New Syllabus For Lateral Entry

FUNDAMENTAL MATHEMATICS

SEMESTER-III

COMMON TO ALL BRANCHES

Course Code : 18DIP300 L- T - P -C

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Course Objectives:

The purpose of this course is to

- Introduce concept of nth derivative.
- Introduce the concept of solving the differential equations
- Introduce concept of probability.

UNIT-1: 8 Hours

Differential Calculus: n^{th} derivatives of some standard functions (without proof), Leibnitz's Theorem(statement),Polar curves –angle between the radius vector and the tangent pedal equation- Problems. Taylor's and Maclaurin's series expansions of one variable - Illustrative examples.

UNIT-2:

Partial Differentiation : Partial derivatives, Euler's theorem for homogeneous functions of two variables. Total derivatives, Total differential, differentiation of composite and implicit function, Jacobians.

UNIT-3: 8 Hours

Integral Calculus: Statement of reduction formulae for $sin^n x$, $cos^n x$, *and* $sin^m x cos^n x$ and evaluation of these with standard limits-Examples. Double and triple integrals-Simple examples.

UNIT-4: 9 Hours

Ordinary differential equations (ODE's): Introduction-solutions of first order and first degree differential equations, exact, linear differential equations .

Higher order ODE's: Linear differential equations of second and higher order equations with constant coefficients. Homogeneous /non-homogeneous equations. Solutions of initial value problems.

UNIT-5: 6 Hours

Probability: Introduction, Sample space and events. Axioms of probability. Addition and multiplication theorems, Conditional probability-illustrative examples. Baye's theorem-problems.

Course Outcomes: After the successful completion of the course, the students are able

CO1: to understand the basic concept of calculus like differentiation and integration

CO2: to understand the concepts of partial differentiation and differential equations arising in a variety of engineering applications

CO3: to understand the double and triple integral.

CO4: to apply the concept of probability in problem solving and relate the solutions to the various engineering streams

TEXTBOOKS:

1. B.S. Grewal, Higher Engineering Mathematics (Latest Edition, 2016), Khanna Publishers, New

Delhi.

2. Erwin Kreyszig, Advanced Engineering Mathematics (10th Edition, 2016), Wiley Publishers,

New Delhi.

REFERENCE BOOKS/Web Links

1. Peter V. O'Neil, Advanced Engineering Mathematics (7th Edition), Cengage Learning, Publishers U.S.A.

2. Glyn James, Advanced Modern Engineering Mathematics (4th Edition, 2011), Pearson's Publisher.

3. K.A.Stroud, Engineering Mathematics (Latest Edition), MACMILLAN (London)