

SRI KRISHNA ARTS AND SCIENCE COLLEGE

An Autonomous College Affiliated to Bharathiar University
Coimbatore-641008, Tamil Nadu, India.

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

B.Sc. Computer Science
with
Cognitive Systems
(I to VI Semester)

for 2024-25 admitted Students

DEPARTMENT OF IT & COGNITIVE SYSTEMS



SRI KRISHNA ARTS AND SCIENCE COLLEGE
COIMBATORE – 641008

DEPARTMENT OF IT & COGNITIVE SYSTEMS

(2024-2025)

I. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates from the **B.Sc. Computer Science with Cognitive Systems** Programme are expected to achieve the following PEOs

PEO 1	Solve industry-relevant problems with critical thinking abilities to serve the local and global communities.
PEO 2	Develop professional skills with expertise in core areas of computing and cognitive systems.
PEO 3	Work in teams with technical competencies, discharging their professional and social responsibilities.
PEO 4	Enhance professional and entrepreneurship skills for gaining sustainability in this dynamic globe.

II. PROGRAMME LEARNING OUTCOMES (PLOs)

The Graduates of **B.Sc. Computer Science with Cognitive Systems** programme will be able to:

PLO1	Knowledge:(Cognitive) Describe the knowledge of computer science to meet the requirements of current industry standards
PLO2	Critical Thinking Skills:(Cognitive) Analyze challenging problems and solve using critical thinking skills
PLO3	Practical Skills:(Psychomotor) Adapt to implement and evaluate a computational system to meet the pining needs within realistic constraints
PLO4	Teamwork Skills:(Affective) Function effectively in teams to solve problems and produce positive outcomes.
PLO5	Communication Skills:(Affective) Communicate effectively in a variety of professional contexts to promote ideas, goals or products
PLO6	Digital Skills:(Affective) Incorporate digital tools and techniques in designing software products, prototypes

	and solutions
PLO7	Numeracy Skills:(Cognitive) Apply appropriate mathematical principles for solving relevant industrial computational problems
PLO8	Leadership Skills:(Affective) Initiate and function effectively as an individual to lead teams in diversified environments
PLO9	Lifelong Learning Skills:(Affective) Promote professional development growth through contextual, reflective and lifelong learning
PLO10	Entrepreneurial Skills:(Affective) Enhance entrepreneurial skill for making the students to undertake independent ventures
PLO11	Ethics & Professional Skills:(Affective) Follow ethical principles and commits to professional ethics and responsibilities for a relevant technical practice

III.PROGRAMME LEARNING OUTCOMES VS GRADUATE ATTRIBUTES VSTAXONOMY OF VERBS														
PLO	Graduate Attributes										Blooms			
	Knowledge	Critical Thinking	Practical Skills	Team work	Communication skills	Digital skills	Numeracy	Leadership skills	Lifelong learning	Entrepreneurial skills	Ethics & Professionalism	Cognitive	Psychomotor	Affective
1	√											√		
2		√										√		
3			√										√	
4				√										√
5					√									√
6						√								√
7							√					√		
8								√						√
9									√					√
10										√				√

11											√			√
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IV. PROGRAMME LEARNING OUTCOMES VS PROGRAMME EDUCATIONAL OBJECTIVES

	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5
PLO 1	√				√
PLO 2	√				√
PLO 3		√			
PLO 4			√		
PLO 5			√		
PLO 6		√			
PLO 7		√			
PLO 8			√		
PLO 9				√	
PLO 10				√	
PLO 11		√			

V. ADDITIONAL PROGRAMME OUTCOMES (APOs)

APO 1	The students will have an ability to be socially intelligent with intelligent quotient and emotional quotient
APO 2	They will be having virtual collaborating ability
APO 3	They will have the ability to use the social media effectively for productive use
APO 4	They will have critical thinking and innovative skills
APO 5	They will be provided with good digital footprint

VI. PROGRAMME SPECIFIC OUTCOMES (PSO's)

PSO 1	Ability to solve computational challenges by understanding programming principles, methodologies and algorithms.
PSO 2	Ability to provide real-time solutions using emerging software development techniques and tools.

