PVKN GOVT. COLLEGE (AUTONOMOUS)
CHITTOOR

BOARD OF STUDIES
MINUTES OF THE MEETING
(07-05-2019)

DEPARTMENT OF COMPUTER APPLICATIONS

PVKN GOVT. COLLEGE (AUTONOMOUS)
CHITTOOR

BOARD OF STUDIES
MINUTES OF THE MEETING

DEPARTMENT OF COMPUTER APPLICATIONS

PVKN Govt. College(A), Chittoor

Department of Computer Applications
BOARD OF STUDIES MEMBERS

Category	Name of the Member
BOS Chairman	Sri. M.Samuel John Lecturer in Computer Science PVKN Govt. College(A), Chittoor Mobile: 9849400846 Mail ID: write2samuel@gmail.com
External members	
Two subject experts from outside parent university nominated by Academic Council	1. Dr. Jasmine Norman, Associate Professor, Dept. of Information Technology VIT, Vellore Mobile: 09444210125 Mail ID: jasmine@vit.ac.in
	2. Dr. J. Gitanjali, Asst. Professor Dept. of Information Technology VIT, Vellore Mobile: 09790101549 Mail ID: gitanjalij@vit.ac.in
University nominee	Prof. G. Anjan Babu, Department of Computer Science, Sri Venkateswara University, Tirupati. Mobile: 9959168462 Mail ID : gabsvu@gmail.com
Representative from Industry/Corporate sector/Allied area	M.Naresh Amma Infotech Chittoor. Mobile: 9032694654 Mail ID : naresh@ammainfotech.com, admin@nklocalisations.com
One meritorious Alumnus	R. Madhan Babu, MBA HR in Asistmi Solutions Pvt Ltd Mobile: 9000110081 Mail ID : rmbabu17@gmail.com

Signatures of the Members

1. N. Naresh Kumar
3. J. Gitanjali

Signature of the BOS Chairman

PVKN Govt. College (A), Chittoor

Department of Computer Applications
BOARD OF STUDIES MEETING - II

DATE: 07.05.2019 **TIME: 10 A.M**

MINUTES OF THE MEETING

Agenda

1. Approval for UG Course structure of IIB.Com (COMPUTER APPLICATIONS)
2. Approval for changes in the UG (B.Com) III Semester paper entitled "Programming in C" Syllabus, model question paper, and blue print
3. Approval for changes in the UG (B.Com) IV Semester paper entitled "Object Oriented Programming With C++" Syllabus, model question paper, and blue print
4. Evaluation and assessment pattern
5. Any other proposal

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PVKN Govt. College (A), Chittoor

Department of Computer Applications

COURSE STRUCTURE

COURSE: B.COM (COMPUTER APPLICATIONS)

Semester	Paper Code	Subject	Hrs	Credits	Internal	External	Total
SECOND YEAR							
I	18-CAP-301	Programming in C	4	4	25	75	100
	18-CAP-301P	Programming in C Lab	2	2	-	50	50
II	18-CAP-401	Object Oriented Programming With C++	4	4	25	75	100
	18-CAP-401P	Object Oriented Programming With C++ Lab	2	2	-	50	50

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NEW

PVKN Govt. College(A), Chittoor

B.COM (COMPUTER APPLICATIONS) – II YEAR, SEMESTER – III

PROGRAMMING IN C

Subject Code: 18-CAP-301 Credits: 04 Teaching Hrs/Week : 4

SYLLABUS

Course Outcomes

Upon successful completion of this course, students will be able to

- Write algorithms and draw flowcharts for solving various problems
- Understand how to use control statements and looping statements in writing a program
- Write programs in C using arrays, strings and functions
- Exercise user defined data types including structures and unions to solve problems
- Develop familiarity in storing and manipulating data in Files.

UNIT -I

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms – Flow Charts – Generation of Programming Languages – Structured Programming Language

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Rules for defining variables– Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting.

