

KG COLLEGE OF ARTS AND SCIENCE Autonomous Institution | Affiliated to Bharathiar University Accredited with A++ Grade by NAAC ISO 9001:2015 Certified Institution

KGISL Campus, Saravanampatti, Coimbatore - 641 035

# **Regulations 2025-26 for Undergraduate Programme**

Learning Outcomes Based Curriculum Framework - (LOCF) model with

Choice Based Credit System (CBCS)

#### Programme: B.Sc. Computer Technology (B.Sc. CT)

## **Programme Code: BCT**

(Applicable for the Students admitted during the Academic Year 2025 - 26 onwards)

#### Eligibility

The Student should have passed Higher Secondary Examination and wherever the students have not studied mathematics knowledge be imparted through Residential/Bridge Course. (As per the eligibility condition given Ref. BU/R/B3-B4/Eligibility Condition/2025/7960 dated 08/05/2025).

#### **Program Learning Outcomes (PLOs)**

The successful completion of the B.Sc. CT Programme shall enable the students to:

PLO1	Acquire strong fundamental technical knowledge in the current computational demands.
PLO2	Possess skills in different contemporary programming languages and use development tools
PLO3	Incorporate advanced skills in designing, building and integrating computer networks to become Network Engineer
PLO4	Recognize the need and to develop the ability to involve independent lifelong learning in changing the era of technology.
PLO5	Abide by ethical principles and commit to professional responsibilities for relevant technical practices.

Part	Course Category	No. of. Courses	Hrs	Hrs.		То	tal	Semester
Ι	Language – I	4	4 X 4	16	4 X 3	12	12	1 - 4
Π	Language – II	4	4 X 4	16	4 X 3	12	12	1 - 4
	Core Theory (6 hrs/Week)	4	4 X 6	24	4 X 4	16		3,6
	Core Theory (5 hrs/Week)	9	9 X 5	45	9 X 4	36		1,2,4,5
	Core Lab (4 hrs/Week)	4	4 X 4	16	4 X 2	8		1 - 4
III	Core Lab (5 hrs/Week)	3	3 X 5	15	3 X 3	9		5,6
	Allied	4	4 X 4	16	4 X 3	12		1 – 4
	Electives	2	2 X 5	10	2 X 3	6		5,6
	Project	1	1 X 6	6	1 X 5	5		6
	Internship (IT)	1	-	-	1 X 2	2		5
	Skill Enhancement (SEC)	3	3 X 2	6	3 X 2	6		3, 4, 6
	Foundation Course (FC)	2	2 X 2	4	3 X 2	6		1 - 2
	Foundation Course (FC)	1	1 X 2	2	2 X2	4		3
IV	Ability Enhancement Compulsory Course (AECC)	3	3 X 2	6	3 X 2	6	14	1, 2, 4
	Ability Enhancement Compulsory Course (AECC) - Online Course - MOOC	1	-	-	1 X 2	2		3
V	Liberal Arts (Extra-curricular and Co-curricular)	-	-	-	2	2	2	4
	Total	46		180		140	140	

## **B.Sc. Computer Technology Distribution of Credits and Hours for all the Semesters**

#### Consolidated Semester wise and Component wise Hours and Credits Distribution

~	Pa	art I	Pa	rt II	Pa	rt III	Pa	rt IV	P	art V	Т	otal
Semester	Hrs.	Credits										
1	4	3	4	3	18	13	4	4	-	-	30	23
2	4	3	4	3	18	13	4	4	-	-	30	23
3	4	3	4	3	22	15	-	4	-	-	30	25
4	4	3	4	3	20	15	2	2	-	2	30	25
5	-	-	-	-	30	23	-	I	-	-	30	23
6	-	-	-	-	30	21	-	-	-	-	30	21
Total	16	12	16	12	138	100	10	14	-	2	180	140

**Department of Computer Technology** 

# Semester - 1

# Curriculum

# **B.Sc.** Computer Technology

Semester – I									
G				<b>TT</b> (	Examination				
Course Code	Part	Course Category	Course Name	Hrs. / week	Duration	Max Marks			Credits
					in hrs.	CIA	ESE	Total	
25TAM11L	Ι		Tamil – I						
25HIN11L	Ι	TT	Hindi – I						
25MAL11L	Ι	Language - 1	Malayalam – I	4	3	25	75	100	3
25FRE11L	Ι		French – I						
25ENG12L	II	Language – II	English – I	4	3	25	75	100	3
25BCT13C	III	Core – I	Python Programming	5	3	25	75	100	4
25BCT14P	III	Core Lab - I	<b>Lab:</b> Python Programming	4	3	40	60	100	2
25BCT15C	III	Core – II	Foundations of Networking and Cybersecurity	5	3	25	75	100	4
25BCT16A	III	Allied – I	Numerical Methods and Statistics	4	3	25	75	100	3
25ENV1FC	IV	FC – I	Environmental Studies	2	2	50	-	50	2
25SOF1AE	IV	AECC – I	Soft Skills	2	2	-	50	50	2
		Total		30				700	23

<b>Course Code</b>	Course Code Course Name		Hours / Week	Credits	
25TAM11L	Tamil – I	Language – I	4	3	

- இலக்கிய வளர்ச்சியை அறிந்து கொள்ளுதல்
- இலக்கியம் படைக்கும் திறன்
- இலக்கிய இலக்கண உரைசெய்தல்
- திறனாய்வு முறையினைக் கற்றுத்தேர்தல்

## **Course Learning Outcomes**

CLO	CLO Statements	Knowledge Level				
CLO1	புதுக்கவிதையின் மூலம் வாழ்வியல் விழுமியங்களை உணர்ந்து கொள்ளுதல்.	K1, K2				
CLO2	சிறந்த மற்றும் வாழும் கவிஞர்களை அறிந்து கொள்ளுதல்.	K2, K3				
CLO3	சிறந்த படைப்பாளர்களின் சிறுகதையில் வெளிப்படும் சமூகச் சிந்தனைகளை அறிந்து விழிப்புணர்வைப் பெறுதல்.	K3				
CLO4	தற்கால இலக்கியங்களான புதுக்கவிதை, சிறுகதை தோன்றி வளர்ந்த பின்புலத்தை அறிதல்.					
CLO5	மொழியைப் பிழையின்றி பேச எழுத கற்கத் தேவையான தமிழ் இலக்கணத்தின் இன்றியமையாமையை உணர்தல். நடைமுறை வாழ்வியலுக்குத் தேவைப்படும் ஆங்கிலக் கடிதத்தைத் தமிழாக்கம் செய்தலுக்கான பயிற்சி அடைதல்.	K2, K3				
<b>K1</b> - Remember; <b>K2</b> - Understand; <b>K3</b> – Apply.						

