Course Name: Calculus II

Course Number: MAT*E256

Credits: 4

Catalog description:. A continuation of MAT*254. Topics include: The Fundamental Theorem of Calculus, finding areas, volume and curve length using the integrals; integration and differentiation of logarithmic, exponential, trigonometric, functions, as well as techniques of integration and improper integrals, infinite sequences and series.

Prerequisite: MAT*254 with a grade of C or higher

General Education Competencies Satisfied:

HCC General Education Requirement Designated Competency Attribute Code(s):
None

Discipline-Specific Attribute Code(s):

☒ **MATH**   **Mathematics elective**

Course objectives:

General Education Goals and Outcomes:

None

Course Specific Objectives:
1. To apply the rules of differentiation and integration to logarithmic, exponential, and trigonometric functions.
2. To compute the area, volume, arc length of these functions.
3. To graph these functions using graphing calculators and the derivative.
4. To use the derivative and integral to solve appropriate word problems and check for reasonableness.
5. To understand and apply the various tests for sequences and series.

Course Content:
> **Unit 1:**
>> Fundamental Theorem of Calculus
>> Integration Techniques
>> Improper Integrals
> **Unit 2:**
>> Areas
>> Volumes
>> Arc length and surfaces of revolution
>> Additional applications of Integration*

> **Unit 3:**
>> Sequences
>> Series
>> Convergence Tests

Power series
Taylor and MacIaurin Series

* Physics, Engineering, Biology, Economics, Probability, as time permits

REV 5/22/2006
REV 1/2015
REV 02/27/2017