DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME

PGDCA

Semester - I

SESSION : 2019-20

ESTD: 1958

GOVT. V.Y.T. PG AUTONOMOUS COLLEGE, DURG, 491001 (C.G.)

(Former Name – Govt. Arts & Science College, Durg)

NAAC Accredited Grade A+, College with CPE - Phase III (UGC), STAR COLLEGE (DBT)

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PGDCA
SEMESTER-I

NAME OF DEPARTMENT
GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG

Approved syllabus for PGDCA by the members of Board of Studies for the Sessions 2019-20
The syllabus with the paper combinations is as under

Semester I:

Paper I: **INTRODUCTION TO SOFTWARE ORGANIZATION**
Paper II: **PROGRAMMING IN "C"**
Paper III: **OFFICE AUTOMATION AND TALLY**
Paper IV **PRACTICAL LAB BASED ON OFFICE AUTOMATION AND TALLY**
Paper V **PRACTICAL LAB BASED ON PROGRAMMING IN "C"**

The syllabus for PGDCA is hereby approved for the sessions 2019-20 ~~2017-18~~.

Name and Signatures

V.C. Nominee 26/8/19	**Departmental members**
Subject Expert	1. **In-charge Head /Dr. J. K. Saluja**
Subject Expert.....	.....
Alumni(member)..... B. Dewangan	2. **Mr. Durgesh Kumar Kotangle**
Prof. from other Dept. of Sc. Faculty 26/8/19	.....
Specialist from Industry ..... Rajaram	3. **Mr. Dileep Kumar Sahu**
	.....

Semester II:

Paper I: **(106)** **GUI-PROGRAMMING IN VISUAL BASIC**
Paper II: **(107)** **DATABASE MANAGEMENT SYSTEM**
Paper III: **(108)** **ESSENTIAL OF E-COMMERCE & HTML**
Paper IV **(109)** **PRACTICAL LAB BASED ON 106,107,108.**
Paper V **(110)** **PROJECT**

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Subject Expert	1. **In-charge Head /Dr. J. K. Saluja**
Subject Expert.....	.....
Alumni(member)....B. Dewangan.....	2. **Mr. Durgesh Kumar Kotangle**
Prof. from other Dept. of Sc. Faculty 26/8/19	.....
Specialist from Industry	3. **Mr. Dileep Kumar Sahu**
	.....

Syllabus and Marking Scheme for PGDCA IST SEM
Session 2019-20

Paper No.	Title of the Paper	Marks Allotted in Theory	
		Max	Min
I	INTRODUCTION TO SOFTWARE ORGANIZATION(101)	100	20
II	PROGRAMMING IN "C"(102)	100	20
III	OFFICE AUTOMATION & TALLY(103)	100	20
IV(104)	PRACTICAL BASED ON 103	100	20
V(105)	PRACTICAL BASED ON 102	100	20
	Total	**500**	

01	**Theory papers**	**-**	**300**
02	**Practical**	**-**	**200**
	Total Marks	**-**	**500**

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Subject Expert.....	2. **Mr. Durgesh Kumar Kotangle** .....
Alumni(member)....B. Dewangan.....	3. **Mr. Dileep Kumar Sahu** .....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

GOVT.V.Y.T.P.G. AUTO. COLLEGE, DURG(C.G.)

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION, 2019-20
[DURATION - ONE YEAR - FULL TIME]

The duration of the course shall be one year consisting of two semesters. There shall be three theories and two practical courses in the each semester.

FIRST SEMESTER

PGDCA-101 : Introduction to software organization
PGDCA-102 : Programming in "C"
PGDCA-103 : Office Automation & Tally
PGDCA-104 : Practical based on PGDCA-103.
PGDCA-105 : Practical based on PGDCA-102.

PGDCA-101

INTRODUCTION TO SOFTWARE ORGANISATION

UNIT – I : Introduction to Computers

Computers – Introduction, Computer System Characteristics, Strength and Limitations of Computer, Development of Computers, Types of Computers, Generations of Computers.
Introduction to Personnel Computers – Uses of PC's, Components of PC's, Evolution of PC's, Developments of Processors, Architecture of Pentium IV, Configuration of PC's; Input Device; Output Devices.

