

**LEARNING OUTCOMES-BASED CURRICULUM
FRAMEWORK (LOCF)**

in the

UNDERGRADUATE PROGRAMME

B.Sc. Computer Science

With

Cognitive Systems

**FOR THE STUDENTS ADMITTED FROM THE
ACADEMIC YEAR 2022 - 2023 AND ONWARDS**



**HINDUSTHAN COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)**

**(Affiliated to Bharathiar University and
Accredited by NAAC) COIMBATORE-641028
TAMILNADU, INDIA.**

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DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS

PREAMBLE

Bachelor of Science in Computer Science with Cognitive Systems is a three years program spanning six semesters. Cognitive systems have substituted human competencies in diverse areas. Cognitive systems are technical systems capable of independently solving and developing strategies for human tasks. To accomplish this, these systems are equipped with cognitive capabilities for context comprehension, interaction, adaptation and learning. Cognitive systems can utilize artificial intelligence (AI) methods such as machine learning, neural networks and deep learning. Cognitive systems, which are already an indispensable element in many areas today, will have a major influence on growing numbers of industries and economic sectors in the future. This course is designed meticulously to fine tune Graduate research attributes and inculcate research interest among the students to pursue higher education or to get expertise in domain for employment. It also provides the scope for startup innovations in the domain.

VISION

To instigate the state-of-the-art technological trends and to cope up with the global challenges, this course provides a foundation. To understand the nuances of the cognitive system scenario and to get insights of environmental and ethical values, this course provides a holistic approach.

MISSION

The Mission of the course is to pursue a philosophy of subsequent acquisition of knowledge in cognitive systems. The significant aspect is to provide value-based education and to bring out the hidden potentials in students that equip them to approach life with optimism.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

Under Graduates of Computer Science with Cognitive Systems program will,

PEO1: Provides sufficient understanding of the field of computer science including principles, analysis techniques, and design methodologies.

PEO2: To understand, assess and practice ethical behavior in IT & ITES industries

PEO3: Graduates will communicate effectively, work collaboratively and exhibit high levels of professionalism and ethical responsibility.

PEO4: Demonstrate adaptability or leadership by, for example, being promoted, moving up to a better job, or by taking a leadership role in a team.

PEO5: Graduates are successfully employed, pursue a graduate degree, or continue their professional education.

PROGRAM OUTCOME (PO):

PO1 - DISCIPLINARY KNOWLEDGE: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

PO2 - PROBLEM SOLVING AND ANALYZING: Ability to use appropriately system design notations and apply system design engineering process in order to design, plan, and implement software systems

PO3 - ENVIRONMENT SUSTAINABILITY AND ETHICS: Understand the values of the sustainable computing, corporate responsibility and professional ethics in computing.

PO4 - MODERN TOOL USAGE: Ability to cope up with upgrades in computing industry, skill to use the tools and practices for the computer science discipline.

PO5 - CO-OPERATIVE TEAM WORK & COMMUNICATIVE SKILLS: Develop the ability to communicate effectively in a variety of professional contexts.

PO6 - SELF-DIRECTED AND LIFE-LONG LEARNING: Prepare the students for a career in information technology oriented business, industry, scientific and technical fields.

PO7 - ENHANCING RESEARCH CULTURE: Practice the research attributes for design and development of the IT enabled services and computing

PROGRAM SPECIFIC OUTCOME (PSO):

PSO1: Ability to use the techniques, skills, and modern engineering tools necessary for practice as a CSE professional.

PSO2: Our graduates will exhibit technical, personal, ethical, and professional leadership in their businesses, professions, and communities.

PSO3: An ability to design, implement, and evaluate a software or a software/hardware system, component, , runtime efficiency, as well as appropriate constraints related to economic, environmental, social, ethical, health and safety, and sustainability considerations.

PSO4: an ability to apply design and development principles in the construction of software systems of varying complexity.

PSO5: To inculcate effective communication skills with professional attitude.

**HINDUSTHAN COLLEGE OF ARTS & SCIENCE (AUTONOMOUS),
COIMBATORE-641028**

SCHEME OF EXAMINATIONS - CBCS & LOCF PATTERN

(For the Students admitted from the Academic year 2022-2023 and Onwards)

UG PROGRAMME

Programme: B.Sc.Computer Science with cognitive systems

Branch: Computer Science with cognitive systems

Part	Course Code	Course Type	Course Title	Credit points	Lecture Hours/ Week		Exam Duration (hours)	MAX. MARKS		
					Theory	Practical		I.E.	E.E	Total
Semester – I										
I	22LAT01/ 22LAH01/ 22LAM01/ 22LAF01	MIL	Tamil-I/Hindi-I/Malayalam – I/French-I	4	6		3	50	50	100
II	22ENG01	AECC	English – I	4	6		3	50	50	100
III	22TCU01	DSC	Core-I Operating System	4	4		3	50	50	100
III	22TCU02	DSC	Core-II Practical- I- Introduction to worksheets	2		4	3	50	50	100
III	22TCU03	DSC	Core-III Practical- II- Programming using operating system	2		4	3	50	50	100
III	22TCU04	GE	Allied-I Mathematics for Computing	4	5		3	50	50	100
IV	22TCUE01	AEE	Open Elective- I	2	3		3	100		100
IV	22GSU01	AECC	Environmental Studies	1	2		2	50	-	50
IV	22TCUV01	SEC	VAC – I/LifeSkills-I@/ Communicative English	1*	2		2	50		50**
IV	-	SEC	SDR-Students Development Report	Assessment will be in the Fifth Semester						
V	-	AECC	Extension Activities NSS/NCC/SPORTS/YRC/ SIS/SA	Assessment will be in the Fourth Semester						
Total				23	28	8		450	300	750

				Semester – II						
I	22LAT02/ 22LAH02/ 22LAM02/ 22LAF02	MIL	Tamil-II/ Hindi-II/ Malayalam-II/ French-II	4	6	*	3	50	50	100
II	22ENG02	AECC	English – II	4	6		3	50	50	100
III	22TCU05	DSC	Core -IV Computer Networks	4	4		3	50	50	100
III	22TCU06	DSC	Core-V Data Structures and Algorithm	4	4		3	50	50	100
III	22TCU07	DSC	Core -VI Practical- III- Programming using Computer Networks	2		4	3	50	50	100
III	22TCU08	DSC	Core-VII Practical- IV- Programming using HTML, CSS and JavaScript	2		3	3	50	50	100
III	22TCU09	GE	Allied-II Numerical Methods	4	5		3	50	50	100
III	22TCU10	SEC	Internship / Industrial Visit / Mini Project	1	-	-		100		100
IV	22TCUV02	SEC	VAC-II /LifeSkills- II @ / Language	1*	2	-	2	50		50**
IV	22TCUJ01	SEC	Aptitude / Placement Training	Grade*	2		2	50		50**
Total				25	29	7		450	350	800
Semester – III										
III	22TCU11	DSC	Core-VIII Process Management	5	5		3	50	50	100
III	22TCU12	DSC	Core –IX Python Programming	5	5		3	50	50	100
III	22TCU13	DSC	Core -X Practical – V : Programming using Python	3		5	3	50	50	100
III	22TCU14	DSC	Core –XI Practical – VI Virtualization and Cloud Computing	3		5	3	50	50	100