VII. Mapping of PEOs with PSOs

	PSO 1	PSO 2
PEO 1	√	
PEO 2		√
PEO 3	√	
PEO 4		√

VIII. Curriculum Structure for B.Sc. Computer Science with Cognitive Systems

Course Components, Credits & Marks Distribution

Part No	Group	Basic Structure: Distribution of Courses	Number of Courses	Total Marks	Total Credits
I - IV	1	AEC – Ability Enhancement Courses	10	1000	24
III & IV	2	DSC – Discipline Specific Courses	20	1500	59
	3	DSE – Discipline Specific Electives	13	1000	41
	4	GEC – Generic Elective Courses	4	400	12
	5	SEC – Skill Enhancement Courses	2	100	4
IV	6	ANCC I & II – Audit Non-Credit Courses	2	Completed	
V		ANCC III – Audit Non-Credit Courses	1		
-	7	Drive Through Courses (DTCs) – (SWAYAM-NPTEL, Coursera, any courses certified by statutory bodies, etc.)	Any number	-	Additional Credits
Total				4000	140

Group 1. Ability Enhancement Courses (AECs) (10 Courses)– Part (I–IV)

AEC are the courses based upon the content that leads to knowledge enhancement. Ability Enhancement Courses (AEC) are the following:

S. No.	Course Code	Course Title	Semester	Ownership Department	Contact Hours	Marks	Credits
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1	24AEC02/ 24AEC07/ 24AEC11	AEC Part I: Language – I: Tamil - I -Tamil Nila - I Hindi – I/ French – I	I	Language	5	100	3
2	24AEC22	AEC Part II: English-I: English Language Dynamics	I	English	5	100	3
3	24AEC33	AEC Part III: Academic Skills for Computer Studies	I	IT& Cognitive	2	100	2
4	24AEC04/ 24AEC08/ 24AEC12	AEC Part I: Language – II Tamil – II -Tamil Nila - II Hindi – II/ French – II	II	Language	5	100	3
5	24AEC24	AEC Part II: English – II: Campus to Corporate	II	English	5	100	3
6	24AEC43	AEC Part III: Comprehensive Project for Computer Studies	III	IT& Cognitive	-	100	4
7	24AEC83	AEC Part IV: Communication Enhancement Course: Communication Excellence	III	English	2	100	1
8	24AEC81/ 24AEC82	AEC Part IV: Spoken Hindi/ Spoken Tamil	IV	Language	2	100	1
9	24AEC71	AEC Part III: Artificial Intelligence	V	IT& Cognitive	5	100	3
10	24AEC51	AEC Part III: Cyber Ethics	VI	IT& Cognitive	2	100	1
Total						1000	24

Group 2. Discipline Specific Courses (DSCs) (15 Courses) – Part III

These courses are to be studied compulsorily by the students as a core requirement. The students are required to take DSCs across six semesters. The courses designed under this category aim to

cover the basics that a student is expected to imbibe in the particular discipline. It includes a major project.

S. No.	Course Code	Course Title	Semester	Contact Hours	Marks	Credits
1	24CGU01	DSC 1: Operating System	I	4	100	3
2	24CGU02	DSC 2: Practical: Operating system	I	2	50	2
3	24CGU03A	DSC 3A: Data Structures	I	3	50	2
	24CGU03B	DSC 3B: Practical: Data Structures Using C		2	50	2
4	24CGU04	DSC 4: Computer Networks	II	5	100	4
5	24CGU05	DSC 5: Practical: Computer Networks	II	2	50	2
6	24CGU06	DSC 6: Web Technologies	II	4	50	2
7	24CGU07	DSC 7: Practical: Web Technologies	II	2	50	2
8	24CGU08	DSC 8: Problem Solving and Programming in Java	III	4	100	3
9	24CGU09	DSC 9: Practical: Java Programming	III	2	50	2
10	24CGU10	DSC 10: Virtualization and Cloud	III	4	100	3
11	24CGU11	DSC 11: Practical: Virtualization and Cloud	III	3	50	2
12	24CGU12	DSC 12: Process Management	IV	5	100	4
13	24CGU13	DSC 13: Practical: DevOps Tools	IV	3	50	3
14	24CGU14	DSC 14: Data Mining	IV	4	100	3
15	24CGU15	DSC 15: Practical: Data Mining using R	IV	3	50	2
16	24CSS15	DSC 16: Machine Learning Using Python	V	5	100	4
17	24CSS16	DSC 17: Practical: Machine Learning Using Python	V	4	50	3
18	24CSS17	DSC 18: Major Project	VI	5	100	4
19	24CGU16	DSC 19: Cyber Security Fundamentals	VI	5	100	4
20	24CGU17	DSC 20: Practical: Cyber Security	VI	3	50	3
Total					1500	59