Unit	Content							
	நாட்டுப்பற்று							
	1. உலகத்தை நோக்கி வினவுதல் - பாரதியார்							
	2. பாரதிதாசன் கவிதைகள் - பாரதிதாசன்							
	∙ தமிழ்ப்பேறு							
	3. ஒற்றுமையே உயிர்நிலை - நாமக்கல் கவிஞர்							
I.	4. தேவதேவன் கவிதைகள் - தேவதேவன்	1/						
I	<ul> <li>சாலையும் மரங்களும் செருப்பும்</li> </ul>	17						
	∙ புதிய வீடு							
	5. ஆலாபனை - கவிக்கோ அப்துல் ரகுமான்							
	• போட்டி							
	• பாதை							
	6. புத்தகச் சந்தை - கவிஞர் வாலி							
	சமூகம்							
	1. எட்டாவது சீர் ஈரோடு தமிழன்பன்							
	2. தொலைந்து போனேன் - கவிஞர் தாமரை							
П	3. திருநங்கைகள் காகிதப் பூக்கள் - நா. காமராசன்	14						
	4. மரங்களைப் பாடுவேன் - வைரமுத்து	17						
	5. புள்ளிப் பூக்கள் (ஹைக்கூ) - அமுத பாரதி							
	6.   நாட்டுப்புறப் பாடல்கள் (தாலாட்டுப் பாடல் , தெம்மாங்குப் பாடல் ,							
	உழவுத்தொழில்)							
	சிறுகதை							
	1. காஞ்சனை - புதுமைப்பித்தன்							
	2. சுமைதாங்கி - ஜெயகாந்தன்	10						
111	3. சோற்றுக் கணக்கு - ஜெயமோகன்	12						
	4. ஆறு யானைகள் - எஸ்.ராமகிருஷ்ணன்							
	5. மரத்தைக் கர்ப்பம் சுமந்தவள் - ஆண்டாள் பிரியதர்சினி							

# Part – I: Tamil – I

Unit	Content	No. of Hours					
	இலக்கிய வரலாறு	nours					
	1. மரபுக்கவிதையின் தோற்றமும் வளர்ச்சியும்						
1\7	<b>2.</b> புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்	10					
ĨV	3. ஹைக்கூ கவிதையின் தோற்றமும் வளர்ச்சியும்	10					
	சிறுகதையின் தோற்றமும் வளர்ச்சியும்						
	இலக்கணம்						
	1. எழுத்துகள் (முதல் எழுத்துகள், சார்பெழுத்துகள்)						
	2. எழுத்துக்களின் பிறப்பு	10					
	3. மாத்திரைகள்						
	4. பயிற்சிக்குரியன - மொழிபெயர்ப்பு						
	(ஆங்கிலத்திலிருந்து தமிழுக்கு மொழிபெயர்த்தல்)						
	Total Hours	60					

Reference Books								
1	பேரா. குருசாமி, ம.ரா.போ. (2014), பாரதி பாடல்கள், ஆய்வுப் பாதிப்பு, , தமிழ்ப்							
	பல்கலைக் கழகம், தஞ்சாவூர்.							
2	அப்துல் ரகுமான்,(2000), ஆலாபனை, கவிக்கோ பதிப்பகம்							
3	தாமரை கவிதைகள், (2012), நியூ செஞ்சுரி புக் ஹவுஸ்							
4	வரதராசனார் மு, (2021), தமிழ் இலக்கிய வரலாறு, சாகித்ய அகாடமி பதிப்பு.							
5	முனைவர் பஞ்சாங்கம் கா, (2017), தமிழ் இலக்கிய வரலாறு, காவ்யா பதிப்பகம்.							
6	முனைவர் வேங்கடராமன் கா. கோ (2008), தமிழ் இலக்கிய வரலாறு, கலையக வெளியீடு.							
7	பரந்தாமனார் அ.கி. (2002), நல்ல தமிழ் எழுத வேண்டுமா?, அல்லி நிலையம்.							
8	ராமகிருஷ்ணன் எஸ் (2006), 100 சிறந்த சிறுகதைகள் ( தொகுதி 1 & 2 ) பதிப்பகம்:							
0	தேசாந்திரி பதிப்பகம்							

Reference Books					
9	குமரன் கோ (2010), தமிழ் இலக்கணம் எளிய அறிமுகம் , சந்தியா பதிப்பகம்				
10	சக்திவேல் சு,(2012), நாட்டுப்புறவியல், மணிவாசகர் பதிப்பகம்				

<b>Question Pattern</b>			
காலம் : 3 மணி நேரம்			மொத்த மதிப்பெண்கள் : 75
	பிர்	ிவு – அ	10x1=10
∙ சரியான விடையை	த் தே	ர்ந்தெடுத்து	எழுதுக.
	പി	ரிவு – ஆ	5x5=25
• செய்யுள்	-	1 வினா	
• செய்யுள்	-	1 வினா	
∙ சிறுகதை	-	1 வினா	
• இலக்கிய வரலாறு	-	1 வினா	
● இலக்கணம்	-	1 வினா	
	പി	ரிவு – இ	5x8=40
• செய்யுள்	-	1 வினா	
• செய்யுள்	-	1 வினா	
∙ சிறுகதை	-	1 வினா	
• இலக்கிய வரலாறு	-	1 வினா	
• மொழிபெயர்ப்பு	-	1 வினா	

Course Code	Course Name	Category	Hours / Week	Credits
25HIN11L	Hindi - I	Language – I	4	3

- Improves grammatical knowledge
- Will continue to read and learn about articles and think about them
- It is possible to read and understand short stories and understand the thoughts and life of the people of this state
- Translation knowledge and the ability to read and analyze a message are also available

#### **Course Learning Outcomes**

CT O		Knowledge	
CLO	CLO Statements	Level	
CLO1	Understand the text styles and grammatical elements	K1, K2	
CLO2	Discuss the content of a reading passage	K2, K3	
CLO3	Develop an interest in the appreciation of short stories	K3	
CLO4	Comprehend the grammatical structures and sentence making	K1, K3	
CLO5	Understand the language and developing English to Hindi translation skill	K2, K3	
K1 - Remember; K2 - Understand; K3 - Apply			

Unit	Content	Hours
	Prose : Nuthan Gadya Sangrah	
	Lesson 1 – Bharathiya Sanskurthi - Dr.Rajendra Prsad	
	Lesson 3 – Razia - Ramaviksha Benipuri	
	Lesson 4 – Makreal - Yespal	14
I	Lesson 5 – Bahtha Pani Nirmala - 'Ageya'	
-	Lesson 6 – Rashtrapitha Mahathma Gandhi - Mukthibodh	
	Lesson 9 – Ninda Ras - Harishankar Parsayi.	
	Non Detailed Text Short Stories: Kahani Kunj	
	Pareksha - Premchand	
	Mamtha - Jayashankar Prasad	
	Apna paraya - Jaynendrakumar	14
П	Admi ka bachcha - Yespal	
	Bolaram ka jeev - Harishankar Parsayi	
	Vapasi - Mannu Bhandari	
	Grammar: Shabdha Vichar Only	
III	(Noun, Pronoun, Adjective, Verb, Tense, Case, Endings) Theoretical & Applied.	12
	Translation: English – Hindi Only.	
IV	Anuvadh Abhyas – III (1-15 Lessons Only)	10
	Comprehension:	
V	1 Passage From Anuvadh Abhyas–III (16-30)	10
	Total Hours	60

