	-	-

Text book(s):

T1. Jain and Jain, Engineering Chemistry, 17th Edition, Dhanpat Rai Publishing Company, New Delhi, 2018.

T2. Wiley Engineering Chemistry, 2nd Edition, Wiley India Pvt Ltd, New Delhi, 2011.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   **BOS Chairman**

Reference Book(s):

R1. Dara S. S and Umare S. S., A textbook of Engineering Chemistry, 12th Edition, S. Chand & Co Ltd, New Delhi , 2014.

R2. V. R. Gowariker, N. V. Viswanathan and Jayadev Sreedhar, Polymer Science,4th Edition New Age International(P) Ltd, Chennai ,2021.

R3. Jeffery G. H., Bassett. J., Mendham J and Denny R. C., Vogel's Textbook of Quantitative Chemical Analysis, 5th Edition Oxford, ELBS, London, 2012.

Web References:

1. http://nptel.ac.in/courses/122101001/downloads/lec.23.pdf
2. https://nptel.ac.in/courses/104106075/Week1/MODULE%201.pdf
3. https://nptel.ac.in/courses/103102015/

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code:23EET101	Course Title: Basics of Electrical Engineering		
Course Category: Major	Course Level: Introductory		
L:T:P(Hours/Week) 3: 0: 0	Credits:3	Total Contact Hours:45	Max Marks:100

Course Objectives:

The course is intended to impart the knowledge on basic DC and AC circuits, magnetic and electro-magnetic circuit. Also the course details single phase and three phase system, safety protection and wiring concepts.

Module I   **22 Hours**

Electric circuits: Definition, symbol and unit of quantities – Active and Passive elements – Ohm's Law: statement, illustration and limitation – Kirchhoff's Laws: statement and illustration, voltage division rule –current division rule - Method of solving a circuit by Kirchhoff's laws – Star to Delta and Delta to Star transformation - problems.

Magnetic Circuits: Definition of magnetic quantities – Basic Terminology: MMF, field strength, flux density, reluctance – comparison between electric and magnetic circuits – Series and parallel magnetic circuits with composite materials, numerical problems.

Electromagnetic Induction: Faraday's laws, problems, Lenz's law – statically induced and dynamically induced emfs – Self-inductance and mutual inductance, coefficient of coupling.

Module II   **23 Hours**

AC Fundamentals: Generation of single phase alternating EMF – Terminology –– Representation of sinusoidal waveforms: frequency, period, Root Mean Square (RMS)Average value of AC – form factor – Phasor representation of alternating quantities – Pure –Resistive, Inductive and Capacitive circuits – Problems .3 Phase System: line and phase values, relation between line and phase values – phase sequence -3 Wire and 4 Wire system.

Electrical Wiring: Connectors and switches, systems of wiring, domestic wiring installation, sub circuits in domestic wiring, simple control circuit in domestic installation, industrial electrification - circuit protection devices, fuses, MCB, ELCB and relays.

Safety and Protection: Safety, electric shock, first aid for electric shock and other hazards, safety rules, use of multi-meters, grounding, importance of grounding, equipment grounding for safety.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Apply the basic engineering fundamentals in solving Electric, Magnetic and Electromagnetic Circuits.	Apply
CO2: Apply the fundamentals of single phase AC circuits in Pure Resistive, Inductive and Capacitive circuits and basics of 3 phase AC system.	Apply
CO3: Understand the fundamental concepts of Three Phase System.	Understand
CO4: Report the financial requirement of installation of electrical wiring, safety standards and protection systems using case studies	Analyze

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	1
CO2	3	-	-	-	-	-	-	-	-	-	-	-	1	1
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	1	-	-	-	1	-	1	-	-	1	-	-	1

High-3; Medium-2;Low-1

Text Book(s):

T1.   R.Muthusubramanian and S.Salivahanan, "Basic Electrical and Electronics Engineering", McGraw Hill India Limited, New Delhi, 2014.

T2.   Kothari DP and I.J Nagrath, "Basic Electrical and Electronics Engineering", Second Edition, McGraw Hill Education, 2020.

Reference Book(s):

R1.   B.L Theraja, "Fundamental of Electrical Engineering and Electronics", S.Chand Limited – 2006.

R2.   J.B. Gupta, "Basic Electrical and Electronics Engineering", S.K. Kataria & Sons, 2009.

R3.   Smarajit Ghosh, "Fundamental of Electrical and Electronics Engineering", 2nd Edition, PHI Learning Private Limited New Delhi, 2010.

R4.   S. K. Sadhev, "Basic Electrical Engineering and Electronics", Tata McGraw Hill, 2017.

Web References:

1. https://www.nptel.ac.in/courses/108108076/

2. https://www.oreilly.com/library/view/basic-electrical-and/9789332579170/

3. http://www.ait.ac.jp/en/faculty/lab-enginnering/latter/elec-material/

4. http://www.electrical4u.com

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23MEL001	Course Title: Engineering Drawing (Common to AD,AM,AU,CS,EA ,EC,EE,EV,IT,ME, SC)		
Course Category: Multidisciplinary	Course Level: Introductory		
L:T:P(Hours/Week) 1: 0: 3	Credits:2.5	Total Contact Hours: 60	Max Marks:100

Course Objectives:

The course is intended to impart knowledge on basic dimensioning. 2D and 3 D drawings such as points, lines,planes and solids on first quadrant.

Module I   **8 Hours**

Basics of Engineering Drawing: Importance of graphics in engineering applications – Use of drafting instruments – BIS conventions and specifications – Size, layout and folding of drawing sheets – Lettering and dimensioning. Basic Geometrical constructions –Orthographic projection- Free hand Sketching.

Projection of Points, Lines: First angle projection-projection of points. Projection of straight lines (only First angle projections) inclined to both the principal planes - Determination of true lengths and true inclinations by rotating line method and traces by rotating object method.

Projection of Solids: Projection of simple solids like prisms, pyramids, cylinder and cone when the axis is inclined to one of the principal planes by rotating object method. Practicing three dimensional modeling of simple objects by CAD Software (Not for examination).

Module II   **7 Hours**

Sectioned Solids: Sectioning of simple solids like prisms, pyramids, cylinder and cone when the axis is inclined to one reference plane by cutting planes inclined to one reference plane and perpendicular to the other – Orthographic views of sections of simple solids.

Development of Surfaces: Development of lateral surfaces of simple and truncated solids – Prisms, pyramids, cylinders using straight line and radial line method.

Isometric Projection: Principles of isometric projection – Isometric scale –Isometric projections of simple solids and truncated solids. Practicing three dimensional modeling of isometric projection of simple objects by CAD Software (Not for examination).

List of Experiments   **45 Hours**

1. Lettering & Dimensioning
2. Projection of Points & Lines
3. Orthographic projections
4. Projection of Simple Solids
5. Projection of Section of Simple Solids
6. Development of Surfaces
7. Isometric Projections

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Apply the concepts related to free hand sketching, orthographic and Isometric projection in first quadrant.	Understand
CO2: Apply the concepts and draw projections of points in four different quadrants and lines located first quadrant.	Apply
CO3: Apply the concepts and draw projections and sections of simple solids using rotatingobject method.	Apply
CO4: Apply the concepts and draw lateral surface of simple solids using straight line andradial line development methods.	Apply
CO5: Apply the concepts and draw isometric view of simple solids and truncated solids using principles of isometric projection.	Apply
CO6: Conduct experiments to demonstrate concepts, implement and analyze the drawing concepts using engineering tool : Using AutoCAD.	Analyze

Textbook:

T1. Cencil Jensen, Jay D.Helsel and Dennis R. Short, " Engineering Drawing and Design", Tata McGraw Hill India, New Delhi, 3rd edition, 2019.

Reference Book(s):

R1. Basant Agarwal and Agarwal C.M., "Engineering Drawing", Tata McGraw Hill India, New Delhi, 2nd edition, 2014.

R2. Dhananjay A. Jolhe, "Engineering Drawing with an introduction to AutoCAD" Tata McGraw India, New Delhi, 3rd edition, 2010.

R3. Bhatt N.D. and Panchal V.M., "Engineering Drawing", Charotar Publishing House, Gujarat, 54rd edition, 2023.

PUBLICATIONS OF BUREAU OF INDIAN STANDARDS

1.   IS 10711 – 2001: Technical products Documentation – Size and lay out of drawing sheets.IS 9609 (Parts 0 & 1) – 2001: Technical products Documentation – Lettering.

2.   IS 10714 (Part 20) – 2001 & SP 46 – 2003: Lines for technical drawings.IS 11669 – 1986 & SP 46 – 2003: Dimensioning of Technical Drawings.

3.   IS 15021 (Parts 1 to 4) – 2001: Technical drawings – Projection Methods. The mode of delivery is like practical.

Web References:

1   http://nptel.ac.in/courses/112103019/

2   https://www.coursera.org/specializations/autodesk-cad-cam-cae-mechanical-engineering

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	3	-	-	3	-	-	-	1	1	-	1	-	-

High-3; Medium-2; Low-1

Course Code:23EEL101	Course Title:Workshop Practice for Electrical Engineers	
Course Category: Major	Course Level: Introductory	
L:T:P(Hours/Week) 0:0:3	Credits:1.5	Total Contact Hours:45	Max Marks:100

Course Objectives

The course is intended to impart knowledge on electrical equipments, basic house wiring, and identification of resistors, capacitors and computers. Also the course provide an insight on soldering ,fitting, carpentry and plumbing experience

List of Exercises:

1. Introduction to switches, fuses, indicators and lamps – Basic switch board wiring with lamp, fan and three pin socket.
2. Staircase wiring.
3. Fluorescent Lamp wiring with introduction to CFL and LED types.
4. Energy meter wiring and related calculations/calibration.
5. Study of Iron Box wiring and assembly.
6. Study of Fan Regulator (Resistor type and Electronic type using Diac/Triac/quadrac)
7. Study of resistors and capacitors.
8. Soldering simple electronic circuits and checking continuity.
9. Assembly and dismantle of laptop/computer.
10. Inductor Design.
11. Fitting Trade: Demonstration and practice of fitting tools, Preparation of T-Shape, DovetailJoint, Dissembling and Reassembling of Tail Stock, Bench vice etc.
12. Carpentry: Demonstration and practice of carpentry tools, Preparation of Cross Half lap joint/ Mortise Tenon Joint.
13. Plumbing: Demonstration and practice of Plumbing tools, Preparation of Pipe joints with coupling for same diameter and with reducer for different diameters.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Conduct experiment and report the basic house wiring circuit by following professional engineering safety standards.	Apply
CO2: Examine and report the working of different electrical equipment with its technical advancements and sustainable development.	Analyze
CO3: Apply soldering procedure and identify the values of resistors and capacitors in simple circuits and report it.	Apply
CO4: Explain the function of different parts of a computer.	Understand
CO5: Analyze and report fitting, carpentry and plumbing practices.	Analyze

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	-	-	-	-	1	-	1	-	3	-	-	1	-
CO2	-	2	-	-	-	-	1	-	-	3	-	1	-	1
CO3	2	-	-	-	-	-	-	-	-	3	-	-	1	-
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	2	-	-	-	-	-	-	-	3	-	-	-	-

High-3; Medium-2; Low-1

Text Book(s):

T1. Felix W, "Basic Workshop Technology: Manufacturing Process", Independently Published, 2019.

T2. Bruce J. Black "Workshop Processes, Practices and Materials", Routledge publishers, 5th Edn. 2015.

T3. Engineering Practices Laboratory Manual, Ramesh Babu.V., VRB Publishers Private Limited, Chennai, Revised Edition, 2013 – 2014.

Reference Book(s):

R1. B.S. Raghuwanshi,"A Course in Workshop Technology" Vol I. & II,Dhanpath Rai & Co., 2015 & 2017.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

R2. S. K. Hajra Choudhury,"Elements of Workshop Technology", Vol. I & Vol. II, Media Promoters and Publishers, Mumbai. 14th Edition, 2007.

R3. T.Jeyapoovan, "Engineering Practices Lab Manua", Vikas Pub, 4th Edn.2008.

R4. Soni P.M., Upadhyay P.A., Atul Prakashan, "Wiring Estimating, Costing and Contracting", 2021.

Web References:

1.   https://bharatskills.gov.in.

Different Trade E-Books (Fitting, Plumbing, Welding, Carpentry, Foundryman, Turner and House Wiring etc.) developed by National Instructional Media Institute, Chennai. Directorate General of Training, Ministry of Skill Development & Entrepreneurship, Govt. of India.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23VAL102	Course Title: Wellness for Students (Common to all B.E/B.Tech Programmes)		
Course Category: VAC	Course Level: Introductory		
L:T:P(Hours/Week) 0: 0 :2	Credits:1	Total Contact Hours:30	Max Marks:100

Course Objectives:
The course is intended to impart knowledge on setting SMART goals for academic, career and life, applying time management techniques, articulating the importance of wellness for success in life and understanding the dimensions of wellbeing and relevant practices.

Module I   **15 Hours**

GOAL SETTING Understanding Vision and mission statements - Writing personal mission statements – 'Focus' as a way of life of most successful people. Clarifying personal values, interests and orientations – Awareness of opportunities ahead – Personal SWOT analysis - Principles driving goal setting: Principle of response and stimuli, Circle of influence and circle of concern, What you see depends on the role you assume. Potential obstacles to setting and reaching your goals - Five steps to goals setting: SMART goals, Inclusive goals, Positive stretch, Pain vs gain, Gun-point commitment.

TIME MANAGEMENT - TOOLS AND TECHNIQUES Importance of planning and working to time. Pareto 80-20 principle of prioritization – Time quadrants as a way to prioritize weekly tasks – The glass jar principle - Handling time wasters – Assertiveness, the art of saying 'NO' – Managing procrastination.

CONCEPT OF WELLNESS – impact of absence of wellness - Wellness as important component to achieve success. Wellbeing as per WHO - Dimensions of Wellbeing: Physical, Mental, Social, Spiritual – indicators and assessment methods

Module II   **15 Hours**

Simplified Physical Exercises. Fitness as a subset of Wellness – health related physical fitness - skill related physical fitness. Joint movements, Warm up exercises, simple asanas, WCSC simplified exercises.

PRACTICES FOR MENTAL WELLNESS

Meditation: Mind and its functions - mind wave frequency – Simple basic meditation – WCSC meditation and introspection tables. Greatness of friendship and social welfare – individual, family and world peace – blessings and benefits.
Food & sleep for wellness: balanced diet - good food habits for better health (anatomic therapy) – hazards of junk food - food and the gunas.