Project Work

During the Sixth semester each student should undertake a project work and submit the report. A guide will be allotted to each student by the Department. A student can select any research topic in discussion with the guide. The project report shall be subject to internal evaluation followed by a Viva-Voce. The project should be demonstrated at the time of examination.

Internal Evaluation:

Reviews (3)	– 60 Marks
Report	– 20 Marks
Attendance	– 20 Marks
Total	– 100 Marks will be converted to 40 (Internal) Marks

End Semester Viva-Voce will be conducted for 60 Marks.

(Dissertation - 40 Marks & Viva-voce - 20 Marks)

Group 3. Discipline Specific Elective (DSEs) (10 Courses) – Part III

Discipline Specific Elective courses offered under the main discipline of study which may be specialized or advanced or supportive to the discipline of study. Students can choose any one course from two courses each in the list of following DSEs.

S. No.	Course Code	Course Title	Ownership Department	Contact Hours	Marks	Credits
1	24CGU18	DSE 1: Self study - Practical: Introduction to worksheet	IT& Cognitive	-	50	2
2	24CGU19A	DSE 2A: DBMS	IT& Cognitive	3	50	2
	24CGU19B	DSE 2B: Practical:DBMS		2	50	2
	24ITU01	DSE 2: Computer Forensics	IT& Cognitive	5	100	4
3	24CGU20	DSE 3: Physics for Computer Science	ECS	5	100	4
	24ITU02	DSE 3: Cyber Threat Intelligence	IT& Cognitive			
4	24CGU21A	DSE 4A: Infrastructure Management	IT& Cognitive	3	50	2
	24CGU21B	DSE 4B: Practical: Infrastructure Management		2	50	2
	24ITU03	DSE 4: Design Thinking Methodology	IT& Cognitive	5	100	4
5	24CGU22	DSE 5: Industrial Exposure Training	IT& Cognitive	4 Weeks	100	4
6	24CGU23/ 24CGU24	DSE 6: Client Relationship Management/System Modeling Using UML	IT& Cognitive	3	100	3

7	24CGU25/ 24CGU26	DSE 7: Practical: Client Relationship Management/System Modeling using UML	IT& Cognitive	2	50	2
8	24CGU27A	DSE 8A: Introduction to Digital Technologies	IT& Cognitive	3	50	2
	24CGU27B	DSE 8B: Practical: Introduction to Digital Technologies		2	50	2
	24ITU04	DSE 8: Introduction to Six Sigma	IT& Cognitive	5	100	4
9	24CGU28/ 24CGU29	DSE 9: Cognition and Problem Solving/Developing Thinking Skills	Psychology/ IT& Cognitive	3	50	3
10	24CGU30/ 24CGU31	DSE:10 Software Testing /PHP and MySQL	IT& Cognitive	4	50	3
11	24CGU32/ 24CGU33	DSE 11: Practical: Software Testing using selenium / PHP and MySQL	IT& Cognitive	3	50	2
12	24CSS35/ 24CSS36	DSE 12: Mobile Application Development/ Linux Programming	CT/CS Dept	5	100	4
13	24CSS38/ 24CSS39	DSE 13: Practical: Mobile Application Development/ Linux Programming	CT/CS Dept	3	50	2
Total					1000	41

Industrial Exposure Training (IET)

Students can opt for Industrial Exposure Training during fifth semester for a period of 4 weeks.

