



THIRUVALLUVAR UNIVERSITY

SERKKADU, VELLORE-632115

B.C.A. COMPUTER APPLICATIONS

SEMESTER - II

SYLLABUS

FROM THE ACADEMIC YEAR

2023 - 2024

S.No.	Part	Study Components		Ins. Hrs /week	Credit	Title of the Paper	Maximum Marks		
		Course Title					CIA	Uni. Exam	Total
SEMESTER II									
1.	I	Language	Paper-2	6	3	Tamil/Other Languages	25	75	100
2.	II	English	Paper-2	4	3	English	25	75	100
3.	II	NMSDC: Language Proficiency for Employability	Paper-1	2	2	Overview of English Communication	25	75	100
4.	III	Core Course –CC III	Paper-2	5	5	Object Oriented Programming Concepts Using C++	25	75	100
5.	III	Core Course –CC IV	Paper -3	5	5	Object Oriented Programming Concepts Using C++ Lab	25	75	100
6.	III	Elective II Generic/ Discipline Specific	Elective II	6	3	choose one from the list 1, Statistical Methods & its Applications- II 2. Resource Management Techniques	25	75	100
7.	IV	Skill Enhancement Course SEC-2	Paper2	2	2	Introduction to HTML	25	75	100
8.	IV	Skill Enhancement Course SEC-3 (Discipline Specific)	Paper 1	2	2	Understanding Internet	25	75	100
		Sem. Total		32	25		200	600	800

SEMESTER – II

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
CC3	Object Oriented Programming Concepts Using C++	Core	5	-	-	-	5	5	25	75	100
Learning Objective											
LO1	Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects										
LO2	Understand dynamic memory management techniques using pointers, constructors, destructors, etc										
LO3	Describe the concept of function overloading, operator overloading, virtual functions and polymorphism										
LO4	Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming										
LO5	Demonstrate the use of various OOPs concepts with the help of programs										
UNIT	Contents										No. of Hours
I	Introduction to C++ - key concepts of Object-Oriented Programming – Advantages – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures : - Decision Making and Statements : If ..else, jump, goto, break, continue, Switch case statements - Loops in C++ :for, while, do - functions in C++ - inline functions – Function Overloading.										15
II	Classes and Objects: Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.										15
III	Operator Overloading: Overloading unary, binary operators – Overloading Friend functions –type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal,Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.										15
IV	Pointers – Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism and Virtual Functions.										15
V	Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions.										15
Total										75	
Course Outcomes							Programme Outcome				
CO	Upon completion of the course the students would be able to:										
3											

1	Remember the program structure of C with its syntax and semantics	PO1,PO6
2	Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files)	PO2
3	Apply the programming principles learnt in real-time problems	PO4 ,PO5
4	Analyze the various methods of solving a problem and choose the best method	PO6
5	Code, debug and test the programs with appropriate test cases	PO3,PO6
Text Book		
1	E. Balagurusamy, “Object-Oriented Programming with C++”, TMH 2013, 7th Edition.	
Reference Books		
1.	Ashok N Kamthane, “Object-Oriented Programming with ANSI and Turbo C++”, Pearson Education 2003.	
2.	Maria Litvin& Gray Litvin, “C++ for you”, Vikas publication 2002.	
3.	P.Rizwan Ahmed, Programming in C++, Margham Pubications, 2016	
Web Resources		
1.	https://alison.com/course/introduction-to-c-plus-plus-programming	

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	3	2	3	3
CO 3	3	2	2	2	3	2
CO 4	3	3	3	3	2	3
CO 5	3	2	3	2	3	3
Weight age of course contributed to each PSO	15	13	14	12	14	14

