SRI KRISHNA ARTS AND SCIENCE COLLEGE

An Autonomous College Affiliated to Bharathiar University

Coimbatore -641008, Tamil Nadu, India.

LEARNING OUTCOMESBASED CURRICULUM FRAMEWORK (LOCF)

B.Sc. CS with Cognitive Systems

(V - VI Semester)

for 2021-22 admitted students

AMENDMENTS

DEPARTMENT OF ICT and COGNITIVE SYSTEMS

SRI KRISHNA ARTS AND SCIENCE COLLEGE
COIMBATORE – 641008

DEPARTMENT OF COGNITIVE SYSTEMS

(2021-2022)

I. PROGRAMME EDUCATIONAL OBJECTIVES (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.
PEO4	Enhance professional and entrepreneurship skills for gaining sustainability in this dynamic globe.

II. PROGRAMME LEARNING OUTCOMES (PLOS)	
No.	**The Graduates of Bachelor of Computer Science with Cognitive Systems Programme will be able to :**
PLO1	Identify the programming and technical knowledge acquired in the current computational demands. (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)

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 & Professionalis	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	They will be having virtual collaborating ability

2	
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 SEPCIFIC OUTCOMES	
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. 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	31
III & IV	2	DSC – Discipline Specific Courses	15	1500	49
	3	DSE – Discipline Specific Electives	10	1000	41
	4	GEC – General Elective Courses	5	500	19
IV	5	ANCC I & II – Audit Non-Credit Courses	3	-	-
V		ANCC III – Audit Non-Credit Courses			
-	6	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) (10 Courses)

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	21AEC02/ 21AEC07/ 21AEC11/ 21AEC17	**AEC PART I:** Tamil -I-Tamil Aruvi-I/ Hindi-I/ French-I/ Malayalam-I	I	Lang Dept	6	3	100
2	21AEC22	**AEC PART II:** English-I: English for Professional Communication	I	Lang Dept	6	3	100
3	21AEC41	**AEC PART III:** Probability and Statistics	I	Maths Dept	5	3	100
4	21AECO4/ 21AEC08/ 21AEC12/ 21AEC18	**AEC PART I** Tamil -II-Tamil Aruvi-II/ Hindi-II/ French-II/ Malayalam-II	II	Lang Dept	6	3	100
5	21AEC24	**AEC PART II:** English-II Campus to Corporate	II	Lang Dept	6	3	100
6	21AEC33	**AEC PART III:** Academic Skills for Computer Studies	II	ICT Dept	3	3	100
7	21AEC40	**AEC PART III:** Computational Thinking	IV	ICT Dept	3	3	100
8	21AEC50	**AEC PART III:** Cap Stone Project	IV	ICT Dept	-	4	100
9	21AEC51	**AEC PART IV:** Environmental Studies	IV	Bioscience Dept	3	3	100
10	21AEC56	**AEC PART IV:** Cyber Ethics	VI	ICT Dept	3	3	100

Group 2. Discipline Specific Courses (DSCs)(15 Courses)

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	21TDC01A	**DSC 1A:** Operating System	I	3	3	50
	21TDC01B	**DSC 1B:** Practical - Operating System		3	2	50
2	21TDC02	**DSC 2:** Practical - Introduction to Work Sheets	I	3	2	100

3	21TDC03	**DSC 3:** Practical- Web Technology	I	4	3	100
4	21TDC04	**DSC 4:** Data Structures	II	4	3	100
5	21TDC05	**DSC 5:** Computer Networks	II	3	2	100
6	21TDC06	**DSC 6:** Practical - Computer Networks	II	3	2	100
7	21TDC07	**DSC 7:** Infrastructure Management	III	4	4	100
8	21TDC08	**DSC 8:** Practical -Infrastructure Management	III	3	2	100
9	21TDC09	**DSC 9:** Virtualization and Cloud	III	5	4	100
10	21TDC10	**DSC 10:** Practical -Virtualization and Cloud		3	2	100
11	21TDC11A	**DSC 11A:** Process Management	IV	4	3	50
	21TDC11B	**DSC 11B:** Practical - DevOps		2	2	50
12	21TDC12A	**DSC 12A:** Problem Solving and Programming in Python	IV	3	3	50
	21TDC12B	**DSC 12B:** Practical - Python		2	2	50
13	21TDC13	**DSC 13:** Client Relationship Management	V	4	4	100
14	21TDC14	**DSC 14:**Practical - Client Relationship Management	V	2	2	100
15	21TDC15	**DSC 15:** Major Project	VI	6	4	100
Total					**49**	**1500**

Group 3. Discipline Specific Elective (DSEs) (11 Courses)

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 anyELEVEN courses from the following list.

