K.S. Rangasamy College of Technology

(Autonomous)

CURRICULUM & SYLLABI

of

B.E. Computer Science and Engineering

(For the Batch Admitted in 2026 – 2027)

R 2026

Programme Accredited by NBA, NAAC with 'A++' Grade,
Approved by AICTE, Affiliated to Anna University, Chennai

KSR Kalvi Nagar, Tiruchengode – 637 215.
Namakkal District, Tamil Nadu, India

K.S. RANGASAMY COLLEGE OF TECHNOLOGY, TIRUCHENGODE – 637215

(An Autonomous Institution affiliated to Anna University)

COURSES OF STUDY

(For the candidates admitted in 2026-2027)

SEMESTER I

S.No	Course Code	Course Title	Category	Contact Periods	L	T	P	C
1.		Induction Programme	-	-	-	-	-	0
THEORY								
2.	26 EN 1C1I	English Essentials – I	HS	3	2	0	2	3
3.	26MA1C1T	Linear Algebra and Ordinary Differential Equations	BS	5	3	1	0	4
4.	26EE1C1T	Basic Electrical and Electronics Engineering	ES	3	3	0	0	3
5.	26ME1C2I	Engineering Graphics	ES	5	1	0	4	3
6.	26CS1C1T	C Programming	ES	3	3	0	0	3
7.	26IT1C1I	Computational Thinking	PC	3	1	0	2	2
8.	26EN1E*T	Foreign Language*	MC	3	3	0	0	3*
9.	26MY1Y1T	Environmental Science and Sustainable Practices	MC	2	2	0	0	2*
10.	26MY2Y1T	Universal Human Values	MC	3	3	0	0	3*
11.	26TA1YIT	Heritage of Tamils / தமிழர் மரபு*	GE	2	2	0	0	2
PRACTICALS								
12.	26CS1C1L	C Programming Laboratory	ES	3	0	0	3	1.5
13.	26TP1G1P	Career Skill Development I (Aptitude - 1)	CG	2	0	0	2	1*
14.	26EE1C1L	Maker Space	BS	3	0	0	2	1
			Total	40	23	1	15	22.5

* Foreign Language - Additional Credit
Indian Knowledge System
* Environmental Science and Sustainable Practices * - additional 1 credit is offered and not account for CGPA

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

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BoS Chairman

* Universal Human Values - additional 1 credit is offered and not account for CGPA

SEMESTER II

S.No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
THEORY								
1.	26EN2C1I	English Essentials – II	HS	4	2	0	2	3
2.	26MA2C1T	Multiple Integrals and Calculus	BS	5	3	1	0	4
3.	26PH2C2T	Physics for Computing Sciences	BS	3	3	0	0	3
4.	26CH2C1T	Engineering Chemistry	BS	3	3	0	0	3
5.	26IT2C1T	Python Programming	PC	3	3	0	0	3
6.	26CS2C2I	Web Technology	PC	2	1	0	2	2
7.	26TA2Y1T	Tamils and Technology / தமிழரும் தொழில் நுட்பமும்*	GE	1	1	0	0	1*
PRACTICALS								
8.	26PH2C2L	Fundamental Physics Laboratory	BS	2	0	0	2	1
9.	26CH2C1L	Engineering Chemistry Laboratory	BS	2	0	0	2	1
10.	26IT2C1L	Python Programming Laboratory	PC	3	0	0	3	1.5
11.	26TP2G1P	Career Skill Development II (Aptitude - 2)	CG	2	0	0	2	1*
12.	26CS201L	Innovation and Design Thinking	PC	2	0	0	2	1
			Total	**32**	**16**	**1**	**15**	**22.5**

* Tamils and Technology / தமிழரும் தொழில்நுட்பமும்* – additional 1 credit is offered and not account for CGPA

SEMESTER III

S.No	Course Code	Course Title	Category	Contact Periods	L	T	P	C
THEORY								
1.	26MA3C1T	Mathematical Statistics and Numerical Methods	BS	5	3	1	0	4

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

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2.	26CS3C1T	Data Structures and Algorithms - I	PC	3	3	0	0	3
3.	26CS3C2T	Java Programming	PC	3	3	0	0	3
4.	26CS301T	Digital Principles and Computer Organization	ES	3	3	0	0	3
5.	26CS302I	Software Engineering	PC	4	2	0	2	3
6.	26MY1Y2T	Universal Human Values	MC	1	1	0	0	1*
7.	26MY4Y1T	Biology for Engineers^	MC	1	1	0	0	1*
8.	26MY3Y1T	Life Skills for Engineers	MC	1	1	0	0	1*
PRACTICALS								
8.	26CS3C1L	Data Structures and Algorithms – I Laboratory	PC	3	0	0	3	1.5
9.	26CS3C2L	Java Programming Laboratory	PC	3	0	0	3	1.5
10.	26TP3G1P	Language Laboratory I	BS	2	0	0	2	1
11.	26TP3G1P	Career Skill Development III (Language Skill)	CG	2	0	0	2	1*
12.	26TP3G2P	Internship*	CG	-	-	-	-	1/2/3*
			Total	**31**	**17**	**1**	**12**	**20**

SEMESTER IV

S.No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
THEORY								
1.	26MA4C1T	Discrete Mathematics	BS	5	3	1	0	4
2.	26CS4C1I	Data Structures and Algorithms -II	PC	3	3	0	2	4
3.	26CS4C2T	Database Management Systems	PC	3	3	0	0	3
	26CS401T	Operating Systems	PC	3	3	0	0	3
5.	26CS4N4T	Open Elective–I	OE	3	3	0	0	3
6.	26MY3Y1T	Disaster Management	MC	2	2	0	0	0
PRACTICALS								
7.	26CS401L	Operating Systems Laboratory	PC	3	0	0	3	1.5
8.	26CS4C2L	Database Management Systems Laboratory	PC	3	0	0	3	1.5
9.	26CS403P	Mini Project	PC	3	0	0	3	1.5
10.	26TP4G1P	Career Skill Development IV (Language Skill)	CG	2	0	0	2	1*
			Total	30	17	1	13	21.5

@ Summer Internship Additional Credit – 2 weeks

SEMESTER V

Passed in BoS Meeting held on 20.12.2025
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S.No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
THEORY								
1.	26CS501T	Artificial Intelligence	PC	3	3	0	0	3
2.	26CS502T	Formal Language and Automata Theory	PC	5	3	1	0	4
3.	26CS503I	Computer Networks	PC	3	3	0	2	4
	26CS504T	Full Stack Development	PC	6	0	0	6	3
5.	26CS5E5I	Professional Elective –I	PE	4	2	0	2	3
6.	26CS5E6I	Professional Elective –II	PE	4	2	0	2	3
7.	26CS5N7T	Open Elective-II	OE	3	3	0	0	3
PRACTICALS								
8.	26CS501L	Artificial Intelligence Laboratory	PC	3	0	0	3	1.5
10.	26CS502L	Open Source Systems Laboratory	PC	3	0	0	3	1.5
11.	26TP5G1P	Career Skill Development V (Technical skill)	CG	2	0	0	2	1*
12.	26TP5G2P	Summer Internship@	CG	-	0	0	0	1*
			Total	**36**	16	1	**22**	**26**

SEMESTER VI

S.No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
THEORY								
1.	26CS601T	Cloud Computing	PC	3	3	0	0	3
2.	26CS602T	Principles of Compiler Design	PC	3	3	0	0	3
3.	26CS603I	Cryptography and Network Security	PC	3	3	0	2	4
4.	26CS604T	Machine Learning Techniques	PC	3	3	0	0	3
5.	26CS605T	Software Testing	PC	3	3	0	0	3
6.	26CS6E6I	Professional Elective–III	PE	3	3	0	0	3
7.	26CS6E7I	Professional Elective– IV	PE	3	3	0	0	3
8.		Self Learning Course (MOOC / SWAYAM) *	PC	3	3	0	0	3*
9.	26MY5Y1T	Startups and Entrepreneurship	MC	2	2	0	0	2*
PRACTICALS								

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10.	26CS601L	Cloud Computing Laboratory	PC	3	0	0	3	1.5
11.	26CS602L	Machine Learning Laboratory	PC	3	0	0	3	1.5
12.	26TP4G1P	Language Laboratory II	BS	2	0	0	2	1
13.	26TP6G1P	Career Skill Development VI (Technical skill)	CG	2	0	0	2	1*
			Total	**36**	**26**	**0**	**12**	**26**

Syllabus Framed based on industry need
* Self learning - Additional Credit
@ Summer Internship Additional Credit – 4 weeks
* Mini Project - additional 1 credit is offered and not accounted for CGPA

SEMESTER VII

S.No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
THEORY								
1.		Engineering Economics and Financial Accounting	HS	3	3	0	0	3
2.	26CS701T	Large Language Model	PC	3	3	0	0	3
3.	26CS702T	Computer Vision	PC	4	2	0	2	3
4.	26CS7E3T	Elective– V	PC	3	3	0	0	3
5.	26CS7E4T	Elective– VI	PE	3	3	0	0	3
6.	26AC7Y1T	Research Skill Development	AC	2	0	0	2	0
PRACTICALS								
7.	26CS701L	Large Language Model Laboratory	PC	3	0	0	3	1.5
8.	26CS702L	Vibe Coding	PC	3	0	0	3	1.5
9.	26CS703P	Project Phase I / Startup / Internship Project/ Capstone Project	CG	3	0	0	3	1.5
10.	26GE7C1T	NCC*/NSS/Sports/YRC/RRC/ Liberal Arts/Social Activities	CG	-	0	0	0	1*
11.	26TP7G2P	Summer Internship@	CG	-	0	0	0	1*
			Total	**28**	**14**	**0**	**14**	**19.5**

* NCC B Certificate 3 Extra Credits
Capstone Project by Minor and Honour Students

SEMESTER VIII

S.No.	Course Code	Course Title	Category	Contact Periods	L	T	P	C
PRACTICALS								

Passed in BoS Meeting held on 20.12.2025
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1	26CS801P	Project Phase II / Startup / Internship Project	CG	16	0	0	16	8
			Total	**19**	**3**	**0**	**16**	**8**

TOTAL NUMBER OF CREDITS TO BE EARNED FOR AWARD OF THE DEGREE =166

BS : Basic Science
HS : Humanities and Social Science
ES : Engineering Science
PC : Professional Core
PE : Professional Elective
MC : Mandatory Course
CG : Career Guidance
L: Lecture
T: Tutorial
P: Practical

Note:

1 Hour Lecture is equivalent to 1 credit
2 Hour Tutorial is equivalent to 1 credit
2 Hours Practical is equivalent to 1 credit

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BoS Chairman

26 EN 1C1I	English Essentials - I	Category	L	T	P	Credit
		HS	2	0	2	3

Objectives

- To develop students' foundational skills in reading, writing, grammar and vocabulary to enable them to understand and produce various forms of communication.
- To enhance students' proficiency in reading comprehension, narrative and comparative writing.
- To comprehend and analyse descriptive texts and visual images
- To articulate similarities and differences in oral and written forms.
- To improve students' proficiency in reading and writing formal letters and emails.

Pre-requisites

- Basic Knowledge in English Language

Course Outcomes

On the successful completion of the course, learners will be able to

CO1	Relate appropriate grammar and vocabulary to read different types of text and converse appropriately.	Remember
CO2	Construct coherent, descriptive and comparative sentences in essay writing.	Understand
CO3	Comprehend and interpret different kinds of texts and audio-visual materials	Understand
CO4	Critically evaluate reviews and articulate similarities and differences	Understand
CO5	Draft formal letters and emails using appropriate language structure and format	Remember

Mapping with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1									3	3	3			
CO2									3	3	3			
CO3									3	3	3			
CO4									3	3	3			
CO5									3	3	3			
3 - Strong; 2 - Medium; 1 - Some														

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)				Model Examination (Marks)		End Sem Examination (Marks)	
	Test 1		Test 2					
	Theory	Lab	Theory	Lab	Theory	Lab	Theory	Lab
Remember	20	40	20	40	40	-	40	-
Understand	40	60	40	60	60	-	60	-
Total	60	100	60	100	100	-	100	-

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Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026

B.E. / B.Tech. (Common to all Branches)

26 EN 1C1I – English Essentials - I

Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	2	0	2	60	3	50	50	100

Basics of Communication **Listening** – Telephone conversation & Writing message, gap filling **Reading** – Telephone message, bio-note **Writing** –Personal profile **Grammar**– Simple present tense, Present continuous tense, Asking questions (wh questions) **Vocabulary** – One word substitution, Synonyms	**[6]**
Narration **Listening** –Travel podcast / Watching a travel documentary **Reading** – An excerpt from a travelogue, Newspaper Report **Writing** – Narrative (Event, personal experience etc.) **Grammar** – Subject – verb agreement, Simple past, Past continuous Tenses **Vocabulary** – Antonyms, Word formation (Prefix and Suffix)	**[6]**
Description **Listening** – Conversation, Radio/TV advertisement **Reading** – A tourist brochure and planning an itinerary, descriptive article / excerpt from literature **Writing**– Definitions, Descriptive writing, Checklists **Grammar** – Future tense, Perfect tenses, Preposition **Vocabulary** – Adjectives and Adverbs	**[6]**
Classification **Listening** – Announcements and filling a table **Reading** – An article, social media posts and classifying (channel conversion – text to table) **Writing** – Note making, Note taking and Summarizing, a classification paragraph; **Grammar** – Connectives, Transition words **Vocabulary** –Contextual vocabulary, Words used both as noun and verb, Scientific and Technical vocabulary	**[6]**
Expression of Views **Listening** – Debate / Discussion **Reading** – Formal letters, Letters to Editor, Opinion articles / Blogs **Writing**–Letter writing/E-mail writing (Enquiry/Permission, Letter to Editor) **Grammar** –Question tags, **embedded questions**, Yes / No questions **Vocabulary** – Compound words, Phrasal verbs.	**[6]**
Lab Activity - Speaking 1. **Self-Introduction** a) Introducing oneself b) Telephone conversation c) Relaying telephone message d) Role play 2. **Narration**	**[30]**

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a) Narrating one's personal experience in front of a group (formal and informal context) Ex.: First day in college / vacation / first achievement etc. 3. **Conversation** a) Making conversation - formal and informal b) Turn taking and Turn giving c) Small talk (JaM) **4. Short Speech** **a)** Giving short speeches on topics like College Clubs and their activities in the college / Campus Facilities / native place and its major attractions. 5. **Discussion** a) Taking part in a group discussion on general topics b) Debating on topics of interest and relevance.	
Total Hours: (Lecture - 30; Lab Activity- 30)	**60**
Text Book(s):	
1. "English for Engineers and Technologists" Volume I by Orient Blackswan, 2022	
2. "English for Science &Technology-I" by Cambridge University Press, 2023	
Reference(s):	
1. "Interchange" by Jack C. Richards, Fifth Edition, Cambridge University Press, 2017.	
2. "English for Academic Correspondence and Socializing" by Adrian Wallwork, Springer, 2011.	
3. **"**The Study Skills Handbook" by Stella Cortrell, Red Globe Press, 2019	
4. www.uefap.com	

- **SDG 4 -Quality Education**

Course Contents and Lecture Schedule

S. No.	Topics	No. of Hours
1	**Basics of Communication**	
1.1	Telephone conversation & Writing message	1
1.2	gap filling & bio-note	1
1.3	Simple present tense &Present continuous tense	1
1.4	Asking questions (wh-questions)	1
1.5	Personal profile	1
1.6	One word substitution & Synonyms	1
2	**Narration**	
2.1	Antonyms, Word formation (Prefix and Suffix)	1
2.2	Travel podcast / Watching a travel documentary	1
2.3	An excerpt from a travelogue, Newspaper Report	1
2.4	Simple past, Past continuous Tenses	1
2.5	Subject – verb agreement	1
2.6	Narrative (Event, personal experience etc.)	1
3	**Description**	
3.1	A tourist brochure and planning an itinerary, descriptive article / excerpt from literature	1
3.2	Future tense & Perfect tenses	1
3.3	Adjectives and Adverbs	1
3.4	Checklists	1

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3.5	Definitions	1
3.6	Descriptive writing	1
4	**Classification**	
4.1	Connectives& Transition words	1
4.2	Note making, Note taking and Summarising	1
4.3	Contextual vocabulary& Words used both as noun and verb	1
4.4	Scientific and Technical vocabulary	1
4.5	An article, social media posts and classifying (channel conversion – text to table)	1
4.6	A classification paragraph	1
5	**Expression of Views**	
5.1	Debate / Discussion	1
5.2	Letter writing (Enquiry/Permission, Letter to Editor)	1
5.3	E-mail writing	1
5.4	Question tags, embedded questions, Yes / No questions	1
5.5	Compound words	1
5.6	Phrasal verbs	1
Lab Activity - Speaking		
1.	Introducing oneself	2
2.	Role Play	4
3.	Narrating one's personal experience	2
4.	Turn taking and Turn giving	2
5.	Small talk (JaM)	4
6.	Making conversation - formal and informal	4
7.	Giving short speeches on topics	2
8.	Group Discussion 1	4
9.	Group Discussion 2	4
10.	Debating on topics	2

