 Course Prefix and Number: <u>MTH 264</u>   Credits: <u>3</u>

Course Title: <u>Calculus II</u>

<u>Course Description</u>

Continues the study of calculus of algebraic and transcendental functions, including rectangular, polar, and parametric graphing, indefinite and definite integrals, methods of integration, and power series along with applications. Features instruction for mathematical, physical and engineering science programs. Prepares students for further study in calculus with analytic geometry by providing them with the necessary competencies in finding limits, differentiation, and integration. This is a UCGS transfer course. Prerequisite: Placement in MTH 264 or completion of MTH 263 or equivalent with a grade of C or better. Lecture 4 hours. Total 4 hours per week. 4 credits

- Write definition of and understand Series (intro)
- Determine convergence by integral test
- Determine convergence by comparison test
- Determine convergence of alternating series
- Determine absolute convergence (ratio, root tests)
- Apply strategies for testing series
- Work with power series
- Represent functions as power series
- Find Taylor, Maclaurin series & polynomials
- Calculate Taylor and Maclaurin series

Parametric Curves and Polar Coordinates
- Represent curves by parametric equations
- Perform calculus with parametric curves
- Use and graph with polar system
- Calculate areas and lengths in polar coordinates
- Define the conic forms in polar form

Major Topics to be Included

- Applications of Integration
- Techniques of Integration
- Infinite Sequences and Series
- Parametric Curves and Polar Coordinates

Effective Date/Updated: August 1, 2022