B.C.A Computer Applications

LOCF SYLLABUS – 2023-2024

CHOICE BASED CREDIT SYSTEM

The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning. Our College have has moved to CBCS and implemented the grading system.

OUTCOME-BASED EDUCATION (OBE)

LEARNING OUTCOME-BASED CURRICULUM FRAMEWORK (LOCF)

The fundamental premise underlying the learning outcomes-based approach to curriculum planning and development is that higher education qualifications are awarded on the basis of demonstrated achievement of outcomes (expressed in terms of knowledge, understanding, skills, attitudes and values) and academic standards expected of graduates of a programme of study. Learning outcomes specify what graduates completing a particular programme of study are expected to know, understand and be able to do at the end of their programme of study. The expected learning outcomes are used as reference points that would help formulate graduate attributes, qualification descriptors, programme learning outcomes and course learning outcomes which in turn will help in curriculum planning and development, and in the design, delivery and review of academic programmes. They provide general guidance for articulating the essential learnings associated with programmes of study and courses with in a programme, maintain national standards and international comparability of learning outcomes and academic standards to ensure global competitiveness, and to facilitate student/graduate mobility and provide higher education institutions an important point of reference for designing teaching-learning strategies, assessing student learning levels, and periodic review of programmes and academic standards.

Some important aspects of the Outcome Based Education

Course: is defined as a theory, practical or theory cum practical subject studied in a semester.

Course Outcomes (COs): are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course. Generally three or more course outcomes may be specified for each course based on its Weightage.

Programme: is defined as the specialization or discipline of a Degree.

Programme Outcomes (POs): Programme outcomes are narrower statements that describe what students are expected to be able to do by the time of graduation. POs are expected to be aligned closely with Graduate Attributes.

Programme Specific Outcomes (PSOs): PSOs are what the students should be able to do at the time of graduation with reference to a specific discipline.

Some important terminologies repeatedly used in LOCF.

Core Courses (CC) A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course. These are the courses which provide basic understanding of their main discipline. In order to maintain a requisite standard certain core courses must be included in an academic program. This helps in providing a universal recognition to the said academic program.

Discipline Specific Elective Courses (DSE) Elective course may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective (DSE). These courses offer the flexibility of selection of options from a pool of courses. These are considered specialized or advanced to that particular programme and provide extensive exposure in the area chosen; these are also more applied in nature.

Generic Elective Courses An elective course chosen generally from an **unrelated discipline/subject,** with an intention to seek exposure is called a Generic Elective. Generic Elective courses are designed for the students of **other disciplines**. Thus, as per the CBCS policy, the students pursuing particular disciplines would have to opt Generic Elective courses offered by other disciplines, as per the basket of courses offered by the college. The scope of the Generic Elective (GE) Courses is positively related to the diversity of disciplines in which programmes are being offered by the college.

Ability Enhancement Compulsory Courses (AECC)

"AECC" are the courses based upon the content that leads to Knowledge enhancement especially in Communicative English and other soft skills.

Skill Enhancement Courses (SECs) These courses focus on developing skills or proficiencies in the student, and aim at providing hands-on training. Skill enhancement courses can be opted by the students of any other discipline, but are highly suitable for students pursuing their academic programme. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge**.**

Field Study/Industrial Visit/Case Study: It has to be completed during the fifth semester of the degree programme. Credit for this course will be entered in the fifth semester's marks statement.

Internship: Students must complete internship during summer holidays after the fourth semester. They have to submit a report of internship training with the necessary documents and have to appear for a viva-voce examination during fifth semester. Credit for internship will be entered in the fifth semester's mark statement.

Extra Credit Courses: In order to facilitate the students, gaining knowledge/skills by attending online courses MOOC, credits are awarded as extra credits, the extra credit are at three semesters after verifying the course

completion certificates. According to the guidelines of UGC, the students are encouraged to avail this option of enriching their knowledge by enrolling themselves in the Massive Open Online Courses (MOOC) provided by various portals such as SWAYAM, NPTEL etc.

Undergraduate Programme:

Programme Pattern: The Under Graduate degree programme consists of **FIVE** vital components. They are as follows:

Part -I : Languages (Tamil / Hindi / French / Sanskrit)

Part-II : General English

Part-III: Core Course (Theory, Practicals, Generic Elective courses , Discipline Specific Elective courses , Compulsory and Optional Allied courses, Project)

Part-IV: Non Major Elective, Foundation Course, Ability Enhancement Compulsory Course, Value Education, Environmental studies, Skill Enhancement Courses/ Soft Skills, Internship / field visit / industrial visit/ Case Study), Professional Competency Course

Part –V

Extension activity, Gender studies

EXAMINATION

Continuous Internal Assessment (CIA):

UG - Distribution of CIA Marks

Passing Minimum: 40 %

Assignments – 3 = 30%

Tests- 2 = 50%

Seminar = 10 %

Attendance = 10 %

Question Paper Pattern

Part A:

Part A 1 (10X1=10 marks)

One word question/ Fill in/ True or False/ Multiple Choice Questions

Two Questions from Each unit

Part A 2 (5X2=10 marks)

Match the following / Short Answers
One question from Each unit
Total Marks – 20

Part B: (5X5=25 marks)
Paragraph Answers
Either/ or type, One Questions from each unit

Part C: (10X3=30)
Essay Type Answers
Answer 3 out of 5 Questions
One Question from each unit

Part A: K1 Level
Part B: K2, K3 and K4 Level
Part C: K5 and K6 Level

Knowledge levels for assessment of Outcomes based on Blooms Taxonomy

S. No.	Level	Parameter	Description
1	K1	Knowledge/Remembering	It is the ability to remember the previously learned
2	K2	Comprehension/ Understanding	The learner explains ideas or concepts
3	K3	Application/Applying	The learner uses information in a new way
4	K4	Analysis/Analysing	The learner distinguishes among different parts
5	K5	Evaluation/Evaluating	The learner justifies a stand or decision
6	K6	Synthesis /Creating	The learner creates a new product or point of view

WEIGHTAGE of K – LEVELS IN QUESTION PAPER

(Cognitive Level) K- LEVELS →	Lower Order Thinking			Higher Order Thinking			Total
	K1	K2	K3	K4	K5	K6	
END SEMESTER EXAMINATIONS (ESE)	20	25			30		**75**
Continuous Internal Assessment (CIA)	20	25			30		**75**

QUESTION PATTERN FOR SEMESTER EXAMINATION/ Continuous Internal Assessment		
PART		**MARKS**
PART –A I. (No choice ,One Mark) **TWO** questions from each unit **II.** (No choice ,Two Mark) **ONE** question from each unit	(10x1 =10) (5x2 =10)	**20**
PART -B (Either/ or type ,5-Marks) **ONE** questions from each unit	(5x5 =25)	**25**

PART -C (3 out of 5) (10 Marks) **ONE** question from each unit	(3x10 =30)	**30**
	Total	**75**

BLUE PRINT OF QUESTION PAPER FOR SEMESTER EXAMINATION							
DURATION: 3. 00 Hours.							**Max Mark : 100**
K- LEVELS	**K1**	**K2**	**K3**	**K4**	**K5**	**K 6**	**Total Marks**
PART							
PART –A (One Mark, No choice) (10x1 =10)	10						**10**
(2-Marks, No choice) (10x2=20)	10						**10**
PART –B (5- Marks) (Either/or type) (5x5=25)		5	10	10			**25**
PART -C (10 Marks) (3 out of 5) (3x10=30) Courses having only **K5,K6** levels, K5 level- 3 Questions, K6 level- 2 Questions **(One K6 level question is compulsory)**					20	10	**30**
Total	**20**	**05**	**10**	**10**	20	10	**75**

EVALUATION

GRADING SYSTEM

Once the marks of the CIA and the end-semester examination for each of the courses are available, they will be added and converted as final mark. The marks thus obtained will then be graded as per the scheme provided in Table-1.

