



# Course Specification

## (Bachelor)

Course Title: **Selected Topics in Applied Physics (1)**

Course Code: **PHY 1471**

Program: **Bachelor of Science in Physics.**

Department: **Physics**

College: **Science**

Institution: **Imam Mohammad Ibn Saud Islamic University**

Version: **4**

Last Revision Date: **26/09/2024**

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## A. General information about the course:

### 1. Course Identification

1. Credit hours: ( 3 )

#### 2. Course type

A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others  
B. ☐ Required ☒ Elective

3. Level/year at which this course is offered: (Level 7/ Year 4)

#### 4. Course General Description:

The feature of this course will be determined according to local national or international economic developments, significant recent research in the field, technological changes affecting skill requirements, employment demand, government policies on higher education or on matters affecting the fields for which students are being prepared, national or international developments in professional practice in the field.

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

Atomic Physics, PHY 1362

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

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

Selected Topics in Physics (STP) will highlight a specific topic in physics, which will be selected by the Department council. The STP course will feature rapidly developing current trends in the selected research area or, from a specific viewpoint, topics of interest in applied physics and its related inter-disciplines. A decision of the selected areas planned for future issues will be decided in the Department of Physics by the Department Council.

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

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	15/week	100%





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

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

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	0
3.	Field	0
4.	Tutorial	30
5.	Others (specify)	0
Total		60

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Apply of the fundamental principles to particular areas.	K1, K2	<ul style="list-style-type: none"> <li>Lectures.</li> <li>Tutorials.</li> <li>Class discussions.</li> </ul>	<ul style="list-style-type: none"> <li>Exams.</li> <li>Participation.</li> <li>Discussions.</li> </ul>
1.2	Select of subjects which students' study in greater depth, learning of current developments at the frontiers of the subject.	K1, K2	<ul style="list-style-type: none"> <li>Lectures.</li> <li>Tutorials.</li> <li>Class discussions.</li> </ul>	<ul style="list-style-type: none"> <li>Exams.</li> <li>Homework.</li> <li>Quizzes.</li> </ul>
1.3	Outline knowledge of the principles of operations to particular areas.	K1, K2	<ul style="list-style-type: none"> <li>Lectures.</li> <li>Class discussions.</li> <li>Tutorials.</li> </ul>	<ul style="list-style-type: none"> <li>Participation.</li> <li>Exams.</li> <li>Discussions.</li> <li>Homework.</li> </ul>
1.4	Knowledge and skills in advanced mathematics and its application in physics.	K1, K2	<ul style="list-style-type: none"> <li>Lectures.</li> <li>Class discussions.</li> <li>Tutorials.</li> </ul>	<ul style="list-style-type: none"> <li>Participation.</li> <li>Exams.</li> <li>Discussions.</li> <li>Homework.</li> </ul>
2.0	Skills			





Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.1	Explain and summarize the basic knowledge gained from studying the course.	S1, S2	<ul style="list-style-type: none"> <li>Lectures.</li> <li>Class discussions.</li> <li>Tutorials.</li> </ul>	<ul style="list-style-type: none"> <li>Exams.</li> <li>Discussions.</li> <li>Participation.</li> </ul>
2.2	Develop the students ability to solve and analyze problems in physics related the topics covered by the course.	S2, S3	<ul style="list-style-type: none"> <li>Problem classes and group tutorial.</li> <li>Homework assignments as well as problems solutions.</li> </ul>	<ul style="list-style-type: none"> <li>Exams.</li> <li>Discussions.</li> <li>Homework.</li> </ul>
2.3	Communicate in a clear and concise manner orally, and using IT for acquiring and analyzing information.	S4, S5	<ul style="list-style-type: none"> <li>Lectures.</li> <li>Class discussions.</li> <li>Tutorials.</li> <li>Encourage students to use electronic mail and internal network for submitting homework and assignments.</li> <li>Use digital library.</li> </ul>	<ul style="list-style-type: none"> <li>Exams.</li> <li>Participation and activities of students in the course community and blackboard.</li> <li>Homework.</li> </ul>
3.0	Values, autonomy, and responsibility.			
3.1	Show the collaboration and inter-professionalism in class discussions or team works, as well as solve problems independently.	V1, V2, V3	<ul style="list-style-type: none"> <li>Small team tasks</li> <li>Open discussion at classroom.</li> <li>Office hours.</li> </ul>	<ul style="list-style-type: none"> <li>Participation.</li> <li>Homework.</li> <li>Mini-project(s).</li> </ul>

### C. Course Content

No	List of Topics	Contact Hours
	Depending of the selected subject	
Total		60

### D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Class Activities (class quizzes, homework, solving problems, etc.....)	weekly	10 %
2.	Midterm Exam 1	6 <sup>th</sup> week	25 %
4.	Midterm Exam 2	12 <sup>th</sup> week	25 %
5.	Final Exam	16 <sup>th</sup> week	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

Essential References	
Supportive References	
Electronic Materials	<a href="https://units.imamu.edu.sa/colleges/en/science/Pages/default.aspx">https://units.imamu.edu.sa/colleges/en/science/Pages/default.aspx</a>
Other Learning Materials	Laboratory Manual supplied by the Department of Physics. Laboratory Manual is available at the website of the Department of Physics.

### 2. Required Facilities and equipment

Items	Resources
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	- Classrooms. - Labs.
<b>Technology equipment</b> (projector, smart board, software)	- Classroom equipped with a whiteboard and a projector.
<b>Other equipment</b> (depending on the nature of the specialty)	

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	- Students - Second examiner	- Indirect (The students complete the evaluation forms at the end of term. Final exam is evaluated by the second examiner)
Effectiveness of Students assessment	- Instructors	- Direct (exams, HW, project, ...)
Quality of learning resources	- Faculty - Students	- Indirect (surveys)
The extent to which CLOs have been achieved	- Instructors - Program Leaders	- Direct (excel sheet)
Other		

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

**Assessment Methods** (Direct, Indirect)





### G. Specification Approval

COUNCIL /COMMITTEE	Quality Unit-Physics Department
REFERENCE NO.	Department council No. 06
DATE	26/09/2024

