Missouri S&T

Linda & Bipin Doshi Department of Chemical and Biochemical Engineering

Graduate Student Handbook

2024-2025

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I. DEPARTMENT OVERVIEW

1. Department Vision Statement

A leading program recognized for sustained excellence in education, research, and innovation with strong global engagement in chemical engineering

2. Department Mission Statement

The Doshi Department of Chemical and Biochemical Engineering will prepare chemical, biochemical, biomedical, and bio engineers for successful careers as leaders and innovators in their field while:

- expanding the engineering knowledge base through experiential learning and scholarly pursuits;
- developing technology to serve societal needs;
- and benefitting the public welfare through service to the profession.

3. Department Educational Objectives

Within five years of graduation, our students will become successful in their chosen career path by:

- making a positive impact as an individual contributor or leader in their career and community;
- working collaboratively to improve the economic and societal environment; and
- expanding career skills through life-long learning.

4. Graduate Program Student Learning Outcomes (GLOs)

Upon graduation our students will exhibit the following:

Ph.D. in Chemical Engineering

- An ability to apply knowledge of chemical engineering to identify, formulate, and solve problems
- An ability to communicate effectively with a range of audiences
- An ability to engage in productive critical thinking so that they may attain a mastery of their specific field of study
- An ability to develop professionally by acquiring and applying new knowledge as needed, using appropriate learning strategies:

Ph.D. in Bioengineering

- An ability to apply knowledge of bioengineering to identify, formulate, and solve problems
- An ability to communicate effectively with a range of audiences
- An ability to engage in productive critical thinking so that they may attain a mastery of their specific field of study

- An ability to develop professionally by acquiring and applying new knowledge as needed, using appropriate learning strategies.

M.S. (Thesis and Nonthesis) in Chemical Engineering

- An ability to apply knowledge of chemical engineering and engage in critical thinking to identify, formulate, and solve problems
- An ability to communicate effectively with a range of audiences
- An ability to develop professionally by acquiring and applying new knowledge as needed, using appropriate learning strategies.

Graduate Certificate in Chemical Process Engineering

- An ability to apply knowledge of chemical engineering processes to their specific field of study
- An ability to communicate effectively with a range of audiences.

Graduate Certificate in Carbon Management Engineering

- An ability to apply knowledge of current carbon management technologies to their specific field of study
- An ability to communicate effectively with a range of audiences.

5. Faculty and Staff

Department Chair:

Dr. Hu Yang
huyang@mst.edu
(573) 341-4854
110E Bertelsmeyer Hall

The Chair of the ChBE department coordinates and monitors the efforts of the ChBE faculty and enforces graduation requirements that are specific to the department. Most questions and forms are handled by the associate chairs. You should, however, contact the department chair directly when you have concerns, complaints, or even compliments regarding a member of the faculty.

Associate Chair for Academic Affairs:

Dr. Christi Luks
luksc@mst.edu
(573) 341-7641
210N Bertelsmeyer Hall

The Associate Chair for Undergraduate Studies of the ChBE department handles all aspects of the department's undergraduate affairs including admissions, assigning teaching assistants (GTAs), managing current curricula, and developing new undergraduate programs. She is the delegate to review and sign on behalf of the department all enrollment and undergraduate forms. The Associate Chair can also sign other documents in the ChBE department chair's absence.

Associate Chair for Research: Dr. Jee-Ching Wang
jcwang@mst.edu
(573) 341-6705
210H Bertelsmeyer Hall

The Associate Chair for Research is also the Graduate Coordinator of the ChBE department who coordinates all aspects of the department's graduate affairs including graduate recruitment, admissions, teaching assistants (GTAs), research assistants (GRAs), curricula; and development of new graduate programs. He is the delegate to review and sign on behalf of the department various graduate forms. He is also the default advisor to all graduate students without research advisors and the department's Graduate Track Pathways (GTP) coordinator.