Grade Point Average (GPA) will be calculated from the first semester onwards for all semester. From the second semester onwards, the total performance within a semester and the continuous performance starting from the first semester are indicated by semester Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA) , respectively. These twoare calculated by the following formulae:

$GPA = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{I=1}^{n} C_i}$	$WAM\,(Weighted\,Average\,Marks) = \frac{\sum_{i=1}^{n} C_i M_i}{\sum_{I=1}^{n} C_i}$
Where, C_i is the Credit earned for the Course i G_i is the Grade Point obtained by the student for the Course i M_i is the marks obtained for the course i and n is the number of Courses **Passed** in that semester.	

CGPA: Average GPA of all the Courses starting from the first semester to the current semester.

CLASSIFICATION OF FINAL RESULTS:

i) For each of the first three parts, there shall be separate classification on the basis of CGPA, as indicated in Table-2.

ii) For the purpose of declaring a candidate to have qualified for the Degree of Bachelor of Arts / Science / Commerce / Management as Outstanding/Excellent/Very Good/Good/Above Average/Average, the marks and the corresponding CGPA earned by the candidate in Part-III alone will be the criterion, provided the candidate has secured the prescribed passing minimum in the all the Five parts of the Programme.

iii) Grade in Part –IV and Part-V shall be shown separately and it shall not be taken into account for classification.

iv) A Pass in PART- V will be mandatory although the marks will not count for the calculation of the CGPA.

v) Absence from an examination shall not be taken an attempt.

Table-1: Grading of the Courses – UG

Marks Range	Grade Point	Corresponding Grade
90 and above	**10**	**O**
80 and above and below 90	**9**	A+
70 and above and below 80	**8**	**A**
60 and above and below 70	**7**	**B+**
50 and above and below 60	**6**	**B**
40 and above and below 50	**5**	**C**
Below 40	**0**	**RA**

Table- 2: Grading of the Courses – PG

Marks Range	Grade Point	Corresponding Grade
90 and above	**10**	**O**
80 and above and below 90	**9**	A+
70 and above and below 80	**8**	**A**
60 and above and below 70	**7**	**B+**
50 and above and below 60	**6**	**B**
Below 50	**0**	**RA**

Table-3: Final Result

CGPA	Corresponding Grade	Classification of Final Result
9.00 and above	**O**	**Outstanding**
8.00 to 8.99	A+	Excellent
7.00 to 7.99	**A**	**Very Good**
6.00 to 6.99	**B+**	**Good**
5.00 to 5.99	**B**	**Above Average**
4.00 to 4.99	**C**	**Average**
Below 4.00	**RA**	**Re-appearance**

Vision

To Empower the women students by providing excellent software engineering skills to meet the global needs of IT industry

.

Mission

- Providing quality education in computer science and its applications by updated knowledge through technology transfer
- Enhancing professional skills to satisfy the needs of the Software industries and Technical skills of the individual towards competitive world.

PROGRAMME OUTCOMES FOR B.C.A.,DEGREE PROGRAMMES

PO No.	Programme Outcomes (*Upon completion of the B.C.A. Degree Programme, the Undergraduate will be able to)*
PO-1	**Disciplinary knowledge**: Demonstrate comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate program of study in Bachelor of Computer Applications.
PO-2	**Critical thinking, Problem Solving and Reflective thinking:** think critically about the issues and identify, critically analyze and solve problems from the disciplines of concern using appropriate tools and techniques and the knowledge, skills and attitudes acquired and extrapolate the same to real life situations; show critical sensibility to life experiences, with self awareness and reflexivity of both self and society.
PO-3	**Analytical & Scientific Reasoning:** evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples and addressing opposing viewpoints; critically evaluate ideas, evidence, and experiences from an open minded and reasoned perspective.
PO-4	**Research-related Skills:** develop a sense of capability for relevant/appropriate inquiry and asking questions, synthesize, articulate and report results and to recognize and predict cause and effect relationships, define problems, formulate and establish hypothesis, analyze and interpret and draw conclusions from data, execute and report the results of an experiment or investigation.
PO-5	**Digital literacy and Effective Communication:** use ICT in a variety of learning situations and speak, read, write and listen clearly in person and through electronic media in English and in one or more Indian languages, and make meaning of the world by connecting people, ideas ,books, media and technology; efficiently communicate thoughts and ideas in a clear and concise manner.
PO-6	**Individual and Team Work:** effectively accomplish tasks individually as well as work effectively and respectfully as member or leader with diverse teams, facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interest so for a common cause and work efficiently as a member of a team.
PO-7	**Multicultural Competence and Social Interaction:** understand the values and beliefs of multiple cultures, global perspectives, engage and interact respectfully with diverse groups and elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO-8	**Awareness of Ethical issues, Human values and Gender Issues:** embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work and understand the value of relationship between self and the community and aware of the various issues concerning women and society.
PO-9	**Awareness of Environment and Sustainability:** understand the impacts of technology and business practices in societal and environmental contexts, and sustainable development.

PO-10	**Self-directed and Lifelong learning:** acquire knowledge and skills, including learning "how to learn", that are necessary for participating in learning activities throughout life and to engage in independent and life-long learning in the broadest context of socio-Technological changes.

PROGRAMME SPECIFIC OUTCOME (PSO)

PSO No.	Program Specific Outcomes (B.C.A.,DEGREE)
PSO1	Think in a critical and logical based manner
PSO2	Familiarize the students with suitable software tools of computer science and industrial applications to handle issues and solve problems in mathematics or statistics and real time application related sciences.
PSO3	Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand .
PSO4	Understand, formulate, develop programming model with logical approaches to a Address issues arising in social science, business and other contexts.
PSO5	Acquire good knowledge and understanding to solve specific theoretical and applied problems in advanced areas of Computer science and Industrial statistics.

B.C.A SYLLABUS

Syllabus

2023-2024

Programme Code: 3USBCA

SENGAMALA THAYAAR EDUCATIONALTRUST
WOMEN'S COLLEGE (AUTONOMOUS)

(Affiliated to Bharathidasan University, Tiruchirappalli)
(Accredited by NAAC)|(An ISO 9001:2015 Certified Institution)

Sundarakkottai,
Mannargudi – 614016,

Thiruvarur(Dt.),TamilNadu,India.

