

SRI KRISHNA ARTS AND SCIENCE COLLEGE

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

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

**M.Sc. Software Systems
(I to II Semester)**

For 2024-25 admitted students

DEPARTMENT OF SOFTWARE SYSTEMS



SRI KRISHNA ARTS AND SCIENCE COLLEGE
COIMBATORE – 641008

DEPARTMENT OF SOFTWARE SYSTEMS
(2024-2025)

I. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1	Able to become a software architect for designing systems with research in the contemporary software platforms.
PEO 2	Become a team leader and work with a group in solving complex problems through domain knowledge with effective communication skills.
PEO 3	Able to keep up-to-date information in advanced field for lifelong learning by providing professional services with competence.
PEO 4	Able to demonstrate ethical and professional values in providing services including entrepreneurial skills.

II. PROGRAMME LEARNING OUTCOMES (PLOs)

No.	The Graduates of M.Sc. Software Systems Program will be able to
PLO1	Knowledge: Acquire knowledge in the core theoretical and practical concepts in the computer science domain. (Cognitive)
PLO2	Critical Thinking Skills: Able to critically think, analyse and provide feasible solutions to real life problems in computing area. (Cognitive)
PLO3	Practical Skills: Acquire proficiency in the key areas of computer science like object-oriented programming, mobile and open-source technologies (Psychomotor)
PLO4	Team-work Skills: Function effectively as a member and leader in a team, to manage projects in multidisciplinary environments. (Affective)
PLO5	Communication Skills: Communicate effectively while developing and presenting effective solutions to the problems. (Affective)
PLO6	Digital Skills: Select and apply appropriate techniques, resources, tools for prediction and providing solutions to complex real time problems. (Affective)
PLO7	Numeracy Skills: An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computational systems. (Cognitive)
PLO8	Leadership Skills: An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computational systems. (Affective)
PLO9	Lifelong Learning Skills: An ability to engage in life-long learning in the context of technological change. (Affective)
PLO10	Entrepreneurial Skills: Acquire skills to design, develop and provide effective solutions to become an entrepreneur. (Affective)

PLO11	Ethics & Professional Skills: Apply ethical principles and commit to professional ethics and social responsibilities. <i>(Affective)</i>
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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	Ability to build networks and broaden horizons and engaging authentically through Social Intelligence Quotient and Emotional Quotient.
APO 2	Ability to translate vast data into abstract concepts and to understand data base reasoning.
APO 3	Ability to develop working in virtual collaborating platforms to transfer different types of information and work towards a common goal
APO 4	Ability to develop critical thinking and innovative skills as a potential to advance career.
APO 5	Having a good digital foot print.

VI. PROGRAMME SPECIFIC OUTCOMES (PSO's)

PSO 1	Ability to use software development tools, computing platforms and other advanced tools for lifelong learning.
PSO 2	Ability to apply computing knowledge to produce effective designs and solutions for real-time applications.

VII. Curriculum Structure for M.Sc. Software Systems**Course Components, Credits & Marks Distribution**

Basic Structure: Distribution of Courses	Number of Courses	Total Marks	Total Credits
DSC – Discipline Specific Courses	51	4900	200
DSE – Discipline Specific Electives	4	400	15
GEC – Generic Elective Courses	7	700	19
ANCC I & II - Audit Non-Credit Courses	2	Completed	
DTC – Drive Through Courses (SWAYAM-NPTEL, Coursera, any courses certified by statutory bodies, etc)	Additional 4 Credits per Course will be given on submission of Certificate	-	Addl. Credits
Total		6000	234

1. 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 the semesters. The courses designed under this category aim to cover the basics that a student is expected to imbibe in the particular discipline.

S. No.	Course Code	Course Title	Semester	Contact Hours	Credits	Marks
1	24SSI01	DSC 1: English I	I	4	3	100
2	24SSI02	DSC 2: C Programming	I	4	4	100
3	24SSI03	DSC 3: Algebra for Software Systems	I	4	3	100
4	24SSI04	DSC 4: Computer Organization and Architecture	I	5	4	100
5	24SSI05	DSC 5: Practical - Programming Lab- C	I	3	2	50
6	24SSI06	DSC 6: Self Study Paper –PC Software Lab	I	1	1	50
7	24SSI07	DSC 7: English II	II	3	2	100
8	24SSI08	DSC 8: Calculus and Laplace Transforms	II	4	3	100
9	24SSI09	DSC 9: Object Oriented Programming using C++	II	4	4	100
10	24SSI10	DSC 10: Data Structures and Algorithms	II	4	4	100
11	24SSI11	DSC11: System Software and Operating System	II	4	4	100
12	24SSI12	DSC 12: Practical- C++ with Data Structures Lab	II	3	2	50
13	24SSI13	DSC13: Practical-System Software Lab (C &C++)	II	3	2	100

2. Discipline Specific Electives (DSE)

Discipline Specific Elective Courses offered under the main discipline of study which may be specialized or advanced or supportive to the discipline of study. These courses are offered in the VIII and IX semesters.

