COURSE NUMBER: Vv156	**COURSE TITLE:** Applied Calculus II
Credit: 4	**PREREQUISITES:** having passed math placement test
TEXTBOOKS/REQUIRED MATERIAL: James Stewart, *Calculus* (5th edition)	**INSTRUCTOR:** Mateusz Krzyzosiak **DATE OF PREPARATION:** Sep 27, 2012 **DATE OF UC APPROVAL:** Oct. 30, 2013
INSTRUCTOR(S):	**SCIENCE/DESIGN:** n/a
CATALOG DESCRIPTION: The sequence Applied Calculus Vv156-255-256 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. The present course covers the calculus of functions of a single real variable.	**COURSE TOPICS:** • review of trigonometry, complex numbers and functions • sequences and convergence • functions and continuity • the derivative and applications • the Riemann integral and applications of integration; • series and power series • curves (as time permits)
COURSE STRUCTURE/SCHEDULE: lecture (twice per week, 90 minutes each)	

COURSE OBJECTIVES [Course Outcomes in brackets]	• Provide knowledge about concepts in the calculus of functions of one variable [1-10]. • Present analytic techniques of the single-variable calculus and develop students' ability to apply them effectively in modeling of real-world problems [1-10]. • Develop student's ability to interpret the concepts of calculus algebraically, graphically, and verbally [1-10]. • Improve students' ability to think critically, to analyze a problem and solve it using a wide array of tools [1-10].
COURSE OUTCOMES [Program Outcomes in brackets]	After completing this course, students should be able to: 1. Read, write, and speak accurately about mathematical ideas and use correct mathematical notation [a, g]. 2. Evaluate a variety of limits including limits at infinity, one-sided limits, and limits of indeterminate forms [a, e, k]. 3. Understand the concept of continuity and properties of continuous functions [a, e, k]. 4. Apply the definition of derivative to calculate and estimate derivatives from formulas, graphs, or data [a, e, k]. 5. Discuss the conceptual relations between derivatives, rates of change, and tangent lines in the context of an applied example [a, e, g, k]. 6. Effectively use differentiation techniques; use derivatives to analyze and graph functions and solve real-world modeling and simple optimization problems [a, e, g, k]. 7. Understand the notion of the Riemann integral; be able to effectively use integration techniques [a, e, k]. 8. Be able to analyze convergence of series and power series [a, e, k]. 9. Solve applied problems using calculus and justify answers [a, e, g, k]. 10. Incorporate the use of computer-based technology (CAS, graphing software) in problem-solving and results presentation [a, e, g, k].
ASSESSMENT TOOLS [Course Outcomes in brackets]	homework [1-10] midterm and final exams [1-10]