



Course Specifications

| | |
|----------------------|-----------------------------------|
| Course Title: | Physics 1 |
| Course Code: | PHY 123 |
| Program: | Basic Science |
| Department: | Basic Science |
| College: | Computer and information Sciences |
| Institution: | Majmaah University |



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A. Course Identification

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|--|
| 1. Credit hours: 3(2,2,0) |
| 2. Course type |
| a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/> |
| b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/> |
| 3. Level/year at which this course is offered: Level 2 |
| 4. Pre-requisites for this course (if any): Nil |
| 5. Co-requisites for this course (if any): Nil |

6. Mode of Instruction (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|----|-----------------------|---------------|------------|
| 1 | Traditional classroom | 40 | 100% |
| 2 | Blended | | |
| 3 | E-learning | | |
| 4 | Distance learning | | |
| 5 | Other | | |

7. Contact Hours (based on academic semester)

| No | Activity | Contact Hours |
|----|-------------------|---------------|
| 1 | Lecture | 20 |
| 2 | Laboratory/Studio | 20 |
| 3 | Tutorial | |
| 4 | Others (specify) | |
| | Total | 40 |

B. Course Objectives and Learning Outcomes

1. Course Description

This course is introducing the following topics: Introduction, Measurement, Estimating, The Motion in one and two dimensions. Vectors, Newton's laws of motion, Circular motion, Gravitation, work and energy, the linear momentum and collisions, Rotational motion. Static equilibrium, condition of equilibrium, elasticity, Hooke's law, Young's modulus, stress and strain, shear stress. Simple Harmonic Motion.

2. Course Main Objective

- Provides sensible preparation for areas of engineering, including computer science.
- Provides a broad foundation in basic principles of computer science and engineering.
- The program has a strong emphasis on mechanics and its application.
- Able to interpret physical problems into mathematical form.

3. Course Learning Outcomes

| CLOs | | Aligned PLOs |
|----------|--|--------------|
| 1 | Knowledge and Understanding | |
| 1.1 | | |
| 1.2 | | |
| 1.3 | | |
| 1.4 | | |
| 2 | Skills : | |
| 2.1 | CLO1-Gain knowledge of the basic concepts and principles of Physics, which is relevant to their further studies. | S5 |
| 2.2 | CLO2- Student can understand the concepts and principles of mechanics through lectures and assessment tools. | S5 |
| 2.3 | CLO3- Student can able to analyse the physical problem and learn to express mathematical equations. | S5 |
| 2.4 | CLO4- Able to apply basic principles of Physics in solving problems in a structured process. | S5 |
| 3 | Values: | |
| 3.1 | | |
| 3.2 | | |
| 3.3 | | |
| 3.4 | | |

C. Course Content

| No | List of Topics | Contact Hours |
|--------------|--|---------------|
| 1 | Introduction, Measurement, Estimating, Vectors | 4 |
| 2 | Motion in One Dimension | 4 |
| 3 | Motion In Two Dimension | 4 |
| 4 | Newton's laws of motion | 4 |
| 5 | Circular Motion | 4 |
| 6 | Gravitation | 4 |
| 7 | Work and energy | 4 |
| 8 | linear momentum and collisions | 4 |
| 9 | Rotational motion | 4 |
| 10 | Static Equilibrium and elasticity, SHM | 4 |
| Total | | 40 |

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------------|--|--------------------------------|--------------------------------------|
| 1.0 | Knowledge and Understanding | | |
| 1.1 | | | |
| 1.2 | | | |
| 1.3 | | | |
| 1.4 | | | |
| 2.0 | Skills | | |
| 2.1 | CLO1-Gain knowledge of the basic concepts and principles of Physics, which is relevant to their further studies. | Classroom Teaching, Laboratory | Quiz, Mid Exam, Lab exam, Final Exam |
| 2.2 | CLO2- Student can understand the concepts and principles of mechanics through lectures and assessment tools. | Classroom Teaching | Assignment, Mid Exam, Final Exam |
| 2.3 | CLO3- Student can able to analyze the physical problem and learn to express mathematical equations. | Classroom Teaching | Assignment, Mid Exam, Final Exam |
| 2.4 | CLO4- Able to apply basic principles of Physics in solving problems in a structured process. | Classroom Teaching | Quiz, Mid Exam, Final Exam |
| 3.0 | Values | | |
| 3.1 | | | |
| 3.2 | | | |
| 3.3 | | | |
| 3.4 | | | |

2. Assessment Tasks for Students

| # | Assessment task* | Week Due | Percentage of Total Assessment Score |
|---|-----------------------|-----------------------|--------------------------------------|
| 1 | Assignments | During the term | 10% |
| 2 | Midterm | During the term | 20% |
| 3 | Quiz | 6 th week | 10% |
| 4 | LAB CONDUCTION | 10 th week | 20% |
| 5 | Final Exam | 12 th week | 40% |
| 6 | Total | | 100% |

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Students can meet the faculty during advising hours or whenever the faculty is in the office.

Office Hours: 4 Hours/Week

F. Learning Resources and Facilities

1. Learning Resources

| | |
|---------------------------------------|---|
| Required Textbooks | TextBook: 1. Physics: Principles with Applications, Global Edition, Douglas C. Giancoli, Pearson New International Edition, 2016. 2. Physics for Scientists and Engineers with Modern Physics by Jewett and Serway, 9th Edition, Thomson Brooks/Cole 2013. |
| Essential References Materials | a) Richard P. Feynman, Robert B. Leighton and Matthew Sands, the Feynman Lectures on Physics, 1st Edition (New Millennium Edition). b) Engineering Physics, Gaur and Gupta, Chand Publishers |
| Electronic Materials | www.engr.wisc.edu/ep/ engphys.mcmaster.ca www.engphys.ubc.ca/ |
| Other Learning Materials | <ul style="list-style-type: none"> • Computer-based experiments. • Professional standards (Models) Robotic application |

2. Facilities Required

| Item | Resources |
|--|--|
| Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) | Classroom and lab are required as per the recommendation of University. |
| Technology Resources (AV, data show, Smart Board, software, etc.) | Enough facilities are present (Such as projector, Video conferencing machine) |
| Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | Enough laboratory equipment required |

G. Course Quality Evaluation

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|----------------------------|---------------------|-----------------------|
| Final Exam Evaluation | Peers | Verification of Marks |
| Course Report Verification | Quality Coordinator | Check List |
| | | |
| | | |
| | | |

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

H. Specification Approval Data

| | |
|----------------------------|--|
| Council / Committee | |
| Reference No. | |
| Date | |