Course Structure for M.A. Program
Graduate Institute of Electro-optical Engineering
National Taiwan Normal University

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
115	4.0 4.0	15.0 15.0	9.0 9.0	28.0 28.0

Note: The first alphabet ”E” on the course name refers to the course in English as a medium of instruction

I. Required Courses: 4.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
OEC8159	1 E Seminar	2.0	2.0	0.0	This course must be retaken with a passing score for 2 times

II. Elective Courses: 0.0 credit is required

III. Courses Offered to Students in Different Divisions

A-1. Required Course for , 0.0 credit is required

A-2. Elective Course for , 15.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
OEC9001	1 Geometrical Optics	3.0	3.0	0.0	
OEC9002	2 Physical Optics	3.0	3.0	0.0	
OEC8012	3 E Laser Engineering	3.0	3.0	0.0	
OEC8100	4 Special Topics in Optical Fiber Network	3.0	3.0	0.0	
OEC8101	5 Thin-film Technologies (I)	3.0	3.0	0.0	
OEC8102	6 Thin-film Technologies (II)	3.0	3.0	0.0	
OEC8103	7 Introduction to Optical Information	3.0	3.0	0.0	
OEC8104	8 Near-field Optics	3.0	3.0	0.0	
OEC8105	9 Introduction to Optical Fiber Communication	3.0	3.0	0.0	
OEC8106	10 Integrated Optics	3.0	3.0	0.0	
OEC8107	11 Optical Fiber Devices	3.0	3.0	0.0	
OEC8108	12 Design of Optical Communication Systems	3.0	3.0	0.0	
OEC8109	13 Integrated Electro-optic Devices	3.0	3.0	0.0	
OEC8110	14 Fiber-optic Sensors	3.0	3.0	0.0	
OEC8111	15 Nonlinear Optics	3.0	3.0	0.0	
OEC8112	16 E Principles And Applications of Ultrafast Optics	3.0	3.0	0.0	
OEC8113	17 Image Diagnosis	3.0	3.0	0.0	
OEC8114	18 Principles And Applications of Magnetic Resonance Images	3.0	3.0	0.0	
OEC8115	19 Electro-optical Signals in Physiology	3.0	3.0	0.0	
OEC8116	20 Physics and Applications of Nano-Magnetism (I)	3.0	3.0	0.0	
OEC8117	21 E Physics and Applications of Nano-Magnetism (II)	3.0	3.0	0.0	
OEC8118	22 Optics of Liquid Crystal Display	3.0	3.0	0.0	
OEC8121	23 Liquid crystal devices and applications	3.0	3.0	0.0	
OEC8122	24 Advanced Photonics in Solid State	3.0	3.0	0.0	
OEC8123	25 Advanced Photonic Engineering	3.0	3.0	0.0	
OEC8124	26 E Optical Pattern Processing	3.0	3.0	0.0	
OEC8125	27 Optical Detectors	3.0	3.0	0.0	
OEC8126	28 Biomagnetism	3.0	3.0	0.0	
OEC8127	29 Optical Tomography	3.0	3.0	0.0	
OEC8128	30 Special Topics on Holographic Optical Element	3.0	3.0	0.0	
OEC8129	31 E Special Topics on Electro-optical System Measurement	3.0	3.0	0.0	
OEC8131	32 Flexible Electronics and Display	3.0	3.0	0.0	
OEC8132	33 Thin Film Photovoltaic Energy	3.0	3.0	0.0	
OEC8133	34 Laser Biomedical Applications	3.0	3.0	0.0	
OEC8134	35 E Technology and Electronics for Next-Transistor	3.0	3.0	0.0	
OEC8135	36 Design and Applications of Virtual Instruments	3.0	3.0	0.0	
OEC8136	37 Training of Innovation and Entrepreneurship: Orientation of Interdisciplinary Biotechnology Industry (I)	3.0	3.0	0.0	
OEC8137	38 Training of Innovation and Entrepreneurship: Orientation of Interdisciplinary Biotechnology Industry (II)	3.0	3.0	0.0	
OEC8138	39 Optical System Design and Simulation	3.0	3.0	0.0	
OEC8139	40 E Modern Holography	3.0	3.0	0.0	
OEC8140	41 Computation and Simulation on Photonic Devices (I)	3.0	3.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
