هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Principles of Scientific Research in Physics**
Course Code:	**PHYS26495**
Program:	**Physics**
Department:	**Physics**
College:	**Science**
Institution:	**University of Bisha**
Version:	**3**
Last Revision Date:	25 July 2023

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:	2

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

3. Level/year at which this course is offered:	7th Level / 4th year

4. Course general Description

The course will cover several topics in research design, literature review, scientific writing, scientific presentation, critical scientific review, data types, data collection techniques, quantitative methods, qualitative methods, data analyses and ethical issues.

5. Pre-requirements for this course:

NA

6. Co- requirements for this course:

NA

7. Course Main Objective(s)

Recognize the fundamental of scientific research.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	2	100%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	

5.	Others (specify)	
	Total	30

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recognizing the formulation of research plan and research hypotheses.	K.2	Lectures Self-learning	Written test Reports Homework Quizzes
1.2	Describing the sources of information in scientific research, Research methods, Samples and research tools.	K.2		
1.3	Describing the statistics used in scientific research, Applied side in scientific research and Ethical issues in scientific research.	K.2		
2.0	Skills			
2.1	Writing concise scientific research.	S.4	Self-learning Presentation	Reports Presentation
3.0	Values, autonomy, and responsibility			
3.1	Apply academic and professional ethical values effectively and efficiently.	V.1	Lectures Self-learning	Written test Reports

C. Course Content

No	List of Topics	Contact Hours
1.	- Introduction to scientific research (concept-functions characteristics) - Preparation of the scientific research plan (the problem of research - sources of obtaining the problem).	3
2.	- Literatures review and previous studies - Research hypotheses (formulation of hypotheses - types of hypotheses - test hypotheses)	3
3.	- Sources of information in scientific research and documentation.	3
4.	- Research methods (historical-descriptive-empirical)	3
5.	- Samples in scientific research (selection - types - methods)	3
6.	- Scientific research tools (tests - observation- interview)	3
7.	- Scientific research report (the method used - discussion - writing method)	3

8.	- Descriptive statistics used in scientific research.	3
9.	- Applied side in scientific research.	3
10.	- Ethical issues in scientific research.	3
Total		30

Table: The matrix of consistency between the content and the learning outcomes of the course.

	Course Learning Outcomes				
	1.1	1.2	1.3	2.1	3.1
Topic 1	✓			✓	✓
Topic 2	✓			✓	✓
Topic 3		✓		✓	✓
Topic 4		✓		✓	✓
Topic 5		✓		✓	✓
Topic 6		✓		✓	✓
Topic 7			✓	✓	✓
Topic 8			✓	✓	✓
Topic 9			✓	✓	✓
Topic 10			✓	✓	✓

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework, quizzes, reports, and presentation.	1: 15	10 %
2.	First term exam	7: 8	20 %
3.	Second term exam	12:13	20 %
4.	Final exam	End of Semester	50 %

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	- Graham Basten. Introduction to scientific research projects. Ventus publishing ApS (2010).
Supportive References	- Margaret Cargill and Patrick O'Connor. Writing Scientific Research Articles Strategy and Steps. A John Wiley & Sons, Ltd., Publication (2009).
Electronic Materials	- Blackboard. - PowerPoint presentations.

	- Digital library of University of Bisha https://ub.deepknowledge.io/Bisha
Other Learning Materials	NA

2. Required Facilities and equipment

Items	Resources
facilities	Classrooms, Physics lab.
Technology equipment	Data show or smart board.
Other equipment	NA

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Extent of achievement of course learning outcomes.	Teachers, students.	Direct (Final exams), Indirect (Questionnaire).
Effectiveness of teaching.	Teachers, students.	Indirect (Questionnaire)
Effectiveness of assessment.	Teachers, students.	Indirect (Questionnaire)
Quality of learning resources	Teachers, students.	Indirect (Questionnaire)
Quality of facilities available	Teachers, students.	Indirect (Questionnaire)
Fairness of evaluation	Peer reviewer.	Direct (Final exams reevaluation).

G. Specification Approval Data

COUNCIL /COMMITTEE	College of Science Council
REFERENCE NO.	20
DATE	**17 August 2023**