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. Artificial Intelligence and Machine Learning (I and II Semester)

For 2023-24 Admitted Students

DEPARTMENT OF COMPUTER SCIENCE

SRI KRISHNA
INSTITUTIONS
COIMBATORE

SRI KRISHNA ARTS AND SCIENCE COLLEGE
KNOWLEDGE LOVE & SERVICE
KUNIAMUTHUR (PO)
COIMBATORE - 641 008

SRI KRISHNA ARTS AND SCIENCE COLLEGE
COIMBATORE – 641008

DEPARTMENT OF COMPUTER SCIENCE

(2023-2024)

I. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)	
Graduates from the B.Sc. Artificial Intelligence and Machine Learning Programme are expected to achieve the following PEOs	
PEO 1	Prepare industry relevant quality graduates with programming and critical thinking skills to serve the domestic and global community.
PEO 2	Disseminate the conceptual knowledge in the concerned discipline for societal development and transformation.
PEO 3	Develop as a capable technical industry leader with outstanding communication skills.
PEO 4	Become technically competent in the field of computer science with a passion for lifelong learning.

II. PROGRAMME LEARNING OUTCOMES (PLOs)	
The Graduates of B.Sc. Artificial Intelligence and Machine Learning Programme will be able to:	
PLO1	Identify the programming and technical knowledge acquired in the current computational demands.(Cognitive)
PLO2	Analyze the complex problems and identify solutions through critical thinking skills.(Cognitive)
PLO3	Adapt to the latest tools and techniques used to develop domain based innovative solutions with the acquired technical and operational skills.(Psychomotor)
PLO4	Function and contribute as a team in the diversified environment in taking competitive decision.(Affective)
PLO5	Communicate effectively with the computing community as well as society to comprehend effective documentation and presentation.(Affective)
PLO6	Incorporate advanced digital skills in designing, developing, managing and deploying in media and technical field.(Affective)
PLO7	Apply quantitative, numerical and statistical skills to solve challenging problems with effective solutions.(Cognitive)
PLO8	Articulate leadership skills in motivating the team towards the target in a multi-disciplinary environment.(Affective)
PLO9	Recognize the need and ability to involve independent and life-long learning in the changing era of technology.(Affective)
PLO10	Interpret the impact of professional business solutions on business environment for sustainable development.(Affective)
PLO11	Follow ethical principles and commit to professional responsibilities for a relevant technical practice.(Affective)

III. PROGRAMME LEARNING OUTCOMES VS GRADUATE ATTRIBUTES VS TAXONOMY 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											√			√

IV. PROGRAMME LEARNING OUTOMES 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 algorithm to solve computational problems.
PSO 2	Ability to apply emerging software development techniques and tools in providing real-time solutions.

VII. Curriculum Structure for B.Sc Artificial Intelligence and Machine Learning

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	Completed	
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 Studies_	I	CS Dept.	2	2	100
4	23AEC04/ 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	23CSU01/ 23ITU01/ 23CTU01/ 23CAU01/ 23SAU01/ 23SSU01/ 23DSU01/ 23AIU01	**DSC 1**: Digital Computer Fundamentals	I	5	4	100
2	23DSU02A/ 23AIU02A	**DSC 2A:** C++ Programming	I	3	2	50
	23DSU02B/ 23AIU02B	**DSC 2B:** Practical: Programming in C++		3	2	50
3	23CSU03/ 23ITU03/ 23CTU03/ 23CAU03/ 23SAU03/ 23SSU03/ 23DSU03/ 23AIU03	**DSC 3:** Data Structures and Algorithms	II	5	4	100

4	23DSU04A/ 23AIU04A	**DSC 4A:** Java Programming	II	4	2	50
	23DSU04B/ 23AIU04B	**DSC 4B:** Practical: Programming in Java		4	2	50

Group 3. Discipline Specific Elective (DSEs) (I & II Semesters)

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 the courses from the following list.