UNIT -II

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive function

UNIT -III

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array –Operations on Array – Two dimensional Arrays –Operations on Two Dimensional Arrays

Strings: Introduction ,Operations on Strings, String and Character functions

UNIT -IV

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Passing Arguments to Functions using Pointer – Call by value and Call by reference - Pointer and Arrays

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions - Unions – Enumerated Data Types

UNIT- V

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file –Close a file – Random Access Files – Binary Files – Command line arguments

TEXT BOOK

1. Introduction to C programming by REEMA THAREJA, 2ed from OXFORD UNIVERSITY PRESS

REFERENCE BOOKS

1. E Balagurusamy: —COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
2. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition
3. Henry Mullish & Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House.

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II B.COM (CA) III SEMESTER

1-3-106: PROGRAMMING IN C

Subject Code: 1-3-106 Credits: 04 Teaching Hrs/Week : 4

SYLLABUS

UNIT -I

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts – Pseudo code –Generation of Programming Languages – Structured Programming Language

Introduction to C: Introduction – Structure of C Program.– Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting.

UNIT -II

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive function

UNIT -III

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays

Strings: Introduction String and Character functions

UNIT -IV

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions - Unions – Enumerated Data Types

UNIT- V

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file –Close a file – Random Access Files – Binary Files – Command line arguments

REFERENCE BOOKS

1. Introduction to C programming by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: —COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
4. Henry Mullish & Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.

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PVKN Govt. College(A), Chittoor

II B.COM, COMPUTER APPLICATIONS, SEMESTER – III

(PROGRAMMING IN C)

Subject Code: 18-CAP-301 Time : 3 hrs Max Marks : 75 M

MODEL QUESTION PAPER

SECTION – A

Answer any Five of the following Questions (5 x 3 = 15 Marks)

1. a) What are the generations of programming languages?
   b) Define keyword. List out some keywords.
   c) Difference between while and do-while.
   d) Explain getchar() and putchar() statements.
   e) What is a recursive function. What are its applications?
   f) What is a string? Declare a string of 10 characters.
   g) Define pointer. What are the uses of pointers?
   h) Difference between Structure and Union.
   i) Write about File opening modes in 'C'.
   j) What is a binary file? What functions are used to read and write into a binary file?

SECTION - B

Answer any ONE Question from each unit. (5 X 12 = 60 marks)

UNIT I

2. a. Write an algorithm to add two numbers.
   b. Define different categories of High-level Languages.

(or)

3. a. Explain the importance and uses of C language.
   b. Expalin scanf() and printf() statements.

UNIT – II

4. Define branching and iterative statements.

(or)

5. Describe recursive functions with suitable example.

UNIT - III

6. What is an array? Explain the types of arrays?

(or)

7. Explain any six string functions in C.

UNIT – IV

8. With the help of programs explain the difference between call by value and call by reference.

(or)

9. What is structure? How to create structure and explain with suitable example.

UNIT – V

10. Explain various file handling functions in 'C'

(or)

11. Write a short note on command-line arguments

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PVKN Govt. College(A), Chittoor

II B.COM, COMPUTER APPLICATIONS, SEMESTER – III

(PROGRAMMING IN C)

Subject Code: 18-CAP-301 Time : 3 hrs Max Marks : 75 M

MODEL QUESTION PAPER

SECTION – A

Answer any Five of the following Questions **(5 x 3 = 15 Marks)**

1. a) What are the types of Languages?
   b) Define keyword.
   c) Difference between Structure and Union.
   d) Difference between while and do-while.
   e) Explain getchar() and putchar() statements.
   f) What is flowchart?
   g) Explain any two bit-wise Operators.
   h) File modes in 'C'.
   i) Define null pointer.
   j) What is C preprocessor ?

SECTION - B

Answer any ONE Question from each unit. **(5 X 12 = 60 marks)**

UNIT I

2. a. Explain algorithms with proper example.
   b. Define different categories of High-level Languages.

(or)

3. a. Explain the importance and uses of C language.
   b. Expalin scanf() and printf statements.

UNIT – II

4. Define branching and iterative statements.

(or)

5. Describe recursive functions with suitable example.

UNIT - III

6. What is an array? Explain the types of arrays?

(or)

7. a. Explain any five string functions in C.
   b. Write a Program for string Palindrome.

