

WYANT COLLEGE OF OPTICAL SCIENCES

OPTOMECHANICAL ENGINEERING SUB-PLAN REQUIREMENTS (version 2026.06.18)

MS Thesis option: 24 units of coursework + 8 units of OPTI 910: Thesis

MS Non-thesis option: 32 units of coursework + 3 units of OPTI 909: Report or an approved technical writing course

The Associate Dean for Graduate Academic Affairs may approve course substitutions when a required course is not offered.

* The OPTI 502 core course requirement is waived if student has prior undergraduate degree in optics or optical engineering.

** The AME core course requirement is waived if student has prior degree in mechanical engineering. Replace with an Elective.

*** The non-thesis option requires a minimum of 29 units of coursework from the lists below, but 32 total coursework units, giving the student the ability to take 3 additional units of elective coursework from other OPTI classes not listed below.

DL = available for Distance Learning

CORE COURSES - 12 UNITS, REQUIRED OF ALL OME MS SUB-PLAN STUDENTS	Units	Term	DL?	Prereq
OPTI 502 Optical Design & Instrumentation I (see note * above)	3	F	yes	
OPTI 521 Introductory Optomechanical Engineering	3	F	yes	optical systems familiarity
OPTI 523 Optomechanical Design & Analysis	3	S	yes	OPTI 521
AME 552 Planar Multi-body Dynamics with Applications (see note ** above)	3	F	yes	
AME 561, AME 564A, or AME 550 may be used in place of AME 552				

DESIGN COURSES - MINIMUM 4 UNITS REQUIRED, ANY OF THE FOLLOWING	Units	Term	DL?	Prereq
OPTI 516/ASTR 516, Modern Astronomical Optics	3	S	yes	
OPTI 517 Lens Design	4	F	yes	OPTI 502
OPTI 585 Illumination Engineering	3	S	yes	OPTI 502
OPTI 586 Polarization in Optical Design (not offered every year)	3	S	yes	OPTI 502
OPTI 588 Introduction to Display Science and Technology	3	F	yes	OPTI 502
ASTR 518 Instrumentation and Statistics	2	F		

ELECTIVES - 8 UNITS FOR THESIS OR 13 UNITS FOR NON-THESIS (see note *** above)				
Any Design Course units (above) beyond 4 will count towards elective units				
ELECTIVE LAB COURSES - AT LEAST TWO ELECTIVES MUST BE LAB COURSES	Units	Term	DL?	Prereq
One lab waived if either OPTI 517 is taken, or for relevant industry experience (with approval by Assoc. Dean)				
OPTI 502L Fundamental of Applied Optics Laboratory	1	F		OPTI 502 (pre or co-req)
OPTI 513L Optical Testing Laboratory	1	S		OPTI 513R (pre or co-req)
OPTI 519L Computational Wave Optics Lab	1	F	yes	OPTI 505R
OPTI 521L Introductory Optomechanical Engineering Laboratory	1	F		OPTI 521 (pre or co-req)
OPTI 524A Optical Systems Engineering (not always offered)	4	S		optical systems familiarity
OPTI 569L System Programming for Engineers	2	F	yes	
OPTI 597A Optical Shop Practices	3	S		OPTI 502
not currently scheduled to be offered:				
OPTI 515L Optical Specifications, Fabrication, and Testing Laboratory	1			
OPTI 523L Optomechanical Engineering Laboratory	2			
OPTI elective courses	Units	Term	DL?	Prereq
OPTI 503 Optical Design and Instrumentation II	3	S	yes	OPTI 502
OPTI 505R Diffraction and Interferometry	3	S	yes	OPTI 512R
OPTI 506 Radiometry, Sources, and Detectors	3	F	yes	
OPTI 512R Linear Systems, Fourier Transforms	3	F	yes	
OPTI 513R Optical Testing	3	S	yes	OPTI 505R
OPTI 518 Introduction to Aberrations	3	S	yes	OPTI 502
OPTI 519 Laser Beam Control and Propagation	3	F	yes	OPTI 505R
OPTI 581A/ENTR 581A Assessing Early Stage Med. Tech. for Commercial Potential	2	S		
OPTI 617 Practical Optical System Design	3	S	yes	OPTI 517
OPTI 630/BME 630 Biomedical Optics and Biophotonics	3	F		optical systems familiarity
OPTI 677 Micro/Nano-Fabrication in Optoelectronics	2	S		photonics systems familiarity
OPTI 696A Advanced Lens Design	3	F	yes	OPTI 517
not currently offered:				
OPTI 528 Adaptive Optics and Imaging through Random Media	3	F		

(other pre-approved elective courses listed on next page)

Other Pre-approved Elective Courses - check UA course schedule for term, prereqs	Units	Term	DL?	Prereq
AME 549 Hybrid Control Systems	3			See UA course catalog
AME 550 Advanced Dynamics	3			
AME 553 Computation Multi-Body Dynamics	3			
AME 560 Advanced Vibration	3			
AME 561/EM 561 Finite Element Methods	3			
AME 562 Composite Materials	3			
AME 565 Design Optimization	3			
AME 588/ABE 588/BE 588 Micro and nano transducer physics & design	3			
AME 589A/ABE 589A/BE 589A Fabrication Techniques for Micro- & Nano-devices	3			
BE 547 Sensors and Controls	3			
BME 517/ ECE 517 Measurement and Data Analysis in Biomedical Engineering	3			
BME 520/ OPTI 520 Biophotonics	3			
BME 566 Biomedical Engineering	3			
BME 585 Nanoscience & Nanotechnology for Biomedical Engineer	3			
CHEE 583 Introduction to Polymeric Materials	3			
ECE 504 /MSE 504 Optical Spectroscopy of Materials	3			
ECE 515/ CHEE 515 Microelectronics Manufacturing and the Environment	3			
ECE 529 Digital Signal Processing	3			
ECE 532 Digital Image Analysis	3			
ECE 533 Digital Image Process	3			
ECE 542 Digital Control Systems	3			
ECE 556 Optoelectronics	3			
EM 502/ CE 502 Introduction to Finite Element Methods	3			
EM 504 Elasticity Theory and Application	3			
EM 634 Advanced Structural Dynamics	3			
SIE 506 Quality Engineering	3			
SIE 511 Human-Machine Interaction	3			
SIE 514 Law for Engineers & Scientists	3			
SIE 515 Technical Sales & Marketing	3			
SIE 554A Systems Engineering Process	3			
SIE 555 Sensor Systems Engineering	3			
SIE 556 Fundamentals of Guidance for Aerospace Systems	3			
SIE 557 Project Management	3			
SIE 558 Model-Based Systems Engineering	3			
SIE 563 Integrated Logistics and Distribution Systems	3			
SIE 564 Cost Estimation	3			
SIE 583 Computer Integrated Manufacturing Systems	3			