PH.D. IN MECHANICAL ENGINEERING

The Ph.D. in Mechanical Engineering is ideal for students looking to pursue advanced-level careers in industry, research, or academia. Students pursuing a Ph.D. in Mechanical Engineering undertake advanced research under the mentorship of a faculty advisor (Principal Investigator), most often on a government or industry funded project as a paid research assistant. The degree plan involves consideration of a challenging problem utilizing analytical, experimental, and/or design techniques. This research – in addition to coursework, exams, journal articles, and dissertation credits – culminates in a final dissertation. The dissertation contains new analytical knowledge, experimental knowledge, design knowledge, or a combination thereof. The dissertation must make an original contribution to the field.

Students interested in graduate work should refer to the Graduate and Professional Bulletin.

Learning Objectives

1. Bring together faculty members and graduate students in a diverse community of scholars having a common interest in advanced professional study and creative work.
2. Extend the boundaries of the mechanical engineering profession by developing advanced technologies to provide creative solutions to global problems such as energy, environment and human health.
3. Consideration of a challenging problem utilizing analytical, experimental, and/or design techniques 1) to determine and explain the behavior of a simple system, or 2) to bring into logical order the techniques of a field which has experienced random growth.
4. Develop new analytical knowledge, experimental knowledge, design knowledge, or a combination thereof.

Requirements Effective Fall 2023

Code	Title	Credits
Select one course from the following:		3
CBE 521	Mathematical Modeling for Chemical Engineers	
ENGR 550/ MATH 550	Numerical Methods in Science and Engineering	
MATH 530	Mathematics for Scientists and Engineers	
MECH 568	Computational Methods for Mechanical Eng.	
Select 2 courses from the following:		6
CIVE 560	Advanced Mechanics of Materials	
MECH 529	Advanced Mechanical Systems	
MECH 532/ BIOM 532	Materials Issues in Mechanical Design	
MECH 538	Mechanical Engineering Thermodynamics	
MECH 539	Advanced Fluid Mechanics	
MECH 544	Advanced Heat Transfer	
Electives		
Electives [1]		3-32
Master Degree Credit		
Master Degree Credit [2]		30
Dissertation		**30**
MECH 799A	Dissertation: Bioengineering	
MECH 799B	Dissertation: Energy Conversion	
MECH 799C	Dissertation: Environmental Engineering	
MECH 799D	Dissertation: Heat and Mass Transfer	
MECH 799E	Dissertation: Industrial and Systems Engineering	
MECH 799F	Dissertation: Mechanics and Design	
MECH 799G	Dissertation: Computer-Assisted Engineering	
MECH 799H	Dissertation: Robotics	
MECH 799I	Dissertation: Solar Engineering	
MECH 799J	Dissertation: Computational Fluids	
MECH 799K	Dissertation: Materials	
MECH 799L	Dissertation: Plasma	
MECH 799M	Dissertation: Motorsport Engineering	
Program Total Credits:		**72**

A minimum of 72 credits are required to complete this program. Of the 72 minimum credits required for this program, at least 21 credits must be at the 500-level or above and earned at CSU. Minimum of 15 credits with the MECH subject code. Minimum 12 credits in regular courses numbered 500 and above (not including dissertation, independent study, or supervised teaching).

1 Select courses with approval of advisor and graduate committee.
2 A maximum of 30 credits may be accepted from an engineering master's 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