III	22TCU15	DSC	Core –XII Virtualization and Cloud Computing	3	3		3	50	50	100
III	22TCU16	GE	Allied-III Operations Research	4	5		3	50	50	100
IV	22TCUE02	AEE	Open Elective-II	2	3		3	100		100
IV	22GSU02	AECC	Human Rights	1	2		2	50		50
IV	22TCUJ02	SEC	Aptitude/Placement Training	Grade*	2		2	50		50**
IV	22TCUJ03	SEC	Online Course	-	1			-	-	C/NC [≠]
Total				26	26	10		450	300	750
Semester – IV										
III	22TCU17	DSC	Core –XIII Database Management System	5	5		3	50	50	100
III	22TCU18	DSC	Core -XIV Infrastructure Management	5	5		3	50	50	100
III	22TCU19	DSC	Core -XV Practical - VII: DBMS Applications	3		5	3	50	50	100
III	22TCU20	DSC	Core -XVI Practical–VIII: Infrastructure Management	3		5	3	50	50	100
III	22TCU21	GE	Allied-IV Business Accounting	4	5		3	50	50	100
III	22TCU22	DSE	Electives / DSE-I	4	4		3	50	50	100
III	22TCU23	SEC	Internship/ Institutional Training / Mini-Project	1	-		-	100	-	100
IV	22TCUV03	ACC	VAC–III	1*	2		2	50	-	50**
IV	22TCUJ04	SEC	Aptitude/ Placement Training	Grade*	2		2	50		50**
IV	22TCUJ05	SEC	Online Course	-	1		-	-	-	C/NC [≠]
IV	22GSU03	AECC	Internet Security	1	2		2	50	-	50
V	22GSU04	AECC	Extension Activities/ NSS/NCC/SPORT S/YRC/SIS/SA#	2	-		-		-	C/NC [≠]

Total				28	26	10	450	300	750		
Semester – V											
III	22TCU24	DSC	Core - XVII Software testing	5	5		3	50	50	100	
III	22TCU25	DSC	Core –XVIII Client Relationship management	5	5		3	50	50	100	
III	22TCU26	DSC	Core -XIX Practical – IX: Programming using Software Testing	3			6	3	50	50	100
III	22TCU27	DSC	Core- XX Practical - X Programming using Client Relationship Management	3			6	3	50	50	100
III	22TCU28	DSE	Electives / DSE-II	4	5		3	50	50	100	
IV	22TCUE03	AEE	Open Elective-III	2	3		3	100	-	100	
IV	22GSU05	AECC	General Awareness	1	1		2	50	-	50	
IV	22GSU06	AECC	Law of Ethics	1	-		2	50	-	50	
IV	22TCUV04	ACC	VAC–IV	1*	2			50	-	50**	
IV	22TCUJ06	SEC	Aptitude/ Placement Training	Grade*	2		2	50		50**	
IV	22TCUJ07	SEC	Online Courses		1			-	-	C/NC ^z	
IV	22TCUJ08	SEC	SDR-Student Development Report	2*	-	-	-	-	-	-	
Total				24	24	12		450	250	700	
Semester – VI											
III	22TCU29	DSE	Electives-DSE- III	4	5	-	3	50	50	100	
III	22TCU30	DSE	Electives- DSE–IV	4	5	-	3	50	50	100	
III	22TCU31	DSC	Core-XXI Self-Study Course	3	-	-	3	50	50	100	
III	22TCU32	SEC	Project Work /Student Research/Paper	5	5			50	50	100	
Total				16	15			200	200	400	
Grand Total				142						4150	

- *denotes Extra credits which are not added with total credits.
- ** denotes Extra marks which are not added with total marks.
- **VAC**-Value Added Course (Extra Credit Courses)
- *Grades depends on the marks obtained
- [≠] C-Completed/ NC- Not Completed

Range of Marks	Equivalent remarks
80 and above	Exemplary
70 – 79	Very good
60 – 69	Good
50 – 59	Fair
40 – 49	Satisfactory
Below 40	Not Satisfactory = Not completed

- Part IV & V not included in total marks and CGPA calculation.
- **I.E**-Internal Exam
- **E.E**-External Exam
- **J**-Job Oriented Course
- **E**-Open Elective Papers

PASSING MINIMUM

- Passing Minimum for UG 40% (Both Internal and External)

ABSTRACT FOR SCHEME OF EXAMINATION

(For the candidates admitted during the academic year 2022-2023 and onwards)

Part	Course	Papers	Credit	Total Credits	Marks	Total Marks
Part I	Languages/(MIL)	2	4	8	100	200
Part II	English/AECC-I	2	4	8	100	200
Part III	Core/DSC	21	2/3/4/5	74	100	2100
	Allied/GE	4	4	16	100	400
	Electives/DSE	4	4	16	100	400
	Project SEC	1	5	5	100	100
	<i>Internship/Institutional Training/Mini-Project</i>	2	1	2	100	200
Part IV	Open Electives/AEE	3	2	6	100	300
	AECC–EVS/HR/IS/GA/LE	5	1	5	50	250
	<i>Value Added Course</i>	2	1	2*	50	100**
	Placement/Aptitude SEC	4	Grade*	Grade*	50	200**
	Online courses/ SEC	3	-	-	-	C/NC
	Life Skills / SEC	2	1	2*	50	100**
	<i>SDR- Student Development Report</i>	1	2	2*	-	-
Part V	Extension Activities NSS /NCC/Sports/YRC/SIS/SA-AECC	1	-	2	-	C/NC
	Total			142+ (6 Extra Credits)		4150 +(400*)


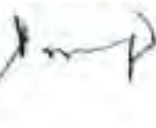
**List of Open Elective Papers
& VAC**

<p>Open Electives</p>	<p>Yoga for Human Excellence Human Health & Hygiene Indian Culture and Heritage Indian Constitution and Political System Consumer Awareness and Protection Professional Ethics and Human Values Human Rights, Women's Rights & Gender Equality Disaster Management Green Farming Campus to Corporate How to start a Business? Research Methodology and IPR General Studies for Competitive Examinations IIT JAM Examination (for Science only) CUCET Examination</p>
<p>Value Added Courses</p>	<p>a) Digital Marketing b) Mongo DB c) Network Reconnaissance d) SAP ERP Fundamentals e) Block Chain Technology f) Digital Humanities g) E Learning h) Network Administration & Troubleshooting i) VM Ware j) Project Management k) Web Technologies: HTML and CSS l) Web Technologies: JavaScript</p>


