



Course Specification

(Bachelor)

Course Title: **Graduation Project**

Course Code: **PHYS 491**

Program: **GENERAL PHYSICS**

Department: **PHYSICS DEPARTMENT**

College: **SCIENCE**

Institution: **KAU**

Version: **1**

Last Revision Date: **15 January 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: (7)

4. Course general Description:

This course aims at giving the students an opportunity to perform a research project within their specific interest of any field in physics under faculty supervision. Students will learn how to plan, conduct, and report the findings of their research project. This will include formulating a research question, designing an experiment or programming, collecting data, and analyzing it to reach a scientific conclusion. At the end of the course, the students will present a written report and a poster of their project on the poster day organized by the faculty.

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

PHYS 390 (Training)

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

7. Course Main Objective(s):

The main objectives of the course are that students will be able to:

- 1- Identify a problem and formulate the objectives.
- 2- Perform a literature review and develop a research proposal.
- 3- Execute the project/experiment, analyze data, and interpret results.
- 4- Present the project's findings in different forms including the scientific poster and report.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%





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

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	15
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

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

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Utilize physics knowledge to solve a scientific problem	K.3	- Lecturing - Group discussion	Research proposal (Rubric) Report (Rubric)
2.0	Skills			
2.1	Design an experiment or program for a specific goal	S.3	- Lecturing - Brainstorming - Searching databases - Group discussion	Research Proposal (Rubric) Report (Rubric)





Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Answer research questions by conducting an experiment, collecting data, analyzing data, and interpreting graphs.	S.2	<ul style="list-style-type: none"> - Conduct an experiment or run a program. - Collecting data - Group discussion 	Report (Rubric)
2.3	Communicate research findings clearly in various forms.	S1	<ul style="list-style-type: none"> - Lecturing - Group discussion 	Poster (External examiner)
2.4	Comprehend Ethical responsibilities and academic integrity in different situations.	S4	<ul style="list-style-type: none"> - Lecturing - Group discussions where ethical scenarios are presented, and students are asked to discuss and reason through these scenarios. - Group discussions on error analysis and credibility of results. - Establishing a shared folder in a referencing management system to correctly cite references. 	Research Proposal (Rubric) Report (Rubric)
3.0	Values, autonomy, and responsibility			
3.1	Participate effectively in teamwork to perform a wide range of tasks.	V1	Continuous feedback	Observation and continuous assessment (Rubric).

C. Course Content

No	List of Topics	Contact Hours
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1.	Searching scientific databases	1
2.	How to read a research paper	1
3.	Referencing	1
4.	Ethics awareness and academic integrity	1
5.	Research methodology (experiment design/programming)	10
6.	Research Proposal design	1
6.	Conducting experiments or running calculations and collecting data	20
7.	Analyzing data and graphing	8
8.	How to write a research report	1
9.	How to prepare a poster	1
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Research proposal	6	20%
2.	Poster	15	20%
3.	Research report	16	30%
4.	Continuous assessment	Three times during the semester	30 %

*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	Depending on the project's nature
Supportive References	
Electronic Materials	Scientific databases
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom, laboratories, and computer labs



Items	Resources
Technology equipment (projector, smart board, software)	Projector and software
Other equipment (depending on the nature of the specialty)	Depending on the project's nature

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Peer review	Indirect
Quality of learning resources	Students and Staff	
The extent to which CLOs have been achieved	Staff	direct
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Department council 14 th
REFERENCE NO.	6
DATE	24-1-2024