

RCET 0251 – Sys Analog and Digital Theory

6 Cr

M, T, Th, F 1:00-2:50 PM

T&T Room 333

Instructor Tim Leishman

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Office T&T Room 323

Phone 208-282-2886

Office Hours M – F, 3:00pm – 4:00pm

Books: **(Second Semester Book)**
Electronic Devices, 9th
Edition Thomas L. Floyd

Other supplies: Laptop, Notebook for theory notes

Attendance

Department attendance policy will be enforced, refer to student handbook for more information.

Course Description RCET Program Required Course

Analog circuit analysis applied to amplifiers, power supplies, op-amps, and discrete switching circuits, with an emphasis on frequency limitations of discrete components and circuitry. Introduction to actuator, motor, and transducer control circuitry. COREQ: [RCET 0253](#).

Goals

At the completion of this course, students will be able to demonstrate:

- An ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge
- An ability to identify, analyze, and solve narrowly defined engineering technology problems
- The ability to calculate and predict the outcome of a binary, octal, or hexadecimal mathematical function
- The ability to accurately create schematics, connection diagrams, block diagrams, and timing diagrams for a given circuit or system
- A commitment to quality, timeliness, and continuous improvement

Major Topics

1. Review first-year content
2. Pulse Fundamentals
3. Time Constants and Phase Shift
4. Switching Diode Characteristics
5. Transistors, amplifiers, and frequency response
6. Push-Pull Amplifiers
7. Power Amplifiers
8. Differential Amplifiers
9. Operational Amplifiers and Filters
10. Switching Transistors
11. JFET and MOSFET Transistors
12. Multivibrators and Timing Circuits
13. Linear and SMPS Fundamentals
14. Motor and Motor Control
15. Sensors
16. Digital Circuits
17. D/A and A/D Conversion

Grading

Tests	55%
(Homework/Quizzes) & Review	20% (10% + 10%)
Final Test	<u>25%</u>
Total	100%

Homework due dates/times are listed on Moodle, and will not be accepted late without 24-hour prior approval from the instructor. Missed quizzes and tests will not be made up, regardless of reason.

The RCET program is committed to providing an accessible learning environment for students with documented disabilities. If there are aspects of the instruction or design of this course that result in disability-related barriers to your participation, please contact Disability Services to engage in a confidential conversation about the process for requesting accommodations.

Students are encouraged to register with Disability Services as soon as they begin this course or in the timeliest manner possible as accommodations are not provided retroactively. More information can be found online at isu.edu/disabilityservices, or by contacting Disabilities Services at:

Disability Services - Main Office
Rendezvous Complex, Room 125
921 South 8th Avenue
Pocatello, ID 83209-8121
Stop 8121

Phone: 208-282-3599

VP for ASL: 208-417-0620

Fax: 208-282-4617

Email: disabilityservices@health.isu.edu