

Syllabus for EUT-3020

GAS COMBUSTION

COURSE DESCRIPTION

Gas Combustion provides students with the fundamental concepts of gas combustion. Topics covered include: properties and general characteristics of gases; combustion of gas; design and operation of gas burners; burner orifices; venting; and troubleshooting burner problems.

COURSE OBJECTIVES

After completing this course, you should be able to:

- CO 1** Identify properties and chemical structure of the various component gases of natural gas.
- CO 2** Describe the principles of combustion and the causes and remedies for incomplete combustion.
- CO 3** Describe the safety issues associated with incomplete combustion and carbon monoxide.
- CO 4** Describe the principles of burner operation.
- CO 5** Determine inputs of burners and how to make proper adjustments.
- CO 6** Explain the operation and types of burner orifices.
- CO 7** Describe the principles of appliance venting.
- CO 8** Use tables in the NFPA-54 Code Book to size orifices for a given input.

COURSE MATERIALS

You will need the following materials to complete your coursework. Some course materials may be free, open source, or available from other providers. You can access free or open-source materials by clicking the links provided below or in the module details documents. To purchase course materials, please visit the [University's textbook supplier](#).

Required Textbooks

- *Fundamentals of Gas Combustion: Combined Manual and Workbook*, 3rd ed., by American Gas Association (2001).
- *National Fuel Gas Code (NFPA 54)*, by American Gas Association (2006).

COURSE STRUCTURE

Gas Combustion is a three-credit online course, consisting of **six** modules. Modules include learning objectives, study materials, and activities. Module titles are listed below.

- **Module 1: Properties and General Characteristics of Gases**
- **Module 2: Combustion of Gas**
- **Module 3: Design and Operation of Gas Burners**
- **Module 4: Burner Orifices**
- **Module 5: Venting**
- **Module 6: Burner Problems**

ASSESSMENT METHODS

For your formal work in the course, you are required to participate in six graded class discussions, complete six written assignments, take two quizzes, and take two proctored examinations—a midterm and a final. See below for more details.

Consult the Course Calendar for assignment due dates.

Promoting Originality

One or more of your course activities may utilize a tool designed to promote original work and evaluate your submissions for plagiarism. More information about this tool is available in [this document](#).

Discussion Forums

In addition to an ungraded "Introductions" forum in module 1, Gas Combustion requires you to participate in **six** graded online discussion forums.

Communication with the mentor and among fellow students is a critical component of online learning. Participation in online discussions involves two distinct assignments: an initial response to a posted question and subsequent comments on classmates' responses.

You will be evaluated both on the quality of your responses (i.e., your understanding of readings and concepts as demonstrated by well-articulated, critical thinking) and quantity of your participation (i.e., the number of times you participate meaningfully in the assigned forums). Responses and comments should be properly proofread and edited, professional, and respectful.

Meaningful participation in online discussions is relevant to the content, adds value, and advances the discussion. Comments such as "I agree" and "ditto" are not considered value-adding participation. Therefore, when you agree or disagree with a classmate, the reading, or your mentor, state **and support** your agreement or disagreement.

For posting guidelines and help with discussion forums, please see the Student Handbook located within the General Information page of the course Web site.

Written Assignments

The **six** written assignments consist mostly of end-of-chapter review questions from the textbook. Each written assignment also includes several essay questions.

Prepare your written assignments using whatever word processing program you have on your computer. Include your name at the top of the paper, as well as the course name and code and the semester and year in which you are enrolled.

Before submitting your first assignment, check with your mentor to determine whether your word processing software is compatible with your mentor's software. If so, you can submit your work as you prepared it. If not, save your assignment as a rich-text (.rtf) file, using the Save As command of your software program. Rich text retains basic formatting and can be read by any other word processing program.

For help regarding preparing and submitting assignments, see the Student Handbook located within the General Information page of the course Web site.

Examinations

This course requires you to take two quizzes, a proctored online midterm examination and a proctored online final examination.

Quizzes

There will be two graded quizzes. The quizzes should be taken after you complete the reading assignments and online discussion for each module. There will be twenty-five (25) true-or-false and multiple choice questions on each of the quizzes, each worth 4 points. Quiz 1 covers modules 1 and 2; Quiz 2 modules 4 and 5.

Quizzes in this course can be entered and taken only once, so do not click a quiz link until you are ready to take the quiz, and don't quit the quiz until you have answered all the questions. The quiz will not allow you to return at a later time.

You are required to take **two** proctored online examinations: a midterm exam and a final exam. Both exams require that you use the University's [Online Proctor Service](#) (OPS). Please refer to the "Examinations and Proctors" section of the Online Student Handbook (see [Student Handbooks](#) in the General Information area of the course website) for further information about scheduling and taking online exams and for all exam policies and procedures. You are strongly advised to schedule your exam within the first week of the semester.

Midterm Examination

The proctored midterm exam covers all material assigned in modules 1, 2, and 3 and is two hours long. The exam consists of true-or-false and multiple-choice questions like those in the written assignments. You are allowed to use the NFPA 54 Code Book, but NOT the *Fundamentals of Gas Combustion* textbook or any notes.

