COURSE	Name	: Autonomous Robot System
	Code	: EE184945
	Credits	: 3
	Semester	: Elective

Description of Course

Autonomous robot systems learn about manipulators, mobile robots, autonomous flying robots, and autonomous surface vessels. In the manipulators, students study about redundant and hyper-redundant manipulators and their control techniques. In the mobile robot, students study about the model, trajectory-tracking control, formation control, motion planning, and navigation. In mobile robot, students also study about autonomous flying robot, and autonomous surface vessel.

Learning Outcomes

Knowledge

(P03) Mastering the concepts and principles of design procedure in power systems, control systems, multimedia telecommunications, or electronics.

(P05) Mastering the factual knowledge about information and communication technology, and the latest technology and its applications in power systems, control systems, multimedia telecommunications, or electronics.

Specific Skill

(KK03) Able to describe system design for problem solving in power systems, control systems, multimedia telecommunications, or electronics by concerning technical standards, performace aspect, reliability, ease of application, and assurance of sustainability.

(KK05) Able to utilize analytical and engineering design tools based on appropriate information and computation technology to perform engineering activities in power systems, control systems, multimedia telecommunications, or electronics.

General Skill

(KU01) Able to apply logical, critical, systematic and innovative thinking in the context of development or implementation of science and technology that concerns and implements the value of humanities in accordance with their area of expertise

Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.

Course Learning Outcomes

Knowledge

Mastering the concept of autonomous robot and its application.

Specific Skill

Able to understand the concept of autonomous robots in the form of manipulators, mobile robot, autonomous flying robot, and autonomous surface vessel.

General Skill

Able to design autonomous robotic systems for specific applications.

Attitude

Demonstrating self-reliance, creative, and innovative in problem solving.

Main Subjects

1. Autonomous Robot System
2. Manipulators
3. Mobile robot
4. Autonomous flying robot
5. Autonomous Surface vessel

Reference(s)

[1]   Lounis Adouane, Autonomous Vehicle Navigation: From Behavioral to Hybrid Multi-Controller Architectures, Taylor & Francis Group LLC, 2016.
[2]   Farbod Fahimi, Autonomous Robots: Modeling, Path Planning, and Control, Springer Science+Business Media LLC, 2009.
[3] Kenzo Nonami, Farid Kendoul, Satoshi Suzuki, Wei Wang, Daisuke Nakazawa, Autonomous Flying Robots: Unmanned Aerial Vehicles and Micro Aerial Vehicles, Springer-Verlag, 2006.

Prerequisite(s)

EE184401 Digital and Microprocessor Systems
EE184404 Introduction to Control Systems