Course Designer(s):

1. Dr.A.Palaniappan – palaniappan@ksrct.ac.in

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26MA1C1T	Linear Algebra and Ordinary Differential Equations	Category	L	T	P	Credit
		BS	3	1	0	4

Objectives

- To familiarize the basic concepts in Cayley-Hamilton theorem and orthogonal transformation
- To describe the concepts of solving system of equations
- To understand fundamental concepts of vector spaces
- To get exposed to the fundamentals of differentiation
- To solve various linear differential equations and method of variation of parameters

Pre-requisites

- Basic concepts of Matrices

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Apply the concepts of Cayley-Hamilton theorem and orthogonal transformation to the matrix	Apply
CO2	Apply the linear transformation technique to solve real world problems	Apply
CO3	Employ vector space concepts to solve various engineering problems	Apply
CO4	Apply the concepts of differentiation in solving various Engineering problems	Apply
CO5	Employ various methods in solving differential equations	Apply

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO2	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO3	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO4	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO5	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
3 - Strong; 2 - Medium; 1 - Some															

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)		End Sem Examination (Marks)
	1	2	
Remember	10	10	10
Understand	10	10	10
Apply	40	40	80
Analyse	-	-	-
Evaluate	-	-	-
Create	-	-	-
Total	60	60	100

Passed in BoS Meeting held on 20.12.2025
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K.S.Rangasamy College of Technology – Autonomous R 2026								
26MA1C1T - Linear Algebra and Ordinary Differential Equations								
Common to CSE & IT								
Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	3	1	0	60	4	40	60	100

Matrices Characteristic equation - Eigen values and Eigen vectors of a real matrix - Properties of Eigen values and Eigen vectors - Cayley-Hamilton theorem - Diagonalization of matrices by orthogonal transformation – Reduction of a quadratic form to canonical form by orthogonal transformation – Nature of quadratic forms. **Hands - on:** Matrix Operations - Addition, Multiplication, Transpose, Inverse, Rank, and Eigen values and Eigen vectors	[9]
Linear Equations Row reduction and Echelon forms – Solution of linear systems – Existence and uniqueness theorem – Vector equations – Linear combinations of vectors – Linear independence. Introduction to linear transformation – Matrix of a linear transformation –Transformation from R^n to R^m . **Hands - on:** Determine the Solution of System of Linear Equations	[9]
Vector Spaces Vector spaces and subspaces – Null spaces – Row and column spaces –basis and dimension of vector spaces – Rank -Change of basis. **Hands - on:** Determine the Null space, row space and column space of a matrix	[9]
Differentiation Representation of Functions - Limit of A Function - Continuity - Derivatives - Differentiation Rules (Sum, Product, Quotient, Chain Rules) - Successive Differentiation - Leibnitz's Theorem - Maxima and Minima of Functions of One Variable. **Hands - on:** Find the derivatives of simple functions	[9]
Ordinary Differential Equations Linear differential equations of second and higher order with constant coefficients - R.H.S is of the form $e^{ax}, sin\,ax, cos\,ax,\ x^n,\ n>0$ – Simultaneous first-order linear equations with constant co-efficients - Method of variation of parameters. **Hands-on:** Solve the First and Second Order Ordinary Differential Equations	[9]
Total Hours: 45 + 15(Tutorial)	**60**

Text Book(s):

1. Kreyszig Erwin, "Advanced Engineering Mathematics", 10th Edition, John Wiley and Sons (Asia) Limited,2022.
2. David C Lay, Steven R Lay and Judith McDonald, "Linear Algebra and its Applications", 6th Edition, Pearson Education Limited, Harlow, 2022.

Reference(s):

1. Veerarajan T, "Engineering Mathematics", for Semesters I & II, 1st Edition, Tata McGraw Hill Publishing
2. Gilbert Strang, "Introduction to linear algebra", 5th Edition, Wellesley-Cambridge Press, U.S., 2021.
3. Kandasamy P, Thilagavathy K and Gunavathy K, "Engineering Mathematics - I", S.Chand& Company Ltd, New Delhi, 2017.

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4	Howard Anton and Chris Rorres, “Elementary Linear Algebra”, 11th Edition, John Wiley & Sons, 2014.

26EE1C1T	Basic Electrical and Electronics Engineering	Category	L	T	P	Credit
		ES	3	0	0	3

Objectives

- To introduce the basics of electric circuits and analysis
- To impart knowledge in the basics of working principles and application of electrical machines
- To gain knowledge on Electrical safety
- To introduce analog devices and their characteristics
- To introduce the functional elements and working of measuring instruments

Pre-requisites

- Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Compute the electric circuit parameters for simple problems	Apply
CO2	Explain the working principle and applications of electrical machines	Understand
CO3	Comprehend the working of protective devices and create awareness on electrical safety	Understand
CO4	Analyze the characteristics of analog electronic devices	Understand
CO5	Explain the operating principles of measuring instruments	Understand

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	-	-	-	-	-	-	2	-	-	-	2	-	-
CO2	3	3	-	-	-	-	-	-	2	-	-	-	2	-	-
CO3	3	3	-	-	-	3	-	3	2	-	3	3	2	-	-
CO4	3	3	-	-	-	-	-	-	2	-	-	-	2	-	-
CO5	3	3	-	-	-	-	-	-	2	-	-	-	2	-	-
3 - Strong; 2 - Medium; 1 - Some															

Assessment Pattern

Bloom’s Category	Continuous Assessment Tests (Marks)		End Sem Examination (Marks)	
	1	2		
Remember	20	20	40	
Understand	20	40	40	
Apply	20	-	20	
Analyse	-	-		
Evaluate	-	-		
Create	-	-		
Total	60	60	100	

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

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Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026

Common to CSE, IT, AIDS, AIML branches

26EE1C1T - Basic Electrical and Electronics Engineering

Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	3	0	0	45	3	40	60	100

ELECTRICAL CIRCUITS **DC Circuits:** Circuit Components: Resistor, Inductor and Capacitor Ohm's Law - Kirchhoff's Laws – Series and Parallel connection of circuit elements - Solution of DC circuits with Independent sources only (Steady state) **AC Circuits:** AC Fundamentals: Waveforms, Average value, RMS Value, Impedance, Instantaneous Power, Real Power, Reactive Power and Apparent Power, Power Factor – Steady State Analysis of RLC Circuits- Simple problems- Introduction to three phase AC supply.	[9]
ELECTRICAL MACHINES* DC Generators: Construction and Working principle, EMF equation, Applications - DC motors: Working Principle, Torque Equation, Applications - AC Machines: Construction and Working principle, Three phase Alternator, Single Phase Induction Motor, Stepper motor, Universal motor and BLDC motor. Construction and Working principle of Transformer – Applications.	[9]
ELECTRICAL INSTALLATIONS* Domestic wiring, Earthing, Protective Devices - Switch Fuse Unit - Miniature Circuit Breaker - Moulded Case Circuit Breaker - Earth Leakage Circuit Breaker, Batteries-Lithium-Ion Batteries and Lead-acid batteries, UPS, Safety precautions and First Aid.	[9]
ANALOG ELECTRONICS Introduction to Semiconductor Materials – Characteristics: PN Junction diode, Zener diode, BJT, MOSFET; Applications: Rectifier, Voltage regulator- Regulated power supply unit, Switched mode power supply	[9]
MEASUREMENTS AND INSTRUMENTATION Functional elements of an instrument, Standards and calibration, Operating Principle, types Types of Wattmeter, Energy Meter, Instrument Transformers – Current Transformer and Potential Transformer, Digital Storage Oscilloscope - Block diagram approach - Data acquisition*.Smart Sensors :Motion Sensor and proximity Sensors: Ultrasonic Sensors	[9]
Total Hours:	**45**

Text Book(s):

1.	Kothari DP and I.J Nagrath, "Basic Electrical and Electronics Engineering", Second Edition, McGraw Hill Education, 2020.
2.	A.K. Sawhney, Puneet Sawhney 'A Course in Electrical & Electronic Measurements & Instrumentation', Dhanpat Rai and Co, 2015.

Reference(s):

1.	Kothari DP and I.J Nagrath, "Basic Electrical Engineering", Fourth Edition, McGraw Hill Education, 2019.
2.	Albert Malvino, David Bates, 'Electronic Principles, McGraw Hill Education; 7th edition, 2017.
3.	Mahmood Nahvi and Joseph A. Edminister, "Electric Circuits", Schaum' Outline Series, McGraw Hill, 2002.
4.	H.S. Kalsi, 'Electronic Instrumentation', Tata McGraw-Hill, New Delhi, 2010

*SDG 9 – Industry Innovation and Infrastructure

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

26ME1C2I	Engineering Graphics	Category	L	T	P	Credit
		ES	1	0	4	3

Objectives

- To understand the fundamental components and user interface of CAD software, including menus, toolbars, command line operations and basic drawing functions.
- To learn the principles of projection, including terminology, methods of projection and the concepts of first angle and third angle projections.
- To understand the projection and sectional views of simple solids such as prisms, pyramids, cylinders and cones in different orientations.
- To understand and apply the principles and methods of surface development to construct the developments of prisms, cylinders, pyramids and cones using parallel line and radial line techniques.
- To understand and apply the principles of isometric projection and to construct isometric views from orthographic projections and create 3D models based on discipline-specific engineering concepts and applications.

Pre-requisites

- Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Create and modify drawings using various tools in CAD software.	Apply
CO2	Convert pictorial views into orthographic views using appropriate projection methods.	Apply
CO3	Draw projections and sectional views of simple solids, and determine the true shape of their sections.	Apply
CO4	Construct surface developments of prisms, cylinders, pyramids, and cones using appropriate methods such as parallel and radial line development.	Apply
CO5	Convert orthographic views into isometric views of simple solids and develop 3D models based on discipline-specific engineering concepts and applications.	Apply

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	3	-	3	-	-	-	-	-	-	-	3	3	-
CO2	3	3	3	-	2	-	-	-	-	-	-	-	3	3	-
CO3	3	3	3	-	2	-	-	-	-	-	-	-	3	3	-
CO4	3	3	3	-	2	-	-	-	-	-	-	-	3	3	-
CO5	3	3	3	-	3	-	-	-	-	-	-	-	2	2	-
3 - Strong; 2 - Medium; 1 - Some															

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)	Model Examination (Marks)	End Sem Examination (Marks)
Remember	10	10	10
Understand	10	10	10
Apply	80	80	80

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

Analyse	0	0	0
Evaluate	0	0	0
Create	0	0	0
Total	100	100	100

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026

Common to All Branches

26ME1C2I - Engineering Graphics

Semester	Hours/Semester						Credit	Maximum Marks		
	CI		LI	TW	SL	TH				
	L	T	P				C	CA	ES	Total
I	1	0	4				3	50	50	100

Introduction to Computer Aided Drafting (CAD) software Introduction, Installation – Creation of new file - Tool bars: Draw, Modify, Properties and Dimensioning, Drafting of 2D drawings.	**[3+12]**
Orthographic Projection* Theory of projection – Terminology and Methods of projection – first angle and third angle projection – Conversion of pictorial views into orthographic views.	**[3+12]**
Projection of Solids and Sections of Solids* **Projection of Solids** Projections of simple solids: prism, pyramid, cylinder and cone (Axis parallel to one plane and perpendicular to other, axis inclined to one plane and parallel to other). **Sections of Solids** Sections of simple solids: prism, pyramid, cylinder and cone in simple positions (cutting plane is inclined to one of the principal planes and perpendicular to the other) – True shape of sections.	**[3+12]**
Development of Surfaces Principle of development-Methods of development: Parallel line development-prism and cylinder. Radial line development – pyramid and cone.	**[3+12]**
Isometric Projection and Application of Engineering Graphics **Isometric Projection** Principles of Isometric projection – Isometric scale, Isometric views, Conventions – Isometric views of lines, planes, simple and compound solids – Conversion of Orthographic views in to Isometric view. **Application of Engineering Graphics** Creation of 3D models based on engineering discipline - specific concepts and applications.	**[3+12]**
Total Hours:	**75**

Weightage: Continuous Assessment: **50%,** End Semester Examinations: **50%.**

Continuous Assessment Methodology: Solution for the Assignments using software (30%), Model Exam Test (20%)

Text Book(s):

1. Bhatt N.D., “Engineering Drawing”, Charotar Publishing House Pvt. Ltd., 53rd Edition, Gujarat, 2021
2. Venugopal K., “Engineering Graphics”, New Age International (P) Limited, 2024.

Reference(s):

1. Shah M.B., Rana B.C., and Jadon V.K, “Engineering Drawing”, Pearson Education, 2023.
2. Natarajan K.V., “A Text Book of Engineering Graphics”, Dhanalakshmi Publishers, Chennai, 2021.
3. Kulkarni D.M., “Engineering Graphics with AutoCAD”, PHI Learning, 2021.
4. Dhawan R.K., “A Text Book of Engineering Drawing” 3rd Revised Edition, S. Chand Publishing, New Delhi, 2023.

SDG No(s): 9

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Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

26CS0C01T	C PROGRAMMING	Category	L	T	P	Credit
		ES	3	0	0	3

Objectives

- To develop computational thinking and structured problem-solving skills
- To design algorithms and implement solutions using C programming
- To understand control structures, arrays, and modular programming
- To analyze memory concepts using pointers and dynamic allocation
- To apply file handling techniques for real-world applications

Pre-requisites

NIL

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Apply basic problem-solving techniques to develop simple C programs using fundamental programming concepts.	Apply
CO2	Develop programs using control structures, arrays, and strings	Apply
CO3	Design modular programs using functions and recursion and memory concepts using pointers and dynamic memory allocation	Apply
CO4	Construct programs using structures and file handling concepts	Apply
CO5	Apply file handling techniques for real-world applications	Apply

with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	3	3	-	3	-	-	-	2	2	-	3	-	-
CO2	3	3	3	-	3	-	-	-	2	2	-	3	-	-
CO3	3	3	3	-	3	-	-	-	2	2	-	3	-	-
CO4	3	3	3	-	3	-	-	-	2	2	-	3	-	-
CO5	3	3	3	-	3	-	-	-	2	2	-	3	2	-
3 - Strong; 2 - Medium; 1 - Some														

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)		End Sem Examination (Marks)
	1	2	
Remember	10	10	20
Understand	10	10	20
Apply	40	40	60
Analyse	-	-	-
Evaluate	-	-	-
Create	-	-	-
Total	60	60	100

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeb

BoS Chairman

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026								
26CS0C01T – C Programming								
Common to all Branches								
Semester	**Hours/Week**			**Total Hours**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
I	3	0	0	45	3	40	60	100

Computational Thinking and C Fundamentals Problem solving techniques – Algorithm – Flowchart – Pseudocode – Structure of a C program – Compilation process – Data types – Variables – Constants – Operators and expressions – Console I/O – Debugging basics (syntax and logical errors).	[9]
Control Structures Conditional statements – if, if-else, nested if – switch case – Looping: while, do-while, for loops – break, continue, goto, One-dimensional arrays – Two-dimensional arrays – Matrix operations – Strings – String handling functions	[9]
Functions and Pointers* Functions – Function prototypes – Call by value and reference – Recursion – Passing arrays to functions – Pointer variables – Memory visualization concepts - Pointer arithmetic – Pointers and arrays – Dynamic memory allocation.	[9]
Structures, Unions, Enumerations, Typedef and Preprocessors* Structures - Introduction to Structures and Initialization - Arrays of Structures- Arrays and Structures, Nested Structures - Passing Structures to Functions - Structure Pointers - Unions – Bit Fields - Enumerations - typedef –The preprocessor and commands.	[9]
File Handling* File: Streams –Reading and Writing Characters - Reading and Writing Strings - File System functions – File Manipulation-Sequential access - Random Access Files – Command Line arguments– Application development.	[9]
Total Hours:	**45**

Text Book(s):	
1.	Herbert Schildt, “The Complete Reference C”, Fourth Edition, Tata McGraw Hill Edition, 2010.
2.	Brian W. Kernighan and Dennis M. Ritchie, “C Programming Language”, Prentice-Hall.
Reference(s):	
1.	Balagurusamy E, “Programming in ANSI C”, Seventh Edition, Tata McGraw Hill Edition, New Delhi, 2016.
2.	Byron Gottfried, “Programming with C”, Third Edition, McGraw Hill Education, 2014
3.	ReemaThareja, “Computer Fundamentals and Programming in C”, Second Edition, Oxford Higher Education, 2016.
4.	King K N, “C Programming: A Modern Approach”, Second Edition, W.W.Norton, New York, 2008.

