	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	Berger, Jamie Vasudevan, Ram	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 (likely mid-August after first-year student orientation).
050256	ROB 102: Intro to AI and Programming	Du, Xiaoxiao	4	CoE Core: Computational Thinking		ROB 101 (Computational Linear Algebra) or ROB 203 (Robotic Mechanisms)	Fall	
052030	ROB 201: Calculus for the Modern Engineer	Grizzle, Jessy	4	Student-dependent, speak with an academic advisor	ROB 101 or MATH 214 or MATH 217; (No OP/F). Minimum grade requirement of "C" for enforced prerequisite.		Fall, Winter	Remote section is 881.
050641	ROB 204: Intro to Human-Robot Systems	Stirling, Leia Yeo, Derrick	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, April 14th.
051649	ROB 298: Robot Dynamics and Simulation	Fazeli, Nima	4	Discipline Breadth: Dynamics and Mechanics	(ROB 101 or MATH 214) and PHYSICS 140; and preceded or accompanied by: (ROB 298.201 or MATH 216)		Second offering	
050937	ROB 310: Robot Sensors and Signals	Gaskell, Peter	4	Robotics Undergrad Core	ROB 204 and (EECS 215 or BIOMEDE 211). Minimum grade requirement of "C-" for enforced prerequisite.	ROB 101 and ROB 203	Winter	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, April 14th.
050751	ROB 311: How to Build Robots and Make Them Move	Formosa, Greg	4	Robotics Undergrad Core	ROB 204. Minimum grade requirement of "C-" for enforced prerequisite.	(EECS 215 or PHYSICS 240 or PHYSICS 260 or MECHENG 240 or BIOMEDE 231)	Fall	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, April 14th.
050642	ROB 320: Robot Operating Systems	Du, Xiaoxiao	4	Robotics Undergrad Core	ROB 204 and EECS 280. 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.		Winter	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, April 14th.
050753	ROB 330: Localization, Mapping, and Navigation	Skinner, Katie	4	Robotics Undergrad Core	ROB 204 and EECS 280. Minimum grade requirement of "C-" for enforced prerequisite.	(IOE 265 or EECS 301) and (MECHENG 240 or MECHENG 360) and (MATH 215 or MATH 216).	Fall	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, April 14th.
050753	ROB 340: Human-Robot Interaction	Alves-Oliveira, Patricia	4	Robotics Undergrad Core	ROB 204. Minimum grade requirement of "C-" for enforced prerequisite.	ROB 311	Second offering	All seats are reserved for robotics majors. Remaining seats will become available at 8AM on Monday, April 14th. Requests for enrolling in ROB 204 and ROB 340 concurrently will not be approved.
052029	ROB 415: Robot Control	Gregg, Robert	4	Upper Level Elective	(ROB 101 or MATH 214 or MATH 217) and (MECHENG 240 or BIOMEDE 231)		Fall	Meet-together with ROB 599 for graduate students
050503	ROB 422 / EECS 465: Introduction to Algorithmic Robotics	Berenson, Dmitry	3	Upper Level Elective Acting or Reasoning	EECS 280 and MATH 215 and (junior standing or senior standing) or graduate standing. Minimum grade requirement of "C" for enforced prerequisite.	EECS 281 and (MATH214 or MATH 217 or MATH 417 or MATH 419 or ROB 101) or permission of instructor.		This course is owned by EECS. If you meet the prerequisites for the course but the section you wish to join is full, please add yourself to the electronic waitlist via Wolverine Access. Request permission into an Undergraduate CSE course (EECS 400-level or below)
051418	ROB 450: Robotics Capstone	Ceron, Steven Mavrogiannis, Chris	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	
047684	ROB 464 / EECS 464: Hands-On Robotics	Revzen, Shai	4	Upper Level Elective Acting	EECS 216 or 281 or MECHENG 360 or CEE 212 or IOE 333; (C or better, No OP/F) or Grad Standing		Fall	This course is owned by EECS. If you meet the prerequisites for the course but the section you wish to join is full, please add yourself to the electronic waitlist via Wolverine Access. Request permission into an Undergraduate CSE course (EECS 400-level or below) ROB Graduate Students: Can only count if taken before ROB 550
	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.