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

(Affiliated to Bharathidasan University)

(Accredited by NAAC | An ISO 9001:2015 Certified Institution)

SUNDARAKKOTTAI, MANNARGUDI – 614 016,

TAMILNADU, INDIA.

BACHELOR OF COMPUTER APPLICATIONS COURSE STRUCTURE UNDER CBCS

LEARNINIG OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(For the candidates admitted in the academic year 2023-2024)

ELIGIBILITY: Those who have completed +2 examinations with Mathematics as one of the core subject

Semester	Part	Nature of the Course	COURSE CODE	Title of theCourse	Inst. Hours /Week	L	T	P	O	Credit	Exam Hours	Marks		Total
												Int.	Ext.	
I	I	Language Course (LC)-I	U23LC101	Podhu Tamil I	6	5	1	-	-	3	3	25	75	100
	II	English Language Course(ELC)-I	U23ELC101	General English-I	6	5	1	-	-	3	3	25	75	100
	III	Core Course (CC) - I	U23CA101	Python Programming	5	4	1	-	-	5	3	25	75	100
		Core Practical (CP) - I	U23CA102P	Python Programming Lab	4	-	1	3	-	4	3	25	75	100
		Allied Course (AC) – I	U23AMA101	Statistics	3	3	-	-	-	2	3	25	75	100
		Allied Course (AC)-II	U23AMA102	Numerical Analysis	2	2	-	-	-	-	-	-	-	-
	IV	Non Major Elective I			2	2	-	-	-	2	3	25	75	100
		Foundation Course –FC	U23FCCA11	Fundamentals of Computers and Programming in C	2	2	-	-	-	2	3	25	75	100
				Total	**30**	**23**	**4**	**3**		**21**	-	-	-	**700**
II	I	Language Course (LC)-II-	U23LC202	Podhu Tamil II	6	5	1	-	-	3	3	25	75	100
	II	English Language Course(ELC) – II	U23ELC202	General English-II	6	5	1	-	-	3	3	25	75	100
	III	Core Course (CC) – II	U23CA203	Object Oriented Programming Concepts Using C++	5	4	1	-	-	5	3	25	75	100
		Core Practical (CP)– II	U23CA204P	C++ Programming Lab	4	-	1	3	-	4	3	25	75	100
		Allied Course (AC) – II	U23AMA102	Numerical Analysis	2	2	-	-	-	2	3	25	75	100
		Allied Course (AC) – III	U23AMA203	Operations Research	3	3	-	-	-	2	3	25	75	100
	IV	Non-Major Elective-II			2	2	-	-	-	2	3	25	75	100
		Skill Enhancement Course(SEC)- I	U23SECA21	Computer System Assembly and Troubleshooting	2	2	-	-	-	2	3	25	75	100
				Total	**30**	**23**	**4**	**3**		**23**	-	-	-	**800**

III	I	Language Course (LC)-III	U23LC303	Podhu Tamil III	6	5	1	-	-	3	3	25	75	100
	II	English Language Course(ELC) –III	U23ELC303	General English-III	6	5	1	-	-	3	3	25	75	100
	III	Core Course (CC) – III	U23CA305	Data Structures and Algorithms	5	4	1	-	-	5	3	25	75	100
		Core Practical (CP) – III	U23CA306P	Data Structures and Algorithms lab	4	-	2	2	-	4	3	25	75	100
		Allied Course (AC) – IV	U23ACOM301	Financial Accounting	3	3	-	-	-	2	3	25	75	100
		Allied Practical (AP) – I	U23ACOM302P	Accounting Package Lab	2	-	-	2	-	-	-	-	-	-
	IV	Skill Enhancement Course(SEC)-II	U23SECA32	MS Office Tools	2	2	-	-	-	2	3	25	75	100
		Skill Enhancement Course(SEC)-III	U23SECA33	Adobe Photoshop and Flash	2	2	-	-	-	2	3	25	75	100
		Total			**30**	**21**	**5**	**4**	**-**	**21**	**-**	**-**	**-**	**700**
IV	II	Language Course (LC)-IV	U23LC404	Podhu Tamil IV	6	5	1	-	-	3	3	25	75	100
	II	English Language Course(ELC) –IV	U23ELC404	General English-IV	6	5	1	-	-	3	3	25	75	100
	III	Core Course (CC) – IV	U23CA407	Programming in Java	5	4	1	-	-	5	3	25	75	100
		Core Practical (CP) –IV	U23CA408P	Programming in Java Lab	4	-	2	2	-	4	3	25	75	100
		Allied Course (AC)– V	U23ACOM403	Cost and Management Accounting	3	3	-	-	-	2	3	25	75	100
		Allied Practical (AP)– I	U23ACOM302P	Accounting Package Lab	2	-	-	2	-	2	3	25	75	100
	IV	Skill Enhancement Course(SEC)-IV	U23SECA44	Adobe PageMaker	2	2	-	-	-	2	3	25	75	100
		Skill Enhancement Course(SEC)-V	U23SECA45	Web Designing	2	2	-	-	-	2	3	25	75	100
		Total			**30**	**21**	**5**	**4**	**-**	**23**	**-**	**-**	**-**	**800**
V	III	Core Course (CC) –V		Operating Systems	5	4	1	-	-	5	3	25	75	100
		Core Course (CC) – VI		ASP.Net Programming	5	4	1	-	-	4	3	25	75	100
		Core Course (CC) –VII		Computer Networks	6	4	2	-	-	5	3	25	75	100
		Core Practical (CP) –V		ASP.Net Programming Lab	4	-	2	2	-	4	3	25	75	100
		Elective Course (EC)–I		Software Engineering/Cyber Security/Big Data Analytics	4	4	-	-	-	3	3	25	75	100

		Elective Course (EC)–II		Software Project Management/Natural Language Processing/IOT and its Applications	4	4	-	-	-	3	3	25	75	100
	IV	Environmental Studies		Environmental Studies	2	2	-	-	-	2	3	25	75	100
		Internship/ Industrial visit/ Field visit		Internship/ Industrial visit/ Field visit	-	-	-	-	-	2	-	-	-	-
				Total	**30**	**22**	**6**	**2**	**-**	**28**	**-**	**-**	**-**	**700**
VI	III	Core Course -VIII		Data Analytics Using R Programming	6	4	1	1	-	4	3	25	75	100
		Core Practical (CP)- VI		R Programming lab	6	-	1	5	-	4	3	25	75	100
		Core Course		Project with viva-voce/Group Project	**5**	**5**	**-**	**-**	**-**	5	3	25	75	100
		Elective Course (EC)–III		Software Metrics /Machine Learning/Cloud Computing/	4	3	1	-	-	3	3	25	75	100
		Elective Course (EC)–IV		Agile Project Management / Human Computer Interaction/ Grid Computing	4	3	1	-	-	3	3	25	75	100
	IV	Value Education		Value Education	2	2	-	-	-	2	3	25	75	100
		Professional Competency Skill		Mobile Application Development	2	2	-	-	-	2	3	25	75	100
	V	Gender Studies		Gender Studies	1	1	-	-	-	1	3	25	75	100
		Extension Activity		Extension Activity	-	-	-	-	-	1	-	-	-	-
				Total	**30**	**20**	**4**	**6**	**-**	**25**	**-**	**-**	**-**	**800**
		***Extra credit**		**MOOC / NPTEL /Swayam**	-	-	-	-	-	2	-	-	-	-
				Value Added Course (At least one per year)	-	-	-	-	-	3*2	-	-	-	-
				GRAND TOTAL	**180**	**-**	**-**	**-**	**-**	**141**	**-**	**-**	**-**	**4500**

