UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE
DEPARTMENT OF COMPUTER ENGINEERING
FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY

Module name	**Mobile Robot Programming**	
Module level	Undergraduate	
Code	EC184911	
Courses (if applicable)	Mobile Robot Programming	
Semester	Elective	
Contact person	Muhtadin, ST MT	
Lecturer	Muhtadin, ST MT	
Language	Indonesia / English	
Relation to curriculum	Undergraduate degree program, elective semester.	
Type of teaching, contact hours	Lecture, < 60 students, 170 Minutes * SKS	
Workload	1. Lectures: 3 x 50 = 150 minutes (2.5 hours) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.	
Credit points	3 credit points (sks).	
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.	
Mandatory prerequisites	• Embedded Systems • Computer System Organization and Architecture	
Learning outcomes and their corresponding PLOs	CLO-1 Students are able to explain mobile robot concepts	PLO-3 PLO-4
	CLO-2 Students are able to explain dynamics and kinematics model for many kind of mobile robots	PLO-3 PLO-4
	CLO-3 Students are able to explain how the sensor works in mobile robots	PLO-3 PLO-4
	CLO-4 Students are able to explain and implement many localization algorithm in mobile robots	PLO-5
	CLO-5 Students are able to explain and implement mapping algorithm in mobile robots	PLO-5
	CLO-6 Students are able to control mobile robots.	PLO-6
Content	In this course, students will learn about how mobile robot's work and the latest technology with automatic mobile robot controlling. The topics that will be learn are Mobile Robot Systems and its modelling, mobile robot control structure, sensor and estimation, localization and mapping, motion planning in mobile robot, Multi-robot systems. Students will learn about design, construction, and	

	mobile robot programming using the latest technology. Student also will learn about various components used in mobile robot with an emphasis on components that support the robot's function.
Study and examination requirements and forms of examination	• In-class exercises • Quiz 1 and 2 • Assignment 1, 2, 3 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom).
Assessments and Evaluation	CO-1: Question no 1 in midterm exam (10%) CO-2: Question no 2 in midterm exam (10%) CO-3: Question no 3 in midterm exam (10%), quiz 1 (5%) CO-4: Assignment 1 (5%), question no 4 in midterm exam (10%), Quiz 2 (5%) CO-5: Question no 1 in final exam (10%), question no 2 in final exam (10%) CO-6: Assignment 2 (5%), question no 3 in final exam (10%) CO-7: Assignment 3 (5%), question no 4 in final exam (5%)
Reading List	1. "Introduction to Autonomous Mobile Robots" (2nd ed.), Roland Siegwart, Illah R. Nourbakhsh, and Davide Scaramuzza. 2011. The MIT Press. 2. "Principles of Robot Motion Theory, Algorithms, and Implementations", Howie Choset, Kevin M. Lynch, Seth Hutchinson, George A. Kantor, Wolfram Burgard, Lydia E. Kavraki and Sebastian Thrun. MIT Press. 3. "Introduction to Robotics: Mechanics and Control", John J. Craig, Addison-Wesley Publishing Company, 3rd Edition, 2003.