PUTTING INTO PRACTICE
Practicals: Using the weekly journal – Executing and achieving short term goals – Periodic reviews.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Set well-articulated goals for academics, career, and personal aspirations	Apply
CO 2: Apply time management techniques to complete planned tasks on time	Apply
CO 3: Explain the concept of wellness and its importance to be successful in career and life	Apply
CO 4: Explain the dimensions of wellness and practices that can promote wellness	Apply
CO 5: Demonstrate the practices that can promote wellness	Valuing

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	-	-	-	1	1	-	1
CO2	-	-	-	-	-	-	-	-	1	-	1	1
CO3	-	-	-	-	-	-	-	-	1	-	-	1
CO4	-	-	-	-	-	-	-	-	1	-	-	1
CO5	-	-	-	-	-	1	1	-	1	-	-	1

High-3; Medium-2;Low-1

Text Book(s):

T1. Reading material, workbook and journal prepared by PS team of the college

Reference Book(s):

R1. Stephen R Covey, "First things first", Simon & Schuster UK, Aug 1997

R2. Sean Covey, "Seven habits of highly effective teenagers", Simon & Schuster UK, 2004.

R3. Vethathiri Maharishi Institute for Spiritual and Intuitional Education, Aliyar, "Value education for harmonious life (Manavalakalai Yoga)", Vethathiri Publications, Erode, I Ed. (2010).

R4. Dr. R. Nagarathna, Dr. H.R. Nagendra, "Integrated approach of yoga therapy for positive health", Swami Vivekananda Yoga Prakashana, Bangalore, 2008 Ed.

R5. Tony Buzan, Harper Collins, "The Power of Physical Intelligence English"

Course Code: 23VAT101	Course Title: HERITAGE OF TAMILS (Common to all B.E/B.Tech Programmes)		
Course Category: VAC		Course Level: Introductory	
L:T:P (Hours/Week) 1: 0 :0	Credit: 1	Total Contact Hours: 15	Max Marks:100

Pre–requisites

> ➢ NIL

Course Objectives

மாணவர்கள் இப்பாடத்தை கற்றலின் மூலம்

CO.1 மொழி மற்றும் இலக்கியம், பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை – சிற்பக் கலை , நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுகள் , திணைக் கோட்பாடுகள் மூலம் தமிழர் மரபை அறிந்து கொள்ள இயலும்.

CO.2 இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பை அறிந்து கொள்ள இயலும்.

தமிழர் மரபு

அலகு 1 – மொழி மற்றும் இலக்கியம்   3

இந்திய மொழிக் குடும்பங்கள் – திராவிட மொழிகள் – தமிழ் ஒரு செம்மொழி – தமிழ் செவ்விலக்கியங்கள் – சங்க இலக்கியத்தின் சமயச் சார்பற்ற தன்மை – சங்க இலக்கியத்தில் பகிர்தல் அறம் – திருக்குறளில் மேலாண்மைக் கருத்துக்கள் – தமிழ்க் காப்பியங்கள், தமிழகத்தில் சமண பௌத்த சமயங்களின் தாக்கம் – பக்தி இலக்கியம், ஆழ்வார்கள் மற்றும் நாயன்மார்கள் – சிற்றிலக்கியங்கள் – தமிழில் நவீன இலக்கியத்தின் வளர்ச்சி – தமிழ் இலக்கிய வளர்ச்சியில் பாரதியார் மற்றும் பாரதிதாசன் ஆகியோரின் பங்களிப்பு.

அலகு 2 – மரபு – பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை – சிற்பக் கலை   3

நடுகல் முதல் நவீன சிற்பங்கள் வரை – ஐம்பொன் சிலைகள் – பழங்குடியினர் மற்றும் அவர்கள் தயாரிக்கும் கைவினைப் பொருட்கள், பொம்மைகள் – தேர் செய்யும் கலை – சுடுமண் சிற்பங்கள் – நாட்டுப்புறத் தெய்வங்கள் – குமரிமுனையில் திருவள்ளுவர் சிலை – இசைக் கருவிகள் – மிருதங்கம், பறை, வீணை, யாழ், நாதஸ்வரம் – தமிழர்களின் சமூக பொருளாதார வாழ்வில் கோவில்களின் பங்கு.

அலகு 3 – நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுகள்   3

தெருக்கூத்து, கரகாட்டம், வில்லுப்பாட்டு, கணியான் கூத்து, ஒயிலாட்டம், தோல்பாவைக் கூத்து, சிலம்பாட்டம், வளரி, புலியாட்டம், தமிழர்களின் விளையாட்டுகள்.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

அலகு 4 – தமிழர்களின் திணைக் கோட்பாடுகள்   3

தமிழகத்தின் தாவரங்களும், விலங்குகளும் – தொல்காப்பியம் மற்றும் சங்க இலக்கியத்தில் அகம் மற்றும் புறக் கோட்பாடுகள் – தமிழர்கள் போற்றிய அறக் கோட்பாடு – சங்க காலத்தில் தமிழகத்தில் எழுத்தறிவும், கல்வியும் – சங்ககால நகரங்களும் துறைமுகங்களும் – சங்க காலத்தில் ஏற்றுமதி மற்றும் இறக்குமதி – கடல் கடந்த நாடுகளில் சோழர்களின் வெற்றி.

அலகு 5 – இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு   3

இந்திய விடுதலைப் போரில் தமிழர்களின் பங்கு – இந்தியாவின் பிறபகுதிகளில் தமிழ்ப் பண்பாட்டின் தாக்கம் – சுய மரியாதை இயக்கம் – இந்திய மருத்துவத்தில் சித்த மருத்துவத்தின் பங்கு – கல்வெட்டுகள், கையெ முத்துப் படிகள்– தமிழ்ப் புத்தகங்களின் அச்சு வரலாறு.

TOTAL : 15 PERIODS

Course Outcomes	Cognitive Level
மாணவர்கள் இப்பாடத்தை கற்றபின்	
CO.1 மொழி மற்றும் இலக்கியம், பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை – சிற்பக் கலை , நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுகள் , திணைக் கோட்பாடுகள் மூலம் தமிழர் மரபை அறிந்து கொள்வார்கள்.	அறிதல் (Understand)
CO.2 இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பை அறிந்து கொள்வார்கள்.	அறிதல் (Understand)

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	1	-	-

High–3; Medium–2; Low–1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

TEXT - CUM REFERENCE BOOKS

1   தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே.பிள்ளை
     (வெளியீடு. தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்)

2.   கணினித் தமிழ் – முனைவர் இல. சுந்தரம் (விகடன் பிரசுரம்)

3.   கீழடி – வைகை நதிக்கரையில் சங்க கால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)

4.   பொருநை – ஆற்றங்கரை நாகரிகம்   (தொல்லியல் துறை வெளியீடு)

5.   Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL
      – (in print)

6.   Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by:
      International Institute of Tamil Studies.

7.   Historical   Heritage   of   the   Tamils   (Dr.S.V.Subatamanian,   Dr.K.D.
      Thirunavukkarasu) (Published by: International Institute of Tamil Studies).

8.   The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by:
      International Institute of Tamil Studies.)

9.   Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published
      by:
      Department of Archaeology & Tamil Nadu Text Book and Educational Services
      Corporation, Tamil Nadu)

10.   Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay)
      (Published by: The Author)

11.   Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil
      Nadu Text Book and Educational Services Corporation, Tamil Nadu)

12.   Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) –
      Reference Book.

Course Code: 23VAT101	Course Title: HERITAGE OF TAMILS (Common to all B.E/B.Tech Programmes)			
Course Category: VAC	Course Level: Introductory			
L:T:P (Hours/Week) 1: 0 :0	Credit: 1	Total Contact Hours: 15		Max Marks:100

Pre–requisites

> ➤ NIL

Course Objectives

The course is intended to:

1. Understand the Heritage of Tamils in terms of Language and Literature, Rock Art Paintings to Modern Art – Sculpture, Folk and Martial Arts, Thinai Concept.

2. Understand the Contribution of Tamils to Indian National Movement and Indian Culture.

HERITAGE OF TAMILS

UNIT I LANGUAGE AND LITERATURE   3

Language Families in India - Dravidian Languages – Tamil as a Classical Language – Classical Literature in Tamil – Secular Nature of Sangam Literature – Distributive Justice in Sangam Literature - Management Principles in Thirukural - Tamil Epics and Impact of Buddhism & Jainism in Tamil Land - Bakthi Literature Azhwars and Nayanmars - Forms of minor Poetry - Development of Modern literature in Tamil - Contribution of Bharathiyar and Bharathidhasan.

UNIT II HERITAGE - ROCK ART PAINTINGS TO MODERN ART – SCULPTURE   3

Hero stone to modern sculpture - Bronze icons - Tribes and their handicrafts - Art of temple car making - - Massive Terracotta sculptures, Village deities, Thiruvalluvar Statue at Kanyakumari, Making of musical instruments - Mridhangam, Parai, Veenai, Yazh and Nadhaswaram - Role of Temples in Social and Economic Life of Tamils.

UNIT III FOLK AND MARTIAL ARTS   3

Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyillattam, Leather puppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils.

UNIT IV THINAI CONCEPT OF TAMILS   3

Flora and Fauna of Tamils & Aham and Puram Concept from Tholkappiyam and Sangam Literature - Aram Concept of Tamils - Education and Literacy during Sangam Age - Ancient Cities and Ports of Sangam Age - Export and Import during Sangam Age - Overseas Conquest of Cholas.

UNIT V CONTRIBUTION OF TAMILS TO INDIAN NATIONAL MOVEMENT AND INDIAN CULTURE   3

Contribution of Tamils to Indian Freedom Struggle - The Cultural Influence of Tamils over the other parts of India – Self-Respect Movement - Role of Siddha Medicine in Indigenous Systems of Medicine – Inscriptions & Manuscripts – Print History of Tamil Books.

TOTAL : 15 PERIODS

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO.1 Understand the Heritage of Tamils in terms of Language and Literature, Rock Art Paintings to Modern Art – Sculpture, Folk and Martial Arts, Thinai Concept.	Understand
CO.2 Understand the Contribution of Tamils to Indian National Movement and Indian Culture.	Understand

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	1	-	-

High–3; Medium–2; Low–1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

TEXT - CUM REFERENCE BOOKS

1 தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே.பிள்ளை
   (வெளியீடு. தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்)

2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம் (விகடன் பிரசுரம்)

3. கீழடி – வைகை நதிக்கரையில் சங்க கால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)

4. பொருநை – ஆற்றங்கரை நாகரிகம் (தொல்லியல் துறை வெளியீடு)

5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL
    – (in print)

6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.

7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).

8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)

9. Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published by:
    Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)

10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)

11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)

12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

SEMESTER II

Course Code: 23ENI201	Course Title: Communication Skills II (Common to all B.E/B.Tech Programmes)		
Course Category: AEC	Course Level: Introductory		
L:T:P(Hours/Week) 2:0:2	Credits: 3	Total ContactHours:60	Max Marks:100

Course Objectives

The course is intended to impart effective and accurate language in business correspondence on par with B2 level of CEFR Scale.

20 Hours

Module I

Grammar: Linking Words - Collocations –Sentence Completion - Articles –Adverbs– Indefinite Pronoun

Listening: Listening to short conversations - Listening for gist and summarizing - Listening for detail - Responding to straightforward questions.

Speaking: Making statements of facts - Agreeing and disagreeing to opinions - Respond to queries - Group Discussion.

Reading: Read and select (phrasal verbs & relative clause)- Cloze Test   - Gapped sentences - Multiple- choice gap-fill

Writing: Paragraph Writing: Descriptive, narrative, persuasive and argumentative - Emails: Giving information - Making enquiries - Responding to enquiries - Power Point Presentation

Module II   **20 Hours**

Grammar: Expressions of cause and result – Concord - Error Spotting (Parts of Speech & Indian English) - Prepositions

Listening: Listening for identifying main points - Responding to a range of questions about different topics - Listening to identify relevant information

Speaking: Empathetic Enunciation – Situation handling – Visual Interpretation - - Short presentations

Reading: Intensive Reading: Comprehending business articles, reports and proposals and company websites-- Open gap-fill - Extended reading

Writing: – Report Writing - Memo – Complaint letter - Business Letters (Seeking permission & Providing Information)

List of Experiments: **20 Hours**

1. Listening to Monologue and Extended Listening Activity I
2. Listening to Monologue and Extended Listening Activity II
3. Expressing Opinions and Situational based speaking
4. Mini Presentation and Visual Interpretation
5. Reading Comprehension
6. Writing letter, email and report

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Identify the common errors in written and spoken correspondence.	Apply
CO2:Develop listening, reading and speaking skills through task based activities in listening, reading comprehension, recapitulation, interpretation and discussion.	Apply
CO3:Read business correspondences like memo, Email, letter, proposals and write reports and website entries and product launches.	Apply
CO4:Perform as an individual and member of a team and engage effectively in group discussion and individual presentation.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO4	-	-	-	-	-	-	-	-	2	3	-	-	-	-

High-3; Medium-2;Low-1

Textbooks:

T1. Guy Brook- Hart, "Business Benchmark Upper Intermediate", 2nd Edition, South Asian, Cambridge University Press, 2020.
T2. Norman Whitby, "Business Benchmark pre-intermediate to Intermediate", 2nd Edition, South Asian, Cambridge University Press, 2014.

Reference Book(s):

R1. Hewings Martin - Advanced Grammar in use Upper-intermediate Proficiency, CUP,3rd Edition,2013.
R2. Clark David – Essential BULATS (Business Language Testing Service), CUP, 2006.
R3. Adrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis-Jones, Rachel Godfrey,Gareth Davies, Empower B1+ – Student's Book, Cambridge University Press,2015.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Web References:

1. https://speakandimprove.com/

2. https://writeandimprove.com/

3. https://www.cambridgeenglish.org/exams-and-tests/linguaskill/

Course Code:23FLT201	Course Title: Foreign Language - Japanese (Common to all B.E/B.Tech Programmes)			
Course Category: AES		Course Level: Introductory		
L:T:P (Hours/Week) 3: 0: 0	Credits:3	Total Contact Hours:45		Max. Marks:100

Course Objectives:

The course objectives intended to:

1. Express a basic exposure on Japanese language and culture
2. Express thoughts and communicate in the beginner level of Japanese with native Japanese speaker
3. Identify the kanji etymology as well as use it in basic vocabulary required for the JLPT / NAT 5 examination level
4. Read and write 100 kanji of the official JLPT N5
5. Choose the appropriate verb forms for learning and practicing the Japanese language

UNIT I   Introduction to Japan and greetings   9 Hours

Japan : Land and culture - Introduction to Japanese language – Greetings – Seasons - Days of the week - Months of the year – Dates of the month - Self introduction – Numbers (Upto 99,999) – Expressing time – Conversation audio and video.

Listening: Listening to Greetings - Listening for Specific Information: Numbers, Time.
Speaking: Self-Introduction

UNIT II   Building vocabulary   9 Hours

Family relationships - Colours - Parts of body - Profession - Directions - Time expressions (today, tomorrow, yesterday, day before, day after) - Japanese housing and living style - Food and transport (vocabulary) - Stationery, fruits and vegetables

Listening: Listening for Specific Information: Directions, Family Members, Parts of body
Speaking: Introducing one's family.