Credit Distribution for UG PROGRAMME-BCA

S.No	Part	Subject	No. of Courses	Total Credits
1	I	Language Course	4	12
2	II	English Language Course	4	12
3	III	Core Course -Theory	8	38
4		Core Practical	6	24
5		Core Project	1	05
6		Allied Course Theory	5	10
7		Allied Course Practical	1	02
8		Elective Course	4	12
9	IV	Non-Major Elective	2	04
10		Foundation Course	1	02
12		Skill Enhancement Course	5	10
13		Internship/ Industrial Visit/ Field Visit	1	02
14		Environmental Studies	1	02
15		Value Education	1	02
16		Professional competency Course	1	02
17	V	Gender Studies	1	01
		Extension Activity	1	01
Total			**47**	**141**

.

Note:			
S.NO	**PARTICULARS**	**CIA**	**ESE**
1.	Theory	25	75
2.	Practical	25	75
3.Separate passing minimum is prescribed for Internal and External marks			

FOR THEORY

1. The passing minimum for CIA shall be 40% out of 25 marks [i.e.10marks]
2. The passing minimum for ESE shall be 40% out of 75marks [i.e.30marks]

FOR PRACTICAL

1. The passing minimum for CIA shall be 40% out of 25 marks [i.e.16marks]
2. The passing minimum for ESE shall be 40% out of 75marks [i.e.24marks]

NON-MAJOR ELECTIVE (NME)OFFEREDBYTHEDEPARTMENT

Semester	Part	Course Code	Course	Course Title
I	IV	U23NMECA11	NME-I	Fundamentals of Computer and Applications
II		U23NMECA22	NME-II	Introduction to HTML

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI- 614016.

(For the Candidates admitted in the academic year 2023 – 2024)

DEPARTMENT OF COMPUTER APPLICATIONS

BACHELOR OF COMPUTER APPLICATIONS (BCA)

Semester: III-CC-III: Data Structures and Algorithms

Ins. Hrs./Week: 5 **Course Credit:** 5 **Course Code: U23CA305**

UNIT-I: Introduction (15 Hours)

Abstract Data Types (ADTs)- List ADT-Array-based implementation-Linked list implementation Singly linked lists-Circular linked lists-Doubly-linked lists-Applications of lists-Polynomial Manipulation- All operations-Insertion-Deletion-Merge-Traversal.

UNIT- II: Stack and Queue (15 Hours)

Stack ADT-Operations- Applications- Evaluating arithmetic expressions – Conversion of infix to postfix expression-Queue ADT-Operations-Circular Queue- Priority Queue- de Queue-Applications of queues.

UNIT- III: Tree and Heap (15 Hours)

Tree ADT-Tree traversals-Binary Tree ADT- Expression trees-Applications of trees - Binary search tree ADT- Threaded Binary Trees-AVL Trees- B-Tree- B+ Tree – Heap-Applications of heap.

UNIT- IV: Graph (15 Hours)

Definition- Representation of Graph- Types of graph-Breadth first traversal – Depth first traversal-Topological sort- Bi-connectivity – Cut vertex- Euler circuits-Applications of graphs.

UNIT-V: Searching and Sorting (15 Hours)

Searching- Linear search-Binary search-Sorting - Bubble sort - Selection sort-Insertion sort –Shell sort - Radix sort – Hashing - Hash functions - Separate chaining - Open Addressing Rehashing Extendible Hashing

Total Lecture Hours: 75

COURSE OUTCOME

On completion of this course, students will be able to

1. Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.
2. Understand basic data structures such as arrays, linked lists, stacks and queues
3. Describe the hash function and concepts of collision and its resolution methods.
4. Solve problem involving graphs, trees and heaps.
5. Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.

TEXT BOOK(S)

1. Mark Allen Weiss – Data Structures and Algorithm Analysis in C++, Pearson Education 2014, 4th Edition.
2. Reema Thareja – Data Structures Using C, Oxford Universities Press2014, 2nd Edition

REFERENCE BOOK(S)

1. Thomas H.Cormen, Chales E.Leiserson, Ronald L.Rivest, Clifford Stein– Introduction to Algorithms, McGraw Hill 2009,3rdEdition.
2. Aho,Hop croft and Ullman – Data Structures and Algorithms, Pearson Education 2003.

E-RESOURCES:

1. https://nptel.ac.in/courses/106106127/
2. https://www.codechef.com/certification/data-structures-and-algorithms/prepare
3. https://www.geeksforgeeks.org/data-structures-2/
4. https://anubhavsinha98.medium.com/resources-to-master-data-structures-and-algorithms-24450dc6d52b
5. https://www.mta.ca/~rrosebru/oldcourse/263114/Dsa.pdf

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS)
SUNDARAKKOTTAI, MANNARGUDI- 614016.
(For the Candidates admitted in the academic year 2023 – 2024)
DEPARTMENT OF COMPUTER APPLICATIONS
BACHELOR OF COMPUTER APPLICATIONS (BCA)

Semester: III CP-III: Data Structures and Algorithms Lab

Ins. Hrs./Week: 4 **Course Credit:** 4 **Course Code: U23CA306P**

LIST OF PROGRAMS

1. Write a program to implement the List ADT using arrays and link lists.
2. Write a programs to implement the following using a singly linked list.
   - Stack ADT
   - Queue ADT
3. Write a program that reads an infix expression, converts the expression to postfix form and then evaluates the postfix expression. (use stack ADT).
4. Write a program to implement priority queue ADT.
5. Write a program to perform the following operations:
   - Insert an element into a binary search tree.
   - Delete an element from a binary search tree.
   - Search for a key element in a binary search tree.
6. Write a program to perform the following operations
   - Insertion into an AVL-tree
   - Deletion from an AVL-tree
7. Write a program for the implementation of BFS and DFS for a given graph.
8. Write a programs for implementing the following searching methods:
   - Linear search
   - Binary search.
9. Write a programs for implementing the following sorting methods:
   - Bubble sort
   - Selection sort
   - Insertion sort
   - Radix sort.

Total Lab Hours: 60

COURSE OUTCOME

On completion of this course, students will be able to

1. Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.
2. Understand basic data structures such as arrays, linked lists, stacks and queues
3. Describe the hash function and concepts of collision and its resolution methods.
4. Solve problem involving graphs, trees and heaps.
5. Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.

