



Sesi Akademik <i>Academic Session</i>	2020/2021
Semester/Penggal <i>Semester/Term</i>	2
Kod Kursus <i>Course Code</i>	KIE4011
Tajuk Kursus <i>Course Title</i>	Teknologi Tenaga Boleh Diperbaharui <i>Renewable Energy Technologies</i>
Bahasa Pengantar <i>Medium of Instruction</i>	Bahasa Inggeris <i>English</i>
Rujukan Utama <i>Main Reference</i>	1. Aldo Da Rosa, "Fundamentals of Renewable Energy Processes," Elsevier Academic Press, 2016. 2. Godfrey Boyle, "Renewable Energy," Oxford University Press, 2015.
Strategi Pembelajaran <i>Learning Strategies</i>	Kuliah, perbincangan kumpulan dan kerja kursus <i>Lectures, group discussion and coursework</i>
Masa Pembelajaran Pelajar <i>Student Learning Time</i>	Bersemuka / <i>Face to face</i> : 31 Tidak Bersemuka / <i>Non Face to face</i> : 0 Masa Persediaan Pelajar / <i>Student Preparation Time</i> : 50
Kemahiran Boleh Pindah <i>Transferable Skills</i>	Perisian analisis unsur terhingga, Perisian MATLAB <i>Finite Element Analysis software, MATLAB software</i>
Pensyarah / <i>Lecturer</i>	Prof. Dr. Saad Mekhilef
Bilik / <i>Room</i>	Bilik 12, Tingkat 1, Blok Y, Fakulti Kejuruteraan / <i>Room 12, Level 1, Block Y, Faculty of Engineering</i>
Telefon/e-mel <i>Telephone/e-mail</i>	+60379676851 / saad@um.edu.my
Sesi Kuliah / <i>Lecture Session:</i>	Rujuk kepada myum.um.edu.my
Hari/Masa / <i>Day/Time</i>	<i>Refer to myum.um.edu.my</i>
Tempat / <i>Venue</i>	
Sesi Tutorial/Amali: <i>Tutorial/Practical Session:</i>	Tiada <i>None</i>
Hari/Masa / <i>Day/Time</i>	
Tempat / <i>Venue</i>	
Perincian Pemberatan Penilaian <i>Detail of Assessment Weightage</i>	Penilaian Berterusan / <i>Continuous Assessment</i> : 40% Peperiksaan Akhir / <i>Final Examination</i> : 60%



**Jadual Pengajaran / Teaching Schedule**

Minggu Week	Topik & Aktiviti Topic & Activities	Rujukan References
1	Pengenalan kepada tenaga dan teknologi tenaga boleh diperbaharui <i>Introduction to energy and renewable energy technologies</i>	Rujukan utama <i>Main references</i>
2	Isu-isu dalam sistem tenaga <i>Issues in energy systems</i>	Rujukan utama <i>Main references</i>
3	Corak penggunaan tenaga <i>Energy use patterns</i>	Rujukan utama <i>Main references</i>
4	Tenaga solar: Sumber solar <i>Solar Energy: Solar resources</i>	Rujukan utama <i>Main references</i>
5	Tenaga solar: Sel-sel solar dan reka bentuk sistem PV solar <i>Solar Energy: Solar cells and solar PV system design</i>	Rujukan utama <i>Main references</i>
6	Tenaga solar: Sistem haba solar pasif dan aktif <i>Solar Energy: Passive and active solar thermal systems</i>	Rujukan utama <i>Main references</i>
7	Tenaga Angin: Sumber angin global; teknologi tenaga angin; menara angin dan reka bentuk turbin <i>Wind Energy: Global wind resources; wind energy technologies; wind tower and turbine design</i>	Rujukan utama <i>Main references</i>
8	Tenaga Angin: Trajektori teknologi angin; ekonomi tenaga angin; sifat-sifat kemampanan <i>Wind Energy: Trajectory of wind technology; economics of wind energy; sustainability attributes</i>	Rujukan utama <i>Main references</i>
9	Tenaga-Hidro: Taburan geografi dan ketersediaan sumber kuasa hidro <i>Hydro-Energy: Geographic distribution and availability of hydropower resources</i>	Rujukan utama <i>Main references</i>
10	Tenaga-Hidro: Trajektori teknologi hidro; ekonomi kuasa hidro; sifat-sifat kelestarian <i>Hydro-Energy: Trajectory of hydropower technologies; economics of hydropower; sustainability attributes</i>	Rujukan utama <i>Main references</i>
11	Tenaga Lautan: Penjana tenaga menggunakan air pasang, ombak, dan perbezaan suhu; trajektori teknologi lautan; ekonomi tenaga lautan; sifat-sifat kelestarian <i>Oceanic Energy: Energy generation using tides, waves, and temperature differentials; trajectories of oceanic technologies; economics of oceanic energy; sustainability attributes</i>	Rujukan utama <i>Main references</i>
12	Tenaga Geoterma: Sumber geoterma; trajektori teknologi untuk mengeksploitasi sumber geoterma; ekonomi tenaga geoterma; sifat-sifat kelestarian <i>Geothermal Energy: Geothermal resources; technological trajectories for exploiting geothermal resources; economics of geothermal energy; sustainability attributes</i>	Rujukan utama <i>Main references</i>
13	Reka bentuk sistem tenaga boleh diperbaharui menggunakan perisian Homer <i>Design of renewable energy systems using Homer software</i>	Rujukan utama <i>Main references</i>
14	Sistem tenaga boleh diperbaharui hibrid <i>Hybrid renewable energy systems</i>	Rujukan utama <i>Main references</i>