 Syllabus Coordinator

 Academic Council – Member Secretary

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 PRINCIPAL 

**List of Elective Papers / DSE
(Can choose any one of the paper as electives)**

	Course Code	Title
Electives/ DSE-I	22TCU22A	Electives/DSE-I IT Infrastructure Library(OR)
	22TCU22B	Electives/DSE-I Business Data Analytics (OR)
	22TCU22C	Electives/DSE-I Web Technologies and Multimedia
Electives/ DSE-II	22TCU28A	Electives/DSE-II IT Cognition(OR)
	22TCU28B	Electives/DSE-II Compiler Design(OR)
	22TCU28C	Electives/DSE-II Internet of Things
Electives/ DSE-III	22TCU29A	Electives-DSE-III Robotics(OR)
	22TCU29B	Electives-DSE-III Artificial Intelligence(OR)
	22TCU29C	Electives-DSE-III Machine Learning
Electives/ DSE-IV	22TCU30A	Electives-DSE-IV Deep Learning(OR)
	22TCU30B	Electives-DSE-IV Social Network Analysis(OR)
	22TCU30C	Electives-DSE-IV Software Project Management

UG - Scheme of Evaluation (Internal & External Components)

(For the students admitted during the academic year 2022-2023 and onwards)

1. Internal Marks for all UG

Components	Marks
Test I	10
Test II	10
Model Exam	10
Assignment	5
Attendance*	5
Internal Assessment components **	10
TOTAL	50

*Split-up of Attendance Marks

- ♣ 75-79 - 1 marks
- ♣ 80-84 - 2 marks
- ♣ 85-89 - 3 marks
- ♣ 90-94 - 4 marks
- ♣ 95-100 - 5 marks

** List of components for Internal Assessment (MCQ Compulsory)

S.No	Components
1	Multiple choice questions
2	Club activities
3	Assignment
4	Seminar

(Any two components from the above list with five marks each will be calculated .2x5=10 marks)

2. a) Components for Practical I.E.

Components	Marks
Test –I	15
Test - II	15
Observation	10
Application*	10
Total	50

b) Components for Practical E.E.

Components	Marks
Experiments/Exercise	40
Record	5
Viva	5
Total	50

3. Institutional/ Industrial Training, Mini Project and Major Project Work

Institutional /Industrial Training (I.E)		Mini Project (I.E)	Major Project Work		
Component	Marks	Marks	Component	Marks	Total Marks
Work diary	25	-	I.E: a)Attendance	20	
Report	50	50	b)Review/Work diary*	30	50
Viva-voce	25	50			
Total	100	100	E.E** a) Evaluation	30	
			b)Viva-voce	20	50
			Total		100

*Review is for Individual Project and Work Diary is for Group Projects (group consisting of minimum 3 and maximum 5)

**Evaluation of report and conduct of viva voce will be done jointly by Internal and External Examiners

4. Guidelines for Internet Security/Human Rights/ Law of Ethics/ Environmental Studies (Part IV)

Components	Marks
Two Tests (each 2 hours) of 20 marks each [4 out of 7 descriptive type questions 4 x 5 = 20 Marks]	40
Two assignments (2 x 5)	10
Total	50

5. Guidelines for General Awareness (Part IV)

Components	Marks
Two Tests (each 2 hours) of 25 marks each [50 objective type questions 50 x 1/2 = 25 Marks]	50

6. Guidelines for open Elective (Part IV)

Components	Marks
Two Tests (each 2 hours) of 50 marks each [5 out of 8 descriptive type questions 5 x 10 = 50 Marks]	100

7. Value Added Courses and Aptitude/Placement courses:

Components	Marks
Two Test (each 1 hour) of 25 marks each QP is objective pattern (25x1=25)	50
Total	50

Guidelines:

1. The passing minimum for these items should be 40%
2. If the candidate fails to secure 40% passing minimum, he / she may have to reappear for the same in the subsequent Semesters
3. Item No's:4,5,6 and 7 are to be treated as 100% Internal papers.
4. For item No.7, Tests conducted through online modules (Google Form/any other)
5. Item No.2: * - Application should be from the relevant practical subject other than the Listed programmes. It must be enclosed in the practical record.

UG PATTERN

QUESTION PAPER PATTERN FOR CIA I and CIA II EXAM

Reg.No:-----

Q.P.CODE:

HINDUSTHAN COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

----- DEGREE CIA-I/CIA-II EXAMINATIONS -----20---

(----- SEMESTER)

BRANCH: -----

SUBJECT NAME: -----

Time: Two Hours

Maximum:50 Marks

SECTION - A (6 x 1 = 6 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks

(Q.No: 1 to 6: Multiple choice/Fill up the blanks /True or False questions)

SECTION - B (4x 6 = 24 marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks

(Q.No: 7 to 10 Either Or type)

SECTION - C (2x10 = 20 marks)

Answer any **TWO** Questions out of **THREE** Questions

ALL Questions Carry **EQUAL** Marks

(Q.No: 11 to 13)

QUESTION PAPER PATTERN FOR MODEL/END SEMESTER EXAMINATION

Reg.No:-----

Q.P.CODE:

HINDUSTHAN COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

----- DEGREE MODEL EXAMINATIONS -----20-----

(-----SEMESTER)

BRANCH : -----

SUBJECT NAME:-----

Duration: Three Hours

Maximum: 70 Marks

SECTION - A (10x1=10 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks

(Q.No 1 to 10 Multiple choice/Fill up the blanks /True or False questions)

(Two questions from each unit)

SECTION - B (5x6=30 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks

(Q.No 11 to 15 Either or type)

(One question from each Unit)

SECTION- C (3x10=30 Marks)

Answer any **THREE** Questions out of **FIVE** Questions

ALL Questions carry **EQUAL** Marks

(Q.No 16 to 20) (One question from each Unit)

Blue Print of Question Paper for all UG Programmes

(For the academic year 2021-22, 2022-23)

FOR CIA I, CIA II - QUESTION PATTERN

Max. Marks: 50

Sec	Question No	Type	No of Question	Questions to be answered	Mark per question	K-level
A	1 to 6	MCQ/ True or False/ Fill up	6	6	1 (6x1=6)	All Questions will be K1
B	7 to 10	Either or Type (a or b)	8	4	6 (4x6=24)	4 Questions will be in K2 4 Questions will be in K3
C	11 to 13	Open choice	3	2	10 (2x10=20)	1 Question will be in K3 2 Question will be in K4

