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

1	**Nama Mata Kuliah**	:	Software Defined Network
2	**Kode Mata Kuliah**	:	EL234717
3	**Kredit**	:	2 SKS
4	**Semester**	:	Pilihan

Deskripsi Mata Kuliah

Mata kuliah ini mengenalkan software defined network dan ekosistemnya. Untuk menunjang pemahaman permasalahan dan desain SDR akan dipelajari dasar desain sistem RF dan arsitektur penerima dan pemancar, dilanjutkan dengan pembahasan berbagai platform untuk membangun SDR dan software radio beserta desain laju sampling. Selanjutnya akan dipelajari berbagai konsep dan pendekatan sistem radio kognitif dan arsitektur yang telah diusulkan, yang dilanjutkan dengan jaringan radio kognitif dan dynamic spectrum access. Mahasiswa juga akan dikenalkan penerapan platform open flow untuk Software Defined Radio.

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah

1. (CPL-5) Mampu merancang komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi.
2. (CPL-6) Mampu merancang dan melaksanakan eksperimen laboratorium dan/atau lapangan, menganalisa dan menginterpretasi data, serta menggunakan penilaian yang obyektif untuk menarik kesimpulan.
3. (CPL-7) Mampu mengidentifikasi, memformulasikan, menganalisis, dan menyelesaikan permasalahan kompleks di bidang teknik telekomnikasi.
4. (CPL-8) 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

Capaian Pembelajaran Mata Kuliah

1. Menguasai konsep dan prinsip software-defined network
2. Menguasai kontrol dan pemisahan bidang data dalam SDN
3. Menerapkan virtualisasi jaringan
4. Memahami Penerapan SDN dan ekosistemnya
5. Merancang SDN dan menguasai pengembangannya

Pokok Bahasan

1. Pengantar software defined network
2. Pengantar Openflow sebagai Platform SDN
3. Kontrol dan pemisahan bidang data pada SDN

4. Virtualisasi Jaringan pada SDN
5. Ekosistem SDN
6. Penerapan dan manajemen SDN
7. Rancangan SDN dan pengembangannya

Prasyarat

Sistem Tertanam dalam Telekomunikasi, Rekayasa Internet

Pustaka

1. Siamak Azodolmolky, “Software Defined Networking with OpenFlow”, Packt Publishing, 2013
2. Paul Goransson and Chuck Black, Timothy Culver, Software Defined Networks: A Comprehensive Approach, 2nd Edition, Morgan Kaufmann, 2017
3. Cheng Sheng Jie Bai Qi Sun, Sofware-Defned Wide Area Network Architectures and Technologies, CRC Press, 2021

INSTITUTE TECHNOLOGI SEPULUH NOPEMBER (ITS)
FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
Undergraduate Study Programme (S1) Telecommunication Engineering

1	**Course Name**	:	Software Defined Network
2	**Course Code**	:	EL234717
3	**Credit**	:	2 CREDITS
4	**Semester**	:	Options

Course Description

This course introduces software defined network and its ecosystem. To support the understanding of SDR problems and design, the basics of RF system design and receiver and transmitter architecture will be studied, followed by a discussion of various platforms for building SDR and radio software along with sampling rate design. Furthermore, various concepts and approaches to cognitive radio systems and architectures that have been proposed will be studied, followed by cognitive radio networks and dynamic spectrum access. Students will also be introduced to the application of open flow platforms for Software Defined Radio.

Graduate Learning Outcomes (SLOs) Charged Courses

1. (ELO-5) Able to design logical and realistic components, systems, and processes in accordance with the specified specifications by considering safety, social, cultural, environmental, and economic aspects.
2. (ELO-6) Able to design and conduct laboratory and/or field experiments, analyse and interpret data, and use objective judgement to draw conclusions.
3. (ELO-7) Able to identify, formulate, analyse, and solve complex problems in telecommunication engineering.
4. (CPL-8) Able to know and apply methods and expertise according to the latest developments in the field of science and technology to solve problems in the field of Telecommunication Engineering by promoting universal values.

Course Learning Outcomes

1. Mastering the concepts and principles of software-defined network
2. Mastering the control and separation of data fields in SDN
3. Implementing network virtualisation
4. Understand the application of SDN and its ecosystem
5. Design SDN and master its development

Subject matter

1. Introduction to software defined network
2. Introduction to Openflow as an SDN Platform
3. Control and separation of data fields in SDN

4. Network Virtualisation on SDN
5. SDN Ecosystem
6. SDN implementation and management
7. SDN design and development

Prerequisites

Embedded Systems in Telecommunications, Internet Engineering

Library

1. Siamak Azodolmolky, "Software Defined Networking with OpenFlow", Packt Publishing, 2013
2. Paul Goransson and Chuck Black, Timothy Culver, Software Defined Networks: A Comprehensive Approach, 2nd Edition, Morgan Kaufmann, 2017
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