TEXT BOOK(S)

1. Mark Allen Weiss –Data Structures and Algorithm Analysis in C++, Pearson Education2014,4th Edition.
2. Reema Thareja –Data Structures Using C, Oxford Universities Press2014, 2nd Edition

REFERENCE BOOK(S)

1. Thomas H.Cormen, Chales E.Leiserson, Ronald L.Rivest, Clifford Stein– Introduction to Algorithms,McGraw Hill 2009,3rdEdition.
2. Aho,Hop croft and Ullman –Data Structures and Algorithms, Pearson Education 2003.

E-RESOURCES:

1. https://nptel.ac.in/courses/106106127/
2. https://www.codechef.com/certification/data-structures-and-algorithms/prepare
3. https://www.geeksforgeeks.org/data-structures-2/
4. https://anubhavsinha98.medium.com/resources-to-master-data-structures-and-algorithms-24450dc6d52b
5. https://www.mta.ca/~rrosebru/oldcourse/263114/Dsa.pdf

Semester: III-SEC-II: MS Office Tools

Ins. Hrs./Week: 2 **Course Credit: 2** **Course Code: U23SECA32**

UNIT-I: Computer Fundamentals **(6 Hours)**

Computer and Operating system Fundamentals–Components of a Computer System–Input and Output devices–Memory Handling–Storage Devices.

UNIT-II: MS Word **(6 Hours)**

Introduction to MS Word and Users Utilities – Exploring Templates & Formation of documents – Table Handling –Mail Merge and Print Process

UNIT-III : MS Excel **(6 Hours)**

Spreadsheet – Workbook Window – Formatting Cells, Worksheet –Working with Formula, Function and Charts – Filtering Data and Printing a Presentation.

UNIT-IV: MS PowerPoint **(6 Hours)**

Introduction to MS PowerPoint –Creating Templates–Font and Color editing–Adding–Multimedia Effects –Consolidating using MS Power Point.

UNIT V: Office Appliances **(6 Hours)**

Accounting Machine – Addressing Machine–Envelope Sealing Machine–Franking Machine & other Modern Office Gadgets.

Total Lecture Hours: 30

COURSE OUTCOME

On completion of this course, students will be able to

1. Know basic concepts in computers
2. Create MS Word documents
3. Use MS Excel spreadsheets
4. Create MS Power point slides
5. Know office appliances

TEXT BOOK(S)

1. Alexis Leon. 2000. Internet and MS-Office. Pearson Publications, London, UK
2. Mohan Kumar K,Rajkumar S.Computer Application in Business. Second Edition,Vijay NicoleImprints Private Limited, Chennai.
3. Pillai R S N, Bagavathi V. 2000. Office Management. S.Chand Publications, NewDelhi.
4. Rajaraman. 2018. Computer Basics and C programming. PHI Learning,New Delhi.
5. SrinivasaVallabhan S V. 2014. Computer Application in Business, Fifth Edition, Sultan Chand and Sons, New Delhi.

REFERENCE BOOK(S)

1. Gray B Shelly, Misty E Vermaat. 2010. Microsoft Office 2010: Introductory. Cengage Learning, Boston, USA.
2. Lisa Friedrichen. 2013. Enhanced Microsoft Access 2013. PHP publications, New Delhi.
3. Margo Chaney Adkins, Stephanie Murre. 2019. Skills for Success with Microsoft Office 2019 Introductory. First Edition, Pearson publishers, London, UK.
4. Mohan Kumar K ,RajkumarS. 2009. Computer Application in Business. SecondEdition, Tata McGraw-Hill Publishing Company Limited, NewDelhi.
5. SanfaySaxena. 2000. MS Office 2000 for Everyone. First Edition, VikasPublishing House Pvt. Ltd., Chennai.

E- RESOURCES:

1. https://www.informit.com/content/images/9780735699236/samplepages/9780735699 236.pdf
2. https://bookboon.com/en/office-programs-and-software-ebooks
3. http://www.mcrhrdi.gov.in/93fc/material/Computer%20Fundamentals%20&%20Offi ce%20Applications.pdf
4. https://download.microsoft.com/download/1/2/F/12F1FF78-73E1-4714-9A08- 6A76FA3DA769/656949ebook.pdf
5. https://freecomputerbooks.com/microsoftOfficeBooks.html

Semester: III-SEC-III: Adobe Photoshop and Flash

Ins. Hrs./Week: 2 **Course Credit: 2** **Course Code:U23SECA33**

UNIT- I: Introduction **(6 Hours)**

Introduction to Photoshop The Photoshop environment – Creating Custom work space – file browser – image Magnification – Displaying drawing guide – Display option – compact mode – Rotating the image – viewing slide show – Keywords.

UNIT-II: **Colors and Tools** **(6 Hours)**

Painting and Retouching Color settings – Color primer – Understanding color gamut – The RGB color model – The CMYK color model – Editing color settings – Selecting colors – Starting to paint –Color panel – Brush tool – Changing opacity –Brush Presets –Airbrush feature – Applying color to an image – Changing blending modes – The Eyedropper tool– Retouching images –Clone Stamp tool – Repairing fold lines – The History panel – The Spot Healing Brush – The Healing Brush Using the Patch tool

UNIT-III : Images **(6 Hours)**

Manipulating Images and Color correcting an image Adding image area – Viewing the on-screen ruler – Converting the Background into a layer – Scaling the background – Content-Aware Fill – Content-Aware Move – Content-Aware retouching. Choosing your color settings – Working in RGB – Reading a histogram – Making the Curve adjustment.

UNIT- IV: Flash **(6 Hours)**

An Introduction to Flash Web Production Understanding the Adobe Flash CS5 Blueprint - Exploring Web Technologies- Planning Flash Projects. Mastering the Flash Environment- Interface Fundamentals- Drawing in Flash- Symbols, Instances, and the Library- Applying Color- Working with Text- Modifying Graphics.

UNIT- V: Animation **(6 Hours)**

Creating Animation and Effects Timeline Animation and the Motion Editor- Applying Filters, Blends, Guides, and Masks Adding Sound -Importing Artwork- Displaying Video

Total Lecture Hours- 30

COURSE OUTCOME

On completion of this course, students will be able to

1. Understand the Photoshop concepts
2. Design and Paint a Picture
3. Manipulate the Image
4. Exploring the Web Technologies with flash
5. Creating animation and Effects using flash.

TEXT BOOK(S)

1. Andrew Faulkner , Conrad Chavez. 2017. “Adobe Photoshop CC Classroom in a Book”. Illustrated Edition, Adobe Press.(I – III Unit)

2. Todd Perkins, 2010, “Flash® Professional CS5 Bible” Wiley Publishing, Inc, ISBN: 978-0-470-60228-7 Manufactured in the United States of America.(IV & V Unit)

REFERENCE BOOK(S)

1. Eddie Tapp. 2006. Photoshop Workflow Setups: Eddie Tapp on Digital Photography, O'Reilly Media, Newton, USA.

2. Kate Binder. 2006. Easy Adobe Photoshop Elements 4.Illustrated Edition, O'Reilly Media, Newton, USA.

3. Lynch R. 2006.The Hidden Power of Photoshop Elements 4. Wiley Publication, New Jersey, USA.

4. James E. Shuman, 2012, “ADOBE FLASH CS6” Cengage Learning Publisher, 2013, USA

5. Fred Gerantabee, AGI Creative Team, 2012, Adobe Flash Professional CS6 Digital Classroom, John Wiley & Sons, 2012, New Jersey, US.

