

## **MT-152 Calculus-II**

Techniques of integration: integrals of elementary, hyperbolic, trigonometric, logarithmic and exponential functions, integration by parts, substitution and partial fractions, approximate integration, improper integrals, gamma functions. Applications of integrals: area between curves, average value, volumes, arc length, area of a surface of revolution. Infinite series: sequences and series, convergence and absolute convergence. Tests for convergence: divergence test, integral test, p-series test, comparison test, limit comparison test, alternating series test, ratio test, root test, power series, convergence of power series, representation of functions as power series, differentiation and integration of power series, Taylor and Maclaurin series, approximations by Taylor polynomials, conic section. Parameterized curves and polar coordinates: curves defined by parametric equations. parametric curves: tangents, areas, arc length, polar coordinates, polar curves, tangents to polar curves, areas and arc length in polar coordinates.

### **Recommended Books:**

1. "Calculus", Thomas, Addison Wesley Publishing Company, 11<sup>th</sup> Edition, 2005.
2. "Calculus", H. Anton, I. Bevens, S. Davis, John Wiley & Sons, Inc., 8<sup>th</sup> Edition, 2005.
3. "Calculus Single and Multivariable", Hughes-Hallett, Gleason, McCallum, John Wiley & Sons, 3<sup>rd</sup> Edition 2002.