**Course No. : Phys 111**

1. Lecturer name: Norah H Al Onizan
2. The course content (Phys 111)

**References**: Physics for Scientists and Engineers with Modern Physics Fourth edition Raymond A. Serway Saunders College Publishing ISBN 0-03-015654-8

( There is also Arabic reference book)

1. The course content are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Week | **Chapter** | Lesson | Reports on **problem solving** |
| **Electricity** | 2 | **Chapter 23** | 23.1, 23.3, 23.4, 23.6 | problems 7, 9(a), 13, 21 and 40 |
| 3 | **Chapter 25** | 25.1, 25.2 | problems 1, 2, 7 and 8 |
| 3, 4 | **Chapter 26** | 26.1, 26.2, 26.3, 26.4, 26.5 | problems 2, 7, 9, 16, 27 and 31 |
| 5, 6 | **Chapter 27** | 27.1, 27.2, 27.3, 27.4, 27.6 | Problems 1,11-13, 22, 25, 29 and 36 |
| 6 | **Chapter 28** | 28.1, 28.2, 28.3 | problems 1, 5, 6, 9, 20 and 21 |
| **Light** | 7 | **Chapter 35** | 35.1, 35.4, 35.5, 35.7, 35.8 | problems 12, 14, 17, 36 and 38 |
| 8 | **Chapter 36** | 36.1, 36.2, 36.3, 36.4, 36.8, 36.9 | problems 7, 9, 11, 32, 51, 53 |
| **Modern Physics** | 9 | **Chapter 40** | 40.1, 40.2 | problems 5,14 |
| 9, 10 | **Chapter 42** | 42.1,42.2, 42.3, 42.4, 42.8 | problems 7, 8, 41 |
| 11, 12 | **Chapter 44** | 44.1, 44.2, 44.4  44.5, 44.6, 44.7 | problems 7, 8, 14, 25, 33, 49 |
| 12 | **Chapter 45** | 45.1, 45.2, 45.4 | problems 2, 6 |

1. **Quizzes**: one quiz by the end of each chapter.
2. **schedule of exams**

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment | Assessment task (eg. essay, test,  group project, examination etc.) | Week due | Proportion of Final Assessment |
| 1 | Exam I | 6 | 10% |
| 2 | Exam II | 12 | 10% |
| 3 | Class activities( presence - quizzes) | weekly | 5% |
| 4 | laboratory |  | 25% |
| 5 | Final exam | 16 | 50% |

1. **Student skills**: IT – Communications – English language – problem solving – cognitive skills – physical skills – interpersonal skills ( see student skills in the department handbook).
2. 111فيز: فيزياء عامة (2)

عدد الساعات: 4(3+0+1)

المتجهات وتحليل القوى، قانون كولوم ، المجال والجهد الكهربائي حركة شحنة نقطية في مجال كهربي ، المكثفات، طاقة مكثف مشحون، التيار المستمر، قانون أوم ، المقاومة ودرجة الحرارة، الطاقة والقدرة الكهربائية، قاعدة كيرشوف، تيار الشحن والتفريغ لمكثف، قانونا اإلنعكاس ، المرايا وأنواعها ، إنكسار الضوء ، العدسات وأنواعها، قوانين االنعكاس واالنكسار، المنشور. االنعكاس الكلي الداخلي والزاوية الحرجة، العدسات، العدسات المركبة، المجهر البسيط والمركب. مقدمة في نظرية الكم, ظواهر إشعاع الجسم األسود ، األثر الكهروضوئي، األشعة السينية. خواص النواة, التحلل اإلشعاعي، قانون التحلل اإلشعاعي ، التفاعالت النووية، النشاط اإلشعاعي .

1. PHYS 111: General Physics II

4(3+0+1)

- Vectors and forces analysis, Electric forces, field and potential. motion of charged particle in electric field, Capacitance, Energy of charged capacitor, Direct current (DC), Ohm’s law, Resistance and temperature, energy and power, Kirchhoff's rules, Current in charged Capacitor. - Reflection and refraction of light: reflection and refraction laws, refraction by plane-parallel plate, Prism, total internal reflection and the critical angle. - Introduction to quantum theory, Black Body radiation, Photoelectric effect, X-Rays, Nuclear Decay, Decay Law, Nuclear reactions, Radioactivity

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