

| Department of Mechanical Engineering | | | |
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| Thermodynamics II (67329) | | | |
| Total Credits | | 3 | |
| major compulsory | | | |
| Prerequisites | | P1 : Thermodynamics I (67220) OR Thermodynamics I (67312) | |
| Course Contents | | | |
| Vapor and air-standard power and refrigeration cycles. Thermodynamic relations, and Psychrometry. Ideal and real mixtures and solutions. Chemical reactions and combustion. | | | |
| Intended Learning Outcomes (ILO's) | | Student Outcomes (SO's) | Contribution |
| 1 | An ability to demonstrate a basic understanding of power and refrigeration cycles and apply first and second law of Thermodynamics to power and refrigeration cycles. | E | 40 % |
| 2 | An ability to demonstrate a basic understanding of Psychrometry and cooling towers and Utilize psychrometric chart to represent different AC processes and obtain Thermodynamic calculations for them. | E | 30 % |
| 3 | An ability to demonstrate a basic understanding of fuels and combustion and apply first of Thermodynamics to fuel combustion. | E | 30 % |
| Textbook and/ or References | | | |
| Textbook: 1. G. J. Vanwylen, R. E. Sonntag and C. B. Rgnakke, "Fundamental of classical Thermodynamics", John Wiley & Sons, 2004. References: 2. M. C. potter & E. P. Sott, Thermal Sciences, 4th Edition. John Wiley & Sons 2000. 3. H. C. Van Nerss, Understanding thermodynamics, 4th edition. John Wiley & Sons 1998. 4. M. J. Moran & H. N. Shapiro Fundamentals of Engineering Thermodynamics , 4th Edition. 2000. 5. Y. A. Cengel & M. A. Boles, Thermodynamics, 5Th Edition 2000. 6. R. E. Sonntag & C. Borgnakke, Introduction to Engineering Thermodynamics , 3rd 2001. | | | |
| Assessment Criteria | | Percent (%) | |
| First Exam | | 20 % | |
| Second Exam | | 20 % | |
| Quizzes | | 15 % | |
| Final Exam | | 45 % | |
| Course Plan | | | |
| Week | Topic | | |
| 1 | Review the first and second law of thermodynamics | | |
| 2 to 6 | Power and refrigeration systems | | |
| 7 | First Exam | | |
| 8 to 12 | Gas mixtures and Psychrometry | | |
| 13 | Second Exam | | |
| 14-15 | Chemical reactions and combustion process | | |
| 16 | Final Exam | | |