

**Northampton Community College
Bethlehem, Pennsylvania
Community Education**

Course Title: Fundamentals of Industrial Process Heating	Department: ETAC
Course Number: ETAC 0018	CEUs: 1.6
Contact Hours: Lecture <u> 16 </u> + Lab: <u> 0 </u> = Total <u> 16 </u>	
Reference. Resource or learning materials: IHEA Fundamentals; Industrial Furnaces, 6 th Edition; North American Manufacturing Combustion Handbook, Volumes I and II, 3 rd Edition	
Maximum Enrollment: <u> 25 </u>	Prerequisite: NA
<p>Course Description: Provides and overview of the fundamentals of combustion fuels, burners and control basics, and heat transfer in both combustion and electric furnaces. Students will gain a basic understanding of heat transfer principles, fuels and combustion equipment, electric heating, and instrumentation and control for efficient operation of furnaces and ovens in process heating.</p>	
<p>Learning Outcomes: Students successfully completing this course will be able to: 1, Develop and understanding of the principles of combustion Demonstrate a working knowledge of burners used in industrial process heating equipment Understand how materials are heated in industrial applications Perform heat balance and thermal efficiency calculations Develop an understanding of the basic principles of heat transfer Develop an understanding of furnace and oven design and operation Understand the applications and principles of electric process heating</p>	
<p>Topics or Learning Activities: Week 1: Combustion fundamentals and Fuels Week 2: Combustion Equipment for Gaseous and Liquid Fuels Week 3: Elements of Heat Transmission Week 4: Advanced Heat Transfer Principles Week 5: Heat Balance Efficiency Calculations Week 6: Fundamentals of Electrical Heating</p>	
<p>Evaluation:</p>	

<p>Workforce Development Objective: Students who successfully complete this course will be equipped to work in environments involving Industrial Process Heating</p>

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Preparation Date: February 2006

Review Date:

Date of Initial Offering: June 5, 2006-July 17, 2006

Approvals:

Director:

Signature

Date

Dean:

Signature

Date