



Mathematics (MAT 114): Applied Calculus II

Instructor	Dr. Samir K. Bhowmik
Credits:	4 hours
Prerequisite:	Calculus I (MAT 113)
Office:	Floor 1, GR-72
Office Hours	Monday, Wednesday: 3rd & 4th hours,

Textbook: Calculus, Early Transcendental Functions, Robert Smith, Roland Minton, McGraw-Hill Science Engineering, 2007.

Content:

Chapter	Topics	sections	Week
Integrals (4, 5, 6)	Review the Formulas and Techniques; Area between two curves	4.4; 4.5; 5.1	1
	Substitution in Definite Integrals. Integration by Parts.	4.6; 6.2	2
Infinite series (8)	Trigonometric Techniques of Integration. Integration of Rational Functions using Partial Fractions.	6.3; 6.4	3
	Improper Integrals.	6.6	4
	Infinite Series (Convergence and divergence) Integral test. p-series test	8.2; 8.3	5
Functions of several variables and Partial Differentiation (12)	Comparison test, Limit Comparison test Alternating series	8.3; 8.4	6
	Absolute convergence; ratio test, root test. Power series.	8.5; 8.6	7
	Functions of several variables, Limits and Continuity.	12.1; 12.2	8
Multiple Integrals (13)	Partial derivatives, Tangent Planes.	12.3; 12.4	9
	Chain rule; the gradient and directional derivatives,	12.5; 12.6	10
Parametric equations (9)	Double Integrals in Cartesian Coordinates; Double Integrals in Polar Coordinates.	13.1 ; 13.3	11
	Surface Area. Triple Integrals in Cartesian Coordinates.	13.4; 13.5	12
Revision	Plane Curves and Parametric Equations, Calculus and Parametric Equations.	9.1; 9.2	13
	Arc Length and Surface Area in Parametric Equations; Polar Coordinates	9.3; 9.4	14
		Revision	15

Exams (common):	Grading:
- Midterm1: Around 6 th week	- Midterm1: 20
- Midterm2: Around 10 th week	- Midterm2: 20
- Final: 16 th week	- Participation, home works & quizzes: 20
	- Final Exam: 40

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