FOR MODEL/ESE - QUESTION PATTERN

Max. Marks:70

Sec	Question No	Type	No of Question	Questions to be answered	Mark per question	K-level
A	1 to 10	MCQ/ True or False/ Fill up	10	10	1 (10x1=10)	All Questions will be K1
B	11 to 15	Either or Type (a or b)	10	5	6 (5x6=30)	6 Questions will be in K2 4 Questions will be in K3
C	16 to 20	Open choice	5	3	10 (3x10=30)	2 Question will be in K3 3 Question will be in K4

(For the academic year 2020-21)

FOR CIA I, CIA II - QUESTION PATTERN

Max. Marks:50

Sec	Question No	Type	No of Question	Questions to be answered	Mark per question	K-level
A	1 to 6	MCQ/ True or False/ Fill up	6	6	1 (6x1=6)	All Questions will be K1
B	7 to 10	Either or Type (a or b)	8	4	5 (4x5=20)	4 Questions will be in K2 4 Questions will be in K3
C	11 to 13	Either or Type (a or b)	6	3	8 (3x8=24)	3 Question will be in K3 3 Question will be in K4

FOR MODEL/ESE - QUESTION PATTERN

Max. Marks:70

Sec	Question No	Type	No of Question	Questions to be answered	Mark per question	K-level
A	1 to 10	MCQ/ True or False/ Fill up	10	10	1 (10x1=10)	All Questions will be K1
B	11 to 15	Either or Type (a or b)	10	5	4 (5x4=20)	6 Questions will be in K2 4 Questions will be in K3
C	16 to 20	Either or Type (a or b)	10	5	8 (5x8=40)	5 Question will be in K3 5 Question will be in K4

Blue Print of Question Paper

Distribution of section-wise marks with K levels for UG 2021-22, 2022-23

CIA							
Sec.	K1	K2	K3	K4	Total questions	Questions to be answered	Total marks
A -MCQ/T or F /Fill up	6				6	6	6x1=6
B - Either or type		4	4		8	4	4x6=24
C - Open choice			1	2	3	2	2x10=20
Total Marks	6	24	34	20			84
% of marks without choice	7.14	28.57	40.48	23.81			100

Model Exam							
Sec.	K1	K2	K3	K4	Total questions	Questions to be answered	Total marks
A- MCQ/T or F/ Fill up	10				10	10	10x1=10
B - Either or type		6	4		10	5	5x6=30
C - Open choice			2	3	5	3	3x10=30
Total Marks	10	36	44	30			120
% of marks without choice	8.33	30	36.67	25			100

Distribution of section-wise marks with K levels for UG (2020-21)

CIA							
Sec.	K1	K2	K3	K4	Total questions	Questions to be answered	Total marks
A MCQ/T or F/ Fill up	6				6	6	6x1=6
B - Either or type		4	4		8	4	4x5=20
C – Either or type			3	3	6	3	3x8=24
Total Marks	6	20	54	24			104
% of marks without choice	5.77	19.23	51.92	23.08			100

Model Exam							
Sec.	K1	K2	K3	K4	Total questions	Questions to be answered	Total marks
A MCQ/True or False/ Fill up	10				10	10	10x1=10
B - Either or type		6	4		10	5	5x4=20
C – Either or type			5	5	10	5	5x8=40
Total Marks	10	24	56	40			130
% of marks without choice	7.69	18.46	43.08	30.77			100

UG Programme Regulations for the academic year 2022-2023

1. Internal marks components for the candidates admitted from the academic year 2022-2023 and onwards is as follows.

For Theory courses

Components	Marks
Test I	10
Test II	10
Model Exam	10
Assignment	5
Attendance	5
Internal Assessment components	10
TOTAL	50

For Practical courses

Components	Marks
Test –I	15
Test – II	15
Observation/Exercise	10
Application*	10
TOTAL	50

2. The pattern of the question paper for External Examination will be maximum of 70 marks for theory courses, the marks obtained will be converted into 50 as per the scheme.
3. Passing minimum for all UG programme is 40% in Internal and 40 % in External and the composition of total 40 marks out of 100 marks.
4. Internship / Institutional Training / Mini-Project is related to the discipline. The students can be permitted to complete the Internship / Institutional Training / Mini-Project before the end of First year (end of II semester) and before the end of the second year (end of IV semester) and submit a report.

Internship / Institutional Training	Duration: Not more than seven days
Mini project	During the course of study for not more than seven days.

5. Project work is considered as a special course involving application of knowledge in problem solving/analyzing/exploring a real-life situation. A Project work may be given in lieu of a discipline specific elective paper. Distribution of marks for major project for all UG programme will be 50:50 pattern for both Internal and External in total of 100/200 marks.
6. Two tests for fully internal subjects should be conducted during CIA-I and CIA –II by the department.
7. Retest for the failure candidates in CIA I or CIA II or Part IV or Part V or Extra credit courses should be conducted during the model examination after getting approval from the COE office. The candidates who are not able to complete the minimum pass mark in internal components even getting chance of reappearance, will be treated as arrear candidates.
8. For the Theory cum Practical blended courses, 50:50 Internal and External pattern will be followed for theory examination and Fully internal pattern will be followed for Practical examination. For theory part, External examination will be conducted as regular pattern (max of 70 marks) and it will be converted into 25 marks.

Course	Internal Marks		External marks		Total marks (Max. marks 50)	
	Min.	Max.	Min.	Max.	Min.	Max.
Theory	10	25	10	25	20	50
Practical	20	50	-		20	50

For Practical components for Theory cum Practical courses (Fully Internal)

Components	Marks
Test I	10
Test II	10
Experiment/Excercise	20
Record	5
Viva	5
Total	50

The Internal mark 50 will be converted into 25.

9. For the candidates admitted under the Fast Track System (FTS) must register their names to their concerned department heads and get approval from the COE office at the beginning of the III semester.
10. Students who are not willing to select the Project/Research work in Semester VI, can chose the theory papers offered by their departments as per the prescribed theory pattern.
11. Self Study will be a Core Paper of the department for which the examination pattern will be as like part III courses is followed.
12. NSS / NCC/Sports/YRC / SIS / SA is mandatory for all students as per New Education Policy and the students must attend the allocated hours within two years and complete the programme. They will be evaluated during the end of second year (Fourth Semester) and also a certificate will be issued.
13. SDR – Student Development Report to be received by the department from the students till end of the fifth semester. (Evidences of Curricular activities and Co-curricular activities)
14. For online courses minimum of 2 certificates in any of the online platform is mandatory.
15. Open elective courses:
Departments can offer list of subjects which teaches moral ethics to the young community for the better future. The topics relevant to Indian ethics, Culture, Women rights, Yoga, Green farming, Indian constitution etc., as an open elective courses. These courses can be offered by the department or other department as inter department courses. Marks earned for this courses will not be included for CGPA calculations.