UNIT – IV

8. What is a pointer? How the pointer are illustrated in functions.

(or)

9. What is structure? How to create structure and explain with suitable example.

UNIT – V

10. Explain file management in 'C'

(or)

11. Explain the command-line arguments.

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PVKN Govt. College(A), Chittoor

II B.COM, COMPUTER APPLICATIONS, SEMESTER – III

(PROGRAMMING IN C)

Subject Code: 18-CAP-301

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section - A (Short Questions)	10	3	30	5	3	15
2	Section - B (Essay Questions)	10	12	120	5	12	60
Total Marks				**150**	**Total Marks**		**75**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 12 Marks	Short Questions 3 Marks	Marks allotted to the Chapter
UNIT – I	2	2	30
UNIT – II	2	2	30
UNIT – III	2	2	30
UNIT – IV	2	2	30
UNIT – V	2	2	30
Total No. of Questions	**10**	**10**	**150**

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NEW

PVKN Govt. College(A), Chittoor

II B.Com Computer Applications; Semester – III
(PROGRAMMING IN C LAB)

Subject Code: 18-CAP-301P | Credits: 02 | Lab Hrs/Week : 2

PRACTICALS SYLLABUS

List of Experiments/Programs:

1. Sum and Average of given three numbers
2. Conditional operator- The biggest of two numbers
3. Finding the roots of A quadratic equation
4. Armstrong number
5. Factorial of a number
6. Fibonacci Series
7. Sum of the digits, Reverse and Palindrome
8. Pascal's Triangle
9. Matrix Multiplication
10. String handling functions
11. Employee details using Structure
12. Reading and writing into files

The duration of each practical examination is 3 hrs with 50 marks, which are to be distributed as 30 marks for experiment, 10 mark for viva and 10 marks for record.

Practicals	**50 marks**
Experiment	30
Viva-Voce	10
Record	10

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PVKN Govt. College(A), Chittoor

II B.Com Computer Applications; Semester – III
(PROGRAMMING IN C LAB)

ject Code: 18-CAP-301P | Credits: 02 | Lab Hrs/Week : 2

PRACTICALS SYLLABUS

List of Experiments/Programs:

1. Sum and Average of two digits
2. Conditional operator
3. Finding the roots of quadratic equation
4. Armstrong number
5. Factorial of a number
6. Fibonacci Series
7. Sum of the digits, Reverse and Palindrome
8. Pascal's Triangle
9. Matrix Multiplication
10. String Concatenation
11. Payroll processing using Union
12. Employee details using Structure

The duration of each practical examination is 3 hrs with 50 marks, which are to be distributed as 30 marks for experiment, 10 mark for viva and 10 marks for record.

Practicals	**50 marks**
Experiment	30
Viva-Voce	10
Record	10

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PVKN Govt. College(A), Chittoor

II B.COM. COMPUTER APPLICATIONS. SEMESTER – IV

OBJECT ORIENTED PROGRAMMING WITH C++

Subject Code: 18-CAP-401 Credits: 04 Teaching Hrs/Week : 4

SYLLABUS

Course Outcomes

Upon successful completion of this course, students will be able to

- Understand how to apply the major object-oriented concepts to implement object oriented programs in C++
- Exercise method overloading to provide behaviour based on input parameters
- Write constructors and destructors for memory allocation and cleanup
- Exercise different types of inheritance to solve various problems
- Develop familiarity in C++ streams and manipulating data in Files.

UNIT -I

Introduction: Object Oriented Paradigm, Basic Concepts of Object-Oriented Programming, Benefits, Applications of OOPs, Object Oriented Languages, Difference between OOPs and Procedure Oriented Programming

Introduction to C++, General Structure of a C++ program, creating the source file, compiling and linking, cin and cout objects, Keywords, identifiers, Constants, variables

UNIT -II

Data types in C++, Operators-scope resolution operator, Control structures: Conditional statements and Looping statements, Functions –function with default arguments, inline functions, function overloading, reference variables, Arrays - Single and multidimensional arrays.

