



# **SOURASHTRA COLLEGE, MADURAI – 625004**

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## **BACHELOR OF COMPUTER APPLICATIONS (B.C.A)**

**SYLLABUS (Under CBCS based on OBE)**

**(For those admitted during 2024 – 2025 and after)**

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### **ABOUT THE DEPARTMENT**

The Bachelor of Computer Applications (BCA) was established in the year 2010 with Computer Applications Programme. Since then, the Department has been functioning successfully producing young Computer Science graduates every year, with well trained and experienced faculty members and supporting staff. So far, the Department has produced more than 400 (10 batches) Computer Science graduates and they were all well placed in various industries in India & Abroad. The Department has been producing excellent results over a period of 10 years. The Department has adequate infrastructure with a well-equipped Computer Laboratory with LCD projectors, a well stacked Department Library, and well-furnished class rooms.

### **VISION**

- Apply a broad understanding of the fundamental theories, concepts, and applications of Computer Science in their career.
- Analyze a multifaceted computing problem and to apply principles of computing and other relevant disciplines to identify solutions and compare alternative solutions to computing problems.
- Apply Computer Science theory and software development fundamentals to produce computing-based solutions.
- To attain an ability to use current techniques, skills, and tools necessary for computing practice.
- To affiance in a wide range of careers and/or graduate studies in computer science or related fields with a zeal for lifelong learning.
- To communicate effectively, both orally and in writing and engaged in collaborative teamwork.
- Recognize the social and ethical errands of a professional working in the discipline.

### **MISSION**

The Mission of the Department is to impart computer education to the students in the rural area of Madurai district, so that they become enlightened and intelligent and to improve the standards of their life, as well as to produce graduates who excel in research and service. We also aim to inculcate the attitudes and values that will motivate them towards the continuous process of learning and leadership. We strive to educate ground-breaking skills and technology for the benefit of learners through incessant up-gradation of curriculum.



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#### **GRADUATE ATTRIBUTES**

1. **(KB) A knowledge base for Computer Applications:** Demonstrated competence in university level mathematics, natural sciences, Computer Applications fundamentals, and specialized Computer Applications knowledge appropriate to the program.
2. **(PA) Problem analysis:** An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex Computer Applications problems in order to reach substantiated conclusions
3. **(Inv.) Investigation:** An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis and interpretation of data and synthesis of information in order to reach valid conclusions.
4. **(Des.) Design:** An ability to design solutions for complex, open-ended Computer Applications problems and to design systems, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural and societal considerations.
5. **(Tools) Use of Computer Applications tools:** An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern Computer Applications tools to a range of Computer Applications activities, from simple to complex, with an understanding of the associated limitations.
6. **(Team) Individual and teamwork:** An ability to work effectively as a member and leader in teams, preferably in a multi-disciplinary setting.
7. **(Comm.) Communication skills:** An ability to communicate complex Computer Applications concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.
8. **(Prof.) Professionalism:** An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.
9. **(Impacts) Impact of Computer Applications on society and the environment:** An ability to analyze social and environmental aspects of Computer Applications activities. Such ability includes an understanding of the interactions that Computer Applications has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.
10. **(Ethics) Ethics and equity:** An ability to apply professional ethics, accountability, and equity.
11. **(Econ.) Economics and project management:** An ability to appropriately incorporate economics and business practices including project, risk, and change management into the practice of Computer Applications and to understand their limitations.
12. **(LL) Life-long learning:** An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge



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#### **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)** **BACHELOR OF COMPUTER APPLICATIONS (BCA)**

<b>PEO 1</b>	An ability to apply knowledge of Mathematics and Computer science in practice.
<b>PEO 2</b>	An ability to exhibit professional competencies and knowledge for begin a successful technocrat
<b>PEO 3</b>	To prepare the young professional for a range of computer applications, Computer Organizations, techniques of Computer Networking, Software Engineering, Web Development, Database Management and Advance Java.
<b>PEO 4</b>	An ability to design a computing system to meet desired needs within realistic constraints such as safety, security and applicability in multidisciplinary terms with positive attitude.
<b>PEO 5</b>	An ability to administrate a Database system, Database security, Networking concepts and applicability in Aptitude test for competitive exams, multimedia application and soft skill development.
<b>PEO 6</b>	An ability to communicate effectively and to enhance programming skills of the young IT professionals

#### **UNDERGRADUATE (UG) PROGRAMME OUTCOMES (POs)**

Undergraduate (B.A., B.Sc., B.Com., B.C.A., B.B.A., etc..) is a 3 – year degree Programme with 6 semesters consisting the following Programme Outcomes (POs) under various criteria including critical thinking, problem solving, effective communication, societal/ citizenship/ ethical credibility, sustainable growth and employable abilities.

<b>PO 1</b>	<b>Critical Thinking:</b> Intellectual exploration of knowledge towards actions in clear and rational manner by understanding the logical connections between ideas and decisions.
<b>PO 2</b>	<b>Problem Solving:</b> Understanding the task/ problem followed by planning and narrow execution strategy that effectively provides the solution.
<b>PO 3</b>	<b>Effective Communication:</b> Knowledge dissemination by oral and verbal mechanisms to the various components of our society.
<b>PO 4</b>	<b>Societal/ Citizenship/ Ethical Credibility:</b> Realization of various value systems/ moral dimensions and demonstrate the empathetic social concern as well as equity in all the decisions, executions and actions.
<b>PO 5</b>	<b>Environmental Concern and Sustainable Growth:</b> Understanding the emerging environmental challenges and provide the possible contribution in sustainable development that integrates environment, economy and employment.
<b>PO 6</b>	<b>Skill Development and Employable Abilities:</b> Adequate training in relevant skill sector and creating employable abilities among the under graduates.



