## PH.D. IN SYSTEMS ENGINEERING

## **Requirements** Effective Fall 2024

Title Code Credits **Core Requirements SYSE 701** Research Methods in Systems Engineering 3 Select 7 courses from the following: 21 ECE 566 Grid Integration of Wind Energy Systems **ENGR 502** Engineering Project and Program Management or CIS 600A Project Management: Information Technology or CIS 670 Advanced IT Project Management **ENGR 510** Engineering Optimization: Method/ Application **ENGR 520** Engineering Decision Support/Expert Systems **ENGR 525** Intellectual Property and Invention Systems **ENGR 531 Engineering Risk Analysis ENGR 533** Spaceflight and Biological Systems **ENGR 535** Modeling Human Systems Behavior **ENGR 540** Design Analysis of Engineering Experiments ENGR 565/ **Electrical Power Engineering** ECE 565 **ENGR 570 Coupled Electromechanical Systems MECH 513** Simulation Modeling and Experimentation **SYSE 501** Foundations of Systems Engineering **SYSE 505** Systems Thinking for the Real World **SYSE 512** Systems Sensing and Imaging Analysis **SYSE 530 Overview of Systems Engineering** Processes SYSE 532/ Dynamics of Complex Engineering Systems ECE 532 **SYSE 534** Human Systems Integration **SYSE 541** Engineering Data Design and Visualization **SYSE 544** Systems-Based AR/VR Environmental Realism Augmented/Virtual Reality Systems **SYSE 545** Development **SYSE 548** Security Engineering for Systems Engineers **SYSE 549** Secure Vehicle and Industrial Networking **SYSE 567** Systems Engineering Architecture **SYSE 569** Cybersecurity Awareness for Systems Engineers **SYSE 571** Analytics in Systems Engineering **SYSE 573** Cost Optimization for Systems Engineers **SYSE 602** Systems Requirements Engineering

Program Total Credits:		72
SYSE 799A	Dissertation: PhD <sup>2</sup>	30
Research	2	
Technical Electives <sup>1</sup>		18
SYSE 667	Advanced Model-Based Systems Engineering	
SYSE 603	Introduction to Systems Test and Evaluation	

A minimum of 72 credits are required to complete this program.

Select 18 credits with approval by student's advisory committee. A maximum of 6 credit hours are permitted at the 400-level. The remainder must be at the 500-level or above.

<sup>2</sup> 3 credit hours of SYSE 795 may be used by students who have had their Ph.D. research, which was performed while enrolled at CSU, accepted for publication (completely or with minor revisions) in at least two peer-reviewed journal or conference publications may fill out a form listing citations and validating documentation and have the form approved by the student's Ph.D. committee.