UNIT III   Writing systems   9 Hours

Hiragana Chart 1 - vowels and consonants and related vocabulary – Hiragana Charts 2&3, double consonants, vowel elongation and related vocabulary – Introduction to Kanji – Basic Vocabulary – Basic Conversational Phrases.

Listening: Listening to Japanese Alphabet Pronunciation, Simple Conversation.
Speaking: Pair Activity (Day to day situational conversation)

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

UNIT IV　　　　Kanji and preposition　　　　9 Hours

Katakana script and related vocabulary – Basic kanjis: naka, ue, shita, kawa , yama , numbers (1- 10, 100, 1000, 10,000 and yen) , person, man, woman, child, tree , book , hidari, migi, kuchi , 4 directions - Usage of particles wa, no, mo and ka and exercises - Usage of kore, sore, are, kono, sono, ano, arimasu and imasu - Particles – ni (location) and ga , donata and dare - Particles ni (time), kara, made , ne , koko, soko, asoko and doko - Directions : kochira, sochira, achira and dochira , associated vocabulary (mae, ushiro, ue, shita, tonari, soba, etc.)

Listening: Listening to conversation with related particles

UNIT V　　　　Verb forms　　　　9 Hours

Introduction to Verbs - Verbs –Past tense, negative - i-ending and na-ending adjectives introduction - ~masen ka, mashou - Usage of particles de, e , o, to, ga(but) and exercises - Adjectives (present/past – affirmative and negative) – Counters - ~te form

Listening: Listening to different counters, simple conversations with verbs and adjectives.

Speaking: Pair Activity (Explaining one's daily routine by using appropriate particles and verbs)

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Recognize and write Japanese alphabet	Understand
CO2: Comprehend the conversation and give correct meaning	Understand
CO3: Apply appropriate vocabulary needed for simple conversation in Japanese language	Apply
CO4: Apply appropriate grammar to write and speak in Japanese language	Apply
CO5: Speak using words of the Japanese language	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	3	-	1	-	-
CO4	-	-	-	-	-	-	-	-	-	3	-	1	-	-
CO5	-	-	-	-	-	-	-	-	2	3	-	1	--	-

High-3; Medium-2;Low-1

Text Book(s):

T1. Genki 1 Textbook: An Integrated Course in Elementary Japanese by Eri Banno, Yoko Ikeda, Yutaka Ohno, Yoko Sakane, Chikako Shinagawa, Kyoko Tokashiki published by The Japan Times

T2. Genki 1 Workbook: An Integrated Course in Elementary Japanese by Eri Banno published by The Japan Times

Reference Book(s):

R1. Japanese for Everyone: Elementary Main Textbook1-1, Goyal Publishers and Distributors Pvt. Ltd., Delhi, 2007

R2. Japanese for Everyone: Elementary Main Textbook1-2, Goyal Publishers and Distributors Pvt. Ltd., Delhi, 2007

Web References:

1. www.japaneselifestyle.com
2. www.learn-japanese.info/
3. www.learn.hiragana-katakana.com/typing-hiragana-characters/
4. www.kanjisite.com/

Course Code:23FLT202	Course Title: Foreign Language - German (Common to all B.E/B.Tech Programmes)		
Course Category: AEC	Course Level: Introductory		
L:T:P (Hours/Week) 3: 0: 0	Credits:3	Total Contact Hours:45	Max. Marks:100

Course Objectives:

The course is intended to:

1. Listen and understand numbers, names and dialogues of a native speaker on par with A1 level.
2. Speak and introduce self in simple sentences to convey their opinion and ideas on par with A1 level.
3. Read simple passages and given text on par with A1 level.
4. Write letter and simple sentences on par with A1 level.

UNIT I   Basic Introduction to German Scripts   9 Hours

Theme and Text (Introduction to German - German script, Deutsche Namen, Daily Greetings and Expressions) – Grammar ('wh' questions, das Alphabet)– Speak Action (Buchstabieren, sich und andere vorstellen nach Namen und Herkunft fragen, internationale Wörter auf Deutsch verstehen, jemanden begrüßen)– pronunciation (Buchstabieren J,V,W,Y, - Long vowels A,E,I,O,U - Pronunciation of Ä,Ü,Ö) – To learn (internationale Wörter in Texten finden, Wörter sortieren)

Theme and Text (Gespräche im caf'e, Getränkekarte, Telefon-buch, Namen, Rechnungen) – Grammar (Frägesatze mit wie, woher, wo, was Verben in präsens Singular und Plural, das Verb Sein, Personalpronomen und Verben)– Speak Action (eine Gespräch beginnen sich und andere vorstellen zählen, etwas bestellen und bezhalen Telefonnummern und verstehen)– pronunciation (Wortakzent in Verben und in Zahlen) – To learn (Grammatiktabelle ergänzen, mit einem Redemittelkasten arbeiten)

UNIT II   Numbers and Nominative Case   9 Hours

Theme and Text (Numbers – 1 to 12 (Eins bis Zwolf) – 20, 30, 40, 90 (zwanzig-Neunzig) – All Numbers (1-10000) – German Currency (Euro) – Basic Mathematics (plus, Minus, Malen, Geteilt durch)) – Grammar (Introduction of verbs –Have Verb – To Come, To Speak, To Read, To Drive, To Fly, To write, To Eat, To sleep, To take etc.,)

Theme and Text (Communication in course) – Grammar (Singular and Plural, Artikel: der,das,die/ ein,eine, verneinung: kein, keine, Komposita: das Kursbuch) – Speak Action (Gegenständen fragen/ Gegenstände benennen im kurs:) – pronunciation (word accent Marking, Umlaute ö ä ü hören und sprechen) – To learn (Lernkarten schreiben, Memotipps, eine Regel selbst finden)

Theme and Text (City, Town, Language: Nachbar, Sprachen, Sehenswürdigkeiten in Europa) – Grammar (Past tense for Sein, W-Frage, Aussagesatz und Satzfrage) – Speak Action (about city and siteseeing) – pronunciation (Satzakzent in Frage- und Aussagesätzen) – To learn (eine Regel ergänzen, eine Grammatiktabelle erarbeiten, Notizen machen)

UNIT III   Akkusative Case and Prepositions   9 Hours

Theme and Text (Menschen und Hauser, Furniture catalogue, E-Mail, House information) – Grammar (possesivartikel im Nominativ, Artikel im Akkusativ, Adjektive im satz, Graduierung mit zu)– Speak Action (Whonung bescreiben about perons and things)– pronunciation (consonant - ch) – To learn (wortschatz systematisch)

Theme and Text (Termine - Appointment and punctuality in Germany) – Grammar (questions with wann?, Preposition (am, um, von... bis), verneinung mit nicht, trennbare verben, präteritum von haben) – Speak Action (Daily plan making, time commitment, excuse for late coming) – pronunciation (consonants- p,b,t,d / k,g) – To learn (Rollenkarten arbeiten)

Theme and Text (orientation in working area, go for work, floor plan city plan, office and computer) – Grammar (preposition: in,neben, unter, auf, vor, hinter, an, zwischen, bei und mit + Datic)– Speak Action (work place, work, giving appointments)– pronunciation (consonants: f,w und v) – To learn (Making notice in calender)

UNIT IV   Dativ Case and Prepositions   9 Hours

Theme and Text (Holiday and Party, holiday plan, party plan in Germany) – Grammar (regular and iregular verbs) – Speak Action (holiday speak, accident, Ich-Text schreiben) – pronunciation (lange und kurze vokale markieren) – To learn (Text Order)

Theme and Text (organising an Excursion to Berlin through city orientation, Bus plan, City plan, post card, Excursion programme) – Grammar (preposition: in, durch, über + Akkusativ: zu, an... vorbei + Dativ, Modalverb wollen) – Speak Action (Tourism, culture, postcard preparation, travel description) – pronunciation (r and l)– To learn (plaket making)Theme and Text (Beruf und all Tag, Visiten karten, wörterbuch) – Grammar – Speak Action (profession, statistic speaking) – pronunciation (n,ng and nk)– To learn (wörterbuch , text information in tabel)

UNIT V   Adjectives and Pronunciation   9 Hours

Theme and Text (Haushaltstipp, kochrezept, maße und gewichte, Mahlzeiten und Gerichte) – Grammar (jeden Tag, manchmal, nie, Question - welche, Comparison – viel, gut, gern) – Speak Action (about eat, drink question and answers) – pronunciation (e,en,el,er) – To learn (Text auswerten und zusammenfassen)

Theme and Text (Clothing , colour, weather) – Grammar (Adjecktive im Akkusativ,

unbestimmer Artikel) – Speak Action (weather, dress and colour understanding) – pronunciation (e-o- ö and ie-u- ü) – To learn (wetter and Farben interkulturelle)

Theme and Text (in super market,purchase, House Maintainence, Emotion, Sports, Body parts) – Grammar (Modal Verb) – Speak Action (Body parts) – To learn (Rollenkarten arbeiten)

Total:45 Hours

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Recognize and write German alphabet, numbers.	Understand
CO2: Comprehend the conversation and give correct meaning	Understand
CO3: Apply appropriate grammar and vocabulary to write and speak.	Apply
CO4: Apply appropriate cases and texts to listen, write and speak.	Apply
CO5: Speak and read using words of the German language	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	3	-	1	-	-
CO4	-	-	-	-	-	-	-	-	-	3	-	1	-	-
CO5	-	-	-	-	-	-	-	-	2	3	-	1	--	-

High-3; Medium-2;Low-1

Text Book(s)

T1. Netzwerk, "Deutsch als Fremdsprache" by Stefanie Dengler, Paul Rusch, Helen Schmitz published by Goyal Publishers & Distributors Pvt Ltd;

T2. Funk, Kuhn, Demme, "Studio D A1 Deutsch als Fremdsprache" published by Goyal Publishers & Distributors Pvt Ltd;

Reference Book(s)

R1. Hueber, "Fit for Goethe- Zertifikat A1 (Start Deutsch 1)" by Goyal Publishers and Distributors; 2016

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23MAI202	Course Title: Complex Variables and Transforms (Common to AU, EC, EE, EV & ME)		
Course Category: Minor	Course Level: Introductory		
L:T:P(Hours/Week) 3:0 :2	Credits: 4	Total Contact Hours:75	Max Marks:100

Course Objectives:

This course is intended to enable the student to acquire the knowledge on the calculus of functions of complex variables and continuous, discrete transforms.

Module I   **23 Hours**

Vector Calculus

Gradient – Divergence – Curl – Line integrals – Surface integrals – Volume integrals – Theorems of Green, Gauss and Stokes (without proof) and their applications.

Complex Variables (Differentiation)

Cauchy-Riemann equations – Analytic functions – Properties – Harmonic functions – Finding harmonic conjugate – Conformal mapping (w=z+a, w= az, w=1/z,) – Mobius transformation and their properties.

Complex Variables I (Integration)

Cauchy Integral formula – Cauchy Integral theorem – Taylor's series – Singularities of analytic functions – Laurent's series.

Module II   **22 Hours**

Complex Variables II (Integration)

Residues – Cauchy Residue theorem – Contour integrals – Evaluation of real definite integrals around unit circle and semi-circle (Excluding poles on the real axis).

Laplace Transform

Laplace Transform – Properties of Laplace Transform – Laplace transform of derivatives and integrals – Laplace transform of periodic functions -Inverse Laplace transforms - Convolution theorem – Solution of ordinary differential equations by Laplace Transform method.

Fourier Series

Dirichlet's condition -Fourier series – Even and odd functions- Half range sine and cosine series - Parseval's identity--Harmonic Analysis.

List of Experiments(Using Python):   **30 Hours**

1. Find gradient of a given scalar function, divergence and curl of a vector function.
2. Verify Green's theorem in a plane.
3. Graphically plot time and frequency domain of standard functions and compute Laplace transform of In- built functions.
4. Find the Fourier series of a periodic function.
5. Compute Inverse Laplace transform of In- built functions.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Explain the concepts of Vector Differentiation and Integration.	Apply
CO2: Using the concept of complex variables to construct analytical functions and evaluate definite integrals.	Apply
CO3: Apply Laplace transform techniques to solve ordinary differential equations.	Apply
CO4: Compute the Fourier series expansion for given periodic functions.	Apply
CO5: Develop programs using Complex Variables and Transforms concepts through modern tool.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO4	3	2	-	-	-	-	-	-	-	-	-	-	1	-
CO5	-	-	-	-	3	-	-	-	-	-	-	-	1	-

High-3; Medium-2;Low-1

Text Book(s):

T1. Erwinkreyzig, Advanced Engineering Mathematics, 10th edition, John Wiley& Sons, 2011.

T2. Veerarajan T., Engineering Mathematics for first year, 3rd edition, Tata McGraw-Hill, New Delhi, 2019.

Reference Book(s):

R1. G.B.Thomas and R.L Finney, Calculus and Analytic Geometry, 9th edition, Pearson, Reprint, 2002.

R2. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.

R3. P. Sivaramakrishna Das , C. Vijayakumari , Engineering Mathematics, Pearson India, 2017.

Web References:

1. https://nptel.ac.in/courses/111107112
2. https://nptel.ac.in/courses/111104031

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23PHI201	Course Title: Physics for Electrical Sciences (Common to EA, EC, EE & EV)	
Course Category: Minor	Course Level: Introductory	
L:T:P(Hours/Week) 3: 0: 2	Credits: 4	Total Contact Hours:75	Max Marks:100

Course Objectives:

The course is intended to impart knowledge on the fundamental laws and relations in electricity, magnetism, electromagnetism and electromagnetic waves.

Module I **22 Hours**

Electrostatics: Definition of electric charge-Coulomb's Law – Electric field intensity – Field intensity due to point and line charges – Electric flux density -Gauss's law- Application of Gauss's law: Determine the field due to a line charge and a plane sheet of charge – Electric potential-Equipotential surfaces-Potential gradient.

Magnetostatics: Definition of magnetic flux- magnetic field intensity-Lorentz Law of force- Biot – Savart law, Ampere's Law- Application of Ampere's Law: Magnetic induction due to a long linear conductor and solenoid - Magnetic field due to straight conductors-circular loop – Magnetic flux density (B) - Magnetic potential.

Electric Fields in Materials: Dielectrics: An atomic view - Dielectric Polarization-Dielectrics and Gauss's law- Dielectric Strength- Energy stored in a dielectric medium - Capacity of a condenser - Capacitance - coaxial, Spherical capacitor- Poisson and Laplace Equation.

Module II **23 Hours**

Magnetic Fields in Materials: Magnetic susceptibility and permeability- properties of dia, para and ferro magnetic materials-hysteresis loop.

Electromagnetic Induction: Faraday's law – Lenz's law – Time varying magnetic field - self Inductance - self Inductance of a solenoid- Mutual inductance- Mutual inductance of two solenoids. Charge conservation law - continuity equation- displacement current-Maxwell's equations.