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#### **PROGRAMME SPECIFIC OUTCOMES (PSOs)**

On completion of **BCA Programme**, the students are expected /will be able to

<b>PSO 1</b>	develop as professionally competent citizens by applying the scientific knowledge of Computer Science with the ability to think clearly, rationally and creatively to support in evolving solutions to the social/public/scientific issues with responsible democratic participation
<b>PSO 2</b>	enterprise resourcefulness to identify, plan, formulate, design and evaluate solutions for complex computing problems that address the specific needs with appropriate consideration for Societal, Cultural, Environmental and Industrial domains.
<b>PSO 3</b>	develop holistically to ignite the lateral thinking ability in problem solving, acquisition of new skills, open-minded and organized way of facing problems with self awareness and evolving analytical solutions
<b>PSO 4</b>	create and initiate innovations effectively and communicate efficiently with the computing community and society at large to bridge the gap between computing industry and academia
<b>PSO 5</b>	understand, assess and committed to professional and ethical principles, norms and responsibilities of the cyber world through Digital Literacy, and the ability for work efficacy as a part of a team and engage effectively with diverse stakeholders
<b>PSO 6</b>	willingly embark on new ventures and initiatives with critical thinking and desire for more continuous learning focusing on life skills.



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#### **DISTRIBUTION OF CREDITS (UG PROGRAMME)**

<b>PAR T</b>	<b>SE M</b>	<b>COURSES</b>	<b>NO. OF COURSE S</b>	<b>HOUR S</b>	<b>CREDIT S</b>	<b>TOTAL CREDIT S</b>
<b>I</b>	<b>I-IV</b>	<b>LANGUAGE</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>12</b>
<b>II</b>	<b>I-IV</b>	<b>ENGLISH</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>12</b>
<b>III</b>	<b>I-VI</b>	<b>CORE</b>	<b>16</b>	<b>5-6</b>	<b>4</b>	<b>60</b>
<b>III</b>	<b>I-IV</b>	<b>ALLIED</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>20</b>
<b>III</b>	<b>V- VI</b>	<b>ELECTIVE</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>15</b>
<b>IV</b>	<b>I-V</b>	<b>SKILL BASED SUBJECT</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>12</b>
<b>IV</b>	<b>I</b>	<b>VALUE EDUCATION</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>IV</b>	<b>II</b>	<b>ENVIRONMENTA L STUDIES</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>IV</b>	<b>III, IV</b>	<b>NON MAJOR ELECTIVE</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>
<b>V</b>	<b>IV</b>	<b>EXTENSION ACTIVITY</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>
	<b>V</b>	<b>SELF – STUDY (SOFT SKILLS)</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>VI</b>	<b>SELF –STUDY (G.K. (ONLINE))</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>						<b>140</b>
<b>Any online courses in SWAYAM PORTAL</b>						



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#### **BACHELOR OF COMPUTER APPLICATIONS – COURSE STRUCTURE**

##### **SEMESTER – I**

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.	24UACT11	<b>Part – I: Tamil –</b> பொதுத் தமிழ் – I	6	3	25	75	100	3
	24UACH11	<b>Hindi –</b> General Hindi – I						
	24UACS11	<b>Sanskrit –</b> Poetry, Grammar and History of Sanskrit Literature						
2.	24UACE11	<b>Part – II: English –</b> General English – I	6	3	25	75	100	3
3.	24UCAC11	<b>Part – III: Core – 1:</b> Programming in C	5	3	25	75	100	4
4.	24UCACP1	<b>Part – III: Core – 2:</b> <b>Lab : C</b> Programming	5	3	40	60	100	4
5.	24UCAA11	<b>Part – III: Allied – 1:</b> Discrete Mathematics	4	3	25	75	100	4
6.	24UCAS11	<b>Part – IV: SBS – 1:</b> Digital Computer Fundamentals	2	3	25	75	100	2
7.	24UACVE1	<b>Part – IV: Value Education</b>	2	3	25	75	100	2
		<b>TOTAL</b>	<b>30</b>				<b>700</b>	<b>22</b>

##### **SEMESTER – II**

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.	24UACT21	<b>Part – I: Tamil –</b> பொதுத் தமிழ் – II	6	3	25	75	100	3
	24UACH21	<b>Hindi –</b> General Hindi – II						
	24UACS21	<b>Sanskrit –</b> Prose, Grammar and History of Sanskrit Literature						
2.	24UACE21	<b>Part – II: English –</b> General English – II	6	3	25	75	100	3
3.	24UCAC21	<b>Part – III: Core – 3:</b> Object Oriented Programming using C++	5	3	25	75	100	4
4.	24UCACP2	<b>Part – III: Core – 4:</b> <b>Lab : C++</b> Programming	5	3	40	60	100	4
5.	24UCAA21	<b>Part – III: Allied – 2:</b> Financial Accounting	4	3	25	75	100	4
6.	24UCAS21	<b>Part – IV: SBS – 2 :</b> Computer Organization & Architecture	2	3	25	75	100	2
7.	24UACES1	<b>Part – IV:</b> Environmental Studies	2	3	25	75	100	2
		<b>TOTAL</b>	<b>30</b>				<b>700</b>	<b>22</b>



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#### SEMESTER – III

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.		<b>Part – I: Tamil –</b> காப்பியமும் நாடகமும்	6	3	25	75	100	3
		<b>Hindi – Hindi – III</b>						
		<b>Sanskrit – Sanskrit – III</b>						
2.		<b>Part – II: English –</b> English For Enrichment – III	6	3	25	75	100	3
3.		<b>Part – III: Core – 5:</b> Java Programming	5	3	25	75	100	4
4.		<b>Part – III: Core – 6:</b> Lab : Java Programming	5	3	40	60	100	4
5.		<b>Part – III: Allied – 3:</b> Resource Management Technique	4	3	25	75	100	4
6.		<b>Part – IV: SBS – 3:</b> Lab : Office Automation	2	3	40	60	100	2
7.		<b>Part – IV: NME – 1 :</b> Introduction to Information Technology	2	3	25	75	100	2
<b>TOTAL</b>			<b>30</b>				<b>700</b>	<b>22</b>