UNIT -III

Object and Classes-Structure and Class, Defining a class, defining member functions, member function with object as arguments and argument as return type, array of objects, static member data and member function, friend function and friend class.

Constructor and destructors-characteristics of constructor, constructor types-default, parameterized, copy and dynamic, constructor overloading.

UNIT -IV

Operator overloading, defining operator function, overloading unary, binary operators. Inheritance:benefits of inheritance, types of inheritance, method overriding, virtual functions, abstract classes.

UNIT- V

C++ Streams and File handling-Stream class, unformatted i/o operations, formatting of output-ios class functions and flags, manipulators, Files-File classes, file types, file functions, error handling.

TEXT BOOK

1. Object Oriented Programming with C++ - M.T. Somashekara, D.S.Guru, H.S. Nagendraswamy, K.S. Manjunatha, PHI 2nd Edition

REFERENCE BOOKS

1. Object Oriented Programming with C++ - E. Balagurusamy, 4th Edition, Tata Mc Graw Hill Publication
2. Object Oriented Programming in C++ - Robert Lafore, 4th Edition, Pearson Education
3. Object-Oriented Programming with ANSI and Turbo C++.

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II B.Com (CA) - IV SEMESTER

OLD

Object Oriented Programming with C++

Subject Code: 1-4-106 Credits: 04 Teaching Hrs/Week : 4

SYLLABUS

UNIT -I

Introduction: Programming Language generations, Object Oriented Paradigm, Basics of OOPs, Benefits, Applications of OOPs, Object Oriented Languages, Difference between OOPs and Procedure Oriented Programming

UNIT -II

Introduction to C++, General Structure of a C++ program, cin and cout objects, Keywords, identifiers, Constants, variables, Data types in C++, Operators-scope resolution operator, Control structures: Conditional statements and Looping statements, Functions –function with default arguments, inline functions, function overloading, reference variables Arrays - Single and multidimensional arrays.

UNIT -III

Object and Classes-Structure and Class, Defining a class, defining member functions, member function with object as arguments and argument as return type, array of objects, static member data and member function, friend function and friend class.
Constructor and destructors-characteristics of constructor, constructor types-default, parameterized, copy and dynamic, constructor overloading.

UNIT -IV

Operator overloading, defining operator function, overloading unary, binary and relational operators. Inheritance:benefits of inheritance, types of inheritance, methods overriding, virtual functions.

UNIT- V

C++ Streams and File handling-Stream class, unformatted i/o operations, formatting of output-ios class functions and flags, manipulators, Files-File classes, file types, file functions. Error handling, command-line arguments

REFERENCE BOOKS

1. Object Oriented Programming with C++ - M.T. Somashekara, D.S.Guru, H.S. Nagendraswamy, K.S. Manjunatha, PHI 2nd Edition
2. Object Oriented Programming with C++ - E. Balagurusamy, 4th Edition, Tata Mc Graw Hill Publication

3. Object Oriented Programming in C++ - Robert Lafore, 4th Edition, Pearson Education
4. Object-Oriented Programming with ANSI and Turbo C++.

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PVKN Govt. College(A), Chittoor

II B.COM, COMPUTER APPLICATIONS, SEMESTER – IV

(OBJECT ORIENTED PROGRAMMING WITH C++)

Subject Code: 18-CAP-401 Time : 3 hrs Max Marks : 75 M

MODEL QUESTION PAPER
SECTION – A

Answer any Five of the following Questions **(5 x 3 = 15 Marks)**

1. a) List out some object oriented programming languages.
   b) What is polymorphism? What are its applications?
   c) What are the uses of an inline function?
   d) Difference between if and switch.
   e) Characteristics of static member function.
   f) What is a destructor? How to define it?
   g) What are the benefits of inheritance?
   h) Difference between overriding and overloading
   i) What are the uses of stream manipulators?
   j) Describe about file types

SECTION - B

Answer any ONE Question from each unit. **(5 X 12 = 60 marks)**

UNIT I

2. What is Object Oriented Paradigm? Explain the benefits and applications of OOPs.

(or)

3. a. Write the difference between OOPs and Procedure Oriented Programming
   b.Define cin and cout statements with suitable example.

