MASTER OF ENGINEERING, PLAN C, MECHANICAL ENGINEERING SPECIALIZATION

The Master of Engineering, Plan C, Mechanical Engineering Specialization is an online or on-campus degree program focused on enhancing the expertise of working professionals or continuing students who are looking to keep up with the pace of innovation within their industry and advance in their careers. Engineers who want to further their careers with industrial firms and governmental agencies or those who want to pursue a career in private practice should consider this degree. This is a coursework-only degree program with no thesis requirement.

Students interested in graduate work should refer to the Graduate and Professional Bulletin (https://catalog.colostate.edu/general-catalog/graduate-bulletin/).

Learning Objectives

Students will:

1. Apply knowledge of mathematics and science towards mechanical engineering problems.
2. Identify, formulate, and solve mechanical engineering problems.
3. Communicate effective mechanical engineering concepts.
4. Have knowledge of and recognize the need for lifelong learning.
5. Learn and develop techniques, skills and tools necessary for mechanical engineering practice.

Requirements
Effective Summer 2023

General Program Requirements:

- Minimum 30 total credits of regular coursework (i.e. courses that are not numbered -8* or -9*)
- Minimum 21 credits, taken at CSU, that are 500-level or above
- Minimum 24 credits of MECH subject code coursework
- Minimum 21 credits taken after program admission

Students can take any courses as long as they meet the broad program requirements, above. Students who are specifically interested in the disciplines of materials engineering or biomedical engineering may find the elective guides, below, helpful in identifying coursework.

Suggestions for Students Interested in Energy Engineering Coursework

Code	Title	Credits
Foundational Technical Electives in Energy Engineering		
MECH 538	Mechanical Engineering Thermodynamics	3
MECH 544	Advanced Heat Transfer	3
Focus Area Technical Electives in Energy Engineering		
MECH 505	Steam Power Plants	3
MECH 516	Life Cycle and Techno-Economic Assessment	3
MECH 527	Hybrid Electric Vehicle Powertrains	3
MECH 534	Energy & Env. Impacts of Transportation	3
MECH 557	Turbomachinery	3
MECH 558	Combustion	3
MECH 575	Solar and Alternative Energies	3
MECH 658	Advanced Combustion Theory and Modeling	3
MECH 661	Theory/Control of Internal Combustion Engines	3

Suggestions for Students Interested in Materials Engineering Coursework

Code	Title	Credits
Foundational Technical Electives in Materials Engineering		
MECH 531/BIOM 531	Materials Engineering	3
MECH 532/BIOM 532	Materials Issues in Mechanical Design	3
Focus Area Technical Electives related to Materials Engineering		
MECH 411	Manufacturing Engineering	3
MECH 431	Metals and Alloys	3
MECH 432	Engineering of Nanomaterials	3
MECH 434	Materials Selection for Mechanical Design	3
MECH 530	Advanced Composite Materials	3
MECH 532/BIOM 532	Materials Issues in Mechanical Design	3
MECH 533	Composites Product Development	3
MECH 537	Processing of Polymer Composites	3
Broad Electives related to Materials Engineering		
MECH 407	Laser Applications in Mechanical Engineering	3
MECH 408	Applied Engineering Economy	3
MECH 502	Advanced/Additive Manufacturing Engineering	3
MECH 509	Design and Analysis in Engineering Research	3
MECH 520	Finite Element Analysis in Mechanical Engr	3
MECH 538	Mechanical Engineering Thermodynamics	3
MECH 564	Fundamentals of Robot Mechanics and Controls	3
MECH 569/ECE 569	Micro-Electro-Mechanical Devices	3
MECH 573/BIOM 573	Structure and Function of Biomaterials	3
MECH 574/BIOM 574	Bio-Inspired Surfaces	3
MECH 575	Solar and Alternative Energies	3

Suggestions for Students Interested in Biomedical Engineering Coursework

Code	Title	Credits
Foundational Technical Electives in Biomedical Engineering		
MECH 570/BIOM 570	Bioengineering	3
Focus Area Technical Electives in Biomedical Engineering		
BIOM 441	Biomechanics and Biomaterials	3
MECH 525/BIOM 525	Cell and Tissue Engineering	3
MECH 543	Biofluid Mechanics	3
MECH 573/BIOM 573	Structure and Function of Biomaterials	3
MECH 574/BIOM 574	Bio-Inspired Surfaces	3
MECH 576/BIOM 576	Quantitative Systems Physiology	4
MECH 578/BIOM 578	Musculoskeletal Biosolid Mechanics	3

MECH 579/BIOM 579	Cardiovascular Biomechanics	3
Broad Electives related to Biomedical Engineering		
MECH 502	Advanced/Additive Manufacturing Engineering	3
MECH 509	Design and Analysis in Engineering Research	3
MECH 530	Advanced Composite Materials	3
MECH 531/BIOM 531	Materials Engineering	3
MECH 532/BIOM 532	Materials Issues in Mechanical Design	3
MECH 533	Composites Product Development	3
MECH 564	Fundamentals of Robot Mechanics and Controls	3
MECH 569/ECE 569	Micro-Electro-Mechanical Devices	3

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