# Part – I: Hindi – I

Text Boo	ks
1	Jayaprakash, (2009), Nuthan Gadya Sangrah, Publisher : Sumitra Prakashan Sumitrava 16/4, Hastings Road, Allahabad – 211001.
2	Amithab. V.P. (2011), Kahani Kunj, Publisher : Govind Prakashan Sadhar Bagaar, Mathura Uttar Pradesh,–281 001

#### KG College of Arts and Science (Autonomous)

Course Code	Course Name	Category	Hours / Week	Credits
25MAL11L	Malayalam - I	Language – I	4	3

#### **Course Objectives**

- Improves grammatical knowledge
- Will continue to read and learn about articles and think about them
- It is possible to read and understand short stories and understand the thoughts and life of the people of this state
- Translation knowledge and the ability to read and analyze a message are also available
- Translation knowledge and the ability to read and analyze a message are also

#### **Course Learning Outcomes**

CLO	CLO Statements	Knowledge Level	
CLO1	Understand the text styles and grammatical elements	K1	
CLO2	Discuss the content of a reading passage	K1	
CLO3	Develop an interest in the appreciation of short stories	K2	
CLO4	Comprehend the grammatical structures and sentence making	К3	
CLO5	Understand the language and developing English to Malayalam translation skill	K4	
K1 - Remember; K2 - Understand; K3 – Apply; K4-Analyse.			

Unit	Content	Hours
Ι	Novel – Pathummayude Aadu - Vaikam Muhammed Basheer	14
II	Novel Pathummayude Aadu - Vaikam Muhammed Basheer	14
III	Short Story - Ente Priyappeta Kadhakal – (Akbar Kakkattil)	12
IV	Short Story - Ente Priyappeta Kadhakal – (Akbar Kakkattil)	10
V	Composition & Translation (English to Malayalam)	10
	Total Hours	60

# Part – I: Malayalam – I

Text Books	s
1	Vaikam Muhammed Basheer, (2012), Novel- PathummayudeAadu, D.C.Books, Kottayam, Kerala
2	Akbar Kakkattil, (2009), Short Story - Ente Priyappeta Kadhakal
<b>Reference</b>	Books
1	Tharakan K.M, (2016), Malayala Novel SahithyaCharitram, N.B.S.Kottayam.
2	Achuyuthan M, (2014), Cherukatha Innale Innu-M.Achuyuthan D.C Books, Kottayam.
3	Dr George K.M,(2011) Sahithya CharitramPrasthanangalilude, D.C.Books Kottayam.
4	Sukumar Azheekode, (2015), Malayala Sahithyavimarsam, D.C.Books

Course Code	Course Name	Category	Hours / Week	Credits
25FRE11L	French - I	Language – I	4	3

To understand, speak, read and write simple, standard speech which is very slow and is carefully articulated and can recognize familiar words and very basic phrases concerning themselves, their family and immediate concrete surroundings when people speak slowly and clearly.

#### **Course Learning Outcomes**

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

CLO	Course Outcome	Knowledge Level	
CLO1	Comprehend basic vocabulary	K1	
CLO2	Understand basic syntax and grammar patterns	K2	
CLO3	Converse slowly in known situations	K2	
CLO4	Translate small basic sentences	К3	
K1 - Remember; K2 - Understand; K3 - Apply			

#### Part – I: French – I

Unit	Content	Hours		
т	Etape 0	14		
I	Etape1- (Lecons 1 - 3)	14		
II	Etape2- (Lecons 1 - 3)	14		
Ш	Etape 3 – (Leçons $1 - 2$ )	12		
R.	Etape 3 – (Leçon 3)	10		
Ĩv	Etape 4 – (Leçon 1)	10		
V	Etape 4 – (Leçons $2 - 3$ )	10		
	Total	60		
Text Book				
1	Céline Himber, Corina Brillant, Sophie Erlich, (2008), Adomania 1 – Methode de			
1	francais, Publisher - Hachette Fle.			
Reference	Book			
1Yves Loiseau, Régine, (2014), Latitudes 1, Merieux Publisher: French and European Publications Inc.				

Course Code	Course Name	Category	Hours / Week	Credits
25ENG12L	English - I	Language II	4	3

The course intends to cover

- Various genres of literature.
- Active and passive vocabulary.
- Usage of Grammar and Communication.

#### **Course Learning Outcomes**

CLO	CLO Statements	Knowledge Level
CLO1	Identify aesthetic sense and appreciate poetry, enhancing creativity and understanding relevant to professional environments.	K1
CLO2	Understand diverse styles of prose, facilitating versatility in writing and inculcating interpersonal skills.	K2
CLO3 Apply the characters and the narrative techniques in creative writing and content creation ethically.		
CLO4	Employ vocabulary and grammatical proficiency in communication to enhance clarity in workplace interactions.	К3
CLO5	Enhance overall communication competence. Practicing these skills in combination reinforces learning and provides students with opportunities to use the language in authentic contexts.	K3
	K1 - Remember; K2 - Understand; K3 - Apply	

# Part - II: English – I

Unit	Content	No. of Hours
I	<ul> <li>Poetry : Nature</li> <li>1. I Wandered Lonely as a Cloud - William Wordsworth</li> <li>2. The Sparrow - Paul Laurence Dunbar</li> <li>3. Stopping by woods on a snowy Evening – Robert Frost</li> </ul>	12
II	<ul> <li>Prose : Friendship</li> <li>1. The Man in Black - Oliver Goldsmith</li> <li>2. Of Friendship - Francis Bacon</li> <li>3. The Blessing of Friends - Sir John Lubbock</li> </ul>	12
ш	<ul> <li>Short Stories: Morality</li> <li>1. The Necklace – Guy de Maupassant</li> <li>2. The Lottery - Shirley Jackson</li> <li>3. The Monkey's Paw - W. W. Jacobs</li> </ul>	12
IV	Language Competency 1. Vocabulary : Synonyms, Antonyms, Word Formation 2. Parts of Speech 3. Error correction	12
V	<ul> <li>English for Communication</li> <li>1. Listening for General and Specific Information.</li> <li>2. Self - Introduction, Introducing others, Greetings.</li> <li>3. Reading a prose passage, Reading a poem and Reading a short story</li> <li>4. Descriptive writing – Writing a short descriptive essay of two to three paragraphs.</li> </ul>	12
	Total Hours	60
Text I	Books	
l.	Zama, M. (2004). Poetry Down the Ages. Orient Blackswan.	
2.	Goldsmith, O. (1869). The Works of Oliver Goldsmith. J. Dicks	
3.	Bacon, F., & Montagu, B. (1857). The Works of Francis Bacon (Vol. 1). Parry & McM	illan.
Refer	ence Books	
1.	Kumar, V. T. Bhavani, Durga.K. Srinivas.YL. (2018). English in use - A textbook for College Students. (English, Paperback).	
2.	Swan, M. (2005). Practical english usage (Vol. 7). Oxford: Oxford university press.	
Web	Resources (Swayam / NPTEL)	
1.	https://nptel.ac.in/courses/109105205	