Electromagnetic Waves: Electromagnetic waves in free space - Poynting vector - Propagation of electromagnetic waves in dielectrics – Phase velocity- Propagation of electromagnetic waves through conducting media- penetration or skin depth.

List of Experiments (Any six)   **30 Hours**

1. Verification of Ohms' law.
2. Test the Faraday's hypothesis of magnetic field induction.
3. Determination of specific resistance of the given material using Carey foster's bridge.
4. Measurement of capacitance using Schering Bridge.
5. Measurement of inductance using Maxwell Bridge.
6. Determination of wavelength of the given light source using spectrometer.
7. Determination of Dielectric constant of a given Material.

Course Outcomes	Cognitive Level
At the end of the course students will able to	
CO1: **Apply** the concepts of static electric and magnetic fields to obtain the electric and magnetic characteristics of the materials.	Apply
CO2: **Interpret** the behavior of materials in electric and magnetic fields.	Apply
CO3: **Apply** the concept of time-varying electric and magnetic fields to obtain the propagation characteristics of electromagnetic waves in different media.	Apply
CO4: **Conduct, analyze and interpret** the data and results from the physics laboratory experiments.	Evaluate

Course Articulation Matrix

CO Vs PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO4	3	3	-	3	-	-	-	-	-	-	-	-	1	-

High-3; Medium-2; Low-1

Textbooks:

T1. R.K.Gaur and S.L.Gupta, "Engineering Physics", Dhanpat Rai publications, New Delhi, 8th Edition, 2011.

T2. W. H. Hayt and John A. Buck, "Engineering Electromagnetics", Tata McGraw Hill, New Delhi, 6th Edition, 2014.

Reference Book(s):

R1. David Griffiths, "Introduction to Electrodynamics", Pearson Education, 4th Edition, 2013

R2. K. A. Gangadhar and P. M. Ramanathan, " Electromagnetic Field Theory", Khanna Publishers, New Delhi, 5th Edition, 2013.

R3. Mathew. N. O. Sadiku, "Elements of Electromagnetics", Oxford University Press, 4th Edition, 2009.

Web References:

1. http://nptel.iitm.ac.in

2. http://openems.de/start/index.php

3. https://bop-iitk.vlabs.ac.in/List%20of%20experiments.html

Course Code: 23EET201	Course Title: Solid State Devices	
Course Category: Major	Course Level: Introductory	
L:T:P(Hours/Week) 3: 0: 0	Credits: 3	Total Contact Hours: 45	Max Marks: 100

Course Objectives:

The course is intended to impart knowledge about the diodes, and transistors in electronic circuits.

Module I 22 Hours

Formation of energy bands, Fermi level, energy- band models, direct and indirect band gap, electrons and holes, doping, intrinsic and extrinsic semiconductors, elemental and compound semiconductor, generation, recombination and injection of carriers, Drift and Diffusion of carriers, basic governing equations in semiconductors.

PN Junctions, Formation of Junction, Physical operation of diode, Contact potential and Space Charge phenomena, I - V Characteristics,

Special diodes- Zener diode Tunnel diode, LED, Varactor diode and Photo Diode. I - V Characteristics

DC Analysis – Small Signals and Large signal models of PN junction diode and AC equivalent circuit. Problems using diode circuits.

Module II 23 Hours

Bipolar Junction Transistor: Device structure and physical operation, I-V characteristics. Field Effect Transistor JFET-MOSFET- Device Structure and Mode of operation, I- V Characteristics, Threshold Voltage.

DC Analysis of BJT Circuits, CB, CE and CC Configuration.

Field Effect Transistor (FET): DC Analysis of MOSFET Circuits, MOSFET CS, CG and Source Follower Circuits- Problems

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Define, understand and explain the concepts related to semiconductors	Understand
CO 2: Apply the knowledge of engineering fundamentals in construction and working of diodes and transistors	Apply
CO3: Model and analyze the characteristics of PN junction diode, Zener diode and Special diodes report the inference for the datasheet specification using hardware and software tool	Analyze
CO4: Design and Implement the hobby project using the transistors to provide simple solutions in societal and environmental contexts and relate the chosen application with its construction and working.	Create

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	-	3	-	-	1	-	-	-	-	1	-	-	1	-
CO4	-	-	3	-	-	1	1	-	-	-	-	1	-	1

High-3; Medium-2;Low-1

Textbooks:

T3. Adel S. Sedra, Kenneth C. Smith & Arun N. Chandorkar, Microelectronic Theory and Applications, 5th Edition, Reprint, Oxford University press, New York, USA, 2013.

T4. B G.Streetman and S.Banerjee, Solid State Electronic Education 7th Edition, New Delhi, India, 2015.

Reference Book(s):

R1. Anil K Maini, Varsha Agarwal, "Electronic Devices and Circuits", Wiley India Private Limited, New Delhi, 1st Edition, 2015.

R2. Salivahanan. S, Suresh Kumar. N, Vallavaraj.A, "Electronic Devices and circuits", Tata McGraw Hill, New Delhi, 4th Edition, 2016.

R3. R. Muthusubramanian and S Salivahanan, " Basic Electrical and Electronics Engineering", McGraw Hill India Limited, New Delhi, 2014

R4. Robert L Boylestad and Louis Nashelsky, "Electron Devices and Circuit Theory", Pearson Prentice Hall, New Delhi, 11th Edition, 2014.

Web References:

1. https://nptel.ac.in/courses/108108122
2. https://nptel.ac.in/courses/108108122
3. https://nptel.ac.in/courses/108108122
4. https://archive.nptel.ac.in/courses/108/102/108102145/

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23CSI201		Course Title: Problem Solving using Python Programming	
Course Category: Multi-Disciplinary		Course Level: Introductory	
L:T:P(Hours/Week) 3:0:2	Credits: 4	Total Contact Hours: 75	Max Marks:100

Course Objectives:

The course is intended to develop problem solving skills and knowledge in computer programming.

Module I   **22 Hours**

Programming Constructs: Python interpreter and interactive mode – Python Basics: Data Types – Variables – Keywords – Literals – Usage of Operators – Comments – Indentation – Python standards in Coding.

Control structures: Sequential Statements – Selection Statements: conditional (if), alternative (if-else), chained conditional (if elif- else) – Iterative Control statements: while, for, nested loops, break, continue, pass.

Functions: Functions: Built-in and User defined functions - Defining and Calling function - Return values - Passing arguments to functions - Lambda Functions - Different types of arguments – Recursion - Scope of variables.

Module II   **23 Hours**

Strings and Files: String – Creating String – String operations: Concatenation, Repetition, Indexing, Splitting, Slicing – String conversion – Looping through a string – String Methods. Files: Open, Close, Write, Read.

List, Tuple, Dictionary, Set: Mutable & Immutable Data Types – Lists: List operations – List slicing – List methods – Looping through a list; Tuples: Tuple assignment – Indexing – Tuple Methods; Dictionaries: Operations – Iterating Dictionary – Dictionary Methods; Sets: Operations on set – Frozen set – Set Methods.

List of Exercises

1. Implement data types, operators and expressions.
2. Implementation of branching statements and looping constructs.
3. Implementation of recursive and non-recursive functions.
4. Implementation of string methods.
5. Implementation of list and tuple.
6. Implementation of Dictionary and set.

Passed in 17ᵗʰ Board of Studies Meeting held on 05.01.2024

Approved in 18ᵗʰ Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Implement basic programming constructs in python for solving simple problems.	Apply
CO2: Examine the usage of control structures and functions for solving a given problem.	Analyze
CO3: Create programs using the string operations ,mutable and immutable data types for solving real time applications.	Create
CO4: Conduct experiment with appropriate IT tools in modeling the Programming Constructs, Control structures, functions, Strings, Files, List, Tuple, Dictionary, and Set.	Analyze

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO3	-	-	3	-	-	-	-	-	-	-	-	-	-	1
CO4	-	-	-	3	1	-	-	-	1	1	-	1	1	-

High-3; Medium-2; Low-1

Textbooks:

T1. Allen B. Downey, "Think Python: How to Think like a Computer Scientist", 2nd Edition, O'Reilly Publishers, 2016.

T2. Karl Beecher, "Computational Thinking: A Beginner's Guide to Problem-Solving and programming", 1st Edition, BCS Learning & Development Limited, 2017.

Reference Book(s):

R1. Paul Deitel and Harvey Deitel, "Python for Programmers", Pearson Education, 1st Edition, 2021.

R2. G Venkatesh and Madhavan Mukund, "Computational Thinking: A Primer for Programmers and Data Scientists", 1st Edition, Notion Press, 2021.

R3. Eric Matthes, "Python Crash Course, A Hands – on Project Based Introduction to Programming", 2nd Edition, No Starch Press, 2019.

Web References:

1. Python for Data Science: https://onlinecourses.nptel.ac.in/noc22_cs32

2. https://ekumbh.aicte-india.org/allbook.php?id=97

3. https://www.coursera.org/learn/python-crash-course?specialization=google-it-automation

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23EEL201	Course Title: Introduction to Programming with IoT	
Course Category: Major		Course Level: Introductory
L:T:P (Hours/Week) 0:0:3	Credits:1.5	Total Contact Hours:45	Max Marks:100

Course Objectives

The course is intended to discuss the basics of electronics components and their connections, the basics of Python programming for the Raspberry Pi, and the sensor interface with the Raspberry Pi. Also the course includes smart system technologies and their role in real-time applications.

List of Experiments:

1. **Electronic components and connections outline**

   List of Experiments

   a) Simple circuit using LED, resistor and breadboard

   b) Pushbutton and its connections

   c) LCD display and its connections

   d) Relay and its driver circuit

   e) Common mistakes when using breadboard to make connections

   f) Demonstration of all the above components

2. **Introduction to Raspberry pi outline**

   List of Experiments

   a) Blink the LED using python programming

   b) Control the blinking of tricolor LED using Pushbutton using python programming

   c) Display a count on the LCD. Count is increased whenever the pushbutton is pressed using python programming.

   d) Control the speed and direction of a DC motor using python programming

3. **Sensor interfacing**

   List of Experiments

   a) Detect the real time temperature and humidity values using DHT11 sensor by interfacing with Raspberry pi module. .

   b) Design the line following robot using IR sensors, ultrasonic sensor and DC motor.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

4. Wireless connectivity and Programming with IoT

List of Experiments

   a) Control the lamp using webserver.

   b) Monitor the real time temperature and humidity values from the webserver.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1:Apply the concept of engineering fundamentals in LCD,LED, Relay, Sensor and Push Button by interfacing with Raspberry pi using python programming	Apply
CO2:Design the line following robot by applying the management principles and budget analysis	Create
CO3: Investigate and Report the technical advancement in wireless connectivity by building simple hobby project as an individual or team.	Evaluate

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	-	-	3	-	-	-	-	-	-		1	-	-	1
CO3	-	-	-	3	-	-	-	-	1	2	-	2	1	-

   High-3; Medium-2;Low-1

Text Book(s):

T1.Maneesh Rao," Internet of Things with Raspberry Pi 3: Leverage the power of Raspberry Pi 3 and JavaScript to build exciting IoT projects", Packt Publishing,2018

T2. Arsheep Bahga &Vijay Madisetti,"Internet of Things - A Hands-On Approach" 1st Edition, Orient Blackswan Private Limited - New Delhi 2015.

Reference Book(s):

R1: "Introduction to Programming with IoT " Manual prepared by Department of Electrical and Electronics Engineering, MCET, Pollachi.

Web References:

1.https://onlinecourses.nptel.ac.in/noc22_cs53

2.https://archive.nptel.ac.in/noc/courses/noc20/SEM2/noc20-cs66

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23EEL202	Course Title: Electron Devices Laboratory	
Course Category: Major		Course Level: Introductory
L:T:P (Hours/Week) 0:0:3	Credits:1.5	Total Contact Hours:45	Max Marks:100

Course Objectives

The course is intended to designate the characteristics of the basic electronic devices using hardware implementation, CAD tools and programming.

List of Experiments:

1. PN Junction diode and Zener diode Characteristics
2. Voltage Regulator using Zener diode
3. Input and Output Characteristics of Common Emitter Configuration.
4. Input and Output Characteristics of Common Base Configuration.
5. JFET and MOSFET characteristics.
6. Simulation of PN diode circuits and its characteristics using CAD tool
7. Simulation of transistor circuits and its characteristics using CAD tool
8. Program the characteristics of a diode using its datasheet
9. Program the characteristics of a transistor using its datasheet
10. Measure the operating regions of LED.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Estimate the concept of engineering fundamentals in diodes and transistors using hardware implementation and report the inference	Evaluate
CO2: Model the diodes and transistor circuits using appropriate simulation tools and programming.	Analyse
CO3: Conduct experiment to analyse the operating regions of LED and Photodiode	Analyse
CO4: Identify and list the safety/safety standards applied in LED	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	3	-	-	-	-	-	1	-	-	-	1
CO2	-	-	-	-	3	-	-	-	-	1	-	1	1	-
CO3	-	2	-	-	-	-	-	-	-	-	-	-	1	-
CO4	-	-	-	-	-	-	-	1	-	-	-	-	1	-

High-3; Medium-2;Low-1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Text Book(s):

T1.Millman J. , Halkias C. C. "Electronic Devices and Circuits ", Tata McGraw Hill, New Delhi, 2011.

T2. Salivahanan.S, Suresh kumar.N and Vallavaraj.A, "Electronic Devices and Circuits", 2nd Edition, TMH, New Delhi, 2008.

Reference Book(s):

R1. "Electron Devices" Manual prepared by Department of Electrical and Electronics Engineering, MCET, Pollachi.

Course Code: 23ESL201	Course Title: Professional Skills 1:Problem solving skills & Logical Thinking 1 (Common to all B.E/B.Tech Programmes)		
Course Category: SEC		Course Level: Introductory	
L:T:P(Hours/Week) 0: 0: 2	Credits: 1	Total Contact Hours:30	Max Marks:100

Course Objectives:

The course is intended to enhance the students' numerical, analytical and logical reasoning ability.Also course focus to make learners prepare for various public and private sector exams and placement drives.

Module I   Quantitative Ability   20 Hours

Number System and LCM & HCF- Percentage- Ratio and Proportion - Average- Progressions- Ages-Partnership- Mixture & Allegation - Profit and loss- Interest calculation- Data

Module II   Reasoning Ability   10 Hours

Seating Arrangement- Linear, circular and Complex – Direction Problems- Blood Relation- Puzzles- Crypt arithmetic- Venn diagrams- Statement and conclusion- Statement and argument- Causes and effects- Self-Learning.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Build the competence in numerical, analytical and logical reasoning ability	**Apply**

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	3	-	-

High-3; Medium-2; Low-1

Textbook(s):

T1: Dr. R. S. Aggarwal. "Quantitative Aptitude for Competitive Examinations" Sultan Chand & Sons Pvt. Ltd, New Delhi, 2018.