*SDG:4- Quality Education

Course Designers

1. Dr.P.Kaladevi- kaladevi@ksrct.ac.in

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Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

26IT1C1I	Computational Thinking	Category	L	T	P	Credit
		PC	2	0	2	2

Objectives

- To understand the fundamentals of computational thinking and problem-solving techniques.
- To develop algorithms, pseudocode, and flowcharts for real-world and computational problems.
- To apply logical reasoning, decomposition, and recursive thinking in problem solving.
- To perform data processing and visualization using spreadsheet applications.
- To create interactive programs and animations using Scratch programming concepts.

Pre-requisites

- Basic knowledge of computers, mathematical concepts, and logical reasoning skills.

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Apply computational thinking concepts to identify and solve real-world problems using algorithms, flowcharts, and pseudocode.	Apply
CO2	Develop logical and structured solutions using problem-solving techniques such as decomposition, recursion, and divide-and-conquer strategies.	Apply
CO3	Construct algorithmic solutions for mathematical and engineering applications using flowchart and pseudocode tools.	Apply
CO4	Utilize spreadsheet applications for data processing, analysis, and graphical visualization.	Apply
CO5	Design interactive applications and animations using Scratch programming concepts including control structures, lists, and loops.	Apply

Mapping with Programme Outcomes

COs	Pos											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	1	2	3	4	5	6	7	8	9	10	11	1	2	1
CO2	3	2	3	3	-	-	-	-	2	2	2	3	3	3
CO3	3	2	3	2	-	-	-	-	2	2	2	3	3	3
CO4	3	2	3	3	-	-	-	-	2	2	2	3	3	3
CO5	3	2	3	3	-	-	-	-	2	2	2	3	3	3
3 - Strong; 2 - Medium; 1 – Some														

Assessment Pattern

Bloom's Category	Lab Experiments Assessment (Marks)		Model Examination (Marks)	End Sem Examination (Marks)
	Lab	Activity		
Remember	-	-	-	-
Understand	25	12	-	-
Apply	25	13	100	100
Analyse	-	-	-	-
Evaluate	-	-	-	-
Create	-	-	-	-
Total	50	25	100	100

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb
BoS Chairman

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026								
Common to IT,CSE,AIDS,AIML								
26IT1C1I - Computational Thinking								
Semester	**Hours / Week**			**Total Hours**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
I	1	0	2	45	2	50	50	100

Foundations of Computational Thinking **Fundamental Operations of a Modern Computer -** Data Representation and Processing, Basic Operations and Expressions Input, Processing, and Output, Logical and Arithmetic Operations. **Fundamentals of Computing -** Identification of Computational Problems - Problem Solving and Critical Thinking, Decomposition – Breaking Problems into Smaller Parts, Pattern Recognition, Logical Reasoning and Decision Making. Introduction to Algorithms, Characteristics of Algorithms, Flowcharts and Standard Symbols, Pseudocode Writing Techniques	10
Algorithms and Problem-Solving Techniques Problem Definition, Logical Reasoning, Decomposition, Software Design Concept of an Algorithm, Algorithm Representation, Step-by-Step Algorithm Design, Algorithm Representation Using Pseudocode, Flowchart-Based Problem Solving, Brute Force and Exhaustive Search Techniques, Divide and Conquer Strategy, Recursive Thinking Concepts, Efficiency and Optimization Basics.	10
Scratch Programming: What is Scratch, Scratch Programming Environment, Paint Editor, Scratch Blocks, Arithmetic Operators and Functions, Use Motion Commands, Pen Commands and Easy Draw, Looks Palette, Sound Palette, Power of Repeat, Data Types, Variables, Getting Input from Users. Making Decisions, Comparison Operators, Decision Structures, Logical Operators, Repetition, Loop Blocks, Stop Commands, Counters, Nested Loops, Recursion, String Processing, String Manipulation, Lists, Dynamic Lists, Numerical Lists, Searching and Sorting Lists.	10

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BoS Chairman

Practical : 1. Identification and solving of simple real life or scientific or technical problems, and developing flow charts for the same. (Electricity Billing, Retail shop billing, Sin series, weight of a motorbike, Weight of a steel bar, compute Electrical Current in Three Phase AC Circuit, etc.) 2. Create algorithm representations for mathematical computations with the help of PSeInt and Flowgorithm. (Factorial, Fibonacci Series, Prime Number Check, Area and Volume Calculations, etc.) 3. Illustrate decision-making and looping concepts through flowcharts and pseudocode using Lucidchart and Draw.io. (Grade Calculation, ATM Withdrawal, Payroll Processing, etc.) 4. Apply decomposition and logical reasoning techniques to computational problems using Scratch and Flowgorithm. (Library Management, Banking Transactions, Online Ordering Systems, etc.) 5. Demonstrate brute force and divide-and-conquer approaches for solving computational tasks using PSeInt. (Searching, Sorting, Recursive Sum, Maximum Number Identification, etc.) 6. Construct recursive and iterative solutions for engineering and scientific applications using Scratch and Flowgorithm. (Factorial Using Recursion, Matrix Operations, Power Calculation, etc.) 7. Perform spreadsheet calculations and generate charts for data analysis using Microsoft Excel, OpenOffice Calc, or Google Sheets. (Sales Analysis, Budget Planning, Attendance Reports, etc.) 8. Develop animations and interactive programs using motion, sound, looks, and pen features in Scratch Programming Tool. (Character Animation, Shape Drawing, Interactive Stories, etc.) 9. Implement control structures such as conditions, loops, and variables through Scratch-based applications. (Traffic Light Simulation, Quiz Program, Number Guessing Game, etc.) 10. Design list-based applications involving searching, sorting, and string manipulation using Scratch Programming Tool. (Contact Management, Student Records, Grocery Item Search, etc.)	15
Total Hours: (Lecture - 30; Practical – 15)	**45**

Text Book(s):	
1.	David Riley and Kenny Hunt, *Computational Thinking for the Modern Problem Solver*, Chapman and Hall/CRC, 2014.
2.	Donald Knuth, *The Art of Computer Programming – Fundamental Algorithms*, Pearson Education, 2011.
Reference(s):	
1.	How to Solve it by Computer by R. G. Dromey, 1e, Pearson Education.
2.	Learn to program with Scratch, Majed Marji, no starch press, 2014
3.	Let Us C, Yashavant Kanetkar, Infinity Science Press, 2008
4.	Introduction to Computation and Programming Using Python, Mit Press, John Guttag, 2016

*SDG 4 – Quality of education

B.G. Ceeeb

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

BoS Chairman

26MY1Y1T	Environmental Science and Sustainable Practices	Category	L	T	P	Credit
		PC	2	0	0	0

Objectives

- To introduce the concept and pillars of sustainable development and the importance of the SDGs
- To familiarize students with the causes and mitigation strategies of environmental pollution
- To enable understanding of sustainable waste and water management practices
- To promote awareness on renewable energy adoption and climate-resilient agriculture
- To explore the use of digital tools in natural resource monitoring and environmental conservation

Pre-requisites

- Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Clarify the principles of sustainable development and critically analyze the 17 SDGs	Remember
CO2	Describe the sources and effects of air pollution and summarize key mitigation strategies using AI/IoT	Apply
CO3	Enlighten the classification of waste and outline basic techniques for waste and wastewater management	Understand
CO4	Discuss sustainable practices in agriculture, irrigation, and renewable energy systems	Analyse
CO5	Utilize tools such as GIS, remote sensing, and ENVIS for environmental planning and management	Understand

Mapping with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	2	-	-	-	-	3	-	-	-	-	-	-	2
CO2	3	2	-	-	-	3	3	2	-	-	-	-	-	2
CO3	3	2	-	-	-	3	3	2	-	-	-	-	-	2
CO4	3	2	-	-	-	2	3	-	-	-	-	-	-	2
CO5	3	2	-	-	3	-	2	-	-	-	-	-	-	2

3 - Strong; 2 - Medium; 1 - Some

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (30 Marks)		Quiz (20 marks)		Seminar presentation (50 marks)
	Case Study	Activity Report			
Remember	10	10	5	5	10
Understand	30	20	10	10	15
Apply	-	30	-	5	15
Analyse	20	-	5	-	10
Evaluate	-	-	-	-	-
Create	-	-	-	-	-
Total	60	60	20	20	50

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B.G.

BoS Chairman

Common to all Branches								
Semester	Hours / Week			Total hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	2	0	0	20	0	100	-	100

UNIT I: Introduction to Sustainable Development Definition and Principles of Sustainable Development. Pillars: Economic, Social, Environmental Sustainability, Agenda 2030: 17 Sustainable Development Goals (SDGs). Interconnectedness of SDGs: Examples from Tamil Nadu (Ex: Smart Cities Mission, Water Resource Projects) SDG Indicators and Targets. Challenges in Achieving SDGs: National and Regional (Example: urbanization in TN, climate vulnerability). Role of Stakeholders: Government, Industry, Academia, Citizens.	[4]
UNIT II: Air Pollution and Mitigation Strategies Sources and Impacts: Urban & Industrial Air Pollution. Greenhouse Effect, Global Warming, Climate Change. Ozone Layer Depletion and Acid Rain. Mitigation Strategies: Carbon Capture and Utilization (CCU) in industries, Renewable Hydrogen and Biochar, Green Infrastructure: Urban afforestation, green walls, AI & IoT-based air quality monitoring.	[4]
UNIT III: Sustainable Waste and Water Management Classification of Solid and Liquid Wastes- Waste Management: 5R Approach - Waste Management Process: Collection, Segregation, Treatment, Disposal - Municipal Waste (MSWM) - E-waste. Water Pollution and Wastewater Treatment: Nanotechnology, Bioremediation, Coagulation, Photocatalysis, Floating Wetlands (Example: Chennai Eco-restoration Projects), IoT-Enabled Pollution Monitoring, Industrial Discharge Regulation	[4]
UNIT IV: Sustainable Practices in Agriculture and Energy Renewable Energy: Solar (Example: TN Solar Mission), Wind, Hydro, Bioenergy. Sustainable and Climate-Resilient Agriculture - Green Auditing and Farm Practices, Smart Irrigation Systems: Soil Moisture Sensors, Evapotranspiration Systems, Drip Irrigation with Automation, AI/IoT in Precision Farming, Water Conservation: Rainwater Harvesting, Watershed Protection (Case: TN Water Resource Conservation Programs).	[4]
Unit V: Technology in Natural Resource Management Role of Data and Digital Tools in Sustainability, IS, GPS, Remote Sensing: Applications in Land Use, Forests, Water Resources, Digital Image Processing in Forecasting Disasters, Environmental Information Systems: ENVIS, EIA Tools, MoEFCC Portals, Use of Web Technologies and Mobile Apps for Citizen Participation (e.g., TN Smart Cities dashboard)	[4]
Total Hours	20

Text Book(s):

1.	Anubha Kaushik , C P Kaushik. Perspectives In Environmental Studies, New Age International publishers; Sixth edition (1 January 2018).

Reference(s):

1.	G.Tyler Miller Environmental Science 14th Edition Cengage Publications, Delhi, 2013
2.	Gilbert M.Masters and Wendell P. Ela,"Environmental Engineering And Science", PHI Learning PrivateLimited, 3rd Edition, 2015
3.	Erach Bharucha. Textbook of Environmental Studies for Undergraduate Courses, Universities Press, 2000

B.G. Ceeeb

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BoS Chairman

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026

B.E – Computer Science and Engineering

26MY1Y2T - Universal Human Values

Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	3	0	0	45	3*	100	--	100

Introduction to Value Education* Understanding Value Education-Self Exploration as The Process for Value Education-Continuous Happiness And Prosperity-The Basic Human Aspirations-Right Understanding-Relationship and Physical Facility –Happiness and Prosperity - Current Scenario – Method to Fulfill The Basic Human Aspirations.	[9]
Harmony in the Human Being** Understanding Human Being as the Co-Existence of the Self and the Body-Distinguishing Between the Needs of the Self and the Body-the Body as an Instrument of the Self-Understanding Harmony in The Self-Harmony of the Self With The Body – Programme to Ensure Self-Regulation And Health.	[9]
Harmony in the Family and Society** Harmony in The Family –The Basic Unit of Human Interaction-Values in Human- to -Human Relationship –'Trust' the Foundation Value In Relationship –'Respect'- As the Right Evaluation-Understanding Harmony in the Society –Vision for the Universal Human Order.	[9]
Harmony in the Nature/Existence*** Understanding Harmony in the Nature-Interconnectedness, Self-Regulation and Mutual Fulfillment Among the four Orders of Nature – Realizing Existence as Co-Existence At All Levels –The Holistic Perception of Harmony In Existence.	[9]
Implications of the Holistic Understanding*** Natural Acceptance of Human Values- Definitiveness of Human Conduct- A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order- Competence in Professional Ethics –Holistic Technologies, production Systems and Management Models-Typical Case Studies – Strategies for Transition Towards Value Base Life and Profession	[9]
Total Hours	**45**

Text Book(s):

1.	Gaur, R R, Asthana, R and Bagaria, G P. "A Foundation Course in Human Values and Professional Ethics", 2nd Revised Edition, Excel Books, New Delhi, 2019. ISBN 978-93-87034-47-1
2.	Gaur, R R, Asthana, R and Bagaria, G P. "Teachers' Manual for A Foundation Course in Human Values and Professional Ethics", 2nd Revised Edition, Excel Books, New Delhi, 2019. ISBN 978-93-87034-53-2

Reference(s):

1.	Jeevan Vidya: EkParichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.
2.	Human Values, A.N. Tripathi, New Age International. Publishers, New Delhi, 2004.

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B.G. Ceeeb

BoS Chairman

26TA1YIT	**Heritage of Tamils** (Common to all Branches)	**Category**	**L**	**T**	**P**	**Credit**
		GE	1	0	0	1#

Objectives

- To learn the extensive literature of classical Tamil.
- To review the fine arts heritage of Tamil culture.
- To realize the contribution of Tamils in Indian freedom struggle.

Pre-requisites

Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Recognize the extensive literature of Tamil and its classical nature.	Understand
CO2	Apprehend the heritage of sculpture, painting and musical instruments of ancient people.	Understand
CO3	Review on folk and martial arts of Tamil people.	Understand
CO4	Insight thinai concepts, trade and victory of Chozha dynasty.	Understand
CO5	Realize the contribution of Tamil in Indian freedom struggle, self-esteem movement and siddha medicine.	Understand

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO2	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO3	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO4	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO5	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
3 - Strong; 2 - Medium; 1 - Some															

Assessment Pattern

Bloom's Category	**Continuous Assessment Test (Marks)**	**End Sem Examination (Marks)**
Remember	34	34
Understand	66	66
Apply	-	-
Analyse	-	-
Evaluate	-	-
Create	-	-
Total	100	100

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

Syllabus

K.S.Rangasamy College of Technology - Autonomous R2026								
26TA1YIT - Heritage of Tamils (Common to all Departments)								
Semester	Hours/Week			Total hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	1	0	0	15	1#	100	-	100

Language and Literature 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.	[3]
Heritage - Rock Art Paintings to Modern Art – Sculpture 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.	[3]
Folk and Martial Arts Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyillattam, Leatherpuppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils.	[3]
Thinai Concept of Tamils 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.	[3]
Contribution of Tamils to Indian National Movement and Indian Culture 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	[3]
Total Hours	15

Text Book(s) cum Reference Book(s)

1.	முனைவர் கே. கே. பிள்ளை, தமிழக வரலாறு - மக்களும் பண்பாடும், தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம், 18th Ed ,2022.
2.	முனைவர் இல. சுந்தரம், கணினித்தமிழ்,விகடன் பிரசுரம், 2nd Ed 2021
3.	முனைவர் இரா.சிவானந்தம், மு.சேரன், கீழடி - வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம், தொல்லியல் துறை வெளியீடு, 6th Ed ,2020.
4.	முனைவர் இரா.சிவானந்தம் , முனைவர் ஜெ.பாஸ்கர், பொருநை - ஆற்றங்கரை நாகரிகம், தொல்லியல் துறை வெளியீடு,1st Ed ,2022
5.	முனைவர் கே. கே. பிள்ளை, தமிழக வரலாறு - மக்களும் பண்பாடும், தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம், 18th Ed ,2022.
6.	Dr.K.K.Pillay, Social Life of Tamils, TNTB & ESC and RMRL – (In print).
7.	Dr.S.Singaravel, Social Life of the Tamils - The Classical Period, International Institute of Tamil Studies, 1st, 2001.
8.	Dr.S.V.Subaramanian, Dr.K.D. Thirunavukkarasu, Historical Heritage of the Tamils, International Institute of Tamil Studies, 2nd, 2010
9.	Dr.M.Valarmathi, The Contributions of the Tamils to Indian Culture, International Institute of Tamil Studies
10.	Dr.R.Sivanantham, Keeladi - Sangam City Civilization on the banks of river Vaigai, Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation

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BoS Chairman

11.	Dr.K.K.Pillay, Studies in the History of India with Special Reference to Tamil Nadu, K.K. Pillay(Published by the Author
12.	Dr.R.Sivanantham, Dr.J.Baskar, Porunai Civilization, Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation.
13.	R.Balakrishnan, Journey of Civilization Indus to Vaigai, Roja Muthiah Research Library,3rd Ed, 2022

*SDG 4 – Quality Education

#For Heritage of Tamils, additional 1 credit is offered and not accounted for CGPA.