S. No.	Course Code	Course Title	Ownership Department	Contact Hours	Credits	Marks
1	21TDE01	**DSE 1:** Discrete Mathematics	Maths Dept	5	3	100
2	21TDE02	**DSE 2:** Numerical Methods	Maths Dept	5	3	100
3	21TDE03A	**DSE 3A:** DBMS	ICT Dept	3	2	50
4	21TDE03B	**DSE 3B:** Practical: DBMS	ICT Dept	2	2	50
5	21CDE08	**DSE 4:** Embedded System	ECS Dept	5	3	100
6	21CDE09	**DSE 4:** Robotics and Applications	ECS Dept	5	3	100
7	21CDE10	**DSE 4:** PC Hardware	ECS Dept	5	3	100
8	21TDE04	**DSE 5 :** Industrial Exposure Training	ICT Dept	-	Completed	
9	21CDE12	**DSE 6 :**Ethical Hacking	CS Dept	5	3	50
10	21CDE13	**DSE 7:**Practical : Ethical Hacking		4	2	50

11	21CDE14	**DSE 6:**Web Intelligence	ICT Dept	5	3	50
12	21CDE15	**DSE 7:**Practical : Web Intelligence		4	2	50
13	21CDE16	**DSE 6:**Android Programming	ICT Dept	5	3	50
14	21CDE17	**DSE 7:**Practical : Mobile Application Development using Android		4	2	50
15	21CDE18	**DSE 6:** Programming in C#.net	CA Dept	5	3	50
16	21CDE19	**DSE 7:**Practical : C#.net		4	2	50
17	21CDE20	**DSE 6:**Linux and Shell Programming	CA Dept	5	3	50
18	21CDE29	**DSE 7:**Practical : Shell Programming		4	2	50
19	21CDE30	**DSE 6:** Visualization Analysis and Design	CA Dept	5	3	50
20	21CDE31	**DSE 7**Practical : Data Visualization Techniques		4	2	50
21	21CDE32	**DSE 6:** Time Series Analysis	CS Dept	5	3	50
22	21CDE33	**DSE 7:** Practical: Scientific Programming Using R		4	2	50
23	21TDE05A	**DSE 8A**: Software Testing	ICT Dept	3	3	50
	21TDE05B	**DSE 8B** Practical: Software Testing Using Selenium		2	2	50
24	21TDE06A	**DSE 9A**: Introduction to Digital Technologies	ICT Dept	3	3	50
	21TDE06B	**DSE 9B:** Practical: Introduction to Digital Technologies		2	2	50
25	21CDE25A	**DSE 10A:** R Programming	ICT Dept	3	2	50
	21CDE25B	**DSE 10B**: Practical: R Programming		3	2	50
26	21TDE07A	**DSE 11A:** NoSQL Database	ICT Dept	3	3	50
	21TDE07B	**DSE 11B**: Practical: No SQL Database		3	2	50
27	21CDE27	**DSE 12:** Artificial Intelligence	ICT Dept	4	4	100
Total					**41**	**1000**

Industrial Exposure Training (IET):

The students can go for Industrial Exposure Training during the fifth semester for a period of 4 weeks.

Component	Mode of Conduct	Project Coverage	Marks
3 Reviews	Presentation	Phase by Phase	25

Work Diary	Written	Phase by Phase	10
Report	Submission	Entire Phases	15
Total			**50**

Viva-voce Marks for the Industrial Exposure Training will be given based on the report and viva-voce examination, conducted by the Department.

Major Project:

During the sixth semester, each student should undertake project work and submit a report. A guide will be allotted to each student by the department. Students can select any research topic in discussion with the guide. The internal and external examiners for 50 marks will evaluate the project report jointly, and the viva-voce examination will be conducted jointly for 50 marks.

