



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 Robot Otonom / <i>Autonomous Robot Systems</i>
2	Kode Mata Kuliah / Course Code : EE234755
3	Kredit / Credits : 2 SKS
4	Semester / Semester : 0

Deskripsi Mata Kuliah / Course Description

Sistem Robot Otonom (Autonomous Robot System) mempelajari tentang perencanaan jalur (path planning), lokalisasi (localization), pemetaan (mapping), dan penjejakan jalur (path tracking) pada mobile robot. Metoda-metoda di atas diterapkan untuk untuk autonomous navigation pada ground robot, flying robot, dan surface vessel. / *The course "Sistem Robot Otonom" (Autonomous Robot System) covers path planning, localization, mapping, and path tracking for mobile robots. These methods are applied to achieve autonomous navigation for ground robots, flying robots, and surface vessels.*

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

CPL 1 Mampu menunjukkan sikap dan karakter yang mencerminkan: ketakwaan kepada Tuhan Yang Maha Esa, etika dan integritas, berbudi pekerti luhur, peka dan peduli terhadap masalah sosial dan lingkungan, menghargai perbedaan budaya dan kemajemukan, menjunjung tinggi penegakan hukum mendahulukan kepentingan bangsa dan masyarakat luas, melalui kreatifitas dan inovasi, eksekusi, kepemimpinan yang kuat, sinergi, dan potensi lain yang dimiliki untuk mencapai hasil yang maksimal / *Being able to demonstrate attitudes and characteristics that reflect: devotion to the One Almighty God, ethics and integrity, noble virtues, sensitivity and care towards social and environmental issues, appreciation of cultural diversity and inclusivity, upholding the rule of law with a priority on the interests of the nation and the wider community, through*

	<i>creativity and innovation, excellence, strong leadership, synergy, and other potentials possessed to achieve maximum results.</i>
CPL 4	Mampu merancang dan melaksanakan eksperimen laboratorium dan/atau lapangan, menganalisa dan menginterpretasi data, serta menggunakan penilaian yang obyektif untuk menarik kesimpulan / <i>Able to designing and conducting laboratory and/or field experiments, analyzing and interpreting data, and using objective assessments to draw conclusions.</i>
CPL 5	Mampu mendesain komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi / <i>Able to design components, systems, and processes that are logical and realistic in accordance with specified specifications, while considering safety, social, cultural, environmental, and economic aspects.</i>
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. Memahami Autonomous Robot System / <i>Understanding Autonomous Robot Systems</i> 2. Memahami Path Planning / <i>Understanding Path Planning</i> 3. Memahami Localization / <i>Understanding Localization</i> 4. Memahami Mapping / <i>Understanding Mapping</i> 5. Memahami Path Tracking / <i>Understanding Path Tracking</i> 6. Menerapkan Autonomous Navigation / <i>Implementing Autonomous Navigation</i> 	
Pokok Bahasan / Contents	
<ol style="list-style-type: none"> 1. Autonomous Robot System 2. Path Planning 3. Localization 4. Mapping 5. Path Tracking 6. Autonomous Navigation 	
Prasyarat / Pre-requisite	
Pustaka / Reference	
<ol style="list-style-type: none"> 1. Farbod Fahimi, Autonomous Robots: Modeling, Path Planning, and Control, Springer Science+Business Media LLC, 2009. 2. Kenzo Nonami, Farid Kendoul, Satoshi Suzuki, Wei Wang, Daisuke Nakazawa, Autonomous Flying Robots: Unmanned Aerial Vehicles and Micro Aerial Vehicles, Springer-Verlag, 2006. 	

3. Lounis Adouane, Autonomous Vehicle Navigation: From Behavioral to Hybrid Multi-Controller Architectures, Taylor & Francis Group LLC, 2016