COURSE NUMBER: Vv215	**COURSE TITLE:** Calculus III
Credit: 4	**PREREQUISITES:** Vv116 or instructor's permission
TEXTBOOKS/REQUIRED MATERIAL: James Stewart, *Calculus*, 7th Edition	**INSTRUCTOR:** Zachiri McKenzie **DATE OF PREPARATION:** **DATE OF UC APPROVAL:**
INSTRUCTOR(S):	**SCIENCE/DESIGN:** n/a
CATALOG DESCRIPTION: The sequence Calculus Vv115-116-215-216 is an introduction to basic calculus. It differs from the Honors Math sequence in that new concepts are often introduced and extended from concrete examples, remaining closely aligned to applications. Most theorems are stated rigorously and motivated from examples, but complicated proofs and abstract generalizations are often omitted. The emphasis is on applying mathematical results to concrete problems. This sequence has an additional course compared to the Applied Calculus sequence. This allows room for more examples and the discussion of more applications. The present course covers vectors and the calculus of functions of more than one real variable.	**COURSE TOPICS:** • Vectors and linear algebra • Differentiability of functions of more than one real variable and partial derivatives • Double and triple integrals • Line integrals and Green's Theorem • Surface integrals, Stokes' Theorem and the Divergence Theorem
COURSE STRUCTURE/SCHEDULE: lecture (five times per fortnight, 90 minutes each)	

COURSE OBJECTIVES [Course Outcomes in brackets]	• Provide knowledge about concepts in the calculus of functions of more than one real variable [1-7]. • Present analytic techniques of the multivariate calculus and develop students' ability to apply them effectively in modeling of real-world problems [1-7]. • Develop student's ability to interpret the concepts of calculus algebraically, graphically, and verbally [1-7]. • Improve students' ability to think critically, to analyse a problem and solve it using a wide array of tools [1-7].
COURSE OUTCOMES [Program Outcomes in brackets]	After completing this course, students should be able to: 1. Find patterns, generalize, and ask/answer relevant questions with mathematical thinking and reasoning. 2. Develop a mathematical vocabulary by expressing mathematical ideas orally and in writing. 3. Perform numeric and symbolic computations in multivariate calculus. 4. State and apply mathematical definitions and theorems in multivariate calculus. 5. Prove fundamental theorems in multivariate calculus. 6. Model real-life problems mathematically using multivariate calculus. 7. Use MATLAB to analyze and solve geometric, computational, and symbolic problems.
ASSESSMENT TOOLS [Course Outcomes in brackets]	homework [1-7] midterm and final exams [1-6]