Course Code	Course Name	Category	Hours / Week	Credits
25BCT13C	Python Programming	Core - I	5	4

This course intends to cover

- Core syntax and semantics of Python programming language.
- Process of structuring the data using lists, dictionaries, tuples and sets

#### **Course Learning Outcomes**

CLO	CLO Statements	Knowledge Level		
CLO1	Remember the fundamentals of solving problems with computers and execute simple Python programs.	K1		
CLO2	Learn the Basic Programming constructs in Python.	K2		
CLO3	Understand the basic functions in Python Programming.	K2		
CLO4	Use compound data using Python data structures - lists, tuples, dictionaries etc.	K3		
CLO5	Apply data from/to files in Python programs.	К3		
<b>K1</b> - Remember; <b>K2</b> - Understand; <b>K3</b> - Apply				

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

# **CLO – PLO Mapping**

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	3	2	1	-	-
CLO2	2	2	2	1	-
CLO3	3	1	1	-	1
CLO4	1	2	1	2	2
CLO5	3	2	1	2	3
3 - Substantial (high)		2 – Modera	te(medium)	1 - Slight	(low)

# **Core - I: Python Programming**

Unit	Content	No. of Hours
Ι	<b>Introduction:</b> The essence of computational problem solving – Limits of computational problem solving - Computer Algorithms - Computer Hardware - Computer Software - process of computational problem solving - Python programming language - Literals - Variables and Identifiers - Operators - Expressions and Data types, Input / Output.	15
II	<b>Control Structures:</b> Boolean Expressions - Selection Control - If Statement Indentation in Python - Multi-Way Selection - Iterative Control - While Statement- Infinite loops - Definite vs. Indefinite Loops - Boolean Flag. String, List, Tuple, Manipulations.Building blocks of Python programs, Understanding and using range-Slicing.	15
III	<b>Functions:</b> Program Routines- Defining Functions- More on Functions: Calling Value - Returning Functions - Calling Non-Value – Returning Functions-Parameter Passing - Keyword Arguments in Python – Default Arguments in Python-Variable Scope. <b>Recursion:</b> Recursive Functions. Decorators. <b>Modular Design</b> : Modules - Top-Down Design - Python Modules.	15
IV	<b>Objects and their use</b> : Software Objects - Turtle Graphics – Turtle Attributes. <b>Text Files:</b> Opening, reading and writing text files. <b>Database Programming:</b> Connecting to a database, <b>C</b> reating Tables, <b>R</b> ead, <b>U</b> pdate, <b>D</b> elete (CRUD) and Insert operations, Transaction Control, Disconnecting from a database, String Processing – Exception Handling.	15
V	<b>Dictionaries and Sets</b> : Dictionary type in Python - Set Data type. <b>Object</b> <b>Oriented Programming using Python</b> : Encapsulation - Inheritance – Polymorphism. <b>Python packages:</b> Simple programs using the built-in functions of packages matplotlib, numpy, pandas etc.	15
	Total Hours	75
Text Book	S	1
1	Wesley J. Chun (2016), Core Python Applications Programming, Pearson Edu Edition.	acation,3 <sup>rd</sup>
2	Charles Dierbach (2015), Introduction to Computer Science using Python - A com Problem-solving Focus, Wiley India Edition.	putational
Reference	Books	
1	Mark Lutz (2018), Learning Python Powerful Object-Oriented Programming Media, 5 <sup>th</sup> Edition.	, O'reilly
2	John Zelle (2013), Python Programming: An Introduction to Computer Scienc Technology Cengage Learning Publications, 2 <sup>nd</sup> Edition, ISBN 978-1590282410	e, Course
3	Timothy A. Budd (2011), Exploring Python, Tata McGraw Hill Education Private 1 <sup>st</sup> Edition.	e Limited,
Web Reso	urces (Swayam / NPTEL)	
1	https://onlinecourses.swayam2.ac.in/cec22_cs20/preview	
2	https://onlinecourses.nptel.ac.in/noc21_cs32/preview	

	Course Code	Course Name	Category	Hours / Week	Credits		
	25BCT14P	Lab : Python Programming	Core Lab - I	4	2		
<b>S.</b> N	0.	. Programs					
	Sample Prog	grams- Lists, Tuples, Dictionaries,	Decorators and of	hers.			
1	Program to o depending u	convert the given temperature from pon user's choice.	Fahrenheit to Ce	lsius and vice	e versa		
2	Program to f parameters f	find the area of rectangle, square, c from user.	ircle and triangle	by accepting	suitable input		
3	Write a Pyth	on script that prints prime number	s less than 20.				
4	Program to f	find factorial of the given number	using recursive fu	nction.			
5	Write a Pyth numbers.	on program to count the number o	f even and odd nu	mbers from a	array of N		
6	Write a Pyth	on class to reverse a string word b	y word.				
7	Given a tupl list in the tu	e and a list as input, write a progra ple. (Input : tuple = ('a', 'a', 'c', 'b', 'o	m to count the oc d'), list = ['a', 'b'],	currences of a Output : 3)	all items of the		
	Create a Sav	vings Account class that behaves ju	st like a Bank Ac	count, but als	o has an		
8	interest rate (Hint: use In	and a method that increases the ba heritance).	lance by the appro	opriate amour	nt of interest		
	Python prog	ram to construct the following patt	ern, using a neste	d loop			
		*					
		***					
0		****					
9		****					
		****					
		***					
		**					
10	Pood o filo o	reportent and conv only the contents	at add lines into a	now file			
10	Create a Tur	tle graphics window with specific	size	l new me.			
12	Python prog	ram for Towers of Hanoi using rec	sursion.				
13	Create a me	nu driven Python program with a d	ictionary for word	ls and their n	neanings.		
14	Devise a Pyt	thon program to implement the Ha	ngman Game.		8		
	Program to	create student database and calc	ulate total marks	, percentage	and grade of a		
	student. Ma	student. Marks obtained in each of the five subjects are to be input by user. Assign grades					
	according to	according to the following criteria:					
15	GradeA: Per	GradeA: Percentage >=80					
_	GradeB: Per	GradeB: Percentage>=70 and 80					
	GradeC: Per	centage >= 60 and < 70					
	GradeF. Per	centage $< 40$ and $<00$					
	Canstone P	roject : "Weather Data Analysis a	nd Visualization"	(Using Pythe	on libraries like		
	matplotlib, r	numpy, and pandas to process and	visualize weather	data)			
	1 1			Ť	otal Hours 60		

# **Core Lab - I: Python Programming**

Text B	ooks
1	Charles Dierbach (2015), Introduction to Computer Science using Python - A computational
1	Problem-Solving Focus, Wiley India Edition.
C	Wesley J. Chun (2016), Core Python Applications Programming, Pearson Education, 3 <sup>rd</sup>
Z	Edition.
Refere	nce Books
1	Mark Lutz (2018), Learning Python Powerful Object Oriented Programming, O'reilly Media,
	5 <sup>th</sup> Edition.
2	John Zelle (2013), Python Programming: An Introduction to Computer Science, Course
Z	Technology Cengage Learning Publications, 2 <sup>nd</sup> Edition, ISBN 978-1590282410
2	Timothy A. Budd (2011), Exploring Python, Tata McGraw Hill Education Private Limited,
3	1 <sup>st</sup> Edition.
Web R	esources (SWAYAM / NPTEL Courses)
1	https://onlinecourses.swayam2.ac.in/cec22_cs20/preview
1	https://oninecourses.swayani2.ac.in/ccc22_cs20/preview
2	https://onlinecourses.pptel.ac.in/noc21_cs32/preview
4	

Course Code	Course Name	Category	Hours / Week	Credits
25BCT15C	Foundations of Networking and Cybersecurity	Core II	5	4

This course intends to cover

- Understand the basics of networking, OSI model and key protocols like TCP and UDP
- Identify and understand networking devices.
- Use tools to simulate network scenario.