OEC8141	42 Computation and Simulation on Photonic Devices (II)	3.0	3.0	0.0	
OEC8142	43 Photodetector Theory and Application	3.0	3.0	0.0	
OEC8143	44 Introduction to Scientific Reports and Presentations	3.0	3.0	0.0	
OEC8144	45 E Fourier Optics	3.0	3.0	0.0	
OEC8145	46 Experimental Optics	3.0	3.0	0.0	
OEC8147	47 Photonic Crystal	3.0	3.0	0.0	
OEC8148	48 Optical Holography and Applications	3.0	3.0	0.0	
OEC8149	49 Nanophotonics	3.0	3.0	0.0	
OEC8150	50 Optical Display Technology	3.0	3.0	0.0	
OEC8151	51 Bio-Sensors	3.0	3.0	0.0	
OEC8152	52 The Devices Physics and Applications for Organic Led	3.0	3.0	0.0	
OEC8153	53 Nano-Optics and Near-Field Optical Microscopy	3.0	3.0	0.0	
OEC8154	54 Waveguide Optics	3.0	3.0	0.0	
OEC8155	55 E Bio-Chips Manufacturing Technology	3.0	3.0	0.0	
OEC8156	56 Inspection Science of Brain Wave	3.0	3.0	0.0	
OEC8157	57 TCAD Simulation of Advanced Devices	3.0	3.0	0.0	
OEC8158	58 TCAD Simulation of Semiconductor Process	3.0	3.0	0.0	
OEC8160	59 Optics (II)	3.0	3.0	0.0	
OEC8161	60 Optics (I)	3.0	3.0	0.0	
OEC8162	61 E Electromagnetism in Electro-Optics	3.0	3.0	0.0	
OEC8163	62 E Optical Electronics	3.0	3.0	0.0	
OEC9003	63 Introduction to English Scientific Reports	2.0	2.0	0.0	
OEC9004	64 E Vacuum and Thin Film Technology	3.0	3.0	0.0	
OEC9005	65 Introduction to Numerical Methods	3.0	3.0	0.0	
OEC9006	66 E Design of Virtual Instruments	3.0	3.0	0.0	
OEC9007	67 Design of Photonics System	3.0	3.0	0.0	
OEC9100	68 E Introduction to Biophotonics	3.0	3.0	0.0	
OEC9101	69 E Semiconductor Materials and Processing	3.0	3.0	0.0	
OEC9102	70 Introduction to Nanomedicine Engineering	3.0	3.0	0.0	
OEC9124	71 E Solid-State Physics	3.0	3.0	0.0	
OEC9104	72 Applied Optics	3.0	3.0	0.0	
OEC9105	73 E Semiconductors for Electro-Optics	3.0	3.0	0.0	
OEC9106	74 E Introduction to Energy Materials	3.0	3.0	0.0	
OEC9107	75 Semiconductor Devices Physics	3.0	3.0	0.0	
OEC9108	76 E Applications of Lasers	3.0	3.0	0.0	
OEC9109	77 Internship of Technology Industries	3.0	0.0	6.0	
OEC8164	78 E Optical Properties of Solids	3.0	3.0	0.0	
OEC8013	79 E Introduction to Optoelectronic Devices	3.0	3.0	0.0	
OEC8014	80 Photovoltaic Components Testing Technology	3.0	3.0	0.0	
OEC9111	81 E Advanced Optical Microscopy Technologies	3.0	3.0	0.0	
OEC9113	82 Semiconductor Laser	3.0	3.0	0.0	
OEC9112	83 E Photonics	3.0	3.0	0.0	
OEC9114	84 E Materials Science	3.0	3.0	0.0	
OEC8165	85 Principles and Applications of Plasmonics	3.0	3.0	0.0	
OEC8166	86 Introduction to Nanolithography Techniques	3.0	3.0	0.0	
OEC8167	87 Generative AI for Vision and Digital Twin Applications	3.0	3.0	0.0	
OEC9115	88 Industrial Camps and Implementation	3.0	3.0	0.0	
OEC9116	89 E Introduction to Semiconductor Memory Devices	3.0	3.0	0.0	
OEC9123	90 E Surface and Interface Physics	3.0	3.0	0.0	
OEC9119	91 E Introduction to Semiconductors	3.0	3.0	0.0	
OEC8169	92 E Semiconductor Photoelectrochemistry	3.0	3.0	0.0	
OEC9117	93 Vision and Optics across the Lifespan	3.0	3.0	0.0	
OEC9121	94 E Applied Optics and Nano-Biophotonics	3.0	3.0	0.0	
OEC9120	95 Introduction to Photonic Quantum Logic Design	3.0	3.0	0.0	
OEC9122	96 Optics for Art and Cultural Heritage	3.0	3.0	0.0	

