MASTER OF ENGINEERING, PLAN C, COMPUTER ENGINEERING SPECIALIZATION

From self-driving cars to smart cities, we live in a hyper-connected world. As the smart thinkers behind today's smart devices and systems, computer engineers hold the key to understanding, advancing, and protecting the security of next generation technologies and data networks.

The Master of Engineering, Plan C, Computer Engineering Specialization produces professionals with broad engineering backgrounds who are capable of applying in-depth knowledge and creativity to drive innovation in virtually any field. Students have flexibility to develop a plan of study in their area of interest. Students interested in graduate work should refer to CSU's Graduate and Professional Bulletin (http://catalog.colostate.edu/general-catalog/graduate-bulletin/) and the Electrical and Computer Engineering Department (http://www.engr.colostate.edu/ece/) website.

Learning Objectives

Upon successful completion, students will be able to:

1. Identify, formulate, and solve advanced engineering problems using fundamental computer engineering principles, methodologies, and tools.
2. Apply in-depth knowledge and creativity in a variety of contexts to achieve a significant engineering objective.
3. Demonstrate effective oral and written communication to convey technical concepts to both engineers and non-engineers.
4. Demonstrate professional behavior and understand the ethical, economic, environmental, and societal impacts of their work.

Requirements Effective Fall 2024

Code	Title	Credits
Regular Coursework [1, 2, 3]		**30**
CS 4XX	Any CS course at the 400-level (excluding courses numbered 482-499)	
CS 5XX	Any CS course at the 500-level (excluding courses numbered 582-599)	
CS 6XX	Any CS course at the 600-level (excluding courses numbered 682-699)	
ECE 4XX	Any ECE course at the 400-level (excluding courses numbered 482-499)	
ECE 5XX	Any ECE course at the 500-level (excluding courses numbered 582-599)	
ECE 6XX	Any ECE course at the 600-level (excluding courses numbered 682-699)	
MATH 4XX	Any MATH course at the 400-level (excluding courses numbered 482-499)	
MATH 5XX	Any MATH course at the 500-level (excluding courses numbered 582-599)	
MATH 6XX	Any MATH course at the 600-level (excluding courses numbered 682-699)	
PH 4XX	Any PH course at the 400-level (excluding courses numbered 482-499)	
PH 5XX	Any PH course at the 500-level (excluding courses numbered 582-599)	
PH 6XX	Any PH course at the 600-level (excluding courses numbered 682-699)	
BIOM 533/ CIVE 533	Biomolecular Tools for Engineers	
ENGR 510	Engineering Optimization: Method/ Application	
ENGR 520	Intelligent Decision Support Systems	
ENGR 531	Engineering Risk Analysis	
ENGR 533	Spaceflight and Biological Systems	
ENGR 665	Stochastic Simulation in Engr Applications	
GRAD 510	Fundamentals of High Performance Computing	
GRAD 530	Introduction to Graduate Research	
GRAD 544	Ethical Conduct of Research	
GRAD 550	STEM Communication	
MATH 550/ ENGR 550	Numerical Methods in Science and Engineering	
MATH 569A/ DSCI 569A	Linear Algebra for Data Science: Matrices and Vectors Spaces	
MATH 569B/ DSCI 569B	Linear Algebra for Data Science: Geometric Techniques for Data Reduction	
MATH 569C/ DSCI 569C	Linear Algebra for Data Science: Matrix Factorizations and Transformations	
MATH 569D/ DSCI 569D	Linear Algebra for Data Science: Theoretical Foundations	
MECH 502	Advanced/Additive Manufacturing Engineering	
MECH 513	Simulation Modeling and Experimentation	
MECH 524	Principles of Dynamics	
MECH 529	Advanced Mechanical Systems	
MECH 531/ BIOM 531	Materials Engineering	
MECH 564	Fundamentals of Robot Mechanics and Controls	
MECH 570/ BIOM 570	Bioengineering	
MECH 575	Solar and Alternative Energies	
MECH 630	Biologically Inspired Robotics	
NSCI 575/ GRAD 575	Ethical Issues in Big Data Research	
STAA 561	Probability with Applications	
SYSE 501	Foundations of Systems Engineering	
SYSE 530	Overview of Systems Engineering Processes	
SYSE 532/ ECE 532	Dynamics of Complex Engineering Systems	
SYSE 536	Space Mission Analysis and Design	
SYSE 541	Engineering Data Design and Visualization	
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 711	Ethics in Systems Engineering
Program Total Credits:	**30**

A minimum of 30 credits are required to complete this program.

[1] Courses not accepted as regular include all courses ending in the range -82 through -99.

[2] A maximum of 8 credit hours of 400-level undergraduate coursework can be counted to the degree. Remaining credits must be in 500-level or higher courses.

[3] A maximum of 15 credit hours outside of the ECE department can be counted to the degree.

Requirements for All Graduate Degrees

For more information, please visit Requirements for All Graduate Degrees (https://catalog.colostate.edu/general-catalog/graduate-bulletin/graduate-study/procedures-requirements-all-degrees/) in the Graduate and Professional Bulletin (https://catalog.colostate.edu/general-catalog/graduate-bulletin/).

Summary of Procedures for the Master's and Doctoral Degrees

NOTE: Each semester the Graduate School publishes a schedule of deadlines. Deadlines are available on the Graduate School website (https://graduateschool.colostate.edu/deadline-dates/). Students should consult this schedule whenever they approach important steps in their careers.

Forms (https://graduateschool.colostate.edu/forms/) are available online.

Step	Due Date
1. Application for admission (online)	Six months before first registration
2. Diagnostic examination when required	Before first registration
3. Appointment of advisor	Before first registration
4. Selection of graduate committee	Before the time of fourth regular semester registration
5. Filing of program of study (GS Form 6)	Before the time of fourth regular semester registration
6. Preliminary examination (Ph.D. and PD)	Two terms prior to final examination
7. Report of preliminary examination (GS Form 16) - (Ph.D. and PD)	Within two working days after results are known
8. Changes in committee (GS Form 9A)	When change is made
9. Application for Graduation (GS Form 25)	Refer to published deadlines from the Graduate School Website
9a. Reapplication for Graduation (online)	Failure to graduate requires Reapplication for Graduation (online) for the next time term for which you are applying
10. Submit thesis or dissertation to committee	At least two weeks prior to the examination or at the discretion of the graduate committee
11. Final examination	Refer to published deadlines from the Graduate School Website
12. Report of final examination (GS Form 24)	Within two working days after results are known; refer to published deadlines from the Graduate School website
13. Submit a signed Thesis/Dissertation Submission Form (GS Form 30) to the Graduate School and Submit the Survey of Earned Doctorates (Ph.D. only) prior to submitting the electronic thesis/dissertation	Refer to published deadlines from the Graduate School website.
14. Submit the thesis/dissertation electronically	Refer to published deadlines from the Graduate School website
15. Graduation	Ceremony information is available from the Graduate School website