# **Course Learning Outcomes**

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

CLO	CLO Statements	Knowledge Level
CLO1	Understand basic networking concepts and protocols.	K2
CLO2	Understand network device functions and recognize common security threats	K2
CLO3	Understand and detect the cyberattacks like spoofing and tunneling.	K2,K3
CLO4	Analyze and implement static and dynamic routing, WAN technologies.	K4
CLO5	Analyze and configure Access Control Lists.	K4
	K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze	

## **CLO – PLO Mapping**

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	3	1	3	2	2
CLO2	1	3	3	2	2
CLO3	2	2	3	3	3
CLO4	1	1	3	2	2
CLO5	1	2	3	3	1
3 - Substantial (high)		2 - Modera	te (medium)	1 - Sli	ght (low)

Core - II: Foundations of Networking and Cybersecurity			
Unit	Content	No. of Hours	
Ι	<ul> <li>Introduction to Networking: What is a Network?- Local Area Network (LAN)- Wide Area Network (WAN)-Types of Mode</li> <li>Open Systems Interconnection (OSI) Model: Why we Need Open Systems Interconnection (OSI)- Open Systems Interconnection (OSI) Layers-Transmission Control Protocol (TCP) / User Datagram Protocol (UDP)- 3 Way Hand Shake-Real-world attack examples at each OSI layer-Packet sniffing using Wireshark</li> <li>TCP/IP Model: Need of Transmission Control Protocol (TCP) / Internet Protocol (IP) Model-Transmission Control Protocol (TCP) / Internet Protocol (IP) Model-Transmission Control Protocol (TCP) / Internet Protocol (IP) Model-Transmission Control Protocol (TCP) / Internet Protocol (IP) Addition.</li> <li>1. Real-world attack examples at each OSI layer.</li> <li>2. Packet sniffing using Wireshark.</li> <li>3. TCP 3-Way Handshake with attack simulation</li> </ul>	15	
Π	<ul> <li>Sub Netting: Subnetting-Classless Inter Domain Routing (CIDR)- Create Subnets-Understanding Variable Length Subnet Masks (VLSM)- Private Internet Protocol (IP) Addresses-How subnetting helps with network segmentation for Zero Trust.</li> <li>Packet Flow in Same &amp; Different Network: Domain Name System (DNS) and Working-Map Hostnames to Internet Protocol (IP) Addresses-Configure Cisco Device as Domain Name System (DNS) Client-How to Configure a Cisco Router as a DNS Server? - no Internet Protocol (IP) domain-lookup Command-Address Resolution Protocol (ARP)-Analyze DNS tunneling, DNS spoofing attacks.</li> <li>Information about Networking Device: Network Devices-Hubs-Switch-Carrier Sense Multiple Access with Collision Detection (CSMA CD)- Collision &amp; Broadcast Domain-How Switches Work? - Layer 2 Switching- Router-Layer 3 Switch and working- threat detection.</li> <li>1. Design a segmented network for HR, IT, DevOps, and isolate with firewall rules.</li> <li>2. Use Wireshark to detect a suspicious DNS .</li> <li>3. Simulate port mirroring and analyze mirrored traffic.</li> </ul>	15	
III	<ul> <li>Internet Protocol (IP) / Internet Control Message Protocol (ICMP): What is Internet Control Message Protocol, How Ping process works, How Extended Ping Command works, what is Traceroute, How Traceroute Command works, show processes Command in detailed to map protocols-What is Ping sweeps Cyber Attacks, what is ICMP tunneling- Cyber Attacks- How to Detect ICMP misuse in Cyber Security Industry.</li> <li>Automatic Private IP Addressing (APIPA): What is APIPA, why do we need of APIPA, How APIPA works.</li> <li>Address Resolution Protocol (ARP): What is Address Resolution Protocol (ARP)- Need and type of (ARP)- What is ARP poisoning &amp; spoofing, Perform demo for Cyber Industry.</li> <li>Routing Protocols (Static &amp; Dynamic): What are Routing Protocols- Comparing Internal Routing Protocols (IGPs)- Administrative Distance &amp; Metric- Equal Cost Multi-Path (ECMP) Explanation &amp; Configuration - Understanding Loopback Interfaces and Loopback Addresses - Passive-interface Command-Security risks in routing protocols (BGP hijack, OSPF poisoning)- How attackers use static routes to pivot within the network.</li> <li>1. Simulate ICMP scanning with Nmap and monitor traffic.</li> <li>2. Analyze ARP poisoning in a test environment.</li> </ul>	15	

**Department of Computer Technology** 

Unit	Content	No. of Hours
IV	<ul> <li>Static - Next Hop / Exit Interface: What is IP Routing- Local Routes and How they Appear in the Routing Table - Connected, Static, &amp; Dynamic Routes - Floating Static Route - Explanation and Configuration - Default Static Route - Create a Static Host Route.</li> <li>Dynamic - RIP / EIGRP / OSPF &amp; BGP: OSPF Overview - Differences Between OSPF and EIGRP - Cisco Bandwidth Command vs Clock Rate and Speed Commands - OSPF Routing Protocol Metric - OSPF Configuration - Designated &amp; Backup Designated Router-WAN Technologies: What is Wide Area Network - Cisco VPN- WAN Connection Types-Leased Line Definition and Explanation - Multiprotocol Label Switching (MPLS)- VPN and split tunneling risks in Cyber Industry.</li> <li>Network Address Translation (NAT): Static Network Address Translation (NAT)-Dynamic Static Network Address Translation (NAT)- Port Address Translation (PAT) Configuration- Secure site-to-site connections with IPsec.</li> <li>1. Simulate a compromised router path 2. Analyze a PCAP of a VPN session.</li> </ul>	15
V	<ul> <li>Access Control List (ACL): Access Control List and its types - Configuring Standard and Extended Access Control List (ACL)- Configuring Named Access Control List (ACL) - NAT traversal and how malwares use it – What are ACLs in firewalls – Work with Palo Alto/Cisco ASA for ACLs .</li> <li>Dynamic Host Configuration Protocol: Configure Cisco Router as Dynamic Host Configuration Protocol (DHCP) Server-DHCP Relay Agent- Configure Cisco Router as a DHCP Client- Automatic Private IP Addressing (APIPA)- Rogue DHCP server detection in Cyber Industry- MITM Cyber-attacks using DHCP starvation.</li> <li>Telnet &amp; Secure SHell (SSH): Need of Telnet &amp; Secure Shell (SSH)- Telnet &amp; Secure Shell (SSH)- Setting Up Telnet- Setting Up Secure Shell (SSH)- SSH b DHCP attack simulation using Yersinia or bettercaprute-force tools and how to detect them in logs for Cyber Industry. Virtual Local Area Network (VLAN): Configuring Access &amp; Trunk Ports- Configuring Voice Virtual and allowed Local Area Network (VLAN)- Cisco Dynamic Trunking Protocol (DTP)- Virtual Trunking Protocol (VTP) Modes and configuration- VLAN hopping attacks (e.g., double-tagging)- Proper VLAN segmentation in security zones.</li> <li>Configure ACLs to prevent port scanning.</li> <li>DHCP attack simulation using Yersinia or bettercap.</li> <li>Simulate brute-force login and analyze logs in Fail2Ban/syslog</li> <li>Simulate VLAN separation and test access control.</li> </ul>	15
	Total Hours	75
Text	Books	
1.	James F. Kurose and Keith W. Ross (2013), Computer Networking: A Top-Down Approach Education, 6 <sup>th</sup> Edition.	, Pearson
2.	Behrouz A. Forouzan (2007), Data Communications and Networking, McGraw-Hill Co Incorporated.	ompanies,