	தமிழர் மரபு (அனைத்து துறைகளுக்கும் பொதுவானது)	Category	L	T	P	Credit
		GE	1	0	0	1#

பாடத்தின் நோக்கங்கள்

- தமிழ் மொழியின் இலக்கணச் செறிவைக் கற்றுணர்தல்.
- தமிழர் பண்பாட்டின் நுண்கலைகள் பற்றிய ஒரு மீள்பார்வை.
- இந்திய சுதந்திரப் போராட்டத்தில் தமிழர்களின் பங்களிப்பை உணருதல்

Pre-requisites

தேவை இல்லை

Course Outcomes

பாடத்தை வெற்றிகரமாக கற்று முடித்த பின்பு, மாணவர்களால் முடியும் விளைவுகள்

CO1	தமிழ் மொழியின் செந்தண்மை மற்றும் இலக்கியம் குறித்த தெரிதல்.	புரிதல்
CO2	தமிழர்களின் சிற்பக்கலை, ஓவியக்கலை மற்றும் இசைக்கருவிகள் குறித்த தெளிவு.	புரிதல்
CO3	தமிழர்களின் நாட்டுப்புறக்கலைகள் மற்றும் வீரவிளையாட்டுகள் குறித்த தெளிவு.	புரிதல்
CO4	தமிழர்களின் திணைக் கோட்பாடுகள், சங்ககால வணிகம் மற்றும் சோழர்களின் வெற்றிகள் குறித்த தகவல்கள்.	புரிதல்
CO5	இந்திய தேசிய இயக்கம், சுயமரியாதையை இயக்கம் மற்றும் சித்த மருத்துவம் பற்றிய புரிதல்.	புரிதல்

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO2	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO3	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO4	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-
CO5	-	-	-	-	-	-	3	3	-	2	-	3	-	-	-

3 - Strong; 2 - Medium; 1 - Some

Assessment Pattern

Bloom's Category	Continuous Assessment Test (Marks)	End Sem Examination (Marks)
Remember	34	34
Understand	66	66
Apply	-	-
Analyse	-	-
Evaluate	-	-
Create	-	-
Total	100	100

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

K.S.Rangasamy College of Technology – Autonomous R2022								
61 GE 001- தமிழர் மரபு (அனைத்து துறைகளும் பொதுவானது)								
Semester	Hours/Week			Total hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
I	1	0	0	15	1#	40	60	100

மொழி, இலக்கியம், வாழ்க்கைத் திறன்கள் மற்றும் நெறிமுறைகள்:* இந்திய மொழிக் குடும்பங்கள் - திராவிட மொழிகள் - தமிழ் ஒரு செம்மொழி - தமிழ் செவ்விலக்கியங்கள் - சங்க இலக்கியத்தின் சமயச் சார்பற்ற தன்மை - சங்க இலக்கியத்தில் பகிர்தல் அறம் - திருக்குறளில் மேலாண்மைக் கருத்துக்கள் - தமிழ் காப்பியங்கள் - தமிழகத்தில் சமண பௌத்த சமயங்களின் தாக்கம் - பக்தி இலக்கியம், ஆழ்வார்கள் மற்றும் நாயன்மார்கள் - சிற்றிலக்கியங்கள் - தமிழில் நவீன இலக்கியத்தின் வளர்ச்சி - தமிழ் இலக்கிய வளர்ச்சியில் பாரதியார் மற்றும் பாரதிதாசன் ஆகியோரின் பங்களிப்பு. வாழ்வியல், பொறுப்புணர்வு, சுய ஆய்வு, மனோபாவம், தன்னம்பிக்கை, இலக்குகள், உறவுகள், தலைமைப்பண்பு, பாலின சமநிலை.	[3]
மரபு - பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை- சிற்பக் கலை. * 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.	[3]
நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுள்: * தெருக்கூத்து, கரகாட்டம், வில்லுப்பாட்டு, கணியான் கூத்து, ஒயிலாட்டம், தோல்பாவைக் கூத்து சிலம்பாட்டம், வளரி, புளியாட்டம், தமிழர்களின் விளையாட்டுகள் .	[3]
தமிழர்களின் திணைக் கோட்பாடுகள்: * தமிழகத்தின் தாவரங்களும், விலங்குகளும் - தொல்காப்பியம் மற்றும் சங்க இலக்கியத்தில் அகம் மற்றும் புறக் கோட்பாடுகள் - தமிழர்கள் போற்றிய அறக்கோட்பாடு - சங்ககாலத்தில் தமிழகத்தில் எழுத்தறிவும், கல்வியும் - சங்ககால நகரங்களும் துறை முகங்களும் - சங்க காலத்தில் ஏற்றுமதி மற்றும் இறக்குமதி - கடல்கடந்த நாடுகளில் சோழர்களின் வெற்றி .	[3]
இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு: * இந்திய விடுதலைப்போரில் தமிழர்களின் பங்கு - இந்தியாவின் பிறப்பகுதிகளில் தமிழ்ப் பண்பாட்டின் தாக்கம் - சுயமரியாதை இயக்கம் - இந்திய மருத்துவத்தில், சித்த மருத்துவத்தின் பங்கு - கல்வெட்டுகள், கையெழுத்துப்படிகள் - தமிழ் புத்தகங்களின் அச்சு வரலாறு	[3]
Total Hours	15

TextBook(s):

1.	முனைவர் கே. கே. பிள்ளை, தமிழக வரலாறு - மக்களும் பண்பாடும், தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம், 18th Ed ,2022.
2.	முனைவர் இல. சுந்தரம், கணினித்தமிழ்,விகடன் பிரசுரம், 2nd Ed,2021

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B.G. Cook

BoS Chairman

3.	முனைவர் இரா.சிவானந்தம், மு.சேரன், கீழடி - வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம், தொல்லியல் துறை வெளியீடு, 6th Ed,2020.
4.	முனைவர் இரா.சிவானந்தம் , முனைவர் ஜெ.பாஸ்கர், பொருநை - ஆற்றங்கரை நாகரிகம், தொல்லியல் துறை வெளியீடு,1st Ed ,2022
5.	ஈரோடு கதிர், உயர்தல் உரிமை, சிக்ஸ் ப்ளஸ் ஒன் ட்ரெயினிங் அகாடமி,1st Ed,2024
6.	Dr.K.K.Pillay, Social Life of Tamils, TNTB & ESC and RMRL – (In print).
7.	Dr.S.Singaravel, Social Life of the Tamils - The Classical Period, International Institute of Tamil Studies, 1st, 2001.
8.	Dr.S.V.Subaramanian, Dr.K.D. Thirunavukkarasu, Historical Heritage of the Tamils, International Institute of Tamil Studies, 2nd, 2010
9.	Dr.M.Valarmathi, The Contributions of the Tamils to Indian Culture, International Institute of Tamil Studies,
10.	Dr.R.Sivanantham, Keeladi - Sangam City Civilization on the banks of river Vaigai, Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation,
11.	Dr.K.K.Pillay, Studies in the History of India with Special Reference to Tamil Nadu, K.K. Pillay(Published by the Author.
12.	Dr.R.Sivanantham, Dr.J.Baskar, Porunai Civilization, Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation.
13.	R.Balakrishnan, Journey of Civilization Indus to Vaigai, Roja Muthiah Research Library,3rd Ed ,2022

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B.G. Ceeb

BoS Chairman

26CS0C01L	C Programming Laboratory	Category	L	T	P	Credit
		ES	0	0	3	1.5

Objectives

- To enable the students to apply the concepts of C to solve simple problems
- To use selection and iterative statements in C programs
- To apply the knowledge of library functions in C programming
- To implement the concepts of arrays, functions, structures and pointers in C
- To implement the file handling operations through C

Pre-requisites

NIL

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Implement computational problems using selection and iterative statements.	Apply
CO2	Demonstrate C program to manage collection of related data.	Apply
CO3	Design and Implement different ways of passing arguments to functions, Recursion and implement pointers concepts.	Apply
CO4	Develop a C program to manage collection of different data using structures, Union, user-defined data types and preprocessor directives.	Apply
CO5	Demonstrate C program to store and retrieve data using file concepts.	Apply

Mapping with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	3	3	-	3	-	-	-	2	2	-	3	3	-
CO2	3	3	3	-	3	-	-	-	2	2	-	3	3	-
CO3	3	3	3	-	3	-	-	-	2	2	-	3	3	-
CO4	3	3	3	-	3	-	-	-	2	2	-	3	3	-
CO5	3	3	3	-	3	-	-	-	2	2	-	3	3	-
3 - Strong; 2 - Medium; 1 - Some														

Assessment Pattern

Bloom's Category	Lab Experiments Assessment (Marks)		Model Examination (Marks)	End Sem Examination (Marks)
	Lab	Activity		
Remember	-	-	-	-
Understand	-	12	-	-
Apply	50	13	100	100
Analyse	-	-	-	-
Evaluate	-	-	-	-
Create	-	-	-	-

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Total	50	25	100	100

K.S.Rangasamy College of Technology – Autonomous R2026								
26CS0C01L – C Programming Laboratory								
Common to all branches								
Semester	**Hours/Week**			**Total Hrs**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
I	0	0	3	45	1.5	60	40	100

List of Experiments*:

1. Implementation of simple real-life problems using algorithm, flowchart, and basic C programs.
2. Programs using input/output, operators, and identification of syntax and logical errors.
3. Implementation of problems using if, if-else, nested conditions, and switch statements.
4. Programs using loops (for, while, do-while) including pattern generation and series computation.
5. Implementation of searching (linear/binary) and basic sorting techniques.
6. Matrix operations and real-world applications (e.g., marks processing).
7. Programs for string operations using and without library functions.
8. Implementation of modular programs using functions and recursive techniques.
9. Programs using pointers, pointer arithmetic, and dynamic memory allocation.
10. Implementation of structures and file operations for simple record management systems.

*SDG 4 – Quality Education

Course Designer(s)

1. Dr.P.Kaladevi - kaladevi@ksrct.ac.in

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B.G. Ceeeb

BoS Chairman

26 TP 1G1P	Career Skill Development I - Aptitude 1	Category	L	T	P	Credit
		CG	0	0	2	1

Objective

- To help learners improve their logical reasoning skills at different academic and professional contexts.
- To help learners relate basic quantitative problems and solve them.
- To help learners Infer critically the statements with optimal conclusions and assumptions.
- To Solve the quantitative problems pertaining to calculations of averages, ratio and proportions, and profit and loss effectively
- To compute quantitative problems related to time and work, speed and distance, and simple and compound interest

Prerequisite

- Basic knowledge of Arithmetic and Logical Reasoning

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Deduce the topics in logical reasoning at the preliminary and intermediate level.	Analyze
CO2	Relate basic quantitative problems and solve them effectively at the preliminary level	Apply
CO3	Infer critically the statements with optimal conclusions and assumptions with the data and information given.	Analyze
CO4	Solve the quantitative problems pertaining to calculations of averages, ratio and proportions, and profit and loss effectively at the pre-intermediate level.	Apply
CO5	Compute quantitative problems related to time and work, speed and distance, and simple and compound interest at intermediate level.	Apply

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	3		3				2	3	3
CO2	3	3	3	3		2				2	3	3
CO3	2	2	2	2		3				2	3	3
CO4	3	3	3	3		2				2	3	3
CO5	3	3	3	3		2				2	3	3
3- Strong; 2-Medium; 1-Some												

Assessment Pattern

Bloom's Category	Online Assessment Tests (Marks)		Group Discussion	Internal Marks
	1	2		
Apply	100	100	100	100

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Over all Weightage	40	40	20	

K.S.Rangasamy College of Technology – Autonomous R2026								
Common to All Branches								
26 TP 1G1P - Career Skill Development I - Aptitude 1								
Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
IV	0	0	2	25	1	100	-	100

Logical Reasoning Inductive Reasoning - Analogies - Alpha and numeric series - Number Series – odd man out - Coding and Decoding - Order and Ranking - Direction and distance	**[5]**
Quantitative Aptitude – Part 1 Number system - Squares & cubes - Divisibility - Unit digits - Remainder Theorem - HCF & LCM - Geometric and Arithmetic progression - Powers & Exponents	**[5]**
Verbal & Analytical Reasoning Blood Relations and Coded Relations - Seating Arrangements – Analytical Reasoning (PUZZELS) – Coded Inequality	**[5]**
Quantitative Aptitude – Part 2 Average - Ratio and proportion – Ages – Partnership– Percentage - Profit & loss – Discount - Mixture and Allegation	**[5]**
Quantitative Aptitude – Part 3 Time & Work - Pipes and cistern – Time, Speed & distance - Trains - Boats and Streams - Simple interest and Compound interest.	**[5]**
Total Hours	**25**

Reference(s):

1.	Aggarwal, R.S. *'A Modern Approach to Verbal and Non-verbal Reasoning'*, Revised Edition 2008, Reprint 2009, S.Chand & Co Ltd., New Delhi.
2.	Abhijit Guha, *'Quantitative Aptitude'*, McGraw Hill Education, 6th edition, 2016
3.	Dinesh Khattar, 'Quantitative Aptitude For Competitive Examinations', Pearson Education 2020
4.	Anne Thomson, *'Critical Reasoning: A Practical Introduction'* Lexicon Books, 3rd edition, 2022. Warszaw

Course Designer

1. R. Poovarasan - poovarasan@ksrct.ac.in
2. G. Damotharan - damotharan@ksrct.ac.in

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BoS Chairman

K.S.Rangasamy College of Technology – Autonomous R2026								
(Common to All branches)								
26EE1C1L – Makerspace								
Semester	**Hours/Week**			**Total Hrs**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
I	0	0	2	30	1	60	40	100

List of Experiments:

1. Cutting and Engraving wood in different shapes
2. Fabrication of simple components / parts using 3D Printers
3. Cutting and Engraving acrylic sheets in different shapes
4. Fabrication of shapes in sheet metal
5. Joining of similar metal pieces using welding
6. Wiring circuits for 2BHK residential concealed conduit wiring
7. PCB layout design of a given circuit.
8. Soldering and testing of given electronic circuit.
9. Integration of Sensors and actuators with a microcontroller.
10. Study experiment: Plumbing, Dis-assembly and assembly of shome appliances: Air – Conditioners and Refrigerators.