Faculty:

Full-time Faculty			
Hossein **Abedsoltan**	210L Bertelsmeyer Hall	573-341-6225	hosseinabedsoltan@mst.edu
Muthanna **Al-Dahhan**	210B Bertelsmeyer Hall	573-341-7518	aldahhanm@mst.edu
Parveen **Bazard**	210E Bertelsmeyer Hall	573-341-4460	fpfhy@mst.edu
Hany **El-Azab**	210G Bertelsmeyer Hall	573-341-4416	hany.elazab@mst.edu
Daniel **Forciniti** (Associate Provost for Faculty Affairs)	210J Bertelsmeyer Hall	573-341-4427 573-341-7787	forcinit@mst.edu
Douglas K. **Ludlow**	210M Bertelsmeyer Hall	573-341-4457	dludlow@mst.edu
Christi Patton-**Luks**	210N Bertelsmeyer Hall	573-341-7641	luksc@mst.edu
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Monday **Okoronkwo**	210F Bertelsmeyer Hall	573-341-4349	okoronkwom@mst.edu
Amber **Pete**	210K Bertelsmeyer Hall	573-341-7518	apete@mst.edu
Matthew **Senter**	210Q Bertelsmeyer Hall	573-341-4701	msnp2@mst.edu
Joseph D. **Smith**	210C Bertelsmeyer Hall	573-341-4294	smithjose@mst.edu
Mark **Towler**	210A Bertelsmeyer Hall	573-341-7632	mtowler@mst.edu
Jee-Ching **Wang**	210H Bertelsmeyer Hall	573-341-6705	jcwang@mst.edu
Hu **Yang** (Department Chair)	110E Bertelsmeyer Hall	573-341-4854	huyang@mst.edu

Adjunct Faculty			
Baojun **Bai**	303 McNutt Hall	573-341-4016	baib@mst.edu
Anthony **Convertine**	225 McNutt Hall	573-341-4458	convertinea@mst.edu
Chang-Soo **Kim**	218 Emerson Hall	573-341-4529	ckim@mst.edu
Hongyan **Ma**	323 Butler-Carlton Hall	573-341-6250	mahon@mst.edu
James **Sterling** (Vice Provost and Founding Dean of Kummer College)	227 Engineering Management	573-341-4613	jsterling@mst.edu
David **Westenberg**	202 Schrenk Hall	573-341-4798	djwesten@mst.edu

Staff:

Office Support Specialist:

Theresa Brown
theresabrown@mst.edu
(573) 341-4421
110B Bertelsmeyer Hall

Theresa works closely with the Chair and Associate Chairs to manage the office and meeting rooms; assist in processing graduate student forms and meetings; coordinate miscellaneous department events; manage GTA assignments and workshops; assign graduate advisors and office space; process graduate student employment and tuition waivers; and handle one Card expense reports for departmental purchases/travel/ events/seminars.

Office Support Specialist:

Lan Liu
lanliu@mst.edu
(573) 341-4415
110C Bertelsmeyer Hall

Lan works closely with the Chair and Associate Chairs to manage the office; order office supplies and teaching lab supplies; handle visitor travel arrangements/ reimbursements; assist the purchasing of the department equipment, shipping, and receiving; process undergraduate student employment ePAFs; and assist with ABET, Industrial Advisory Committee, Academy of Chemical Engineers, phone-a-thon, Jackling Summer camp, and departmental scholarships.

Research Engineering Technician:

