

COURSE NUMBER: Ve438	COURSE TITLE: Advanced Lasers and Optics Laboratory
CREDIT: 4	PREREQUISITES: VP 240
TEXTBOOKS/REQUIRED MATERIAL: Eugene Hecht : Optics; Saleh & Teich : Fundamentals of Photonics	INSTRUCTOR: Wenjie Wan DATE OF PREPARATION: Oct 8, 2012 DATE OF UC APPROVAL: Oct. 30, 2013
INSTRUCTOR(S): Wenjie Wan	SCIENCE/DESIGN: n/a
CATALOG DESCRIPTION: Construction and design of optics, lasers; nonlinear optics; fiber optics; detectors; optical communication; display; spectroscopy. Project requires the design and set-up of a practical optical system.	COURSE TOPICS: 1. Basic optics: polarization , reflection , diffraction 2. Coherence theory 3. Optical waveguide / fiber 4. Optical communications 5. Spectroscopy 6. Laser radar 7. Microcopy , optical trapping 8. Surface Plasmon 9. Nonlinear optics
COURSE STRUCTURE/SCHEDULE: Lecture: twice per week, 60 minutes each; Laboratory: 1 per week, 3 hrs	
COURSE OBJECTIVES [Course Outcomes in brackets]	<ol style="list-style-type: none"> To provide the knowledge and experience necessary to plan, design, build optical experiments, and to thoroughly analyze the results. To provide the knowledge and experience needed to communicate ideas, progress, and results to others in an easy-to-understand and professional manner, and in multiple ways (oral, written, and graphical). To provide experiences working together as a team to accomplish a common goal.
COURSE OUTCOMES [Program Outcomes in brackets]	<p>After completing Ve438, students should be able to:</p> <ol style="list-style-type: none"> Design a setup for an optical experiment. Construct and build experiments based on the designed scheme. Know how to use modern optical instruments and equipments. Understand the general concept of a measurement system and the kinds of errors that can occur in making measurements. Be able to use a variety of scientific formats to present the results and conclusions of an experimental project in a clear, readable, succinct, and informative written format Present a plan, progress report, and final report for an experimental projects Work effectively and professionally together in diverse teams.
ASSESSMENT TOOLS [Course Outcomes in brackets]	Homework Final Exam Written reports