

**Classes:** Tuesday and Thursday 10:25 AM - 12:05 PM

**Instructor:** David M Kender

**Office:** 247 Russ Engineering Center

**Office Hours:** As posted and by appointment.

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**Course Description:** Employment of modern electronic devices and circuits as applied to instrumentation and data collection associated with biomedical applications and related fields. Topics include characteristics and applications of semiconductors, small signal amplifiers, operational amplifiers, oscillators, and multivibrators to biomedical instruments; and the fundamentals of digital logic including digital logic devices and circuits in biomedical applications. The course includes an electronic laboratory component which emphasizes a hands-on active-learning environment to provide biomedical engineering students with experience in designing, assembling, testing, and employing amplifiers, filters, digital logic circuits used for collecting and analyzing data related to biomedical engineering applications.

**Course Objectives:** This course provides biomedical engineering students with the knowledge, understanding, and ability to apply the operational use of semiconductors, diodes, field-effect transistors, bipolar junction transistors as switches in biomedical devices and as amplifiers of biomedical signals; the use of operational amplifiers in biomedical instrumentation functions; and the use digital logic devices/circuits in biomedical engineering applications.

**Course Requirements and Evaluation:** Students are expected to attend and participate in all scheduled classes. Course grades will be based on several criteria including a subjective evaluation of effort, learning, understanding as well as class participation.

**Text:** *Practical Electronics for Inventors*, 2ed Paul Scherz, McGraw Hill, 2007

**Calculators:** An electronic calculator capable of handling polar coordinates/complex number functions is highly recommended.

**Email:** Students are responsible for any course related information sent to their official Wright State University email account. It is strongly recommended you check your email at least twice a week as well as the course web page before every class.

**Reading Assignments and Homework Problems:** Homework will be assigned throughout the quarter. Students are encouraged to work collaboratively and to seek help from the instructor as needed. Reading assignments and homework problems will be used as a basis for classroom quizzes.

**Exercises:** Additional homework problems may be assigned to reinforce classroom lectures and laboratory experiences. Exercise assignments are meant to be an individual effort which will be graded and count towards your overall grade.

**Quizzes:** Unannounced quizzes will be used at the instructor's discretion. Quizzes normally cover the concepts previously discussed in class and/or the ideas that were emphasized in the homework/reading assignments. Makeup quizzes will not be available.

**Students who are absent from class will receive zero points for that quiz.**

**Tests:** Three tests (including the final exam) are scheduled. The tests will be closed-book; however, students are permitted and encouraged to use course handouts, two pages of student generated notes, and their calculators.

**Academic Integrity:** The instructor fully endorses the Wright State University policy to uphold and support standards of personal honesty and integrity for all students consistent with the goals of a community of scholars and students seeking knowledge and truth. Although collaborative learning is encouraged for studying and for solving homework problems; exercises, quizzes, and tests are to be individual effort only.

**Reasonable Accommodations Policy:** Any student with a disability that may prevent them from fully demonstrating their abilities should contact me personally as well as the **Office of Disability Services** as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

**Grading Criteria:** Grades will be awarded as follows.

<u>Element</u>	<u>Comments</u>	<u>Proportional Value</u>	<u>Grades</u>
Homework	Assigned but not graded		90 - 100% A
Exercises & Quizzes	Instructor's Discretion	not to exceed 8%	80 - 89% B
Tests	Three	no less than 72% (24% each)	70 - 79% C
Laboratory	See BME 460 Laboratory Instructions	20%	60 - 69% D
			< 60% F