Extension Activities

NSS – National Service Scheme, as enrolled member with the College Unit.

NCC – National Credit Corps, as enrolled member with the College Unit.

SPORTS – Sports & Games Participation with College Team

YRC/RRC–Youth Red Cross / Red Ribbon Club, as enrolled member with the College Unit.

Rotaract Club - Rotaract Club, as enrolled member with the College Unit.

SIS – Special Interest Subjects, as approved by the Academic Council

SA – Social Activity for not less than 50 hours with NGGO like Aram Foundation / Shanthi Social Service /Siruthuli /Kulangal Pathukappu Amaipu /Old age Home / Nature Foundation / etc.

Regulations of Fast Track System (FTS)

- From the academic year 2021-22, our college is offering Fast Track System (FTS) for all UG and PG programmes. In this system, we are offering two courses under the course type of Discipline Specific Elective (DSE) in the sixth semester for all UG programmes and fourth semester for all PG programmes, which are equivalent and related with **National Programme on Technology Enhanced Learning/Study Webs of Active–Learning for Young Aspiring Minds (NPTEL/SWAYAM)** courses.
- The students have the option of taking two subjects of the sixth semester of their programme through NPTEL/SWAYAM portal from the list given by NPTEL and can complete the online course before fifth semester and submit the received original certificates to the COE office for getting approval. If the student completes these courses before the beginning of the sixth semester (UG)/fourth semester (PG), the candidate can be considered and exempted to write the examination from the assigned DSE courses in the sixth semester/fourth semester. They should complete only the self study course and project work during the VI/IV semester as assigned in the scheme. The candidate who completes the online courses and submits the successful course completion credentials, the credit transfer will be considered as per our Scheme of Examination for qualifying the degree. **The minimum duration of the registered online course must be 12 weeks.** Course duration of less than 12 weeks will not be considered.
- For all PG programmes, the candidates who were admitted during the academic year 2021-2022 under the Fast track system, for the self study course, the internal mark component will be as follows. For others regular internal pattern follows.

TEST	Max. Marks	Mode
CIA I	50 (50x1=50)	Online objective type
Model Exam.	50 (50x1=50)	Online objective type

Out of these two tests, the total marks will be converted into 40 marks as Internal.

- For all UG programmes, the candidates who were admitted during the academic year 2021-2022 under the Fast track system, for the self study course, the internal mark component will be as follows. For others regular internal pattern follows.

TEST	Max. Marks	Mode
CIA I	50 (50x1=50)	Online objective type
CIA II	50 (50x1=50)	Online objective type
Model Exam.	50 (50x1=50)	Online objective type

Out of three tests, the total mark will be converted into 30 marks as Internal.

- For the students admitted in Fast Track System, must enroll their names to the concerned department heads and get approval from the COE office at the beginning of III semester for all UG Programmes and at the beginning of II semester for all PG programmes.
- The students who cleared and got certified for online courses under the fast track system, the grade obtained will be converted into average marks of range. The received certificates must be submitted to the COE office for approval of the Controller and the Principal. The FTS courses will be treated as fully external.

DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: IB.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
I	DSC	22TCU01	Core-I Operating System	4	4	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	✓
	Skill Development	✓

Course Objectives
<ul style="list-style-type: none"> To connect the operating system and their functions. To classify the mechanisms of OS to handle processes and threads and their communications. To explain knowledge and hardware and software communication. To infer the management aspects of real-time and mobile operating systems. To evaluate real-time algorithm for task scheduling.

Unit	Course Contents	Hours	K Level
I	Windows-Hardware Basics - Operating System Overview & Windows - Windows 10 Essential - Client OS – Windows 10 - Users & Groups; IP Configuration - Client OS – Windows 10 - Tools & Utilities Client OS – Windows 10 , Installation ,Features, Disk Management; File systems-Use Backup and Recovery tools and Discover Windows Apps-searching the web-Monitoring and Tracking system Performance.	10	UPTO K4
II	Windows Server 2012 Overview–Server roles and migration-Installing Windows server-Delegation of Server Administration- Zone creation & DHCP LAB – Advanced Server Storage Management - Server ADS - Concepts & FSMO - Server OS – Windows Server 2012 Roles & Features Configuring Remote Management-understanding Features on Demand.	10	UPTO K4
III	Windows Server 2012 –Monitoring & Managing Windows Server 2012 - Group Policy Management - File& Print Services - Storage & Backup Management-DNS-Configuring DNS-DNS record types-Monitoring	10	UPTO K4

	and Troubleshooting DNS-Multiple server Management-Remote server administration tools		
IV	Windows File system– Windows Data center – VMware –Configuring Dynamic Memory, Smart paging, Resource Metering,-Guest Integration Services-Configuring Virtual Hard disks and Differencing Drives- Managing check points–Network Virtualization using Hyper-V – Configuring MAC Addresses- case studies	10	UPTO K4
V	Introduction to Linux:Versions, Components, Features; Installation of Linux OS, Managing Directories, Managing Files Introduction to Windows:Versions, GUI Components, Features; Installation of Client OS and Server OS	8	UPTO K4

Book for Study

1. William Stallings, “operating systems”, Pearson, PrenticeHall, 6th edition, 2021.

Books for Reference

1. Don Poulton & David Camardella,” Installing and Configuring Windows server 2012”, Pearson ITcertification
2. Pramod Chandra P.Bhatt, “An Introduction to Operating Systems”, Prentice Hall of India, 2013.
3. Andrew S.Tanenbaum, “Modern Operating System”, Prentice Hall of India, Second 2021.
4. Achyuts.Godbole,”Operating Systems”, Tata McGraw-Hill Publishing Company Ltd.2015.
5. Sara Perrott, Windows Server 2022 & Powershell All-in-One For Dummies, John Wiley & Sons Inc, 2022

Web Resources

1. <https://www.techtarget.com/whatis/definition/operating-system-OS>
2. <https://www.geeksforgeeks.org/introduction-of-operating-system-set-1/>

Pedagogy : Chalk & Talk, Exercise, Assignments & PPTs.

Rationale for Nature of the Course: Can explore the foundations of the operating system concepts through hands on installation of Windows Server 2012, Hyper V and Cloud basics

Activities to be given

1. Demonstrate installation of the Windows 2010 and Windows Server 2012
2. Case study assignment on the Hyper V and Cloud deployment


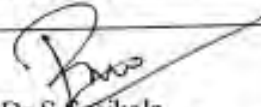

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	Categorize the basic concepts of operating system	UPTO K4
CLO2	Illustrate the roles and responsibilities of Windows	UPTO K4
CLO3	Differentiate the types of File services	UPTO K4
CLO4	Analyze the operations file systems and file management	UPTO K4
CLO5	Explain the basic concepts of cloud infrastructure	UPTO K4

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

CLOs	Programme Outcomes (with Graduate Attributes)						
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CLO1	3	3	3	2	3	3	2
CLO2	3	3	3	3	3	2	3
CLO3	3	2	3	3	3	3	3
CLO4	3	3	3	2	3	2	2
CLO5	3	3	3	3	3	3	2

3 – Advance Application 2 – Intermediate Level 1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
 Mr. R. Jayakumar	 Dr. S. SASIKALA M.Sc., MCA, M.Phil., PGDPM & IR., Ph.D., SET Head & Associate Professor Department of Computer Science with Cognitive Systems Hindusthan College of Arts & Science Coimbatore - 641 028.	