#### SEMESTER – IV

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.		<b>Part – I: Tamil –</b> சங்க இலக்கியமும் அற இலக்கியமும்	6	3	25	75	100	3
		<b>Hindi – Hindi – IV</b>						
		<b>Sanskrit – Sanskrit – IV</b>						
2.		<b>Part – II: English –</b> English For Enrichment – IV	6	3	25	75	100	3
3.		<b>Part – III: Core – 7:</b> Data Structures and Algorithms	5	3	25	75	100	4
4.		<b>Part – III: Core – 8:</b> Lab : Data Structures and Algorithms	5	3	40	60	100	4
5.		<b>Part – III: Allied – 4:</b> Numerical Methods	4	3	25	75	100	4
6.		<b>Part – IV: SBS – 4:</b> Lab : Multimedia	2	3	40	60	100	2
7.		<b>Part – IV: NME – 2:</b> Web Programming	2	3	25	75	100	2
8.		<b>Part – V: Extension Activities</b>	–	–	–	–	100	1
<b>TOTAL</b>			<b>30</b>				<b>800</b>	<b>23</b>

Passed in the BoS Meeting held on 09/03/2024

Signature of the Chairman



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#### SEMESTER – V

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.		<b>Part–III–Core–9:</b> Operating System	6	3	25	75	100	4
2.		<b>Part–III–Core–10:</b> Relational Database Management System	6	3	25	75	100	4
3.		<b>Part–III–Core–11:</b> <b>Lab :</b> Web Technology	5	3	40	60	100	4
4.		<b>Part–III–Core–12:</b> Computer Networks	5	3	25	75	100	4
5.	<b>Part–III : Elective – 1:</b>		4	3	25	75	100	5
		Web Technology						
		Multimedia and its Applications						
		Mobile Computing						
6.		<b>Part – IV: SBS – 5:</b> Quantitative Aptitude	2	3	25	75	100	2
7.		<b>Part – IV: SBS – 6:</b> <b>Lab :</b> PL/SQL	2	3	40	60	100	2
8.		Soft Skills (Self–Study)	–	–	–	–	100	–
		<b>TOTAL</b>	<b>30</b>				<b>800</b>	<b>25</b>

\*One elective course to be chosen from THREE courses

#### SEMESTER – VI

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.		<b>Part – III: Core – 13:</b> Programming in Python	5	3	25	75	100	4
2.		<b>Part – III: Core – 14:</b> <b>Lab:</b> Python Programming	5	3	40	60	100	4
3.		<b>Part – III: Core – 15:</b> Software Engineering	5	3	25	75	100	4
4.		<b>Part – III: Core – 16:</b> <b>Lab:</b> Open Source Software Technologies	5	3	40	60	100	4
5.	<b>Part – III: Elective – 2:</b>		5	3	25	75	100	5
		Information Security						
		Data Mining						
		Unix and Shell Programming						
6.		<b>Part – III: Elective – 3: Project Work &amp; Viva Voce</b>	5	3	40	60	100	5
7.		General Knowledge (Self–Study)	–	–	–	–	100	–
		<b>TOTAL</b>	<b>30</b>				<b>700</b>	<b>26</b>

\*One elective course to be chosen from THREE courses





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### COURSE STRUCTURE – I SEMESTER

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.	24UACT11	<b>Part – I: Tamil –</b> பொதுத் தமிழ் – I	6	3	25	75	100	3
	24UACH11	<b>Hindi –</b> General Hindi – I						
	24UACS11	<b>Sanskrit –</b> Poetry, Grammar and History of Sanskrit Literature						
2.	24UACE11	<b>Part – II: English –</b> General English – I	6	3	25	75	100	3
3.	24UCAC11	<b>Part – III: Core – 1:</b> Programming in C	5	3	25	75	100	4
4.	24UCACP1	<b>Part – III: Core – 2:</b> <b>Lab :</b> C Programming	5	3	40	60	100	4
5.	24UCAA11	<b>Part – III: Allied – 1:</b> Discrete Mathematics	4	3	25	75	100	4
6.	24UCAS11	<b>Part – IV: SBS – 1:</b> Digital Computer Fundamentals	2	3	25	75	100	2
7.	24UACVE1	<b>Part – IV:</b> Value Education	2	3	25	75	100	2
		<b>TOTAL</b>	<b>30</b>				<b>700</b>	<b>22</b>

**CA** – Class Assessment (Internal)

**SE** – Summative Examination

**SBS** – Skill Based Subject

**NME** – Non –Major Elective

**T** – Theory

**P** – Practical

Passed in the BoS Meeting held on 09/03/2024

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCAC11	PROGRAMMING IN C	CORE – 1	5	–	4

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	25	75	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input checked="" type="checkbox"/>	Entrepreneurship <input checked="" type="checkbox"/>
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#### COURSE DESCRIPTION:

This course helps to provide the fundamental knowledge of a programming language and its features which enhances the user to write general purpose application programs.

#### COURSE OBJECTIVES:

- To introduce and form a firm foundation in programming
- To stress the importance of clarity ,simplicity and the efficiency in writing programs

#### COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	apply the basic concepts and develop program to find solutions for simple problems	Upto K3
CO 2	design programs to solve complex problems by using suitable control statements	Upto K3
CO 3	analyze the problem and design efficient program using functions	Upto K3
CO 4	use array and structure to handle volume of data	Upto K3
CO 5	use advanced data structures pointers and files for data processing	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



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#### **PROGRAMMING IN C**

##### **UNIT – I:**

Introduction to Algorithms and Flowchart – Feature of algorithm–Symbols in a Flowchart–Basic Structure of C Program – Constants, Variables and Data types: Character set – C tokens – Keywords and Identifiers – Constants – Variables – Data types – Declaration of variables and storage class – Assigning values to variables –Defining Symbolic Constants – Declaring variable as constants.