Lab Manual

1.	Stephen Christena, Learn to Weld: Beginning MIG Welding and Metal Fabrication Basics, Crestline Books, 2014. H. Lipson, Fabricated - The New World of 3D Printing, Wiley, 1st edition, 2013. Code of Practice for Electrical Wiring Installations (IS 732:2019)

***SDG 9 – Industry Innovation and Infrastructure**

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

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BoS Chairman

26 EN 2C1I	English Essentials - II	Category	L	T	P	Credit
		HS	2	0	2	3

Objectives

- To read and comprehend different forms of official texts.
- To develop students' writing skills in professional context.
- To actively listen, read and understand written and oral communication in a professional context.
- To comprehend and analyse the visual content in authentic context.
- To write professional documents with clarity and precision

Pre-requisites

- Basic Knowledge in English Language

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Use appropriate sentence structure and vocabulary to enhance both spoken and written communication in formal contexts.	Remember
CO2	Comprehend different forms of official documents	Understand
CO3	Organize professional documents coherently and cohesively in writing.	Understand
CO4	Interpret authentic verbal and graphic content in writing	Understand
CO5	Compare and Contrast verbal and audio-visual materials.	Understand

Mapping with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1									3	3	3			
CO2									3	3	3			
CO3									3	3	3			
CO4									3	3	3			
CO5									3	3	3			
3 - Strong; 2 - Medium; 1 - Some														

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)				Model Examination (Marks)		End Sem Examination (Marks)	
	Test 1		Test 2					
	Theory	Lab	Theory	Lab	Theory	Lab	Theory	Lab
Remember	20	40	20	40	40	-	40	-
Understand	40	60	40	60	60	-	60	-
Total	60	100	60	100	100	-	100	-

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Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026								
B.E. / B.Tech. (Common to all Branches)								
26 EN 1C1I – English Essentials – II*								
Semester	**Hours/Week**			**Total Hours**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
II	2	0	2	60	3	50	50	100

Cause and Effect **Listening** – Radio / TV / Podcast Interview (survivors' tale) and framing a set of instructions / Do's and Don'ts **Reading** – Excerpts of Literature (short stories), Journal articles on issues like Global warming **Writing** –Instructions; Official letter / email (Request for internship / Industrial visit) **Grammar**– If clauses/conditional clauses, Imperatives **Vocabulary** – Cause and effect expressions, Idioms	**[6]**
Compare and Contrast **Listening** –Product reviews and gap fill exercises, Short Talks (like TED Talks) for specific information **Reading** – Graphical content (table / chart / graph) and making inferences **Writing** – Compare and Contrast Essay **Grammar** – Degrees of Comparison; Tenses **Vocabulary** – Order of Adjectives, Transition words	**[6]**
Problem and Solution **Listening** – Group discussion (case study) **Reading** – Visual content (Pictures on social issues / natural disasters) for comprehension; Editorial **Writing**– Picture description; Problem and Solution Essay **Grammar** – Modal verbs; Relative pronoun **Vocabulary** – Negative prefixes, Signal words for problem and solution.	**[6]**
Reporting **Listening** – Listening to news reading **Reading** – Newspaper report on survey findings **Writing** – Survey report, Making recommendations **Grammar** – Active and passive voice, Direct and Indirect speech **Vocabulary** –Reporting verbs, Numerical adjectives	**[6]**
Presentation **Listening** – Job interview, Telephone interview **Reading** – Job advertisement and company profile and making inferences **Writing**–Job application (cover letter and CV) **Grammar** –Prepositional phrases **Vocabulary** – Fixed expressions, Collocations.	**[6]**
Lab Activity - Speaking **1. Interview in Social Context** a) Asking questions and answering b) Conducting an interview (of an achiever / survivor) c) Role play **2. Persuasive Skills** a) Speaking about specifications of a product (Eg. Home appliances)	**[30]**

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b) Persuasive Talk c) Role play activity **3. Case Study** a) Discussions on Case Study to find solutions for problems in professional contexts **b)** Analytical discussion on various aspects of a given problem. **4. Visual Interpretation** a) Describing visual content (Pictures/Table/Chart) using appropriate descriptive language and making appropriate inferences b) Giving recommendations. **5. Presentation** **a)** Making presentation with visual component (PPT slides) (job interview / project / innovative product presentation)	
Total Hours: (Lecture -30; Lab Activity- 30)	**60**
Text Book(s):	
1.	"English for Engineers and Technologists" Volume I by Orient Blackswan, 2022
2.	"English for Science & Technology-II" by Cambridge University Press, 2023
Reference(s):	
1.	"Communicative English for Engineers and Professionals" by Bhatnagar Nitin, Pearson India, 2010.
2.	"Take-Off–Technical English for Engineering" by David Morgan, Garnet Education,2008.
3.	"Advanced Communication Skills" by Mathew Richardson, Charlie Creative Lab, 2020.
4.	www.uefap.com

- **SDG 4 -Quality Education**

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Course Contents and Lecture Schedule

S. No.	Topics	No. of Hours
1	**Cause and Effect**	
1.1	Cause and effect expressions	1
1.2	Imperatives and Idiom	1
1.3	If clauses/conditional clauses	1
1.4	Instructions	1
1.5	Official letter / email (Request for internship / Industrial visit)	1
1.6	Reading excerpts of Literature	1
2	**Compare and Contrast**	
2.1	Degrees of Comparison	1
2.2	Tenses	1
2.3	Order of Adjectives, Transition words	1
2.4	Compare and Contrast Essay	1
2.5	Graphical content (table / chart / graph) and making inferences	1
2.6	Product reviews and gap fill exercises	1
3	**Problem and Solution**	
3.1	Picture description	1
3.2	Modal verbs and Relative pronoun	1
3.3	Problem and Solution Essay	1
3.4	Negative prefixes	1
3.5	Signal words for problem and solution.	1
3.6	Visual content (Pictures on social issues / natural disasters) for comprehension	1
4	**Reporting**	
4.1	Active and passive voice	1
4.2	Numerical adjectives	1
4.3	Reporting verbs and Direct and Indirect speech	1
4.4	Survey report	1
4.5	Making recommendations	1
4.6	Listening to news reading	1
5	**Presentation**	
5.1	Prepositional phrases	1
5.2	Fixed expressions	1
5.3	Collocations.	1
5.4	Job application (cover letter and CV)	1
5.5	Job advertisement and company profile and making inferences	1
5.6	Job interview, Telephone interview	1
Lab Activity - Speaking		
1.	Asking questions and answering	2
2.	Role play	4
3.	Speaking about specifications of a product (Eg. Home appliances)	4

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4.	Persuasive Talk	4
5.	Discussions on Case Study to find solutions for problems in professional contexts	2
6.	Describing visual content (Pictures/Table/Chart) using appropriate descriptive language and making appropriate inferences	4
7.	Giving recommendations	2
8.	Making presentation with visual component (PPT slides)	2
9.	Group Discussion	4
10.	Conducting an interview (of an achiever / survivor)	4

Course Designer(s)

1. Dr.A.Palaniappan – palaniappan@ksrct.ac.in

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BoS Chairman

26MA2C1T	Multiple Integrals and Calculus	Category	L	T	P	Credit
		PC	3	1	0	4

Objectives

- To learn various techniques and methods in solving definite and indefinite integrals
- To acquire the knowledge about multiple integrals
- To familiarize the basic concepts of vector calculus.
- To understand and apply the concepts of line, surface, and volume integrals.
- To acquire skills to understand the concepts involved in Jacobians and maxima and minima

Pre-requisites

- Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Apply different techniques to evaluate definite and indefinite integrals	Apply
CO2	Compute the double and triple integrals	Apply
CO3	Interpret the basic concepts of vector calculus	Apply
CO4	Apply vector integration techniques to solve problems in engineering	Apply
CO5	Obtain Jacobians and maxima and minima of functions of two variables	Apply

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO2	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO3	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO4	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
CO5	3	2	-	-	2	-	-	-	-	-	-	-	-	2	-
3 - Strong; 2 - Medium; 1 - Some															

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)		End Sem Examination (Marks)
	1	2	
Remember	10	10	10
Understand	10	10	10
Apply	40	40	80
Analyse	-	-	-
Evaluate	-	-	-
Create	-	-	-
Total	60	60	100

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K.S.Rangasamy College of Technology – Autonomous R2026

26MA2C1T - Multiple Integrals and Calculus

Common to CSE & IT

Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	3	1	0	60	4	40	60	100

Integral Calculus Definite and Indefinite Integrals - Substitution Rule - Techniques of Integration: Integration by Parts, Integration of Rational Functions by Partial Fraction, Integration of Irrational Functions - Improper Integrals **Hands-on:**	[9]
Multiple Integrals Double Integration – Cartesian and Polar Co-ordinates – Change of Order of Integration – Area as Double Integral – Triple Integration in Cartesian Co-ordinates – Change of Variables: Cartesian to Polar Co-ordinates. **Hands-on:** Evaluate Double Integrals and Triple Integrals	[9]
Vector Differentiation Gradient of a Scalar field - Unit Normal Vector - Directional Derivative - Angle of intersection of two surfaces - Divergence and Curl - Solenoidal and Irrotational Vector fields - Scalar Potential. **Hands-on:** Hands-On: Evaluate Gradient, Divergence, and Curl	[9]
Vector Integration Line Integral – Surface Integrals – Volume Integrals –Green's Theorem– Gauss Divergence Theorem -Stoke's Theorem.	[9]
Functions of Several Variables Partial differentiation - Homogeneous functions and Euler's theorem - Jacobians - Taylor's series for functions of two variables -Maxima and minima of functions of two variables - Constrained maxima and minima: Lagrange's method of undetermined multipliers. **Hands-on:**	[9]
Total Hours: 45 + 15(Tutorial)	**60**

Text Book(s):

1. Grewal B.S, "Higher Engineering Mathematics", 44th Edition, Khanna Publishers, Delhi, 2017.
2. Kreyszig Erwin, "Advanced Engineering Mathematics", 10thEdition, John Wiley and Sons (Asia) Limited,2022. New Delhi, 2016.

Reference(s):

1. Dass H.K, "Higher Engineering Mathematics", 3rd (Revised) Edition, S.Chand& Company Ltd, New Delhi, 2014.
2. Veerarajan T, "Engineering Mathematics", for Semesters I & II, 1st Edition, Tata McGraw Hill Publishing Co., New Delhi, 2019.
3. Kandasamy P, Thilagavathy K and Gunavathy K, "Engineering Mathematics - I", S.Chand& Company Ltd, New Delhi, 2017.
4. Bali N P and Manish Goyal," A text book of Engineering Mathematics", 10th Edition, Laxmi Publications (P) Ltd, 2016.

Course Contents and Lecture Schedule

S. No.	Topics	No. of	Mode of Content

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Passed in BoS Meeting held on 20.12.2025
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		hours	Delivery
1.0	**Integral Calculus**		
1.1	Definite and Indefinite Integrals	2	Lecture with Discussion
1.2	Substitution Rule	1	Lecture with Discussion
1.3	Integration by Parts	2	Lecture with Discussion
1.4	Integration of Rational Functions by Partial Fraction	1	Lecture with Discussion
1.5	Integration of Irrational Functions	1	Lecture with Discussion
1.6	Improper Integrals	2	Lecture with Discussion
1.7	Tutorial	2	
1.8	**Hands-on:** Compute the definite and indefinite integrals	1	
2.0	**Multiple Integrals**		
2.1	Double integrals	1	Lecture with Discussion
2.2	Change of order of integration	2	Lecture with Discussion
2.3	Double integrals in polar coordinates	1	Lecture with Discussion
2.4	Area enclosed by plane curves	2	Lecture with Discussion
2.5	Triple integrals	1	Lecture with Discussion
2.6	Change of variables in double and triple integrals	2	Lecture with Discussion
2.7	Tutorial	2	Lecture with Discussion
2.8	**Hands - on:** Evaluate Double Integrals and Triple Integrals	1	
3.0	**Vector Differentiation**		
3.1	Gradient of a Scalar field - Unit Normal Vector	1	Lecture with Discussion
3.2	Directional derivative	2	Lecture with Discussion
3.3	Angle of intersection of two surfaces	2	Lecture with Discussion
3.4	Divergence and Curl	1	Flipped Class
3.5	Solenoidal and Irrotational Vector fields	2	Lecture with Discussion
3.6	Scalar Potential.	1	Lecture with Discussion
3.7	Tutorial	2	
3.8	**Hands - on:** Hands-On: Evaluate Gradient, Divergence, and Curl	1	
4.0	**Vector Integration**		
4.1	Line Integral	1	Lecture with Discussion
4.2	Surface Integrals	1	Lecture with

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			Discussion
4.3	Volume Integrals	1	Lecture with Discussion
4.4	Green's Theorem	2	Lecture with Discussion
4.5	Gauss Divergence Theorem	2	Lecture with Discussion
4.6	Stoke's Theorem	2	Lecture with Discussion
4.7	Tutorial	2	
4.8	**Hands-on:** Solve the First and Second Order Ordinary Differential Equations	1	
5.0	**Functions of Several Variables**		
5.1	Partial Differentiation	1	Lecture with Discussion
5.2	Homogeneous Functions and Euler's Theorem	2	Lecture with Discussion
5.3	Jacobians	1	Lecture with Discussion
5.4	Taylor's Series for Functions of Two Variables	1	Flipped Class
5.5	Maxima And Minima of Functions of Two Variables	2	Lecture with Discussion
5.6	Lagrange's Method of Undetermined Multipliers	2	Lecture with Discussion
5.7	Tutorial	2	
5.8	**Hands - on:** Compute the partial derivatives	1	

Course Designer(s)

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B.G. Ceeeb

BoS Chairman

26PH2C2T	Physics for Computing Sciences	Category	L	T	P	Credit
		BS	3	0	0	3

Objectives

- To Understand semiconductor properties, energy band gaps, conductivity, and key devices like solar cells and p-n junctions
- To study laser principles, types, and fiber optics, including data transmission, losses, and modern communication applications.
- To equip students with knowledge of heat transfer mechanisms, the Stefan-Boltzmann law, and experimental determination of thermal conductivity
- To explore fundamental principles of magnetism, including magnetic moments and domain theory, to understand the behavior of magnetic materials and their technological applications.
- To explore quantum computing fundamentals, qubits, logic gates, advantages, challenges, and future applications in computing sciences

Pre-requisites

Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Appraise the knowledge on semiconducting properties of materials and their applications in sensors	Understand
CO2	Understand the working principles of lasers and optical fibers and apply them in communication and data technology applications	Understand
CO3	Reveal the ability to calculate heat transfer through various mechanisms and determine the thermal conductivity of materials.	Apply
CO4	Infer the magnetic properties and classification of materials, and assess their role in modern computing applications including magnetic storage devices.	Apply
CO5	Gain insights into quantum computing principles, quantum logic gates, and quantum information processing, with a focus on applications in AI and computing	Analyze

Mapping with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	2	-	-	-	-	-	2	-	2	-	-	2	-
CO2	3	2	-	-	-	-	-	2	-	2	-	-	2	-
CO3	3	2	-	-	-	-	-	2	-	2	-	-	2	-
CO4	3	2	-	-	-	-	-	2	-	2	-	-	2	-
CO5	3	2	-	-	-	-	-	2	-	2	-	-	2	-

3 - Strong; 2 - Medium; 1 - Some

Assessment Pattern

Bloom's Category	Continuous Assessment Tests(Marks)		End Sem Examination(Marks)
	1	2	
Remember	10	10	15
Understand	35	35	65
Apply	05	05	10
Analyse	10	10	10

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Evaluate	0	0	0
Create	0	0	0

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026

26PH2C2T - Physics for Computing Sciences

Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	3	0	0	45	3	40	60	100

***PHYSICS OF SEMICONDUCTOR:** Classification of solids based on electrical properties and energy band gap - Types of semiconductors - Concentration of electrons and holes in intrinsic semiconductors – Extrinsic semiconductors (Qualitative) - Variation of Fermi energy level with temperature and impurities - Hall effect - Determination of Hall coefficient - Theory of p-n junctions - Applications: Photovoltaic Cells, LEDs. **Case study:** Designing efficient photovoltaic cells for IoT renewable energy systems using semiconductor physics	[9]
****LASER AND FIBER OPTIC COMMUNICATION:** Interaction of light with matter - Expression for energy density at thermal equilibrium in terms of Einstein's coefficients - Characteristics of laser - Requisites of laser system - semiconductor and CO_2 laser - Applications of lasers in computing and data technology - Optical fibre - Principle of working - Types - Acceptance angle and numerical aperture - Application – Fiber optic communication. **Case study:** Simulation of light propagation through in an optical fibers using MATLAB	[9]
***HEAT AND HEAT TRANSFER MECHANISMS:** Temperature, Heat, and Internal Energy - thermal expansion of solids and liquids - Modes of heat transfer - Heat conduction through a compound media (series and parallel) - Determination of thermal conductivity of bad conductor – Convection - application in science and domestic - Solving problems - Stefan-Boltzmann law of radiation - Experimental Determination of Stefan's constant. **Case study:** Energy-efficient thermal management in smartphones using heat transfer principles	[9]
***APPLIED MAGNETISM AND MAGNETIC MATERIALS:** Origin of magnetic moment - Bohr magneton - Classification of magnetic materials - diamagnetism - paramagnetism - ferromagnetism - anti ferromagnetism - ferri magnetism - Domain theory - Hysteresis - soft and hard magnetic materials - examples and uses – Magnetic principle in computer data storage - Magnetic hard disc (Giant Magneto Resistance sensor). **Case study:** Spintronics and Magnetic Memory (MRAM) for Next-Generation Computing Systems	[9]
****QUANTUM COMPUTING:** History of quantum computing and quantum information - Classical and quantum computing - Core principles of quantum computing - Quantum system for information processing - Quantum wires (one dimensional), Quantum dots (zero dimensional) - Qubit - Qubit logic gates- Classical bits - Qubit as a two-level system - Quantum computing advantages and limitations - Applications - Global perspectives - Future directions **Case Study:** Quantum computing for drug discovery and materials science	[9]
Total Hours:	**45**

Text Book(s):

1.	M. N. Avadhanulu, P. G. Kshirsagar, T.V.S. Arun Murthy "A Text Book of Engineering Physics", S Chand Publications, New Delhi, 2022.
2.	Quantum Computation and Quantum Information, Textbook by M. A. Nielsen and I. Chuang, Cambridge University Press, 2010.

