Physics and Engineering
Engineering Physics Assessment Plan

Program Learning Outcome	I	D	M*	Measurement Tool	Criteria for Success
Develop an understanding of the fundamental principles of physics and of engineering	PHY241, PHY242	PHY304, EGR225, EGR215†, EGR265†, EGR352‡, EGR422‡	PHY341, PHY361, PHY401, PHY431	Major Field Achievement Test in Physics. Test administered in PHY475.	At least 50% of students will score above the 40th percentile on the MFAT in Physics
Apply physical principles, mathematical reasoning, and computational techniques to solve real-world problems	EGR110, EGR120	PHY241, PHY242, PHY304, EGR225, EGR215†, EGR265†, EGR432‡	PHY341, PHY361, PHY401, PHY431, PHY311, PHY443, PHY362‡	Embedded Assignment given in upper division mastery class on a rotating basis (PHY341, PHY361, PHY401, PHY431). Juried as a department.	At least 65% of students will achieve an average score of 3 or higher on criteria described in application rubric.
Design and conduct experiments or complete an engineering design project as well as analyze and interpret data.	PHY241, PHY242	PHY304, PHY311, EGR352‡, EGR422‡, EGR432‡	PHY475, EGR442‡	Senior Lab Signature Assignment (Design, build, test) in PHY475. Evaluated using rubric by department	At least 65% of students will achieve an average score of 3 or higher on criteria described in experimental technique rubric
Demonstrate good ethics in science and engineering	PHY495	EGR225, EGR265‡	PHY311, PHY443	Ethics in Science Questionnaire, short answer scenarios	At least 80% of students show knowledge and practice of ethics in science as established by a ethics rubric
Effectively communicate complicated technical information	EGR110, EGR120	PHY304, PHY361, PHY495, PHY311, PHY443	PHY475	Imbedded Signature Assignment: Senior Lab Written Report and Senior Lab oral presentation in PHY475	At least 65% of students will achieve an average score of 3 or higher on criteria described in the oral and written communication rubrics
Effectively collaborate in teams	PHY241, PHY242	EGR225, EGR265‡, EGR352‡, EGR422‡, EGR432‡	PHY475, PHY495, EGR442‡	Embedded Assessment of a team project in Seminar (PHY495)	At least 65% of students will achieve an average score of 3 or higher on criteria described in the teamwork rubric

*I = Introduced, D = Developing, M = Mastery

† Mechanical Emphasis, ‡ Electrodynamics Emphasis