T2: Dr. R. S. Aggarwal. "A Modern Approach to Logical Reasoning", Sultan Chand & Sons Pvt. Ltd, New Delhi, 2018.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Reference Book(s):

R1: R. V. Praveen. "Quantitative Aptitude and Reasoning" 2nd Revised Edition, Prentice-Hall of India Pvt.Ltd, 2013.

R2: Arun Sharma. "Quantitative Aptitude for Common Aptitude Test", McGraw Hill Publications, 5th Edition, 2020.

R3: Arun Sharma. "Logical Reasoning for Common Aptitude Test", McGraw Hill Publications, 6th Edition, 2021.

Web References:

1.   https://www.indiabix.com/aptitude/questions-and-answers/

2.   https://www.geeksforgeeks.org/aptitude-questions-and-answers/

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23VAT201	Course Title: TAMILS AND TECHNOLOGY (Common to all B.E/B.Tech Programmes)		
Course Category: VAC		Course Level: Introductory	
L:T:P (Hours/Week) 1: 0 :0	Credit: 1	Total Contact Hours: 15	Max Marks:100

Pre–requisites

➢ NIL

Course Objectives

மாணவர்கள் இப்பாடத்தை கற்றலின் மூலம்

CO.1 நெசவு மற்றும் பானைத் தொழில்நுட்பம், வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம், உற்பத்தித் தொழில்நுட்பம், வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில்நுட்பம் ஆகியன குறித்து அறிந்து கொள்ள இயலும்.

CO.2 அறிவியல் தமிழ் மற்றும் கணினித் தமிழ் குறித்து அறிந்து கொள்ள இயலும்.

தமிழரும் தொழில்நுட்பமும்

அலகு 1 – நெசவு மற்றும் பானைத் தொழில்நுட்பம் 3

சங்க காலத்தில் நெசவுத் தொழில் – பானைத் தொழில்நுட்பம் – கருப்பு சிவப்பு பாண்டங்கள் – பாண்டங்களில் கீறல் குறியீடுகள்

அலகு 2 – வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம் 3

சங்க காலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் ஷ சங்க காலத்தில் வீட்டுப் பொருட்களில் வடிவமைப்பு – சங்க காலத்தில் கட்டுமானப் பொருட்களும் நடுகல்லும் – சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள் – மாமல்லபுரச் சிற்பங்களும், கோவில்களும் – சோழர் காலத்துப் பெருங்கோயில்கள் மற்றும் பிற வழிபாட்டுத் தலங்கள் – நாயக்கர் காலக் கோயில்கள் – மாதிரி கட்டமைப்புகள் பற்றி அறிதல், மதுரை மீனாட்சி அம்மன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹால் – செட்டிநாட்டு வீடுகள், பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோ – சாரோசெனிக் கட்டிடக் கலை.

அலகு 3 – உற்பத்தித் தொழில்நுட்பம் 3

கப்பல் கட்டும் கலை – உலோகவியல் – இரும்புத் தொழிற்சாலை – இரும்பை உருக்குதல், எஃகு – வரலாற்றுச் சான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள் – நாணயங்கள் அச்சடித்தல் – மணி உருவாக்கும் தொழிற்சாலைகள் – கல்மணிகள், கண்ணாடி மணிகள் – சுடுமண் மணிகள் – சங்கு மணிகள் – எலும்புத் துண்டுகள் – தொல்லியல் சான்றுகள் – சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

அலகு 4 வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில்நுட்பம்   3

அணை, ஏரி, குளங்கள், மதகு – சோழர்காலக் குமுழித் தூம்பின் முக்கியத்துவம் – கால்நடை பராமரிப்பு – கால்நடைகளுக்காக வடிவமைக்கப்பட்ட கிணறுகள் – வேளாண்மை மற்றும் வேளாண்மைச் சார்ந்த செயல்பாடுகள் – கடல்சார் அறிவு – மீன் வளம் – முத்து மற்றும் முத்துக் குளித்தல் – பெருங்கடல் குறித்த பண்டைய அறிவு – அறிவுசார் சமூகம்.

அலகு 5 – அறிவியல் தமிழ் மற்றும் கணினித் தமிழ்   3

அறிவியல் தமிழின் வளர்ச்சி – கணினித் தமிழ் வளர்ச்சி – தமிழ் நூல்களை மின் பதிப்பு செய்தல் – தமிழ் மென் பொருட்கள் உருவாக்கம் – தமிழ் இணையக் கல்விக் கழகம் – தமிழ் மின் நூலகம் – இணையத்தில் தமிழ் அகராதிகள் – சொற்குவைத் திட்டம்.

TOTAL : 15 PERIODS

Course Outcomes	Cognitive Level
மாணவர்கள் இப்பாடத்தை கற்றபின்	
CO.1 நெசவு மற்றும் பானைத் தொழில்நுட்பம், வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம், உற்பத்தித் தொழில்நுட்பம், வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில்நுட்பம் ஆகியன குறித்து அறிந்து கொள்வார்கள்.	அறிதல் (Understand)
CO.2 அறிவியல் தமிழ் மற்றும் கணினித் தமிழ் குறித்து அறிந்து கொள்வார்கள்.	அறிதல் (Understand)

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	1	-	-

High–3; Medium–2; Low–1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

TEXT - CUM REFERENCE BOOKS

1. தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே.பிள்ளை
   (வெளியீடு. தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்)
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம் (விகடன் பிரசுரம்)
3. கீழடி – வைகை நதிக்கரையில் சங்க கால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருநை – ஆற்றங்கரை நாகரிகம்   (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23VAT201	Course Title: TAMILS AND TECHNOLOGY (Common to all B.E/B.Tech Programmes)		
Course Category: VAC		Course Level: Introductory	
L:T:P (Hours/Week) 1: 0 :0	Credit: 1	Total Contact Hours: 15	Max Marks:100

Pre–requisites

> NIL

Course Objectives

The course is intended to:

1. Understand Weaving and Ceramic Technology, Design and Construction Technology, Manufacturing Technology, Agriculture and Irrigation Technology.

2. Understand the Scientific Tamil & Tamil Computing.

TAMILS AND TECHNOLOGY

UNIT I WEAVING AND CERAMIC TECHNOLOGY 3

Weaving Industry during Sangam Age – Ceramic technology – Black and Red Ware Potteries (BRW) – Graffiti on Potteries.

UNIT II DESIGN AND CONSTRUCTION TECHNOLOGY 3

Designing and Structural construction House & Designs in household materials during Sangam Age - Building materials and Hero stones of Sangam age – Details of Stage Constructions in Silappathikaram - Sculptures and Temples of Mamallapuram - Great Temples of Cholas and other worship places - Temples of Nayaka Period - Type study (Madurai Meenakshi Temple)- Thirumalai Nayakar Mahal - Chetti Nadu Houses, Indo - Saracenic architecture at Madras during British Period.

UNIT III MANUFACTURING TECHNOLOGY 3

Art of Ship Building - Metallurgical studies - Iron industry - Iron smelting, steel -Copper and gold- Coins as source of history - Minting of Coins – Beads making-industries Stone beads -Glass beads - Terracotta beads -Shell beads/ bone beats - Archeological evidences - Gem stone types described in Silappathikaram.

UNIT IV AGRICULTURE AND IRRIGATION TECHNOLOGY   **3**

Dam, Tank, ponds, Sluice, Significance of Kumizhi Thoompu of Chola Period, Animal Husbandry - Wells designed for cattle use - Agriculture and Agro Processing - Knowledge of Sea - Fisheries – Pearl - Conche diving - Ancient Knowledge of Ocean - Knowledge Specific Society.

UNIT V SCIENTIFIC TAMIL & TAMIL COMPUTING   **3**

Development of Scientific Tamil - Tamil computing – Digitalization of Tamil Books – Development of Tamil Software – Tamil Virtual Academy – Tamil Digital Library – Online Tamil Dictionaries – Sorkuvai Project.

TOTAL : 15 PERIODS

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO.1 Understand Weaving and Ceramic Technology, Design and Construction Technology, Manufacturing Technology, Agriculture and Irrigation Technology.	Understand
CO.2 Understand the Scientific Tamil & Tamil Computing.	Understand

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	1	-	-

High–3; Medium–2; Low–1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

TEXT - CUM REFERENCE BOOKS

1. தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே.பிள்ளை
   (வெளியீடு. தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்)
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம் (விகடன் பிரசுரம்)
3. கீழடி – வைகை நதிக்கரையில் சங்க கால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருநை – ஆற்றங்கரை நாகரிகம்   (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL
   – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

Course Code: 23CHT202	Course Title: Environmental Sciences (Common to all B.E/B.Tech Programmes)	
Course Category: Multidisciplinary	Course Level: Introductory	
L:T:P(Hours/Week) 1: 0: 0	Mandatory Non-Credit	Total Contact Hours: 15	Max Marks:100

Course Objectives:

The course is intended to impart knowledge on sustainable utilization of natural resources, prevention of pollution, disaster management and environmental issues & public awareness on ecosystem.

Module I   **8 Hours**

Natural Resources

Role of individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles.

Environmental Pollution and Disaster Management

Role of an individual in prevention of pollution; Disaster management : floods, earthquake, cyclone and landslides.

Environmental Ethics and Legislations

Environmental ethics : Environment Protection Act; Air Act; Water Act ; Wildlife Protection Act; Forest Conservation Act; Issues involved in enforcement of environmental legislation.

Module II   **7 Hours**

Environmental Issues and Public Awareness

Public awareness - Environment and human health.

Environmental Activities

(a) Awareness Activities:

  i. Small group meetings about water management, promotion of recycle use, generation of less waste, avoiding electricity waste.
  ii. Slogan making event.
  iii. Poster making event.

(b) Actual Activities:

  i. Plantation.
  ii. Cleanliness drive.
  iii. Drive for segregation of waste.
  iv. To know about the different varieties of plants.
  v. Shutting down the fans and ACs of the campus for an hour or so.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Explain the use of natural resources for a sustainable life as an individual in prevention of pollution.	Understand
CO 2: Apply the environmental ethics and legislations for various environmental issues.	Apply
CO 3: Create the public awareness on environment and human health as an individual or team through various activity based learning.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	3	3	-	-	-	-
CO3	3	-	-	-	-	3	3	-	3	3	-	-

High-3; Medium-2; Low-1

Text Book(s):

T1.   Benny Joseph, "Environmental Studies", Tata McGraw Hill, New Delhi, 2006.

T2.   Mackenzie Davis and Susan Masten, "Principles of environmental engineering and science", Mc-Graw Hill, 3rd Edition, 2014.

Reference Book(s):

R1.   Trivedi R.K. "Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards", Vol.I and II, Enviro Media.

R2.   Cunningham, W.P.Cooper, T.H. Gorhani, "Environmental Encyclopedia", Jaico Publishing House, Mumbai, 2001.

Web References:

1. https://onlinecourses.nptel.ac.in/noc23_hs155/preview.

2. https://en.wikipedia.org/wiki/Environmental_science.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

SEMESTER III

Course Code: 23MAT303	Course Title: Numerical Methods And Linear Algebra (Common to EC, EE & EV)		
Course Category: Minor	Course Level : Intermediate		
L:T:P(Hours/Week) 3:1:0	Credits: 4	Total Contact Hours:60	Max Marks:100

Course Objectives: This course is designed to give an overview of numerical methods and linear algebra to provide knowledge and skills needed to apply in solving decision making problems in various fields of science and engineering.

Module I   **22+8 Hours**

Solution of System of Linear Equations and Eigen value: Solution of system of linear equations– Direct methods: Gaussian elimination method – Indirect methods: Gauss Jacobi method, Gauss-Seidel method– sufficient conditions for convergence –Solution of nonlinear equations: Newton Raphson method –Power method to find the dominant Eigen value and the corresponding Eigen vector. Application of Eigen value and the corresponding Eigen vector.

Interpolation, Numerical Differentiation and Integration: Interpolation – Newton's forward, backward interpolation – Lagrange's interpolation. Numerical Differentiation and Integration – Trapezoidal rule – Simpson's 1/3 rule – Double integration using Trapezoidal rule.

Numerical Solution of Ordinary Differential Equation: Numerical solution of first order ordinary differential equation-Single step method: Taylor's series- Euler's method – Runge-Kutta method of fourth order – Multi step method: Milne's predictor corrector methods for solving first order differential equations.

Module II   **23+7 Hours**

Vector Spaces: Vector spaces- Subspace of a vector space- basis and dimension of vector space – linear combination and spanning sets of vectors – linear independence and linear dependence of vectors – Row space, Column space and Null space – Rank and nullity of subspaces.

Orthogonality and Inner Product Spaces: Inner product of vectors: length of a vector, distance between two vectors, and orthogonality of vectors – Orthogonal projection of a vector – Gram-Schmidt process to produce orthogonal and orthonormal basis – Inner product spaces.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Apply the knowledge and skills of numerical methods to solve algebraic and trascedental equations.	Apply
CO2: Apply the basic knowledge of various numerical methods in solving interpolation with equal and unequal interval problems, numerical differentiation and integration.	Apply
CO3: Solve first order ordinary differential equation by single step and multi step methods.	Apply
CO4: Apply the concept of vector spaces and Inner product spaces to produce orthogonal and orthonormal basis.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	-	-	-	-	-	-	-	-	1	-	1	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	1	-	-
CO3	3	-	-	-	-	-	-	-	-	-	-	1	-	-
CO4	3	-	-	-	-	-	-	-	-	-	-	1	1	-

High-3; Medium-2;Low-1

Text Book(s):

T1.   Grewal, B.S. and Grewal, J. S., "Numerical Methods in Engineering and Science",

11th Edition, Khanna Publishers, New Delhi, 2013.

T2.   Curtis F. Gerald, Patric.O. Wheatley, "Applied Numerical Analysis", 7th Edition, Pearson Education, Asia, New Delhi, 2009.

Reference Book(s):

R1. Steven Chopra, Raymond.P. Canale, "Numerical Methods for Engineers", Seventh Edition, 2015.

R2. Jain M.K, Iyengar.S.R. K and Jain.R. K, "Numerical Methods for Scientific and Engineering Computation", Sixth Edition, New Age Publishers, 2012.

R3. Gilbert Strang, "Linear algebra and its Applications", Fourth Edition, Cengage Learning (RS), 2012.

Web References:

1   http://nptel.ac.in/courses/122104018/node2.html
2   http://nptel.ac.in/courses/111105038

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23EET301	Course Title: DC Machines and Transformers	
Course Category: Major	Course Level: Intermediate	
L:T:P(Hours/Week) 3:0:0	Credits: 3	Total Contact Hours: 45	Max Marks:100

Course Objectives:

This course aims to impart knowledge on DC machines, Transformer fundamentals, andMachine parts. The course also equips students with ability to analyze the equivalent circuits of DC machines and Transformers.

