هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

# Course Specification

| | |
|---|---|
| Course Title: General Physics (1) (فيزياء عامة) | |
| Course Code: PHYS 110 | |
| Program: (Cross-Listed Course) | |
| - Civil Engineering Program<br>- Electrical Engineering Program<br>- Renewable Energy Program | - Architecture Program<br>- Interior Design Program<br>- Cybersecurity Program |
| Department: (Cross-Listed Course) | |
| - Civil Engineering Department<br>- Electrical Engineering Department | - Architecture Department<br>- Cybersecurity Department |
| College: College of Engineering and Information Technology | |
| Institution: Onaizah Private Colleges | |
| Version: Second Version | |
| Last Revision Date: 2023-04-06 | |

# Table of Contents:

# A. General information about the course:

| Course Identification | |
|---|---|
| 1. Credit hours: | 2 Credit Hours |
| 2. Course type<br>a. University ☐ College ☒ Department ☒ Track ☐ Others ☐<br>b. Required ☒ Elective ☐ | |
| 3. Level/year at which this course is offered: | First Level / First Year |
| 4. Course general Description<br>This course helps pre- engineering students to understand the basic facts, principles, theories and methods of general physics. | |
| 5. Pre-requirements for this course (if any):<br>None | |
| 6. Co- requirements for this course (if any):<br>None | |
| 7. Course Main Objective(s)<br>The main objectives of this course are to Identify principles of classical Physics, (fundamental physics concept interim of SI unties, Snell law for light Prorogation through different medium, refraction of light problems heat transfer theorem). | |

## 1. Teaching mode

| No. | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| 1 | Traditional classroom | 45 | 100% |
| 2 | E-learning | | |
| 3 | Hybrid<br>• Traditional classroom<br>• E-learning | | |
| 4 | Distance learning | | |

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

| No. | Activity | Contact Hours |
|---|---|---|
| 1 | Lectures | 30 |
| 2 | Laboratory/Studio | |
| 3 | Field | |
| 4 | Tutorial | 15 |
| 5 | Others (specify) | |
| **Total** | | **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 |
|---|---|---|---|---|
| 1.0 | Knowledge and understanding | | | |
| PHYS 110.C LO.K.1 | Identify fundamental physics concept in term of SI unties in order use them in Engineering applications | K.1(الأمن برنامج السيبرانى Cybersecurity) | Primary: Lecture<br>Additional: Tutorial | Formative: Quiz (Online or F2F)<br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.K.2 | Identify fundamental physics concept in term of SI unties in order use them in Engineering applications | K.1(الهندسة برنامج المدنية Civil Engineering) | Primary: Lecture<br>Additional: Tutorial | Formative: Quiz (Online or F2F)<br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.K.3 | Identify fundamental physics concept in term of SI unties in order use them in Engineering applications | K.1(العمارة برنامج Architecture) | Primary: Lecture<br>Additional: Tutorial | Formative: Quiz (Online or F2F)<br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.K.4 | Identify fundamental physics concept in term of SI unties in order use them in Engineering applications | K.1(الهندسة برنامج الكهربائية Electrical Engineering) | Primary: Lecture<br>Additional: Tutorial | Formative: Quiz (Online or F2F)<br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.K.5 | Identify Fundamental physics concept in term of SI unties | K.1(هندسة برنامج المتجددة الطاقة Renewable Energy) | Primary: Lecture<br>Additional: Tutorial | Formative: Quiz (Online or F2F) |

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|---|---|---|---|---|
| | in order use them in Engineering applications | | | Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.K.6 | Discuss Snell law for light Prorogation through different medium | K.2(التصميم برنامج الداخلى Interior Design) | Primary: Lecture<br>Additional: Discussion (or similar active learning strategies \ F2F or Online) | Formative: Homework<br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.K.7 | Discuss Snell law for light Prorogation through different medium | K.3(هندسة برنامج المتجددة الطاقة Renewable Energy) | Primary: Group Work (competitive or cooperative / Online or F2F)<br>Additional: Discussion (or similar active learning strategies \ F2F or Online) | Formative: Quiz (Online or F2F)<br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| **2.0** | **Skills** | | | |
| PHYS 110.C LO.S.1 | Solve refraction of light problems using refraction law | S.1(التصميم برنامج الداخلى Interior Design) | Primary: Interactive Lecture \ Demonstration<br>Additional: Group Work (competitive or cooperative / Online or F2F) | Formative: Presentation (Individual or Group) (Rubric)<br>Summative: Short Reports (Individual or Group) (Rubric) |
| PHYS 110.C LO.S.2 | Analyze heat transfer theorem | S.3(الهندسة برنامج المدنية Civil Engineering) | Primary: Interactive Lecture \ Demonstration | Formative: Research |

