



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

1	Nama Mata Kuliah / Course Name : Rekayasa Internet / <i>Internet Engineering</i>
2	Kode Mata Kuliah / Course Code : EL234501
3	Kredit / Credits : 3 SKS
4	Semester / Semester : 5

Deskripsi Mata Kuliah / Course Description

UAV telah dimanfaatkan pada banyak aplikasi dan bidang, misal: pemetaan dan pemotretan udara, pengantar barang secara udara, berkat perkembangan dari berbagai teknologi pendukung dan ketersediaannya secara luas. Selain itu, pada beberapa tahun terakhir pemanfaatannya pada bidang telekomunikasi juga menunjukkan potensi yang besar dan memberi dampak yang signifikan. Pada mata kuliah, mahasiswa akan mempelajari karakteristik dan konsep dasar dari berbagai macam UAV, serta aspek aerodinamikanya pada saat terbang. Selanjutnya akan dipelajari karakteristik dan model-model kanal komunikasi pada sistem komunikasi nirkabel yang menggunakan UAV. Pada bagian berikut, mahasiswa akan mempelajari berbagai permasalahan sistem dan jaringan komunikasi nirkabel yang melibatkan UAV, beserta teknik dan metode yang digunakan.

UAVs have been utilized in many applications and fields, such as aerial mapping and photography, aerial delivery of goods, thanks to the development of various supporting technologies and their wide availability. In addition, in recent years, their use in the field of telecommunications has also shown great potential and significant impact. In this course, students will learn about the characteristics and basic concepts of various types of UAVs, as well as their aerodynamic aspects during flight. Next, they will study the characteristics and models of communication channels in wireless communication systems that use UAVs. In the following section, students will learn about various problems in wireless communication systems and networks involving UAVs, along with the techniques and methods used to address them.

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

1. (CPL-05) Mampu merancang komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi.
(PLO-05) Able to design components, systems, and/or processes to meet desired needs within realistic constraints in such aspects as law, economic, environment,

social, politics, health and safety, sustainability as well as to recognize and/or utilize the potential of local and national resources with global perspective

2. (CPL-07) Mampu mengidentifikasi, memformulasikan, menganalisis, dan menyelesaikan permasalahan kompleks di bidang teknik telekomunikasi.
(PLO- 07) Able to identify, formulate, analyze, and solve the complex problems in the field of Telecommunication Engineering
3. (CPL-08) Mampu mengetahui dan mengaplikasi metode dan keahlian sesuai perkembangan terkini di bidang ilmu pengetahuan dan teknologi untuk menyelesaikan permasalahan di bidang Teknik Telekomunikasi dengan mengedepankan nilai-nilai universal.
(PLO-08) Able to know and apply methods, skills according to the latest developments in the field of science and technology to solve electrical engineering problems by prioritizing universal values

Capaian Pembelajaran Mata Kuliah / Course Learning Outcomes

1. Mampu menjelaskan konsep dasar rekayasa internet, protokol dan layanan internet / *Able to explain the basic concept of internet engineering, internet protocols and services.*
2. Mampu menjelaskan klasifikasi alamat IP dan mekanisme subnetting / *Able to explain IP address classification and subnetting mechanism*
3. Mampu menjelaskan klasifikasi topologi jaringan dan perancangan jaringan / *Able to explain network topology classification and network design.*
4. Mampu menjelaskan mekanisme routing dan switching dalam jaringan internet / *Able to explain routing and switching mechanism in internet network.*
5. Mampu menjelaskan parameter kinerja jaringan internet / *Able to explain internet network performance parameters.*
6. Mampu menjelaskan penerapan teknologi teknologi internet dalam kehidupan sehari-hari / *Able to explain the application of internet technologies in daily life.*

Pokok Bahasan / Contents

1. Konsep Teknologi Internet, Protokol dan layanan internet / *Internet Technology Concepts, Protocols, and Internet Services*
2. Konsep IP / *IP Concepts*
3. Arsitektur dan Topologi Jaringan / *Network Architecture and Topology*
4. Protokol Routing / *Routing Protocols*
5. Teknik analisis kinerja jaringan / *Network Performance Analysis Techniques*
6. Aplikasi Teknologi Internet / *Internet Technology Applications*

Prasyarat / Pre-requisite

Pengantar Teknik Telekomunikasi, Jaringan Komunikasi Data / *Introduction to Telecommunication Engineering, Data Communication Network*

Pustaka / Reference

Utama / Primary :

1. D. Comer, Internetworking With TCP/IP, Volume 1: Principles Protocols, and Architecture, 5th edition, 2006.

2. D. Medhi and K. Ramasamy, Network Routing, Morgan Kaufmann, 2007.
3. G. Varghese, Network Algorithmics, Morgan Kaufmann, 2004.

Pendukung / Support :

1. M. Hassan and R. Jain, High Performance TCP/IP Networking: Concepts, Issues, and Solutions, Prentice-Hall, 2003.