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3.	D. Halliday, R. Resnick and J. Walker “Fundamentals of Physics” 12th Edition, John Wiley & Sons, Inc., New York, 2022
Reference(s):	
1.	H. K. Malik, A. K. Singh “Engineering Physics” McGraw Hill Education Private Limited, New Delhi, 2018.
2.	D. R. Joshi “Engineering Physics” McGraw Hill Education Private Limited, New Delhi. 2010
3.	B.B.Laud “Lasers and Non-Linear Optics ”New Age International Publications, New Delhi,2015

*** SDG 7: Affordable and Clean Energy**
****SDG 9: Industry, Innovation, and Infrastructure**

Course Contents and Lecture Schedule

S. No.	Topics	No. of hours
1.0	**PHYSICS OF SEMICONDUCTOR**	
1.1	Classification of solids based on electrical properties and energy band gap	1
1.2	Types of semiconductors - Concentration of electrons and holes in intrinsic semiconductors	2
1.3	Electrical conductivity of a semiconductors	1
1.4	Variation of Fermi energy level with temperature and Impurities	1
1.5	Hall effect - Determination of Hall coefficient, Theory of p-n junctions	2
1.6	Construction and working of a solar cell, Review & problem solving	2
2.0	**LASER AND FIBER OPTIC COMMUNICATION**	
2.1	Theory of laser - characteristics	1
2.2	Einstein’s coefficients - population inversion	2
2.3	Nd-YAG laser	1
2.4	Semiconductor laser – Applications - Laser printing technology	1
2.5	Optical fibre- principle - types - material, mode, and refractive index	1
2.6	Fibre loss , Expression for acceptance angle and numerical aperture	1
2.7	Application – Fiber Optic Communication	1
3.0	**HEAT AND HEAT TRANSFER MECHANISMS**	
3.1	Temperature, Heat, and Internal Energy	1
3.2	thermal expansion of solids and liquids, Modes of heat transfer	2
3.3	Heat conduction through a compound media (series and parallel)	2
3.4	Determination of thermal Conductivity of bad conductor	1
3.5	Convection - application in science and domestic	1
3.6	Stefan-Boltzmann law of radiation - Experimental Determination of Stefan’s constant.	1
3.7	Review & problem solving	1
4.0	**APPLIED MAGNETISM AND MAGNETIC MATERIALS:**	
4.1	Origin of magnetic moment - Bohr magneton	1
4.2	Classification of magnetic materials - diamagnetism - paramagnetism ferromagnetism - anti ferromagnetism - ferri magnetism	2
4.3	Domain theory	1
4.4	Hysteresis - soft and hard magnetic materials - examples and uses	2
4.5	Magnetic principle in computer data storage	1
4.6	Magnetic hard disc (Giant Magneto Resistance sensor).	2

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5.0	**QUANTUM COMPUTING**	
5.1	History of quantum computing and quantum information	1
5.2	Classical and quantum computing - Core principles of quantum computing	1
5.3	Quantum system for information processing - Quantum wires (one dimensional), Quantum dots (zero dimensional)	2
5.4	The idea of “qubit” and examples of single qubit logic gates	1
5.5	Classical bits, Qubit as a two-level system	1
5.6	Quantum computing advantages and limitations	1
5.7	Applications - Global perspectives, Future directions	1

Course Designers

1. Dr. V. Vasudevan - vasudevanv@ksrct.ac.in
2. Dr. S. Saveetha - saveethas@ksrct.ac.in

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BoS Chairman

26CH2C1T	Engineering Chemistry	Category	L	T	P	Credit
		PC	3	0	0	3

Objectives

- To study various water quality parameters and the role of emerging technologies like AI and IoT in sustainable water monitoring.
- To introduce the fundamentals of electrode potential, various types of electrodes, and electrochemical titration techniques.
- To study the working principles of sensors, including their nanotechnology integrations and environmental applications.
- To explore the properties and applications of advanced organic, inorganic, and AI-driven materials used in electronics, photonics, and data storage.
- To introduce the concepts of cheminformatics, molecular representations, and the role of AI and ML in drug discovery and molecular modeling.

Pre-requisites

- Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Recognize the working principles of modern water purification and monitoring systems.	Remember
CO2	Apply Nernst equation and distinguish between different electrode systems and titration methods used in electrochemical analysis.	Apply
CO3	Explain the classification and functioning of chemical sensors and their significance in health and environmental monitoring.	Understand
CO4	Analyze the properties of various advanced materials and correlate them with their specific applications in modern technology.	Analyse
CO5	Learn the cheminformatics tools and apply AI-based approaches for molecular data analysis and drug discovery.	Understand

Mapping with Programme Outcomes

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11		1	2	3
CO1	3	-	-	-	-	-	-	-	2	2	-		-	-	-
CO2	3	-	-	-	-	-	-	-			-		-	-	-
CO3	3	-	-	-	-	-	-	-	2	2	-		-	-	-
CO4	3	-	-	-	-	-	-	-			-		-	-	-
CO5	3	-	-	-	-	-	-	-	2	2	-		-	-	-

3 - Strong; 2 - Medium; 1 - Some

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)		Model Examination (Marks)	End Sem Examination (Marks)
	1	2		
Remember	20	20	34	34
Understand	40	40	66	66
Apply	-	-	-	-
Analyse	-	-	-	-
Evaluate	-	-	-	-

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Create	-	-	-	-
Total	60	60	100	100

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026

26CH2C1T - Engineering Chemistry

Common to CSE & IT

Semester	Hours/Week			Total Hours	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	3	0	0	45	3	40	60	100

Unit I Sustainable water technology $,*,** Water quality parameters -WHO guidelines for drinking water- Hardness - types – estimation of hardness by EDTA method - Types of Water Purification Technologies- Membrane Technology for Water Purification: Reverse Osmosis (RO), Ultrafiltration (UF), Nano filtration (NF), Electro dialysis (ED) - AI & IoT-based Water Monitoring.	[9]
Unit II Electrochemistry,***** Electrode Potential - Nernst Equation and its applications -Types of Electrodes: Metal/Metal ion electrode (copper/copper ion electrode), Metal-insoluble salt-anion electrodes (Silver electrode), Gas-ion electrodes (H2), Redox electrode (Platinum electrode), Membrane electrodes (CO_2 electrode), Ion-Selective electrodes (Glass Electrode), and Reference electrode: Types – SHE, Calomel electrode, Silver electrode, Quinhydrone electrode – construction, working and its applications. Electrochemical titrations: conductometric, potentiometric, and pH metric titrations.	[9]
Unit III Chemical sensors $,*,**** Sensors – Classification based on sensing elements - Chemical Sensors – Principle and Working. Electrochemical Biosensors- principle, working and applications: Potentiometric Sensors (pH electrodes) - Amperometric Sensors (blood glucose) – Optical Biosensors: Fluorescence-based sensors (oxygen sensors) - Gas Sensors (H_2S sensors) - Enzyme Sensors (Glucose/Glucose Oxidase (GOx) – Bio affinity Sensors: DNA Sensors. Nano technology in chemical sensors: Key Nanomaterials in Chemical Sensors and its significance - Applications of Nanotechnology in Chemical Sensors for environment and human health.	[9]
Unit IV Advanced materials*,,#,****** Organic Conductive Polymers: Properties and applications of Polyaniline (PANI), Poly(3,4-ethylenedioxythiophene) (PEDOT:PSS), Polypyrrole (PPy). Organic Semiconductors: Properties and applications of Pentacene, Poly(3-hexylthiophene) (P3HT), Polyfluorene (PFO) , Poly(p-phenylene vinylene) (PPV). Organic Light-Emitting Materials: Properties and applications of Triphenylamine, Carbazole. Organic Dielectric Materials: Properties and applications of Polyimides (PI), Polyvinylidene Fluoride (PVDF). AI-Driven Materials: Properties and applications of Indium Tin Oxide (ITO) –Quantum Dots (CdSe, InP, ZnSe) – graphene. Magnetic & Data Storage Materials: Properties and applications of Iron Oxide (Fe_3O_4, Fe_2O_3) , Cobalt-Iron Alloys (CoFe, CoPtCr), agnesium Oxide (MgO).	[9]
Unit V AI-Driven Cheminformatics$,,##** Introduction to Cheminformatics & AI: Importance, Applications, Role in Drug Discovery - Chemical Data & Molecular Representations – PubChem, ChEMBL, DrugBank, SMILES, InChI, MOL files, 2D/3D Visualization - Molecular Descriptors & QSAR: Molecular Properties, Fingerprints, Feature Extraction, QSAR Basics, Predictive Modeling - Role of Machine Learning in Cheminformatics - Role of Deep Learning in Cheminformatics – Significance of AI-Powered Drug Discovery – Virtual Screening, Docking, ADMET Prediction, Molecular Optimization - ML and DL Tools: Introduction to RDKit & Open Babel.	[9]
Total Hours:	**45**

Text Book(s):

1.	O.G. Palanna “Engineering Chemistry” Tata McGraw-Hill Pub.Co.Ltd, New Delhi, 2017.

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2.	Shikha Agarwal, "Engineering Chemistry-Fundamentals and Applications", Cambridge University Press, Delhi, 2nd Edition, 2019.
Reference(s):	
1.	Dara S. S. &. Umare S. S, A Textbook of Engineering Chemistry, 12th Edition, Kindle Edition, S. Chand Publishing, New Delhi, 2020.
2.	Peter Grundler "Chemical Sensors" ISBN 978-3-540-45742-8 Springer Berlin Heidelberg New York, 2007
3.	Yujun Song. "Inorganic and Organic Thin Films: Fundamentals, Fabrication, and Applications", 2 Volumes 1st Edition, Wiley-VCH, 2021.
4.	Steven L. Brunton, J. Nathan Kutz "Data-Driven Science and Engineering" – 1st Edition, Kindle Edition, Cambridge University, 2019.
5.	Shikha Agarwal, "Engineering Chemistry-Fundamentals and Applications", Cambridge University Press, Delhi, 2nd Edition, 2019.
	$ - SDG 3 **Good Health and Well-being** * **- SDG 6 Clean Water and Sanitation** **- SDG 9: Industry, Innovation and Infrastructure** ***- SDG 7: Affordable and Clean Energy** , **** - **SDG 13: Climate Action** **# - SDG 12: Responsible Consumption and Production** **## - SDG 17: Partnerships for the Goals**

Course Contents and Lecture Schedule

S. No.	Topics	No. of hours
1.0	**Sustainable water technology**	
1.1	WHO guidelines for drinking water	1
1.2	Hardness – types	1
1.3	Estimation of hardness by EDTA method	1
1.4	Types of Water Purification Technologies	1
1.5	Membrane Technology for Water Purification:RO	1
1.6	Ultrafiltration (UF), Nano filtration (NF)	2
1.7	Electro dialysis (ED)	1
1.8	AI & IoT-based Water Monitoring	1
2.0	**Electrochemistry**	
2.1	Electrode Potential- Nernst Equation and its applications	1
2.2	Types of Electrodes: Metal/Metal ion electrode	1
2.3	Metal-insoluble salt-anion electrodes (Silver electrode)	1
2.4	Gas-ion electrodes (H2), Redox electrode (Platinum electrode), Calomel electrode.	1
2.5	Membrane electrodes (CO_2 electrode), Ion-Selective electrodes (Glass Electrode)	1
2.6	Reference electrode: Types – SHE	1
2.7	Silver electrode, Quinhydrone electrode – construction, working and its applications	1
2.8	Electrochemical titrations: conductometric	1
2.9	potentiometric, and pH metric titrations	1

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3.0	**Chemical sensors**	
3.1	Sensors – Classification based on sensing elements	1
3.2	Chemical Sensors – Principle and Working	1
3.3	Electrochemical Biosensors- principle, working and applications	1
3.4	Potentiometric Sensors (pH electrodes) - Amperometric Sensors (blood glucose)	1
3.5	Optical Biosensors: Fluorescence-based sensors (oxygen sensors)	1
3.6	Gas Sensors (H_2S sensors) - Enzyme Sensors (Glucose/Glucose Oxidase (GOx)	1
3.7	Bio affinity Sensors: DNA Sensors	1
3.8	Nano technology in chemical sensors: Key Nanomaterials in Chemical Sensors and its significance	1
3.9	Applications of Nanotechnology in Chemical Sensors for environment and human health	1
4.0	**Advanced materials**	
4.1	Organic Conductive Polymers: Properties and applications of Polyaniline (PANI)	1
4.2	Poly(3,4-ethylenedioxythiophene) (PEDOT:PSS), Polypyrrole (PPy)	1
4.3	Organic Semiconductors: Properties and applications of Pentacene	1
4.4	Poly(3-hexylthiophene) (P3HT), Polyfluorene (PFO) , Poly(p-phenylene vinylene) (PPV)	1
4.5	Organic Light-Emitting Materials: Properties and applications of Triphenylamine, Carbazole.	1
4.6	Organic Dielectric Materials: Properties and applications of Polyimides (PI), Polyvinylidene Fluoride (PVDF).	1
4.7	AI-Driven Materials: Properties and applications of Indium Tin Oxide (ITO)	1
4.8	Quantum Dots (CdSe, InP, ZnSe) – graphene	1
4.9	–. Magnetic & Data Storage Materials: Properties and applications of Iron Oxide (Fe_3O_4, Fe_2O_3) , Cobalt-Iron Alloys (CoFe, CoPtCr), agnesium Oxide (MgO).	1
5.0	**AI-Driven Cheminformatics**	
5.1	Introduction to Cheminformatics & AI: Importance, Applications	1
5.2	Role in Drug Discovery - Chemical Data & Molecular Representations	1
5.3	PubChem, ChEMBL, DrugBank, SMILES, InChI, MOL files	1
5.4	2D/3D Visualization - Molecular Descriptors & QSAR: Molecular Properties, Fingerprints	1
5.5	Feature Extraction, QSAR Basics, Predictive Modeling	1
5.6	Role of Machine Learning in Cheminformatics - Role of Deep Learning in Cheminformatics	1
5.7	Significance of AI-Powered Drug Discovery	1
5.8	Virtual Screening, Docking, ADMET Prediction	1
5.9	Molecular Optimization - ML and DL Tools: Introduction to RDKit & Open Babel.	1

Course Designer(s)

1. Dr.T.A.Sukantha- sukantha@ksrct.ac.in
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BoS Chairman

26IT2C1T	Python Programming	Category	L	T	P	Credit
		PC	3	0	0	3

Objectives

- To Understand the fundamentals of Python programming and control statements
- To Learn functions, recursion, and module handling in Python
- To Study object-oriented programming concepts using Python
- To Implement file handling and exception handling techniques
- To Develop applications using NumPy arrays and GUI tools

Pre-requisites

- Basic knowledge of mathematics and programming

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Apply Python programming fundamentals to solve simple problems	Apply
CO2	Develop Python programs using functions and modules	Apply
CO3	Implement Object Oriented programming concepts in Python Applications	Apply
CO4	Perform file operations and handle exceptions in programs	Apply
CO5	Create applications using NumPy arrays and Tkinter GUI tools	Apply

Mapping with Programme Outcomes

COs	POS											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO2	3	2	3	2	-	-	-	-	2	2	2	3	3	-
CO3	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO4	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO5	3	2	3	3	-	-	-	-	2	2	2	3	3	-
3 - Strong; 2 - Medium; 1 – Some														

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (Marks)		End Sem Examination (Marks)
	1	2	
Remember	10	10	10
Understand	20	30	30
Apply	30	30	60
Analyse	-	-	-
Evaluate	-	-	-
Create	-	-	-
Total	60	60	100

Passed in BoS Meeting held on 20.12.2025
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B.G. Ceeb

BoS Chairman

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026								
Common to IT,CSE,AIML,AIDS								
26IT2C1T - Python Programming								
Semester	**Hours/Week**			**Total Hours**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
II	3	0	0	45	3	40	60	100

Introduction Introduction to Python – Strings – List – Tuples – Sets - Dictionaries – Basic Operators – Decision Making – Looping statements	[9]
Functions and Modules Functions – Parameter Passing Types – Recursion – Lambda function and Maps - Modules – Python modules - Importing modules - Loading and Execution of modules	[9]
Object Oriented Programming Object Oriented Programming concept – Class and Objects – Constructors – Encapsulation – Inheritance– Polymorphism - Abstract Classes	[9]
Files and Exception Handling Introduction to file - Access Modes - Writing Data to a File – Reading Data from a File - Additional File Methods - Exceptions – Types, Handling Exceptions, User Defined Exceptions	[9]
NumPy Basics and GUI Programming NumPy: Data Types – NumPy Arrays - Creating, adding items, Removing items, Printing Items, Sorting items, Reshaping, Indexing and Slicing - GUI Programming: Introduction to Tkinter, Creating GUI widgets, Resizing – Creating Layouts – Radio buttons – Check boxes – Dialog boxes.	[9]
Total Hours: 45	**45**

Text Book(s):	
1.	Reema Thareja, “Python Programming: Using Problem Solving Approach”, 2nd Edition, Oxford University Press India, 2022.
2.	Eric Matthes, “Python Crash Course: A Hands-On, Project-Based Introduction to Programming”, 3rd Edition, No Starch Press, 2023.
Reference(s):	
1.	Wesley J. Chun, “Core Python Applications Programming”, 3rd Edition, Pearson Education, 2013
2.	Allen B. Downey, “Think Python: How to Think like a Computer Scientist”, 2nd Edition, O’Reilly Publishers, 2016.
3.	Charles Dierbach, “Introduction to Computer Science using Python”, 2nd Edition, Wiley India Pvt Ltd, 2015
4.	Dr.Nageswara Rao R. “Core Python Programming”, DreamTech Press, 2nd Edition, 2018

