The University of Jordan
Accreditation & Quality Assurance Center

Course Syllabus

Course Name:
<table>
<thead>
<tr>
<th></th>
<th>Course title</th>
<th>General Physics for Medical Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Course number</td>
<td>0342105</td>
</tr>
<tr>
<td>3</td>
<td>Credit hours (theory, practical)</td>
<td>(3, 0)</td>
</tr>
<tr>
<td></td>
<td>Contact hours (theory, practical)</td>
<td>(48, 0)</td>
</tr>
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<td>4</td>
<td>Prerequisites/corequisites</td>
<td>None</td>
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<tr>
<td>5</td>
<td>Program title</td>
<td>Service course to a Doctor in Medicine (M.D)</td>
</tr>
<tr>
<td>6</td>
<td>Program code</td>
<td>05</td>
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<tr>
<td>7</td>
<td>Awarding institution</td>
<td>University of Jordan</td>
</tr>
<tr>
<td>8</td>
<td>Faculty</td>
<td>Sciences</td>
</tr>
<tr>
<td>9</td>
<td>Department</td>
<td>Physics</td>
</tr>
<tr>
<td>10</td>
<td>Level of course</td>
<td>101</td>
</tr>
<tr>
<td>11</td>
<td>Year of study and semester (s)</td>
<td>First, First Semester</td>
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<tr>
<td>12</td>
<td>Final Qualification</td>
<td></td>
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<td>13</td>
<td>Other department(s) involved in</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>teaching the course</td>
<td></td>
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<tr>
<td>14</td>
<td>Language of Instruction</td>
<td>English</td>
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<tr>
<td>15</td>
<td>Date of production/revision</td>
<td>Revision: 2017-01-08</td>
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</tbody>
</table>

**16. Course Coordinator:**

Office numbers, office hours, phone numbers, and email addresses should be listed.

Dr. Ahmad Masadeh, Office: 12 Physics Building, ahmad.masadeh@ju.edu.jo; Phone Ext. 22065
Office hours: Sundays: 11 – 12, Mondays: 11-12, Wednesdays 11:00 – 12:00

**17. Other instructors:**

Dr. Rami Ali, Office: 216 Physics Building, ramimaliA@ju.edu.jo, Phone Ext. 22051
Office hours: Any time the lecturer is available in the office of international relations.

Dr. Mahmoud Alhussein: 308 Physics Building, m.alhussein@ju.edu.jo, Phone Ext. 22053
Office hours: Mondays 2 – 3, Tuesdays 12 – 1; Thursdays 12 – 1.

Dr. Mahmoud Jaghoub, Office: 311 Physics Building, mjaghoub@ju.edu.jo; Phone Ext. 22051
Office hours: Sundays: 11 – 12, Mondays: 12:30 – 2:00, Wednesdays 9:30 – 11:00

Dr. Yahya Al-Ramadin: 307 Physics Building y.ramadin@ju.edu.jo, Phone Ext. 22052
Office hours: Mondays 10 – 11, Tuesdays 12 – 1; Wednesdays 11:30 – 12:30.

**18. Course Description:**
As stated in the approved study plan.

Velocity and acceleration; Newton's laws of motion; static equilibrium; work and energy; temperature and behavior of gases; the first law of thermodynamics; thermal properties of matter; mechanics of non-viscous fluids; mirrors; lenses: the human eye; radioactivity; interaction of radiation with matter; radiation units; harmful effects of radiation; applications of radiation in medicine.

19. Course aims and outcomes:

A- Aims:
- Provide the students with a clear and logical presentation of the basic concepts and principles of physics that are relevant to their field of study.
- Strengthen an understanding of the concepts and principles through a broad range of the interesting applications to the real world.
- Applications of physics in medicine are particularly highlighted and presented in a simple and interesting manner.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...

Understand simple vector analysis and apply it to one-dimensional motion, Newton's laws of motion.
Demonstrate knowledge of energy (kinetic & potential) and its relation to work.
Be able to calculate the power output of individuals.
Statics (conditions for static equilibrium)
Rotational motion (torque)
Understand the work of levers in the human body.
Determine the forces (tensions) exerted by the body muscles.
Understand the physical meaning of heat, temperature and the ideal gas law and apply all this to solve problems related to the medical field.
Understand basic principles of fluid dynamics and relate it to the flow of blood in the arteries and veins.
Define ionizing nuclear radiation.
Understand radiation units and assess dangers due to radiation exposure.
Determine the dose equivalent upon exposure to a given radiation type.

20. Topic Outline and Schedule:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Week</th>
<th>Instructor</th>
<th>Achieved ILOs</th>
<th>Evaluation Methods</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinematics in One Dimension, Vectors</td>
<td>1 &amp; 2</td>
<td>All lecturers</td>
<td>Understand simple vector analysis and apply it to one</td>
<td></td>
<td></td>
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<tr>
<td>Dimensional Motion</td>
<td>Dynamics: Newton's Laws</td>
<td>1. 3 &amp; 4</td>
<td>Understand Newton's laws and solve related problems</td>
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<tr>
<td></td>
<td>Work and Energy, Power</td>
<td>5 &amp; 6</td>
<td>Understand the relation between work and energy, and determine the power output.</td>
<td>First Exam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotational motion, Static Equilibrium</td>
<td>7 &amp; 8</td>
<td>Demonstrate knowledge of the body levers and their functions.</td>
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<tr>
<td>Fluids</td>
<td>9 &amp; 10</td>
<td></td>
<td></td>
<td>Second Exam</td>
<td></td>
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<tr>
<td>Temperature and Kinetic Theory</td>
<td>11 &amp; 12</td>
<td></td>
<td>Differentiate between energy, heat and temperature, and apply the ideal gas law</td>
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<tr>
<td>Nuclear Physics and effects of radiation</td>
<td>13 &amp; 14 and 15</td>
<td></td>
<td>Understand the meaning of ionizing, know radiation units and asses radiation damage</td>
<td>Final Exam</td>
<td></td>
</tr>
</tbody>
</table>

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:
1) Face to Face lecturing.
2) Problem solving.
3) Presentation of demonstrations using a laptop and an LCD.

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:
1) Exams.
2) Discussions during lectures.
3) Discussing answers of students to basic conceptual ideas as they come up in the lectures.
4) Discussing students answers to some suggested problems.
23. **Course Policies:**

A- Attendance policies: Absence for more than 5% of the lectures results in disbarring the student from the course.

B- Absences from exams and handing in assignments on time: According to the regulations of the University.

C- Health and safety procedures: According to the regulations of the University.

D- Honesty policy regarding cheating, plagiarism, misbehavior: According to the regulations of the University.

E- Grading policy: First Exam 20%, Second Exam 30%, Final Exam 50%.

F- Available university services that support achievement in the course.

24. **Required equipment:**

Whiteboard, laptop, LCD.

25. **References:**

A- Required book(s), assigned reading and audio-visuals:


B- Recommended books, materials, and media:

College Physics, C. Vuille, R. Serway and J. Faughn

26. **Additional information:**
Name of Course Coordinator: Prof. Ahmad Masadeh  Signature: ------------------------ Date: 08/01/2017

Head of curriculum committee/Department: ------------------ Signature: -------------------------------

Head of Department: ------------------- Signature: -------------------------------

Head of curriculum committee/Faculty: ------------------ Signature: -------------------------------

Dean: ------------------------------- Signature: -------------------------------

Copy to:
Head of Department
Assistant Dean for Quality Assurance
Course File