	Course	Instructor(s)	Credits	Robotics Requirement	Enforced Prerequisites	Advisory Prerequisites	Typically Offered	Enrollment Notes
	ENGR 100.850: Robot Mechanisms	Yeo, Derrick	4	CoE Core: Introduction to Engineering			Fall, Winter	
050006	ROB 101: Computational Linear Algebra	Kathuria, Tribhi	4	Linear Algebra			Fall, Winter	Section 012 and 883 are reserved for first-year students. Section 011 and 882 are open for general enrollment. Once seats in 011 and 882 have been filled, interested students should join the Wolverine Access waitlist. After all students have had a chance to enroll, we will begin issuing permissions to students from the waitlist.
050177	ROB 203: Robotics Mechanisms	Yeo, Derrick	2	General Elective	No credit in ENGR 100, topic "Robotics Mechanisms (topic ID 29)".	ROB 101	Fall, Winter	Students who were enrolled in ENGR 100.850 should not enroll in this course.
050641	ROB 204: Intro to Human-Robot Systems	Draelos, Mark	4	Teamwork in Robotics	(ROB 102 or ENGR 101 or EECS 183 or ENGR 151 or EECS 180); and ENGR 100; and preceded or accompanied by: (ROB 101 or MATH 214 or MATH 217 or MATH 417 or MATH 419). Minimum grade requirement of "C-" for enforced prerequisite.		Fall, Winter	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, December 8th.
050937	ROB 310: Robot Sensors and Signals	Ceron, Steven	4	Robotics Undergrad Core	(EECS 215 or BIOMEDE 211) and (ROB 101 or MATH 214 or MATH 217 or MATH 417 or MATH 419). Minimum grade requirement of "C-" for enforced prerequisite.	ROB 201 or MATH 216	Winter	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, December 8th.
050751	ROB 311: How to Build Robots and Make Them Move	Formosa, Greg	4	Robotics Undergrad Core	MECHENG 240 or BIOMEDE 231 or ROB 215 or EECS 216. Minimum grade requirement of "C-" for enforced prerequisite.	(PHYSICS 240 or PHYSICS 260) and (EECS 215 or EECS 270 or BIOMEDE 211)	Fall	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, December 8th.
050642	ROB 320: Robot Operating Systems	Berenson, Dmitry Kathuria, Tribhi	4	Robotics Undergrad Core	EECS 280, (MATH 116 or ROB 201), and (ROB 101 or MATH 214 or MATH 217 or MATH 417 or MATH 419). Minimum grade requirement of "C-" for enforced prerequisite. Credit Exclusions: Only 1 course may earn credit from ROB 320, ROB 380, ROB 511, and EECS 367.	EECS 201, (EECS 370 or EECS 281), and (MATH 21	Winter	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, December 8th.
052028	ROB 416: Multi-Robot Systems	Panagou, Dimitra	4	Upper Level Elective	ROB 415 or AEROSP 470 or MECHENG 461 or EECS 460; (C- or better)		Winter	
052227	ROB 430: Deep Learning for Robot Perception and Manipulation	Du, Xiaoxiao Tian, Yulun	4	Upper Level Elective	(ROB 101 or MATH 214 or MATH 217); MATH 216; (ROB 320 or EECS 281)	ROB 330	Winter	
051530	ROB 435 / IOE 435: Quantifying Human Motion Through Wearable Sensors	Stirling, Leia	3	Upper Level Elective Sensing	(ROB 101 or MATH 214) and IOE 265 and (IOE 333 or ROB 204); No OP/F. Minimum grade requirement of "C-" for enforced prerequisites.		Winter	This course is owned by IOE. If you meet the prerequisites for the course but the course is full, please add yourself to the electronic waitlist via Wolverine Access.
051418	ROB 450: Robotics Capstone	Formosa, Greg Moore, Talia	4	Major Design Elective	Junior standing or senior standing and TCHNCLCM 350 and (ONE of ROB 310 or ROB 311 or ROB 320 or ROB 330 or ROB 340); No OP/F. Minimum grade requirement of "C" for enforced prerequisites.		Fall, Winter	
052027	ROB 472: Marine Robotics	Skinner, Katie	3	Upper Level Elective		Computational Linear Algebra (ROB 101) or Linear Algebra (MATH 214, MATH 217, MATH 417, or MATH 419); proficiency in MATLAB.		
050772	ROB 490: Directed Study	Variable	1-6	General Elective, Flexible Techical Elective by Petition Only			Fall, Winter	Students interested in enrolling in ROB 490: Directed Study will need to complete the ROB 490 Proposal Form. Students will automatically receive an email with their submitted responses and will be instructed, via the submission confirmation page, to forward that email to the faculty member who will be supervising their work. Once confirmed, students will send the email thread to robotics-sso@umich.edu. We will confirm and issue the student a permission to enroll.
012187	ROB 510 / EECS 567 / MFG 567 / MECHENG 567: Robot Kinematics and Dynamics	Gregg, Robert	3	Acting		Graduate standing or permission of instructor	Winter	
052026	ROB 516: Advanced Multi-Robot Systems	Panagou, Dimitra	4	Acting; Reasoning	(ROB 415 or AEROSP 470 or MECHENG 461 or EECS 460; C- or better) or graduate standing	ROB 501	Winter	
043602	ROB 530 / NAVARCH 568 / EECS 568: Mobile Robotics: Methods and Algorithms	Ghaffari, Maani	4	Upper Level Elective Sensing		Graduate standing or permission of instructor.	Fall, Winter	
051287	ROB 543 / CSE 543: Ethics in AI and Robotics	Kuipers,Benjamin	4	Reasoning	Graduate standing	Coursework in artificial intelligence or robotics	Winter	This course is owned by CS. If you meet the prerequisites for the course but the course is full, please add yourself to the electronic waitlist via Wolverine Access.
046004	ROB 550: Robotic Systems Laboratory	Gaskell, Peter Formosa, Greg	4	Robotics Grad Core	Graduate standing or permission of instructor.		Fall, Winter	If you are interested in enrolling, please add yourself to the waitlist. Incoming robotics graduate students will be prioritized for enrollment.
51495	ROB 572: Advanced Marine Robotics	Skinner, Katie	3	Acting; Elective		Computational Linear Algebra (ROB 101) or Linear Algebra (MATH 214, MATH 217, MATH 417, or MATH 419) or graduate standing; proficiency in MATLAB	Winter	Graduate offering, Undergraduate students should enroll ROB 472
047946	ROB 599.430/431: Deep Learning for Robot Perception and Manipulation	Du, Xiaoxiao Tian, Yulun	4	Sensing; Reasoning		Prior experience with the Python programming language is recommended. Familiarity with gradients and how to calculate them from vector calculus. Familiarity with random variables and probability distributions from probability theory. Familiarity with concepts from machine learning (e.g. EECS 445) will be helpful.	Winter	Graduate offering, Undergraduate students should enroll in ROB 498 offering