** SDG-4 – Quality Education

* SDG-8 – Employment and decent work for all

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Course Contents and Lecture Schedule

S. No.	Topics	No. of hours
1.0	**Introduction**	
1.1	Introduction to Python	1
1.2	Strings	1
1.3	List	1
1.4	Tuples	1
1.5	Sets	1
1.6	Dictionaries	1
1.7	Basic Operators	1
1.8	Decision Making Statements	1
1.9	Looping Statements	1
2.0	**Functions and Modules**	
2.1	Functions	1
2.2	Parameter Passing Types	1
2.3	Recursion	1
2.4	Lambda function and Maps	1
2.5	Modules	1
2.6	Python modules	1
2.7	Importing modules	1
2.8	Loading and Execution of modules	2
3.0	**Object Oriented Programming**	
3.1	Object Oriented Programming concept	1
3.2	Class and Objects	1
3.3	Constructors	1
3.4	Encapsulation	1
3.5	Inheritance	1
3.6	Polymorphism	2
3.7	Abstract Classes	2
4.0	**Files and Exception Handling**	
4.1	Introduction to file	1
4.2	Access Modes	1
4.3	Writing Data to a File – Reading Data from a File	1
4.4	Additional File Methods	1
4.5	Exceptions – Types	1
4.6	Handling Exceptions	2
4.7	User Defined Exceptions	2
5.0	**NumPy Basics and GUI Programming**	
5.1	NumPy: Data Types	1

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5.2	NumPy Arrays - Creating, adding items, Removing items, Printing Items	2
5.3	Sorting items, Reshaping, Indexing and Slicing	1
5.4	GUI Programming: Introduction to Tkinter	1
5.5	Creating GUI widgets, Resizing	1
5.6	Creating Layouts	1
5.7	Radio buttons & Check boxes	1
5.8	Dialog boxes	1
	Total Hours	**45**

Course Designer(s)

1. Dr. C.Nallusamy - nallusamyc@ksrct.ac.in
2. Mr.R.T.Dineshkumar – dineshkumarrt@ksrct.ac.in

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B.G. Ceeeb

BoS Chairman

26CS2C2I	Web Technology	Category	L	T	P	Credit
		PC	1	0	2	2

Objectives

- To understand the principles of web design
- To introduce the fundamentals of HTML
- To construct basic websites using HTML
- To apply Cascading Style Sheets
- To develop modern interactive web applications using JavaScript

Pre-requisites

Basic knowledge of programming

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Describe the concepts of HTML	Apply
CO2	Develop the web pages using HTML	Apply
CO3	Apply CSS features with different layouts	Apply
CO4	Use the JavaScript to develop the dynamic web pages	Apply
CO5	Develop interactive web applications	Apply

Mapping with Programme Outcomes

Cos	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO2	3	2	3	2	-	-	-	-	2	2	2	3	3	-
CO3	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO4	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO5	3	2	3	3	-	-	-	-	2	2	2	3	3	-
3 – Strong; 2 – Medium; 1 – Some														

Assessment Pattern

Bloom's Category	Lab Experiments Assessment (Marks)		Model Examination (Marks)	End Sem Examination (Marks)
	Lab	Activity		
Remember	-	-	-	-
Understand	25	12	-	-
Apply	25	13	100	100
Analyse	-	-	-	-
Evaluate	-	-	-	-
Create	-	-	-	-
Total	50	25	100	100

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeb

BoS Chairman

Syllabus

K.S.Rangasamy College of Technology – Autonomous R2026								
Common to CS,IT,AIDS,AIML								
26CS2C2I -Web Technology								
Semester	**Hours/Week**			**Total Hours**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
II	1	0	2	45	2	50	50	100

HTML* Web Programming Introduction – HTML Introduction – Basic Formatting Tags - Lists – Images- Hyperlink – Table –frame - Form – Headers	[10]
Cascading Style Sheets* CSS Introduction - Syntax - Selectors - Color Background Cursor - Text Fonts – Lists - Tables - Box Model - Display Positioning - CSS Floats.	[10]
JavaScript* Introduction to JavaScript - Advantage of JavaScript - JavaScript Syntax - Datatype - Variable - Array -Operator and Expression - Looping -Constructor - Function - Dialog box – Events -JavaScript validation.	[10]
Practical: 1. Create a complete HTML webpage including headers, formatting tags, lists, image, and hyperlink. 2. Design a webpage with table, image, hyperlink, and proper headings. 3. Develop a registration form webpage with input fields, radio buttons, checkboxes, dropdown, and iframe. 4. Create a webpage demonstrating CSS syntax, selectors, colors, background, cursor, and text fonts. 5. Design a webpage with styled lists, tables, and box model properties (margin, padding, border). 6. Develop a webpage using display properties, positioning, and CSS floats for layout design. 7. Create a webpage demonstrating JavaScript basics including syntax, variables, datatypes, arrays, operators, expressions, looping, functions, and constructors. 8. Design a webpage using JavaScript dialog boxes, events, and functions to perform user interactions. 9. Develop a webpage with JavaScript form validation using events, conditions, and expressions.	[15]
Total Hours	45

Text Book(s):	
1.	Ralph Moseley and Savaliya M T, “Developing Web Applications”, Wiley-India Private Limited, 2018.
2.	Robert W.Sebesta, “Programming the World Wide Web”, 7th edition, Pearson Education, 2018.
Reference(s):	
1.	Kogent Learning Solutions Inc., “Web Technologies Black Book”, Dreamtech Press, 2021.
2.	Joel Sklar, “Principles of Web Design, Cengage Learning”, 6th Edition, 2015.
3.	Paul J. Deitel, Harvey M. Deitel, and Abbey Deitel, “Internet and World Wide Web How to program”, 5th Edition, Pearson Education, 2022.
4.	https://www.w3schools.com/js/

*SDG 4 – Quality Education

Passed in BoS Meeting held on 20.12.2025
Approved in Academic Council Meeting held on 03.01.2026

B.G. Ceeeb

BoS Chairman

Course Contents and Lecture Schedule

S. No.	Topics	No. of hours
1	**Introduction**	
1.1	Introduction to HTML	2
1.2	Basic Formatting Tags	2
1.3	Lists - Images	2
1.4	Hyperlink	2
1.5	Table - frame - Form – Headers	2
2	**Cascading Style Sheets**	
2.1	CSS Syntax	2
2.2	Selectors	2
2.3	Color Background Cursor - Text Fonts – Lists - Tables	2
2.4	Box Model - Display Positioning	2
2.5	CSS Floats	2
3	**JavaScript**	
3.1	Introduction to JavaScript, Advantage, Syntax	2
3.2	Datatype - Variable - Array -Operator and Expression	2
3.3	Looping -Constructor	2
3.4	Function - Dialog box	2
3.5	Events - JavaScript validation	2
	Practical	
1.	Create a complete HTML webpage including headers, formatting tags, lists, image, and hyperlink.	2
2.	Design a webpage with table, image, hyperlink, and proper headings.	2
3.	Develop a registration form webpage with input fields, radio buttons, checkboxes, dropdown, and iframe.	1
4.	Create a webpage demonstrating CSS syntax, selectors, colors, background, cursor, and text fonts.	2
5.	Design a webpage with styled lists, tables, and box model properties (margin, padding, border).	2
6.	Develop a webpage using display properties, positioning, and CSS floats for layout design.	1
7.	Create a webpage demonstrating JavaScript basics including syntax, variables, datatypes, arrays, operators, expressions, looping, functions, and constructors.	1
8.	Design a webpage using JavaScript dialog boxes, events, and functions to perform user interactions.	2
9.	Develop a webpage with JavaScript form validation using events, conditions, and expressions.	2

Course Designer(s)

1. Dr.J.Mythili - mythili@ksrct.ac.in

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B.G. Ceeb

BoS Chairman

26TA2Y1T	**Tamils and Technology** (Common to all Branches)

Category	L	T	P	Credit
GE	1	0	0	1

Objectives:

- To learn weaving, ceramic and construction technology of Tamils.
- To understand the agriculture, irrigation and manufacturing technology of Tamils.
- To realize the development of scientific Tamil and Tamil computing.
-

Prerequisite:

Nil

Course Outcomes:

On the successful completion of the course, students will be able to

CO1	Understand the weaving and ceramic technology of ancient Tamil people nature.	Understand
CO2	Comprehend the construction technology, building materials in sangam period and case studies.	Understand
CO3	Infer the metal process, coin and beads manufacturing with relevant archeological evidence.	Understand
CO4	Realize the agriculture methods, irrigation technology and pearl diving.	Understand
CO5	Apply the knowledge of scientific Tamil and Tamil computing.	Apply

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							3	3		2		3
CO2							3	3		2		3
CO3							3	3		2		3
CO4							3	3		2		3
CO5							3	3		2		3
3- Strong; 2-Medium; 1-Low												

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B.G. Ceeb

BoS Chairman

K. S. Rangasamy College of Technology – Autonomous R2026								
26TA2Y1T- Tamils and Technology (Common to all Branches)								
Semester	Hours/Week			Total hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	1	0	0	15	1	100	-	100

WEAVING AND CERAMIC TECHNOLOGY Weaving Industry during Sangam Age – Ceramic Technology – Black and Red Ware Potteries (BRW) – Graffiti on Potteries..	3
DESIGN AND CONSTRUCTION TECHNOLOGY 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)- ThirumalaiNayakarMahal – Chetti Nadu Houses , Indo – Saracenic architecture at Madras during British Period.	3
MANUFACTURING TECHNOLOGY 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.	3
AGRICULTURE AND IRRIGATION TECHNOLOGY 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.	3
SCIENTIFIC TAMIL & TAMIL COMPUTING 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.	3
Total Hours	**15**

Text Book(s):

1.	தமிழகவரலாறு- மக்களும் பண்பாடும் கே. கே .பிள்ளை(வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2.	கணினித்தமிழ் – முனைவர் இல. சுந்தரம். (விகடன்பிரசுரம்).
3.	கீழடி – வைகை நதிக்கரையில் சங்க கால நகர நாகரீகம் (தொல்லியல்துறைவெளியீடு).
4.	பொருநை - ஆற்றங்கரை நாகரீகம் (தொல்லியல்துறைவெளியீடு).
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.Subaramanian, 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 Civilization 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).

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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.

26TA2Y1T	**தமிழரும் தொழில் நுட்பமும்** (அனைத்து துறைகளுக்கும் பொதுவானது)	Category	L	T	P	Credit
		GE	1	0	0	1

பாடத்தின் நோக்கங்கள்:

- தமிழர்களின் சங்க கால நெசவு, பனை வனைதல் மற்றும் கட்டிட தொழில் நுட்பம் குறித்து அறிதல்.
- தமிழர்களின் சங்க கால வேளாண்மை, நீர்ப்பாசனம் மற்றும் உற்பத்தி முறைகள் குறித்த கற்றல்.
- நவீன அறிவியல் தமிழ் மற்றும் கணித்தமிழ் குறித்த புரிதல்.

முன் கூட்டிய துறைசார் அறிவு:

தேவை இல்லை

பாடம் கற்றதின் விளைவுகள்:

பாடத்தை வெற்றிகரமாக கற்று முடித்த பின்பு, மாணவர்களால் முடியும் விளைவுகள்

CO1	சங்க காலத்தமிழர்களின் நெசவு மற்றும் பானை வனைதல் தொழில் நுட்பம் குறித்த கற்றுணர்தல்	புரிதல்
CO2	சங்ககாலத்தமிழர்களின் கட்டிட தொழில் நுட்பம் கட்டுமானப் பொருட்கள் மற்றும் அவற்றை விளக்கும் தளங்கள் குறித்த அறிவு.	புரிதல்
CO3	சங்க காலத்தமிழர்களின் உலோகத் தொழில், நாணயங்கள் மற்றும் மணிகள் சார்ந்த தொல்லியல் சான்றுகள் பற்றிய அறிவு.	புரிதல்
CO4	சங்க காலத்தமிழர்களின் வேளாண்மை, நீர்ப்பாசனமுறைகள் மற்றும் முத்துகுளித்தல் குறித்ததெளிவு.	புரிதல்
CO5	நவீன அறிவியல் தமிழ் மற்றும் கணித்தமிழ் குறித்த புரிந்து கொள்ளலும் மற்றும் பயன்படுத்துதலும்.	பகுப் பாய்வு

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							3	3		2		3
CO2							3	3		2		3
CO3							3	3		2		3
CO4							3	3		2		3
CO5							3	3		2		3
3- Strong;2-Medium; 1-Low												

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K. S. Rangasamy College of Technology – Autonomous (R2026)								
26TA2Y1T-தமிழரும் தொழில்நுட்பமும்								
Semester	Hours/Week			Total hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	1	0	0	15	1	100	-	100

நெசவு மற்றும் பானைத் தொழில்நுட்பம்: சங்ககாலத்தில் நெசவுத் தொழில் - பானைத் தொழில்நுட்பம்-கருப்பு சிவப்பு பாண்டங்கள் - பாண்டங்களில் கீறல் குறியீடுகள்.	3
வடிவமைப்பு மற்றும் கட்டிடத் தொழில் நுட்பம்: சங்ககாலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் & சங்க காலத்தில் வீட்டுப்பொருட்களில் வடிவமைப்பு -சங்க காலத்தில் கட்டுமானப் பொருட்களும் நடுகல்லும் - சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள் - மாமல்லபுரச் சிற்பங்களும், கோவில்களும் - சோழர் காலத்துப் பெருங்கோயில்கள் மற்றும் பிற வழிபாட்டுத்தலங்கல் - நாயக்கர் காலக்கோயில்கள்-மாதிரி கட்டமைப்புகள் பற்றி அறிதல், மதுரை மீனாட்சி அம்மன் ஆலயம் மற்றும் திருமலைநாயக்கர்மஹால் - செட்டிநாட்டுவீடுகள் - பிரிட்டிஷ்காலத்தில்சென்னையில்இந்தோ -சாரோசெனிக்கட்டிடக்கலை.	3
உற்பத்தித்தொழில்நுட்பம்: கப்பல் கட்டும் கலை - உலோகவியல் -இரும்புத்தொழிற்சாலை -இரும்பை உருக்குதல் எஃகு - வரலாற்றுச்சான்றுகளாக செம்பு மற்றும் தங்கநாணயங்கள்-நாணயங்கள் அச்சடித்தல்- மணி உருவாக்கும் தொழிற்சாலைகள் - கல்மணிகள் கண்ணாடி மணிகள் – சுடு மண்மணிகள் - சங்குமணிகள் - எலும்புத்துண்டுகள் - தொல்லியல் சான்றுகள் – சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.	3
வேளாண்மை மற்றும் நீர் பாசனத்தொழில் நுட்பம்: அணை, ஏரி, குளங்கள், மதகு – சோழர்காலக்குமுழித்தூம்பின் முக்கியத்துவம்-கால்நடை பராமரிப்பு – கால்நடைகளுக்கான வடிவமைக்கப்பட்ட கிணறுகள்-வேளாண்மை மற்றும் வேளாண்மை சார்ந்த செயல்பாடுகள் – கடல்சார் அறிவு –மீன் வளம் – முத்து மற்றும் முத்துக்குளித்தல் – பெருங்கடல் குறித்த பண்டைய அறிவு - அறிவுசார்சமூகம்.	3
அறிவியல் தமிழ் மற்றும் கணித்தமிழ் அறிவியல் தமிழின் வளர்ச்சி – கணித்தமிழ் வளர்ச்சி – தமிழ் நூல்களை மின்பதிப்பு செய்தல் – தமிழ் மென் பொருட்கள் உருவாக்கம் – தமிழ் இணையக்கல்விக் கழகம் – தமிழ் மின்நூலகம் – இணையத்தில் தமிழ் அகராதிகள் – சொற்குவைத் திட்டம்.	3
Total Hours	**15**

Text Book(s):

1.	தமிழகவரலாறு- மக்களும்பண்பாடும்கே. கே .பிள்ளை (வெளியீடு: தமிழ்நாடுபாடநூல்மற்றும்கல்வியியல்பணிகள்கழகம்).
2.	கணினித்தமிழ் – முனைவர்இல. சுந்தரம். (விகடன்பிரசுரம்).
3.	கீழடி – வைகைநதிக்கரையில்சங்ககாலநகரநாகரீகம் (தொல்லியல்துறைவெளியீடு).
4.	பொருநை - ஆற்றங்கரைநாகரீகம் (தொல்லியல்துறைவெளியீடு).
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.Subaramanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).

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8.	The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9.	Keeladi - 'Sangam City Civilization 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.

