

National Institute of Technology Karnataka, Surathkal
Course plan and Evaluation Plan

Course Code	: MA110
Course Title	: Engineering Mathematics -I
L-T-P	: 3-0-0
Credits	: 3
Course Instructor(s)	: Prof. Santhosh George, Dr.Vivek Sinha, Dr. V. Murugan, Dr. Satyanarayana Engu, Dr. Chandhini G, Dr. I. Jeyaraman, Dr. Srinivasa Rao Kola, Dr. A. Senthil Thilak
Teaching Department	: Mathematical and Computaional Sciences (MACS)
Course coverage	: 40-Lecture schedule
Evaluation Plan	: Weightage of Mid-sem is 25 % Weightage of End-sem is 50 % Weightage of Quizzes is 25 % (Quiz-I is on 15-09-2014 and Quiz-II is on 24-11-2014)
Objective of the course	: To expose the students to fundamentals of topics such as sequences, series, continuity and differentiability in one and higher dimensions.
Skill development of the student expected from the course	: Understanding the techniques of proof and capability to analyze and solve problems in calculus effectively.

Contents as per Reference [1]

- Sequences, Infinite Series, The integral test, Comparison tests, The ratio and root tests, Alternating Series, Absolute and Conditional convergence, Power series, Taylor and Maclaurin Series, Convergence of Taylor Series: error estimates (Sections 11.1-11.9).
- Continuity (Section 2.6).
- Extreme Values of functions, The Mean Value Theorem, Monotonic functions and the first derivative test (Sections 4.1-4.3).
- Functions of Several variables, Limits and Continuity in Higher Dimensions, Partial Derivatives, Extreme Values and Saddle points, Lagrange Multipliers, Taylor's Formula for two variables (Sections 14.1-14.3, 14.7-14.8, 14.10).

References books

1. M.D. Weir, J. Hass and F.R. Giordano, Thomas' Calculus, 11th Edition, Pearson Publishers.
2. N. Piskunov, Differential and Integral Calculus, Vol I & II (Translated by George Yankovsky).
3. Erwin Kreyszig, Advanced Engineering Mathematics, Wiley Publishers.
4. S.C. Malik and Savitha Arora, Mathematical Analysis, Wiley Eastern Ltd, 1992, 1994.
5. R. G. Bartle, D. R. Sherbert, Introduction to real analysis, Wiley Publishers.