Curriculum
Hindusthan C.
Coimbatore

DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: I B.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
I	DSC	22TCU02	Core-II Practical I: Introduction To Worksheets	2	4	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	✓
	Skill Development	✓

Course Objectives			
<ul style="list-style-type: none"> • To infer essential skills in Microsoft Excel • To classify the basic concepts of worksheets • To order essential skills in reporting on a particular task using graphs. • To illustrate hands-on training for Database connectivity through DAO and ADO • To infer about the sorting and formatting skills 			
Ex.No	Program	Hours	K Level
1	Create an Excel application for Table management	4	UPTO K4
2	Deploy a Customized excel app for validation and custom controls	4	UPTO K4
3	Create a simple program for Nesting and Functions in excel	5	UPTO K4
4	Demonstrate an application for importing External Data in College management system	5	UPTO K4
5	Write a simple program for applying Data table in Excel application	5	UPTO K4
6	Create a simple program for demonstrate pivot table in Excel	5	UPTO K4
7	Create a desktop application with visual basic properties for registration form	5	UPTO K4
8	Demonstrate an application for Excel data into Visualbasic application	5	UPTO K4
9	Generate a ADO, DAO Application in visual basic	5	UPTO K4
10	Create a simple application for college management system with ADO properties in Visual basic	5	UPTO K4

Rationale for Nature of the Course: Can explore the foundations of the worksheets, database creation and ADO, DAO connectivity's

Activities to be given

1. Creation of the tables and database
2. Connecting Database through the DAO and ADO

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	Explain the basic concepts of Microsoft Excel	UPTO K4
CLO2	Analyze the critical thinking skills to design and create spreadsheets.	UPTO K4
CLO3	Classify the business requirements using spreadsheet vocabulary	UPTO K4
CLO4	Calculate mathematical formulas	UPTO K4
CLO5	Explain the working of Formatting and reporting	UPTO K4

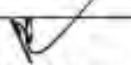
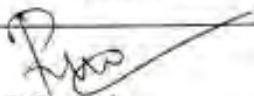

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

CLOs	Programme Outcomes (with Graduate Attributes)						
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CLO1	2	3	3	2	3	3	2
CLO2	3	3	3	3	3	3	3
CLO3	3	2	3	3	2	3	3
CLO4	2	3	3	2	3	3	3
CLO5	3	3	3	3	3	3	2

3 – Advance Application

2 – Intermediate Level

1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
 Mr. R. Jayakumar	 Dr. S. SASIKALA	

Dr. S. SASIKALA
M.Sc., MCA, M.Phil., PGDPM, M.A., Ph.D., JCT

Head & Associate Professor
Department of Computer Science with
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Coimbatore - 641 028.

Co-ordinator
Curriculum P
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Coimbatore

DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: IB.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
I	DSC	22TCU03	Core-III Practical II : Programming Using Operating System	2	4	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	
	Skill Development	✓

Course Objectives			
<ul style="list-style-type: none"> • To classify the computer system in an efficient manner. • To explain the installation of the Operating system with several configurations. • To illustrate operating system functions. • To organize the Hardware and software Devices • To devise the configuring system components 			
Ex. No	Program	Hours	K Level
1	Creating and managing deployment images in VMware	4	UPTO K4
2	Implement Monitoring, and maintaining virtual machine installations in VMWARE	4	UPTO K4
3	Installing and Configuring Windows 7	5	UPTO K4
4	Installing and Configuring Windows server 2012	5	UPTO K4
5	Installing and Configuring ADDS and DNS	5	UPTO K4
6	Creating and Managing objects in ADDS	5	UPTO K4
7	Creating and Managing resources	5	UPTO K4
8	Creating and Managing Group Policy in ADDS	5	UPTO K4
9	Installing, Configuring and Managing DHCP	5	UPTO K4
10	Installing, Configuring and Managing DNS	5	UPTO K4

Rationale for Nature of the Course: Can explore the foundations of the operating system concepts through hands on installation of Windows Server 2012, Hyper V and Cloud basics

Activities to be given

1. Demonstrate installation of the Windows 2010 and Windows Server 2012
2. Case study assignment on the Hyper V and Cloud deployment

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	Classify the concepts of Operating system	UPTO K4
CLO2	Focus on operating system concepts that includes architecture	UPTO K4
CLO3	Connect the components and management aspects of concurrency	UPTO K4
CLO4	Prioritize the important computer system resources	UPTO K4
CLO5	Correlate the concepts of management policies and algorithms.	UPTO K4

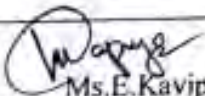
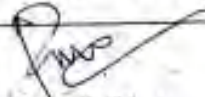

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

CLOs	Programme Outcomes (with Graduate Attributes)						
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CLO1	2	3	3	2	3	3	2
CLO2	3	3	3	3	3	3	2
CLO3	3	2	3	3	2	3	3
CLO4	2	3	3	2	3	3	2
CLO5	3	3	3	3	3	3	3

3 – Advance Application

2 – Intermediate Level

1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
 Ms. E. Kavipriya	 Dr. S. Sasikala Dr. S. SASIKALA M.Sc., MCA, M.Phil., PGDIP in IT, Ph.D., SET Head & Associate Professor	

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Co-ordinator
Curriculum Development
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Coimbatore

DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: IB.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
II	DSC	22TCU05	Core-IV Computer Networks	4	4	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	
	Skill Development	✓

Course Objectives			
<ul style="list-style-type: none"> • To explain advanced networking concepts • To analyze simple system communication • To prioritize simple network connections • To analyze about working of routing algorithms • To deduce about LAN connections with bridges and hubs. 			
Unit	Course Contents	Hours	K Level
I	Introduction To Computer Networks: Introduction: Definition of a Computer Network; What is a Network? Components of a computer network: Use of Computer networks; Networks for companies, Networks for people, Social Issues: Classification of networks; Based on transmission technology, Based on the scale, Local area networks, Metropolitan area networks, Wide area networks, Wireless networks	10	UPTO K4
II	Network Software & Network Standardization: Introduction: Networks Software; Protocol hierarchy, Design issues for the layers, Merits and De - merits of Layered Architecture, Service Primitives: Reference models; The OSI Reference Model, The TCP/IP Reference Model, Comparison of the OSI & the TCP/IP Reference Models. Data transmission modes; Serial & Parallel, Simplex, Half duplex & full duplex, Synchronous & Asynchronous transmission.	10	UPTO K4
III	Physical Layer: Introduction: Network topologies; Linear Bus Topology, Ring Topology, Star Topology, Hierarchical or Tree Topology, Topology Comparison, Considerations when choosing a Topology: Switching; Circuit switching, Message switching, Packet switching. Comparison of switching techniques: Multiplexing; FDM – Frequency division multiplexing, WDM – Wavelength	10	UPTO K4