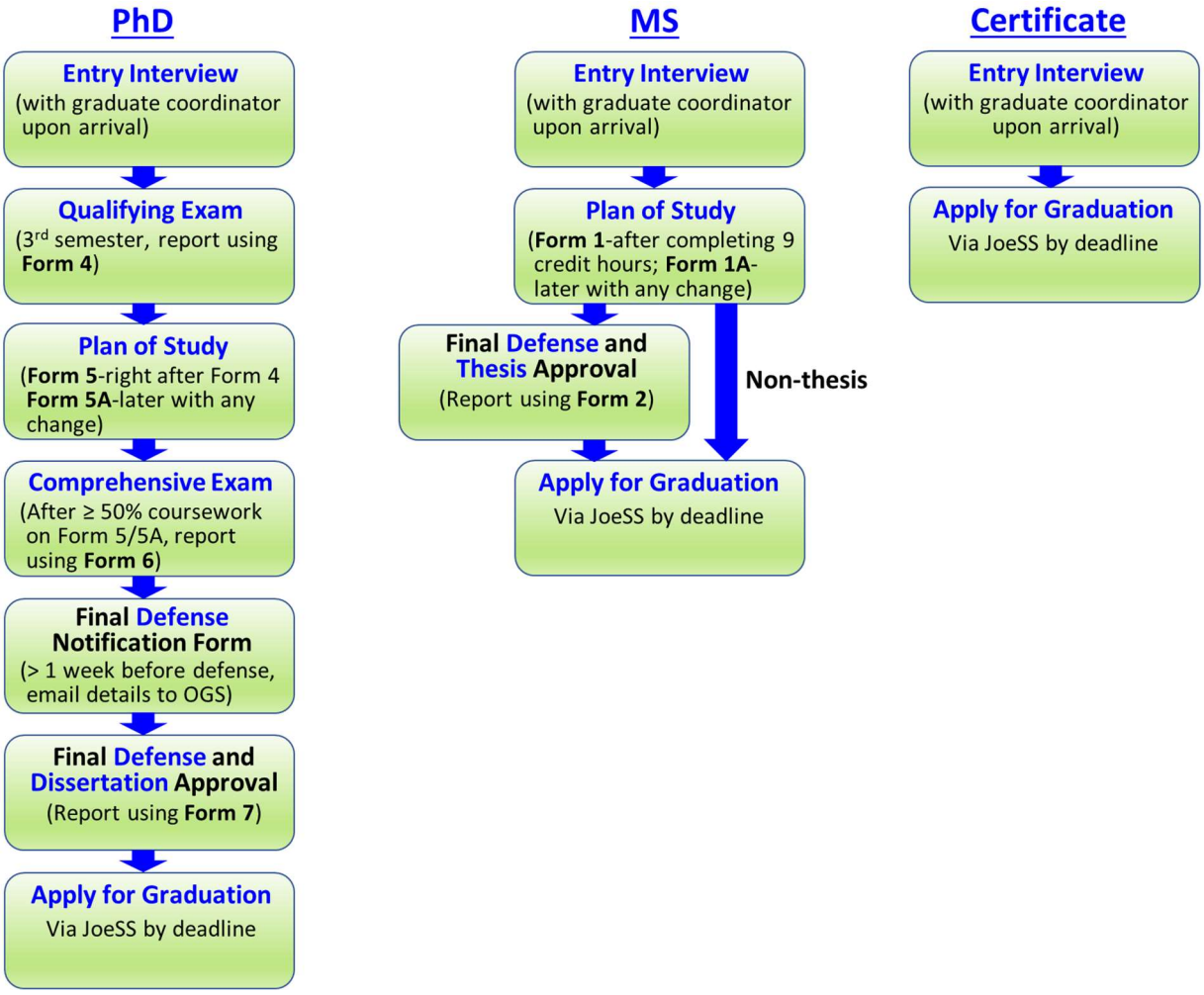
Micheal Murphy
murphyml@mst.edu
(573) 341-4108
B16 Bertelsmeyer Hall

The technician works with our research and teaching laboratories to keep our equipment operating and to update our facilities. If you notice anything in the building that is broken or needs repair, please report it to the main office.

II. STEPS TO COMPLETE GRADUATE DEGREE

1. Progress and Milestones

The campus policies and rules concenring ALL graduate programs can be found in the graduate catalog: https://catalog.mst.edu/graduate/. The important miletones are summarized below together with relevant time frames and graduate forms. The ChBE departmental policies and rules were established and revised by the ChBE faculty but must be compliant with those of the campus.



2. Graduate Form Submission

Important progress and milestones need to be reported to the campus (Office of Graduate Education) via graduate forms. For relevant details of these milestone forms as well as other forms used by/for graduate students, please visit the Office of Graduate Education website, graduate catalog, and Sections IX-XI of this Handbook.

All graduate milestone forms must be **submitted electronically via an online digital workflow**: https://grad.mst.edu/studentservices/navigatingyourdegreeprogram/forms/. To submit a graduate form, click on the right form to start or you will be prompted to change the computer user to yourself. The first page usually asks for your name, email

address, student number, degree information, and your advisor's name and email address. Form 1 for thesis MS students and Form 5 for PhD students also need the names and email addresses of your thesis/dissertation committee members. Click the "Next" button at the bottom to proceed to the next page.

