Department of Mathematics

Revised Syllabus of Diploma Programme (UG)

Preamble:

Mathematical computation has today become integral part of Mathematical research and development. The students in these days are thinking beyond exam and aiming for industry career as well as research opportunities. The syllabus motivates students in gradual way. The focus of the course is both on theoretical developments of ideas as well as algorithms

Program Objectives of the Course:

1. To give the knowledge of Mathematical Software's.
2. To develop programming skills using Mathematical Software's.
3. To visualize mathematical concepts using softwares.
4. Student should effectively use mathematical tools for understanding subjects.

Program Outcomes:

Students will be able to
1. know history of C language as well as Scilab and how to install softwares.
2. write programmes, equations, matrix, tables and plotting graphs.
3. learn basic programming using loop structures.
4. understand mathematics and concepts in-depth using softwares.

I Year Diploma Programme

1. Title: Computation of Mathematical problem by using C – Programming
2. Year of Implementation: 2020
3. Duration: One Year
4. Pattern: Semester
5. Medium of Instruction: English
6. Contact hours: 7 hours/week
8. Structure of Course:

Syllabus Structure (UG)

Year	Semester	Course No.	Course Code	Contact Hours	Credits (1Credit=15 H)	Total Marks
1	I	CT I	DMT 101	30	2	75
		CL I	DML101	60	2	75
	II	CT II	DMT 202	30	2	75
		CL II	DM L202	60	2	75
	Annual	CP I	DMP101	30	1	50
			Total	**210**	**9**	**350**
2	III	CT III	DMT 303	30	2	75
		CL III	DML303	60	2	75
	IV	CT IV	DMT 404	30	2	75
		CL IV	DML404	60	2	75
	Annual	CP II	DMP202	30	1	50
	Industrial and or Incubation and or Research and or Field Training			30	1	-
			Total	**240**	**10**	**350**
	V	CT V	DMT 505	30	2	75
		CLV	D*L505	60	2	75
	VI	CT VI	DMT 606	30	2	75
		CL VI	DML606	60	2	75
	Annual	CP III	DMP303	60	2	100
	Industrial and or Incubation and or Research and or Field Training			30	1	-
			Total	**270**	**11**	**400**
			Total	**720**	**30**	**1100**

D: Diploma, M: Mathematics

C: Course, T: Theory, L: Lab (Practical), P: Project

Total No. of Courses: 10 (Theory: 06, Practical: 06, Project: 03) Theory and Practical: Semester, Project: Annual

Semester I

DMT 101:CT I
(Contact Hrs: 30 Credits: 2)

Learning Objectives:

Students will be able to

1. learn basic concepts in Mathematics and also geometrical figures & Graphical displays.
2. perform Mathematical operations using C language.

Unit 1: C-Introduction, History, Identifiers, Keywords, constants, variables, Mathematical operations. Data types, Integer, real, character types. (15)

Unit 2: Input/output statements, C program structure, simple C programs. Control Structures (description), if, If – else statements, simple illustrative C-programs. (15)

Learning Outcomes:

After completion of the unit, Student is able to

1. know history, identifiers and key words.
2. learn data types and character types.
3. do simple C programmes by using if-else statement.
4. use input and output statements effectively while constructing programmes.

Reference Books:

1. Computational Mathematics laboratory by SUMS
2. Let us C by Yashvant. P.Kanetkar
3. Programing with C++, D.Ravichandran II Edition
4. Programing in ANSI by E.balgurusamy

DML101: (Practical):CL I
(Contact Hrs: 60 Credits: 02)

Learning Objectives:

Students will be able to

1. learn console and commands in C to construct interactive programme.
2. use C Language to solve simple mathematical problems.
3. develop an ability for life-long learning needed for computer language
4. develop various programmes for mathematical methods using C language

List of Practical's (15)

1. Introduction to C-language.
2. Constants & type of Constants.
3. Introduction of Mathematical operator.
4. Introduction of data types, integers, real numbers, character types.
5. Input & Output functions.
6. Complete structure of C programme.
7. Area & circumference of circle by using C programmes.
8. Surface area, volume of a sphere by using C programme
9. Area of triangle by using C programmes.
10. Programme to find out the temperature in Fahrenheit given Celsius and vice-versa.
11. Programme for finding simple interest.
12. To find maximum/minimum number among n numbers
13. Introduction of if, if-else, Nested if-else statements.
14. Largest of three numbers using Nested if-else statement
15. Solve quadratic equations using if Statements

Learning Outcomes:

After completion of the unit, Student is able to

1. write complete structure of C-language

2. know Introduction of if, if-else, Nested if-else statements.

Reference Books:

1. Computational Mathematics laboratory by SUMS

2. Let us C by Yashvant. P.Kanetkar

3. Programing with C++, D.Ravichandran II 4.Edition
4.Programing in ANSI by E.balgurusamy

Semester II

DMT 202: CT II
(Contact Hrs: 30 Credits: 2)

Learning Objectives:

Students will be able to

1. use loop structure & while, do-while loops etc in C programme.

2. test whether a number is prime or not by using C programmes.

Unit I: Loop Structure (I): for loop, figures, factorial, series sum problems, Fibonacci sequence. Loop Structure (II): while, do-while loops, $\exp(x)$, $\cos(x)$, $\sin(x)$ by series, sum and comparison using C language.   (15)

Unit II: Function values, Break, Continue, Go to, switch statements, Illustrative C programs, testing a number to be prime not prime**.** (15)

Learning Outcomes:

After completion of the unit, Student is able to

1. use loop structure & while, do-while loops etc in C programme.
2. write programme to find factorial and series sum problem.
3. use function values, break, continue, go to and switch statements in C programmes.

Reference Books:

1. Computational Mathematics laboratory by SUMS
2. Let us C by Yashvant. P.Kanetkar
3. Programing with C++, D.Ravichandran II Edition
4. Programing in ANSI by E.balgurusamy

DML202: (Practical): CL I
(Contact Hrs: 60 Credits: 02)

Learning Objectives:

Students will be able to

1. utilize fundamental concepts and methodologies to build C programmes.
2. understand compilation process and error elimination techniques.
3. learn basic programming skills and develop logic.
4. learn mathematical problem solving techniques using C Language.

List of Practical's (15)

1. Sum of natural numbers using for loop
2. Sum of series using for loop.
3. Conversion of temperature from Celsius to Fahrenheit using while-do loop.
4. Programme to find series of cube of natural number using do-while loop
5. Finding square root of real number using Go to statements.
6. Constructions of C programme to find average of positive numbers using break statements.
7. Use of continue statement to find square root of given numbers.
8. Programme to find given number is prime or not.
9. Trapezoidal rule by C-programming.
10. Simpson's 1/3 rd rule by C-programming
11. Simpson's 3/8 th rule by C-programming
12. Finding maximum number in the array
13. Arranging the elements in ascending order of Array

14. Addition of two matrices using C Programming
15. Transpose of a matrix using C programming

Learning Outcomes:

After completion of the unit, Student is able to

1. understand Loop Structure and write programmes using loop structure.

2. use break statements & write programmes on Break statement.

Reference Books:

D *P101 (Project):
(Contact Hrs. 30/60, Credits: 1/2)

Replace Certificate Course (I Year)/Diploma Course (II Year)/Advanced Diploma Course (III Year)
By I Year Diploma Course (UG) / I Year Advanced Diploma Course (PG)

BOS Sub-Committee		Expert Committee
1.	Chairman	1. Name of Academic Expert
2.	Member	2. Name of Industrial Expert