

**Accelerated Thesis Master's (BS/MS) in Chemical
Engineering at Michigan Technological University**

October 9, 2015

Guidelines and Requirements

1. This accelerated MS program allows students in the thesis master's degree program to apply up to six undergraduate engineering credits earned at the 3000 level or higher toward both the bachelor's and master's degrees.
2. Only students who intend to complete both their bachelor's and master's degrees at Michigan Tech can enroll in the accelerated master's program.
3. The accelerated master's program requires that students complete a minimum of 155 total credits for the bachelor's and master's combined. Both the BS and MS must be earned in Chemical Engineering.
4. Students must apply to and be accepted into the Graduate School at Michigan Tech. Applications will be reviewed by the Chemical Engineering graduate program according to their normal procedure. Students already enrolled in a graduate program may not retroactively enroll in the Chemical Engineering Accelerated Master's program.
5. Students may apply for admission to the accelerated master's program any time after they attain junior level class standing and up until the time that they are awarded their bachelor's degree.
6. Only students with a cumulative GPA of 3.0 or above are eligible to enter the accelerated master's program.
7. Students who are accepted in the accelerated master's program will not be allowed to continue in this program if their cumulative undergraduate GPA falls below 3.0. In this case, the student can apply to the **non-accelerated** M.S. program.
8. Prior to completion of the accelerated master's degree, students must indicate on their master's degree schedule which undergraduate level courses and credits (up to a maximum of six) should be applied to both their bachelor's and master's degree.
9. Students will be considered undergraduate students until their undergraduate degree has been awarded.
10. Once students have been awarded their undergraduate degree, they will be considered graduate students and will be expected to adhere to all policies and procedures related to graduate education at Michigan Tech (see following links for information). <http://www.mtu.edu/gradschool/administration/academics/requirements/ms/>
<http://www.mtu.edu/gradschool/administration/academics/policies-procedures/>

11. The maximum time to degree for students in the accelerated master's program is 5 years from the time the student is accepted into the program.

Accelerated Thesis Master's in Chemical Engineering Curriculum

1. Required Core Courses:

Students in the accelerated thesis master's in Chemical Engineering at Michigan Tech must complete the following required classes (15 credits total).

Offered in Fall		Offered in Spring	
CM 5100: Applied Mathematics for CM	3	CM 5300 Advanced Transport Phenomena	3
CM 5200: Advanced Thermodynamics	3	CM 5400: Advanced Reactive Systems Analysis	3
CM 5310: Lab Safety	1		
CM 5500: Theory and Methods of Research	2		

2. Other Courses

An additional 15 credits are needed to obtain 30 credits for an MS. Of these, 6 to 10 credits must be thesis research (typically CM5990). The remainder must be courses approved by the advisor. Up to six credits may have been taken as an undergraduate and re-used to partially satisfy the requirements for the accelerated master's degree.

Under Senior Rule, a student may take up to 1/3 of the non-research credits towards the MS degree while an undergraduate. Senior rule credits are independent of double-counted credits but must conform to the requirements of the degree.

Note that a maximum number of 12 credits earned at the 3000 to 4000 level can be applied toward a master's degree, whether or not those courses were taken as an undergraduate student. All double counted courses applied to the MS degree must have a grade of B or higher.

Each student's preliminary plan for the accelerated master's thesis degree program **must** be approved by Chemical Engineering prior to acceptance into the graduate program. Therefore, students are **required** to meet with the Chemical Engineering Graduate Program Director/Advisor at the time of application to develop a plan for completion of the degree and to designate courses taken while an undergraduate student that will be re-used to satisfy part of the requirements for the master's degree. Upon acceptance to the program, students are

required to meet with their Graduate Program Director/Advisor each semester to review their plan for completion and make adjustments if necessary.

The list below is a possible list of classes that may be used for the additional credits required for completion of the degree. Other courses, including those outside of chemical engineering, may also be acceptable.

CM3450: 3 credits: Computer Aided Problem Solving

CM3820: 3 credits: Sampling and Data Analysis

CM3974: 1 credit: fuel Cell Fundamentals

CM4125: 1 credit: Bioprocess Engineering Laboratory

CM4500: 4 credits: Particle Technology

CM4550: 3 credits: Industrial Chemical Production

CM4610: 3 credits: Introduction to Polymer Science

CM4620: 3 credits: Polymer Chemistry

CM4631: 2 credits: Polymer Science Laboratory

CM4650: 3 credits: Polymer Rheology

CM4655: 1 credit: Polymer Rheology Laboratory

CM4710: 3 credits: Biochemical Process

CM4740: 4 credits: Hydrometallurgy/Pyrometallurgy

CM4770: 3 credits: Analytical Microdevice Technologies

CM4780: 3 credits: Biomanufacturing and Biosafety

CM4990: Maximum of 6 credits: Special Topics in Chemical Engineering

CM5770: 3 credits: Advanced analytical Microdevice Technologies

CM5780: 3 credits: advanced Biomanufacturing and Biosafety

CM5900: maximum of 6 credits: Graduate level Special Topics in Chemical Engineering

For more information on the BS in Chemical Engineering, go to the Undergraduate Advising Website.