



INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS
DEPARTEMEN TEKNIK ELEKTRO
Program Studi Sarjana (S1) Teknik Elektro

INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FACULTY OF INTELLIGENT ELECTRICAL & INFORMATICS TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
Bachelor Degree Program in Electrical Engineering

1	Nama Mata Kuliah / Course Name : Sistem Otonom / <i>Autonomous Systems</i>
2	Kode Mata Kuliah / Course Code : EE234741
3	Kredit / Credits : 2 SKS
4	Semester / Semester : 0

Deskripsi Mata Kuliah / Course Description

Mata kuliah Sistem Otonom membahas tentang internal perception: INS, GPS; external perception: camera, lidar, radar, ultrasonic, infrared-camera; navigasi: path planning; guidance: local and global path tracking, autopilot: supervisory control (steering control, speed control, regenerative brake, brake control, trajectory control). / *The Autonomous Systems course covers the following topics: internal perception (using technologies like INS and GPS), external perception (using sensors such as cameras, lidar, radar, ultrasonic, and infrared-camera), navigation, path planning, guidance, both local and global path tracking, and autopilot systems that involve supervisory control for tasks like steering control, speed control, regenerative brake, brake control, and trajectory control.*

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / Program Learning Outcomes Charged to The Course

CPL 3 Mampu mengelola pembelajaran diri sendiri, dan mengembangkan diri sebagai pribadi pembelajar sepanjang hayat untuk bersaing di tingkat nasional, maupun internasional, dalam rangka berkontribusi nyata untuk menyelesaikan masalah dengan mengimplementasikan teknologi informasi dan komunikasi dan memperhatikan prinsip keberlanjutan serta memahami kewirausahaan berbasis teknologi / *Able to manage one's own learning and continually self-develop as a lifelong learner to compete at the national and international levels, with the goal of making a tangible contribution to problem-solving by implementing information and communication technology and considering sustainability principles, as well as understanding technology-based entrepreneurship.*

CPL 6	Mampu mengkaji dan memanfaatkan matematika, ilmu pengetahuan alam dan teknologi serta mengidentifikasi, memformulasikan dan menyelesaikan permasalahan di bidang teknik elektro / <i>Able to evaluate and utilize mathematics, natural sciences, and technology, as well as identify, formulate, and solve problems in the field of electrical engineering.</i>
Capaian Pembelajaran Mata Kuliah / Course Learning Outcomes	
	<ol style="list-style-type: none"> 1. Mampu menguasai fakta, konsep, prosedur, prinsip, dan menganalisis perception / <i>Able to master facts, concepts, procedures, principles, and analyze perception.</i> 2. Mampu menguasai fakta, konsep, prosedur, prinsip, dan menganalisis navigasi / <i>Able to master facts, concepts, procedures, principles, and analyze navigation.</i> 3. Mampu menunjukkan kinerja mandiri, bermutu, dan terukur dalam menganalisis guidance / <i>Able to demonstrate independent, quality, and measurable performance in analyzing guidance.</i> 4. Mampu menunjukkan kinerja mandiri, bermutu, dan terukur dalam menganalisis autopilot / <i>Able to demonstrate independent, quality, and measurable performance in analyzing autopilot.</i>
Pokok Bahasan / Contents	
	<ol style="list-style-type: none"> 1. internal perception: INS, GPS 2. external perception: camera, lidar, radar, ultrasonic, infrared-camera 3. navigasi: path planning 4. guidance: local and global path tracking 5. autopilot: supervisory control (steering, speed, brake, trajectory control)
Prasyarat / Pre-requisite	
	Sinyal dan Sistem, Analisis Dasar Sistem Kontrol / <i>Signals and Systems, Control System Design and Analysis</i>
Pustaka / Reference	
	<ol style="list-style-type: none"> 1. Sven Lorenz, Florian M. Adolf (auth.), Florian Holzapfel, Stephan Theil (eds.), "Advances in Aerospace Guidance, Navigation and Control", Springer-Verlag Berlin Heidelberg, 2011 2. Richard K. Barnhart, Stephen B. Hottman, Douglas M. Marshall, Eric Shappee, "Introduction to Unmanned Aircraft Systems", by Taylor & Francis Group, LLC, 2012