Arab Academy for Science, Technology & Maritime Transport
College of Engineering & Technology
Mechanical Engineering (Mechatronics) Program

University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Mechanical Engineering

Form no. (12):
Course Specification

1- Course Data

Course Code: **ME 524**	Course Title: **Renewable Energy Resources**		Academic Year/Level: **5th** year / **9th** semester
Specialization: **Mechanical**	No. of Instructional Units	Lecture	Practical
	3 credits	**2 hrs.**	**2 hrs.**

2- Course Aim

- To develop the student ability to assess the current energy situation, need for renewable energy sources & to understand and their current status of development.
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- Studying the different types of renewable energy sources

3- Intended Learning Outcomes

hh- Knowledge and Understanding	**Through knowledge and understanding, students will be able to:** K4) Principles of design including elements design, process and/or a system related to specific disciplines. K5) Methodologies of solving engineering problems, data collection and interpretation K8) Current engineering technologies as related to disciplines K12) Contemporary Engineering Topics
ii- Intellectual Skills	**Through intellectual skills, students will be able to:** I4) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources. I5) Assess and evaluate the characteristics and performance of components, systems and processes
jj- Professional Skills	**Through professional and practical skills, students will be able to:** P6) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
kk- General Skills	**Through general and transferable skills, students will be able to:** G6) Effectively manage tasks, time, and resources

4- Course Content

Week No.1	The current energy resources
Week No.2	Environmental Impact of Energy production
Week No.3	Need for renewable resources
Week No.4	Solar Energy: photovoltaic cells

Week No.5	Solar Energy: thermal energy production
Week No.6	Solar Energy: thermal energy production
Week No.7	Wind Energy-7th week evaluation / 7th week evaluation
Week No.8	Wind Energy
Week No.9	Hydropower
Week No.10	Wave and Tidal Energy
Week No.11	Ocean Thermal Energy Conversion
Week No.12	Geothermal Energy-12th week evaluation / 12th week evaluation
Week No.13	Nuclear Energy.
Week No.14	Biomass as source of energy
Week No.15	Environmental Impact of Renewable Energy
Week No.16	Final exam

5- Teaching and Learning Methods

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

6-Teaching and Learning Methods for Students with Special Needs

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

Academic Support:

- The general academic advisor appoints an academic supervisor for handicapped students.
- Continuous follow ups are made for handicapped students after each assessment to evaluate their academic level of achievement

7- Student Assessment

a-Procedures used	1-Written Examinations to assess The Intended Learning Outcomes. 2-Class Activities (Reports, Discussions, ------) to assess The Intellectual Skills.	
b- Schedule:	Assessment 1 Assessment 2 Assessment 3 Assessment 4	7th Week Assessment 12th Week Assessment Continuous Assessments 16th Week Final Written Exam
c- Weighing of Assessment	7th Week Evaluation 12th Week Evaluation Final-term Examination Oral Examination Practical Examination Semester Work Total	30 % 20 % 40 % 00 % 00 % 10 % 100%

8- List of References:

a- Course Notes	N/A
b- Required Books (Textbooks)	• Lecture notes
c- Recommended Books	•
d- Periodicals, Web Sites, etc.	N/A

Course coordinator: **Program Manager:**