	Division multiplexing, TDM – Time division multiplexing		
IV	Data Link Layer: Introduction; Goal of DLL: Design issues of DLL; Services provided to the Network layer, Framing, Error control, Flow control, Link Management, ARQ strategies: Error Detection and correction; Parity bits,, Single bit error correction. Error Detection or Cyclic Redundant Code (CRC): Data Link layer protocols; Transmission control protocols, HDLC	10	UPTO K4
V	Principles of Routing; Types of routing algorithms, Classes of routing algorithms, Properties of routing algorithms, optimality principle. Routing algorithms; shortest path algorithm, Flooding, Distance vector routing, Hierarchical routing, Link state routing, Transport Protocols; TCP protocol, UDP protocol: Networking Devices: Introduction; Goal of networking devices: Wireless Access Point (WAPs).	8	UPTO K4

Book for Study

Andrew S Tanenbaum, “Computer Networks”, Sixth Edition, PHI, 2021.

Books for Reference

1. David J.Wetherall, Andrew S.Tanenbaum, "Computer Networks", 5th Edition, Pearson Education, 2012.
2. Behrouz A. Forouzan, "Data Communication and Networking", 4th Edition, Tata McGraw Hill, 2017.
3. Silviu Angelescu, “CCNA Certification All-In-One for Dummies”, WileyPublishing. Inc., 2021
4. “Internetworking with TCP/IP, Volume 1” by Douglas Comer
5. “Computer Networking” by James F Kurose and Keith W Ross

Web Resources

1. <https://www.geeksforgeeks.org/basics-computer-networking/>
2. https://www.cisco.com/c/en_in/solutions/small-business/resourcecenter/networking/networking-basics.html

Pedagogy : Chalk & Talk, Exercise, Assignments & PPTs.

Rationale for Nature of the Course: Can explore the foundations of the computer networks, TCP/IP and OSI Reference models and routing basics

Activities to be given

1. Assignment on Network types
2. Assignment on Routing Techniques

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	Differentiate the key technological components of the computer network	UPTO K4
CLO2	Connect how computer networks are organized with the concept of layered approach.	UPTO K4
CLO3	Analyze how routing protocols work	UPTO K4
CLO4	Illustrate a simple LAN with hubs, bridges and switches.	UPTO K4
CLO5	Explain the layers of computer networks	UPTO K4

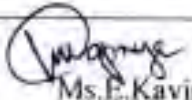
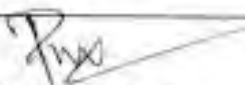
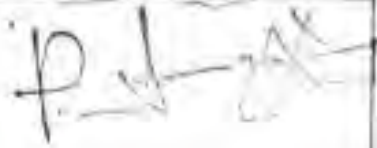
Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

CLOs	Programme Outcomes (with Graduate Attributes)						
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
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CLO3	3	2	3	3	3	3	2
CLO4	3	3	3	2	3	2	2
CLO5	3	3	3	3	3	3	2

3 – Advance Application

2 – Intermediate Level

1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
 Ms. E. Kavipriya	 Dr. S. SASIKALA M.Sc., MCA, M.Phil., PGDPM & IR., Ph.D., SET Head & Associate Professor	

Department of Computer Science with
Cognitive Systems
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Coimbatore - 641 028.

Coordinator
Hindusthan College of Arts & Science
Coimbatore

DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: IB.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
II	DSC	22TCU06	Core-V Data Structures and Algorithm	4	4	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	
	Skill Development	

Course Objectives			
<ul style="list-style-type: none"> • To dissect the concept of fundamental data structure. • To evaluate various data structure algorithm for developing applications. • To explain the types of software models • To illustrate the importance of sorting • To infer the types of trees and examine the designing methods 			
Unit	Course Contents	Hours	K Level
I	Introduction: Introduction to Algorithm –Arrays - Stacks and Queues- Fundamentals- Linked List: -Singly Linked List – doubly linked list and Dynamic-Sparse Matrices- Polynomial addition.	10	UPTO K4
II	Trees: Binary tree representations – Binary Tree Traversal – Threaded Binary Trees -Counting binary trees. Graphs: Terminology and representations - Traversals, Connected Components.	10	UPTO K4
III	Internal sorting: - Searching-Insertion Sort-Quick Sort-Heap Sort-2-way merge sort-Sorting on several keys. External Sorting: Storage device-Magnetic tape – Disk storage – Sorting with disk- K-way merging - Sorting with tape-Balanced Merge Sorts-Polyphase Merge.	10	UPTO K4
IV	Symbol tables: Static tree table –Dynamic Tree Tables-Hash tables - Hashing Functions-overflow handling-Theoretical evaluation of overflow techniques. Files: Files, Queries and Sequential organizations	10	UPTO K4
V	Index Techniques: -Hashed Index-tree indexing-Btrees File organizations: Sequential organizations- Random Organization- Linked Organization- Inverted Files-Storage Management.	8	UPTO K4

Book for Study

1. Ellis Horowitz, Sartaj Sahni and Sangu thevar, "Fundamentals of Data Structure", Galgotia Publications, 2020

Books for Reference

1. Shmuel Tomi Klein, "Basic Concepts in Data Structures", Cambridge University, 1ST Edition, 2016.
2. Ellis Horowitz, Sartaj Sahni, Susan Anderson Freed, "Fundamentals Of Data Structures In C", Universities Press (India) Limited, 2017.
3. Mark Allen Weiss, "Data Structure in Algorithm analysis in C", Pearson Education, Second Edition, Sixteenth Impression 2014.
4. Introduction to Algorithms by Thomas H. Cormen
5. Algorithms Unlocked by Thomas Cormen

Web Resources

1. <https://lpuguidecom.files.wordpress.com/2017/04/fundamentals-of-data-structures-ellis-horowitz-sartaj-sahni.pdf>
2. <https://towardsdatascience.com/8-common-data-structures-every-programmer-must-know-171acf6a1a42>

Pedagogy : Chalk & Talk, Exercise, Assignments & PPTs.