Three reviews should be conducted and marks have to be entered in Myklassroom as follows:

Review – 25 Marks
Report (Time Sheet & Work Dairy) – 15 Marks
Work Dairy – 10 Marks
Total – 100 Marks will be converted to 50 (Internal) Marks

An End Semester Viva-Voce will be conducted for 50 (External) Marks.
(Dissertation -25, Viva-Voce-25)

Group 4. Generic Elective Courses (GECs) (5 Courses)

Generic Elective Courses are advanced level course for the discipline. They are not specialization specific. No overlapping with specialization courses. A student of specific discipline of any specialization can subscribe. These courses are future and recent developments in the respective discipline. The student has to subscribe any 5 courses in the following list:

Sl. No.	Course Code	Course Title	Semester	Ownership Depart.	Contact Hours	Credits	Marks
1	21**C**GE01	Agile Software Development	III	ICT Dept	5	4	100
	21CGE02	Social Media Mining					
	21**C**GE03	Big Data Analytics					
	21**T**GE01A	Problem Solving and Programming in Java					
	21**T**GE01B	Practical: Java Programming					
2	21CGE04	Computer Forensics	III	ICT Dept	5	4	100
	21**C**GE05	Cyber Threat Intelligence					
	21CGE06	Green Computing					
	21**T**GE02	Physics for Computer Science		ECS Dept			
3	21GEC01	Spoken Tamil	IV	Lang Dept	3	3	100
	21GEC02	Spoken Hindi					
	21GEC03	Spoken Telugu					
	21GEC04	Spoken Malayalam					
	21GEC05	Spoken French					
4	21**C**GE07	Wireless Technology	V	ICT Dept	5	4	100
	21CGE08	Internet of Things					
	21**C**GE09	Cloud Computing					
	21**T**GE03	Cognition and Problem Solving		Psychology Dept			
5	21**C**GE10	Organizational Behavior	VI	Management Science	5	4	100
	21CGE11	Human Resource Management					
	21CEG12	Management Information System					
	21**T**GE04	User Interface Design		ICT Dept			
		TOTAL				**19**	**500**

Group 5. 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 - Semester I - ANCC 1 & Semester II - ANCC 2	
S. No.	**Course Name**
1.	Human Rights
2.	Women's Rights

Part V	ANCC 3 - Extension Activities
S. No.	**Course Name**
1.	National Service Scheme
2.	National Cadet Corps
3.	Youth Red Cross
4.	Red Ribbon Club
5.	Rotaract Club
6.	Sports
7.	Association Activities
3.	Yoga for Human Excellence
4.	Indian Culture and Heritage
5.	Introduction to Cyber Security
6.	Consumer Protection
7.	Constitution of India
8.	Waste Management

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

Group 6. Drive-Through Course (DTC)

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 the students the opportunities 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
2. Coursera
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**
21AEC02/ 21AEC07/ 21AEC11/ 21AEC17	**AEC 1: PART I** Tamil -I-Tamil Aruvi-I/ Hindi-I/ French-I/ Malayalam-I	T	3	6	50	50	100	3	SD	L/ N G/ R/ N

21AEC22	**AEC 2: PART II** English-I: English for Professional Communication	T	3	6	50	50	100	3	SD	G
21AEC41	**AEC 3: PART III** Probability and Statistics	T	3	5	50	50	100	3	SD	G
21**T**DC01A	**DSC 1A:** Operating System	E	2	3	25	25	50	3	SD/ EN	G
21**T**DC01B	**DSC 1B:** Practical: Operating System		2	3	25	25	50	2	SD/ EN	G
21**T**DC02	**DSC 2:** Practical: Introduction to Work Sheets	P	3	3	50	50	100	2	SD/ EN	G
21**T**DC03	**DSC 3:** Practical: Web Technology	P	3	4	50	50	100	3	SD/ EM	G
	ANCC-1(NF2F)	T	2	-	-	-	Completed	-	EM	G
Total				**30+ 2**			**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**
21AECO4/ 21AEC08/ 21AEC12/ 21AEC18	**AEC 4: PART I** Tamil -II-Tamil Aruvi-II/ Hindi-II/ French-II/ Malayalam-II	T	3	6	50	50	100	3	SD	G
21AEC24	**AEC 5 PART II** English-II: Campus to Corporate	T	3	6	50	50	100	3	SD	G
21AEC33	**AEC 6:PART III** Academic Skills for Computer Studies	T	3	3	50	50	100	3	SD	G
21**T**DC04	**DSC 4:** Data Structures	T	3	4	50	50	100	3	SD	G
21**T**DC05	**DSC 5:** Computer Networks	T	3	3	50	50	100	2	EM	G
21**T**DC06	**DSC 6:** Practical: Computer Networks	P	2	3	50	50	100	2	SD/ EM	G