The Continuous Internal Assessment mark distribution for IET is as follows:

Component	Mode of Conduct	Project Coverage	Marks
3 Reviews	Presentation	Phase by Phase	60
Work Diary	Written	Phase by Phase	20
Report	Submission	Entire Process	20
Total			100*

*100 Marks will be converted to 40 (Internal) Marks

The end semester examination of the Industrial Exposure Training will be given based on the report and viva-voce for 60 marks, conducted by the Department.

Report: 40 Marks

Viva-voce: 20 Marks

Group 4. Generic Elective Courses (GECs)(4 Courses)– Part III

Generic Elective Courses are interdisciplinary in nature. They are additional courses based on expertise, specialization, requirements, scope, and need of the department.

Sl. No.	Course Code	Course Title	Semester	Ownership Department	Contact Hours	Marks	Credits
1	24GEU07	Probability and Statistics	I	Mathematics	5	100	3
	24GEU14	Mathematical Foundation for Computer Science					
2	24GEU08	Discrete Mathematics	II	Mathematics	5	100	3
	24GEU15	Numerical Methods and Statistics					
3	24GEU09	Numerical Methods	III	Mathematics	5	100	3
	24GEU16	Operations Research for Computer Studies					
4	24GEU47	Embedded Systems	IV	ECS	5	100	3
	24GEU48	Robotics and Applications					
	24GEU49	PC Hardware					
Total						400	12

Group 5. Skill Enhancement Courses (SECs) (2 Courses)

SEC I: Compulsory Course: Talent Enhancement Course: Arithmetical Ability (24SEC01B)

SEC II: A Bucket of Skill-based Courses are offered for the undergraduate programmes by the departments aimed at imparting skills. A Student has to subscribe to one course from the list offered by the department.

S. No	Course Code	Course Title	Ownership Department
1.	24SEC02	Search Engine Optimization	Computer Science
2.	24SEC03	Practical: Modeling Data using Tableau	CT & Data Science
3.	24SEC04	Practical: Data Visualization using Tableau	IT& Cognitive
4.	24SEC05	Full Stack Web Development	Computer Application

Group 6. Audit Non-Credit Courses (ANCC)– Part IV & V

Non-Credit Courses are intended for students who want to gain general knowledge, learn a new skill, upgrade existing skills, enrich their understanding of a wide range of topics, or develop personal interests. A student has to complete any two courses during Semester I and II.

Part IV- ANCC			
S. No.	Course Code	Course Title	Ownership Department
ANCC 1 (Semester I)			
1	24ANC01	Environmental Studies	Bioscience
ANCC 2 - Values & Ethics (Semester II)			
2	24ANC02	Human Rights	Social Work
3	24ANC03	Women's Rights	Social Work
4	24ANC04	Yoga for Human Excellence	Psychology
5	24ANC05	Indian Culture and Heritage	English
6	24ANC06	Introduction to Cyber Security	CS
7	24ANC07	Consumer Protection	Commerce
8	24ANC08	Constitution of India	Commerce
9	24ANC09	Waste Management	Bioscience
10	24ANC10	Sustainable Development Goals	Management

Student has to take part in any one extension activity during their course of study.

Part V- ANCC		
ANCC 3 - Extension Activities		
S. No.	Course Code	Course Name
1	24ANC11	National Service Scheme
2	24ANC12	National Cadet Corps
3	24ANC13	Youth Red Cross
4	24ANC14	Red Ribbon Club
5	24ANC15	Rotaract Club
6	24ANC16	Sports
7	24ANC17	Association Activities
8	24ANC18	Club Activities

Group 7.

i) Drive-Through Courses (DTCs) I & II– Additional Credits

These courses are intended to bring out and promote the self-learning initiative of the students – where their own motivation is what drives them to complete the course and not external compulsions. This fosters the habit of keeping oneself updated always by means of self-study. It gives opportunities to the students to explore new areas of interest and earn additional credits. Students can take any number of courses under this cafeteria system. The credits will not be taken for CGPA calculation.

