

## Michigan Technological University

### Minor in Physics\*

Program Code: SPHM, Academic Year 2019-20

Department of Physics

Total Credits Required: 18

#### Required Courses: 6 to 8 credits

Course	Credits
PH 2100 University Physics I - Mechanics (3) <b>OR</b> PH 1160 Honors Physics I - Mechanics (4)	
PH 2200 University Physics II - Electricity & Magnetism (3) <b>OR</b> PH 2260 Honors Physics III (4)	

#### Upper-Level Elective Courses: 9 credits

Select at least one of the following three physics courses:

Course	Credits
PH 3110 Theoretical Mechanics I (3)	
PH 3410 Quantum Physics I (3)	
PH 4210 Electricity and Magnetism I (3)	

Select additional courses from the following list to bring the total credits in this upper-level section to 9

Course	Credits
PH 3111 Theoretical Mechanics II (3)	
PH 3210 Optics (3)	
PH 3300 Thermodynamics & Stat. Mech (3)	
PH 3320 Methods of Theoretical Physics (3)	
PH 3411 Quantum Mechanics II (3)	
PH 3480 Advanced Physics Laboratory (3)	
PH 4080 Senior Research I (3)	
PH 4211 Electricity and Magnetism II (3)	
PH 4292 Light and Photonic Materials (3)	
PH 4390 Computational Methods in Physics (3)	
PH 4395 Computer Simulation in Physics (3)	
PH 4510 Intro to Solid State Physics (2)	
PH 4610 Sellar Astrophysics (3)	
PH 4620 Galactic Astrophysics (3)	
PH 4630 Particle Astrophysics (3)	
PH 4640 Fund of Atmospheric Science (3)	

#### Additional Elective Courses

Additional physics (PH) courses at the 1000- level or higher may be selected to bring total credits to minimum of 18

Course	Credits
PH XXXX	
PH XXXX	

Courses listed in this minor have the following prerequisites (shown in parenthesis). Concurrency is illustrated by the letter C: PH4640 ((PH2200 or PH2260) and (PH1360 or PH2300) and MA3160 and (MA3520 or MA3521 or MA3530 or MA3560)), PH4630 (PH2400 and (MA3520 or MA3521 or MA3530 or MA3560)), PH4620 (PH1600 and PH2400 and (MA3520 or MA3521 or MA3530 or MA3560)), PH4610 (PH1600 and PH2400 and (MA3520 or MA3521 or MA3530 or MA3560)), PH4510 ((PH2300 or PH1360) and PH2400 and (CH1150 and CH1151) and (MA3520 or MA3521 or MA3530 or MA3560)), PH4395 (PH3300 and PH4390 and (PH2400 or PH3410)), PH4390 (PH2020 and PH3410), PH4211 (PH4210), PH4210 ((PH2200 or PH2260) and PH3110 and (MA3520 or MA3521 or MA3530 or MA3560)), PH4081 (PH4080 and PH4011 C), PH4080 (PH3480 and PH4010 C), PH3480 (PH2230 and PH3210), PH3411 (PH3410), PH3410 (PH2400 and (MA3520 or MA3521 or MA3530 or MA3560)), PH3320 (MA3160 and (MA3520 or MA3521 or MA3530 or MA3560) and (PH2200 or PH2260)), PH3300 (PH2300 or PH1360), PH3210 (PH 2400 and (MA3520 or MA3521 or MA3530(C) or MA3560)), PH3111 (PH3110), PH3110 ((PH2200 or PH2260) and (MA3520 or MA3521 or MA3530 or MA3560)), PH2260 ((PH1160 or PH2100) and (PH1200(C) or PH2261(C)) and MA2160), PH2200 ((PH1200 C or PH2261) C and (PH2100 or PH1160) and (MA2150 or MA2160)), PH2100 (PH1100(C) and (MA1160 or MA1161 or MA1135 or MA2160(C))), PH1160 ((MA1160(C) or MA1161(C)) and PH1161 C)

\*This minor is not open to Applied Physics majors.