21TDE01	**DSE 1 -** Discrete Mathematics	T	3	5	50	50	100	3	SD	G
	ANCC-2 (NF2F)		2	-	-	-	Completed	-	EN	G
Total				**30+2**			**700**	**19**		
	Semester III									
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**
21**T**DC07	**DSC 7:** Infrastructure Management	T	3	4	50	50	100	4	EN	G
21**T**DC08	**DSC 8:** Practical: Infrastructure Management	P	3	3	50	50	100	2	SD/ EN	G
21**T**DC09	**DSC 9:** Virtualization and Cloud	T	3	5	50	50	100	4	SD	G
21**T**DC10	**DSC 10:** Practical: Virtualization and Cloud	P	3	3	50	50	100	2	SD/ EM	G
21**C**GE01/ 21CGE02/ 21CGE03/	**GEC 1:** Agile Software Development/ Social Media Mining / Big Data Analytics/	T	3	5	50	50	100	4	SD/ EM	G
21**T**GE01A	**GEC 1A:** Problem Solving and Programming in Java	E	2	3	25	25	50	2	SD/ EM	G
21TGE01B	**GEC 1B:** Practical: Java Programming		2	2	25	25	50	2	SD/ EM	G
21CGE04/ 21**C**GE05/ 21CGE06/ 21**T**GE02	**GEC II:** Computer Forensics / Cyber Threat Intelligence / Green Computing / Physics for Computer Science	T	3	5	50	50	100	4	SD	G
21TDE02	**DSE 2:** Numerical Methods	T	3	5	50	50	100	3	EM	G
Total				**30**			**700**	**23**		
	Semester IV									
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**

21AEC40	**AEC 7:** Computational Thinking	T	3	3	50	50	100	3	SD	G
21AEC50	**AEC9: PART III-**Capstone Project	T	3	-	50	50	100	4	SD/ EM/ EN	G
21AEC51	**AEC9: PART IV-** Environmental Studies	T	3	3	50	50	100	3	SD	G
21**T**DC11A	**DSC 11A:** Process Management	E	2	4	25	25	50	3	SD/ EM	G
21**T**DC11B	**DSC 11B:** Practical: DevOps Tools		2	2	25	25	50	2	SD/ EM	G
21**T**DC12A	**DSC 12A:** Problem Solving and Programming in Python	E	2	3	25	25	50	3	SD/ EM	G
21**T**DC12B	**DSC 12B:** Practical: Python Programming		2	2	25	25	50	2	SD/ EM	G
21TDE03A	**DSE 3A:** Database Management System	E	2	3	25	25	50	2	SD/ EM	G
21TDE03B	**DSE 3B:** Practical: Database Management System		2	2	25	25	50	2	SD/ EM	G
21CDE08/ 21CDE09/ 21CDE10/	**DSE 4:** Embedded System / Robotics and Applications / PC Hardware	T	3	5	50	50	100	3	EM	G
21GEC01/ 21GEC02/ 21GEC03/ 21GEC04/ 21GEC05	**GEC 3:** Spoken Tamil/ Spoken Hindi/ Spoken Telugu/ Spoken Malayalam/ Spoken French	T	3	3	50	50	100	3	EN	G
Total				**30**			**800**	**30**		

	Semester V									
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**
21TDE04	**DSE 5:** Industrial Exposure Training	-	-	-	-	-	Completed		EN	G
21**T**DC13	**DSC 13:**Client Relationship Management	T	3	4	50	50	100	4	SD	G
21**T**DC14	**DSC 14:** Practical: Client Relationship Management	P	3	2	50	50	100	2	SD	G
21CDE12/	**DSE 6**: Ethical Hacking/	T	3	5	25	25	50	3	EN	G