S. No.	Course Code	Course Title	Ownership Department	Contact Hours	Credits	Marks
1	23CSU17/ 23ITU17/ 23CTU17/ 23CAU17/ 23SAU17/ 23SSU17/ 23DSU17/ 23AIU17	**DSE 1:** Self Study Paper - Practical: Excel Macro	CS Dept	-	2	100
	23CSU18/ 23ITU18/ 23CTU18/ 23CAU18/ 23SAU18/ 23SSU18/ 23DSU18/ 23AIU18	**DSE 1:** Self Study Paper - Practical: Spreadsheet				

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.

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
	23GEU09	**GEC 1:** Statistics for Machine Learning							
	23GEU11	**GEC 1:** Mathematical Foundation for Computer Science							

2	23GEU08	**GEC 2:** Discrete Mathematics	II	Maths Dept	5	3	100	EM	G
	23GEU10	**GEC 2:** Linear Algebra for Machine Learning							
	23GEU12	**GEC 2:** Numerical Methods and Statistics							

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 I		
1.	23ANC01	Environmental Studies
Semester II - ANCC II - 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
23AEC26	**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
23CSU01/ 23ITU01/ 23CTU01/ 23CAU01/	**DSC 1:** Digital Computer Fundamentals	T	3	5	25	75	100	4	SD	G

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
23SAU01/ 23SSU01/ 23DSU01/ 23AIU01										
23DSU02A/ 23AIU02A	**DSC 2A:** C++ Programming		2	3	10	40	50	2	SD/ EM	G
23DSU02B/ 23AIU02B	**DSC 2B:** Practical: Programming in C++	E	2	3	10	40	50	2	SD/ EM	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)								4		
23ANC01	**ANCC I -** Environmental Studies	T	-	2	-	-	Completed		SD	G
Total				30			600	19		

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: Language – II:** Tamil-II – Sudar Tamil / Hindi-II/ French–II	T	3	6	25	75	100	3	SD	L/N/ G
23AEC28	**AEC PART II: English II:** Campus to Corporate	T	3	4	25	75	100	3	SD	G
23CSU03/ 23ITU03/ 23CTU03/ 23CAU03/ 23SAU03/ 23SSU03/ 23DSU03/ 23AIU03	**DSC 3:** Data Structures and Algorithms	T	3	5	25	75	100	4	SD/ EM	G
23DUS04A/ 23AIU04A	**DSC 4A:** Java Programming	E	3	4	10	40	50	2	SD/ EM	G

Course Code	Title										
23DSU04B/ 23AIU04B	**DSC 4B:** Practical: Programming in Java		3	4	10	40	50	2	SD/ EM	G
23CSU17/ 23ITU17/ 23CTU17/ 23CAU17/ 23SAU17/ 23SSU17/ 23DSU17/ 23AIU17	**DSE 1:** Self Study Paper: Practical: Excel Macro	P	3	-	-	100	100	2	SD	G
23CSU18/ 23ITU18/ 23CTU18/ 23CAU18/ 23SAU18/ 23SSU18/ 23DSU18/ 23AIU18	**DSE 1:** Self Study Paper: Practical: Spreadsheet									
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)								4		
23ANC10	**ANCC II - Value & Ethics:** Cyber Ethics	T	-	2	-	-	Completed		EN	R
Total				30			600	19		
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 –National**	**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	19
II	600	19

OFFERED BY (I & II Semesters)

List of Courses Offered by Mathematics Department

Seme ster	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
I	23GEU07	**GEC 1:** Probability and Statistics	B.Sc. AI and ML	T	5	25	75	100	3
	23GEU09	**GEC 1:** Statistics for Machine Learning							
	23GEU11	**GEC 1:** Mathematical Foundation for Computer Science							
2	23GEU08	**GEC 2:** Discrete Mathematics	B.Sc. AI and ML	T	5	25	75	100	3
	23GEU10	**GEC 1:** Linear Algebra for Machine Learning							
	23GEU12	**GEC 1:** Numerical Methods and Statistics							

List of Courses Offered to Psychology Department

Seme ster	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
1	23GEU17	Office Automation Lab	B.Sc. Psychology	P	2	40	60	100	2