Crse ID	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	Jenkins, Chad Girard, Anouck	4	CoE Core: Computational Thinking		ROB 101 (Computational Linear Algebra) or ROB 203 (Robotic Mechanisms)	Fall	Section 012 is reserved for first-year students.
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 Stirling, Leia	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 Friday, April 19th.
051649	ROB 298.001: Calculus for the Modern Engineer	Grizzle, Jessy	4	Student-dependent, speak with an academic advisor	ROB 101 Computational Linear Algebra. Math 214, 217, and other linear algebra courses are insufficient because prior experience using Julia and Jupyter notebooks to solve large-scale problems is a must for the pilot offering. This may be relaxed in future terms.		First offering	Interested students should add themselves to the waitlist on Wolverine Access. We will issue permissions to students from the waitlist after confirming ROB 101 enrollment or completion.
050751	ROB 311: How to Build Robots and Make Them Move	Formosa, Greg Huang, Xiaonan	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) and ROB 310.	Fall	Students will not be able to enroll in ROB 204 and the 300-level core robotics courses concurrently. If a student is on an accelerated timeline and taking these courses concurrently is the only way to complete requirements in time, the student should reach out to the instructor of the 300-level course they wish to enroll in for a permission to register. Once permission from the instructor is received, the student can forward that email to robotics-sso@umich.edu, we will confirm enrollment in ROB 204 and issue a permission to the requested 300-level course.
050753	ROB 330: Localization, Mapping, and Navigation	Bucher, Bernadette Du, Xiaoxiao	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	Students will not be able to enroll in ROB 204 and the 300-level core robotics courses concurrently. If a student is on an accelerated timeline and taking these courses concurrently is the only way to complete requirements in time, the student should reach out to the instructor of the 300-level course they wish to enroll in for a permission to register. Once permission from the instructor is received, the student can forward that email to robotics-sso@umich.edu, we will confirm enrollment in ROB 204 and issue a permission to the requested 300-level course.
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.
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. 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 498.003/004: Robot Control	Gregg, Robert	4	Upper Level Elective		MECHENG 240	Special Topics, second offering (WN 24)	Undergraduate offering, Graduate students should enroll in ROB 599 offering
050773	ROB 498.005/006: Multi-Robot Systems	Panagou, Dimitra	4	Upper Level Elective		Advisory Prerequistie: ROB 498/599 Robot Control (or equivalent) Advisory Co-requisite: ROB 501 Math for Robotics or EECS 560/AE 550 Linear Systems	Special Topics, first offering	Undergraduate offering, Graduate students should enroll in ROB 599 offering
050773	ROB 498.007: Intro to Robotic Manipulation	Fazeli, Nima	3	Upper Level Elective		Linear Algebra and Python programming	Special Topics, second offering (FA 23)	Undergraduate offering, Graduate students should enroll in ROB 599 offering
050773	ROB 498.008: Computational HRI	Mavrogiannis, Christoforos	3	Upper Level Elective		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) are recommended.	Special Topics, second offering (FA 23)	Undergraduate offering, Graduate students should enroll in ROB 599 offering
050773	ROB 498.011/012: Experimental UAS	Gaskell, Peter	4	Upper Level Elective			Special Topics, first offering in robotics	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	Formosa, Greg	3	Elective			Fall	
046004	ROB 550: Robotic Systems Laboratory	Gaskell, Peter Ding, Yanran	4	Robotics Grad Core	Graduate standing or permission of instructor.		Fall, Winter	
047946	ROB 599.003/004: Robot Control	Gregg, Robert	4	Acting	Graduate standing or permission of instructor.	MECHENG 240	Special Topics, second offering (WN 24)	Graduate offering, Undergraduate students should enroll in ROB 498 offering
047946	ROB 599.005/006: Multi-Robot Systems	Panagou, Dimitra	4	Acting; Reasoning Grad Elective	Graduate standing or permission of instructor.	Advisory Prerequisite: ROB 498/599 Robot Control (or equivalent) Advisory Co-requisite: ROB 501 Math for Robotics or EECS 560/AE 550 Linear Systems	Special Topics, first offering	Graduate offering, Undergraduate students should enroll in ROB 498 offering

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047946	ROB 599.007: Intro to Robotic Manipulation	Fazeli, Nima	3	Acting Grad Elective	Graduate standing or permission of instructor.	Linear Algebra and Python programming	Special Topics, second offering (FA 23)	Graduate offering, Undergraduate students should enroll in ROB 498 offering
047946	ROB 599.008: Computational HRI	Mavrogiannis, Christoforos	3	Reasoning Grad Elective	Graduate standing or permission of instructor.	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) are recommended.	Special Topics, second offering (FA 23)	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.	A basic knowledge of mechatronics and materials science would be beneficial. Also helpful: experience with 3D design software (e.g., SolidWorks, Fusion 360), basic fabrication skills (e.g., hand tools) and basic programming skills (e.g., Python, C/C++)	Special Topics, third offering (soft robotics: WN 23, WN 24)	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 forward the email to robotics-sso@umich.edu and we will provide them with an override.
047946	ROB 599.011/012: Experimental UAS	Gaskell, Peter	4	Acting, Sensing	Graduate standing or permission of instructor.		Special Topics, first offering in robotics	Graduate offering, Undergraduate students should enroll in ROB 498 offering
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, first ROB offering	Students who cannot register should reach out to the instructor for a permisison to enroll.