Text	Books
3.	Andrew S. Tanenbaum & David J. Wetherall (2011), Computer Networks, Prentice Hall, 5 <sup>th</sup> Edition.
4.	Lisa Bock (2019), Learn Wireshark: Confidently navigate the Wireshark interface and solve real-world networking problems, Packt Publishing Ltd.
5.	William Stallings (2007), Network Security Essentials, Prentice Hall, 3 <sup>rd</sup> Edition.
6.	Kevin R. Fall and Martin L. Stevens (2019), TCP/IP Illustrated, Volume 1: The Protocols Addison-Wesley Professional,2 <sup>nd</sup> Edition.
7.	Gary A. Donahue (2011), Network Warrior, O'Reilly Media, 2 <sup>nd</sup> Edition.
8.	Jazib Frahim, Omar Santos, Andrew Ossipov (2019), Cisco ASA: All-in-one Next-Generation Firewall, IPS, and VPN Services, CISCO Press, 3 <sup>rd</sup> Edition.
Refer	rence Books
1.	Wendell Odom (2013), CCNA Routing and Switching 200-120 Official Cert Guide Library, CISCO Press,1 <sup>st</sup> Edition.
2.	Chris Sanders (2011), Practical Packet Analysis: Using Wireshark to Solve Real-World Network Problems, No Starch Press,2 <sup>nd</sup> Edition.
3.	Laura Chappell (2012), Wireshark Network Analysis,2 <sup>nd</sup> Edition.
4.	Doug Barth, Evan Gilman (2017), Zero Trust Networks, O'Reilly Media, 1 <sup>st</sup> Edition
Web	Resources (Swayam / NPTEL)
1.	https://onlinecourses.swayam2.ac.in/cec24_cs09/preview
2.	https://onlinecourses.nptel.ac.in/noc24_ee46/preview

# **Part – III: Allied Course**

Course Code	Course Name	Category	Hours / Week	Credits
25BCT16A	Numerical Methods and Statistics	Allied	4	3

## **Course Objective**

The course intends to cover

• A set of strategies and approaches used to generate approximate solutions to mathematical problems that cannot be solved analytically.

#### **Course Learning Outcomes**

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

CLO	CLO Statements	Knowledge Level			
CLO1	Relate numerical solutions of algebraic and transcendental equations.	K1-K2			
CLO2	Understand the numerical solutions of simultaneous linear equations using different methods.	K2			
CLO3	Understand the concept of numerical solutions in differentiation and integration of functions.	K2			
CLO4	Apply measures of central tendency and measures of variation to find grouped and ungrouped data.	K3			
CLO5	Apply the results of correlation and regression analysis.	K3			
	<b>K1-</b> Remember; <b>K2</b> - Understand; <b>K3</b> – Apply;				

# **CLO – PLO Mapping**

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	3	1	1	1	1
CLO2	2	2	2	1	2
CLO3	2	2	2	1	2
CLO4	2	2	2	1	2
CLO5	1	2	2	2	1
3 - Substantial (high)		2 - Modera	ate (medium)	<b>1</b> - Sligł	nt (low)

Allied -	<b>I:</b>	Numerical	Methods	and	<b>Statistics</b>
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Unit	Content	No. of Hours			
Ι	<b>The Solution of Numerical Algebraic and Transcendental Equations:</b> Bisection Method – Iteration Method – Convergence Condition – Regula Falsi Method – Newton - Raphson Method	12			
II	Solution of Simultaneous Linear Algebraic Equations: Gauss Elimination Method - Gauss Jordan Method- Gauss Jacobi Method - Gauss Seidel Method.	12			
III	<b>Numerical Differentiation:</b> Newton's Forward Difference - Newton's Backward Difference - Derivative using Stirling's formula. <b>Numerical Integration:</b> Trapezoidal rule -Simpson's 1/3 <sup>rd</sup> and 3/8 <sup>th</sup> rules.	12			
IV	Measures of Central Tendency: Mean- Median-Mode. Measures of Dispersion: Range- Standard Deviation- Co-efficient of Variation.	12			
v	<b>Correlation:</b> Meaning and Definition- Scatter Diagram-Karl Pearson's Co- efficient of correlation-Spearman's Rank Correlation. <b>Regression:</b> Meaning and Uses of Regression -Two Regression Lines-Methods of Forming the Regression Equations.	12			
	Total Hours.	60			
Text ]	Books				
1	P. Kandasamy, K.Thilagavathy & K. Gunavathi (2007)" Numerical Methods", S. Ch Company Ltd, New Delhi. Unit I : Chapter 3 : Section 3.1 – 3.4 Unit II : Chapter 4 : Section 4.1, 4.2, 4.8, 4.9 Unit III: Chapter 9 : Section 9.1 – 9.4	and and			
2	<ul> <li>P.A.Navanitham (2023). "Business Mathematics and Statistics", Jai Publishers.</li> <li>PART II</li> <li>Unit IV: Chapter 7 : Pg. No. 159 – 250 Chapter 8 : Pg. No. 301 – 307, 325 – 368</li> <li>Unit V: Chapter 12 : Pg. No. 503 – 522, 540 – 578</li> </ul>				
Refer	Reference Books				
1.	M.K. Venkataraman (1999), "Numerical Methods in Science and Engineering", Nati Publishing Chapter 12 Pg. No. 503 – 522 company.	onal			
2.	K. Sankara Rao (2018), "Numerical Methods for Scientists and Engineers", Prent India.	tice Hall			
3	P.R.Vittal (2003), "Business Mathematics", Margham publications 2 <sup>nd</sup> edition.				
web	Kesources (Swayam / NPTEL)				
1.	https://archive.nptel.ac.in/courses/111/107/111107105/				

