Mechanical Engineering Graduate Program
Master's Degree Requirements

REQUIREMENT:                                    COMPLETION DATE:

1) **Thesis option:** Confirm the name of your thesis advisor by the end of the first semester. Only a regular member of the UVM Graduate Faculty can serve as primary thesis advisor.

   Primary thesis advisor name: ______________________

   (optional) Co-thesis advisor name: ______________________

   ___/___/____

2) Complete following **core** courses:

   [ ] ME 304 – Advanced Engineering Analysis I (3 CR)
   [ ] ME 336 – Continuum Mechanics (3 CR)

   ___/___/____

4) Complete **one numerical method course** (3 CR):

   One of ME218 (Numerical Methods for Engineer), ME249 (Computational Fluids Engr), ME259 (Computational Solid Mechanics), ME350 (Multiscale Modeling); or equivalent.

   ___/___/____

5) Complete **two courses in the same area of specialization in mechanical engineering** from the table below (6 CR), but different from course chosen in 4). Note that the courses may have prerequisites as specified in the catalogue which must be satisfied

   Select specialization area here: _______________________

   Course 1: _______________________

   Course 2: _______________________

   ___/___/____

6) Pass the **Master’s Comprehensive Examination**.

   See below guidelines regarding the Master’s Comprehensive Exam.

   ___/___/____

7) Complete thesis/non-thesis option requirements shown in next page.

   ___/___/____

8) Complete **30 total credits**: This will be distributed between core courses, specialization courses, elective courses and/or thesis research.

   ___/___/____
**THESIS OPTION REQUIREMENTS:**

1) Complete **6 - 9 hours of thesis credits (ME391)** prior to the Master’s thesis defense, with the expectation that:

- To obtain **6 credits**, the student’s research must culminate in an original piece of work publishable as a conference proceedings paper or a peer-reviewed journal article.

- To obtain **9 credits**, the student’s research must culminate in an original piece of work publishable as a peer-reviewed journal article.

2) Pass **written report and oral defense of your Master’s thesis**. The Thesis Defense Committee consists of three UVM faculty members, at least two of whom must be regular members of the UVM Graduate Faculty. Ordinarily, two committee members will be from the mechanical engineering graduate program, including the thesis advisor. The third member, who acts as chair of the committee, must be a member of the Graduate Faculty and from outside the Mechanical Engineering program. The Thesis Defense committee will decide on the pass/fail status of the candidate’s thesis credits.

**NON-THESIS OPTION REQUIREMENTS:**

Non-thesis students must complete **three additional courses** in mechanical engineering at the 200 or 300 level (9 CR.) from the table of areas of specialization.
### AREAS OF SPECIALIZATION IN MECHANICAL ENGINEERING:

| Bioengineering and Biomechanics Area | ME201. Biomaterials Engineering  
ME207. Bioengineering  
ME208. Biomechanics: Tissue Engr.  
ME213. Systems & Synthetic Biology  
ME312. Adv. Bioengineering Systems  
Any approved course at the 200 or 300 level in Biomechanics area as offered |
|---|---|
| ME203. Machinery Analysis & Synthesis  
ME210. Control Systems (cross-listed with EE210)  
ME230. Orbital Mechanics  
ME234. Mechanical Vibrations  
ME270. Structural Dynamics (cross-listed with CE272)  
ME271. Micro and Nano Systems  
ME338. Advanced Dynamics  
Any approved course at the 200 or 300 level in Control Theory and Mechanical Systems area as offered |
| Materials Engineering and Solid Mechanics Area | ME201. Biomaterials Engineering  
ME252. Mechanical Behavior of Materials  
ME255. Advanced Engineering Materials  
ME257. Composite Materials  
ME259. Computational Solid Mechanics  
ME271. Micro and Nano Systems  
ME333. Stress Analysis  
ME350. Multiscale Modeling  
Any approved course at the 200 or 300 level in Materials Engineering and Solid Mechanics area as offered |
| ME237. Turbulence  
ME238. Energy Systems Engineering  
ME239. Rocket Propulsion  
ME240. Compressible Flow  
ME243. Incompressible Flow  
ME245, 345. Advanced Heat Transfer I, II  
ME249. Computational Fluids Engr  
ME343. Advanced Fluid Dynamics  
Any approved course at the 200 or 300 level in Thermo-Fluids-Energy area as offered |
| ME218. Numerical Methods for Engineer (cross-listed with CE218)  
ME249. Computational Fluids Engr  
ME259. Computational Solid Mechanics  
ME350. Multiscale Modeling (cross-listed with CYS350)  
Any approved course at the 200 or 300 level in Computational Mechanics area as offered |
THESIS OPTION: Candidates in this option must successfully present a proposal research seminar.

a) The proposal oral presentation should occur no less than 3 months prior to the oral defense of their Master’s thesis.

b) The candidate's Thesis Defense committee will decide on the pass/fail status of the proposal research seminar.

c) The oral defense of the Master's thesis cannot serve as the Master’s Comprehensive Examination.

NON-THESIS OPTION: Candidates in this option must take the written examination.

a) The Master’s Comprehensive Exam is administered by the Graduate Program of the Department of Mechanical Engineering at UVM. A written examination will be offered twice a year, December or May, by the end of the second calendar week in each case, unless otherwise noted.

b) Candidates must inform the Mechanical Engineering Graduate Program Director at the beginning of the semester in which the examination may be offered.

c) Candidates planning on graduating in the Spring Commencement must complete the examination requirement at least by the prior December examination.

d) The examination subject matter covers four courses germane to Mechanical Engineering at the Master's level, including but not limited to, the areas of Mechanical Engineering associated with the core Master's Degree courses.

Last modified on 01/19/2017.