E-RESOURCES

1. https://www.guru99.com/
2. https://www.w3schools.in/category/photoshop/
3. https://www.pegaweb.com/
4. https://en.wikipedia.org/wiki/Adobe_flash
5. https://www.flashessential.com/basics/

Semester: IV-CC-IV: Programming in Java

Ins. Hrs./Week: 5 **Course Credit: 5** **Course Code:U23CA407**

UNIT-I: Introduction (15 Hours)

Introduction: Review of Object Oriented concepts – History of Java –Java buzzwords-JVM architecture-Data types-Variables-Scope and life time of variables -Arrays- Operators- Control statements- Type conversion and casting-Simple java program-Constructors-Methods-Static block-Static Data - Static Method String and String Buffer Classes.

UNIT- II: Inheritance and Packages (15 Hours)

Inheritance: Basic concepts - Types of inheritance - Member access rules - Usage of this and Super keyword-Method Overloading - Method overriding - Abstract classes - Dynamic method dispatch - Usage of final keyword. Packages: Definition - Access Protection- Importing Packages Interfaces: Definition–Implementation–Extending Interfaces. Exception Handling: try–catch- throw - throws–finally–Built-in exceptions- Creating own Exception classes.

UNIT-III: Multithreaded Programming and I/O streams (15 Hours)

Multithreaded Programming: Thread Class - Runnable interface – Synchronization –Using synchronized methods– Using synchronized statement – Inter thread Communication – Deadlock. **I/O Streams:** Concepts of streams – Stream classes - Byte and Character stream – Reading console Input and Writing Console output – File Handling.

UNIT- IV: AWT Controls and Exception Handling (15 Hours)

AWT Controls: The AWT class hierarchy – user interface components – Labels - Button-Text Components - Check Box - Check Box Group - Choice -List Box - Panels – Scroll Pane - Menu - Scroll Bar. Working with Frame class - Colour - Fonts and layout managers. **Event Handling:** Events- Event sources- Event Listeners - Event Delegation Model (EDM) – Handling Mouse and Keyboard Events - Adapter classes – Inner classes.

UNIT-V: Swing (15 Hours)

Swing: Introduction to Swing – Hierarchy of swing components. Containers-Top level containers- JFrame- JWindow - JDialog - JPanel - JButton –Jtoggle Button -JCheckBox-JRadioButton- JLabel, JTextField- JTextArea- JList-JComboBox -JScrollPane.

Total Lecture Hours: 75

COURSE OUTCOME

On completion of this course, students will be able to

1. Understand the basic Object-oriented concepts. Implement the basic constructs of Core Java.

2. Implement inheritance, packages, interfaces and exception handling of Core Java.
3. Implement multi - threading and I/O Streams of Core Java.
4. Implement AWT and Event handling.
5. Use Swing to create GUI.

TEXT BOOK(S)

1. Herbert Schildt, The Complete Reference, Tata McGraw Hill, New Delhi, 7thEdition, 2010.
2. Gary Cornell, Core Java2VolumeI– Fundamentals,AddisonWesley,1999.

REFERENCE BOOK(S)

1. Head First Java, O'Rielly Publications,
2. Y.Danie lLiang, Introduction to Java Programming,7th Edition ,Pearson Education India, 2010.

E-RESOURCES:

1. https://java beginners tutorial.com/core-java-tutorial
2. http://docs.oracle.com/javase/tutorial/
3. https://www.coursera.org/
4. https://www.quora.com/Java-programming-language-What-are-some-recommended-books-and-online-resources-for-learning-Java-for-beginner-intermediate-and-advanced-programmers
5. https://www.smart-academy.in/course/java-programming-course/

Semester: IV CP-IV: Programming in Java Lab

Ins. Hrs./Week: 4 **Course Credit: 4** **Course Code: U23CA408P**

LIST OF PROGRAMS

1. Write a Java program that prompts the user for an integer and then prints out all the prime numbers up to that Integer.
2. Write a Java program to multiply two given matrices.
3. Write a Java program that displays the number of characters, lines and words in a text.
4. Generate random numbers between two given limits using Random class and print messages according to the range of the value generated.
5. Write a program to do String Manipulation using Character Array and perform the following string operations:
    a. String length
    b. Finding a character at a particular position
    c. Concatenating two strings
6. Write a program to perform the following string operations using String class:
    a. String Concatenation
    b. Search a sub string
    c. To extract sub string from given string
7. Write a program to perform string operations using String Buffer class:
    a. Length of a string
    b. Reverse a string
    c. Delete a sub string from the given string
8. Write a java program that implements a multi-thread application that has three threads. First thread generates random integer every1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.
9. Write a threading program which uses the same method a synchronously to print the numbers 1 to 10 using Thread 1and to print 90 to100 using Thread 2.
10. Write a program to demonstrate the use of following exceptions.
    a. Arithmetic Exception
    b. Number Format Exception
    c. Array Index Out of Bound Exception
    d. Negative Array Size Exception
11. Write a Java program that reads on file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the

type of file and the length of the file in bytes.

12. Write a program to accept a text and change its size and font. Include bold italic options .Use frames and controls.
13. Write a Java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired.(Use adapter classes).
14. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result. Handle any possible exceptions like divide by zero.
15. Write a Java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green with radio buttons. On selecting a button, an appropriate message with–stop‖or–ready‖or –go‖ should appear above the buttons in a selected color. Initially there is no message shown.

COURSE OUTCOME

On completion of this course, students will be able to

1. Understand the basic Object-oriented concepts. Implement the basic constructs of Core Java.
2. Implement inheritance, packages, interfaces and exception handling of Core Java.
3. Implement multi - threading and I/O Streams of Core Java.
4. Implement AWT and Event handling.
5. Use Swing to create GUI.

TEXT BOOK(S)

1. Herbert Schildt, The Complete Reference, Tata McGraw Hill, New Delhi, 7thEdition, 2010.
2. Gary Cornell, Core Java2VolumeI– Fundamentals,AddisonWesley,1999.

REFERENCE BOOK(S)

1. Head First Java, O'Rielly Publications,
2. Y.Danie lLiang, Introduction to Java Programming,7th Edition ,Pearson Education India, 2010.

E-RESOURCES:

1. https://java beginners tutorial.com/core-java-tutorial
2. http://docs.oracle.com/javase/tutorial/
3. https://www.coursera.org/
4. https://www.quora.com/Java-programming-language-What-are-some-recommended-books-and-online-resources-for-learning-Java-for-beginner-intermediate-and-advanced-programmers
5. https://www.smart-academy.in/course/java-programming-course/

Semester: IV-SEC-IV: Adobe PageMaker

Ins. Hrs./Week: 2 **Course Credit: 2** **Course Code:U23SECA44**

UNIT- I: Introduction to Adobe PageMaker7.0 **(6 Hours)**

Getting Started with AdobePageMaker7.0 – Menu Bar – Toolbox and Palettes –Create and Save File –Creating a Simple Brochure– Importing Text and File– Manipulating Text Blocks– Page setup.