After submitting a form, you (requestor) will receive an email from "S&T Graduate Forms Workflow" that (i) confirms the request been sent to the first recipient, (ii) shows a summary of the responses (found in the body of the email and the pdf attached) entered to the Google form, (iii) provides a Request #X link at top that can be used to check the status of the workflow (who has signed or yet to sign) at any time, and (iv) includes a link for uploading/re-uploading corrected files. Once approved by the Office of Graduate Education, a notification email will be sent to you. It is important to keep the email and all its attached forms for future references, particularly the course plan attached to Form 1 (MS) or Form 5 (PhD).

3. **Registration Holds** (check JoeSS account regularly to find out)

Every semester graduate students may face the following holds placed by campus:

(i) **Advising hold:** can be removed by academic advisor after preregistration advising, in person or via email, to discuss courses to take for next semester.

(ii) **Graduate action hold:** placed and removed by the Office of Graduate Education when certain graduate form is due, for example, MS Form 1 or PhD Form 5

(iii) **Administrative hold:** placed and removed by the Registrar due to academic records such as transcripts, diploma, etc.

(iv) **Financial hold:** placed and removed by Cashier due to outstanding balance.

(v) **Immunization hold:** placed and removed by Student Health.

III. GRADUATE CORE COURSES

In brief, the university's graduate degree requirements are only about minimum numbers of credit hours in different categories while different departments specify what courses are acceptable for different categories associated with a graduate degree. For this purpose, the ChBE faculty has established the following courses:

1. **Chemical Engineering M.S. Level Core Courses**

- Chem Eng 5100 Intermediate Transport Phenomena (LEC 3.0)
- Chem Eng 5110 Intermediate Chemical Reactor Design (LEC 3.0)
- Chem Eng 5220 Intermediate Engineering Thermodynamics (LEC 3.0)

2. **Chemical Engineering Ph.D. Level Core Courses**

- Chem Eng 6100 Advanced Chemical Engineering Thermodynamics (LEC 3.0)
- Chem Eng 6110 Advanced Transport Phenomena (LEC 3.0)

3. **Bioengineering Ph.D. Level Core Courses**

- BME 5100 Drug and Gene Delivery (LEC 3.0)

- BME 6400 Biomanufacturing (LEC 3.0)
- BME 6500 Pharmaceutical Process Engineering (LEC 3.0)
- Chem Eng 5250 Isolation and Purification of Biologicals (LEC 3.0)
- MS&E 5310 Biomaterials I (LEC 3.0)

4. Chem Eng 6015 Lecture Series (built around Graduate Seminars)

1) Required for thesis M.S. and Ph.D. students who can enroll for one hour in a semester when they can manage and take one hour from Chem Eng. 6099 Research.
2) Three (or more) credit hours of Chem Eng 6015 can be used as equivalent to a 3-credit-hour 6000-level lecture course in a graduate student's Form 1 or Form 5.
3) Letter grades will be assigned to enrolled students by the faculty member in charge based on the students' attendance and final report. Usually missing two seminars in a semester is enough to be downgraded to B, three to C, and any more would lead to an F. Students are allowed to make up missed seminars by attending related seminars in other departments. Please consult with the faculty member in charge of ChE 6015 for such requirements and for grading policies.

5. BME 5311 Integrity and Ethics in Bioengineering (LEC 1.0)

This course is required for all Bioengineering PhD students.

6. Bridge courses

1) Chemical engineering graduate students from non-ChE backgrounds

The following "bridge" courses have been established by the faculty to help them get properly prepared before taking the required graduate courses.

- Chem Eng 3101 Fundamentals of Transport in Chemical and Biochemical Engineering
- Chem Eng 2110 or 3120 Chemical Engineering Thermodynamics
- Chem Eng 3150 Chemical Engineering Reactor Design.

During entry interview, the graduate coordinator will review a student's degree background, previous courses, and graduate study plan to determine the best set of bridge courses for the student. When needed, additional bridge courses such as Calculus and Chem Eng 2100 (Material and Energy Balances) may also be recommended or required.

2) Bioengineering Ph.D. students:

Some of the required courses may involve prerequisites that are quite distant from a student's previous studies and may be recommended to the student to take first as a type of bridge courses.

Note that except those numbered below 3000 level, bridge courses can be included in a graduate student's Plan of Study (Form 1 for M.S. and Form 5 for Ph. D.) and

most can be counted toward the student's credit hour requirements. For more detail, please consult graduate catalog for different credit hour requirements.