##### **UNIT – II:**

**Operators and Expressions:** Arithmetic, Relational, Logical, Assignment, Increment and Decrement, Conditional, Bitwise, Special operators – Arithmetic Expression – Evaluation of Expressions – Operator Precedence and Associativity.

**Managing Input and Output Operations:** Reading and Writing a character – Formatted input and output.

##### **UNIT – III:**

**Decision making and Branching:** If statement–simple If –If–Else–Nested If–Else –Else If Ladder–Switch statement–Conditional?: Operator–Go To Statement.

**Decision making and Looping:** WHILE statement– DO Statement – FOR statement.

**Arrays:** One–Dimensional Arrays–Declaration of One–Dimensional arrays – Initialization of One–Dimensional arrays– Two Dimensional arrays–Initializing Two Dimensional Arrays–Multi Dimensional arrays.

##### **UNIT – IV:**

**Character arrays and Strings:** Declaring and Initializing String Variables– Reading Strings–Writing Strings–Arithmetic operations on characters–putting strings together– Comparison of Two strings– String Handling functions.

**User Defined Functions:** Definition of Functions–Return values and their types–Function calls–Function Declaration– Category of Function– Recursion.

##### **UNIT – V:**

**Structures and Unions:** Defining a structure–Declaring Structure variables–Accessing structure members – Arrays of structures–Arrays within structures – Unions

**File Management:** Defining and Opening a File– Closing a File –I/O operations on Files.

##### **TEXT BOOK:**

*Programming in ANSI C.* E. Balagurusamy – Sixth Edition – Tata McGraw Hill

**Unit – I:** Material Provided for Algorithm. Chapter 1 – 1.8 , Chapter 2 – 2.2 to 2.12

**Unit – II:** Chapter 3 – 3.1 to 3.11 & 3.15,Chapter 4– 4.2 to 4.5

**Unit – III:** Chapter 5– 5.2 to 5.9 Chapter 6– 6.2 to 6.4, Chapter 7–7.1 to 7.7

**Unit – IV:** Chapter 8– 8.2 to 8.8 Chapter 9–9.5 to 9.14 & 9.16.

**Unit – V:** Chapter 10 –10.2 to 10.4,10.8,10.9,10.12 Chapter 12– 12.2 to 12.4



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#### REFERENCE BOOKS:

1. *Programming in C* – Radha Ganeshan– Scitech Publication
2. *Programming with C* – Smarajith Gohsh – Phi Publication

#### DIGITAL TOOLS:

1. <https://www.toppr.com/guides/computer-science/programming-methodology/problem-solving-methodologies/introduction-to-algorithms-and-flowcharts/#Terminal>
2. [http://www.kciti.edu/wp-content/uploads/2017/07/cprogramming\\_tutorial.pdf](http://www.kciti.edu/wp-content/uploads/2017/07/cprogramming_tutorial.pdf)
3. <https://www.skiet.org/downloads/cprogrammingquestion.pdf>
4. <https://phy.ntnu.edu.tw/~cchen/pdf/ctutor.pdf>

#### Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3					
CO2		2	1			2
CO3	2					
CO4	2		2	3		1
CO5	2	2	2	3	2	1

3. Advanced Application    2. Intermediate Development    1. Introductory Level

COURSE DESIGNER: Prof. S. E. HEMAPRIYA



# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCACP1	LAB: C PROGRAMMING	CORE – 2 LAB – I:	–	5	4

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	40	60	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input checked="" type="checkbox"/>	Entrepreneurship <input checked="" type="checkbox"/>
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#### COURSE DESCRIPTION:

This course helps to provide the fundamental knowledge of a programming language and its features which enhances the user to write general purpose application programs.

#### COURSE OBJECTIVES:

- To train the students to the basic concepts of the C-programming language.
- To improve the programming skills through C language.

#### COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	understand basic C program	Upto K3
CO 2	design various programs using if, if..else, for, while, do..while, switch..case	Upto K3
CO 3	execute programs using Arrays and strings	Upto K3
CO 4	execute programs using Structures and Functions	Upto K3
CO 5	execute programs using Files	Upto K3

K1- KNOWLEDGE (REMEMBERING), K2-UNDERSTANDING, K3-APPLY



# **SOURASHTRA COLLEGE, MADURAI – 625004**

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## **BACHELOR OF COMPUTER APPLICATIONS (B.C.A)**

### **SYLLABUS (Under CBCS based on OBE)**

(For those admitted during 2024 – 2025 and after)

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#### **LAB: C PROGRAMMING**

##### **Expression Evaluation**

1. Finding Simple Interest and Compound Interest
2. Centigrade to Fahrenheit and Fahrenheit to Centigrade
3. Finding roots of a quadratic equation
4. Finding Standard Deviation and Variance

##### **Conditional Statements**

1. EB Bill Generation
2. Print Grade of a student
3. Checking Prime Number, Perfect Number, Armstrong Number, Adam Number
4. Sum of the digits of a number

##### **Summation of Series**

1.  $\sin(x)$ , 2.  $\cos(x)$ , 3.  $\exp(x)$  (Comparison with built in functions)

##### **String Manipulation**

1. Counting the number of vowels, consonants, words, white spaces in a line of text and array of lines.
2. Reverse a string and check for palindrome.
3. Sub string detection, count and removal.
4. Finding and replacing substrings.