S-Strong-3 M-Medium-2 L-Low-1

Subject Code	Subject Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
CC4	Object Oriented Programming Concepts Using C++Lab	Core	-	-	4	-	5	5	25	75	100
Course Objective											
C1	Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects										
C2	Understand dynamic memory management techniques using pointers, constructors, destructors, etc										
C3	Describe the concept of function overloading, operator overloading, virtual functions and polymorphism										
C4	Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming										
C5	Demonstrate the use of various OOPs concepts with the help of programs										
S.No	List of Exercises										No. of Hours
1	Write a C++ program to demonstrate function overloading, Default Arguments and Inlinefunction.										60
2	Write a C++ program to demonstrate Class and Objects										
3	Write a C++ program to demonstrate the concept of Passing Objects to Functions										
4	Write a C++ program to demonstrate the Friend Functions.										
5	Write a C++ program to demonstrate the concept of Passing Objects to Functions										
6	Write a C++ program to demonstrate Constructor and Destructor										
7	Write a C++ program to demonstrate Unary Operator Overloading										
8	Write a C++ program to demonstrate Binary Operator Overloading										
9	Write a C++ program to demonstrate: <ul style="list-style-type: none"> • Single Inheritance • Multilevel Inheritance • Multiple Inheritance • Hierarchical Inheritance • Hybrid Inheritance 										
10	Write a C++ program to demonstrate Virtual Functions.										

11	Write a C++ program to manipulate a Text File.	
12	Write a C++ program to perform Sequential I/O Operations on a file.	
13	Write a C++ program to find the Biggest Number using Command Line Arguments	
14	Write a C++ program to demonstrate Class Template	
15	Write a C++ program to demonstrate Function Template.	
16	Write a C++ program to demonstrate Exception Handling.	
Course Outcomes		Programme Outcome
CO	Upon completion of the course the students would be able to:	
1	Remember the program structure of C with its syntax and semantics	PO4,PO5
2	Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files)	PO6
3	Apply the programming principles learnt in real-time problems	PO4 ,PO5
4	Analyze the various methods of solving a problem and choose the best method	PO6
5	Code, debug and test the programs with appropriate test cases	PO4,PO5
Text Book		
1	E. Balagurusamy, “Object-Oriented Programming with C++”, TMH 2013, 7th Edition.	
Reference Books		
1.	Ashok N Kamthane, “Object-Oriented Programming with ANSI and Turbo C++”, Pearson Education 2003.	
2.	Maria Litvin& Gray Litvin, “C++ for you”, Vikas publication 2002.	
Web Resources		
1.	https://alison.com/course/introduction-to-c-plus-plus-programming	

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	2	3	3	2	3
CO 3	3	3	3	3	3	3
CO 4	3	2	2	3	3	3
CO 5	3	2	3	3	3	2
Weightage of course contributed to each PSO	15	12	14	15	14	14

S-Strong-3 M-Medium-2 L-Low-1

Subject Code	Subject Name	Categor	L	T	P	S	Cr	Marks			
								O	E	T	
SEC2	INTRODUCTION TO HTML	Skill Enha. Course (SEC)	2	-	-		2	25	75	100	
Learning Objectives											
LO1	Insert a graphic within a web page.										
LO2	Create a link within a web page.										
LO3	Create a table within a web page.										
LO4	Insert heading levels within a web page.										
LO5	Insert ordered and unordered lists within a web page. Create a web page.										
UNIT	Contents								No. Of. Hours		
I	Introduction :Web Basics: What is Internet–Web browsers–What is Webpage –HTML Basics: Understanding tags.								6		
II	Tags for Document structure (HTML,Head,Body Tag). Block level text elements: Headings paragraph(<p> tag)–Font style elements:(bold,italic,font,small,strong,strike,bigtags)								6		
III	Lists: Types of lists: Ordered, Unordered– Nesting Lists–Other tags: Marquee, HR, BR-Using Images –Creating Hyperlinks.								6		
IV	Tables: Creating basic Table, Table elements,Caption–Table and cell alignment–Rowspan,Colspan–Cellpadding.								6		
V	Frames: Frameset–Targeted Links–Noframe–Forms:Input, Textarea, Select, Option.								6		
TOTAL HOURS								30			
Course Outcomes								Programme Outcomes			
CO	On completion of this course, students will										
CO1	Knows the basic concept in HTML Concept of resources in HTML								PO1, PO2, PO3, PO4, PO5, PO6		
CO2	Knows Design concept. Concept of Meta Data Understand the concept of save the files.								PO1, PO2, PO3, PO4, PO5, PO6		
CO3	Understand the page formatting. Concept of list								PO1, PO2, PO3, PO4, PO5, PO6		
CO4	Creating Links. Know the concept of creating link to email address								PO1, PO2, PO3, PO4, PO5, PO6		
CO5	Concept of adding images Understand the table creation.								PO1, PO2, PO3, PO4, PO5, PO6		
Textbooks											
1	“Mastering HTML5 and CSS3 Made Easy”, TeachUComp Inc., 2014.										
2	Thomas Michaud, “Foundations of Web Design: Introduction to HTML & CSS”										
Web Resources											
1.	ps://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf										
2.	ps://www.w3schools.com/html/default.asp										

