



Satuan Acara Pengajaran

ENET802004 - Teknik Sistem Medis Nirkabel

Pengajar

Dr. Basari S.T., M.Eng.

Minggu 1

Materi Introduction of Class
- Regarding topics in which covered by the lecture
- How the lecture will be addressed and assessed
- Review wireless medical engineering applications (medical informatics, diagnosis and treatment)
- Introduction of information transmission through human body, diagnosis and treatment for abnormality in the human body.

Media LCD Projector, power point

Referensi

Aktivitas Lecture

Minggu 2

Materi Body-Centric Wireless Communications
- Body-Centric Communications Systems
- Off-Body to On-Body Communications
- On-Body Communications
- Medical Implants and Sensor Networks

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Referensi

Aktivitas Lecture, Discussion, Assignment

Minggu 3

Materi Electromagnetic Properties and Modeling of the Human Body
- Electromagnetic Characteristics of Human Tissues
- Physical Body Phantoms
- Numerical Phantoms
- Numerical Modeling Techniques for Body-Centric Wireless Communications

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Referensi

Aktivitas Lecture, Discussion

Minggu 4

Materi Wearable Devices
- Introduction to Wireless Body Area Network
- Critical Design Issues
- Textile Materials and Its Effects
- Wearable Devices Near to the Human Body
- Radio Channel Characterization and Effect of Wearable Antennas

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Referensi

Aktivitas Lecture, Discussion, Assignment

Minggu 5

Materi Body-Centric UWB Communications
- Overview
- Design, Analysis and Measurement of Devices
- Channel Characterization and Modeling

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Referensi

Aktivitas Lecture, Discussion, Assignment/Quiz

Minggu 6

Materi Body-Sensor Networks
- Introduction
- Biosensor System and Basics of Biomedical RF Telemetry
- Device Design for Body Sensor
- Telemedicine and Telecare

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Referensi

Aktivitas Lecture, Discussion

Minggu 7

Materi Medical Implant Communication Systems
- Frequency standard system
- Lossy Dispersive Media
- Design and Analysis Medical Implant System
- Implantable Medical Devices

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Referensi

Aktivitas Lecture, Discussion, Assignment

Minggu 8

Materi UTS

Media Lembar Ujian dan Jawaban

Referensi

Aktivitas Ujian

Minggu 9

Materi Wireless Medical Diagnosis (1)
- Magnetic Resonance Imaging (MRI)
- MRI safety

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Referensi

Aktivitas Lecture, Discussion

Minggu 10

Materi Wireless Medical Diagnosis (2)
- Microwave Computed Tomography
- Other Imaging Techniques such as Positron Emission Tomography (PET), Single Photon Emission Computed Tomography (SPECT) and Ultrasound Tomography

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Referensi

Aktivitas Lecture, Discussion, Assignment

Minggu 11

Materi Wireless Treatment Technology
- Introduction to Thermal Therapy
- Hyperthermia
- RF Ablation

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Referensi

Aktivitas Lecture, Discussion, Assignment

Minggu 12

Materi EMC Engineering and Electromagnetic Interference (EMI) to Medical Devices
- Introduction to EMC Engineering
- Measurement standard and procedure for EMC Engineering
- EMI to Medical Devices

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Referensi

Aktivitas Lecture, Discussion, Assignment

Minggu 13

Materi Wireless Power Technology for Medical Implant Devices
- Medical Monitoring Endoscope
- Wireless Charging for Cardiac Pacemaker

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Aktivitas Lecture, Discussion, Assignment

Minggu 14

Materi Presentation and Task

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Referensi

Aktivitas Discussion, Assignment

Minggu 15

Materi Ujian Akhir Semester (UAS)

Media Lembar Ujian, Laporan

Referensi

Aktivitas Presentasi, Ujian
