

# **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. Information Technology  
(I to II Semester)**

**for 2023-24 admitted students**

**DEPARTMENT OF INFORMATION TECHNOLOGY**



**SRI KRISHNA ARTS AND SCIENCE COLLEGE**  
**COIMBATORE – 641008**  
**DEPARTMENT OF INFORMATION TECHNOLOGY**

### I. Programme Educational Objectives (PEOs)

Post Graduates from the Information Technology Programme are expected to achieve the following PEOs within two years of graduation

<b>PEO 1</b>	Develop programme with area of specialization with software skills through modern IT methods in the field with wider research knowledge.
<b>PEO 2</b>	Become a team leader and work with a group in solving complex problems through up-to-date domain knowledge of the relevant areas including the software and hardware skills through effective communicative skills.
<b>PEO 3</b>	Keep up-to-date information in advanced knowledge for lifelong learning and provide professional services with competence in the relevant field.
<b>PEO 4</b>	Demonstrate ethical and professional values in providing services in the relevant field including entrepreneurial skills.

### II. Programme Learning Outcomes (PLOs)

The following Programme Learning Outcomes have been identified for M.Sc. Information Technology:

<b>PLO 1</b>	<b>Knowledge:</b> Apply the comprehensive knowledge to real life problems to meet the core competency with continuous up graduation <b>(Cognitive)</b>
<b>PLO 2</b>	<b>Critical Thinking Skills:</b> Learn the technological advancements and understand the usage of modern design and development tools. <b>(Cognitive)</b>
<b>PLO 3</b>	<b>Practical Skills:</b> Ability to become proficient in the concepts and applications in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies by exploring the scope in the field of research <b>(Psychomotor)</b>
<b>PLO 4</b>	<b>Team-work Skills:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings with management principles, required to work in a team with stewardship of the society <b>(Affective)</b>
<b>PLO 5</b>	<b>Communication Skills:</b> Communicate in both oral and written forms, demonstrating the practice of professional ethics and the concerns for social welfare <b>(Affective)</b>

<b>PLO 6</b>	<b>Digital Skills:</b> Ability to model, analyze, design, visualize and realize physical systems or processes of increasing size and complexity <b>(Affective)</b>
<b>PLO 7</b>	<b>Numeracy Skills:</b> Demonstrate the extended investigation of mathematical models to resolve real time problems <b>(Cognitive)</b>
<b>PLO 8</b>	<b>Leadership Skills:</b> Develop technical and managerial skills needed to be an effective leader as an entrepreneur or in a software concern <b>(Affective)</b>
<b>PLO 9</b>	<b>Lifelong Learning Skills:</b> Recognize the need and ability to involve independent and life-long learning in the changing era of technology <b>(Affective)</b>
<b>PLO 10</b>	<b>Entrepreneurial Skills:</b> Apply designing skills to address various social problems identified in private and public sectors and to take up entrepreneurship in business applications <b>(Affective)</b>
<b>PLO 11</b>	<b>Ethics &amp; Professional Skills:</b> Demonstrate professionally with social, cultural and ethical responsibility as an individual as well as in multifaceted teams with positive attitude <b>(Affective)</b>

### III. Programme Learning Outcomes Vs Graduate Attributes Vs Taxonomy of Verbs

PLO	Knowledge	Critical Thinking	Practical Skills	Team work	Graduate Attributes							Blooms		
					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											√			√

### Mapping of PEOs and PLOs

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
PEO1	3		3			3					
PEO2		3					3				
PEO3				3				3		2	3
PEO4					3				2		

### Additional Programme Outcomes (APOs)

The Additional Programme Outcomes for M.Sc. Information Technology are:

APO 1	The students will have an 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

### Programme Specific Outcomes (PSOs)

On the completion of M.Sc. Information Technology, the graduates will be able to

PSO 1	Design, Build and maintain projects with the ability to practice and improve as computer professionals
PSO 2	Ability to utilize Computing knowledge and skills for the betterment of society.

### Curriculum Structure for M.Sc. Information Technology

#### Course Components, Credits & Marks Distribution

Course Type	Number of Courses	Credits per Course	Total Credits	Marks	Semester
Discipline Specific Courses (DSC)	18	2-8	70	1750	I to IV
Discipline Specific Elective Courses (DSE)	3	4	12	300	II & III

Generic Electives Courses (GEC)	3	2-4	8	200	II & III
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				I to IV
<b>Total</b>			<b>90</b>	<b>2250</b>	

### Discipline Specific Courses (DSC) –I & II

These courses are to be studied compulsorily by the students as a core requirement. The students are required to take DSCs across four 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	23CSP01/ 23ITP01	<b>DSC I:</b> Advanced Java Programming	I	5	4	100
2	23CSP02	<b>DSC II:</b> Software Engineering	I	5	4	100
3	23CSP03/ 23ITP03	<b>DSC III:</b> Design and Analysis of Algorithms	I	5	4	100
4	23CSP04/ 23ITP04	<b>DSC Practical-I:</b> Advanced Java Lab	I	5	4	100
5	23CSP05/ 23ITP05	<b>DSC IV:</b> Data Mining	I	5	4	100
6	23CSP06/ 23ITP06	<b>DSC V:</b> Cryptography and Network Security	II	5	4	100
7	23CSP07A/ 23ITP07A	<b>DSC VI:</b> Linux Programming	II	3	2	50
8	23CSP07B/ 23ITP07B	<b>DSC Practical-II:</b> Programming in Linux	II	2	2	50
9	23CSP08/ 23ITP08	<b>DSC VII:</b> Compiler Design	II	5	4	100
10	23CSP09/ 23ITP09/	<b>DSC Practical-III:</b> Cryptography and Network Security Using NS3	II	3	3	100

### Project Work

During the fourth semester, each student has to undertake a Project Work individually. A guide will be allotted to each student by the department. Student can select any relevant 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.