UNIT – II : Computer Organization

Central Processing Unit – Arithmetic Logic Unit, Control Unit, Registers, Instruction Set, Processor speed, Storage Devices – Storage and its need, Storage Evaluation Units, Primary Storage, Secondary Storage, Data Storage and Retrieval Systems, SIMM, DIMM, Types of Storage Devices.

UNIT – III : Computer Software

Basics of Software – needs of Software, Types of Software; Free Domain Software; Open Source Software; Compiler, Interpreter and Assembler; Linker and Loader; Debugger; Integrated Development Environment; Operating System – Introduction, Uses of OS, Functions of OS, Booting process, Types of Reboot, Booting from different OS, Types of OS, DOS, Windows, Linux.

UNIT – IV : Programming Languages – Introduction, Comparison between Human and Computer Language; Program; Data, Information and Knowledge; Characteristics of Information; Types of Programming Languages; Generations of Languages; Program Development Steps; Programming Paradigms; Object-Oriented Programming; Structured Programming, Functional Programming, Process Oriented Programming.

UNIT – V : Communication, Networks and Internet

Communication – Introduction, Communication process, Communication Types, Communication Protocols, Communication Channels/Media, Networks – Introduction; Types of Network; Topology; Media - NIC, NOS, Bridges, HUB, Routers, Gateways, Internet – Introduction, Growth of Internet, Owner of Internet, Internet Service Provider, Anatomy of Internet, ARPANET and Internet History of World Wide Web, Services Available on Internet - File Transfer Protocol, Gopher, E-mail, Telnet, Newsgroups, WWW, Applications of Internet.

Books Recommended

1. Using IT : Williams T M Hill
2. Essentials of Information Technology : A. Mansoor, Prgya Publications
3. IT : Curtin T M Hill
4. Fundamental of Information Technology : Chetan Shrivastava_Kalyani Publishers
5. Computer Fundamentals : P.K Sinha BPB Pubications
6. Fundamental of Computer : V.Rajaraman
7. Computer today : Sanders D.H

B. Dewangan

PGDCA-102

PROGRAMMING IN 'C'

UNIT – I : Introduction :

Introduction Character set, Identifiers and Keywords, Variables, Displaying variables, Reading Variables, Character and Character String, Qualifiers, Type define Statements, Value initialized variables, Constants, Constant Qualifier, Operators and Expressions, Operator Precedence and Associativity, Basic input output: Single Character I/O, Types of Characters in format string, Scanf with specifier.

UNIT – II : Control Structures -

Control Structure: If - statement, If -else statement, Multi decision, Compound Statement, Loops: For - loop, While -loop, Do-While loop, Break statement, Switch statement, Continue statement, Go to statement.

UNIT – III : Functions & Arrays -

Functions : Function main , Functions accepting more than one parameter, User defined and library functions, Concept associatively with functions, function parameter, Return value, recursion comparisons of Iteration and recursion variable length argument list.

Arrays : Scope and Extent, Multidimensional Arrays, Array of Strings, Function in String, passing arrays to functions, accessing array inside functions.

UNIT – IV Pointes

Pointers: Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer, pointer and arrays, pointer and functions, , pointers and two dimensional arrays, array of pointers, pointers constants, pointer and strings.

UNIT – V : Structure and Union -

Declaring and using Structure, Structure initialization, Structure within Structure, Operations on Structures, Array of Structure, Array within Structure, Creating user defined data type, pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union.

Suggested Books :-

1. Let us C - Yashwant Kanetkar.
2. Programming in C - E. Balaguruswamy

B. Devendran 26/8/19

26/8/19

PGDCA-103

OFFICE AUTOMATION & TALLY

UNIT – I : Windows Concept

Windows Concepts, Features, Structure, Desktop, Icons, Taskbar, Start Menu, My Computer, Recycle Bin, My document, creating shortcut. Accessories : Calculator, Notepad, Paint, WordPad, Character Map. Windows Explorer : Creating files & folders and other Explorer facilities, Object Linking & Embedding. Communication : Dialup Networking, Phone Dialer. Difference among windows versions.