Note: You are permitted to use a calculator (scientific, graphing, or financial) but **may not** use a calculator on a phone, PDA, or any similar device.

Final Examination

The final is a closed-book, proctored online exam. It is two hours long and covers all material assigned in modules 4, 5, and 6 of the course. The final consists of true-and-false questions and multiple-choice questions only. You are allowed to use the NFPA 54 Code Book, but NOT the *Fundamentals of Gas Combustion* textbook or any notes.

Note: You are permitted to use a calculator (scientific, graphing, or financial) but **may not** use a calculator on a phone, PDA, or any similar device.

Online exams are administered through the course Web site. Consult the Course Calendar for the official dates of exam weeks.

Statement about Cheating

You are on your honor not to cheat during an exam. Cheating means:

- Looking up any answer or part of an answer in an unauthorized textbook or on the Internet, or using any other source to find an answer.
- Copying and pasting or, in any way copying responses or parts of responses from any other source into your exams. This includes but is not limited to copying and pasting from other documents or spreadsheets, whether written by yourself or anyone else.
- Plagiarizing answers.
- Asking anyone else to assist you by whatever means available while you take an exam.
- Copying any part of an exam to share with other students.
- Telling your mentor that you need another attempt at an exam because your connection to the Internet was interrupted when that is not true.

If there is evidence that you have cheated or plagiarized in an exam, the exam will be declared invalid, and you will fail the course.

GRADING AND EVALUATION

Your grade in the course will be determined as follows:

- **Online discussions (6)**—12 percent
- **Written assignments (6)**—18 percent
- **Quizzes (2)**—20 percent
- **Midterm exam (proctored online, modules 1–3)**—25 percent
- **Final exam (proctored online, modules 4–6)**—25 percent

All activities will receive a numerical grade of 0–100. You will receive a score of 0 for any work not submitted. Your final grade in the course will be a letter grade. Letter grade equivalents for numerical grades are as follows:

A	= 93–100	C+	= 78–79
A–	= 90–92	C	= 73–77
B+	= 88–89	C–	= 70–72
B	= 83–87	D	= 60–69
B–	= 80–82	F	= Below 60

To receive credit for the course, you must earn a letter grade of C or better (for an area of study course) or D or better (for a course not in your area of study), based on the weighted average of all assigned course work (e.g., exams, assignments, discussion postings, etc.).

STRATEGIES FOR SUCCESS

First Steps to Success

To succeed in this course, take the following first steps:

- Read carefully the entire Syllabus, making sure that all aspects of the course are clear to you and that you have all the materials required for the course.
- Take the time to read the entire Online Student Handbook. The Handbook answers many questions about how to proceed through the course, how to schedule exams, and how to get the most from your educational experience at Thomas Edison State University.
- Arrange to take your examination(s) by following the instructions in this Syllabus and the Online Student Handbook.
- Familiarize yourself with the learning management systems environment—how to navigate it and what the various course areas contain. If you know what to expect as you navigate the course, you can better pace yourself and complete the work on time.
- If you are not familiar with Web-based learning be sure to review the processes for posting responses online and submitting assignments before class begins.

Study Tips

Consider the following study tips for success:

- To stay on track throughout the course, begin each week by consulting the Course Calendar. The Calendar provides an overview of the course and indicates due dates for submitting assignments, posting discussions, and scheduling and taking examinations.
- Check Announcements regularly for new course information.

Using AI Ethically: A Guide for TESU Students

TESU's [Academic Code of Conduct](#) permits student AI use in support of their writing and research process—not as a replacement for original writing. Document AI use with an acknowledgment statement at the end of each assignment, noting the tools and prompts used. Cite any AI-generated content on the References page. Please review [Using AI Ethically: A Guide for TESU Students](#) for more detailed information.

COMMITMENT TO DIVERSITY, EQUITY, AND INCLUSION

Thomas Edison State University recognizes, values, and relies upon the diversity of our community. We strive to provide equitable, inclusive learning experiences that embrace our students' backgrounds, identities, experiences, abilities, and expertise.

ACCESSIBILITY AND ACCOMMODATIONS

Thomas Edison State University adheres to the Americans with Disabilities Act (ADA, 1990; ADAAA, 2008) and Section 504 of the Rehabilitation Act of 1973. The Office of Student Accessibility Services (OSAS) oversees requests for academic accommodations related to disabilities; a student who is pregnant, postpartum, or a student parenting a newborn who is not the birth parent [as covered under NJSA18A]; and students requesting academic accommodation for a short-term/temporary illness and/or injury. Information can be found on the [Office of Student Accessibility Services](#) webpage and questions can be sent to ADA@tesu.edu.

ACADEMIC POLICIES

To ensure success in all your academic endeavors and coursework at Thomas Edison State University, familiarize yourself with all administrative and academic policies including those related to academic integrity, course late submissions, course extensions, and grading policies.

For more, see:

- [University-wide policies](#)
- [Undergraduate academic policies](#)
- [Undergraduate course policies](#)
- [Graduate academic policies](#)
- [Graduate course policies](#)
- [Nursing student policies](#)
- [Nursing graduate student policies](#)
- [International student policies](#)
- [Academic code of conduct](#)