Additional 4/3/2 credits per course will be given on submission of certificate.

1. Coursera
2. NPTEL
3. Any courses certified by statutory bodies.

ii) Drive-Through Course (DTC – III)

Internship Training/Mini Project/ Spoken Tutorial/etc.

Students individually or with the maximum of four members per batch should take up either Internship training or mini project for a period of fifteen days during IV Semester vacation. The report will be evaluated and viva-voce examination will be conducted during V semester. Otherwise, the students have to complete one spoken tutorial course or any certification course suggested by the department.

VIII. Semester-wise Scheme

Semester I										
Course Code	Course Title	T/P/E	Ins. Hrs/Week	ESE Dur. Hrs	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	L/ R/ N/ G
24AEC02/ 24AEC07/ 24AEC11	AEC 1 Part I: Language – I: Tamil – I-Tamil Nila - I Hindi – I/ French – I	T	5	3	25	75	100	3	SD	L/ R/ N/ G/
24AEC22	AEC 2 Part II: English-I: English Language Dynamics	T	5	3	25	75	100	3	SD	G
24AEC33	AEC 3 Part III: Academic Skills for Computer Studies	T	2	-	100	-	100	2	SD	G
24CGU01	DSC 1: Operating System	T	4	3	25	75	100	3	SD/ EN	G
24CGU02	DSC 2: Practical: Operating system	P	2	3	20	30	50	2	SD/ EN	G
24CGU03A	DSC 3A: Data Structures	E	3	3	10	40	50	2	SD	G
24CGU03B	DSC 3B: Practical: Data Structures using C		2	3	10	40	50	2	SD	G
24GEU07 24GEU14	GEC 1: Probability and Statistics / Mathematical Foundation for Computer Science	T	5	3	25	75	100	3	EM	G

24ANC01	ANCC1 (NF2F) Environmental Studies	T	2	-	-	-	Completed	SD	G	
Drive Through Course I: Additional Credit Courses							Additional Credits			
Total			30				650	20		
Semester II										
Course Code	Course Title	T/P/E	Ins. Hrs/Week	ESE Dur. Hrs	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	L/ R/ N/ G
24AEC04/ 24AEC08/ 24AEC12	AEC 4 Part I: Language – II Tamil – II- Tamil Nila - II Hindi – II/ French – II	T	5	3	25	75	100	3	SD	L/ R/ N/ G/
24AEC24	AEC 5 Part II: English – II: Campus to Corporate	T	5	3	25	75	100	3	SD	G
24CGU04	DSC 4: Computer Networks	T	5	3	25	75	100	4	EM	G
24CGU05	DSC 5: Practical: Computer Networks	P	2	3	20	30	50	2	SD/EM	G
24CGU06	DSC 6: Web Technologies	T	4	3	10	40	50	2	EN	G
24CGU07	DSC 7: Practical: WebTechnologies	P	2	3	20	30	50	2	EN	G
24CGU18	DSE 1: Self study - Practical: Introduction to worksheet	P	-	3	50	-	50	2	SD	G
24GEU08/ 24GEU15	GEC 2: Discrete Mathematics / Numerical Methods & Statistics	T	5	3	25	75	100	3	EM	G
24ANC02 24ANC03 24ANC04 24ANC05 24ANC06 24ANC07 24ANC08 24ANC09 24ANC10	ANCC2 (NF2F) Human Rights Women's Rights Yoga for Human Excellence Indian Culture and Heritage Introduction to Cyber Security Consumer Protection Constitution of India	T	2	-	-	-	Completed	SD	G	