UNIT – II : Word Processing & Spreadsheet

Word : Creating, Editing, & Previewing Documents, Formatting, Advanced Features, Using Thesaurus, Mail Merge, Table & Charts, Handling Graphics, Converting Word Documents into other Formats.
Excel : Worksheet Basics, Creating, Opening, & Moving in Worksheet, Working with Formula & Cell referencing, Absolute & Relative addressing, Working with Ranges, Formatting of Worksheet, Graphs & Charts, Database, Function, and Macros.

UNIT – III : Power Point & FoxPro

Power Point : Creating a presentation, Modifying visual Elements, Adding objects, Applying Transitions, animations and linking, Preparing handouts, presenting a slide show.
FoxPro : Preparing Database files, access & retrieval of records in a data base file, inserting & deleting of records. Programming preliminaries. Sorting & Indexing. Development of programs LOOPING, Branching, report making.

UNIT – VI : Access

Introduction to MS Access, The Tables of a Database, Introduction to the Record of a Table, Introduction to Controls Design, Details on Controls Design, The Characteristics of a Table, The Characteristics of a Form, The Characteristics of a Window Control, Data Controls, Introduction to Data Expressions, Getting Assistance With Data Entry, Database Strings, Database Numeric Values, Database Conditional Values, Database Date and Time Values, Creating Reports, Characteristics of Reports.

UNIT – V : Tally

Setting up Ledger & Groups. Study of recording of transactions in the 'Voucher'. (According to Golden rules). Study of 'Final A/C preparation & displaying in different mode/format'. Study of alteration & Deletion of ledger/Groups. Study of cash & fund flow, day book, sales register, purchase register, bills receivable/Payable etc. Study of data security & backing up data. Outline of entry for Income Tax, ED, VAT, ST/CST, PF, Gratuity, Bonus, Loans & Depreciation etc.

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PGDCA-104 : Practical based on PGDCA-103

1. **Scheme of Examination: -**

Practical examination will be of 3 hours duration. The distribution of practical marks is as follows :

Question 1 (Word)	-	10
Question 2 (Excel/ Power point)	-	10
Question 3 (FoxPro)	-	15
Question 4 (Access)	-	10
Question 5 (Tally)	-	15
Viva-Voice	-	20
[Practical Copy + Internal Record]	-	20
Total	-	**100**

2 In every program there should be comment for each coded line or block of code.

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared.

List of Practical

1. At least 10 practical Questions in Word
2. At least 10 practical Questions in Excel
3. At least 5 practical Questions in Power point
4. At least 10 practical Questions in Access
5. At least 10 practical Questions in FoxPro
6. At least 5 practical Questions in Tally

PGDCA-105 : Practical based on PGDCA-102

1 **Scheme of Practical Examination:-**
Practical examination will be of 3 hours duration. All programe with flowchart & algorithms. The distribution of practical marks is as follows and

Question 1 (with flowchart & algorithms)	-	20
Question 2 (with flowchart & algorithms)	-	20
Question 3 (with flowchart & algorithms)	-	20
Viva-Voice	-	25
[Practical Copy + Internal Record]	-	15
Total	-	**100**

2 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

3 In every program there should be comment for each coded line or block of code.

4 All the programs or a similar type of programs should be prepared as per the practical list.

List of Practical

INPUT AND OUTPUT, FORMATTING

1. Write a program in which you declare variable of all data types supported by C language. Get input from user and print the value of each variable with alignment left, right and column width 10. For real numbers print their values with two digits right to the decimal.