21CDE14/ 21CDE16/ 21CDE18/ 21CDE20/ 21CDE30 /	Web Intelligence/ Android Programming/ Programming in C#.net/ Linux and Shell Programming/ Visualization analysis and Design/									
21CDE13/ 21CDE15/ 21CDE17/ 21CDE19/ 21CDE29/ 21CDE31/	**DSE 7**: Practical: Ethical Hacking/ Practical: Web Intelligence/ Practical: Mobile Application Development using Android/ Practical: C#.net/ Practical: Shell Programming/ Practical: Data Visualization Techniques	P	3	4	25	25	50	2	EN	G
21TDE04A	**DSE 8A**: Software Testing	E	2	3	25	25	50	3	SD/ EM	G
21TDE04B	**DSE 8B:** Practical: Software Testing Using Selenium		2	2	25	25	50	2	SD/EM	G
21TDE05A	**DSE 9A:** Introduction to Digital Technologies	E	2	3	25	25	50	3	SD/EM	G
21TDE05B	**DSE 9B:** Practical: Introduction to Digital Technologies		2	2	25	25	50	2	SD/ EM	G
21**C**GE07/ 21**C**GE08/ 21**C**GE09/ 21**T**GE03	**GEC 4:** Wireless Technology/ Internet of Things/ Cloud Computing/ Cognition and Problem Solving	T	3	5	50	50	100	4	SD	G
Total				**30**			**600**	**25**		

	Semester VI									
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**
21AEC56	**AEC 10:** PART IV Cyber Ethics	T	3	3	50	50	100	3	SD	G
21CDC14	**DSC 15:** Major Project	T	3	6	50	50	100	4	SD/ EM	G
21CDE25A	**DSE 10A:** R Programming	E	2	3	25	25	50	2	SD/ EM	G
21CDE25B	**DSE 10B:** Practical: R Programming		2	3	25	25	50	2	SD/ EM	G
21TDE06A	**DSE 11A:** NoSQL Database System	E	2	3	25	25	50	3	SD	G

21TDE06B	**DSE 11B**: Practical: No SQL database System		2	3	25	25	50	2	SD	G
21CDE27	**DSE 12:** Artificial Intelligence	T	3	4	50	50	100	4	EM	G
21**C**GE10/ 21**C**GE11/ 21**C**GE12/ 21**T**GE04	**GEC 5:** Organization Behaviour/ Human Resource Management/ Management Information System / User Interface Design	T	3	5	50	50	100	4	SD	G
	ANCC-3 Extension Activities	-	3	-	-	-	Grade	-	SD	G
Total				**30**			**600**	**24**		
	Total						**1400**	**140**		
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								

Semester-wise Distribution of Marks and Credits:

Semester	Total Marks	Total Credits
I	600	19
II	700	19
III	700	23
IV	800	30
V	600	25
VI	600	24
Total	**4000**	**140**

OFFERED BY

Semester	Course Code	Course Name	Programme	T/ P/ E	Ins. hrs	CIA	ES	Total Marks	Credit
I	21AEC41	**AEC 3: PART III-** Probability and	B.Sc. CS with CG	T	5	50	50	100	3

		Statistics							
II	21TDE01	**DSE 1**Discrete Mathematics	B.Sc. CS with CG	T	5	50	50	100	3
III	21TDE02	**DSE 2:** Numerical Methods	B.Sc. CS with CG	T	5	50	50	100	3

List of Courses Offered by Mathematics Department

List of Courses Offered by Electronics and Communication Systems Department (Any 2 out of 4) during Semester III and IV

Semester	Course Code	Course Name	Programme	T/ P/E	Ins. hrs	CIA	ES	Total Marks	Credit
III	21**T**GE02	**GEC 2:** Physics for Computer Science	B.Sc. CS with CG	T	5	50	50	100	4
IV	21CDE08	**DSE 5:** Embedded System	B.Sc. CS with CG	T	5	50	50	100	3
IV	21CDE09	**DSE 5:** Robotics and Applications	B.Sc. CS with CG	T	5	50	50	100	3
IV	21CDE10	**DSE 5**: PC Hardware	B.Sc. CS with CG	T	5	50	50	100	3

Amendments in 2021 Batch B.Sc. Computer Science with Cognitive Systems during V and VI Semester

- In semester V21TDC14 IT Infrastructure Library syllabus is Combined with Client Relationship Management
- In semester V 21TDE04DSE 5: Industrial Exposure Training is included.
- In Semester V 21TDC13A and 21TDC13B Client Relationship Management and Practical: Client Relationship Management embedded paper is split in to Theory and Practical paper as 21TDC13 and 21TDC14
- In Semester V 21TDE04A- Software Testing Course credit changed from 2 to 3

- In Semester V 21TDE5A -Introduction to Digital Technologies Course credit changed from 2 to 3