Module I   **22 Hours**

Block Diagram –Constructional features of a DC machine – Principle of operation – EMF equation – Methods of excitation: Self and separately excited generators – Characteristics: series, shunt and compound generators - applications – armature reaction - commutation

Principle of operation of DC Motor –Types- Back EMF and torque equation – Electrical and Mechanical Characteristics of series, shunt and compound motors – applications – losses and efficiency

Speed control of DC series and shunt motors –Testing of DC Machines: Brake Test, Swinburne's test and Hopkinson's test.

Module II   **23 Hours**

Constructional details of core and shell type transformers – Principle of operation – EMF equation – Transformation ratio –Transformer on no load – Transformer on load - Equivalent circuit – Regulation – Losses and efficiency – Condition for maximum efficiency – All day efficiency - Parallel operation of single phase transformers – Auto transformer – Comparison with two winding transformers. Three phase transformer constructional features – Three phase transformer connections.

Testing of transformers: Polarity and voltage ratio tests, Load test, Open circuit and short circuit test, Sumpner's test and Separation of No load losses.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1:Apply the concept of an EMF theory in construction, characteristics and performance of DC Generator.	Apply
CO2: Analyze the importance of back EMF, operation, construction, characteristics, performance and applications of DC motor.	Analyze
CO3: Compare the speed control methods and testing methods of DC machines.	Analyze
CO4: Analyze the theory of single phase and three phase transformers.	Analyze
CO5: Evaluate the performance of static machine using equivalent circuits and phasor diagrams under various operating conditions through testing and case studies.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	3	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	3	-	-	-	-	1	1	-	1	1	-

High-3; Medium-2; Low-1

Textbooks:

T1.D P Kothari,Nagrath I.J, "Electric Machines", Tata McGraw Hill Publishing Company Ltd, 5th Edition, 2017.

T2. Dr P.S. Bimbhra, Electrical Machinery, Khanna Publications, Fully Revised Edition, 2021.

Reference Book(s):

R1. Murugesh Kumar.K, "Electrical Machines Volume - I", Vikas Publishing House Pvt. Ltd, 1st Edition, 2010.

R2. Gupta. J.B, "Theory and Performance of Electrical Machines", S.K.Kataria and 4th Edition, 2013.

R3 S.K. Bhattacharya, "Electric Machines", Tata McGraw Hill Publishing Company Ltd 4th Edition, 2017.

Web References:

1. http://www.nptelvideos.in/2012/11/electrical-machines-i.html

2. http://www.nptelvideos.com/electrical_engineering/

3. https://nptel.ac.in/courses/108/105/108105155/

4. https://nptel.ac.in/courses/108/105/108105017/

5. https://nptel.ac.in/courses/108/106/108106071/

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23EET302	Course Title: Electric Circuits	
Course Category: Major	Course Level: Intermediate	
L:T:P(Hours/Week) 3:1: 0	Credits: 4	Total Contact Hours: 60	Max Marks:100

Course Objectives: At the end of this course, students will be exposed to basic terminologies in electric circuits and be able to recognize nonlinear circuit problems. Students can predict the behavior of any electrical circuits. Students can analyze the fundamental concept terminologies of alternating current, phase & phase difference, representation of ac quantities by phasor.

Module I   22+8 Hours

Network Analysis: Ideal voltage and current sources, Dependent sources, Source Transformation, Mesh Current Analysis and Nodal Voltage Analysis for AC and DC circuits;

Network Theorems for DC and AC Circuits: Thevenin's, Norton's, superposition and maximum power transfer theorems; reciprocity and Tellegen's theorems for DC circuits (only).

Transient Networks: Coupled circuits and Dot conversion, Transient Response of RL, RC and RLC networks using Laplace Transform method for DC and AC excitation - unit step, impulse, ramp and sinusoidal inputs.

Module II   30 Hours

AC networks: Series and Parallel Resonance for RLC circuits, two port networks – Z, Y, h and T parameters (conceptual)

Three-Phase A.C. Circuit Analysis: Relationship of Line, Phase Voltages and Currents in a Delta and Star-connected System, Analysis of balanced and unbalanced three-phase networks;

Three phase power calculation and power measurement using two wattmeter method; complex power and power factor in ac circuits.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Apply network theorems and laws to solve electric circuits involving both passive and active elements.	Apply
CO2: Solve linear transient circuit problems involving second order systems using Laplace transform techniques.	Apply
CO3: Solve the electric circuits with coupled inductors and analyze the various parameters of two port networks.	Apply
CO4: Quantify the resonant frequency, band width and Q factor for AC circuits with passive elements.	Apply
CO5: Calculate the power and analyze the three phase AC system under balanced and unbalanced load conditions.	Analyze

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO4	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO5	-	3	-	-	-	-	-	-	-	-	-	-	1	-

High-3; Medium-2; Low-1

Textbooks:

T1. Dr. Abhijit Chakrabarti, Circuit Theory Analysis & Synthesis (Revised New Edition), Dhanpat Rai & Co (P) Ltd, Edition/Reprint: 2023.

T2. Robert L. Boylestad, Electronic Devices and Circuit Theory, Pearson Education, 11th Edition, 2015

Reference Book(s):

R1. Sudhakar A, Shyam mohan S. Palli, Circuits and Networks: Analysis and Synthesis, 5th edition McGraw Hill Education I, 2017.

R2. William H. Hayt, Jack E. Kemmerly, Jamie D. Phillips, Steven M. Durbin , Engineering circuit analysis, 9th edition, McGraw Hill, 2020.

Web References:

1. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-071j

   introduction-to electronics-signals-and-measurement-spring-2006/lecture-notes/

2. https://onlinecourses.nptel.ac.in/noc20_ee64/

3. https://www.edx.org/learn/circuits

4. https://www.udemy.com/topic/electrical-circuits/

5. AICTE e-KUMBH (aicte-india.org)

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23EET303		Course Title: Digital Electronics	
Course Category: Major		Course Level: Intermediate	
L:T:P(Hours/Week) 3:0:0	Credits: 3	Total Contact Hours:45	Max Marks:100

Course Objective: The course is intended to acquire the skills to design, analyze, and optimize digital circuits, encompassing combinational and sequential logic and memory components.

Module I   **22 Hours**

Review of number systems; Binary arithmetic, One's and two's complements, Boolean Algebra: Basic theorems, Simplification of Boolean functions, Representation of Boolean function in canonical and standard forms-Simplification of Boolean expressions using K maps and Quine-Mc-cluskey method.

Basic Gates, Universal gate implementation. Relation between switching and logic operation; Concept of noise margin, fanout, propagation delay; TTL, Schottky TTL, Tristate; CMOS Logic, Interfacing TTL with CMOS.

Combinational Circuits: Adder, Subtractor, Carry look ahead adder, Comparators, Code converters, Encoders, Decoders, Multiplexers, De-multiplexers- Boolean function realization using multiplexer.

Module II   **23 Hours**

Flip Flops: SR, JK, T, D- Level and Edge Triggering-Maser –Slave flip flop.

Design of synchronous sequential circuit using Mealy model and Moore model, state transition diagram, State reduction technique, Algorithm State Machine (ASM) chart;. Synchronous counters; Counter design- Up and down counter, Register, Shift register, Universal shift register. Ripple (asynchronous) counters; Races, Cycles and Hazards: Static, Dynamic, Essential, Hazards Elimination.

ROM, PROM, PAL, PLA-FPGA.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Design the basic combinational circuits.	Apply
CO2: Design the synchronous and asynchronous sequential circuits.	Apply
CO3: Analyze the synchronous and asynchronous sequential circuit.	Analyze
CO4: Categorize the different memory organization techniques and transistor level realization of digital circuits and report a presentation as a team or individual.	Evaluate

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	1	-
CO3	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO4	-	-	-	3	-	-	-	-	1	1	-	-	1	-

High-3; Medium-2; Low-1

Textbooks:

T1. A.Anandkumar, Fundamentals of digital circuits, 4th Edition, PHI Learning Pvt Ltd, 2022

T2. Donald P. Leach, Albert P. Malvino and GoutamSaha, "Digital Principles & Applications 8e", McGraw Hill, 2017.

Reference Book(s):

R1. Malvino and Leach, Digital Principles and Applications, Tata McGraw Hill, New Delhi, 8th Edition, 2014.

R2. Morris Mano. M. Michael D Ciletti, ―Digital Design‖, Pearson Education, 6th Edition, 2018.

Web References:

1. https://onlinecourses.nptel.ac.in/noc22_ee55/preview

2. https://onlinecourses.nptel.ac.in/noc23_ee115/preview

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23CST304	Course Title: Programming in C		
Course Category: Multidisciplinary		Course Level: Intermediate	
L:T:P(Hours/Week) 3: 0: 0	Credits:3	Total Contact Hours:45	Max Marks:100

Course Objectives:

The course helps to understand the structured and procedural programming skills. The major objective is to provide students with understanding of code organization and functional hierarchical decomposition using complex data types.

Module I   **22 Hours**

Basics of Computer Organization: Generation and Classification of Computers – Basic Organization of a Computer — Software development life cycle – Problem Solving Techniques, Algorithm, Pseudo code and Flow Chart.

Introduction to C Programming: Overview of C – Structure of C program – C Character set – keywords - Identifiers – Variables and Constants – Data types – Operators and Expressions – Managing formatted and unformatted Input & Output operation– Decision statements – Loop control statements.

Arrays and Strings: Arrays**:** Characteristics – One-dimensional array - Two-dimensional arrays. Strings: Declaration and Initialization of string – String handling functions.

Module II   **23 Hours**

Functions and Pointers: Functions: Declaration & Definition of function – Classification of functions – Call by value & reference - Recursion. Pointers: Features – Null and Void Pointers - Operations on pointers – Pointers and Arrays - Array of Pointers

Structures and Union: Structures: Declaration & Initialization of Structures – Structure within Structure - Array of structures –Pointers to Structures – Unions.

Files and Preprocessor directives: Files: Introduction to Files – File Types and operations (Open, close, read, write) – Command line arguments. Preprocessor Directives: Macro Expansion, File Inclusion, Conditional Compilation.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Apply problem solving skills to design and develop solutions for real-world applications.	Apply
CO2: Apply knowledge of C programming constructs to write simple programs that demonstrate fundamental syntax and semantics.	Apply
CO3: Analyze the role of functions in improving code readability and maintainability.	Analyze
CO4: Demonstrate various features to manipulate memory addresses and access data, ensuring proper memory management practices using	Apply

an oral presentation..		
CO5: Examine the ability to access and manipulate structure and Union members through appropriate accessing methods.	Analyze
CO6: Develop programs that involves file handling and preprocessor directives.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	3	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	2	-	-	-	-	1	-	-	-	-	-	-	-
CO4	2	-	-	-	-	-	-	-	2	2	-	-	-	-
CO5	-	-	-	2	-	-	-	-	-	-	-	-	-	1
CO6	-	-	3	-	-	-	-	-	-	-	-	-	-	1

High-3; Medium-2; Low-1

Text Book(s):

T1. Ashok N.Kamthane, Amit.N.Kamthane, "Programming in C", 3rd Edition,Pearson Education, 2015.

Reference Book(s):

R1. Ajay Mittal, "Programming in C-A Practical Approach", 3rd Edition, Pearson Education,2010.

R2. Yashavant P.Kanetkar," Let Us C" , 19th Edition, BPB Publications, 2022.

R3. Brian W.Kernighan and Dennis M.Ritchie,"The C Programming Language" 2nd Edition, Pearson Education, 2015

Web References:

1. NPTEL course content on Introduction To Programming: Inhttps://onlinecourses.nptel.ac.in/noc22_cs40

2. Complete guide on Learn C programming: http://www.cprogramming.com/

Course Code: 23EEL301		Course Title: DC Machines and Transformers Laboratory	
Course Category: Major		Course Level: Intermediate	
L:T:P(Hours/Week) 0:0:3	Credits: 1.5	Total Contact Hours: 45	Max Marks:100

Course Objectives:

The main objective of the course is to give the students an insight into the constructional details of dc machines and transformers with a view for better understanding of their working principles. The course also equips the students to test and evaluate the performance of various DC Machines and Single-phase transformers by conducting appropriate experiments.

List of Exercises

1. Open circuit and load characteristics of separately excited DC shunt generators.

2. Load characteristics of DC compound generator with differential and cumulative connection

3. Load characteristics of DC shunt and series motor by brake test.

4. Speed control of DC shunt motor using armature and field control method.

5. Predetermination of efficiencies as Generator and Motor from Swinburne's test.

6. Hopkinson's test on DC motor-generator set.

7. Load test on single phase transformer.

8. Open circuit and short circuit tests on single phase transformer

9. Sumpner's test on transformers.

10. Separation of no-load losses in single phase transformers.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Analyze the characteristics of DC Generators and Motor.	Analyze
CO2: Analyze the various speed control and braking techniques for DC motors.	Analyze
CO3: Predict the performance of single phase transformer by direct test and indirect testing	Analyze

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024　　　　BOS Chairman

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	1	-

High-3; Medium-2; Low-1

Textbooks:

T1.D P Kothari, Nagrath I.J, "Electric Machines", Tata McGraw Hill Publishing Company Ltd, 5th Edition, 2017.

T2 Murugesh Kumar.K, "Electrical Machines Volume - I", Vikas Publishing House Pvt. Ltd, 1st Edition, 2010.

Reference Book(s):

R1. Bimbhra. P.S, "Electric Machines", Khanna Publishers, 2nd Edition, 2017.

R2 Gupta. J.B, "Theory and Performance of Electrical Machines", S.K.Kataria and 4th Edition, 2013.

R3 S.K. Bhattacharya, "Electric Machines", Tata McGraw Hill Publishing Company Ltd 4th Edition, 2017.

Web References:

1. https://ems-iitr.vlabs.ac.in/List%20of%20experiments.html
2. www.ee.iitkgp.ac.in/faci_em.php
3. www.eee.griet.ac.in/.../2014/12/DC-Machines-Lab-Manual.pdf
4. http://iitg.vlab.co.in/?sub=61&brch=168.
5. NPTEL : Electrical Engineering - NOC: Electrical Machines – I
6. https://nptel.ac.in/courses/108105155

Course Code:23CSL302	Course Title: Programming in C Laboratory
Course Category Multidisciplinary	Course Level: Intermediate

L:T:P(Hours/Week) 0:0:3	Credits:1.5	Total Contact Hours:45	Max Marks:100

Course Objectives

The course introduces students to the practical knowledge of programming using C programming language as an implementation tool. It aims at providing students with understanding of programming essentials used within the framework of imperative and structural programming paradigms.