LOOPS, DECISIONS

2. Write program to print all combination of 1 2 3.
3. Write program to generate following pattern

a)
```
* * * * *
 * * * *
  * * *
   * *
    *
```

c)
```
    *
   * *
  * * *
 * * * *
* * * * *
```


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b) 1

2 3

4 5 6

7 8 9 10

d)

1

2 1 2

3 2 1 2 3

4 3 2 1 2 3 4

4. Write main function using switch...case, if..else and loops which when called asks pattern type; if user enters 11 then first pattern is generated using for loop. If user enters 12 then first pattern is generated using while loop. If user enters 13 then first pattern is generated using do-while loop. If user enters 21 then a second pattern is generated using for loop and so on.
5. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.
6. Write program to display number from one number system to another number system. The program must ask for the number system in which you will input integer value then the program must ask the number system in which you will want output of the input number after that you have to input the number in specified number system and program will give the output according to number system for output you mentioned.
7. Write a program to perform following tasks using switch...case, loops, and conditional operator (as and when necessary).

   a) Find factorial of a number

   b) Print fibonacci series up to n terms and its sum.

   c) Print sin series up to n terms and its sum.

   d) Print prime numbers up n terms.

   e) Print whether a given year is leap or not.
8. Write program no. 6 but use library function to perform above tasks.

ARRAY

9. Create a single program to perform following tasks using switch, if..else, loop and single dimension character array without using library function:

   a) To reverse the string.
   b) To count the number of characters in string.
   c) To copy the one string to other string;
   d) To find whether a given string is palindrome or not.
   e) To count no. of vowels, consonants in each word of a sentence and no. of punctuation in sentence.
   f) To arrange the alphabets of a string in ascending order.
10. Create a single program to perform following tasks using switch, if..else, loop and single dimension integer array:

    a) Sort the elements.
11. Write a program that read the afternoon day temperature for each day of the month and then report the month average temperature as well as the days on which hottest and coolest days occurred.
12. Create a single program to perform following tasks using switch, if..else, loop and double dimension integer array of size 3x3:

    a) Addition of two matrix.

    b) Subtraction of two matrix.

    c) Multiplication of two matrix.
13. Create a single program to perform following tasks using switch, if..else, loop and double dimension character array of size 5x40:

    a) Sorting of string.

FUNCTIONS

14. Write program using the function power (a, b) to calculate the value of a raised to b.
15. Write program to demonstrate difference between static and auto variable.
16. Write program to demonstrate difference between local and global variable.
17. Write a program to perform following tasks using switch...case, loops and function.

    a) Find factorial of a number

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b) Print Fibonacci series up to n terms and its sum.

18. Write a program to perform following tasks using switch...case, loops and **recursive** function.

    a) Find factorial of a number

    b) Print Fibonacci series up to n terms and its sum.

19. Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lower case letter.

STRUCTURE & UNION

20. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare a structure variable of student. Provide facilities to input data in data members and display result of student.

21. Create a structure Date with data member's dd, mm, yy (to store date). Create another structure Employee with data members to hold name of employee, employee id and date of joining (date of joining will be hold by variable of structure Date which appears as data member in Employee Structure). Store data of an employee and print the same.

22. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare array of structure to hold data of 3 students. Provide facilities to display result of all students. Provide facility to display result of specific student whose roll number is given.

23. Write program to create structure complex having data members to store real and imaginary part. Provide following facilities:

    a) Add two complex nos. using structure variables.

    b) Subtract two complex nos. using structure variables.

Use structure as argument to function and function returning structure.

POINTER

24. Define union Emp having data members:-one integer, one float and one single dimension character array. Declare a union variable in main and test the union variable.

25. Define an enum Days_of_Week members of which will be days of week. Declare an enum variable in main and test it.

26. Write a program of swapping two numbers and demonstrates call by value and call by reference.

27. Write program to sort strings using pointer exchange.

28. Write a program in c using pointer and function to receive a string and a character as argument and return the no. of occurrences of this character in the string.

29. Create a program having pointer to void to store address of integer variable then print value of integer variable using pointer to void. Perform the same operation for float variable.

30. Write program to find biggest number among three numbers using pointer and function.

31. Write program to Create a structure Employee having data members to store name of employee, employee id, salary. Use Pointer to structure to store data of employee and print the stored data-using pointer to structure.

32. Write program to Create a structure Employee having data members to store name of employee, employee id, salary. Use Pointer to structure to simulate dynamic array of structure store data of n employees and print the stored data of n employees using pointer to structure.

33. Write a program to sort a single dimension array of integers of n elements simulated by pointer to integer. Use function for sorting the dynamic array.

