



# Course Specification

— (Bachelor)

<b>Course Title:</b> Natural respurces
<b>Course Code:</b> PHYS1206
<b>Program:</b> Bachelor of Science in Physics
<b>Department:</b> Physics
<b>College:</b> Faculty of Sciences
<b>Institution:</b> University of Tabuk
<b>Version:</b> TP-153- 01
<b>Last Revision Date:</b> 03/2025



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## A. General information about the course:

### 1. Course Identification

#### 1. Credit hours:

3

#### 2. Course type

A.	<input type="checkbox"/> University	* College	<input checked="" type="checkbox"/> Department	<input type="checkbox"/> Track	<input type="checkbox"/> Others
B.	<input checked="" type="checkbox"/> Required		<input type="checkbox"/> Elective		

#### 3. Level/year at which this course is offered:

(Level 5/3rd. Year)

#### 4. Course general Description:

This course explores advanced topics in natural resources, including the principles of resource flow, ecosystem balance, sustainability metrics, and conservation laws governing natural stocks. It then covers land, water, and energy resource dynamics, focusing on spatial distribution, temporal variability, environmental interactions, and system behavior under natural and human influences. Additional topics include resource mapping and assessment techniques, remote sensing applications, watershed modeling, biomass estimation, and evaluation of mineral and energy potentials. The course also addresses resource valuation, environmental impact analysis, ecological footprint assessment, and strategies for sustainable extraction and utilization.

#### 5. Pre-requirements for this course (if any):

PHYS 1101

#### 6. Co-requirements for this course (if any):

None

#### 7. Course Main Objective(s):

- The objective of this course is to introduce students to the fundamentals of natural resource management and to develop their ability to assess, conserve, and utilize natural resources sustainably using scientific, analytical, and policy-based approaches.

### 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> <li>• Traditional classroom</li> <li>• E-learning</li> </ul>		





No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning		
5	Other-(specify)		

### 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
<b>Total</b>		45

### B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and understanding</b>			
1.1	Explain fundamental laws, principles, and theorems of advanced natural sources physics.	<b>K1</b>	Lecture Discussion Problem-Solving Self-education	Written Exams Discussion
1.2	Demonstrate the knowledge that advanced natural resource principles influence technological developments and impact modern society.	<b>K2</b>	Discussion Laboratory Self-education	Written Exams Discussion Laboratory Report
<b>2.0</b>	<b>Skills</b>			
2.1	Apply the integrated methods of characterizing natural resource properties with proper tools.	<b>S1</b>	Lecture Discussion Problem-Solving	Written Exams Assignments Discussion
2.3	Organize the tools in the natural resources physics	<b>S3</b>	Lecture Discussion Self-education	Written Exams Laboratory Report





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	field and the related report		Laboratory	
<b>3.0</b>	<b>Values, autonomy, and responsibility</b>			
3.1	Commitment to positive interaction and teamwork in natural source physics, and engaging responsibly as an active citizen	V1	Discussion Laboratory	Report
3.2	Demonstrate the ability to manage academic and professional development, make independent decisions, oversee disciplinary tasks, collaborate in diverse teams, and contribute to the physics field and community	V2	Discussion Problem-Solving	Project/Report

### C. Course Content

No	List of Topics- Theoretical	Contact Hours
1	introduction	3
2	Energy Natural resource	3
3	Metallic resources	3
4	Nonmetallic resources	3
5	Water resources	3
6	Fluid motion rules	3
7	Nuclear resource	3
8	nuclear radaition law	3
9	Wind energy resources	3
10	Wind energy laws	3
11	Solar cell resources	3
12	Hydrogen energy resources	3
13	Hydroenergy resources	3
14	Geothermal resourcea	3
15	Geothermal law	3
<b>Total</b>		<b>45</b>





## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm Exam 1	7	20%
2.	report	9	20%
3.	Quiz	1-15	10%
4.	Assignment + Discussion	1-15	10%
5.	Final Exam	16-17	40%

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## E. Learning Resources and Facilities

### 1. References and Learning Resources

<b>Essential References</b>	<b>Barry C. Field &amp; Martha K. Field – <i>Environmental Economics: An Introduction</i></b> – Core text for understanding economic principles behind natural resource use and sustainability.
<b>Supportive References</b>	<b><i>Encyclopedia of Natural Resources: Land, Water, and Air</i></b> – A detailed reference for resource types, processes, and management strategies.
<b>Electronic Materials</b>	
<b>Other Learning Materials</b>	JoVE through Saudi Digital Library:

### 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> <li>Adequate classrooms with well-equipped facilities for power presentations and whiteboards.</li> </ul>
<b>Technology equipment</b> (projector, smart board, software)	<ul style="list-style-type: none"> <li>projector, computer, and internet connection.</li> </ul>
<b>Other equipment</b> (depending on the nature of the specialty)	<ul style="list-style-type: none"> <li>None</li> </ul>

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
<ul style="list-style-type: none"> <li>Effectiveness of teaching and assessment</li> </ul>	Student, Faculty	Direct (Course Report) Indirect (Surveys)
<ul style="list-style-type: none"> <li>learning outcomes</li> </ul>	Faculty	Direct ( CLO Program included in Course Report)





Assessment Areas/Issues	Assessor	Assessment Methods
<ul style="list-style-type: none"> <li>Quality of learning resources</li> </ul>	Student, Faculty	Direct (Peer reviews) Indirect (Surveys)
Other		

**Assessors** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

### G. Specification Approval

<b>COUNCIL /COMMITTEE</b>	<b>PHYSICS DEPARTMENT COUNCIL</b>
<b>REFERENCE NO.</b>	<b>COUNCIL (18) – SUBJECT (1)</b>
<b>DATE</b>	<b>1/03/2025</b>