# **Part – IV : Foundation Courses**

Course Code	Course Name	Category	Hours / Week	Credits
25ENV1FC	<b>Environmental Studies</b>	FC- I	2	2

Unit	Content
Ι	The Multidisciplinary nature of environmental studies Definition; Scope and importance, Need for public awareness.
Π	<ul> <li>Natural Resources:</li> <li>Renewable and non-renewable resources:</li> <li>Natural resources and associated problems.</li> <li>Forest resources: Use and Over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.</li> <li>Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.</li> <li>Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.</li> <li>Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.</li> <li>Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, Case studies.</li> <li>Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.</li> <li>Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.</li> </ul>
Ш	<ul> <li>Ecosystems</li> <li>Concept of an ecosystem.</li> <li>Structure and function of an ecosystem.</li> <li>Producers, consumers and decomposers.</li> <li>Energy flow in the ecosystem.</li> <li>Ecological succession.</li> <li>Food chains, food webs and ecological pyramids.</li> <li>Introduction, types, characteristic features, structure and function of the following ecosystem: - <ul> <li>.Forest ecosystem</li> <li>a.Grassland ecosystem</li> <li>b.Desert ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).</li> </ul> </li> </ul>

Unit	Content					
IV	<ul> <li>Biodiversity and its Conservation</li> <li>Introduction-Definition: genetic, species and ecosystem diversity.</li> <li>Bio geographical classification of India.</li> <li>Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.</li> <li>Biodiversity at global, National and local levels.</li> <li>India as a mega-diversity nation.</li> <li>Hot-spots of biodiversity: habital loss, poaching of wildlife, man-wildlife conflicts.</li> <li>Endangered and endemic species of India.</li> <li>Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.</li> </ul>					
V	<ul> <li>Environmental Pollution Definition <ul> <li>Causes, effects and control measures of: -</li> <li>a. Air pollution</li> <li>b. Water pollution</li> <li>c. Soil pollution</li> <li>d. Marine pollution</li> <li>e. Noise pollution</li> <li>f. Thermal pollution</li> <li>g. Nuclear hazards</li> </ul> </li> <li>Solid waste Management: Causes, effects and control measures of urban and industrial wastes.</li> <li>Pollution case studies.</li> </ul>					
VI	<ul> <li>Social Issues and the Environment <ul> <li>From Unsustainable to Sustainable development.</li> <li>Urban problems related to energy.</li> <li>Water conservation, rain water harvesting, watershed management.</li> <li>Resettlement and rehabilitation of people; its problems and concerns. Case studies.</li> <li>Environmental ethics: Issues and possible solutions.</li> <li>Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.</li> <li>Wasteland reclamation.</li> <li>Consumerism and waste products.</li> <li>Environment Protection Act.</li> <li>Air (Prevention and Control of Pollution) Act.</li> <li>Wildlife Protection Act Forest Conservation Act.</li> <li>Issues involved in enforcement of environmental legislation.</li> </ul> </li> </ul>					

Unit	Content		
	Human Population and the Environment		
	- Population growth, variation among nations.		
	- Population explosion-Family welfare Programme.		
	- Environment and human health.		
	- Human Rights.		
	- Value Education.		
	- HIV/AIDS.		
	- Women and Child Welfare.		
	- Role of information Technology in Environment and human health.		
	- Case Studies.		
	Biosafety and Biosecurity		
	The basic principles of biosafety.		
	- Biological nazards and assess risk in laboratory settings.		
	- Blosafety protocols to minimize fisks associated with blological agents.		
	- Kole of blosalety in the protection of public health, environment, and hationalsecurity.		
VII	biosofety challenges		
	1 Introduction to Biosafety		
	- Definition and importance of biosafety		
	- Historical perspective on biosafety incidents		
	- Biosafety vs. biosecurity: Key differences		
	2. Biological Hazards and Risk Assessment		
	- Classification of biological agents (e.g., bacteria, viruses, fungi, parasites).		
	- Risk assessment methodology: Identifying hazards, evaluating risks, and control		
	measures.		
	3. Biological Waste Management		
	- Types of biological waste: Solid, liquid, sharps, etc.		
	- Waste disposal techniques: Autoclaving, incineration, chemical disinfection.		
	- Environmental impact and regulations surrounding waste management.		
	4. Standard Operating Procedures (SOPs) and Safety Practices		
	- Developing and implementing SOPs for laboratory safety.		
	- Practices for handling, storing, and disposing of biological materials.		
	Field Work (Practical).		
	- Visit to a local area to document environmental assets-river/forest/grassland/		
VIII	hill/mountain.		
	- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.		
	- Study of common plants, insects, birds.		
	- Study of simple ecosystems-pond, river, nill slopes, etc.		
	Total Hours. 30		
Web	Resources		
1.	https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf		
2.	Biosafety in Microbiological and Biomedical Laboratories (CDC, NIH). (BMBL) 6 <sup>th</sup> Edition		
3.	Sateesh, M. K. (2010). Bioethics and Biosafety. New Delhi: I. K. International Pvt Ltd.		
	Additional Readings: Relevant journal articles, government publications, and guidelines (e.g.,		
4. WHO, CDC, European Union, etc.).			
	https://www.iberdrola.com/innovation/what-is-biosafety		

# Part – IV : Ability Enhancement Compulsory Courses(AECC)

Course Code	Course Name	Category	Hours / Week	Credits
25SOF1AE	Soft Skills	AECC - I	2	2

## **Course Objective**

The course intends to cover

• The essential soft skills that is crucial for success in today's dynamic and interconnected workplace.

# **Course Learning Outcomes**

CLO	CLO Statements	Knowledge Level		
CLO1	Understand the comprehensive skills to participate actively in conversation, writing short texts with expression	K1, K2, K3		
CLO2	Infer the cohesive devices to describe and discuss any objects, pictures using compound, complex sentence forms.	K2, K3		
CLO3	Comprehend the logic in the given situation to organize the ideas to write formal and informal letters.	K2, K3		
CLO4	Understand the given material to organize it in a logical sequence to present a paragraph with main and supporting ideas with concluding sentences.	K3		
CLO5	Present valuable ideas in conversation to emulate the main ideas and key points in short essays.	К3		
K1 - Remember; K2 - Understand; K3 - Apply;				