##### **Recursion**

1.  ${}^n P_r, {}^n C_r$
2. GCD of two numbers
3. Fibonacci sequence
4. Maximum & Minimum

##### **Matrix Manipulation**

1. Addition and Subtraction
2. Multiplication
3. Transpose, and trace of a matrix
4. Determinant of a Matrix

##### **Sorting and Searching**

1. Insertion Sort
2. Bubble Sort
3. Linear Search
4. Binary Search

##### **Functions**

1. Finding Factorial
2. Finding NCP value using recursion
3. Finding biggest element

##### **Structures**

1. Mark Sheet Preparation using structure
2. Paybill Preparation using structure

##### **Files**

1. Inventory Control using files
2. Maintaining Book Information using files

**COURSE DESIGNER: Prof. O. K. HARIHARAN**



# SOURASHTRA COLLEGE, MADURAI – 625004

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## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCA11	DISCRETE MATHEMATICS	ALLIED – 1	4	–	4

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	25	75	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input type="checkbox"/>	Entrepreneurship <input type="checkbox"/>
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#### COURSE DESCRIPTION:

This course helps to provide the fundamental knowledge of Discrete structures like Set theory, Relations, Functions, Matrices, Logic, Graph Theory

#### COURSE OBJECTIVES:

- To teach the basic concepts of Set theory and Relations
- To impart knowledge on solving problems using logic
- To help the students solve various problems using matrices.
- To give the basic concepts of Graph theory and its applications

#### COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	identify the basic concepts Set theory & Relations	Upto K3
CO 2	receive knowledge about Matrix Algebra	Upto K3
CO 3	understand the idea of Logics using Truth tables	Upto K3
CO 4	gain knowledge about the basic concepts of Graph Theory and its applications	Upto K3
CO 5	use array and structure to handle volume of data	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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#### DISCRETE MATHEMATICS

##### UNIT – I: SET THEORY AND RELATION

**Set Theory:** Sets – Notation and Description of sets – Subsets – Venn–Euler diagram – Operations on sets – Properties on Set operations – Verification of the Basic Laws of Algebra by Venn diagrams – The Principle of Duality

**Relations: Cartesian Product of Two Sets** – Relations – Representation of a Relation – Operations on Relations –Equivalence Relation.

##### UNIT – II: MATHEMATICAL INDUCTION AND RECURRENCE RELATION

**Mathematical Induction:** Techniques of Proof – Mathematical Induction.

**Recurrence Relation:** Recurrence – an introduction – Polynomials and their Evaluations – Recurrence Relations – Solution of Finite Order Homogenous (Linear) Relations – Solution of Non–Homogenous Relations.

##### UNIT – III: MATRIX ALGEBRA

**Introduction** – Matrix Operations – Inverse of a Square Matrix – Elementary Operations and Rank of a Matrix – Simultaneous Equations – Inverse by partitioning – Eigen Values and Eigen Vectors.

##### UNIT – IV: GRAPH THEORY AND SUB GRAPHS

**Basic Concepts :** Definitions – Incidence and Degree – Sub Graph – Graph Isomorphism – Some special Classes of Graph – Paths , Cycles and Connectedness – Worked Examples – Matrix representation of Graphs – Adjacency Matrix of Undirected Graph – Incidence Matrix – Path Matrix – Incidence matrix of digraph. (**Avoid Algorithms**)

##### UNIT – V: LOGIC

**Introduction** – TF statements – Connectives – Atomic and Compound statements – Well formed Formulae – The Truth Table of a Formula – Tautological Implications and Equivalence of Formulae – Replacement Process

##### TEXT BOOK:

*Discrete Mathematics*, Dr. M. K. Venkataraman, Dr. N. Sridharan and Dr. N. Chandrasekaran, National Publishing Company, 2012.

Unit I: Page No Section 1.1 to 2.9. Unit II: Page 4.1 to 5.19

Unit III: Page 6.1 to 6.41

Unit IV: Page 11.1 to 11.54

Unit V: Page 9.1 to 9.39

##### REFERENCE BOOK:

*Discrete Mathematical Structures with Applications to Computer Science* , Tremblay and Manohar McGraw Hill , 1997.

##### DIGITAL TOOLS:

1. <https://www.coursera.org/specializations/discrete-mathematics>
2. <https://www.javatpoint.com/discrete-mathematics-tutorial>
3. <https://medium.com/basecs/a-gentle-introduction-to-graph-theory-77969829ead8>

##### Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3					
CO2		2	1			2
CO3	2					
CO4	2		2	3		1
CO5	2	2	2	3	2	1

3. Advanced Application    2. Intermediate Development    1. Introductory Level

**COURSE DESIGNER: Prof. V.B.SHAKILA**

Passed in the BoS Meeting held on 09/03/2024

Signature of the Chairman





# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCAS11	DIGITAL COMPUTER FUNDAMENTALS	SBS – 1	2	–	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	25	75	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input type="checkbox"/>	Entrepreneurship <input type="checkbox"/>
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#### COURSE DESCRIPTION:

The course enables the students to design Digital Circuits using basic logic gates and simplified Boolean functions and to understand concepts of sequential circuits and combinational circuits

#### COURSE OBJECTIVES:

- To give knowledge about basic number systems like Binary, Octal, Decimal, Hexadecimal number system
- To inculcate knowledge on basic logic gates and Boolean algebra
- To give knowledge on the physical internal components of computers like Multiplexers, Decoders, Encoders, Flip–flops.

#### COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	describe the basics of Number Systems, Codes	Upto K3
CO 2	understand the concept of logic gates and Boolean Laws and Theorems.	Upto K3
CO 3	develop the logic circuit using k–map and truth tables.	Upto K3
CO 4	know the design of multiplexer, demultiplexer, decoder and encoder.	Upto K3
CO 5	know binary addition and apply the concept of flip flop.	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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### DIGITAL COMPUTER FUNDAMENTALS

#### UNIT-I:

Binary Numbers – binary to decimal – decimal to binary – octal – hexa decimal – ASCII code – Excess-3 code – Gray Code.

