DEPARTMRNT OF ALLIED SCIENCES (MATHEMATICS)

SEMESTER II

Name of Department: - Allied Sciences (Mathematics)

1. Subject Code: **TMA 201** Course Title: **ENGINEERING MATHEMATICS-II**
2. Contact Hours: L: **3** T: **1** P: **0**
3. Examination Duration (Hrs): Theory **3** Practical **0**
4. Relative Weight: CIE **25** PRS **0** MSE **25** ESE **50** PRE **0**

Sl. No.	Contents	Contact Hours
1	**Differential equation** Ordinary differential equation of first order (Exact and reducible), linear differential equations of nth order with constant coefficients, complementary functions and particular integrals, Euler Homogeneous differential equation, Method of variation of parameters and applications of ODE.	(12 Hrs)
2	**Laplace Transform** Introduction of Laplace Transform, Shifting Theorems Existence theorem and properties, Laplace transform of derivatives and integrals, Inverse Laplace transform, Laplace transform of periodic functions, Unit step function and Dirac delta function, Convolution theorem, Applications to solve simple linear and simultaneous linear differential equations.	(12 Hrs)
3	**Partial differential equations- I** Introduction to PDE, Formation of PDE, solution first order PDE, Lagrange's and Charpit's methods, standard form of first order PDE.	(12 Hrs)
4	**Partial differential equations -II** Solution of linear partial differential equations with constant coefficients of second order and their classifications: parabolic, hyperbolic and elliptic, Method of separation of variables for solving partial differential equations.	(12 Hrs)
5	**Fourier series and Fourier Transform** Periodic functions, Fourier series of periodic functions, Euler's formula, Fourier series having arbitrary period, Change of intervals, Even and odd functions, Half range sine and cosine series. Fourier Transform, Fourier Sine and Cosine Transform, Application of Fourier Transform.	(12 Hrs)
	Total	(60 Hrs)