**CIA marks: 40% of the total marks**

Review1	– 40 Marks
Review2	– 40 Marks
Work diary	– 20 Marks

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**Total – 100 Marks.**  
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**End Semester Viva-Voce will be conducted for 120 (External) Marks.**

(Dissertation - 80 Marks & Viva-voce - 40 Marks)

**Discipline Specific Electives (DSE)- II Sem Course**

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 THREE courses from the following list. Students can opt one course from each group.

S. No.	Course Code	Course Title	Semester	Contact Hours	Credits	Marks
1	23CSP21/ 23ITP21	<b>DSE I:</b> Cloud Services / Data Science and Big Data Analytics	II	5	4	100

**Generic Elective Courses (GEC) (3 Courses)**

Generic Elective Courses are interdisciplinary in nature. They are additional courses based on expertise, specialization, requirements, scope, and need of the department. The students will have the choice of taking THREE GECs.

**List of Courses Offered by Information Technology Department**

Group	Course Code	Course Title	Semester	Contact Hours	Credits	Marks
I	23GEP10	Web Application Development	II	4	3	50
	OR					
	23GEP11	Introduction to Data Analytics	II	4	3	50

**4. Drive Through Course (DTC)****i. (DTC) I & II – Online Certification - 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.

- a. SWAYAM-NPTEL
- b. Coursera
- c. Any courses certified by statutory bodies.

## ii. (DTC – III) – Article Publication - To be Completed

Students individually or with the maximum of four members per batch are asked to publish article in Scopus or Web of Science Journals (Or) publish book chapters. Additional 4 credits per Course will be given on submission of proof of the published paper (or) book chapter.

### Semester-wise Scheme

Semester I										
Course Code	Course Title	T/P	Ins. Hrs/ week	Examination				Credits	SD/ EM/ EN	L/R / N/ G
				Dur Hrs	CIA	ES	Total Marks			
23CSP01/ 23ITP01	<b>DSC-I:</b> Advanced Java Programming	T	5	3	25	75	100	4	SD	G
23ITP02	<b>DSC-II:</b> Software Engineering	T	5	3	25	75	100	4	SD	G
23CSP03/ 23ITP03	<b>DSC-III:</b> Design and Analysis of Algorithms	T	5	3	25	75	100	4	SD	G
23CSP04/ 23ITP04	<b>DSC Practical-I:</b> Advanced Java Lab	P	5	3	40	60	100	4	SD/ EM/ EN	G
23CSP05/ 23ITP05	<b>DSC-IV:</b> Data Mining	T	5	3	25	75	100	4	SD/ EM/ EN	G
23GEP01	<b>GEC-I:</b> Discrete Mathematical Structures	T	5	3	25	75	100	4	SD	G
<b>DTC I - Additional Credit Courses (NPTEL/ Coursera)</b>										
<b>Total</b>			<b>30</b>				<b>600</b>	<b>24</b>		
Semester II										
Course Code	Course Title	T/P	Ins. Hrs/ week	Examination				Credits	SD/ EM/ EN	L/R/ N/ G
				Dur Hrs	CIA	ES	Total Marks			

23CSP06/ 23ITP06	<b>DSC- V:</b> Cryptography and Network Security	T	5	3	25	75	100	4	EM	G
23CSP07A / 23ITP07A	<b>DSC-VI</b> Linux Programming	T	3	3	10	40	50	2	SD/ EM	G
23CSP07B / 23ITP07B	<b>DSC Practical-II</b> Programming in Linux	P	2	2	10	40	50	2	EM	G
23CSP08/ 23ITP08	<b>DSC-VII:</b> Compiler Design	T	5	3	25	75	100	4	SD	G
23CSP09/ 23ITP09	<b>DSC Practical-III:</b> Cryptography and Network Security Using NS3	P	3	3	40	60	100	3	SD	G
23CSP21/ 23ITP21	<b>DSE I:</b> Cloud Services / Data Science and Big Data Analytics	T	5	3	25	75	100	4	EM	G
23GEP25	<b>GEC-II:</b> Robotics Programming	T	4	3	10	40	50	3	EM	G
23GEP26	<b>GEC-II: Practical</b> Robotics Programming Lab	P	3	3	20	30	50	2	EM	G
<b>DTC II - Additional Credit Courses (NPTEL/ Coursera)</b>										
<b>Total</b>			<b>30</b>				<b>600</b>	<b>24</b>		
<b>Drive-Through Course (DTC):</b> 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 IV	

The Courses focus on the following needs	
<b>SD</b>	Skill Development
<b>EM</b>	Employability
<b>EN</b>	Entrepreneurship
<b>L</b>	Local
<b>R</b>	Regional
<b>N</b>	National
<b>G</b>	Global

**Semester-wise Distribution of Marks and Credits:**

Semester	Total Marks	Total Credits
I	600	24
II	600	24



## List of Courses Offered by Information Technology Department

Sem ester	Course Code	Course Name	T/P	Ins. hrs	Dur Hrs	Examination			Credits
						CIA	ES	Total Marks	
II	23GEP01	Discrete Mathematical Structures	T	5	3	25	75	100	4
	23GEP25	Robotics Programming	T	4	3	10	40	50	3
	23GEP26	Robotics Programming Lab	P	3	3	20	30	50	2

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