

**Nashville State Community College**  
**School of**  
**Science, Technology, Engineering, and Mathematics**  
**Architectural Design Technology**  
**Course Syllabus Template**

**ARCT 2430 Building Environmental Systems**

The purpose of the syllabus is to tell you how the course is organized, what the expectations are, and how you will be graded. In addition, there is important information about how the college will operate during severe weather and how the college will communicate with you. The syllabus is not a contract. Instead, it is meant to help you succeed in this course. If any of the content changes during the semester, you will be notified.

**Course information:**

**Course Title:** ARCT 2430 Building Environmental Systems

**Credits:** 3

Class Hours: 2 class hours, 2 lab hours

**Course Description:**

ARCT 2430 explores the principles of electrical power distribution and control, lighting, plumbing, heat loss/gain, HVAC systems and Green Building practices.

**Prerequisite:** ARCT 1200 Residential Design and Construction

**Instructor Information:**

**Name:**

**Email:**

**Office Phone:**

**Office Location:**

**Office Hours:**

**Instructor Zoom Room link:**

**Class Session Zoom Link Information (if virtual):**

**Required Textbook(s) & Other Materials:**

**Textbook(s):** Design of Mechanical and Electrical Systems in Buildings, Trost, Frederick; Pearson, New Jersey

**ISBN:** 0-13-097235-5

**Access Code:** *(if applicable; delete line if not applicable)*

**Reference Materials:**

**Supplies:** USB Removable Storage Device (Flash Drive) 8 Gig Minimum size for Homework

Once you have registered for your courses, you should make sure you have the correct textbook and materials for each course. Before courses begin, you can do this by looking up your courses on the [bookstore's website](#) using your A# or by entering your course information. If you are registered with the Access Center and need an alternate format for the textbook and other course materials, please contact the Access Center at 615-353-3363, or [accesscenter@nsc.edu](mailto:accesscenter@nsc.edu).

**Digital Course Materials:** These ensure you pay less for your course materials and have easy access through D2L throughout the semester. When you registered for this course, the charge for these materials appeared on your account. If you decide you do not want to purchase the course materials embedded in NS Online, you can opt out of the program **until the end of the second week of classes**. If you opt out, you will be responsible for purchasing the required course materials on your own. For more information, please visit [www.nsc.edu/dcm](http://www.nsc.edu/dcm).

**Honors Option:** Honors credit is available in some classes. If you are interested in participating in the Honors Program, please see your instructor within the first four weeks of class.

**Course Outcomes:** At the end of the semester, this is what you should know and/or be able to do:

1. *Calculate heat lose/gain to determine requirements for mechanical systems.* (PLO 4) (ARCT PLO 1, 2)
2. *Design plumbing components.* (PLO 1) (ARCT PLO 1, 2)
3. *Understand Green Building practices.* (PLO 5) (ARCT PLO 5)
4. *Identify and use components of the AutoCAD software.* (PLO 1) (ARCT PLO 3, 5)
5. *Use drawing skills to create professional quality organized software.* (PLO 1) (ARCT PLO 3, 5)
6. *Draw and dimension basic drawings from various disciplines.* (PLO 3) (ARCT PLO 3, 5)
7. *Open and edit previously created drawings.* (PLO 1, 3) (ARCT PLO 3)
8. *Plot CAD drawings.* (PLO 3)(ARCT PLO 3)

### **Course Competencies:**

The following are detailed course competencies, or specific skills or knowledge, intended to help you achieve the course outcomes:

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The following are general education competencies intended to support the course outcomes:

- Write clear, well-organized documents.
- Know how to locate, evaluate, and use information sources.
- Prepare and deliver well-organized oral presentations.
- Apply mathematical concepts to problems and situations.
- A basic level of computer literacy of the Windows environment is expected. The student should know how to open files, save files and follow a path to a file either on a hard disk or on a removable storage device.

## Topics to Be Covered:

- Mastery of Interface and command usage
- General overview and practice of AutoCAD commands
- Beginning & intermediate techniques on how to use the commands most effectively
- Achieve a working knowledge of AutoCAD to the point of being employable

