

# Minnesota State University Moorhead

## MATH 262: Calculus II

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite

MATH 261 - Calculus I

Corequisites: PHYS 201 and PHYS 201

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

Calculus of one variable-transcendental functions, applications of integrals, techniques of integration, infinite series. MnTC Goal 4.

### B. COURSE EFFECTIVE DATES: 11/12/1996 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Finding areas, volumes, and arc lengths.
2. Work and center of mass.
3. Formal definition of logarithms, exponential functions, inverse trigonometric functions, their derivatives and uses as antiderivatives, and applications of all of these in the calculus.
4. Integrations techniques.
5. Sequences and series, and determinations of convergence.
6. Taylor/Maclaurin series, power series representations of functions, proofs of convergence.

### D. LEARNING OUTCOMES (General)

1. Use a variety of integral calculus techniques to solve real-world problems.
2. Prove when an infinite sequence or series converges or diverges.
3. Be able to find a series representation of a function and determine its interval of convergence.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument(proof).
4. Apply higher-order problem-solving and/or modeling strategies.

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted