• Course Number and Title:	PHYS 1320G. Calculus-Based Physics II
• Catalog Description:	A calculus level treatment of classical electricity and magnetism. It is strongly recommended that this course is taken at the same time as Calculus-based Physics II laboratory.
• Credit Hours:	3 Credits (3)
• Prerequisite(s) / Corequisite(s)	Prerequisite(s): (PHYS 1310G or PHYS 2110) and (MATH 1521G or ENGR 190) Corequisite(s): None
• Required:	Required for BSME and BSAE Degrees
• Course Availability:	Fall and Spring Semesters (+ Summer)
• Instructor (Usual):	Dr. Ludi Miao
• Textbook:	Young, H., and Freedman, R., University Physics with Modern Physics (ISBN-10: 0135159555 or ISBN-13: 978-0135159552), Pearson, 15th Ed., 2019
• Course Learning Objectives:	After completing this course, a student should be able to: 1) Apply the concepts of electric charge, electric field and electric potential to solve problems. 2) Sketch the electric field in the vicinity of point, line, sheet, and spherical distributions of static electric charge. 3) Sketch the magnetic field in the vicinity of line, ring, sheet, and solenoid distributions of steady current. 4) Describe the relationship between electric field and electric potential. 5) Calculate the Lorentz force on a moving charge for simple geometries of the fields and use it to analyze the motion of charged particles. 6) Apply the integral forms of Maxwell's equations. 7) Calculate the energy of electromagnetic fields. 8) Analyze DC circuits.
• Topics Covered:	Electric field, Gauss's law, magnetic field, Ampere's Law, Faraday's Law, Maxwell's equations, electromagnetic waves, geometric optics.	