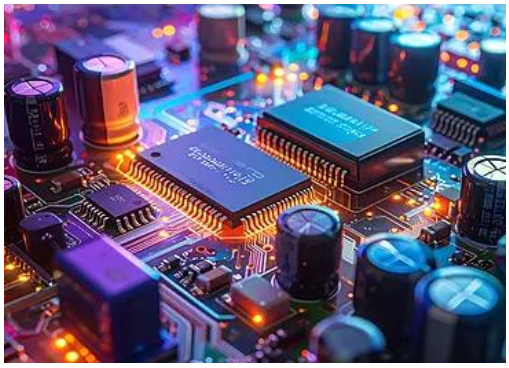
OPUS College of Engineering
MARQUETTE UNIVERSITY

ADVANCED ANALOG ELECTRONICS
EECE 5090/4090 Fall-2026



Why do we need to learn Analog Electronics?
Have you ever asked yourself …

- How do amplifiers actually amplify signals?

- How do operational amplifiers (op-amps) work, and why are they everywhere?

- What limits the speed and performance of analog circuits?

- How can small design choices drastically impact performance?

- How can I prepare for a job interview in circuit design?

In this course we answer these questions by learning the fundamentals of analog electronics in microelectronic circuits.

Recommended preparation:
Electronics Devices and Applications EECE 3010 or equivalent

Instructor: Dr. Payman Zarkesh-Ha, EECE Department, Marquette University

WHAT YOU WILL LEARN IN THIS COURSE

- ✓ Strong understanding of transistor-level circuit design (BJT & MOSFET)
- ✓ Ability to analyze and design multi-stage amplifiers
- ✓ Hands-on skills with operational amplifier circuits
- ✓ Practical understanding of frequency response and bandwidth
- ✓ Ability to evaluate stability and performance of circuits
- ✓ Confidence in reading and creating professional circuit schematics
- ✓ Problem-solving skills applied to real engineering challenges
- ✓ Preparation for careers in electronics, communications, and embedded systems
- ✓ Solid foundation for advanced topics like RF design and integrated circuits
- ✓ Experience bridging theory with practical implementation