

THREE RIVERS COMMUNITY COLLEGE  
COURSE OUTLINE Spring 2014  
CRN-10289 M 9:00 - 10:40a D-126  
Robert Lantz (rlantz@trcc.comnet.edu)

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Course Number/Title: MEC K274 Heat Transfer

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Lecture 2 hrs      Laboratory 0 hrs      Credit 2 hrs      Contact 2 hrs

Course Description: This course will include one and two dimension flow, principles of convection, conduction, and radiation. Steady state conditions will be investigated.

Method / Grading: Lecture attendance, homework submitted, and (2) in-class tests will provide basic grade. Students with disabilities should consult with instructor.

Digication Requirement: All students are required to maintain an online learning portfolio in Digication that uses the college template.

Text: Heat Transfer, Holman, 10<sup>th</sup> Edition, McGraw Hill

Prerequisites: PHY-K115;MAT-K254;MEC-K272 Co-Requisites: MEC-K275

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COURSE TOPICS/CONTENT

	HOURS
1. STEADY STATE CONDUCTION	5
2. STEADY STATE FREE CONVECTION	5
3. STEADY STATE FORCED CONVECTION	4
4. BOILING	4
5. CONDENSATION	4
6. RADIATION	4
7. OVERALL HEAT TRANSFER AND APPLICATION	4
TOTAL HOURS	30

Date: Jan 22, 2014

Prepared By: Robert Lantz

Program Coordinator: Patrick Knowles

Department Chairperson: Patrick Knowles

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Objectives

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The objective of this course is to demonstrate and calculate the principles of Heat Transfer. The basic laws of Heat Transfer include:

- 1) Always from High Temperature to Low Temperature
- 2) Flows into or out of matter
- 3) Includes Convection
- 4) Includes Conduction
- 5) Includes Radiation
- 6) It is a Transient Energy

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Measurable Outcomes

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Upon completion of this course the student will be able to predict and calculate:

- 1) Heat Transfer analogy to Electrical Current Flow
- 2) The Resistance of Conduction to Heat Flow
- 3) The Resistance of Convection to Heat Flow
- 4) The Resistance of Radiation to Heat Flow
- 5) The parameters of Convection such as Coefficient of Convection
- 6) Reynolds Number, Nusselt Number, Coefficient of Conduction
- 7) The Radiation concept of Radiosity.