B-1. Required Course for , 0.0 credit is required

B-2. Elective Course for , 15.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
OEC8012	1 E Laser Engineering	3.0	3.0	0.0	
OEC8112	2 E Principles And Applications of Ultrafast Optics	3.0	3.0	0.0	
OEC8117	3 E Physics and Applications of Nano-Magnetism (II)	3.0	3.0	0.0	
OEC8129	4 E Special Topics on Electro-optical System Measurement	3.0	3.0	0.0	
OEC8134	5 E Technology and Electronics for Next-Transistor	3.0	3.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
OEC8139	6 E Modern Holography	3.0	3.0	0.0	
OEC8144	7 E Fourier Optics	3.0	3.0	0.0	
OEC8155	8 E Bio-Chips Manufacturing Technology	3.0	3.0	0.0	
OEC8162	9 E Electromagnetism in Electro-Optics	3.0	3.0	0.0	
OEC8163	10 E Optical Electronics	3.0	3.0	0.0	
OEC9006	11 E Design of Virtual Instruments	3.0	3.0	0.0	
OEC9100	12 E Introduction to Biophotonics	3.0	3.0	0.0	
OEC9101	13 E Semiconductor Materials and Processing	3.0	3.0	0.0	
OEC9124	14 E Solid-State Physics	3.0	3.0	0.0	
OEC9105	15 E Semiconductors for Electro-Optics	3.0	3.0	0.0	
OEC9108	16 E Applications of Lasers	3.0	3.0	0.0	
OEC8164	17 E Optical Properties of Solids	3.0	3.0	0.0	
OEC8013	18 E Introduction to Optoelectronic Devices	3.0	3.0	0.0	
OEC8124	19 E Optical Pattern Processing	3.0	3.0	0.0	
OEC9111	20 E Advanced Optical Microscopy Technologies	3.0	3.0	0.0	
OEC9112	21 E Photonics	3.0	3.0	0.0	
OEC9116	22 E Introduction to Semiconductor Memory Devices	3.0	3.0	0.0	
OEC9114	23 E Materials Science	3.0	3.0	0.0	
OEC9123	24 E Surface and Interface Physics	3.0	3.0	0.0	
OEC9119	25 E Introduction to Semiconductors	3.0	3.0	0.0	
OEC8169	26 E Semiconductor Photoelectrochemistry	3.0	3.0	0.0	
OEC9121	27 E Applied Optics and Nano-Biophotonics	3.0	3.0	0.0	
OEC9106	28 E Introduction to Energy Materials	3.0	3.0	0.0	

IV. Free Elective Credits

A Free Elective Credit for , 9.0 credits are required

B Free Elective Credit for , 9.0 credits are required