

**IZMIR INSTITUTE OF TECHNOLOGY**  
**GRADUATE SCHOOL OF ENGINEERING AND SCIENCES**  
**DEPARTMENT OF PHYSICS**  
**CURRICULUM OF THE M.S. PROGRAM IN PHYSICS**

CORE COURSES				ECTS	PRCD/CRCO
PHYS	503	Analytical Mechanics	(2+2)3	8	
PHYS	505	Electromagnetic Theory I	(2+2)3	9	
PHYS	507	Quantum Mechanics I	(2+2)3	9	
PHYS	500	M.S. Thesis	(0+1)NC	26	
PHYS	591	Graduate Seminar I*	(0+2)NC	7	
PHYS	599	Scientific Research Methods and Ethics	(0+2)NC	8	
PHYS	8XX	Special Studies	(8+0)NC	4	

\*All M.S. students must register Graduate Seminar I course until the beginning of their 4<sup>th</sup> semester.

Total minimum credit: 21

Minimum number of courses with credit: 7

ELECTIVE COURSES				ECTS	PRCD/CRCO
PHYS	501	Mathematical Methods of Physics I	(2+2)3	7	
PHYS	502	Mathematical Methods of Physics II	(3+0)3	8	
PHYS	504	Statistical Mechanics	(2+2)3	7	
PHYS	506	Electromagnetic Theory II	(2+2)3	9	
PHYS	508	Quantum Mechanics II	(2+2)3	9	
PHYS	511	Condensed Matter Physics I	(3+0)3	7	
PHYS	512	Condensed Matter Physics II	(3+0)3	7	
PHYS	513	Physics of Semiconductors	(3+0)3	7	
PHYS	514	Physics of Semiconducting Devices	(3+0)3	7	PRCD:PHYS 511
PHYS	515	Introduction to Superconductivity	(3+0)3	7	
PHYS	516	Superconducting Electronics I	(3+0)3	7	
PHYS	517	Superconducting Electronics II	(3+0)3	7	
PHYS	518	Thin Film Technology	(3+0)3	7	
PHYS	519	Surface Analysis Techniques	(3+0)3	7	
PHYS	520	Application of Nanotechnology	(3+0)3	7	
PHYS	521	Low Temperature Physics	(3+0)3	7	
PHYS	522	Advanced Experimental Methods	(3+0)3	7	
PHYS	523	Fundamentals of Solar Cells	(2+2)3	7	
PHYS	525	Atomic and Molecular Spectra	(3+0)3	7	
PHYS	529	Optical Properties of Solids	(3+0)3	8	
PHYS	530	Quantum Optics	(3+0)3	7	
PHYS	531	Photonic Structure	(3+0)3	7	
PHYS	532	Applied Quantum Optics	(3+0)3	8	
PHYS	533	Quantum Information Theory	(2+2)3	8	
PHYS	540	Quantum Field Theory of Solids	(3+0)3	8	
PHYS	541	Quantum Theory of Many Particle Systems I	(3+0)3	8	PRCD:PHYS 504-508
PHYS	542	Quantum Theory of Many Particle Systems II	(3+0)3	8	PRCD:PHYS 541
PHYS	551	Particle Physics I	(3+0)3	8	
PHYS	552	Particle Physics II	(3+0)3	8	PRCD:PHYS 551 or consent of t
PHYS	555	Quantum Field Theory I	(3+0)3	8	PRCD:PHYS 505-507 or consen

PHYS	556	Quantum Field Theory II	(3+0)3	8	PRCD:PHYS 555
PHYS	557	Quantum Field Theory III	(3+0)3	8	PRCD:PHYS 556
PHYS	558	Quantum Field Theory in Curved Space	(3+0)3	8	
PHYS	559	Symmetries in Particle Physics	(3+0)3	8	
PHYS	560	Group Theory for High Energy Physics	(3+0)3	8	
PHYS	561	Fundamentals of the Standard Model of Particle Physics	(3+0)3	8	
PHYS	562	Supersymmetry I	(3+0)3	7	PRCD:PHYS 555
PHYS	563	Supersymmetry II	(3+0)3	7	PRCD:PHYS 562
PHYS	570	General Relativity	(3+0)3	8	
PHYS	571	Cosmology I	(3+0)3	8	
PHYS	572	Cosmology II	(3+0)3	8	
PHYS	575	Astrophysics I	(3+0)3	8	
PHYS	576	Astrophysics II	(3+0)3	7	
PHYS	577	Galaxies and Cosmology	(3+0)3	8	
PHYS	578	Structure and Evolution of Stars	(3+0)3	8	
PHYS	585	Atmospheric Physics	(3+0)3	8	
PHYS	586	Atmospheric Radiation	(3+0)3	8	
PHYS	587	Climate Modeling	(3+0)3	8	
PHYS	588	Cloud Physics	(3+0)3	8	
PHYS	590	Special Topics in Physics	(3+0)3	7	