

# MIE1241 - ENERGY MANAGEMENT - FALL 2020

Prof. Joaquin E. Moran, PhD., P.Eng.

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**Hours:** Monday 3 pm to 5 pm (Online)

**TA:** Muhammad Khan (mshahzeb.khan@mail.utoronto.ca)

Contents	Week	Date
Introduction to Energy Usage	1	Sep. 14
Concepts of Energy Management	2	Sep. 21
Fundamentals of Thermodynamics, Fluid Mechanics and Heat Transfer	3 (A1)	Sep. 28
Economic Analysis and life-cycle costs	4	Oct. 5
****Thanksgiving (no class)	5	Oct. 12
Energy Bills and Rates	6 (A2)	Oct. 19
Energy Audits	7	Oct. 26
Energy Management Opportunities in Lighting	8	Nov. 2
Energy Management Opportunities in HVAC	9 (A3)	Nov. 9
Energy Management in Buildings (LEED)	10	Nov. 16
Transportation Systems	11 (A4)	Nov. 23
Final Project Presentations - Session 1	12	Nov. 30
Final Project Presentations - Session 2	13	Dec. 7

Tentative Mark Composition:

- Assignments/Quizzes 60%
- Course Project 40%

Recommended Bibliography

1. **B.L. Capehart, W.C. Turner, and W.J. Kennedy, Guide to Energy Management, 8th Edition, The Fairmont Press, 2016.**
2. F. Kreith and D.Y. Goswami, Energy Efficiency and Renewable Energy Handbook, CRC Press, 2018.
3. Y. Cengel and A. Ghajar, Heat and Mass Transfer: Fundamentals and Applications, 5th Edition, McGraw-Hill, 2015.
4. Y. Cengel and M. Boles, Thermodynamics: An Engineering Approach, 9th Ed., McGraw-Hill, 2018.
5. ASHRAE Handbook Fundamentals, American Society of Heating Refrigerating and Air-Conditioning Engineers

## Tentative Assignments

1. Basic Energy Concepts (15%)
2. Energy Bills and Rates (15%)
3. Lighting (15%)
4. HVAC (15%)

## Additional Notes

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation, and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor. For questions about recording and use of videos in which you appear, please contact your instructor.