

ROBOTICS MINOR

Program Requirements

Code	Title	Hours
Select one of the following:		3
CPSC 121	Computer Science I	
ENSC 201	Programming for Engineers	
Or equivalent (with approval by the ECE department chair)		
Select one of the following:		3
CPEN 231 & 231L	Embedded Computer Systems and Embedded Computer Systems Lab	
CPSC 260	Computer Organization	
CPEN 442	Introduction to Robotics	3
CPEN 443	Autonomous Mobile Robots	3
Select two of the following:		6-8
CPEN 342 & 342L	Cyber-Physical Systems and Cyber-Physical Systems Lab	
CPEN 430 & 430L	Digital System Design and Digital System Design Lab	
CPEN 431 & CPSC 431	Computer Hardware Design and Architecture and Computer Hardware Design and Architecture	
CPEN 436 & CPSC 436	Machine Learning in Biomed and Biomedical Informatics and Computing	
EENG 201 & 201L	Circuit Analysis I and Circuit Analysis I Lab	
EENG 411	Introduction to Control Systems	
EENG 412	Digital Control Systems	
EENG 424	Digital Signal Processing	
CPSC 323	Machine Learning and Intelligent Systems	
CPSC 475	Speech and Natural Language Processing	
ENSC 306	Dynamics	
MENG 411 & 411L	Instrumentation Systems and Instrumentation Systems Lab	
MENG 451	Computational Dynamics	
MENG 461	System Dynamics and Control	
Or equivalent (with approval by the ECE department chair)		
Total Hours		18-20