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26PH2C2L	FUNDAMENTAL PHYSICS LABORATORY	Category	L	T	P	Credit
		BS	0	0	2	1

Objectives

- To infer the practical knowledge by applying the experimental methods to correlate with the Physics theory.
- To demonstrate an ability to make physical measurements and understand the limits of precision in measurements
- To analyze the behavior and characteristics of various materials for its optimum utilization
- Test the knowledge of theoretical concepts and develop the experimental skills of the learners.
- To facilitate data interpretation and expose the learners to various industrial and environmental applications

Pre-requisites

- Nil

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Recognize semiconductor properties to understand how AI chips and processors work in machine learning systems.	Apply
CO2	Analyze optical properties to apply in image processing, computer vision, and high-speed data transmission for AI/ML systems.	Apply
CO3	Recognize the thermal radiation laws to optimize thermal management and power consumption in AI hardware and data centers.	Apply
CO4	Infer the measurement of magnetic fields to understand sensor technologies and data acquisition systems for IoT and AI applications.	Apply
CO5	Realize quantum principles to explore quantum computing and quantum machine learning algorithms for advanced AI computation.	Apply

Mapping with Programme Outcomes (CIVIL)

COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	-	-	-	-	-	-	2	2	2	-	-	-	-	-
CO2	3	-	-	-	-	-	-	2	2	2	-	-	-	-	-
CO3	3	-	-	-	-	-	-	2	2	2	-	-	-	-	-
CO4	3	-	-	-	-	-	-	2	2	2	-	-	-	-	-
CO5	3	-	-	-	-	-	-	2	2	2	-	-	-	-	-

3 - Strong; 2 - Medium; 1 - Some

Assessment Pattern

Bloom's Category	Lab Experiments Assessment (Marks)		Model Examination (Marks)	End Sem Examination (Marks)	
	Lab	Activity			
Remember	10	-	10	-	10
Understand	30	30	30	-	30
Apply	40	40	40	-	40
Analyse	20	30	20	-	20

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Evaluate	-	-	-	-	-
Create	-	-	-	-	-
Total	100	100	100	-	100

K.S.Rangasamy College of Technology – Autonomous R2026

26PH2C2L - Fundamental Physics Laboratory

Common to CSE,IT, AIDS, AIML

Semester	Hours/Week			Total Hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	0	0	2	45	1	60	40	100

List of Experiments:

1. Determination of Hall coefficient of a given semiconductor and its charge carrier density
2. Determination of the wave length of the semiconductor diode laser using grating
3. Determination of the particle size of the given powder using semiconductor diode laser
4. Determination of the acceptance angle and numerical aperture of the given optical fiber
5. Determination of Stefan's constant by electrical method
6. Magnetic field along the axis of current carrying coil – Stewart and Gee
7. Experimental determination of Planck's constant for quantum systems
8. V–I Characteristics and maximum power output of a solar cell
9. Determination of thickness of a thin sheet/wire by airwedge technique
10. Develop coding for any one of the above experiments / developing a project / a product

*** SDG: 4- Quality Education**

Lab Manual

1. "Engineering Physics Lab Manual", Department of Physics, KSRCT.

Course Designer(s) - Physics

2. Dr. V. Vasudevan - vasudevanv@ksrct.ac.in

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BoS Chairman

26CH1C2L / 26CH2C1L-	Engineering Chemistry Laboratory	Category	L	T	P	Credit
		PC	0	0	2	1

Objectives

- To analyze water quality parameters using standard analytical methods.
- To identify chemical compounds using conductometric and precipitation titration methods.
- To examine electrochemical methods for iron estimation and corrosion analysis.
- To infer pH and acid concentration using sensor-based techniques.
- To assay of iron concentration using colorimetric techniques.

Pre-requisites

- Nil

Course Outcomes On the successful completion of the course, students will be able to		BT Mapped (Highest Level)
CO1	Analyse water quality based on analytical results.	Analysing (K3)
CO2	Identify quantitative analytical results using titrimetric techniques.	Analysing (K3)
CO3	Interpret EMF and potentiometric data for analytical applications.	Analysing (K3)
CO4	Examine the acid–base characteristics using pH measurements.	Analysing (K3)
CO5	Interpret colorimetric data for quantitative estimation.	Analysing (K3)

Mapping with Programme Outcomes

COs	Pos											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	3	2	3	1	2	3	-	-	1	-	-	-	-
CO2	3	2	2	3	1	-	1	-	-	1	-	-	-	-
CO3	3	3	2	3	2	-	1	-	-	1	-	-	-	-
CO4	3	2	1	3	2	1	2	-	-	1	-	-	-	-
CO5	3	3	2	3	2	-	1	-	-	1	-	-	-	-

3 - Strong; 2 - Medium; 1 – Some; BT – Bloom's Taxonomy

Assessment Pattern

Bloom's Category		Lab Experiments Assessment		Model Examination	End Sem Examination
		Lab	Activity		
Remembering	(K1) %	-		-	
Understanding	(K2) %	10	10	10	10
Applying	(K3) %	40	40	50	40
Analysing	(K4) %	50	50	50	50
Evaluating	(K5) %	-	-	-	-
Creating	(K6) %	-	-	-	-
*Total %		100	100	100	100

Lab Experiments – 75 Marks, Model Exam – 25 Marks, End Semester – 100 Marks

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K.S.Rangasamy College of Technology – Autonomous R2026										
B.E/B.TECH CSE, IT, AIDS, AIML, EEE, ECE & VLSI										
26CH2C1L- Engineering Chemistry Laboratory										
Semester	**Hours/Semester**						**Credit**	**Maximum Marks**		
	CI		**LI**	**TW**	**SL#**	**TH**				
	L	**T**	**P**				C	CA	ES	Total
II	0	0	2				1	60	40	100

List of Experiments:

1. Estimation of total hardness of given water sample by EDTA method.
2. Determination different types of alkalinity present in given borewell water.
3. Determination of water quality parameters of the given water sample.
4. Estimation of amount of acid in the given solution by conductivity meter.
5. Estimation of barium chloride by precipitation titration.
6. Estimation of iron using standard dichromate solution by EMF measurement.
7. Determination of percentage corrosion using potassium dichromate with a potentiometric sensor.
8. Determination of amount of acid in the given sample by using pH sensor.
9. Determine the pH of the given buffer solutions.
10. Estimation of iron present in the given sample by colorimeter.

[60]

Lab Manual

1.	"Chemistry Laboratory manual" Volume 1 & 2, KSRCT.

SDG 4 (Quality Education)
SDG 6 (Clean Water and Sanitation)
SDG 14 (Life Below Water)

Course Designer(s)

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B.G. Ceeeb

BoS Chairman

26IT2C1L	Python Programming Laboratory	Category	L	T	P	Credit
		PC	0	0	3	1.5

Objectives

- To understand the fundamentals of Python programming and control statements
- To learn functions, recursion, and module handling in Python
- To study object-oriented programming concepts using Python
- To implement file handling and exception handling techniques
- To develop applications using NumPy arrays and GUI tools

Pre-requisites

Basic knowledge of mathematics and programming

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Apply Python programming fundamentals to solve simple problems	Apply
CO2	Develop Python programs using functions and modules	Apply
CO3	Implement Object Oriented programming concepts in Python Applications	Apply
CO4	Perform file operations and handle exceptions in programs	Apply
CO5	Create applications using NumPy arrays and Tkinter GUI tools	Apply

Mapping with Programme Outcomes

COs	POS											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO2	3	2	3	2	-	-	-	-	2	2	2	3	3	-
CO3	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO4	3	2	3	3	-	-	-	-	2	2	2	3	3	-
CO5	3	2	3	3	-	-	-	-	2	2	2	3	3	-

3 - Strong; 2 - Medium; 1 – Some

Assessment Pattern

Bloom's Category	Lab Experiments Assessment (Marks)		Model Examination (Marks)	End Sem Examination (Marks)
	Lab	Activity		
Remember	-	-	-	-
Understand	-	-	-	-
Apply	50	25	100	100
Analyse	-	-	-	-
Evaluate	-	-	-	-
Create	-	-	-	-
Total	50	25	100	100

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BoS Chairman

K.S.Rangasamy College of Technology – Autonomous R2026								
B.E. Computer Science and Engineering								
26IT2C2L – Python Programming Laboratory								
Semester	**Hours/Week**			**Total Hrs**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
II	0	0	3	45	1.5	60	40	100

List of Experiments:

1. Implement the Basic Concepts of Python
2. Implement Decision-Making, Looping Statements, Strings
3. Implement List, Tuples, Sets, Dictionary
4. Working with Functions and Modules
5. Working with Class, Objects, Constructors, Encapsulation
6. Implement Inheritance, Polymorphism, Abstraction
7. Implement File Operations
8. Build a Program with Exception Handling*
9. Perform Various NumPy Operations and Special Functions
10. Design windows using Tkinter

*SDG 4 – Quality Education

Course Designer(s)

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B.G. Ceeeb

BoS Chairman

26 TP 2G1P	Career Skill Development II - Aptitude 2	Category	L	T	P	Credit
		CG	0	0	2	1

Objective

- To help learners improve their logical reasoning skills at different academic and professional contexts.
- To help learners relate basic quantitative problems and solve them.
- To help learners Infer critically the statements with optimal conclusions and assumptions.
- To Solve the quantitative problems pertaining to calculations of averages, ratio and proportions, and profit and loss effectively
- To compute quantitative problems related to time and work, speed and distance, and simple and compound interest

Prerequisite

- Basic knowledge of Arithmetic and Logical Reasoning

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Deduce the topics in logical reasoning at the preliminary and intermediate level.	Analyze
CO2	Relate basic quantitative problems and solve them effectively at the preliminary level	Apply
CO3	Infer critically the statements with optimal conclusions and assumptions with the data and information given.	Analyze
CO4	Solve the quantitative problems pertaining to calculations of averages, ratio and proportions, and profit and loss effectively at the pre-intermediate level.	Apply
CO5	Compute quantitative problems related to time and work, speed and distance, and simple and compound interest at intermediate level.	Apply

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	3		3				2	3	3
CO2	3	3	3	3		2				2	3	3
CO3	2	2	2	2		3				2	3	3
CO4	3	3	3	3		2				2	3	3
CO5	3	3	3	3		2				2	3	3
3- Strong; 2-Medium; 1-Some												

Assessment Pattern

Bloom's	Online Assessment Tests	Group	Internal

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Category	(Marks)		Discussion	Marks
	1	2		
Apply	100	100	100	100
Over all Weightage	40	40	20	

K.S.Rangasamy College of Technology – Autonomous R2026								
Common to All Branches								
26 TP 2G1P - Career Skill Development II - Aptitude 2								
Semester	Hours/Week			Total Hrs	Credit	Maximum Marks		
	L	T	P		C	CA	ES	Total
II	0	0	2	25	0	100	00	100

Critical Reasoning Deductive Reasoning - Syllogism - Statements and Conclusions, Cause and Effect, Statements and Assumptions - Identifying Strong Arguments and Weak Arguments – Cause and Action - Data sufficiency	**[5]**
Quantitative Aptitude - Part – 4 Permutation and Combination - Probability - Quadratic equation - Geometry Elementary statistics – Clock – Calendar – Logarithmic	**[5]**
Non-Verbal Reasoning Translation, rotation, scaling, mirroring, assembling, and grouping, paper folding and cutting, and patterns in 2 and 3 dimensions. Series Completion of Figures – Mirror images and Water Images	**[5]**
Quantitative Aptitude - Part – 5 Mensuration of Area, Volume and Surface area in 2D and 3D Shapes – 2D Shapes – Square, Rectangle, Triangle, Circle, etc. - 3D Shapes – Cube, Cuboid, Sphere, Cone, etc.	**[5]**
Data Interpretation and Analysis Data Interpretation Based on Tabulation, Pie chart, Bar graph, And Line graph – 2 and 3 dimensional plots, maps, and tables - Data sufficiency	**[5]**
Total Hours	**25**

Reference(s):

1.	Aggarwal, R.S. *'A Modern Approach to Verbal and Non-verbal Reasoning'*, Revised Edition 2008,Reprint 2009,S.Chand & Co Ltd., New Delhi.
2.	Abhijit Guha, *'Quantitative Aptitude'*, McGraw Hill Education, 6th edition, 2016
3.	Dinesh Khattar, 'Quantitative Aptitude For Competitive Examinations', Pearson Education (2020)
4.	Anne Thomson, *'Critical Reasoning: A Practical Introduction'* Lexicon Books, 3rd edition, 2022. Warszaw

Course Designer

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BoS Chairman

26CS201L	Innovation and Design Thinking	Category	L	T	P	Credit
		PC	0	0	2	1

Objectives

- Understand design thinking principles and apply them to engineering innovation and problem-solving.
- Identify real-world engineering problems using brainstorming and mind mapping and explore problem spaces through secondary research techniques.
- Conduct primary research to gather user insights and ensure a user-centered design approach.
- Define and analyze problem areas to develop clear and structured problem statements.
- Generate innovative and feasible solutions for identified engineering problems.

Pre-requisites

-Nil-

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Understand design thinking principles for engineering innovation.	understand
CO2	Identify real-world engineering problems using brainstorming, mind mapping, and explore problem spaces using secondary research methods	Apply
CO3	Conduct primary research to gather insights from diverse perspectives, ensuring a user- centered approach in problem-solving.	Apply
CO4	Analyze problem areas and formulate clear, actionable problem statements.	Analyse
CO5	Develop innovative and feasible ideas for defined engineering problems.	Create

Mapping with Programme Outcomes

COs	POs											PSOs		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
CO1	3	1	-	-	-	-	-	2	2	1	1			
CO2	3	3	1	1	2	3	-	2	2	1	-			
CO3	3	2	1	2	2	-	2	2	2	1	-			
CO4	3	3	2	2	-	-	-	2	2	1	-			
CO5	3	2	3	1	2	2	2	2	2	1	1			
3 - Strong; 2 - Medium; 1 - Some														

Assessment Pattern

Review I (CO1)		Review II (CO2,CO3,CO4)				Review III (CO5)			Total (R1+R2+ R3)	Internal
Study problem and corresponding solutions developed using design thinking principles.	Case study report	Selection of Problem	Secondary and Primary Research	Redefine the problem	Presentation	Ideas	Evaluate Ideas & User feedback	Presentation	Total	

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BoS Chairman

15	5	5	30	5	10	10	10	10	100	60

Report and Presentation (CO1, CO2, CO3, CO4 & CO5)				External
Report	Presentation	Viva Voce	Total	
40	40	20	100	40

K.S.Rangasamy College of Technology – Autonomous R2026								
26CS201L - Innovation and Design Thinking								
Semester	**Hours/Week**			**Total Hrs**	**Credit**	**Maximum Marks**		
	L	T	P		C	CA	ES	Total
II	0	0	2	30	1	60	40	100

Design Thinking and Innovation Process Introduction to Design Thinking and Innovation - Design, Design Thinking, Innovation - Stages of Design Thinking Process – Case Study: Study the solution of solved problem.	[6]
Selection of Problem and Secondary research on Problem Space Understanding real-world engineering and societal problems, Identification and Selection of Problem to Solve, Tools - Brain-storming and Mind-mapping. Secondary Research: Information Gathering: from past and existing, Ask questions: Why, who, what, where, when, how, 5Ws and 1H Matrix Table.	[6]
Primary research on Problem Space User Participant Mapping, Primary research - AEIOU framework (Activities, Environment, Interaction, Objects, Users) - Observation, Conversations, Questionnaires, Documentation - Conducting Contextual Inquiry	[6]
Analysis of Problem Space Identify, Classify, Compare, Prioritize, and Cross-relate information – Personas and Observations, Inference, Opportunities, and Recommendations (OIOR) - Redefining the Problem Statement with primary and secondary objectives.	[4]
Ideation Generating Creative ideas - Idea Sketching, Brainstorming for Ideas, SCAMPER, Creativity and Lateral thinking- Develop concept maps and evaluate ideas based on defined objectives and user feedback.	[8]
Total Hours:	30

Reference

1.
- NPTEL: Design Thinking and Innovation by Prof. Ravi Poovaiah, IDC School of Design, IIT Bombay. https://onlinecourses.swayam2.ac.in/aic23_ge17/preview, https://dsource.in/dti
- NPTEL: Design, Technology and Innovation by Prof. B. K. Chakravarthy, IDC School of Design, IIT Bombay. https://onlinecourses.nptel.ac.in/noc20_de03/preview
- NPTEL: Innovation by Design by Prof. B. K. Chakravarthy, IDC School of Design, IIT Bombay, https://onlinecourses.swayam2.ac.in/aic19_de02/preview.,
- www.dsource.in , The Resource for Design by e-Kalpa Design Team, IDC, IIT Bombay,DoD, IIT Guwahati & NID, Bengaluru.

Course Designer(s)

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