



Ministry of Higher Education and Scientific Research

Mustansiriyah University /College of Science

Department of Atmospheric sciences

(الخطة الدراسية للمساق)

Course Plan



**Course No.:** undergraduate stage

**Time Division** 2 hours

**Course Name:** Renewable Energy

**Semester & Year:** First, 2022 / 2023

**Course Website:** <https://uomustansiriyah.edu.iq/e-learn/profile.php?id=274>

### Course Description

The course is an introduction to the concepts of renewable energy and its types and applications, with an explanation to the difference between renewable, non-renewable and alternative energy. The course also provides the basic physics and equations of these energies.

### Course Intended Outcomes:

At the end of the course, students expected to learn: the different between Energy and renewable energy and the Alternative Energy, and learn all types of renewable energy; solar energy, wind energy, hydro energy, tilde energy, geothermal energy, Biomass energy and there (Advantages and disadvantage), physics and applications.

### Course Outline:

Week	Description depends on the Timing table (Theoretical & Practical)
1	<b>Energy, Work, Power:</b> What is energy, what is work, what is power, the heat, the radiation, energy units.
2	<b>Energy forms I:</b> Kinetic energy; radiation energy, thermal energy, motion energy, electrical energy, sound.
3	<b>Energy forms II:</b> Potential energy; chemical energy, nuclear energy, gravitational energy, stored mechanical energy.
4	<b>Energy resources:</b> Primary energy, secondary energy, transformation primary energy to secondary energy.
5	<b>Non-renewable energy:</b> oil, gas, coal, nuclear energy; advantage and disadvantage
6	<b>Renewable energy:</b> Definitions of Renewable Energy, Characteristics of Renewable Energy, types of renewable energy.
7	<b>Alternative energy:</b>

	Definitions of alternative energy, the deferent between Renewable Energy and alternative energy.
8	First Exam
9	Solar Energy
10	Wind Energy
11	Geothermal Energy
12	Hydro Energy
13	Tidal Energy
14	Biomass Energy
15	Second Exam

**Textbooks:**

[1]: Vaughn Nelson,(2011), introduction to renewable Energy, Taylor & Francis Group, p 376.

**Suggested references:**

[1]: John Twidell, Tony Weir, (2015), Renewable Energy Resources,3<sup>rd</sup> edition, , Taylor & Francis Group, p817.

[2]: Soteris A. Kalogirou, (2014), Solar Energy Engineering Processes and Systems, 2<sup>nd</sup> edition, Elsevier Inc., p815.

**Marking:**

First Semester				Final Exam
1st exam	2nd exam	Practical	Activity	
25	25		5	70

Assignment/ Project	Description	Due Date	Marking

**Instructor(s) information [معلومات الأستاذ]**

**Section:** (Atmospheric department) ; **Lecture Room:**[ 202 ] ; **Office No.:** ( 5 )

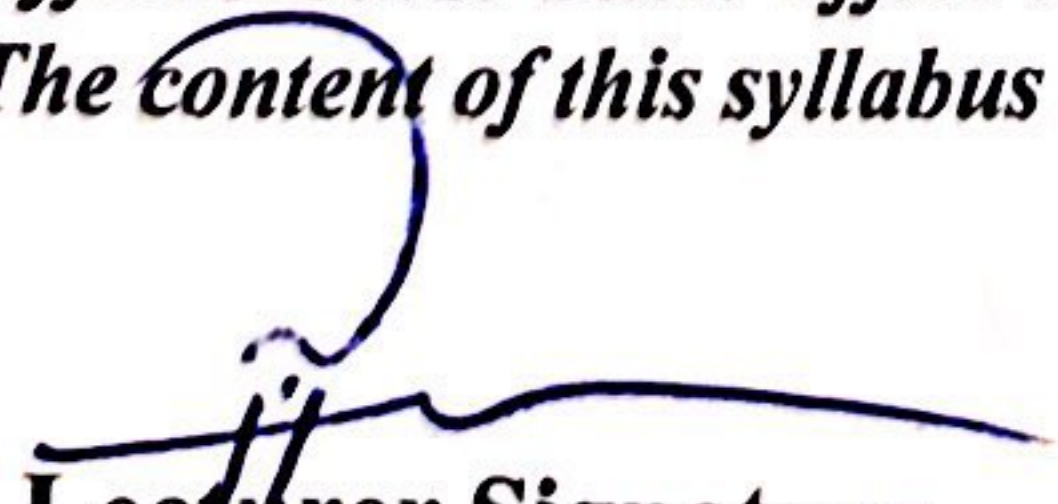
**Instructor's Name:** Prof. Dr. Hazim H. Hussain

**E-Mail:** [dr.hazim@uomustansiriyah.edu.iq](mailto:dr.hazim@uomustansiriyah.edu.iq)

**Office Hours :** Thursday (10:30-02:30)

**NOTES:**

- *Office Hours: Other office hours are available by appointment.*
- *The content of this syllabus not be changed during the current semester.*

  
Lecturer Signature

  
Chairman Signature

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رئيس قسم علوم الجو