Course Structure for M.A. Program
GPE, Department of Physics
National Taiwan Normal University

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
110	9.0	15.0	0.0	24.0

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

I. Required Courses: 9.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
PHC0011	1 E Quantum Mechanics (I)	3.0	3.0	0.0	
PHC0012	2 E Quantum Mechanics (II)	3.0	3.0	0.0	
PHC0013	3 E Classical Electrodynamics (I)	3.0	3.0	0.0	

II. Elective Courses: 6.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
	1 Foundation elective course 3.0 credits are required, Statistical Mechanics (I)Solid State Physics (I) select one subjects out of two				
PHC0019	1-1 E Statistical Mechanics (I)	3.0	3.0	0.0	
PHC0023	1-2 E Solid State Physics (I)	3.0	3.0	0.0	
	2 Seminar 3.0 credits are required, Seminar (I), (II), (III), (IV) select three subjects out of four				
PHC0041	2-1 E Seminar (I)	1.0	1.0	0.0	
PHC0042	2-2 E Seminar (II)	1.0	1.0	0.0	
PHC0069	2-3 E Seminar (III)	1.0	1.0	0.0	
PHC0070	2-4 E Seminar (IV)	1.0	1.0	0.0	

III. Courses Offered to Students in Different Divisions

Required Course, 0.0 credit is required

Elective Course: 9.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
PHC0010	1 E Classical Mechanics	3.0	3.0	0.0	
PHC0014	2 E Classical Electrodynamics (II)	3.0	3.0	0.0	
PHC0020	3 E Statistical Mechanics (II)	3.0	3.0	0.0	
PHC0024	4 E Solid State Physics (II)	3.0	3.0	0.0	
PHC0033	5 E Advanced Quantum Mechanics (I)	3.0	3.0	0.0	
PHC0034	6 E Advanced Quantum Mechanics (II)	3.0	3.0	0.0	
PHC0045	7 E Advanced Computational Physics (I)	3.0	3.0	0.0	
PHC0066	8 E Many - Body Physics (I)	3.0	3.0	0.0	
PHC0114	9 E General Relativity (I)	3.0	3.0	0.0	
PHC0146	10 E Quantum Field Theory	3.0	3.0	0.0	
PHC0172	11 E Advanced Principle of Optics(I)	3.0	3.0	0.0	
PHC0173	12 E Advanced Principle of Optics(II)	3.0	3.0	0.0	
PHC8015	13 E Advanced Mathematical Physics	3.0	3.0	0.0	
PHC8016	14 E Topology in Condensed Matter Systems (I)	3.0	3.0	0.0	
PHC8017	15 E Topology in Condensed Matter Systems (II)	3.0	3.0	0.0	
PHC8022	16 E Introduction to Gauge Field Theories	2.0	2.0	0.0	
PHC8028	17 E Principles and Applications of Atomic Force Microscopy	3.0	3.0	0.0	
PHC8030	18 E Topics on Two Dimensional Quantum Materials (I)	3.0	3.0	0.0	
PHC8031	19 E Topics on Two Dimensional Quantum Materials (II)	3.0	3.0	0.0	
PHC8032	20 E New Physics at the Large Hadron Collider	1.0	1.0	0.0	
PHC8034	21 E Field Theory of Condensed Matter Physics (I)	3.0	3.0	0.0	
PHC8035	22 E Field Theory of Condensed Matter Physics (II)	3.0	3.0	0.0	
PHC9012	23 E Overseas Internship	2.0	0.0	4.0	
PHC9019	24 E Special Topic on Nano Science and Surface Physics(I)	3.0	3.0	0.0	
PHC9020	25 E Special Topic on Nano Science and Surface Physics(II)	3.0	3.0	0.0	

IV. Free Elective Credits: 0.0 credit is required