IV. Ph.D. COURSEWORK (Form 5/5A)

1. Campus requirements

1) **Ph.D. students entering without a prior master's degree** are required to complete a minimum of 72 hours of graduate credit. Their doctoral plan of study (Form 5/5A) must include (i) a minimum of 30 credit hours of lecture courses at 4000-level or above (1000/2000-level courses cannot be included but the bridge courses at 3000 level could be), (ii) a minimum of 12 credit hours from 6000-level lecture courses, and (iii) a minimum of 30 credit hours of graduate research (Chem Eng. 6099) is required. If a student has co-advisors in different departments, the research credit may be shared by all departments involved.

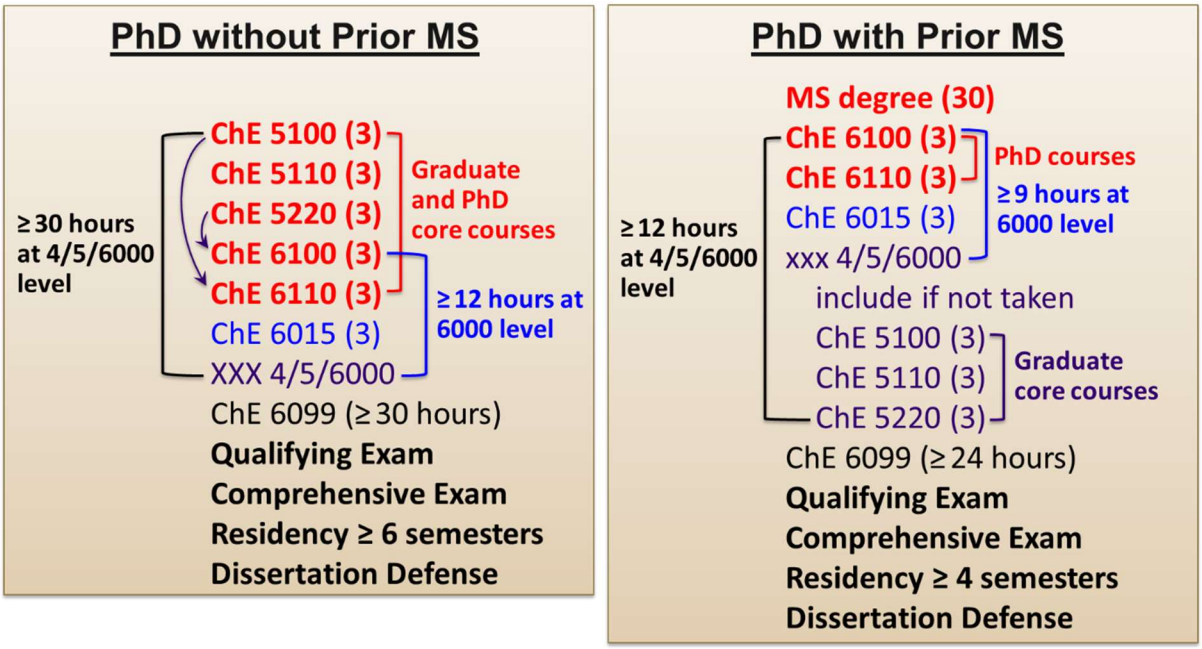
2) **Ph.D. students entering with a prior master's degree** acceptable to the department will be given a block of 30 lecture credit hours (plus one year of residency) to include as the first entry in their doctoral plan of study (Form 5/5A). As a result, they are required to complete a minimum of 42 hours of graduate credit, including (i) a minimum of 12 hours of graduate lecture courses, and (ii) a minimum of 9 credit hours from 6000-level lecture courses, and (iii) a minimum of 24 credit hours of graduate research (Chem Eng. 6099) is required. If a student has co-advisors in different departments, the research credit may be shared by all departments involved

3) **Special purpose courses** such as CHEM ENG 5040 Oral Examination, CHEM ENG 6040 Oral Examination, CHEM ENG 6050 Continuous Registration, and CHEM ENG 6085 Internship will not be accepted as either lecture course or research hours as they are neither. CHEM ENG 5000 Special Problems and CHEM ENG 6000 Special Problems are possible to be counted for lecture credit hours but requires planning and consent of instructor and graduate coordinator.