34. Write a program to sum elements of a double dimension array of integers of m rows and n columns simulated by pointer to pointer to integer. Use function for sum the elements of the dynamic array.

35. Write program to demonstrate difference between character array and pointer to character.

36. Write program to demonstrate difference between constant pointer and pointer to constant.

37. Write program to demonstrate pointer arithmetic.

38. write program to demonstrate function-returning pointer.

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Syllabus and Marking Scheme for PGDCA I[ST] SEM
Session 2019-20

Paper No.	Title of the Paper	Marks Allotted in Theory	
		Max	Min
I	INTRODUCTION TO SOFTWARE ORGANIZATION(101)	100	20
II	PROGRAMMING IN "C"(102)	100	20
III	OFFICE AUTOMATION & TALLY(103)	100	20
IV(104)	PRACTICAL BASED ON 103	100	20
V(105)	PRACTICAL BASED ON 102	100	20
	Total	**500**	

03 Theory papers - 300
02 Practical - 200
Total Marks - 500

Marks Scheme:-
Theory 100 marks=05credits
(Section – A)
1. Very short answer type question-Altogether 10 questions are to be set i.e. two from each unit and shall be compulsory (02 x 10)=20.
(Section -- B)
2. Short answer type question - Altogether 10 questions are to be set i.e. two from each unit with the internal choice. The candidates are required to solve one from each unit (04 x 05)=20.
(Section -- C)
3. Long answer type question - Altogether 10 questions are to be set i.e. two from each unit with the internal choice. The candidates are required to solve one from each unit (05 x 12)=60.

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	1. **In-charge Head /Dr. J. K. Saluja** .....
Subject Expert.....	2. **Mr. Durgesh Kumar Kotangle** .....
Alumni(member).....	3. **Mr. Dileep Kumar Sahu** .....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

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GENERAL INSTRUCTIONS FOR STUDENTS

1. The candidate has to obtain minimum 20%marks in each theory paper.

2. The candidate has to secure minimum 36%marks as an aggregate in order to pass the semester examination.

3.The grading system was implemented from 2019-20 onwards for the students admitted in at the first semester of all PG subjects.

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Subject Expert.....	.....
Alumni(member)...B.:....Dewangan.....	**2. Mr. Durgesh Kumar Kotangle**
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Autonomous Examination Cell

Question Paper Format and Distribution of Marks for PG Semester Examination

Question paper format for the Post-Graduate Examination has been revised from the Session 2019-20.The revised format will be applicable for all the question papers of Semester I, II. The following are the main points of the new format:

1. The question paper will be of **100 marks** (as before)
2. Questions will be asked Unit-wise in each question paper.
3. From each Unit, the questions will be asked as follows :
   - Q.1 Very short answer type questions **(Answer in one or two sentences)** **(02 Marks)**
   - Q.2 Short answer type questions **(Answer in 200-250 words)** **(04 Marks)**
   - Q.3 Long answer type questions **(Answer in 400-450 words)** **(12 Marks)**

Type of Question	Unit-I	Unit-II	Unit-III	Unit-IV	Unit-V
Very Short (1 Questions) (Maximum two sentences)	2 x 2 = 4 Marks	2 x 2 = 4 Marks	2 x 2 = 4 Marks	2 x 2 = 4 Marks	2 x 2 = 4 Marks
Short (1 Question) 200-250 words	1 x 4 = 4 Marks	1 x 4 = 4 Marks	1 x 4 = 4 Marks	1 x 4 = 4 Marks	1 x 4 = 4 Marks
Long answer (1 Question) 400-450 words	1 x 12 = 12 Marks	1 x 12 = 12 Marks	1 x 12 = 12 Marks	1 x 12 = 12 Marks	1 x 12 = 12 Marks

Note:

1. Question no. 1 will be compulsory.
2. Question no. 2 and 3 will consist of 2 optional questions of which one has to be attempted.
3. As mentioned above, one compulsory very short answer type questions (2marks), one short answer type question with internal choice (4 marks) and one long answer type question with internal choice (12 marks) will be asked from each unit.
   Thus there will be questions of 20 marks from each unit and of total 100 marks from all the five units of the syllabus/syllabi.

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