Module	Unit	Details	No. of Hours
		Presentation Skills	
	1	Getting to Know You: Grammar: Introduction to Tenses, Everyday English, Role-Play. Reading Activity: Different ways of communication. <i>Activities</i> : Fill in the blanks (Listening), Self Introduction (Speaking).	
	2	<b>My Day:</b> Grammar: Present simple positive & negative/Adverbs of Frequency, Vocabulary & Speaking about Daily Activities. Listening: Observe and Answer/ Telling the time. <i>Activities:</i> Reading & Writing: Describe where you live.	
	3	<b>Your World:</b> Grammar: Possessive determiners. Listening: Positive & negative contractions. Reading & Writing: Personal profile. <i>Activities:</i> Talk about countries, nationalities (Vocabulary & Speaking).	
Ι	4	<b>The World of Work:</b> Grammar: Yes/No & Wh Questions. Vocabulary & Speaking: Jobs. Listening: Recognize the schwa sound. <i>Activities:</i> Opening and closing an email (Reading & Writing).	6
	5	<b>Places and Things:</b> Grammar: There is / there are, articles. Vocabulary & Speaking: Talk about rooms & furniture. Listening: Directions. Reading & Writing: Imperatives.	
	6	<b>24 Hours:</b> Grammar: Likes & Dislikes. Vocabulary & Speaking: Speak about hobbies and interests. Reading: Match the photos with descriptions. Writing: Write complete sentence using prompt. <i>Activities:</i> Observe & answer (Listening).	
		<b>Practice</b> : Listening & Speaking Presentations - Talking about how you learn – Understanding key information in a presentation – Writing sentences about you.	
		Confidence	
	1	<b>Clothes and Shopping:</b> Grammar: Modal verbs/Adverbs of Frequency/Adjectives and Adverbs. Vocabulary & Speaking: Shopping. Reading & Writing: Product Review. <i>Activities:</i> Observe & answer (Listening).	
	2	<b>Travel &amp; Transport:</b> Grammar: Past simple questions. Vocabulary & Speaking: Talk about holidays. Listening: At the train station. <i>Activities:</i> Email - A perfect holiday (Reading & Writing).	
П	3	<b>Health &amp; Fitness:</b> Grammar: Past simple irregular verbs; Listening: Listen & Answer; Reading & Writing: Time sequencers; <i>Activities:</i> Talk about a healthy lifestyle (Vocabulary & Speaking)	6
	4	<b>Music:</b> Grammar: Present perfect simple; Vocabulary & Speaking: Survey about music; Listening: Listen two people talk about music; <i>Activities:</i> Use adjectives and create sentences (Reading)	
	5	Let's go shopping: Vocabulary & Speaking: Town Survey; Listening: Listen and answer; Reading & Writing: Read and match; Activities: Countable & Uncountable (Grammar)	
		Practice: Writing a personal statement.	

# **Ability Enhancement Compulsory Course - I : Soft Skills**

		Creativity		
	1	<b>Cooking &amp; Eating:</b> Grammar: Some & Any, Quantifiers. Vocabulary & Speaking about Food & Drink. <i>Activities</i> Kitchen conversation (Listening). Reading an article & answering.		
	2	<b>Survival:</b> Grammar: Comparison of adjectives. <i>Activities</i> Describing people (Speaking and Vocabulary). Listening to an audio & Answering. Reading & Writing: Read and Answer.		
III	3	<b>Working Together:</b> Grammar: Verb + Noun phrases. <i>Activities</i> Technology (Vocabulary & Speaking). Listening: Listen & Answer. Reading & Writing: Notice.	6	
	4	<b>Music:</b> Grammar: Present perfect simple. <i>Activities</i> Survey about music (Vocabulary & Speaking). Listen to two people talking about music (Listening). Reading: Use adjectives and create sentences.		
	5	<b>Culture and Arts:</b> Grammar: Present perfect.Vocabulary & Speaking activity: Speak on the phone. <i>Activities:</i> Listen and answer. Reading & Writing activity: Review.		
		Practice: Writing comparison sentences & paragraphs.		
	Problem	n-Solving		
	1	<b>Do's and Don'ts:</b> Grammar, Modal Verbs. <i>Activities</i> Roleplay (Speaking). Holidays in January (Listening). Reading an article & answering.		
	2	<b>Body:</b> Grammar: First conditional. Vocabulary & Speaking about Personality & Appearance. <i>Activities</i> Conversations about personality (Listening), Reading & Writing: Read and Answer about your skills.		
IV	3	<b>Speed:</b> Grammar: Present simple passive. Vocabulary & Speaking about relationships. Listening: Listen & Answer. Reading and Error spotting.	6	
	4	<b>Work:</b> Grammar: Adverbs of manner. Vocabulary & Speaking about work advice. Listening: Observe & Answer; Reading: Read & check your ideas.		
		Practice: Writing argumentative and descriptive essays.		
	Critical	Thinking		
	1	<b>Influence:</b> Grammar: would / past habits. Listening: Sentence Correction. <i>Activities</i> Your inspiration (Speaking). Picture description (Reading).Rewrite the sentences (Writing).		
V	2	<b>Money:</b> Grammar: Second conditional. <i>Activities:</i> Radio programme (Listening). Talk about games (Speaking). Reading & Writing: Fill in the blanks.	6	
	3	<b>Things that changed the world:</b> Grammar: articles. <i>Activities</i> :Talk about chewing gum (Speaking & Listening). Reading & Writing: Read and write a book review.		
		Practice: Writing Emails, reports and proposals.		
		Total Hours	30	

## Components for Internal Assessment and Distribution of Marks for CIA and ESE (<u>Theory</u>)

Max Marks	Marks for		r Components for CIA						
100	CIA	ESE	CIA		Model		Attendance	Active Engagement	Total
100	25	75	Actual	Weightage	Actual	Weightage	- 5	5	25
			50	5	75	10		5	23

# **Question Paper Pattern**

Component	Duration	Section A			Section B			Section C			
	in Hours	Type of Question	No. of Questions	Marks	Type of Question	No. of Questions	Marks	Type of Question	No. of Questions	Marks	Total
CIA	2	MCQ	8	8x1=8	Either or	3	3x6=18	Either or	3	3x8=24	50
Model Exam / <b>ESE</b>	3	MCQ	10	10x1=10	Either or	5	5x5=25	Either or	5	5x8=40	75

# Components for Internal Assessment and Distribution of Marks for CIA (<u>Lab</u>)

Max Marks	Marks for		Components for CIA							
	CIA	ESE	Test		N	Aodel	Experiments / Programs	Observation	Total	
100	40	40 60	Actual	Weightage	Actual	Weightage	Marks	5		
100			50	10	50	15	10	5	40	

# **Examination Pattern**

			Total			
Component	Duration in Hours	Practical Exam	Record	Weightage	Marks	
Test	2	50	-	10	50	
Model	3	60	-	15	60	
Experiments	-	-	-	10	10	
Observation	-	-	-	05	05	
	40					
ESE	3	50	10	-	60	

## Components for Internal Assessment and Distribution of Marks for CIA (<u>Foundation Course - Theory</u>)

Max Marks	Marl	ks for	<b>Components for CIA</b>				
CIA ESE				CIA	Ν		
50			Actual	Weightage	Actual	Weightage	Total
	50	-	50	25	50	25	50

# **Question Paper Pattern**

Duration in Hours	Mode of Exam	Type of Questions	No. of Questions	Marks
2	Offline	Open Choice	5 (Out of 8)	5 x 10=50

# Components for and Distribution of Marks for ESE (Theory) Ability Enhancement Compulsory Courses (<u>AECC</u>)

#### & Question Paper Pattern

Duration in Hours	Mode of Exam	Type of Questions	No. of Questions	Marks
2	Online	MCQ	50	50x1=50