4) **Residency** at Missouri S&T is defined as sustained intellectual interactions among the student and the academic community. The candidate for a doctoral degree receives 0.5 year of residency from each Spring or Fall semester (NOT summer) enrolled as an on-campus student at Missouri S&T. A minimum of three years of residency is required for Ph.D. degree, which is reduced to two years of residency for Ph.D. students entering with an acceptable prior master's degree.

2. Chemical engineering program requirements

1) **Chemical Engineering Ph.D. students,** with or without a prior master's, must complete (i) the three M.S.-level core courses and the two Ph.D.- level courses stated above and (ii) a minimum of three Chem Eng 6015 enrollments. When prior M.S. courses are considered equivalent to the required M.S. or Ph.D. courses, the Ph.D. student will be given an option not to take them. The graphs below summarize the required PhD coursework under different circumstances.



2) **Bioengineering Ph.D. students** are quired to fulfill the lecture and research credit-hour requirements established by the campus for all Ph.D. programs, which must include (i) a minimum of 9 credit hours from the Bioengineering Ph.D.-level core courses listed above, (ii) BME 5311 Integrity and Ethics in Bioengineering, (iii) a minimum of 2 Chem Eng 6015 enrollments, and (iv) a minimum of 18 credit hours from the list of approved elective courses that can be found in the graduate catalog: (https://catalog.mst.edu/graduate/graduatedegreeprograms/bioengineering/).

3. Form 5 (Plan of Study)

After a Ph.D. student has passed the **qualifying exam**, the student must formally plan the remainder of their graduate program in consultation with their academic advisor, selected Ph.D. dissertation committee members, and submit Form 5 by the end of their qualifying exam semester. This is a campus policy and please visit: https://grad.mst.edu/studentservices/navigatingyourdegreeprogram/forms/doctoral/ for detail and starting the submission via electronic workflow introduced in Section II. Form 5 has two parts:

1) **dissertation committee** (names and email addresses) must consist of a minimum of five members including the academic advisor (chair of the committee), at least three others who are members of the Missouri S&T graduate faculty. In addition, the dissertation committee must include at least one member from outside the student's major department and at least three members with (joint) appointments with the Ph.D. program. If a committee member is not a member of the Missouri S&T graduate faculty, a vita verifying equivalent level of education must be provided with the Form 5/5A

2) **course plan**: the course plan spreadsheet can be downloaded from the website and filled with courses that have been completed or planned to be taken in future semesters to meet the various campus and departmental credit-hour requirements explained above.

It is very common for Ph.D. students to submit the same form as Form 5A to revise their plan of study (please keep your latest approved version) and report to the campus

- **Curriculum changes** (add/delete course, change credit hour, etc): only the revised course plan is needed and the student, academic advisor, and department chair or graduate coordinator must approve the Form 5A (no dissertation committee involved). Please refer to the following detailed example to see how to correctly revise your course plan.

