

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

For 2023-24 admitted students

DEPARTMENT OF ICT & COGNITIVE SYSTEMS



**SRI KRISHNA ARTS AND SCIENCE COLLEGE
COIMBATORE – 641008**

**DEPARTMENT OF ICT &
COGNITIVE SYSTEMS**

(2023-2024)

I. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)	
PEO 1	Prepare knowledgeable and industry relevant quality graduates who possess software & application skills and critical thinking skills in serving the domestic and global community in the relevant area.
PEO 2	Acquire the technical information from various sources in solving the computer related problems through software development skills and demonstrate professionalism and ethical values in the relevant field.
PEO 3	Perform as a team player and becoming a market leader in the field of consultancy and skill development with effective communicative skills which will help the organization to grow.
PEO 4	Become technologically competent with sense of programming and entrepreneurial skills in the area of artificial intelligence with a passion of lifelong learning to create their own brand image.

II. PROGRAMME LEARNING OUTCOMES (PLOs)	
No.	The Graduates of B.Sc Computer Science with Cognitive Systems Programme will be able to:
PLO1	Describe the knowledge of computer science to meet the requirements of current industry standards. (Cognitive)
PLO2	Analyze challenging problems and solve using critical thinking skills (Cognitive)
PLO3	Adapt to implement and evaluate a computational system to meet the pining needs within realistic constraints. (Psychomotor Skills)
PLO4	Function effectively in teams to solve problems and produce positive outcomes. (Affective)
PLO5	Communicate effectively in a variety of professional contexts to promote ideas, goals or products. (Affective)
PLO6	Incorporate digital tools and techniques in designing software products, prototypes and solutions. (Affective)
PLO7	Apply appropriate mathematical principles for solving relevant industrial computational problems. (Cognitive)
PLO8	Initiate and function effectively as an individual to lead teams in diversified environments. (Affective)

PLO9	Promote professional development growth through contextual, reflective and lifelong learning. (Affective)
PLO10	Enhance entrepreneurial skill for making the students to undertake independent ventures. (Affective)
PLO11	Follow ethical principles and commits to professional ethics and responsibilities for a relevant technical practice (Affective)

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

IV. PROGRAMME LEARNING OUTCOMES VS PROGRAMME EDUCATIONAL OBJECTIVES				
PLO	PEO 1	PEO 2	PEO 3	PEO 4
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 understand the programming concepts ,methodologies and apply algorithms, mathematical and scientific reasoning to solve ranged computational problems.
PSO 2	Ability to apply emerging software development techniques and tools in providing real-time solutions

VII. 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 - III	1	AEC – Ability Enhancement Courses	10	1000	24
III & IV	2	DSC – Discipline Specific Courses	15	1500	60
	3	DSE – Discipline Specific Electives	10	1000	40
	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	3	-	-
V		ANCC III – Audit Non-Credit Courses	1	Completed	
-	7	DTC – Drive Through Courses (SWAYAM-NPTEL, Coursera, Any courses certified by statutory bodies, etc)	Any number	-	Addl. Credits
Total				4000	140

Group 1. Ability Enhancement Courses (AECs) (I & II Semesters)

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	Credits	Marks
1	23AEC02/ 23AEC07/ 23AEC11	AEC Part I: Language – I: Tamil - I - Tamil Aazhi / Hindi-I/ French-I	I	Language Dept.	6	3	100
2	23AEC26	AEC Part II: English-I: English for Professional Communication	I	English Dept.	4	3	100
3	23AEC33	AEC Part III: Academic Skills for Computer Skills	I	CS Dept.	2	2	100
4	23AEC02/ 23AEC08/ 23AEC12/	AEC Part I: Language – II: Tamil-II - Sudar Tamil / Hindi-II/ French-II	II	Language Dept.	6	3	100
5	23AEC28	AEC Part II: English – II: Campus to Corporate	II	English Dept	4	3	100

Group 2. Discipline Specific Courses (DSCs) (I & II Semesters)

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 Major project

S. No.	Course Code	Course Title	Semester	Contact Hours	Credits	Marks
1	23CGU01A	DSC 1A: Operating System	I	3	3	50
	23CGU01B	DSC 1B: Practical - Operating System		3	2	50
2	23CGU02	DSC 2: Data Structures and Algorithms	I	5	4	100
3	23CGU03	DSC 3: Practical - Introduction to Work Sheets	II	-	2	100
4	23CGU04	DSC 4: Computer Networks	II	5	3	100
5	23CGU05	DSC 5: Practical - Computer Networks	II	3	2	100
6	23CGU06A	DSC 6A: Web Technologies	II	3	2	50
7	23CGU06B	DSC 6B: Practical: WebTechnologies	II	2	2	50

Group 4. Generic Elective Courses (GECs) (I & II Semesters)

Generic Elective Courses are interdisciplinary in nature. They are additional courses based on expertise, specialization, requirements, scope, and need of the department. The student has to subscribe any 4 courses in the following list:

Sl. No.	Course Code	Course Title	Semester	Ownership Department	Contact Hours	Credits	Marks	SD/EM/EN	G/L/R/N
1	23GEU07	GEC 1: Probability and Statistics	I	Maths Dept	5	3	100	EM	G
2	23GEU08	GEC 2: Discrete Mathematics	II	Maths Dept	5	3	100	EM	G

Group 5 : Skill Enhancement Courses(SEC)

SEC I : Compulsory Course : Talent Enhancement Course : Career Guidance

SEC II : A Bucket of Skill based Courses are offered for the Under Graduate programmes aimed at imparting advanced skill. A Student has to subscribe one course from list offered by the department.

