UNIVERSITI MALAYA

MAKLUMAT KURSUS UNTUK SEMESTER/PENGGAL SEMASA
COURSE INFORMATION FOR CURRENT SEMESTER/TERM

Sesi Akademik *Academic Session*	2020/2021
Semester/Penggal *Semester/Term*	1
Kod Kursus *Course Code*	KIE4004
Tajuk Kursus *Course Title*	Sistem Kuasa Power System
Bahasa Pengantar *Medium of Instruction*	Bahasa Inggeris *English*
Rujukan Utama *Main Reference*	1. T.K. Nagsarkar, M.S Sukhija, "Power System Analysis", Oxford Higher Education, 2007 2. Hadi Saadat, "Power System Analysis", McGraw-Hill, Second Edition, 2004.
Strategi Pembelajaran *Learning Strategies*	Kuliah, Tutorial, Pembelajaran Sendiri Lectures, Tutorials, Independent Learning
Masa Pembelajaran Pelajar *Student Learning Time*	Bersemuka / *Face to face* : 45 jam/*hours* Tidak Bersemuka / *Non Face to face*: 0 jam/*hour* Masa Persediaan Pelajar / *Student Preparation Time*: 75 jam/*hours*
Kemahiran Boleh Pindah Transferable Skills	Kemahiran menyelesaikan masalah *Problem Solving Skills*
Pensyarah / *Lecturer* Bilik / *Room* Telefon/e-mel *Telephone/e-mail*	Prof. Ir. Dr. Hazlie Mokhlis Power System and Energy Research Lab, Block E 03-79675238 / hazli@um.edu.my
Sesi Kuliah / *Lecture Session:* Hari/Masa / *Day/Time* Tempat / *Venue*	Rujuk kepada myum.um.edu.my. *Refer to* myum.um.edu.my.
Sesi Tutorial/Amali: *Tutorial/Practical Session:* Hari/Masa / *Day/Time* Tempat / *Venue*	
Perincian Pemberatan Penilaian *Detail of Assessment Weightage*	Penilaian Berterusan / *Continuous Assessment* : 40% Peperiksaan Akhir / *Final Examination* : 60%

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Jadual Pengajaran / *Teaching Schedule*

Minggu *Week*	Topik & Aktiviti *Topic & Activities*	Rujukan *References*
1	Pengenalan kepada Sistem Kuasa dan ulangkaji sistem 3 fasa dan per unit *Introduction to Power System & revisions on 3 phase systems and per unit*	Rujukan Utama *Main references*
2	Pengenalan kepada Analisa Aliran Beban (Penyelisaian persamaan tidak lelurus) *Introduction of Power Flow Analysis (Solution of Non-linear Equations)*	Rujukan Utama *Main references*
3	Aliran Beban – Kaedah Newto Rapson *Power Flow Analysis - Newton Raphson Method*	Rujukan Utama *Main references*
4	Aliran Beban – Kaedah Nyah Ganding Pantas *Power Flow Analysis - Fast Decoupled Method*	Rujukan Utama *Main references*
5	Asas Komponen Semeteri *Fundamental of Symmetrical Components*	Rujukan Utama *Main references*
6	Gagal Tak-Seimbang- Gagal talian ke bumi, talian ke talian *Unbalanced Fault Analysis – Line to Ground, Line to Line*	Rujukan Utama *Main references*
7	Gagal Tak-Seimbang- Gagal talian-talian ke bumi *Unbalanced Fault Analysis – Double Line to Ground*	Rujukan Utama *Main references*
8	Pengenalan sistem Perlindungan (keperluan, alat ubah, CT, VT, geganti arus lebih, pemutus litar, fius) *Introduction of protection system (requirements, instruments transformer; CT & VT, Over current relay, circuit breaker, fuses)*	Rujukan Utama *Main references*
9	Sistem Perlindungan – Perlindungan talian (Perlindungan Lelurus) *Power System Protection – Line Protection (Radial protection)*	Rujukan Utama *Main references*
10	Sistem Perlindungan – Perlindungan sekala besar (zon perlindungan, gengati jarak) *Power System Protection – Large scale protection (zone of protection, distance relay)*	Rujukan Utama *Main references*
11	Sistem Perlindungan – Perlindungan Alat Ubah (geganti pembeza, geganti pemandu, geganti digital) *Power System Protection – Transformer Protection (differential relay, pilot relay, digital relay)*	Rujukan Utama *Main references*

12	Kestabilan Sistem Kuasa – Persamaan Swing *Power System Stability – Swing Equations*	Rujukan Utama *Main references*
13	Kestabilan Sistem Kuasa – Kestabilan keaadaan mantap *Power System Stability – Steady State Stability*	Rujukan Utama *Main references*
14	Kestabilan Sistem Kuasa – Kestabilan Keadaan Fana *Power System Stability – Transient Stability*	Rujukan Utama *Main references*