Rationale for Nature of the Course: Can explore the data structures stack, queues and trees, retrieval methods, searching and sorting techniques

Activities to be given

1. Assignment on stacks and queues
2. Case study assignment on the data structure in real world problems

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	Illustrate the fundamental concepts of data structures.	UPTO K4
CLO2	Classify the concepts of trees and graphs.	UPTO K4
CLO3	Analyze and experiment concepts of sorting.	UPTO K4
CLO4	Classify concepts of merging and Files.	UPTO K4
CLO5	Dissect different type of database models	UPTO K4

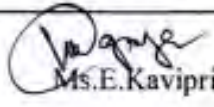
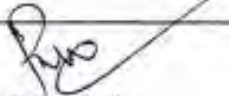

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

Programme Outcomes (with Graduate Attributes)							
CLOs	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO7
CLO1	3	3	3	2	3	3	3
CLO2	3	3	3	3	3	2	2
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CLO4	3	3	3	2	3	2	3
CLO5	3	3	3	3	3	3	3

3 – Advance Application

2 – Intermediate Level

1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
 Ms.E.Kavipriya	 Dr.S.Sasikala Dr. S. SASIKALA M.Sc.,MCA.,M.Phil.,PGDPM & IR.,Ph.D.,SET Head & Associate Professor Department of Computer Science with Cognitive Systems Hindusthan College of Arts & Science Coimbatore - 641 028.	

Dr. S. SASIKALA
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 Head & Associate Professor
 Department of Computer Science with
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 Hindusthan College of Arts & Science
 Coimbatore - 641 028.

Co-ordinator
 Curriculum & Assessment
 Hindusthan College
 Coimbatore

DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: I B.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
II	DSC	22TCU07	Core-VI Practical -III :Programming using Computer Networks	2	4	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	
	Skill Development	

Course Objectives			
<ul style="list-style-type: none"> • To explain essential skills in Cisco Packet Tracer • To classify the basic concepts of Basic Switch Setup • Essential skills in Configuring Switch Interfaces • To correlate the VLAN and VTP Configurations • To deduce the IP Routing using RIP 			
Ex. No	Program	Hours	K Level
1	Installation of Cisco Packet Tracer	4	UPTO K4
2	Configuration of Cisco Packet Tracer	4	UPTO K4
3	Basic Switch Setup	5	UPTO K4
4	Configuring Switch Interfaces	5	UPTO K4
5	VLAN and VTP Configuration	5	UPTO K4
6	Basic Router Setup	5	UPTO K4
7	Configuration of Static Routes	5	UPTO K4
8	Configuration of IP Routing using RIP	5	UPTO K4
9	Write a program for simple RSA algorithm to encrypt and decrypt the data.	5	UPTO K4
10	Write a program for congestion control using Leakybucket algorithm.	5	UPTO K4

Rationale for Nature of the Course: Can explore the protocols, RSA algorithm

Activities to be given

1. Simulation of the protocols
2. Travelling salesman problem using Dijkstra algorithm

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	Dissect various network commands	UPTO K4
CLO2	Classify the simulation tools	UPTO K4
CLO3	Evaluate various network protocols	UPTO K4
CLO4	Evaluate the challenges in building networks and solutions to those.	UPTO K4
CLO5	Classify the data communications	UPTO K4


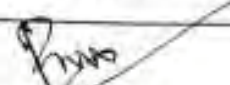

Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)

CLOs	Programme Outcomes (with Graduate Attributes)						
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CLO1	2	3	2	2	3	3	3
CLO2	3	3	3	3	3	3	3
CLO3	3	2	3	3	3	3	2
CLO4	2	3	2	2	3	3	3
CLO5	3	3	3	3	3	3	3

3 – Advance Application

2 – Intermediate Level

1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
 Mr. R. Jayakumar	 Dr. S. SASIKALA	

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DEPARTMENT OF COMPUTER SCIENCE WITH COGNITIVE SYSTEMS				CLASS: IB.SC (CS WITH CS)				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours / Week	CIA	Ext	Total
II	DSC	22TCU08	Core -VII Practical – IV: Programming Using HTML,CSS and JavaScript	2	3	50	50	100

Nature of Course		
Knowledge and Skill Oriented	Employability Oriented	✓
	Entrepreneurship Oriented	
	Skill Development	

Course Objectives			
<ul style="list-style-type: none"> • To connect HTML, CSS and Java Script for creating dynamic client-side web pages. • To infer the tags used in HTML • To experiment practical knowledge in web design • To explain sophisticated DHTML documents incorporate with CSS • To infer JavaScript 			
Ex. No	Program	Hours	K Level
1	Practice use of image, video and sound in HTML documents.	4	UPTO K4
2	Designing of web pages- Document layout, list and tables.	4	UPTO K4
3	Practicing Hyperlink of web pages, working with frames.	5	UPTO K4
4	Use of Form tags (Designing a registration form) <form>, <option>, <input>, Single and Multiple lines text fields, Password Field, Radio Button, Checkboxes, submit button, Select element, Text Area.	5	UPTO K4
5	Write CSS script by deploying DHTML	5	UPTO K4
6	Acquaintance with creating style sheet, CSS properties and styling.	5	UPTO K4
7	Write a Program for computing student mark list using JavaScript	5	UPTO K4
8	Program to implement text Editor using Java script	5	UPTO K4
9	Validate a form using JavaScript.	5	UPTO K4
10	Animate the background color of a document and Text using JavaScript.	5	UPTO K4

Rationale for Nature of the Course: Can explore the web design using HTML, CSS and Javascript

Activities to be given

1. Assignment on HTML tags
2. Assignment on static and dynamic websites and validation

Course Learning Outcomes

CLOs	On Completion of the Course, the students should be able to	K - Level
CLO1	To analyze the tags used in HTML document.	UPTO K4
CLO2	Categorize the Cascading Style Sheet to web pages.	UPTO K4
CLO3	Connect the CSS and HTML to forms and validations	UPTO K4
CLO4	Devise the client-side scripting using Java script.	UPTO K4
CLO5	Focus the DHTML with CSS	UPTO K4

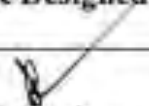
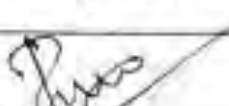
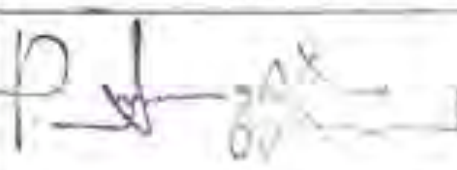
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CLO 2	3	3	3	3	3	3	3
CLO 3	3	2	3	3	3	3	2
CLO 4	2	3	2	2	3	3	2
CLO 5	3	3	3	3	3	3	3

3 – Advance Application

2 – Intermediate Level

1 – Basic Level

Course Designed by	Verified by HOD	Approved by CDC Co-ordinator
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