# ECEN 4811 - Senior Laboratory

## Fall 2026 Syllabus, Section 02, CRN 40736,

Credit hours: 1

## Instructor

**Robert Caven**

Email: rwcaven@ysu.edu

**Vamsi Borra**

Email: vsborra@ysu.edu

## Public Instructor Information

**Robert Caven**

Instructor Title: Senior Lecturer
Instructor Professional Qualifications:

MS Engineering, Youngstown State University, 1989;

BEE, Kettering University, 1984

Office Location: Moser Hall 2025
Office Phone: 330.941.1750

**Vamsi Borra**

Instructor Title: Assistant Professor and Program Coordinator

Instructor Professional Qualifications:

Ph.D., Electrical Engineering, The University of Toledo, 2017

Master's, Electrical and Computer Engineering, Youngstown State University, 2014
Bachelor's, Electronics and Communication Engineering, Jawaharlal Nehru Technological University, 2011

Email: vsborra@ysu.edu

Office location: Moser Hall 2030

Office Phone: 330.941.2014

## Course Description

4811. Senior Laboratory. Laboratory experiments and computer exercises in the areas of applied electromagnetics, energy conversion. Designed to accompany the co-requisite course. Prereq.: ECEN 3712. Prereq. or concurrent: ECEN 4844. 1 s.h.

## Course Readings

| Group | Title | Author | ISBN |
|---|---|---|---|
| Optional | NASA Systems Engineering Handbook | NASA | 979-8311817646 |
| Optional | Systems Engineering Principles and Practice, 3rd ed. | A. Kossiakoff et al. | 978-1119516668 |
| Optional | Designing Science Presentations | M. Carter | 978-0-12385969-3 |
| Optional | Handbook of Technical Writing, 12th ed. | G.J. Alred et al. | 978-1319362201 |
| Optional | Writing in Engineering, A Brief Guide | R. Irish | 978-0199343553 |

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

## Schedule of Topics and Assignments

| Week of | Reading(s) | Proposed Topic | Due/To Prepare for Class |
|---|---|---|---|
| 8/24 | | Syllabus Review | |
| 8/31 | Watch videos--MEASURE: Voice of the Customer | | |
| 9/7 | | Presentation: YSU Environment, Safety, and Health Office | |
| 9/14 | Watch videos--ANALYZE: Concept Creation | Presentation: STEM Professional Services | Begin work on Project Proposal (Report 1). |
| 9/21 | | Weekly team report: Design Proposal | Begin work on Project Proposal video. |
| 9/28 | Watch videos--ANALYZE: Concept Selection and Decision Making | Weekly team report: Design Proposal | |
| 10/5 | | Weekly team report: Design Proposal | Assignment of peer review teams. |
| 10/12 | 1. Watch videos--DESIGN: Top-down and bottom-up approaches to system design. 2. Watch videos--DESIGN: Design for Manufacturability and Assembly | Weekly team report: Design Proposal | Submit Project Proposal Report draft to peer reviewing team. |
| 10/19 | 1. Watch videos--DESIGN: Reliability Engineering. 2. Watch videos--DESIGN: Failure Mode and Effects Analysis | Weekly team report: Design Proposal | Return peer review to report writer. Submit promotional brochure to Graphic Services for printing. Submit link for Project Proposal video. |
| 10/26 | | Weekly team report: Design Proposal | Upload peer review summary (that your team prepared) to Blackboard. Upload Project Proposal Report (Report 1) to Blackboard. |
| 11/2 | | Weekly team report: Preliminary Design | |
| 11/9 | | Weekly team report: Preliminary Design | |
| 11/16 | | Weekly team report: Preliminary Design | Submit Preliminary Design Report draft to peer reviewing team. |
| 11/23 | | Weekly team report: Preliminary Design | Return peer review to report writer. |
| 11/30 | | Weekly team report: Preliminary Design | Upload peer review summary (that your team prepared) to Blackboard. Upload Preliminary Design Report (Report 2) to Blackboard. Upload team self-assessment to Blackboard. |

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.