

The following points need to be followed while designing new courses or redesigning the existing courses

1. Identify new courses in the light of recent developments, trends, demands and Major theories in the discipline.
2. The Course content required for competitive examinations like NET / SET / CSIR etc. should be included.
3. General format of the syllabus should include
 - a. Objective
 - b. Unit wise hour allotment

Allotted hours per week	Hours * 15 weeks (15 x 6 =90 days)	Total hours per paper	Allotted hours per unit
2	2*15	30	30/5=6
3	3*15	45	45/5=9
4	4*15	60	60/5=12
5	5*15	75	75/5=15
6	6*15	90	90/5=18
7	7*15	105	105/5=21
8	8*15	120	120/5=24

- c. Self study content for each **Core Course** in the respective units with **two #** symbols (wherever required). 5% to 10% of the syllabus may be covered by self study.
- d. Text Book
- e. Books for reference (Atleast two)
- f. Distribution of Chapter and Section details for each unit.

Courses with Extra Credit for Advance Learners:

Courses with extra credit for advanced learner are introduced to improve the knowledge base of the students in their Core Area. These are self study courses and are optional. For UG and PG, two Courses with extra credit are included.

Eligibility for Courses with Extra Credit:

Science Programme:

- i. Minimum 75% Marks in the first four semesters for Extra Credit Course-I and 75 % in the first five semesters for Extra Credit Course-II of Part III courses for UG.
- ii. Minimum 75% Marks in the first two semesters for Extra Credit Course-I and 75 % in the first three semesters for Extra Credit Course-II of Part III courses for PG.

Arts Programme:

- i. Minimum 70% Marks in the first four semesters for Extra Credit Course-I and 70 % in the first five semesters for Extra Credit Course-II of Part III courses for UG.
- ii. Minimum 70% Marks in the first two semesters for Extra Credit Course-I and 70 % in the first three semesters for Extra Credit Course-II of Part III courses for PG.

Note:

1. There should be no standing arrears for opting Extra Credit Courses
2. Students are not permitted to write the course as arrear, if he / she fails in the courses with extra credit.

Semester: ** : CORE ** / Allied **/Major Based Elective ** / Skill Based Elective** / Non-Major Elective**

TITLE OF THE PAPER

Subject Code : **Max. Marks** :
Hours : Total Hours@ Per week **Internal Marks** :
Credits : **External Marks** :

Objectives:

UNIT I	-hrs
UNIT II	-hrs
UNIT III	-hrs
UNIT IV	-hrs
UNIT V	-hrs

#.....# Self study portion

-hrs refers the total hours required to complete the unit

** refers Number

Text Book:

Author Name, Book Name, Edition, Publisher detail, Year

UNIT I : Chapter.... : Section....

UNIT II : Chapter.... : Section....

UNIT III : Chapter.... : Section....

UNIT IV : Chapter.... : Section....

UNIT V : Chapter.... : Section....

Books for Reference

Author Name, Book Name, Edition, Publisher detail, Year

For Model purpose only

**SEMESTER III: CORE IV
DIFFERENTIAL EQUATIONS AND ITS APPLICATIONS**

Sub Code: 17UMA3C4
Hours/Week: 5
Credits: 3

Max Marks: 100
Internal Marks: 25
External Marks: 75

Objectives:

To study the methods used to solve differential equations of first order and second order and to solve the partial differential equations of first order.

UNIT I

15 Hours

Equations of the first order but of higher degree: Equations solvable for dy/dx - Equations solvable for y - # Equations solvable for x - Clairaut's form - Equations that do not contain x explicitly - Equations that do not contain y explicitly - Equations homogeneous in x and y - Exact Differential Equations - Practical Rule - #Rules for finding Integrating factors#.

UNIT II

15 Hours

Applications of first order equations: Growth, Decay and chemical reactions, Flow of water from an orifice, Falling bodies and other rate problems.

UNIT III

15 Hours

Linear Equations with constant coefficients: Complementary function of a linear equation with constant coefficients - # General methods of finding Particular Integrals # - Linear Equations with variable coefficients - Equations reducible to the linear equations.

UNIT IV

15 Hours

Partial Differential Equations of the first order: # Classification of integrals #, Derivation of PDE by elimination of constants and functions, Lagrange's method of solving the linear equation, Special methods, Standard forms I,II,III and IV(Clairaut's form)

UNIT V

15 Hours

Partial Differential Equations of higher orders: # A simple case of the linear PDE with constant coefficients #, The general Homogeneous linear equation, The Homogeneous equations with constant coefficients, Solution of the Homogeneous equation $f(D,D')=0$ Second method, case of the auxiliary equation having Repeated roots, # The Particular integral #.

#.....# Self Study portion

Text Books:

T.B-1 S. Narayanan and T. K. Manicavachagom Pillay, Differential Equation and its Application, Ninth edition, S. Viswanathan Publishers Pvt Ltd, 1996.

T.B-2 Dr. M. K. Venkataraman, Engineering Mathematics Volume III B, 13th Edition, National Publishing Company, 1998.

UNIT I Chapter IV Section 1 – 4, Chapter II – Section 6.1 – 6.4 **T.B- 1**

UNIT II Chapter III Section 1 – 3. **T.B- 1**

UNIT III Chapter V Section 1 – 6. **T.B- 1**

UNIT IV Chapter XII Full **T.B- 1**

UNIT V Chapter II Section 13-19 **T.B- 2**

Books for Reference:

1. M.D. Raisinghania, Ordinary and Partial Differential Equations, S. Chand & Co., 2004.
2. M.L. Khanna, Differential Equations, Jaiprakashnath and Co., 2004.