	Waste Management Sustainable Development Goals									
Drive Through Course II: Additional Credit Courses							Additional Credits			
Total			30				600	21		
Semester III										
Course Code	Course Title	T/P/E	Ins. Hrs/Week	ESE Dur. Hrs	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	L/ R/ N/ G
24AEC43	AEC 6 Part III: Comprehensive Project for Computer Studies	P	-	3	100	-	100	4	EN	G
24AEC83	AEC 7 Part IV: Communication Enhancement Course: Communication Excellence	T	2	2	100	-	100	1	SD	G
24CGU08	DSC 8: Problem Solving and Programming in Java	T	4	3	25	75	100	3	SD/EM	G
24CGU09	DSC 9: Practical: Java Programming	P	2	3	20	30	50	2	SD/EM	G
24CGU10	DSC 10: Virtualization and Cloud	T	4	3	25	75	100	3	SD	G
24CGU11	DSC 11: Practical: Virtualization and Cloud	P	3	3	20	30	50	2	SD/EM	G
24CGU19A	DSE 2A: DBMS		3	3	10	40	50	2	SD/EM	G
24CGU19B	DSE 2B: Practical: DBMS	E	2	3	10	40	50	2	SD/EM	G
OR										
24ITU01	DSE 2: Computer Forensics	T	5	3	25	75	100	4	SD	G
24CGU20/ 24ITU02	DSE 3: Physics for Computer Science/Cyber Threat Intelligence	T	5	3	25	75	100	4	SD	G

24GEU09 / 24GEU16	GEC 3: Numerical Methods / Operations Research for Computer Studies	T	5	3	25	75	100	3	SD/EM	G
Total			30				800	26		
Semester IV										
Course Code	Course Title	T/P/E	Ins. Hrs/Week	ESE Dur. Hrs	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	L/ R/ N/ G
24AEC81/ 24AEC82	AEC 8 Part IV: Spoken Hindi/ Spoken Tamil	T	2	2	100	-	100	1	SD	R/ N/ G
24CGU12	DSC 12: Process Management	T	5	3	25	75	100	4	SD	G
24CGU13	DSC 13: Practical: DevOps Tools	P	3	3	20	30	50	3	SD/EM	G
24CGU14	DSC1 4: Data Mining	T	4	3	25	75	100	3	SD/EM	G
24CGU15	DSC 15: Practical: Data Mining Using R	P	3	3	20	30	50	2	SD/EM	G
24CGU21A	DSE 4A: Infrastructure Management	E	3	3	10	40	50	2	SD/EM	G
24CGU21B	DSE 4B: Practical: Infrastructure Management		2	3	10	40	50	2	SD/EM	G
OR										
24ITU03	DSE 4: Design Thinking Methodology	T	5	3	25	75	100	4	SD/EM	G
24GEU47 / 24GEU48 / 24GEU49	GEC 4: Embedded Systems / Robotics and Applications / PC Hardware	T	5	3	25	75	100	3	EM	G
24SEC01B	SEC 1: Talent Enhancement Course: Arithmetical Ability	T	3	3	50	-	50	2	EM	G
Total			30				650	22		
Semester V										
Course Code	Course Title	T/P/E	Ins. Hrs/Week	ESE Dur. Hrs	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	L/ R/ N/ G

			Week	Hrs						
24CGU22	DSE 5: Industrial Exposure Training	-	4 Weeks	-	40	60	100	4	EM	G
24AEC71	AEC 9 Part III: Artificial Intelligence	T	5	3	25	75	100	3	SD/EM	G
24CSS15	DSC 16: Machine Learning using Python	T	5	3	25	75	100	4	SD/EM	G
24CSS16	DSC 17: Practical: Machine Learning using Python	P	4	3	20	30	50	3	SD/EM	G
24CGU23/ 24CGU24	DSE 6: Client Relationship Management/ System Modelling using UML	T	3	3	25	75	100	3	SD/EM	G
24CGU25/ 24CGU26	DSE 7: Practical: Client Relationship Management/ System Modelling using UML	P	2	3	20	30	50	2	SD/EM	G
24CGU27A	DSE 8A: Introduction to Digital Technologies	E	3	3	10	40	50	2	SD/EM	G
24CGU27B	DSE 8B: Practical: Introduction to Digital Technologies		2	3	10	40	50	2	SD/EM	G
OR										
24ITU04	DSE 8: Introduction to Six Sigma	T	5	3	25	75	100	4	SD/EM	G
24CGU28/ 24CGU29	DSE 9: Cognition and Problem Solving/ Developing Thinking Skills	T	3	3	10	40	50	3	SD	G
24SEC04	SEC 2: Practical: Data Visualization Using Tableau	P	3	3	20	30	50	2	SD	G
Drive Through Course III – Internship Training /Mini Project/Spoken Tutorial							Completed			
Total			30				700	28		