#### UNIT – II:

Basic gates – Inverter – OR gates – AND gates – Universal Logic gates – NOR gates – NAND gates – Boolean Laws and Theorems.

#### UNIT – III:

Sum of product method – K-Map truth tables – Pairs, Quads, Octets – K-Map simplifications – Don't care – product of sum method – product of sum simplification.

#### UNIT – IV:

Multiplexers – Demultiplexers – 1- of – 16 Decoders – BCD-to-Decimal Decoder – 7 segment decoders – Encoders – Exclusive-OR gates – parity generators – checkers.

#### UNIT – V:

Binary Addition – Binary Subtraction – 2's & 1's complement representation – Complement Arithmetic – Arithmetic building blocks – Flip-flops: Edge triggered RS Flip-flop Edge triggered JK Flip-flop.

#### TEXT BOOK:

*Digital Principles and Applications* by Albert Paul Malvino and Donald P. Leach  
Sixth Edition Tata McGraw-Hill-Edition

UNIT I : Chapters: 2.1 to 2.3, 5.1 to 5.8

UNIT II : Chapters: 3.1 to 3.8

UNIT III: Chapters: 4.1 to 4.8

UNIT IV: Chapters: 6.1 to 6.8, 8.1, 8.3, 8.4, 8.5, 8.7

UNIT V : Chapters: 9.1 to 9.5, 10.1, 10.3

#### REFERENCE BOOKS:

1. *Digital Computer Fundamentals*, by Thomas C. Bartee TMH 2007.
2. *Digital Circuits and Design*, by S. Salivahanan and S. Arivazhagan ,Vikas Publishers 2005

#### DIGITAL TOOLS:

1. <https://www.mheducation.co.in/digital-principles-and-applications-sie-9789339203405-india>
2. [http://jnujprdistance.com/assets/lms/LMS%20JNU/B.Sc.\(IT\)/Sem%20I/Digital%20Computer%20Fundamentals/Version%201/Digital%20Computer%20Fundamentals.pdf](http://jnujprdistance.com/assets/lms/LMS%20JNU/B.Sc.(IT)/Sem%20I/Digital%20Computer%20Fundamentals/Version%201/Digital%20Computer%20Fundamentals.pdf)

#### Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3					
CO2		2	1			2
CO3	3					
CO4	2		2	3		1
CO5	2	2	2	3	2	1

3. Advanced Application    2. Intermediate Development    1. Introductory Level

COURSE DESIGNER: Dr. M.SATHISH



# SOURASHTRA COLLEGE, MADURAI – 625004

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## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

**SYLLABUS** (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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### COURSE STRUCTURE – II SEMESTER

S. No.	Course Code	Course Title	Hrs./ Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1.	24UACT21	<b>Part – I: Tamil –</b> பொதுத் தமிழ் – II	6	3	25	75	100	3
	24UACH21	<b>Hindi –</b> General Hindi – II						
	24UACS21	<b>Sanskrit –</b> Prose, Grammar and History of Sanskrit Literature						
2.	24UACE21	<b>Part – II: English –</b> General English – II	6	3	25	75	100	3
3.	24UCAC21	<b>Part – III: Core – 3:</b> Object Oriented Programming using C++	5	3	25	75	100	4
4.	24UCACP2	<b>Part – III: Core – 4:</b> <b>Lab : C++</b> Programming	5	3	40	60	100	4
5.	24UCAA21	<b>Part – III: Allied – 2:</b> Financial Accounting	4	3	25	75	100	4
6.	24UCAS21	<b>Part – IV: SBS – 2 :</b> Computer Organization & Architecture	2	3	25	75	100	2
7.	24UACES1	<b>Part – IV:</b> Environmental Studies	2	3	25	75	100	2
		<b>TOTAL</b>	<b>30</b>				<b>700</b>	<b>22</b>

**CA** – Class Assessment (Internal)

**SE** – Summative Examination

**SBS** – Skill Based Subject

**NME** – Non –Major Elective

**T** – Theory

**P** – Practical



# SOURASHTRA COLLEGE, MADURAI – 625004

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## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCAC21	OBJECT ORIENTED PROGRAMMING USING C++	CORE – 3	5	–	4

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	25	75	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input checked="" type="checkbox"/>	Entrepreneurship <input type="checkbox"/>
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#### COURSE DESCRIPTION:

This Course gives the basic knowledge of object oriented programming concepts and techniques.

#### COURSE OBJECTIVES:

1. To make the students know the Basic of C++
2. To make the students understand about Class and Objects in C++
3. To make the students understand about various inheritance

#### COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	gain knowledge about object oriented programming concept and know operators and expressions	Upto K3
CO 2	understand and illustrate functions, classes and objects	Upto K3
CO 3	develop a practical knowledge about constructor, operator overloading and type conversion	Upto K3
CO 4	learn various types of inheritance	Upto K3
CO 5	develop application using files and know the concept of error handling and files	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



# **SOURASHTRA COLLEGE, MADURAI – 625004**

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## **BACHELOR OF COMPUTER APPLICATIONS (B.C.A)**

### **SYLLABUS (Under CBCS based on OBE)**

**(For those admitted during 2024 – 2025 and after)**

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### **OBJECT ORIENTED PROGRAMMING USING C++**

#### **UNIT– I: PRINCIPLES OF OBJECT ORIENTED PROGRAMMING (OOP)**

Software Evolution – OOP Paradigm – Basic Concepts of OOP – Benefits of OOP– Object Oriented Languages – Application of OOP – Introduction to C++– tokens, keywords, identifiers, variables, Operators, manipulators, expressions and Control structures in C++.