UNIT – II

4. a. Write a short note on conditional statements in C++
   b. Explain different data types in C++.

(or)

5. Discuss function overloading with suitable example.

UNIT - III

6. Write a short note on friend functions and friend classes?

(or)

7. What is a constructor? What are different types of constructors.

UNIT – IV

8. What is operator overloading? Write a program to overload a binary operator.

(or)

9. What is inheritance? Explain different types of inheritance.

UNIT – V

10. Explain C++ streams with a C++ program.

(or)

11. Demonstrate unformatted input and output operations

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B.Com., B.Sc., B.A. (CA) II YEAR - IV SEMESTER (Model Paper)

OBJECT ORIENTED PROGRAMMING WITH C++

Subject Code: 1-4-106 Time : 3 hrs Max Marks : 75 M

MODEL QUESTION PAPER
SECTION – A

Answer any Five of the following Questions (5 x 3 = 15 Marks)

1. a) Define class and its scope.
   b) What is object oriented paradigm
   c) What is polymorphism and advantages?
   d) Difference between if and switch.
   e) Explain ios class function statements.
   f) What is destructor? How to Define?
   g) What are the benefits of inheritance?
   h) Difference between overriding and overloading
   i) What is file handling?
   j) Describe about file types

SECTION - B

Answer any ONE Question from each unit. (5 X 12 = 60 marks)

UNIT I

2. What is OOPs? Explain the advantages and applications of OOPs.

(or)

3. Write the difference between OOPs and Procedure Oriented Programming

UNIT – II

4. a. Define cin and cout statements with suitable example.
   b. Explain different data types in C++.

(or)

5. Discuss the types of functions with suitable example.

UNIT - III

6. Explain about objects and classes along with structure and member functions?

(or)

7. What is constructor? How the constructors are created with suitable example.

UNIT – IV

8. What is operator overloading? Define binary and relational operators.

(or)

9. What is inheritance? Explain the types of inheritance with an illustration.

UNIT – V

10. Explain C++ streams with a C++ program.

(or)

11. Explain the following
(a) File types
(b) File function

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PVKN Govt. College(A), Chittoor

II B.COM, COMPUTER APPLICATIONS, SEMESTER – IV

(OBJECT ORIENTED PROGRAMMING WITH C++)

Subject Code: 18-CAP-401

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section - A (Short Questions)	10	3	30	5	3	15
2	Section - B (Essay Questions)	10	12	120	5	12	60
Total Marks				150	Total Marks		75

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 12 Marks	Short Questions 3 Marks	Marks allotted to the Chapter
UNIT – I	2	2	30
UNIT – II	2	2	30
UNIT – III	2	2	30
UNIT – IV	2	2	30
UNIT – V	2	2	30
Total No. of Questions	**10**	**10**	**150**

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PVKN Govt. College(A), Chittoor

II B.COM, COMPUTER APPLICATIONS, SEMESTER – IV
(OBJECT ORIENTED PROGRAMMING WITH C++)

Subject Code: 18-CAP-401P | Credits: 02 | Lab Hrs/Week : 2

PRACTICALS SYLLABUS

List of Experiments/Programs:

1. Write a C++ program to find the sum of individual digits of a positive integer.
2. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C++ program to generate the first n terms of the sequence.
3. Write a C++program to generate all the prime numbers between 1 and n , where n is a value supplied by the user.
4. Write a C++program to find the factorial of a given integer
5. Write a C++ program that uses a recursive function for solving Towers of Hanoi problem.
6. Write a C++program to implement call by value and call by reference parameters passing
7. Write a C++ program to demonstrate function overloading
8. Write a program to implement Overriding
9. Write a C++ program to implement the matrix ADT using a class. The operations supported by this ADT are:
   a. Reading a matrix.
   b. Printing a matrix
   c. Addition of matrices
   d. Subtraction of matrices
   e. Multiplication of matrices
10. Write C++programs that illustrate how the Single inheritance, Multiple inheritance Multi level inheritance and Hierarchical inheritance
11. Write a C++program that illustrates the order of execution of constructors and destructors when new class is derived from more than one base class
12. Write a C++ program that illustrates how run time polymorphism is achieved using virtual functions

The duration of each practical examination is 3 hrs with 50 marks, which are to be distributed as 30 marks for experiment, 10 mark for viva and 10 marks for record.

