

ECEN 5808 - Advanced Signals and Systems

Fall 2026 Syllabus, Section 02, CRN 42650,

Credit hours: 3

Instructor

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Public Instructor Information

Instructor Title: Lecturer Instructor Professional Qualifications: PhD (ABD) West Virginia University MSEE West Virginia University, 1994

BSEE - Wright State University, 1986

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Course Description

5808. Advanced Signals and Systems. Communication and control system modeling and simulations; signal analysis in continuous-time, discrete-time and frequency domains. Advanced communication system applications. Prereq.: ECEN 3710 and MATH 3705. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Signal Processing And Linear Systems	B.P. Lathi	978-0-19-029904-0
Required	Instructor Class Notes		
Optional	Hands-On Introduction to LabVIEW for Scientists and Engineers	John Essick	9780190853068

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	Data Acquisition Basics	Elements of a LabVIEW VI, Palettes, DAQ building blocks	Construct first virtual instrument- Thermometer
8/31	Virtual Instrument	Control, Editing, Debugging, Property nodes	Build second VI on Data Compression
		Data Flow, sample compression, Data Types	
9/7	Virtual instrument - Advanced	Loops, shift registers, feedback nodes, indexing and data tunneling SubVIs and hierarchy	Build VIs using Loops and expand on the thermometer with use of subVIs
9/14	Virtual Instrument -Advanced, Continued	Clusters, Arrays, Array manipulations and operations, type casting, local and global variables	Challenge -1 DTMF design
9/21	Virtual Instruments - ADvanced - Continued	Graphs and plots	AM-FM signal generation and representation in time and frequency domains
9/28	Virtual Instruments - ADvanced - Continued	Event Triggered applications, State Machine	State Machine and Even Structure Project



10/5	Exam 1 Project Creation and compiling	Covers topics up to and including items of week 9/21 Understand how to make a project ready to deploy to a target	In class exam and demo Project creation No.2
10/12	Ch1 - Signals & Systems Ch2	signal classifications, signal decomposition, Time - Domain Analysis of CT Signals	1.1-1, 1.1-3, 1.1-6,1.2-1, 1.2-2 2.2-12, 2.3-6,2.4-39
10/19	Ch3	Signal Representation by Fourier Series	3.4-3
10/26	Ch4	Fourier Transform	4.1-6, 4.1-7
11/2	Exam 2	Topics: Ch 1- Ch 4	In Class Exam
11/9	Ch 7 Ch 8	Frequncy Reposne of Analog filters Discrete -Time Signals and Systems	In Class assignment on Discrete - Time sytems
11/16	Ch 12	Frequency Response and Digital Filters	Digital Filters Assignment No.1
11/23	Ch 12	Digital Filters - Continued	Announcement of Digital Filter project
11/30	Ch 12	Digital Filters Project Discussion	Project Demonstration
12/7	Final Exam	Digital Filter Porject	Submit the Digital Filter Project by the due time

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