

Course Name	Introduction to Robotics		
Semester, Year	First Semester, 2019 (Summer Term)	Number of Credits	1 credit
Course level	2000	Course Number	027021
Instructor(s) (Institution)	RAVANKAR ANKIT 大学院工学研究院		
Course Objectives	<p>This course will give a general introduction to the robotics field. Robotics and Artificial Intelligence are rapidly changing the world we live in. This course will give an overview of robotics systems, applications of robotics in different fields, and will give a brief introduction to some of the main techniques that are used in robotics today. Students will be introduced to the notion of mobile robots, manipulator kinematics, path planning, localization, mapping, and sensing for robotics system. The course also includes some hands on demonstration and practice.</p> <p>*This course assumes that you have no previous knowledge of robotics. However, familiarity with basic mathematical topics such as algebra, vector analysis, calculus and matrices will be helpful. Students with general interest in robotics are welcome.</p>		
Course Goals	<p>General introduction to the field of robotics. At the end of the course you will have an overview and hands on experience on some of the important topics in robotics. The course is expected to motivate the students to pursue advanced studies in robotics during the graduate study.</p> <p>*This course assumes that you have no previous knowledge of robotics. Students with general interest in robotics are welcome.</p>		
Course Schedule	<p>Week 1 Introduction and history of robotics Week 2 State space systems, kinematics of mobile manipulators Week 3 Mobile robots, Sensors and Systems Week 4 Robot Path Planning Week 5 Probabilistic Filters Week 6 Introduction to Localization and Mapping Week 7 Control problems in robotics Week 8 Review and Exam</p>		
Homework	Small reading assignments on general topics in robotics will be given after every class.		
Grading System	<p>Attendance: 30% Homeworks and Quizzes: 30% Final Exam (Presentation on a selected topic): 40%</p>		
Textbooks / Reading List	<p>There is no one textbook that will be followed throughout the course. Handouts will be provided whenever necessary during the lectures. Introduction to autonomous mobile robots Roland Siegwart, Illah R. Nourbakhsh, and Davide Scaramuzza MIT Press 2011</p>		
Websites			
Website of Laboratory	https://mech-hm.eng.hokudai.ac.jp/~rd/labo/index_en.html		
Additional Information			