Practicals	50 marks
Experiment	30
Viva-Voce	10
Record	10

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II B.COM, COMPUTER APPLICATIONS, SEMESTER – IV
(OBJECT ORIENTED PROGRAMMING WITH C++)

Subject Code: 1-4-106P | Credits: 02 | Lab Hrs/Week : 2

PRACTICALS SYLLABUS

List of Experiments/Programs:

1. Write a C++ program to find the sum of individual digits of a positive integer.
2. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C++ program to generate the first n terms of the sequence.
3. Write a C++program to generate all the prime numbers between 1 and n , where n is a value supplied by the user.
4. Write a C++program to find the factorial of a given integer
5. Write a C++ program that uses a recursive function for solving Towers of Hanoi problem.
6. Write a C++program to implement call by value and call by reference parameters passing
7. Write a C++ program to implement function templates
8. Write a program to implement Overloading and Overriding
9. Write a C++ program to implement the matrix ADT using a class. The operations supported by this ADT are:
    a. Reading a matrix.
    b. Printing a matrix
    c. Addition of matrices
    d. Subtraction of matrices
    e. Multiplication of matrices
10. Write C++programs that illustrate how the Single inheritance, Multiple inheritance Multi level inheritance and Hierarchical inheritance
11. Write a C++program that illustrates the order of execution of constructors and destructors when new class is derived from more than one base class
12. Write a C++ program that illustrates how run time polymorphism is achieved using virtual functions

The duration of each practical examination is 3 hrs with 50 marks, which are to be distributed as 30 marks for experiment, 10 mark for viva and 10 marks for record.

Practicals	**50 marks**
Experiment	30
Viva-Voce	10
Record	10

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EVALUATION / ASSESSMENT PATTERN For UG Programmes

A continuous internal assessment (CIA) (for 25 marks) by the concerned Course teacher as well as by an end of semester examination (for 75 marks) and will consolidated at the end of the course for 100 marks. The components for continuous internal assessment are :

Passing minimum for end of semester exam will be 40% out of 75 marks (i.e., 30 marks).
Passing minimum for Internal Examination will be 40% out of 25 marks (i.e., 10 marks).

Internal Assessment component for 25 marks shall be split into following pattern.

Sl. No	Assessment pattern	Evaluation method	Marks Allotted
1 a	Descriptive type	Conducted for 75 marks proportionately reduced for 15 marks *Best of 1a or 1b	15
1 b	Objective Type		
2	Seminar/Assignment	Submission of Records	05
3	Area Study Programme / Study Project	Submission of Records	05
Total			25

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PVKN Govt. College(A), Chittoor

BOARD OF STUDIES MEETING – 07-05-2019

Department of Computer Applications

Resolutions

1. Approved the Syllabus, Model Question Paper and Blue print of III Semester paper entitled "Programming with C"
2. Approved the Syllabus, Model Question Paper and Blue print of IV Semester paper entitled "Object Oriented Programming with C++".
3. Resolved to follow the evaluation and assessment pattern.
4. It is also resolved to take the students to an industrial visit
   a. CA Firm Visit
      The objective of the Field trip/Industrial visit is, the students will be able to know about different types of registering the firms/companies (Proprietorship, Partnership Firm, PVT Limited, and Public limited), taxes that are applicable for different types of sectors related to their nature of business, the process of GST registration, filing, advantages and disadvantages of GST etc.

   b. ITES/BPO Visit
      The objective of the ITES/BPO industry visit is, the students will be able to know about localization services - all translations, transcription services, call centre services, data management services (Banking & Finance), Machine Learning introduction, Introduction to voice recognition devices like Goolge Home and Amazon Alexa & its services.

Signature of the BOS Chairman

Signatures of the Members