List of Experiments:

1. Develop Algorithm, Flowchart and Pseudo code for given problem.

2. Develop C programs using data types, I/O statements, Operators and Expressions.

3. Develop C programs using Decision-making statements.

4. Implement C programs using looping statements.

5. Design C programs to implement the concept of arrays.

6. Design C programs to implement the concept of strings

7. Develop C programs using functions.

8. Develop C programs using pointers.

9. Implement the concept of structures using C.

10. Implement C programs to perform file operations.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Demonstrate proficiency in using development environments, compilers, and debugging tools for C programming**.**	Apply
CO2: Develop C Programs using programming construct for simple scenarios.	Apply
CO3: Analyze the importance of code efficiency and optimization in C programming.	Analyze
CO4: Demonstrate the design and implementation of complex data structures and file handling mechanisms with an oral presentation.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	3	-	-	-	-	-	-	-	1	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	1	-
CO3	-	2	-	-	-	-	2	-	-	-	-	-	1	-
CO4	-	-	3	-	-	-	-	-	3	3	-	-	1	-

High-3; Medium-2; Low-1

Text Book(s):

T1. Ashok N.Kamthane, Amit.N.Kamthane, "Programming in C", 3rd Edition,PearsonEducation, 2015.

Reference Book(s):

R1. Ajay Mittal, "Programming in C-A Practical Approach", 3rd Edition, Pearson Education,2010.

R2. Yashavant P.Kanetkar," Let Us C", 19th Edition, BPB Publications, 2022.

R3. Brian W.Kernighan and Dennis M.Ritchie, "The C Programming Language" 2nd Edition, Pearson Education, 2015.

Web References:

1. NPTEL course content on Introduction To Programming: https://onlinecourses.nptel.ac.in/noc22_cs40

2. Complete guide on Learn C programming: http://www.cprogramming.com/

Course Code: 23VAT301	Course Title: Universal Human Values 2: Understanding Harmony			
Course Category: VAC	Course Level: Intermediate			
L:T:P (Hours/Week) 2:1: 0	Credits:3	Total Contact Hours:45		Max Marks:100

Course Objectives

The course is intended to:

1. Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.

2. Strengthening of self-reflection

3. Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence

4. Development of commitment and courage to act

5. Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.

Unit I   Introduction to Value Education   9 Hours

Need for the Value Education; Self -exploration as the process   for value education; Continuous Happiness and Prosperity: A look at basic Human Aspirations; Right understanding: Relationship and Physical Facilities; Happiness and Prosperity: current scenario; Method to fulfill the Basic human aspirations

Unit II   Harmony in Human Being   9 Hours

Human being as a co-existence of self ('I') and the material 'Body'; needs of Self ('I') and 'Body'; The Body as an instrument of 'I'; Harmony in the self ('I'); Harmony of the self ('I') with body; Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail. Programs to ensure Sanyam and Swasthya.

Unit III   Harmony in the Family and Society   9 Hours

Harmony in the Family the basic unit of human interaction; Values in human to human relationship; Trust as the foundational values of relationship; Respect as the right evaluation ;Understanding harmony in the society (society being an extension of family); Vision for the universal human order.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Unit IV   Harmony in the Nature   9 Hours

Understanding the harmony in the Nature Interconnectedness, self-regulation and mutual fulfillment among the four orders of nature; Existence as Co-existence at all levels; Holistic perception of harmony in existence.

Unit V   Harmony on Professional Ethics   9 Hours

Natural acceptance of human values; Definitiveness of Ethical Human Conduct; Basic for Humanistic Education, Humanistic Constitution and Humanistic Universal Order; Competence in professional ethics; Case study: holistic technologies, management models and production systems; Strategy for transition towards value-based life and profession

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO.1 Reflect on values, aspiration, relationships and hence identify strengths and weaknesses.	Responding
CO.2 Appraise physical, mental and social wellbeing of self and practice techniques to promote wellbeing.	Responding
CO.3 Value human relationships in family and society and maintain harmonious relationships.	Valuing
CO.4 Respect nature and its existence for survival and sustainable of all life forms and hence practice conservation of nature	Valuing
CO.5 Appreciate ethical behaviour as a result of value system in personal and professional situations	Receiving

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	1	2	2	-	-	2	-	-
CO2	-	-	-	-	-	1	2	2	2	1	-	2	-	-
CO3	-	-	-	-	-	2	2	2	2	1	-	2	-	-
CO4	-	-	-	-	-	2	2	2	2	-	-	2	-	-
CO5	-	-	-	-	-	1	2	2	2	-	-	2	-	-

High-3; Medium-2;Low-1

Text Book(s):

T1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Reference Book(s):

R1. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.

R2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.

R3. The story of stuff, Annie Leonard, Free Press, New York 2010.

Web References:

1. https://aktu.ac.in/hvpe/ResourceVideo.aspx

2. http://hvpenotes.blogspot.com/

3. https://nptel.ac.in/courses/109/104/109104068/

Course Code: 23ESL301	Course Title: Professional Skills 2: Problem solving skills & Logical Thinking 2 (Common to all B.E/B.Tech Programmes)		
Course Category: SEC	Course Level: Intermediate		
L:T:P(Hours/Week) 0: 0: 2	Credits: 1	Total Contact Hours:30	Max Marks:100

Course Objectives:

The course is intended to enhance the students' numerical, analytical and logical reasoning ability. Also course focus to make learners prepare for various public and private sector exams and placement drives.

Module I **20 Hours**

Quantitative Ability

Time and work –Pipes and cisterns- - Time Speed Distance-Problems on Trains-Boats and Streams- Permutation and Combination-Probability, Mensuration- Heights and distance- Logarithms- Clocks and Calendars – Data Sufficiency

Module II **10 Hours**

Reasoning Ability

Number & Alpha series- Odd man out-Coding and Decoding-Syllogisms- -Problems on Cubes and Dices- Logical Venn diagram -Visual Reasoning- Element & logical series-Analogies

Course Outcomes	Cognitive
At the end of this course, students will be able to:	Level
CO1: Enhance their problem solving skills & Logical thinking Skills	**Apply**

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	3	-	-

High-3; Medium-2; Low-1

Textbook(s):

T1: Dr. R. S. Aggarwal. "Quantitative Aptitude for Competitive Examinations" Sultan Chand & Sons Pvt. Ltd, New Delhi, 2018.

T2: Dr. R. S. Aggarwal. "A Modern Approach to Logical Reasoning", Sultan Chand & Sons Pvt. Ltd, New Delhi, 2018

Reference Book(s):

R1: R. V. Praveen. "Quantitative Aptitude and Reasoning" 2nd Revised Edition, Prentice-Hall of India Pvt.Ltd, 2013

R2: Arun Sharma. "Quantitative Aptitude for Common Aptitude Test", McGraw Hill Publications, 5th Edition, 2020

R3: Arun Sharma. "Logical Reasoning for Common Aptitude Test", McGraw Hill Publications, 6th Edition, 2021.

Web References:

1   https://www.indiabix.com/aptitude/questions-and-answers/
2   https://www.geeksforgeeks.org/aptitude-questions-and-answers/

SEMESTER IV

Course Code: 23MAT401	**Course Title: Probability and Statistics (Common to EC, EE, ME, AU, CS, AM, SC, IT & EV)**	
Course Category: Minor	**Course Level: Intermediate**	
L: T: P (Hours/Week) 3:1:0	**Credits: 4**	**Total Contact Hours:60**	**Max Marks:100**

Course Objectives:

This course aims at helping the students to gain knowledge on random variables, probability distributions and hypothesis testing for data.

Module I   **22+8 Hours**

Probability and Random Variables: Axioms of Probability- Conditional Probability- Total Probability -Baye's Theorem- Random Variables-One Dimensional Random variables- Probability Mass Function- Probability Density Functions- Properties - Moments- Moment generating functions and their properties-Two Dimensional Random Variables - Joint distributions – Marginal and conditional distributions – Covariance – Correlation and linear regression using least square method – Transformation of random variables.

Standard Distributions: Discrete Distributions - Binomial- Poisson- Properties, Moment generating functions -Continuous Distributions - Uniform –Exponential- Normal Distributions and their properties.

Module II   **23+7 Hours**

Testing of Hypotheses: Sampling distributions, Estimation of parameters, Statistical hypothesis, Large sample test based on Normal distribution for single mean and difference of means, Tests based on t-test, Chi-square distributions and F distributions for mean, variance and proportion, Contingency table (test for independent), Goodness of fit.

Design of Experiments: Analysis of Variance (ANOVA) - One-way Classification – Completely Randomized Design (CRD) – Two-way Classification – Randomized Block Design (RBD) – Latin square.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Demonstrate the concepts of probability theory to engineering problems.	Understand
CO2: Calculate the expected values, variances and correlation coefficient of random variables	Apply
CO3: Use the theoretical discrete and continuous probability distributions in the relevant application areas.	Apply
CO4: Apply the concepts of testing the hypothesis and design of experiments to solve real life problems.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	-	-	-	-	-	-	-	-	1	-	-	1	-
CO2	2	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO4	3	-	-	-	-	-	-	-	-	-	-	-	1	-

High-3; Medium-2;Low-1

Text Book(s):

T1. Veerajan T, "Probability, Statistics and Random process", 3rd Edition, Tata McGraw-Hill, New Delhi, 2017.

T2. Dr.J.Ravichandran, "Probability and Statistics for Engineers", 1st Edition, Wiley India Pvt. Ltd., 2010.

Reference Book(s):

R1. R.E. Walpole, R.H. Myers, S.L. Myers, and K Ye, "Probability and Statistics for Engineers and Scientists", 9th Edition Pearson Education, Asia, 2013.

R2. M.R. Spiegel, J. Schiller and R.A. Srinivasan, "Schaum's Outlines Probability and Statistics", 4th Edition Tata McGraw Hill edition, 2012.

R3. Morris DeGroot, Mark Schervish, "Probability and Statistics", Pearson Educational Ltd, 4th Edition, 2014, India.

Web References:

1https://archive.nptel.ac.in/courses/111/105/111105090/

2.https://archive.nptel.ac.in/courses/111/105/111105041/

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23EET401	Course Title: Synchronous and Induction Machines	
Course Category: Major	Course Level: Intermediate	
L:T:P(Hours/Week) 3:0:0	Credits: 3	Total Contact Hours: 45	Max Marks:100

Course Objectives:

To give exposure to the students about the concepts of alternating current machines including the constructional details, principle of operation, performance analysis, characteristics and to learn how it can be employed for various applications.

Module I   **22 Hours**

Synchronous Machines

Alternators: Construction – Types - stationary armature - EMF equation – armature reaction – voltage regulation – pre-determination of regulation by EMF, MMF, and ZPF methods. Load characteristics – parallel operation – synchronizing torque, reactance and reluctance power – load sharing – alternator on infinite bus bar – two reaction theory – predetermination of voltage regulation for salient pole machines-PMSG.

Synchronous Motors: Theory of operation – phasor diagrams - variations of current and power factor with excitation –selection of starting methods – hunting and methods of suppression – power angle relations – V and inverted V curves – applications - synchronous condenser- PMSM.

Module II   **23 Hours**

Three Phase Induction Motors

Constructional details – types of rotors – principle of operation – production of RMF – torque equation – torque slip characteristics – maximum torque – slip for maximum power – effect of rotor resistance – losses and efficiency - induction generators - performance calculation: equivalent circuit, testing – load test – no load and blocked rotor tests, circle diagram – separation of no load losses - applications.

Selection of starting methods: DOL, rotor resistance and star–delta starters. Selection of speed control methods: Speed control by change of frequency, V/F ratio, number of poles and change of slip – Cogging – crawling - Electrical Braking: - plugging - regenerative and dynamic braking.

Single Phase Motors

Constructional details of single phase induction motor – double field revolving theory – equivalent circuit. Self-starting methods: Types of Single phase induction motor - capacitor start, capacitor start capacitor run – applications.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Construct the phasor diagrams and equivalent circuits to analyze the performance of the Synchronous machines.	Apply
CO 2: Examine the performance of the induction machines and select appropriate AC machine based on application.	Analyze
CO 3: Appraise the principle of operation and performance of single-phase induction motors.	Apply
CO 4: Select appropriate AC machine for any application and report its significance using case study.	Analyze

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO4	-	-	-	3	-	-	-	-	1	1	-	1	-	1

High-3; Medium-2; Low-1

Textbooks:

T1. Nagrath I.J Kothari D.P, "Electric Machines", Tata McGraw Hill publishing company Ltd, New Delhi, 5th Edition,2017.

T2. Murugesh Kumar, K, "Electric Machines – Volume II", Vikas publishing house Pvt.Ltd.,Noida, 1st Edition, 2010.

Reference Book(s):

R1. Bimbhra. P.S., "Electrical Machinery", Khanna Publishers, New Delhi, 1st Edition, 2021.

R2. Gupta. J.B., "Electrical Machine - II", S.K. Kataria& Sons, New Delhi, Reprint, 2020.

R3. Theraja. B.L., Theraja. A.K., "A Textbook of Electrical Technology, Volume II(AC & DC Machines", S.Chand& Company Ltd, New Delhi, 5th Edition, 2022.

R4. A.E.Fitzgerald, Charles Kingsley, Stephen .D. Umans, "Electric Machinery", TataMcgraw Hill, New Delhi, 7thEdition, 2013.

R5. V K Mehta &Rohit Mehta, "Principle of Electrical Machines", S. Chand Publishing, 2nd Edition, 2019.

Web References:

1. https://nptel.ac.in/courses/108106072
2. https://nptel.ac.in/courses/108102146
3. https://nptel.ac.in/courses/108105131
4. https://nptel.ac.in/courses/108102372

Course Code:23EET402		Course Title: Electronic Circuits	
Course Category: Major		Course Level: Intermediate	
L:T:P(Hours/Week) 3: 0: 0	Credits:3	Total Contact Hours:45	Max Marks:100

Course Objectives:

The course is intended to impart the knowledge on rectifiers, transistor amplifiers and their frequency response with emphasis on low signal and large signal amplifiers and wave shaping circuits

Module I   **22 Hours**

Rectifiers and Filters: Half wave, Full wave and Bridge Rectifiers using diodes, Harmonic components in a Rectifier Circuit, Inductive Filters, Capacitive Filters, π- Section Filters. Design of Isolated Power Supply.

Transistor Biasing and Stabilization: Operating Point, DC and AC Load lines, Need for Biasing, Types of BJT Biasing - Fixed Bias, Feedback Bias, Voltage Divider Bias, Bias Stability, Stabilization Factors, Thermal Runaway. FET Biasing

Transistor amplifiers: Differential amplifier – Common mode and Difference mode analysis, Small signal analysis of BJT using h-parameters, Amplifier frequency response, Multistage amplification; R-C coupled amplifiers, Cascode and Darlington configurations

Module II   **23 Hours**

Power Amplifiers : Class A and Class B power amplifiers, Tuned amplifiers –Neutralization method

Feedback Amplifiers: Introduction to Feedback, Basic Feedback Concepts, Ideal Close−Loop Gain, Effect of negative feedback on input and output resistances, gain, gain stability, distortion and bandwidth; Feedback Topologies.