UNIT- II: Working with Text **(6 Hours)**

Formatting Text –Modifying Text – Creating New Text –Working with Multiple Pages– Paragraphs – Defining a Paragraph – Paragraph Style – Creating a New Style –Bullet and Numbering.

UNIT- III: Graphics and Text **(6 Hours)**

Working with Graphics – Drawing Tools – Frames – Stacked Objects – Selecting Multiple Objects – Importing Graphics – Cropping an Image – Control Palette – Graphics Inside Frames – Combining Graphics with Text – Textwrap – Captions.

UNIT- IV: Advanced Graphics options and Mail merge **(6 Hours)**

UsingAdvanced Graphics – Elements – Stoke and Fill –Outlines – AddingColor–UsingMailMerge– Frames – Creating a Frame – Change to Frame– Header and Footer –Multiple columns.

UNIT- V: Publications **(6 Hours)**

Importing and Exporting –Master Pages – Multiple Master Pages – The Publication Window– Making a Book List – Creating a Story –Story Editor –Spell Checking –Working with Long Publications – Links – Printing –Publishing Electronically.

Total Lecture Hours- 30

COURSE OUTCOME

On completion of this course, students will be able to

1. Use AdobePageMaker7.0
2. Know the Modifying Text
3. Apply Formatting options in Text
4. Use Advanced Graphics
5. Publish documents Electronically

TEXTBOOK(S)

1. Kevin Proot.2002. Adobe PageMaker 7.0.Cengage Learning, Boston, USA.
2. Joy L Starks, Misty E. Vermatt. 2016. Microsoft Publisher 2016 Introductory.FirstEdition,Cengage Learning, Boston, USA.

REFERENCEBOOK(S)

1. B Chagnon. 2002. The Publishing Business: Desktop Publishing Software. Michigan Publishing, Ann Arbor, Michigan, USA.
2. Bill Parsons. 2012. Graphics Design with Pagemaker. Cengage Learning, Boston,USA.
3. EllennBehovian, Erika Kendra. 2007. Adobe PageMaker 7. Pearson Publications,London, UK.
4. Erika Kendra. 2000. Adobe PageMaker 7.0. Business Publication Made Easy. AdobePublication, California, USA.
5. Linda Tapscott, Kate O'Day. 1999. Adode Page Maker 6.5 PlusProductivity Kit.Adobe Publication, California, USA.

E-RESOURCES

1. https://doi.org/10.3998/3336451.0008.107
2. https://www.textbooks.com/Catalog/DBO/Desktop-Publishing.php
3. https://en.wikipedia.org/wiki/Desktop_publishing
4. https://www.lifewire.com/what-is-desktop-publishing-1073862
5. https://www.pearson.com/us/higher-education/professional---career/information-technology/cis--office-applications/desktop-publishing/desktop-publishing.html

Semester: IV-SEC-V: Web Designing

Ins. Hrs./Week: 2 **Course Credit: 2** **Course Code:U23SECA45**

UNIT-I Introduction **(6-Hours)**

HTML: HTML – Introduction – tag basics – page structure-adding comments working with texts, paragraphs and line break. Emphasizing test- heading and horizontal rules - list-font size, face and color – alignment links – tables - frames.

UNIT-II **(6-Hours)**

Forms & Images Using Html: Graphics: Introduction-How to work efficiently with images in webpages, image maps, GIFanimation, adding multimedia, data collection with html forms textbox, password, listbox, combobox, textarea, tools for Building webpage front page.

UNIT-III- XML & DHTML **(6-Hours)**

XML & DHTML: Cascading style sheet (CSS)-what is CSS-Why we use CSS-adding CSS to your web pages-Grouping styles-extensible markup language(XML).

UNIT-IV- Dynamic HTML **(6-Hours)**

Dynamic HTML: Document object model (DCOM)-Accessing HTML & CSS through DCOM Dynamic Content styles & positioning – Event bubbling –data binding. JavaScript: Client-side scripting,What is JavaScript, How to develop JavaScript, simple JavaScript, variables, functions, conditions, loops and repetition.

UNIT-V-Advance script **(6-Hours)**

Advance script, JavaScript and objects, Java Scrip town objects, the DOM and web browser environments, forms and validations.

Total Lecture Hours- 30

COURSE OUTCOME

On completion of this course, students will be able to

1. Develop working knowledge of HTML
2. Ability to Develop and publish Web pages using Hypertext Markup Language(HTML).
3. Ability to optimize page styles and layout with Cascading Style Sheets(CSS).
4. Ability to develop a java script
5. An ability to develop web application using Ajax.

TEXTBOOK(S)

1. PankajSharma,–WebTechnology,SkKataria&SonsBangalore2011.
2. MikeMcgrath,–JavaScript,DreamTechPress2006,1stEdition.
3. AchyutSGodbole & AtulKahate,–WebTechnologies,2002,2ndEdition

REFERENCEBOOK(S)

1. LauraLemay,RafeColburn,JenniferKyrnin,–MasteringHTML,CSS&JavascriptWeb Publishing‖,2016.
2. DT Editorial Services(Author),–HTML5 BlackBook (CoversCSS3,JavaScript,XML, XHTML,AJAX,PHP,jQuery),Paperback2016,2ndEdition.

E-RESOURCES

1. https://www.geeksforgeeks.org
2. https://elearningindustry.com/9-online-resources-to-learn-web-design
3. https://webflow.com/resources
4. https://www.shiksha.com/online-courses/articles/best-resources-to-learn-web-development/
5. https://dribbble.com/tags/e-resources

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS) (SILVER JUBILEE INSTITUTION)
SUNDARAKKOTTAI, MANNARGUDI - 614016.

(For the Candidates admitted in the academic Year 2023–2024)

PG & RESEARCH DEPARTMENT OF COMMERCE
BCA - ALLIED

SEMESTER: III – AC - IV: FINANCIAL ACCOUNTING

Subject Code	L	T	P	S	Credits	Inst. Hours	Marks		
							CIA	External	Total
U23ACOM301	3	-	-	-	3	3	25	75	100

Learning Objectives	
LO1	To understand the basic accounting concepts and standards.
LO2	To They are prepared to calculate Gross profit & net profit earned by the organization.
LO3	To Bills of exchange are transferable between parties.
LO4	To learn the procedure of revising mistakes made while recording the transactions.
LO5	To Practice the process of preparing bank reconciliation by comparing cash book and bank

Prerequisites: Should have studied Accountancy in XII Std

UNIT-I Introduction to Accounting **(9-Hours)**

Accounting concepts - Conventions –Objectives - Rules of Double entry book keeping. Types of Accounting – Accounting Rules - Journal - Ledger - Trial Balance.

UNIT-II Preparation of Final Accounts **(9-Hours)**

Final Accounts of Sole Traders: Introduction – Meaning, Definition of Account – Trading-Profit and Loss Account -Balance Sheet.