050773	ROB 498: Legged Robot Control	Ding, Yanran	3	Upper Level Elective Acting		ROB101, ROB320, ROB422, ROB501, ROB510. Considerable MATLAB programming experience (>600 lines) is required.		Undergraduate offering, Graduate students should enroll in ROB 599 offering
050773	ROB 498: Computational HRI	Mavrogiannis, Chris	3	Upper Level Elective Reasoning		There are no formal prerequisites but mathematical maturity (e.g., ROB 101, Math 215, IOE 265) and programming background (e.g., ROB 320 or EECS 281) are expected. A foundation on the design of human-robot systems (e.g., ROB 204) is recommended.		Undergraduate offering, Graduate students should enroll in ROB 599 offering
046003	ROB 501: Mathematics for Robotics	Panagou, Dimitra	4	Robotics Grad Core	Graduate standing or permission of instructor.	Differential equations and matrix algebra recommended.	Fall	
049818	ROB 502: Programming for Robotics	TBD	3	Elective			Fall	If you are interested in enrolling, please add yourself to the waitlist.
048435	ROB 535: Self Driving Cars: Perception and	Ghaffari Jadidi, Maani	3	Upper Level Elective Acting; Sensing		Students are recommended to have a background in linear algebra & Differential equations. Programming skills in Python & MATLAB, Some C++	Fall	Cross-listed with NAVARCH 565, Enrollment through NAME Department
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.
050773	ROB 599: Legged Robot Control	Ding, Yanran	3	Acting		ROB101, ROB320, ROB422, ROB501, ROB510. Considerable MATLAB programming experience (>600 lines) is required.		Graduate offering, Undergraduate students should enroll in ROB 498 offering
047946	ROB 599.003/004: Robot Control	Gregg, Robert	4	Acting	Graduate standing or permission of instructor.	MECHENG 240	Fall	Graduate offering, Undergraduate students should enroll in ROB 415

	Course	Instructor(s)	Credits	Robotics Requirement	Enforced Prerequisites	Advisory Prerequisites	Typically Offered	Enrollment Notes
047946	ROB 599.007: Computational HRI	Mavrogiannis, Chris	3	Reasoning		There are no formal prerequisites but mathematical maturity (e.g., ROB 101, Math 215, IOE 265) and programming background (e.g., ROB 320 or EECS 281) are expected. A foundation on the design of human-robot systems (e.g., ROB 204) is recommended.		Graduate offering, Undergraduate students should enroll in ROB 498 offering
047946	ROB 599.009/010: Microrobotics	Aubin, Cameron	4	Acting	Graduate standing or permission of instructor.	Advisory prerequisites: A knowledge of elementary concepts in physics and mechatronics. Comfortability in reading and analyzing scientific literature (journal or conference papers). NOT REQUIRED (but potentially useful): knowledge of elementary concepts in mechanical engineering and material science; experience with basic design/fabrication techniques; basic programming.	Fall	There is only a graduate student offering of this course. Undergraduate students who are interested in enrolling should email Professor Aubin with the relevant course background as it relates to the advisory prerequisites. If Professor Aubin approves of the enrollment, the student can submit an override request.
047946	ROB 599.013: Computational Symmetry in AI & Robotics	Ghaffari, Maani	3	Sensing or reasoning		NA 500/ROB 501/EECS 501 or ECE 560, or equivalent graduate-level math courses for CoE students. Mathematical maturity and Python programming.	Meet-together with NAVARCH 599, MATH 559, PHYSICS 590, second ROB offering	Students who cannot register should reach out to the instructor for a permisison to enroll.
020366	ROB 646: Locomotor Mechanics and Design / Control of Wearable Robotic Systems	Rouse, Elliott	3	Upper Level Elective Acting; Sensing		MECHENG 540, (AEROSP 540) or MECHENG 543, or equivalent		Cross-listed as BIOMEDE 646, and MECHENG 646