



Department of Basic and Applied Science
Smart Village Campus

BA114

Physics II

Fall 2013

Course Outline

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| Co-ordinator: | Dr. Sherif El-Sharkawy | | | | | | | | | | |
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| Office: | | | | | | | | | | | |
| Off. Hrs: | | | | | | | | | | | |
| Objective: | <ul style="list-style-type: none">• The course gives the student the essential back ground in electricity, magnetism, and light, and to make him able to think critically.• Write technical reports, and interpret experimental results.• At the end of this course the student should be able to extend his knowledge over the required background, to think logically and analyze any problem. | | | | | | | | | | |
| Text: | Applied Thermodynamics for Engineering Technologists, 5 th edition, T.D. Eastop, A. Mcconkey | | | | | | | | | | |
| Grading: | <p><u>Evaluating system</u></p> <table><tr><td>1- 7th Week Exam</td><td>30 marks</td></tr><tr><td>2- 12th Week Exam</td><td>20 marks</td></tr><tr><td>3- Lab</td><td>10 marks</td></tr><tr><td>4- Final Exam</td><td>40 marks</td></tr><tr><td>Total</td><td>100 marks</td></tr></table> | 1- 7 th Week Exam | 30 marks | 2- 12 th Week Exam | 20 marks | 3- Lab | 10 marks | 4- Final Exam | 40 marks | Total | 100 marks |
| 1- 7 th Week Exam | 30 marks | | | | | | | | | | |
| 2- 12 th Week Exam | 20 marks | | | | | | | | | | |
| 3- Lab | 10 marks | | | | | | | | | | |
| 4- Final Exam | 40 marks | | | | | | | | | | |
| Total | 100 marks | | | | | | | | | | |
| Lab Experiments | <ol style="list-style-type: none">1. Measurement of the velocity of sound by resonance in air column2. Measurement of the frequency (AC) mains by sonometer (Mild experiment)3. Measurement of specific heat capacity of metal by the method of mixtures4. Calibration of thermocouple5. Measurement of the electrical equivalent of heat6. Measurement of the thermal conductivity of a bad conductor by lee's disc method7. Verification of Boyle's law | | | | | | | | | | |

| Week | | E V E N T | |
|------|-----------------------|---|---|
| 1 | Sep. 22 nd | Lecture | Introduction |
| | | Tutorial | |
| 2 | Sep. 29 th | Lecture | Chapter (1) – Introduction <ul style="list-style-type: none"> Heat, work, and the system Units of pressure, temperature, volume and energy Reversible work with applications 1.3, 1.6 |
| | | Tutorial | 1.2, 1.5 |
| | | H.W. | 1.1 (i,iii,iv) |
| 3 | Oct. 6 th | Lecture | Chapter (1) – The first law of thermodynamics <ul style="list-style-type: none"> The non-flow energy equation 1.9 |
| | | Tutorial | 1.8, 1.10 |
| | | H.W. | 1.7 |
| | Oct.13 th | Holiday | Al-Adha Feast |
| 4 | Oct. 20 th | Lecture | Chapter (2) – The working fluid <ul style="list-style-type: none"> Steam: Wet, Dry and Superheated 2.3 |
| | | Tutorial | 2.4 |
| | | H.W. | 2.2 |
| 5 | Oct.27 th | Lecture | Chapter (2) – The working fluid <ul style="list-style-type: none"> Perfect gas: Properties of perfect gas 2.8, 2.9 |
| | | Tutorial | 2.10, 2.12 + Quiz No. 1 (5 marks) |
| | | H.W. | 2.7, 2.11 |
| 6 | Nov. 3 rd | Lecture | Chapter (3) – Reversible and irreversible processes <ul style="list-style-type: none"> Steam: 3.6 |
| | | Tutorial | 3.2 |
| | | H.W. | 3.4 |
| 7 | Nov.10 th | Seventh (7th) Week Exam (25 marks) | |
| 8 | Nov.17 th | Lecture | Chapter (3) – Reversible and irreversible processes <ul style="list-style-type: none"> Perfect gas: 3.3, 3.9, 3.11 |
| | | Tutorial | 3.7, 3.10, 3.13 |
| | | H.W. | 3.1, 3.5, 3.8, 3.12 |
| 9 | Nov.24 th | Lecture | Chapter (4) – The second law of thermodynamics <ul style="list-style-type: none"> Entropy T-s diagram Problems: 4.2, 4.5, 4.13 |
| | | Tutorial | 4.4, 4.7, 4.10 |
| | | H.W. | 4.1, 4.3, 4.6, 4.8, 4.9, 4.12 |
| 10 | Dec. 1 st | Lecture | Chapter (4) – The second law of thermodynamics <ul style="list-style-type: none"> Reversible processes on T-s diagram |
| | | Tutorial | Selected Problems from the cycle problems sheet |
| | | H.W. | Selected Problems from the cycle problems sheet |
| 11 | Dec. 8 th | Lecture | Chapter (1) – The first law of thermodynamics <ul style="list-style-type: none"> The steady flow equation 1.14 |
| | | Tutorial | 1.11, 1.12, 1.13+ Quiz No. 2 (5 marks) |
| | | H.W. | Selected Problems from the past exams |
| 12 | Dec. 15 th | Twelfth (12th) Week Exam (15 marks) | |
| 13 | Dec. 22 nd | Lecture | Chapter (16) – Heat transfer <ul style="list-style-type: none"> Conduction, Convection and radiation The composite wall and the electrical analogy Applications |
| | | Tutorial | 16.1, 16.2 |
| | | H.W. | 16.3 + Selected Problems from the past exams |
| 14 | Dec. 29 th | Revision | |
| 15 | Jan.5 th | Revision + Solving Past Exams | |
| 16 | Jan. 12 th | Final Exam | |

Good Luck