Oscillators & Multivibrators: Conditions for oscillations-Phase shift, Wien bridge, Hartley, Colpitts and Crystal oscillators. Astable, Monostable and Bistable Multivibrators using BJT

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Apply the active and passive components in the construction and operation of rectifiers and filter circuit.	Apply
CO2: Analyze the DC bias circuitry of BJT and FET.	Analyze
CO3: Analyze transistor amplifiers, encompassing small signal analysis, frequency response, multistage configurations, and diverse applications using Case Studies	Analyze
CO4: Analyze the operation of power amplifiers and tuned amplifiers.	Analyze
CO5: Design the Oscillators and Multivibrators for the given specification.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO3	-	-	-	3	-	-	-	-	1	1	-	-	1	-
CO4	-	3	-	-	-	-	-	-	-	-	-	-	1	-
CO5	-	-	3	-	-	-	-	-	-	-	-	-	1	-

High-3; Medium-2; Low-1

Text Book(s)

T1. Robert L Boylestad, Louis Nashelsky, "Electronic Devices and Circuit Theory", Pearson Education, 11th Edition, 2015.

T2. S. Salivahanan, N. Suresh Kumar and A. Vallavaraj, "Electronic Devices and Circuits" by, Tata McGraw Hill, New Delhi, 2nd Edition 2008.

Reference Book(s)

R1. David A. Bell, "Electronic Devices and Circuits", Oxford, 5th Edition, April 2008.

R2. Anil K.Maini, Varsha Agarwal, "Electronic Devices and Circuits", Wiley India Private Ltd, New Delhi, 1st Edition, 2015.

R3. Millman.J, Halkias.C and SatyebrantaJit, "Electronic Devices & Circuits", TMH, New Delhi, 2nd Edition,2008.

R4. Jacob Millman, Christos C.Halkias, "Integrated Electronics - Analog and Digital circuits system", Tata McGraw Hill, 2003

Web References

1. https://nptelvideos.com/video.php?id=1322
2. https://nptel.ac.in/courses/117101106

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code:23CSI402	Course Title: Data Structures and Algorithms		
Course Category: Multidisciplinary	Course Level: Intermediate		
L:T:P(Hours/Week) 2: 0: 2	Credits:3	Total Contact Hours:60	Max Marks:100

Course Objectives:

The course is indented to introduce the concepts of elementary data structures and their implementation. It also discusses the appropriate data structures to solve problems.

Module I   Linear data structures   15 hours

LIST: Data Structures - Abstract Data Types (ADT) - List ADT: Array Implementation and Linked List Implementation - Application: Polynomial Addition

Stack ADT: Array and Linked List implementation of Stack - Application: Infix to Postfix Conversion - Postfix Expression Evaluation

Queue ADT – Array and Linked List implementation of Queue

Searching &Sorting: Linear Search- Binary search Bubble sort - Quick sort – Merge sort

Module II   Non Linear Data Structure   15 hours

Trees: Binary Trees – Binary Tree Traversals – Expression Trees – Binary Search Tree

Graphs: Representation of Graphs – Graph Traversals: Depth first and Breadth first traversal - Topological Sort

Shortest Path Algorithms: Unweighted Shortest Paths–Dijkstra's Algorithm – Floyd's Algorithm.

Minimum Spanning Tree: Prim's Algorithm- Kruskal's Algorithm

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1:Solve problems using Linear data structures	Apply
CO2: Apply the concept of nonlinear data structures Trees and Graphs for various applications	Apply
CO3:Demonstrate the use of standard sorting and Hashing Techniques	Analyze
CO4:Make use of data structures to develop solutions to the real time scenario	Analyze

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

LIST OF EXPERIMENTS / EXERCISES:

1. Implementation of linked list and its operations
2. Implementation of stack & queue using array and linked list
3. Implementation of Binary search tree operations
4. Implementation of Dijkstra's Algorithm
5. Quick Sort and Bubble Sort
6. Merge Sort.

7. Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	--	-	-	1	-	-	-	-	-	-	-	1	-
CO2	3	-	-	-	1	-	-	-	-	-	-	-	1	-
CO3	-	3	-	-	1	-	-	-	-	-	-	-	-	1
CO4	-	3	-	-	1	-	-	-	-	-	-	-	-	1

High-3; Medium-2; Low-1

Text Books:

T1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education Asia, New Delhi, 2015.

Reference Books:

R1. Horowitz Sahni, Andreson Freed, "Fundamentals of Data Structures in C", 2nd Edition, Universities Press, Hyderabad, 2011.

R2. Seymour Lipschutz, "Data Structures with C", McGraw Hill, 2014

R3. Thomas H Cormen, Charles E Leiserson, Ronald L Revest, Clifford Stein, "Introduction to Algorithms" 3rd ed., The MIT Press Cambridge, 2014.

Web References:

1. https://www.coursera.org/specializations/data-structures-algorithms
2. https://onlinecourses.nptel.ac.in/noc24_cs45/preview
3. https://onlinecourses.swayam2.ac.in/cec21_cs02/course

Course Code: 23EET403	Course Title: Measurement and Instrumentation
Course Category: Major	Course Level: Intermediate
L:T:P(Hours/Week) 3:0:0 Credits: 3	Total Contact Hours: 45 Max Marks:100

Course Objectives:

The course is intended to infer the fundamental concepts of transducers with characteristics and applications .The course focus on the methods of measurement of low voltage and high voltage electrical quantities, DC and AC bridges for measurements, overall measurement and instrumentation with the knowledge on digital instrumentation principles.

Module I   **23 Hours**

Basic Blocks of measurement system – Instrument standards

Construction, Working and Errors: PMMC, MI and D Arsonval Galvanometer Instruments

Construction and Working: Potentiometers, Induction type and dynamometer type wattmeters – Energy meter - Power factor meter – Megger.

Instrument transformers: CT and PT.

Digital DC & AC Voltmeter – True & RMS responding Voltmeter – Digital Multimeter.

DC & AC Bridges: Wheatstone's bridge, Kelvin's bridge, Maxwell bridge, Schering bridge and Wein bridge - Errors and compensation in A.C. bridges.

Module II   **22 Hours**

Transducers– Characteristics of transducers – Errors and Error analysis – Resistive, capacitive and inductive transducers – RTD – Strain gauge – LVDT – Capacitive and Inductive Proximity sensors – Piezo electric transducers – ultrasonic transducers - Magnetic pickups – Optical transducers – Digital encoders – Smart Transducer -Selection of transducers-Measurement of Temperature, Pressure, Level, Displacement, Angular velocity and Torque.

Signal Generators and Analyzer: Sine, Pulse, and square wave generators – Function generators- Wave Analyzer and Spectrum Analyzer.

Oscilloscopes: CRO and DSO

Basic blocks of Data Acquisition System and PC based instrumentation.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1: Describe the working of different measuring instruments in electrical and physical quantity measurements.	Understand
CO2: Analyze the characteristics and errors in measuring instruments and transducers	Apply
CO3: Select the instruments and bridges for high power and low power electrical quantity measurements.	Analyze
CO4: Select the transducers for various physical quantity measurement applications	Analyze

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	--	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	-	3	-	-	-	-	-	-	-	-	-	-	-	1
CO4	-	3	-	-	-	-	-	-	-	-	-	-	-	1

High-3; Medium-2; Low-1

Textbooks:

T1. Ernest O. Doebelin. Measurement system Application and Design. McGraw Hill International Editions, 1990

Reference Book(s):

R1. A.K. Sawhney, PuneetSawhney 'A Course in Electrical & Electronic Measurements & Instrumentation', DhanpatRai and Co, New Delhi, Edition 2011.

R2. H.S. Kalsi, 'Electronic Instrumentation', Tata McGraw-Hill, New Delhi, 2010

R3. R. K. Rajput, "Electrical and Electronics Measurements and Instrumentation", Chand Pub, 2016

Web References:

1. NPTEL:Transducers For Instrumentation By Prof. Ankur Gupta, IIT-Delhi.
2. NPTEL:Electrical Measurement and Electronic Instruments, Prof. AvishekChatterjee Department of Electrical Engineering, IIT-Kharagpur.

Course Code: 23EEL401	Course Title: Synchronous and Induction Machines Laboratory	
Course Category: Major	Course Level: Intermediate	
L:T:P(Hours/Week) 0:0:3	Credits: 1.5	Total Contact Hours: 45	Max Marks:100

Course Objectives:

To demonstrate the tests and analyze the performance of synchronous and induction machines

List of Exercises

1. Load test on three phase Alternator
2. Regulation of three phase alternator by EMF & MMF method
3. Regulation of three phase alternator by ZPF method
4. Regulation of three phase salient pole alternator by slip test
5. Determination of V and Inverted V curves of Synchronous Motor
6. Demonstrate the working of different types of starters.
7. Load test on single phase induction motor
8. Load test on three phase Squirrel cage and Slip-ring induction motor
9. No load and blocked rotor test on a three phase induction motor – Equivalent Circuit and Circle Diagram
10. Parallel operation of three phase alternators

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1:Compare the performance of an alternator by direct and indirect method.	Analyze
CO2:Demonstrate the parallel operation of alternator and control of induction motor.	Apply
CO3:Identify the performance curves of the synchronous motor.	Apply
CO4:Identify the performance of single and three phase Induction motor.	Apply
CO5:Evaluate the performance of different types of AC motors.	Evaluate

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	3	-	-	1	-	-	-	-	-	-	-	1	-
CO2	3	-	-	-	1	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	1	-	-	-	-	-	-	-	1	-
CO4	3	-	-	-	1	-	-	-	-	-	-	-	1	-
CO5	-	-	-	3	1	-	-	-	-	-	-	-	1	-

High-3; Medium-2; Low-1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Textbooks:

T1. Gupta. J.B., "Electrical Machine - II", S.K. Kataria & Sons, New Delhi, Reprint, 2020.

T2. "Synchronous And Induction Machines Laboratory Manual" prepared by Department of Electrical and Electronics Engineering, Dr.Mahalingam College of Engineering and Technology.

Reference Book(s):

R1.Bimbhra. P.S., "Electrical Machinery", Khanna Publishers, New Delhi, 1st Edition, 2021.

R2. Nagrath I.J Kothari D.P, "Electric Machines", Tata McGraw Hill publishing company Ltd, New Delhi, 5th Edition,2017.

Web References:

1. https://em-coep.vlabs.ac.in/List%20of%20experiments.html

Course Code:23EEL402	Course Title: Analog and Digital Electronics Laboratory		
Course Category: Major	Course Level: Intermediate		
L:T:P(Hours/Week) 0:0:3	Credits: 1.5	Total Contact Hours:45	Max Marks:100

Course Objectives:

The course is intended to impart knowledge on the design and implementation of basic analog and digital circuit.

List of Exercises

1. Design and implementation of code converters.

2. Design of combinational circuits using multiplexer and de- multiplexer.

3. Design and implementation of counters and shift registers.

4. Verilog implementation of Full Adder and Full Subtractor.

5. Verilog implementation of Flip-Flop.

6. Design and implementation of synchronous sequential circuits.

7. Design and Implementation of Half-Wave and Full-Wave Rectifier with and without Capacitor Filter.

8. Frequency response of tuned amplifiers.

9. Design and verification of RC Oscillators.

10. Design and Verification of Power Amplifiers.

11. Design and implementation of multivibrators.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO 1:Design the basic combinational and sequential circuits	Apply
CO2: Experiment the Half-Wave and Full-Wave Rectifier with and without Capacitor Filter.	Apply
CO3:Design the amplifiers, oscillators and multivibrators for the given application	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	-	1	-	-	-	-	-	-	-	1	-
CO2	3	-	-	-	1	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	1	-	-	-	-	-	-	-	1	-

High-3; Medium-2; Low-1

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

References:

T1.Lab manual prepared by the Department of Electrical and Electronics Engineering, Dr.Mahalingam College of Engineering and Technology, Pollachi.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Course Code: 23ESL401	Course Title:Professional Skills 3 : Professional Development and Etiquette (Common to all B.E/B.Tech Programmes)		
Course Category: SEC	Course Level:		
L:T:P(Hours/Week) 0: 0: 2	Credits: 1	Total Contact Hours:30	Max Marks:100

Course Objectives:

The course is intended to cultivate students' appropriate etiquette across various personal and professional contexts, fostering professionalism and effective communication.

Module I   **15 Hours**

Emotional Intelligence

Intrapersonal Skill: Goal Setting- Self-management- Emotional Intelligence: Understanding & Developing EI for Effective Communication and Relationships – Enhancing Social Skills

Professional Development

Introduction to Professional Development - Career State Assessment - Set Career Goals- Stay on Industry Trends - Self & Lifelong learning – Creativity - Problem Solving Skills - Strong Fundamentals – Using/ Creating Opportunities – Work & Life Balancing - Revisiting Goals

Teamness and Interpersonal skills

Paraphrasing: Techniques for Active Listening -Paraphrasing as a Tool for Effective Understanding and Communication – Collaboration and Team Building: Building Trust and Rapport - Self-paced learning.

Module II   **15 Hours**

Effective Communication

Effective Verbal Communication - Assertive Communication - Elements of Effective Communication - Barriers to Effective Communication - Persuasion Skills -Effective Presentation: Oral and visual presentation – Drafting formal reports.

Professional Etiquette

Introduction - Types of professional Etiquette- Personal Grooming: Importance of Personal Grooming in Professional Settings- Dress Codes and Professional Appearance Guidelines- Body language - Social – Email – Telephonic – Dining – Classroom - Business.

Passed in 17th Board of Studies Meeting held on 05.01.2024

Approved in 18th Academic Council Meeting held on 23.03.2024   BOS Chairman

Activities:

- Emotional Intelligence: Scenario based role play, Debate

- Paraphrasing: Listening, Reading

- Effective Presentation:

    o Oral Presentation: Self-Introduction, JAM , Extempore speech

    o Visual presentation: Email Writing, Power Point Presentation, Vlog

Professional Etiquette: Demonstrate required Professional Etiquette in all the above activities.

Course Outcomes	Cognitive Level
At the end of this course, students will be able to:	
CO1: Communicate effectively and exhibit Professional etiquettes in various social forums.	Apply

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	2	2	3	-	1	-	-

High-3; Medium-2; Low-1

Textbook(s):

T1. Sabina Pillai, Agna Fernandez, "Soft Skills & Employability Skills", Cambridge University Press2018.

T2.Peggy Post &Peter Post, "The Etiquette Advantage in Business: Personal Skills for Professional Success", 2nd edition (May 3, 2005), William Morrow.

Reference Book(s):

R1. Ashraf Rizvi, "Effective Technical Communication" 2nd Edition, McGraw-Hill India, 2018.

R2. Maithry Shinde, Jyotsna Sreenath, "Life Skills & Personality Development", Cambridge University Press 2022.

Web References:

1. https://www.indeed.com/career-advice/career-development/etiquette-at-work

2.https://www.skillsyouneed.com/interpersonal-skills.html