

Systems Engineering Illustrative Programs

As you browse through the following pages you will find some illustrations of two-semester degree plans that combine coursework in systems engineering with electives chosen to emphasize different application domains. **These sample programs are illustrative only. There are many possible elective courses that are not included in any of these samples.** As illustrations, however, these sample programs provide an idea of the range of applications that are possible within the overall program; moreover, show specific examples of how a student might accomplish a goal of focusing in a specific area. Please be advised, some courses are offered in alternate years, at times electives are scheduled at conflicting times, and some incoming students may not meet the prerequisites for these electives. The best recommendation is that you work with your academic advisor to develop a program that satisfies the degree requirements and meets your academic and career goals.

Automotive Systems Engineering

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	3	Core
SYSEN 530	Systems Engr. For the Design and Operation of reliable Systems	3	Mod & An.
MAE 578	Feedback Control Systems	4	Mod & An.
MAE 486	Automotive Engineering	3	Application
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	16
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
CEE 590	Project Management	4	Core
MAE 570	Finite Element Analysis for Mechanical and Aerospace Design	4	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	14

Bio-Systems Engineering

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	3	Core
CEE 590	Project Management	4	Core
ChemE 472	Feedback Control Systems	4	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	14
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
BME 404	Biomedical System Design	4	Application
BME 481	Biomedical Engineering	3	Application
BEE 450	Bioinstrumentation	4	Application
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	17

Infrastructure Systems Engineering

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	3	Core
SYSEN 530	Systems Engr. For the Design and Operation of Reliable Systems	3	Mod. & An.
CEE 606	Civil Infrastructure Systems	3	Application
CEE 595	Construction Planning and Operations	3	Mgmt.
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	15
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
CEE 590	Project Management	4	Core
CEE 663	Network Flows and Algorithms	3	Application
SYSEN 590	Systems Engineering Design Project	3	Core
CEE 598	Introduction to Design Analysis	3	Mod & An.
		TOTAL Credits	16

Environmental Systems Engineering

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	3	Core
SYSEN 530	Systems Engr. For the Design and Operation of Reliable Systems	3	Mod & An.
CEE 606	Civil Infrastructure Systems	3	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
CEE 590	Project Management	4	Core
		TOTAL Credits	16
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
CEE 620	Water-Resources Systems Engineering	3	Application
CEE 597	Risk Analysis and Management	3	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
ChemE 661	Air Pollution Control	3	Application
		TOTAL Credits	15

Software Systems Engineering

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	3	Core
ComS 513	System Security	4	Mod & An
ComS 414	Operating Systems	3	Mod & An.
ECE 566	Fundamentals of Networks	4	Application
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	17
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
ComS 501	Software Engineering	4	Mod & An.
CEE 590	Project Management	4	Core
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	14

Spacecraft Systems Engineering

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	3	Core
ECE 415	Global Positioning System Theory and Design	4	Application
MAE 571	Applied Dynamics	3	Application
MAE 578	Feedback Control Systems	4	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	17
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
CEE 590	Project Management	4	Core
MAE 606	Spacecraft Attitude Dynamics and Mission Design	3	Application
SYSEN 590	Systems Engineering Design Project	3	Core
		TOTAL Credits	13

Product Development

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	4	Core
SYSEN 530	Systems Engr. For the Design and Operation of Reliable Systems	3	Mod & An.
MAE 514	Design for Manufacture and Assembly	4	Application
ORIE 514	Design of Manufacturing Systems	4	Application
SYSEN 590	Systems Engineering Design Project	3	Core
	TOTAL Credits	18	
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
CEE 590	Project Management	4	Core
CEE 690	Creativity, Innovation, and Leadership	3	Mgmt.
SYSEN 590	Systems Engineering Design Project	3	Core
	TOTAL Credits	13	

System Design and Optimization

Fall Semester			
Course	Name	Cr.	Group
SYSEN 510	Applied Systems Engineering	4	Core
SYSEN 530	Systems Engr. For the Design and Operation of Reliable Systems	3	Mod & An.
ORIE 520	Operations Research I: Optimization I	4	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
ORIE 515	Design of Manufacturing Systems	4	Application
	TOTAL Credits	18	
Spring Semester			
Course	Name	Cr.	Group
SYSEN 520	Systems Architecture, Behavior, and Optimization	3	Core
CEE590	Project Management	4	Core
ORIE 521	Optimization II	4	Mod & An.
SYSEN 590	Systems Engineering Design Project	3	Core
	TOTAL Credits	14	