#### **UNIT– II: FUNCTIONS**

Functions in C++ – Main Function – Function Prototyping – Call by reference– return by reference – function overloading – Friend and virtual functions.

**Classes and Objects:** Defining Member Functions – Making an outside Function Inline – Nesting of Member Functions– Private Member Function – Arrays within a Class – Static Member Functions – Arrays of Object – Friend Functions.

#### **UNIT– III: CONSTRUCTORS AND DESTRUCTORS**

Introduction – Constructors – Parameterized Constructors – Constructors with Default Arguments – Copy constructors – Dynamic Constructors – .Destructors.

**Operator Overloading and Type Conversions:** Defining Operator Overloading – Overloading Unary Operators, Binary Operators – Rules for Overloading Operators – Type Conversions.

#### **UNIT– IV: INHERITANCE**

Single inheritance – Multilevel Inheritance – Multiple inheritance– Hierarchical Inheritance – Hybrid Inheritance – Pointers, virtual functions and polymorphism, Managing I/O operations.

#### **UNIT– V: WORKING WITH FILES**

Classes for file stream operations – Opening and closing a file – Detecting End of file – File pointers – Updating a file – Error Handling during file operations– command line arguments.

#### **TEXT BOOK:**

*Object Oriented Programming with C++*. E.Balagurusamy,6<sup>th</sup> Edition Tata McGraw Hill, New Delhi.

#### **CHAPTERS and SECTIONS (For UNIT – I, II, III,IV and V)**

**Unit – I:** Chapter 1: 1.2, 1.4, 1.5, 1.6, 1.7, 1.8

Chapter 3: 3.1, 3.2, 3.3, 3.4, 3.10, 3.13, 3.19, 3.24

**Unit – II:** Chapter 4: 4.2, 4.3, 4.4, 4.5,4.9, 4.10

Chapter 5: 5.4, 5.6, 5.7, 5.8, 5.9, 5.12, 5.13, 5.1

**Unit – III:** Chapter 6: 6.1, 6.2, 6.3, 6.4, 6.7, 6.8, 6.11 Chapter 7: 7.2, 7.3, 7.4, 7.7, 7.8

**Unit – IV:** Chapter 8: 8.3, 8.5, 8.6, 8.7, 8.8. Chapter 9: 9.1 to 9.6

Chapter 10: 10.1 to 10.6

**Unit – V:** Chapter 11: 11.2, 11.3, 11.4, 11.5, 11.6,11.8,11.9, 11.10



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### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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#### REFERENCE BOOKS:

1. *Programming Skills in C++*. P. Radha Ganesan Scitech publications.
2. *Fundamentals of Programming C++*. Richard L. Halterman,

#### DIGITAL TOOLS:

1. <https://www.javatpoint.com/cpp-tutorial>,
2. <https://www.learncpp.com/>
3. <https://www.w3schools.com/Cpp>,
4. <https://www.programiz.com/cpp-programming>

#### Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2		2			
CO2		2	1			1
CO3		2				
CO4	2			1		3
CO5		2	1	1	2	3

3. Advanced Application    2. Intermediate Development    1. Introductory Level

COURSE DESIGNER: Prof. S.E. HEMAPRIYA



# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCACP2	LAB: C++ PROGRAMMING	CORE – 4 LAB – II	–	5	4

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	40	60	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input checked="" type="checkbox"/>	Entrepreneurship <input type="checkbox"/>
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#### COURSE DESCRIPTION:

This course is to develop students' practical knowledge to write coding using object oriented programming code and implement in various applications.

#### COURSE OBJECTIVES:

1. To make the students understand about programming in C++
2. To make the students understand about programming in OOPs.
3. To make the students write reusable modules ( collection of functions)

#### COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	develop programs using simple concepts of C++	Upto K3
CO 2	design and develop programs using OOP's paradigm – Classes and objects	Upto K3
CO 3	apply constructors , destructors and overloading – functions	Upto K3
CO 4	utilize operators and Implementing types of Inheritance.	Upto K3
CO 5	design to write program using Files ( Sequential and Random)	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



# **SOURASHTRA COLLEGE, MADURAI – 625004**

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## **BACHELOR OF COMPUTER APPLICATIONS (B.C.A)**

### **SYLLABUS (Under CBCS based on OBE)**

**(For those admitted during 2024 – 2025 and after)**

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#### **LAB : C++ PROGRAMMING**

1. Program to display student details using class and object.
2. Program to calculate simple interest using Inline function.
3. Program to find maximum of two objects of two different classes using Friend functions.
4. Program to assign integer values using Constructors (copy, default and parameterized).
5. Program using to find the volume of various objects using Function Overloading concept.
6. Program to toggle the sign of an integer number using Unary Operator – overloading.
7. Program to add two complex numbers using Binary + operator overloading.
8. Program to calculate the total and average marks of a student using Single Inheritance.
9. Program to calculate the Academic and sports marks of a student using multiple Inheritance.
10. Program to find area of various objects using Hierarchical Inheritance using Virtual function.
11. Program to read and write from and to a file.

**COURSE DESIGNER: Prof. S. E. HEMAPRIYA**





# SOURASHTRA COLLEGE, MADURAI – 625004

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## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCAA21	FINANCIAL ACCOUNTING	ALLIED – 2	4	–	4

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	25	75	100

NATURE OF COURSE	Employability <input checked="" type="checkbox"/>	Skill Oriented <input checked="" type="checkbox"/>	Entrepreneurship <input type="checkbox"/>
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#### COURSE DESCRIPTION:

This course helps the students to learn the basic concept of accounting and maintaining the records of accounts.