Courses Offered by Nan Mudhalvan Scheme/Certification in Core Area/Department offered Certification Course.

Group 6. Audit Non-Credit Courses (ANCC)

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 Name
Semester I - ANCC 1		
1.	23ANC01	Environmental Studies
Semester II - ANCC 2 - Values & Ethics		
2.	23ANC02	Human Rights
3.	23ANC03	Women's Rights
4.	23ANC04	Yoga for Human Excellence
5.	23ANC05	Indian Culture and Heritage
6.	23ANC06	Introduction to Cyber Security
7.	23ANC07	Consumer Protection
8.	23ANC08	Constitution of India
9.	23ANC09	Waste Management
10.	23ANC10	Cyber Ethics

Group 7.

i) Drive-Through Course (DTC) 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 credits per Course will be given on submission of certificate.

1. SWAYAM-NPTEL

- 4 Additional Credits will be given on submission of the certificate

2. Coursera

- 4 Additional Credits will be given on completion of Specialization Course with 7 – 8 modules
- 3 Additional Credits will be given on completion of Specialization Course with 5 – 6 modules
- 2 Additional Credits will be given on completion of Specialization Course with 3 – 4 modules

3. Any courses certified by statutory bodies.

**ii) Drive-Through Course (DTC – III) – To be Completed
Internship Training/Mini Project/ Spoken Tutorial/Economic Talent test 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 5th 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	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/ L/ R/ N
23AEC02/ 23AEC07/ 23AEC11/	AEC Part I: Language – I: Tamil-I - Tamil Aazhi Hindi I French I	T	3	6	25	75	100	3	SD	L/ N/ G/ R
23AEC22	AEC PART II: English I: English for Professional Communication	T	3	4	25	75	100	3	SD	G
23AEC33	AEC Part III: Academic Skills for Computer Studies	T	-	2	100	-	100	2	SD	G
23CGU01A	DSC 1A: Operating Systems	E	2	3	10	40	50	3	SD/ EN	G
23CGU01B	DSC 1B: Practical: Operating Systems		2	3	20	30	50	2	SD/ EN	G
23CGU02	DSC 2: Data Structures and Algorithm	T	3	5	25	75	100	4	SD	G
23GEU07 / 23GEU09 / 23GEU11	GEC 1: Probability and Statistics / Statistics for Machine Learning / Mathematical Foundation for Computer Science	T	3	5	25	75	100	3	EM	G
DTC - I - Additional Credit Courses (NPTEL/Coursera)										
23ANC01	ANCC-1 Environmental Studies	T	-	2	-	-	Completed		SD	G
Total				30			600	20		
Semester II										
Course Code	Course Title	T/P/E	ESE Dur. Hrs	Ins. Hrs/ Week	CIA Marks	ES Marks	Total Marks	Credits	SD/ EM/ EN	G/ L/ R/

										N
23AEC04/ 23AEC08/ 23AEC12/	AEC Part I: Tamil-II –Sudar Tamil Hindi-II/ French-II/	T	3	6	25	75	100	3	SD	G
23AEC24	AEC Part II: English – II:Campus to Corporate	T	3	4	25	75	100	3	SD	G
23CGU03	DSC 3: Practical: Introduction toWork Sheets	P	3	-	25	75	100	2	SD/ EN	G
23CGU04	DSC 4: ComputerNetworks	T	3	5	25	75	100	3	EM	G
23CGU05	DSC 5: Practical: Computer Networks	P	2	3	25	75	100	2	SD/ EM	G
23CGU06 A	DSC 6A: WebTechnologies	E	2	3	10	40	50	2	EN	G
23CGU06 B	DSC 6B: Practical: Web Technologies		2	2	20	30	50	2	EN	G
23GEU08 / 23GEU10 / 23GEU12	GEC 2: Discrete Mathematics/ Linear Algebra for Machine Learning / Numerical Methods and Statistics	T	3	5	25	75	100	3	EM	G
DTC II : Additional Credit Courses (NPTEL/Coursera)										
	ANCC-2 Value & Ethics:	T	-	2	-	-	Completed		EN	R
Total				30			700	20		
Drive-Through Course (DTC): Courses offered in SWAYAM- NPTEL, Coursera 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 focuses the following needs:				
Needs	G- Global	N -Regional	R-Regional	L-Local
SD	Skill Development			
EM	Employability			
EN	Entrepreneurship			

Semester-wise Distribution of Marks and Credits:

Semester	Total Marks	Total Credits
I	600	20
II	700	20

OFFERED BY (I & II Semesters)**List of Courses Offered by Mathematics Department**

Semester	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
I	23GEU07	Probability and Statistics	T	5	3	25	75	100	3
II	23GEU08	Discrete Mathematics	T	5	3	25	75	100	3