Week & Class Meetings	Lectures / Assignments Monday/Tuesday	Lectures / Assignments Wednesday/Thursday	Reading Assignments	Weekly Quizzes and Assignment Due Dates
Week 1		Intro, Lecture: History & Daylighting	Handouts Chap. 8, 9	
Week 2	Electrical Lecture: Electric & Lighting PP	Electrical Lecture: Electric & Lighting PP	Chap. 10, 11	
Week 3	Electrical Lecture: Basics, Calculations, Residential	Electrical Lect: Calculations, Commercial & Office Bldgs.	Chap. 12	Quiz due
Week 4	Electrical Revit Project: Office Electrical Plan	Electrical Revit Project: Office Electrical Plan	Chap. 1, 2	Quiz due Project due
Week 5	Lighting Lect. PP, Light Basics, Design for Spaces	Lighting Lecture: PP, Light Basics, Design for Spaces	Chap. 3, 4, 5	
Week 6	Lighting Lectures: Metrics Lamps, Photometrics	Lighting Lect: Sunlight Design Calculating Lights & Metrics	Chap. 6, 7	Quiz due
Week 7	Lighting: Revit Project: Office Lighting Plan	Lighting: Revit Project: Office Lighting Plan		Quiz due Project due
Official Spring Break		Light Craft Project for Extra Credit, Due		
Week 8	HVAC Lecture: Heating, Cooling, Air Quality PP	HVAC Lecture: Heating, Cooling, Air Quality PP	Chap. 14, 15	
Week 9	HVAC Lecture: Comfort, Heat Loss and Gain, Residence, Office	HVAC Lecture: Refrigeration Cycle, AC Systems, Equip.	Chap. 16, 17	Quiz due
Week 10	HVAC Lecture: Calculations, Controls, Air Distribution	HVAC Lecture: Solar Heating, Costs & Efficiency	Chap. 18, 19	Quiz due
Week 11	HVAC Revit Project: Office HVAC Plan	HVAC Revit Project: Office HVAC Plan	Chap. 20, 21	Quiz due Project due
Week 12	Plumbing Lecture: Water Supply & Waste, Fixtures	Plumbing Lect: Roof Water, Building Risers, Fire Water	Chap. 22, 23	Quiz due
Week 13	Plumbing Revit Project: Office Plumbing Plan	Plumbing Revit Project: Office Plumbing Plan	Chap. 24, 25, 26	Quiz due Project due
Week 14	Finish Electrical Plan	LEED Discussion		

Week 15	Finals Week <i>(If needed)</i>			
NOTE: There will be point reductions for any late assignments.				

**Course Assessments:** We will use the following assessments to demonstrate your understanding, knowledge, and skills:

1. Students will be assessed on their ability to perform “hands on” drawing exercises evaluated on accuracy, clarity, and techniques learned in this course.
2. Students will be assessed on their retention of learned materials through written or “hands on” drawings for testing.

**Grading Scale**

3-4 Tests	20%
Homework	30%
Lab	19%
Final Exam	31%
Total	100%

**Grading Policy:**

If you cannot take a test when scheduled, you must notify the instructor and make arrangements to take the test prior to the scheduled date. Homework not turned in on time is subject to a 25% grade reduction. Homework will not be accepted if more than one week late or after an assignment has been returned to the class, whichever comes sooner. Homework should reflect your understanding of the subject, not that of your classmates. There will be no makeup on missed labs. Make every effort to attend every lab.

**Grading Scale:**

Letter Grade	Percentage Range
A	90 – 100
B	80 - 89
C	70 - 79
D	60 - 69
F	59 and below

**FA**

If you stop attending class or if you are in an online class and stop submitting assignments, but do not turn in a withdrawal form by the deadline, you are still enrolled in class. You will be given a grade of FA, which means you have failed due to not attending class and not completing your assignments. Please refer to the current academic calendar available on the Nashville State web site, looking for the date that indicates it is the “Last Day to Earn F for Attendance (FA).” If you stop attending your course after this date, you will receive an F.

*(While the above information should appear in all syllabi, faculty are encouraged to make additional statements that would clarify the policy for students and provide the applicable FA date for their section.)*

## FN

An FN is awarded if you have never attended your course or done any of the work in an online course.

### Late Work Policy & Make-up Procedures for Missed Assignments and Work:

Assignments must be turned in by the last week of classes. If turned in in a timely manner students will be allowed to correct the problems and resubmit for a better grade.

## Attendance Policy

### General Policy

- Absences in a course may affect your final grade.
- Tardiness may also affect your final grade.
- You are responsible for all work/tests that occur during any missed course session(s) regardless of reason(s) for absence.
- If you are not well enough to attend a course session (class), you must notify the instructor as soon as possible before the scheduled course time.
  - If you are unable to notify an instructor before the scheduled course time, you must contact the instructor as soon as reasonably possible.
- If you have an unavoidable conflict with a scheduled course session, you must notify the instructor before the course session.
  - If you are unable to notify an instructor before the scheduled course time, you must contact the instructor as soon as reasonably possible.

### Instructor's Policy

The attendance policy for this course is:

Students are responsible for attending class and or making up all work. The instructor must be sure that work submitted is the work of the student so all work must be submitted as a drawing file AND a paper print or .pdf file if attending online and not able to submit a paper print.

For financial aid purposes, **attendance** is measured by participation in the course. Instructors can determine your level of participation in several ways. Some of those ways are:

- continued attendance
- participation in on-ground or virtual class sessions
- participating in D2L as prompted
- responding to an instructor's email
- posting to a discussion board
- completing and submitting assignments

### Technology Statement

- All classes at the College are web enhanced. "Web enhanced" means that components of the course, such as assignments and online discussions, may be located online in the class D2L/NS Online course shell and used in the course, even if the course meets in a classroom on ground.