#### COURSE OBJECTIVES:

The objective is to help the students to prepare various books of accounts and finalization of accounts of individual.

#### COURSE OUTCOMES (COs)

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	understand the basic concept and conventions of accounting principles	Upto K3
CO 2	maintain the various subsidiary and its purpose	Upto K3
CO 3	understand and preparing the final accounts and its purpose	Upto K3
CO 4	ascertain the various ratio using various accounting statement	Upto K3
CO 5	understand the tally software and its implementation	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

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### FINANCIAL ACCOUNTING

#### UNIT – I: FUNDAMENTAL

Accounting –Principles, Convention–Journal–ledger– Trial Balance.

#### UNIT – II: FINALIZATION OF ACCOUNTS

Preparation of Trading, Profit and Loss Accounts, Balance Sheet of Individual only.

#### UNIT – III: PREPARATION OF SUBSIDIARY BOOKS

sales book – purchase book – purchase return book – sales return book – bills receivable book – bills payable book – cash book.

#### UNIT – IV: ACCOUNTING RATIOS

Return on Investment – Net profit ratio – gross profit ratio – expense ratio – operating profit ratio – proprietary ratio – debt equity ratio – fixed assets ratio – current ratio – liquidity ratio.

#### UNIT – V: FINANCIAL ACCOUNTING PACKAGE (TALLY 6.3)

Accounts masters–Vouchers entry – Reports printing – Tally Review (features)

#### TEXT BOOKS:

1. *Advanced Accountancy*: R.L. Gupta & RadhaSwamy – Sulthanchand Publishers 2004 (Unit 1 to 3)
2. *Management Accounting*. Dr. Peer Mohamed, Dr. Shazuli Ibrahim, Pass Publications (Unit 4 )
3. *Implementing Tally 9 Comprehensive guide for Tally 9 & 8.1*. Nadhani

#### Allotment of marks for External Examination

Note : Theory 50% Problems 50%

#### CHAPTERS and SECTIONS (For UNIT – I, II, III,IV and V)

Unit I & III (Text Book 1) : Page 1.2.1 to 1.2.16 , 1.6.1 to 1.6.34 ;

Unit II (Text Book 1) Page 1.7.1 to 1.7.39; Unit – IV (Text Book 2) Page 3.01 to 3.23;

Unit–V (Text Book 3) – Page 2–4.1 to 2–4.82. and 2–5.1 to 2–5.11 and 2–15.1 to 2–15.2

#### Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3					
CO2	2	1	3			
CO3	3					
CO4	2	2	3	1		
CO5	2	2	3	3	2	1

3. Advanced Application    2. Intermediate Development    1. Introductory Level

COURSE DESIGNER: Prof. O. K. HARIHARAN

Passed in the BoS Meeting held on 09/03/2024

Signature of the Chairman



# SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'B+' grade by NAAC)

## BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

### SYLLABUS (Under CBCS based on OBE)

(For those admitted during 2024 – 2025 and after)

27

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UCAS21	COMPUTER ORGANIZATION & ARCHITECTURE	SBS – 2	2	–	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	25	75	100

NATURE OF COURSE	Employability	Skill Oriented	Entrepreneurship
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### COURSE DESCRIPTION:

This course helps to gain the knowledge and understanding of hardware components of a computer and impart knowledge about internal architecture of a computer system and the techniques used to connect various input/output system with the computer.

#### COURSE OBJECTIVES:

- To enrich the knowledge of students on hardware components of a computer
- To give knowledge on Instruction formats and addressing modes
- To inculcate knowledge on working concepts of Input/output devices.
- To give knowledge on various types of memory and their hierarchies.

#### COURSE OUTCOMES (CO):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	acquire knowledge on registers, instructions , timing and control	Upto K3
CO 2	understand and explain various types of instruction format, addressing modes, data transfer and manipulation instruction and apply the basic concepts to develop assembler program	Upto K3
CO 3	identify the memory requirement of a cpu and understands the working principles of parallel processing and pipeline processing	Upto K3
CO 4	gain knowledge on usage of i/o interfaces and various types of data transfers	Upto K3
CO 5	understand various types of memory and its organizations	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLY



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### COMPUTER ORGANIZATION & ARCHITECTURE

#### UNIT – I:

Instruction Codes \_ Computer Registers – Computer Instructions – Timing and Control – Instruction Cycle.

#### UNIT – II:

General Register Organization – Stack Organization – Instruction Formats – Addressing Modes.

#### UNIT – III:

Parallel processing – Pipelining – Arithmetic and Instruction pipeline – Vector processing–Vector operation–memory interleaving– Super Computer

#### UNIT – IV:

I/O Interface – Asynchronous Data Transfer– Modes of I/O transfer – Direct Memory Access.

#### UNIT – V:

Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory

#### TEXT BOOK:

*Computer System Architecture* – M. Morris Mano 3<sup>rd</sup> Edition

Unit – I	Chapters:	5.1 – 5.5
Unit – II	Chapters:	8.1 – 8.5
Unit – III	Chapters:	9.1 – 9.4, 9.6
Unit – IV	Chapters:	11.2 – 11.4, 11.6
Unit – V	Chapters:	12.1 – 12.6

#### REFERENCE BOOK:

*Computer Organization* V. Carl Hamacher, Zconko G. Vranesic, Safwat G. Zaky 4<sup>th</sup> Edition, McGraw–Hill International Editions.

#### DIGITAL TOOLS:

- <https://www.geeksforgeeks.org/computer-organization-and-architecture-tutorials>
- <https://nptel.ac.in/courses/106105163/>

#### Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3		1			
CO2		2	1			2
CO3	2	2			1	
CO4			2	3		1
CO5	2			3	1	1

3. Advanced Application    2. Intermediate Development    1. Introductory Level

**COURSE DESIGNER: Dr. SATHISH**