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	2	3	3	3
CO 3	2	3	3	3	3	3
CO 4	3	3	3	3	3	3
CO 5	3	3	3	2	3	3
Weightage of course contributed to each PSO	14	15	14	14	15	15

S-Strong-3 M-Medium-2 L-Low-1

Subject Code	Subject Name	Category	L	T	P	S	Credits	Marks			
								CIA	External	Total	
SEC3	Understanding Internet	Skill Enha. Course (SEC)	2	-	-		2	25	75	100	
Learning Objectives											
LO1	Knowledge of Internet										
LO2	Learning TCP/IP – Internet Technologies and Protocol										
LO3	Learning Internet connectivity.										
LO4	Learning internet networks										
LO5	Learning Electronic Mail										
UNIT	Contents								No. Of. Hours		
I	Internet, Growth of Internet, Owners of the Internet, Anatomy of Internet, ARPANET and Internet history of the World Wide Web, basic Internet Terminology, Net etiquette. Internet Applications – Commerce on the Internet, Governance on the Internet, Impact of Internet on Society – Crime on/through the Internet.								6		
II	Packet switching technology, Internet Protocols: TCP/IP, Router, Internet Addressing Scheme: Machine Addressing (IP address), E-mail Addresses, Resources Addresses								6		
III	Internet accounts by ISP: Telephone line options, Protocol options, Service options, Telephone line options – Dialup connections through the telephone system, dedicated connections through the telephone system, ISDN, Protocol options – Shell, SLIP, PPP, Service options – E-mail, WWW, News Firewall								6		
IV	Network definition, Common terminologies: LAN, WAN, Node, Host, Workstation, bandwidth, Interoperability, Network administrator, network security, Network Components: Servers, Clients, Communication Media, Types of network: Peer to Peer, Clients Server, Addressing in Internet: DNS, Domain Name and their organization								6		
V	Email Networks and Servers, Email protocols –SMTP, POP3, IMAP4, MIME6, Structure of an Email – Email Address, Email Header, Body and Attachments								6		
TOTAL HOURS								30			
Course Outcomes								Programme Outcomes			
CO	On completion of this course, students will										
CO1	On completion of this course, students will								PO1, PO2, PO3, PO4, PO5, PO6		
CO2	Knows the basic concept in internet								PO1, PO2, PO3, PO4, PO5, PO6		
CO3	Know the concept of TCP/IP – Internet Technologies and Protocol								PO1, PO2, PO3, PO4, PO5, PO6		

CO4	Understand the concept of Internet connectivity.	PO1, PO2, PO3, PO4, PO5, PO6
CO5	Can be able to know about internet networks	PO1, PO2, PO3, PO4, PO5, PO6
Textbooks		
1	Greenlaw R and Hepp E “Fundamentals of Internet and www” 2nd EL, Tata McGrawHill,2007.	
2	D. Comer, “The Internet Book”, Pearson Education, 2009	
Reference Book		
1	M. L. Young,”The Complete reference to Internet”, Tata McGraw Hill, 2007.	
2	B. Patel & Lal B. Barik, ” Internet & Web Technology “, Acme Learning Publishers.	
3	Leon and Leon, “Internet for Everyone”, Vikas Publishing House.	
Web Resources		
1.	ps://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf	
2.	ps://www.w3schools.com/html/default.asp	

Mapping with Programme Outcomes:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	3	3
CO 2	3	3	2	3	3	3
CO 3	2	3	3	3	3	3
CO 4	3	3	3	3	3	3
CO 5	3	3	3	2	3	3
Weightage of course contributed to each PSO	14	15	14	14	15	15

S-Strong-3 M-Medium-2 L-Low-1