UNIT-III Bank Reconciliation Statement **(9-Hours)**

Cash Book –Single Column, Double Column cashbook, Three Column Cash Book- Prepare Bank Reconciliation statement

UNIT-IV Rectification of Errors **(9-Hours)**

Introduction, Classification of Errors-Errors disclosed by Trial Balance and Not disclosed by Trial Balance -Rectification of errors

UNIT-V Bills of Exchange **(9-Hours)**

Meaning, Characteristics Bills of Exchange – Classification- Advantages of Bills of Exchange - Renewal of Bill - Retiring of Bills.

Total Lecture Hours: 45

THEORY 20% & PROBLEM 80%	
CO	**Course Outcomes** **Students will be able to:**
CO1	It helps to understand the basic concepts of accounting applied in the competitive corporate world.

CO2	Able to know the Preparation of Final Accounts for Sole Traders.
CO3	Students understand how to prepare Double-Column Cash Book is a prepare adding discount column along with cash column
CO4	It helps to know about the compensating of errors.
CO5	Able to know the students to prepare the Bills of exchange and promissory note.

TextBooks	
1.	S. P. Jain and K. L. Narang Financial Accounting- I, Kalyani Publishers, New Delhi.
2.	S.N. Maheshwari, Financial Accounting, Vikas Publications, Noida.
3.	Shukla Grewal and Gupta, "Advanced Accounts", volume 1, S.Chand and Sons, New Delhi.
4.	Radhaswamy and R.L. Gupta: Advanced Accounting, Sultan Chand, New Delhi.
5.	R.L. Gupta and V.K. Gupta, "Financial Accounting", Sultan Chand, New Delhi.
Reference Books	
1.	Dr. Arulanandan and Raman: Advanced Accountancy, Himalaya Publications, Mumbai.
2.	Tulsian , Advanced Accounting, Tata McGraw Hills, Noida.
3.	Charumathi and Vinayagam, Financial Accounting, S.Chand and Sons, New Delhi.
4.	Goyal and Tiwari, Financial Accounting, Taxmann Publications, New Delhi.
5.	Robert N Anthony, David Hawkins, Kenneth A. Merchant, Accounting: Text and Cases. McGraw-Hill Education, Noida.
NOTE: Latest Edition of Textbooks May be Used	
Web Resources	
1.	https://www.slideshare.net/mcsharma1/accounting-for-depreciation-1
2.	https://www.slideshare.net/ramusakha/basics-of-financial-accounting
3.	https://www.accountingtools.com/articles/what-is-a-single-entry-system.html

BCA – COMPUTER APPLICATIONS

Semester: IV-AP –I: Accounting Package Lab

Ins. Hrs. /Week:2 CourseCredit:2 Course Code: U23ACOM302P

1. Creation of company, Groups–Single & Multiple
2. Posting of Journal to ledger–Single &Multiple.
3. Preparation of Accounting vouchers.
4. Preparation of Trail balance.
5. Financial Statement: Trading account, profit and loss account and Balance sheet.
6. Preparation of Bank Reconciliation Statement
7. Preparation of Inventory :Stock Item, Stock Group, Stock category,
8. Preparation of VAT(Value Added Tax)
9. Inventory Voucher.
10. Preparation of TDS(Tax Deducted at Source)&Service Tax.

Total Lab Hours : 30

NOTE: Autonomous Practical Examination Hours: 3 Hour

SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE
(AUTONOMOUS) (SILVER JUBILEE INSTITUTION)
SUNDARAKKOTTAI, MANNARGUDI - 614016.

(For the Candidates admitted in the academic Year 2023–2024)

PG & RESEARCH DEPARTMENT OF COMMERCE
BCA - ALLIED

SEMESTER: IV – AC - VI: COST AND MANAGEMENT ACCOUNTING

Subject Code	L	T	P	S	Credits	Inst. Hours	Marks		
							CIA	External	Total
U23ACO403	3	-	-	-	3	3	25	75	100
Learning Objectives									
LO1	To Understand various costing methods and management techniques.								
LO2	To Apply Cost and Management accounting methods for both manufacturing and service industry								
LO3	To Prepare cost sheet, quotations, and tenders to organization for different works.								
LO4	To Analyze cost-volume-profit techniques to determine optimal managerial decisions.								
LO5	To Compare and contrast the financial statements of firms and interpret the results.								
Prerequisites: Should have studied Accountancy in XII Std									

UNIT-I: Concepts of Cost Accounting **(9-Hours)**

Cost Accounting–meaning–objectives–Nature and Scope–methods of costing–techniques of costing-Classification and coding of costs – inventory control – stock levels – inventory systems - methods of pricing material issues.

UNIT-II: Labour Costs **(9-Hours)**

Labour Costs – Direct and Indirect – Importance –Remuneration Method – Labour Performance Reports – Labour turn over and Stability.

UNIT-III: Process costing **(9-Hours)**

Process Costing - Normal and Abnormal Loss and Gains.

UNIT-IV Marginal Costing **(9-Hours)**

Management Accounting – Nature & Scope – Tools and Techniques – Ratio analysis – marginal costing– cost- volume profit analysis – Break-even analysis.

UNIT-V: Budget administration &Standard costing **(9-Hours)**

Budget administration – types of budget – advantages – budgeting and budgetary control - Standard Costing, Material, Labour and Overhead variances.

Total Lecture Hours: 45

THEORY 20% & PROBLEM 80%	
CO	**Course Outcomes** **Students will be able to:**
CO1	It Makes out the learner to understand the various concepts of costaccounting
CO2	IthelpstofindoutLabourcostsanditstypes,determineRemunerationandlabourperformance.
CO3	Concept of process costing can be easilyunderstood.
CO4	It explains the usage of various Ratios in managerial decisionmaking.
CO5	It Analyses the motive behind preparing the various budgets, establishing a budgetary control system and itsadministration.
TextBooks	
1.	S.P Jin and Narang, Csot account and management accounting, Kalyanipublications
2.	M. N. Arora,"Cost and Management Accounting", 8th Edition, Vikas Publishing House(P)Ltd.
3.	B.M.LallNigamandI.C.Jain, "Cost Accounting",Prentice-HallofIndia(P)Ltd.
Reference Books	
1.	Dr A Murthy &Dr S Gurusamy – Cost & Management Accounting, Vijay Nicole Imprints Pvt. Ltd.,Chennai.
2.	Jain S. P. Cost And Management Accounting, Edition – 425, KalyaniPublishers
3.	Dr. Srinivasan, 2013 Accounting For Management Edition – 1\375 , S. Chand227
4.	Jain S. P. Advanced Cost Accounting, Edition -450, KalyaniPublishers.
5.	Hilton, Maher and Selto, "Cost Management", 2nd Edition, Tata McGraw-HillPublishing CompanyLtd
NOTE: Latest Edition of Textbooks May be Used	
Web Resources	
1.	https://www.icsi.edu/WebModules/Publications/FULL_BOOK_PP-CMA-2017-JULY_4.pdf
2.	http://oms.bdu.ac.in/ec/admin/contents/387_P16MC42_2020051812424179.pdf
3.	https://www.accountingtools.com/articles/what-is-a-single-entry-system.html