- You must have access to a computer and an internet connection to complete assignments, engage in online discussions, and access various course materials through D2L/NS Online course shells.
- You may also be required to use free video conferencing platforms (examples: Zoom, Teams, etc.) for course sessions and meetings.
- You will be responsible for appropriate dress while on video. This means that you are expected to dress as if you were in a classroom.
- You will be responsible for a distraction free environment while on video. This means that the professor and others in the course should not be able to hear noise in your home, such as cell phones, TVs, or barking dogs. The best way to do this is to keep yourself on “mute” until you need to speak.
- You will be responsible for making sure your background is neutral. Keep in mind that students and professors come from all around the world, and you are all a part of our community. Therefore, please avoid having images in your background that may be offensive to your classmates.
- Certain publisher materials, such as textbook figures, may not work on cellphones and may require a laptop or a tablet.
- If you have questions or concerns regarding access to a computer or internet resources, please contact your instructor. Additional information is available on the [access to internet and technology website](#).

### **Computer Labs**

Computers are available for all Nashville State students to use at each campus during open hours. Open computer lab availability may vary from campus to campus.

You should check the NSCC website for current hours of operation.

### **D2L/NS Online and myNSCC**

It is your responsibility to check your email in **both** D2L/NS Online course shells and your @my.nsc.edu ([student email](#)) on a regular basis. These are the official communication channels between the college and you. You are responsible for the information communicated through these email channels. D2L/NS Online emails contain specific course information and @my.nsc.edu emails contain important information from college offices, such as Financial Aid.

- Login to your [MyNSCC](#) to access your NSCC info and My Self Service.

### **ADA Compliance Statement**

If you need accommodations due to a disability, please do not hesitate to reach out to our Access Center. Disabilities for which you can receive accommodations include documented physical, emotional, and/or learning conditions. Nashville State is committed to supporting your success, and we encourage you to get assistance if needed. If you require accommodations for any courses in which you are enrolled, contact the Access Center at 615-353-3363, or e-mail [accesscenter@nsc.edu](mailto:accesscenter@nsc.edu).

## **Classroom Misconduct**

Disruptive conduct is not allowed in the classroom. Disruptive conduct is any behavior that prevents students from learning and interferes with the ability of the instructor to teach. This may change from course to course; therefore, your individual instructors will give you guidance on what qualifies as “disruptive conduct” in their courses. Please review the [Nashville State Student Code of Conduct policy](#). Please be aware that children are not allowed in class or to be left unattended on campus.

## **Academic Misconduct**

You have started this academic journey to prepare for a future career. Because of this, it is important that you learn the materials being presented in your courses. For this reason, cheating, in any form, robs you of your opportunity to learn and master the material that will enable you to succeed in that future career. Nashville State has a clear [Academic Misconduct Policy](#) that you are expected to follow. In addition, your instructors will clarify what Academic Misconduct looks like and the consequences for violations in each course that you take. The instructor has the authority to assign an “F” or a “zero” for such violations or for the semester grade.

*(Each instructor will outline his/her expectations for academic integrity and provide individualized information about consequences for academic misconduct.)*

## **Academic Early Alert System**

If you are not doing well in your course, your instructor may send you an Early Alert through your @my.nsc.edu email. This email will go to your academic advisor and Student Success advisor, as well. If you get an Early Alert, contact your instructor immediately. Instructors send these when they want to help you figure out how to get extra support to pass the course. An Early Alert does not mean that you have already failed the course. Rather, it means you are in danger of failing the course if you do not change your learning strategy. Please use an Early Alert to your advantage and as an opportunity to improve your grade.

## **RAVE Emergency Alert System**

You can log in to this free alert system to receive text messages about emergencies related to NSCC campuses: [Get Rave NSCC](#). The instructions for this are listed below.

- Your RAVE Username is your NSCC email address.
- If you've never received an email from RAVE with your password, or if you need to reset your password, select “Forgot your password?” and a new password will be emailed to you.
- Should the RAVE system indicate “user not found”, select Register and create your own RAVE account.

## **Student Wellness**

Your well-being is important to us. With this in mind, the college has several resources available to provide support when needed:

- [Free tutoring](#) provides assistance beyond the classroom to help you make the most of your college education.
- [These resources](#) include information on student support, student D2L resources, [NSCC email](#), scheduling, online courses, and more.

- [Services](#) that help with bus passes, food, childcare, textbooks, housing, financial counseling, personal counseling, suicide prevention, health insurance.

### **Inclement Weather & Campus Closings**

You get notices about campus closings in these places: text messages from RAVE and [www.nsc.edu](http://www.nsc.edu). Even when campuses are closed, you are still responsible for completing all assigned work. Check D2L/NS Online for a message from your instructor so you do not miss important assignments and due dates, which may change due to the campus closure.

### **Class Cancellation Policy**

Our instructors post messages about cancelling classes in the D2L/NSOnline course shells and/or on the classroom door on campus. These messages can be found in the News and Content section or the Email tab in the online shell. Please check these to be sure that you take advantage of opportunities for learning and points toward your grade.

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