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|---|---|---|---|---|
| | using mathematic equations | | Additional: Discussion (or similar active learning strategies) | Assessment (Rubric)<br><br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| PHYS 110.C LO.S.3 | Solve refraction of light problems using refraction law | S.2(العمارة برنامج Architecture) | Primary: Interactive Lecture \ Demonstration<br><br>Additional: Group Work (competitive or cooperative / Online or F2F) | Formative: Presentation (Individual or Group) (Rubric)<br><br>Summative: Short Reports (Individual or Group) (Rubric) |
| PHYS 110.C LO.S.4 | Solve heat transfer theorem using mathematic equations | S.3(الهندسة برنامج الكهربائية Electrical Engineering) | Primary: Interactive Lecture \ Demonstration<br><br>Additional: Discussion (or similar active learning strategies) | Formative: Research Assessment (Rubric)<br><br>Summative: Written Exam (MCQ or Essay / F2F or Online) |
| **3.0** | **Values, Autonomy, and Responsibility** | | | |
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## C. Course Content

| No. | List of Topics | Contact Hours |
|---|---|---|
| 1 | Measurements. | 3 |
| 2 | A Physics Toolkit Mathematics and Physics. | 3 |
| 3 | Representing Motion Section. | 3 |
| 4 | Accelerated Motion (Acceleration). | 3 |
| 5 | Motion with Constant Acceleration. | 3 |
| 6 | Forces in 1-Dimension Section (Force and Motion). | 3 |
| 7 | Forces in 1-Dimension Weight & Drag Force Newton's Third Law. | 3 |
| 8 | Heat (Model of Heat). | 3 |
| 9 | Fundamentals of Light Reflection and Mirrors Illumination Plane Mirrors. | 3 |
| 10 | Spherical Mirrors and Law of Mirror. | 3 |
| 11 | Concave and convex mirror. | 3 |
| 12 | Refraction and Lenses Refraction of Light Applications of Lenses. | 3 |
| 13 | Vibrations and Waves Periodic Motion. | 3 |
| 14 | States of Matter Properties of Fluids Forces within Liquids. | 3 |
| 15 | Revision. | 3 |
| **Total** | | **45** |

## D. Students Assessment Activities

| No. | Assessment Activities* | Assessment Timing (in Week No.) | Percentage of Total Assessment Score |
|---|---|---|---|
| 1 | Quiz (Online or F2F) | 6th - 15th | 10% |
| 2 | Research Assessment (Rubric) | 13th | 5% |
| 3 | Presentation (Individual or Group) (Rubric) | 14th | 3% |
| 4 | Short Reports (Individual or Group) (Rubric) | 13th | 2% |
| 5 | Written Exam (MCQ or Essay / F2F or Online) | 9th - 16th | 70% |
| 6 | Homework | 4th - 14th | 10% |
| | | | 100% |

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

# E. Learning Resources and Facilities

## 1. References and Learning Resources

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|---|---|
| **Essential References** | - Raymond A. Serway. Physics for Scientists and Engineers. 10th Edition 2019. |
| **Supportive References** | - David Halliday, Robert Resnick, Jearl Walker. Fundamentals of Physics, Extended, 11th Edition 2018. |
| **Electronic Materials** | - https://elearn.oc.edu.sa |
| **Other Learning Materials** | None. |

## 2. Required Facilities and Equipment

| Items | Resources |
|---|---|
| **Facilities** (Classrooms, Laboratories, Exhibition Rooms, Simulation Rooms, etc.) | Lecture Room (5x6 m) supported with at least 25 seats. if the lectures in colleges. No laboratories are needed for this course. |
| **Technology Equipment** (Projector, Smart Board, Software) | Projector, Smart Board, Software. |
| **Other Equipment** (Depending on the nature of the specialty) | None. |

## F. Assessment of Course Quality

| Assessment Areas/Issues | Assessor | Assessment Methods |
|---|---|---|
| Effectiveness of teaching | Peer Reviewer | Direct (peer classroom observation according to the approved Rubric) |
| Effectiveness of students' assessment | Faculty/Instructor | Direct (analysis of CLOs assessment results and grade distributions) |
| Quality of learning resources | Students | Indirect (course evaluation survey) |
| The extent to which CLOs have been achieved | Faculty/Instructor | Direct (CLOs assessment and analysis of results according to CLOs targets) |
| | Students | Indirect (Students through course evaluation survey) |
| Commitment to learning and teaching strategies and assessment methods included in the program and course specifications | Peer Reviewer | Direct (Peer- classroom observation according to the approved Rubric in OC-QMS) |
| | Department Chair through Students Focus Groups | Indirect (Chair – survey questions to a focus group of students according to OC QMS) |
| Action Plan Continuity (Closing the Loop) | QAC (Quality Assurance Committee) | Direct (periodic review of course reports and submitting comments to course instructor/coordinator) |
| Instructor's Support to Students | Students | Indirect (course evaluation survey) |

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

## G. Specification Approval Data

| | |
|---|---|
| **COUNCIL /COMMITTEE** | Civil Engineering Department Council |
| **REFERENCE NO.** | 11 |
| **DATE** | 2023-05-23 |

Learning outcomes of this course, as well as CLOs/Teaching Strategies/Assessment Methods matrix have been evaluated and reviewed by multiple QC parties according to QC-QMS. You can access results of these final reviews by scanning the QR code on the right, which contains a link to the reviews on QC-E-QMS.

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