3. Generic Elective Courses (GECs) (I & II Semesters)

Sl. No.	Course Code	Course Title	Semester	Ownership Department	Contact Hours	Credits	Marks	SD/EM/EN	G/L/R/N
1	24GEP15	GEC 1: Digital Electronics	I	ECS	4	3	100	SD/EM	G
	24GEP17	GEC 1: VLSI Design and Verilog							
2	24GEP16	GEC 2: Digital Electronics Lab	I	ECS	3	2	100	SD/EM	G
	24GEP18	GEC 2: Verilog Programming Lab							
3	24GEP21	GEC 3: Fundamentals of Accounting	II	B.Com. CA	4	4	100	EM	G

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

4. 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	Ownership Department
Semester I - ANCC – I			
1.	24ANC01	Environmental Studies	Bioscience
Semester II - ANCC II - Values & Ethics			
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

5. 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.

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
24SSI01	DSC 1: English I	T	3	4	25	75	100	3	SD	G
24SSI02	DSC 2: C Programming	T	3	4	25	75	100	4	SD/EM	G
24SSI03	DSC 3: Algebra for Software Systems	T	3	4	25	75	100	3	SD	G
24SSI04	DSC 4: Computer Organization and Architecture	T	3	5	25	75	100	4	SD	G
24SSI05	DSC 5: Practical - Programming Lab-C	P	3	3	20	30	50	2	SD/EM	G
24SSI06	DSC 6: Self Study Paper – PC Software Lab	P	3	1	-	50	50	1	SD	G
24GEP15	GEC 1: Digital Electronics	T	3	4	25	75	100	3	SD/EM	G
24GEP17	GEC 1: VLSI Design and Verilog									
24GEP16	GEC 2: Digital Electronics Lab	P	3	3	40	60	100	2	SD/EM	G
24GEP18	GEC 2: Verilog Programming Lab									
DTC - I - Additional Credit Courses (NPTEL/Coursera)										
24ANC01	ANCC I - Environmental Studies	T	-	2	-	-	Completed		SD	G
Total				30			700	22		
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
24SSI07	DSC 7: English II	T	3	3	25	75	100	2	SD	G

24SSI08	DSC 8: Calculus and Laplace Transforms	T	3	4	25	75	100	3	SD	G
24SSI09	DSC 9: Object Oriented Programming using C++	T	3	4	25	75	100	4	SD/EM	G
24SSI10	DSC 10: Data Structures and Algorithms	T	3	4	25	75	100	4	SD	G
24SSI11	DSC 11: System Software and Operating System	T	3	4	25	75	100	4	SD	G
24SSI12	DSC 12: Practical-C++ with Data Structures Lab	P	3	2	20	30	50	2	SD/EM	G
24SSI13	DSC 13: Practical-System Software Lab (C & C++)	P	3	3	40	60	100	2	SD	G
24GEP21	GEC 3: Fundamentals of Accounting	T	3	4	25	75	100	4	EM	G

DTC II : Additional Credit Courses (NPTEL/Coursera)

24ANC02/ 24ANC03/ 24ANC04/ 24ANC05/ 24ANC06/ 24ANC07/ 24ANC08/ 24ANC09/ 24ANC10	ANCC II - Value & Ethics Human Rights / Women's Rights/ Yoga for Human Excellence/ Indian Culture and Heritage/ Introduction to Cyber Security/ Consumer Protection/ Constitution of India/ WasteManagement/ Sustainable Development Goals	T	-	2	-	-	Completed	EN	R	
Total				30			750	25		
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 X			

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	700	22
II	750	25

OFFERED BY (I & II Semesters)

List of Courses Offered by ECS Department

Semester	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
I	24GEP15	GEC 1: Digital Electronics	M.Sc. SS	T	4	25	75	100	3
I	24GEP17	GEC 1: VLSI Design and Verilog							
I	24GEP16	GEC 2: Digital Electronics Lab	M.Sc. SS	T	3	40	60	100	2
I	24GEP18	GEC 2: Verilog Programming Lab							

List of Courses Offered by B. Com CA Department

Semester	Course Code	Course Name	Programme	T/P/E	Ins. hrs	CIA	ES	Total Marks	Credit
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II	24GEP2 1	GEC 3: Fundamental s of Accounting	M.Sc. SS	T	4	25	7 5	100	4
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OFFERED TO**List of Courses Offered to MSW Department**

Semester	Course Code	Course Name	Programme	T/P/ E	Ins. hrs	CIA	ES	Total Marks	Credit
III	24GEP22	Excel Macro Lab	MSW	P	4	40	60	100	4