Semester VI										
Course Code	Course Title	T/P/E	Ins. Hrs/Week	ESE Dur. Hrs	CIA Marks	ES Marks	Total Marks	Credits	SD/EM/EN	L/ R/ N/ G
24AEC51	AEC 10 Part III: Cyber Ethics	T	2	2	25	75	100	1	SD	G
24CSS17	DSC 15: Major Project	-	5	3	40	60	100	4	EN	G
24CGU16	DSC 18: Cyber Security Fundamentals	T	5	3	25	75	100	4	SD/EM	G
24CGU17	DSC 19: Practical: Cyber Security	P	3	3	20	30	50	3	SD/EM	G
24CGU30/ 24CGU31	DSE 16: Software Testing/ PHP and MySQL	T	4	3	10	40	50	3	EM	G
24CGU32/ 24CGU33	DSC 17: Practical: Software Testing using Selenium/ PHP and MySQL	P	3	3	20	30	50	2	EM	G
24CSS35/ 24CSS36	DSE 12: Mobile Application Development/Linux Programming	T	5	3	25	75	100	4	EN	G
24CSS38/ 24CSS39	DSE 13: Practical: Mobile Application Development/Linux Programming	P	3	3	20	30	50	2	EN	G
24ANC11/ 24ANC12/ 24ANC13/ 24ANC14/ 24ANC15/ 24ANC16/ 24ANC17/ 24ANC18/	ANCC 3 Extension Activities National Service Scheme / National Cadet Corps / Youth Red Cross / Red Ribbon Club / Rotaract Club / Sports / Association Activities / Club Activities	-	-	-	-	-	Grade	-	SD	G
Total			30				600	23		
Total							4000	140		
Drive-Through Courses (DTCs): Courses offered in Coursera OR NPTEL OR Any courses certified by statutory bodies.		Additional 4 credits per course will be given on submission of Certificate					During Semester I to Semester VI			

The courses focus on the following needs

SD	Skill Development
EM	Employability
EN	Entrepreneurship
L	Local
R	Regional
N	National
G	Global

Semester-wise Distribution of Marks and Credits

Semester	Total Marks	Total Credits
I	650	20
II	600	21
III	800	26
IV	650	22
V	700	28
VI	600	23
Total	4000	140

OFFERED BY

List of Courses Offered by **Mathematics** Department

Semester	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit	SD/EM/EN	L/R/N/G
I	24GEU07	Probability and Statistics	B.Sc. CG	T	5	25	75	100	3	EM	G
I	24GEU14	Mathematical Foundation for Computer Science	B.Sc. CG	T	5	25	75	100	3	EM	G
II	24GEU08	Discrete Mathematics	B.Sc. CG	T	5	25	75	100	3	EM	G
II	24GEU15	Numerical Methods & Statistics	B.Sc. CG	T	5	25	75	100	3	EM	G
III	24GEU09	Numerical Methods	B.Sc. CG	T	5	25	75	100	3	SD/EM	G
III	24GUE16	Operations Research for Computer	B.Sc. CG	T	5	25	75	100	3	SD/EM	G

		Studies									
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List of Courses Offered by **Electronics and Communication Systems** Department

Semester	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit	SD/EM/EN	L/R/N/G
IV	24GEU47	Embedded Systems	B.Sc. CG	T	5	25	75	100	3	EM	G
IV	24GEU48	Robotics and Applications	B.Sc. CG	T	5	25	75	100	3	EM	G
IV	24GEU49	PC Hardware	B.Sc. CG	T	5	25	75	100	3	EM	G