

## Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

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**Semester:** Spring

**Course Prefix:** AET

**Course Title:** Industrial Electronics I

**Year:** 2025

**Course and Section #:** 2110 - 601

**Credits:** 4

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### ***Course Description***

Introduces semiconductor theory. Covers the concepts of PN junctions, transistors, voltage amplifiers, operational amplifiers, diodes, power electronics including the theory and operation of industrial solid state thyristor devices, power circuits, integrated circuits and other special semiconductor and industrial electronics. Includes lecture and demonstrations.

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### ***Course Attributes***

This course has the following attributes:

- General Education Requirements
- Global/Intercultural Graduation Requirements
- Writing Enriched Graduation Requirements
- Discipline Core Requirements in Program
- Elective Core Requirements in Program
- Open Elective

Other: *Click here to enter text.*

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### ***Instructor Information***

**Instructor Name:** John Hawker

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### ***Student Learning Outcomes***

1. Describe operation of oscilloscopes to test electrical and electronic circuits.
  2. Review n-type and p-type semiconductors and diodes.
  3. Calculate voltages and currents in transistor circuits.
  4. Analyze operational amplifiers and their associated circuits.
  5. Analyze power electronics and circuits including thyristor devices.
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### ***Course Materials and Texts***

Electronics: Principles and Applications, Charles A. Schuler 10<sup>th</sup> Edition.

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### ***Course Requirements***

#### **Course Assignments, Assessments, and Grading Policy**

- Attendance: Taken daily (20% overall grade)
- Homework: Practice concepts from chapters discussed in class (25% overall grade)

- Quizzes: Assessment given at the end of each completed chapter (25% overall grade)  
Quizzes are closed book and closed note, taken at the beginning of class following the completion of the chapter lecture and homework.
- Midterm & Final Exam (30% overall grade)  
Midterm & Final Exam are open book and open note.

A	94 – 100%	B-	80 – 82%	D+	67 – 69%
A-	90 – 93%	C+	77 – 79%	D	63 – 66%
B+	87 – 89%	C	73 – 76%	D-	60 – 62%
B	83 – 86%	C-	70 – 72%	F	0 – 59%

### **Required or Recommended Reading Assignments**

All required readings use chapters from the course text that align with the lectures below.

### **General Description of the Subject Matter of Each Lecture or Discussion**

Chapter 1 – Introduction  
 Chapter 2 – Semiconductors  
 Chapter 3 – Diodes  
 Chapter 4 – Power Supplies  
 Chapter 5 – Transistors  
 Chapter 6 – Introduction to Small-Signal Amplifiers  
 Chapter 7 – More about Small-Signal Amplifiers  
 Chapter 8 – Large-Signal Amplifiers  
 Chapter 9 – Operational Amplifiers  
 Chapter 10 – Troubleshooting  
 Chapter 11 – Oscillators  
 Chapter 12 – Communications  
 Chapter 13 – Integrated Circuits  
 Chapter 14 – Electronic Control Devices and Circuits  
 Chapter 15 – Regulated Power Supplies

### ***Required Course Syllabus Statements***

#### **Generative AI**

The use of generative AI tools (e.g. ChatGPT, Google Gemini, etc.) is permitted and encouraged to be used to help you gain a greater understanding of the material presented in this course. You may not use generative AI on direct homework questions, on quizzes, the midterm, or final exam. Employers in industry will start expecting you to have a working knowledge of generative AI.

#### **Using Remote Testing Software**

This course does not use remote testing software.

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the

student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

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## ***Required University Syllabus Statements***

### **Accommodations/Students with Disabilities**

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at [accessibilityservices@uvu.edu](mailto:accessibilityservices@uvu.edu) or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at [DHHservices@uvu.edu](mailto:DHHservices@uvu.edu)

DHH is located on the Orem Campus in BA 112.

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### **Academic Integrity**

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

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### **Equity and Title IX**

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – [TitleIX@uvu.edu](mailto:TitleIX@uvu.edu) – 800 W University Pkwy, Orem, 84058, Suite BA 203.

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### **Religious Accommodation**

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at [accessibilityservices@uvu.edu](mailto:accessibilityservices@uvu.edu). If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.