Doctoral Degree Course Plan

Name and ID: Joe Miner 12345678

Add/ Delete (Form 5A ONLY)	Sem/Yr	Course Prefix/ Course Number	Course Title	Level/Credit Hours and Residency			
				3000- level & non-lec	4000/ 5000/6000- level lec	Research	Residency
	FS/2020	ChemE/5220	Intermediate Engineering Thermodynamics		3.0		0.5
	FS/2020	ChemE/5810	Introduction to Polymeric Materials		3.0		
	FS/2020	ChemE/5001	Catalysis and Reaction Kenetic		3.0		
	SP/2021	ChemE/5110	Intermediate Chemical Reactor Design		3.0		0.5
	SP/2021	ChemE/6110	Advanced Chemical Engineering Thermodynamics		3.0		
	SP/2021	MetE/5525	Scanning Electron Microscopy Lab		1.0		
	SP/2021	ChemE/6099	Research			2.0	
	SS/2021	ChemE/6099	Research			3.0	
D	FS/2021	ChemE/5200	Biomaterials I		3.0		0.5
A	FS/2021	ChemE/5100	Intermediate Transport Phenomena		3.0		
	FS/2021	ChemE/6099	Research			6.0	
	SP/2022	ChemE/6100	Advanced Transport Phenomena		3.0		0.5
D	SP/2022	ChemE/5150	Intermediate Process Computing		3.0		
D	SP/2022	ChemE/5010	Seminar		1.0		
A	SP/2022	ChemE/6015	Lecture Series		1.0		
D	SP/2022	ChemE/6099	Research			2.0	
A	SP/2022	ChemE/6099	Research			5.0	
	SS/2022	ChemE/6099	Research			3.0	
	FS/2022	ChemE/6241	Intermediate Chemical Process Safety		3.0		0.5
	FS/2022	ChemE/6015	Lecure Series		1.0		
	FS/2022	ChemE/6099	Research			5.0	
D	SP/2023	ChemE/6120	Applied Mathematics in Chemical Engineering		3.0		0.5
	SP/2023	ChemE/6015	Lectue Series		1.0		
D	SP/2023	ChemE/6099	Research			5.0	
A	SP/2023	ChemE/6099	Research			8.0	
D	SS/2023	ChemE/6099	Research			6.0	
A	SS/2023	ChemE/6099	Research			3.0	
A	FS/2023	MSE/6110	Bonding, Crystallography, and structure-property Relationship		3.0		0.5
D	FS/2023	ChemE/6015	Lecure Series		1.0		
D	FS/2023	ChemE/6099	Research			8.0	
A	FS/2023	ChemE/6099	Research			6.0	
D	SP/2024	ChemE/6015	Lectue Series		1.0		0.5
D	SP/2024	ChemE/6099	Research			8.0	
A	SP/2024	ChemE/6099	Research			1.0	

3000-level lecture and non-lecture	0.0
4000/5000/6000-level lecture	31.0
Research	42.0
Total credit hours	73.0
Total residency	4.0

0.5 for each Spring & Fall

Take a different course than previously planned

Did not take the course, so add 3 hours to 6099

wrong course replaced by the right course

Not offered

3 hours to ChE 6099

Correcting previous mistake

No need or interest

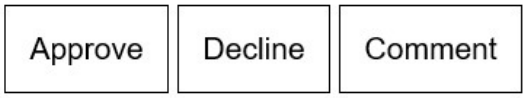
Adjusting to make 9 total credit hours

After comprehensive exam and last semester do not need to 9 hours

Double check the numbers here as the various revisions may make the automatically calculated sums not correct. Add completed hours only, excluding those labeled with "D"

- **Committee changes**: no need to upload course plan. An academic advisor and/or committee member being removed must acknowledge their removal. The student, academic advisor, current committee members, and department chair or graduate coordinator must approve the Form 5A. A contingency procedure that addresses circumstances when a student seeks to change the makeup of their graduate advisory committee, but a member or advisor is either unable or unwilling to provide the required authorization can be found on the Graduate Education webpage.

Once a student initiates the submission, the advisor, dissertation committee members when involved, department chair or graduate coordinator will receive an email from "S&T Graduate Forms Workflow" where they will see three options as shown below,



The campus strongly recommends not to cancel a submission to avoid rejections and complications. For any additional information or update, the "Comment" option may be used to provide suggestions and the student can upload corrected information/course plan to the same submission (File Upload 1, File Upload 2, etc.) using the "File Upload" link in the email. It is very often for course plan to need corrections, so it is highly recommended for a course plan to be reviewed first by the graduate coordinator. For this purpose, please **send a physical or electronic (email) copy to the graduate coordinator for compliance review BEFORE submission**.

V. M.S. COURSEWORK (Form 1/1A)

1. Campus requirements

1) **Thesis option:** a minimum of 30 hours of graduate credit that must include (i) a minimum of 18 credit hours at 4000-level or above (1000/2000-level courses cannot be included but the bridge courses at 3000 level could be)**,** (ii) a minimum of 6 credit hours from the group of 6000-level lecture courses, and (iii) a minimum of 6 credit hours of Chem Eng 6099 to perform research, write thesis, and defend MS thesis. If a student has co-advisors in different departments, the research credit may be shared by all departments involved.

2) **Non-thesis option:** a minimum of 30 hours of graduate credit that must include (i) a minimum of 24 credit hours at 4000-level or above (1000/2000-level courses cannot be included but the bridge courses at 3000 level could be) and (ii) a minimum of 9 credit hours from 6000-level lecture courses. **No credit hours of ChE 6099 Research can be counted for non-thesis MS degree even for those switching from thesis to non-thesis option**.

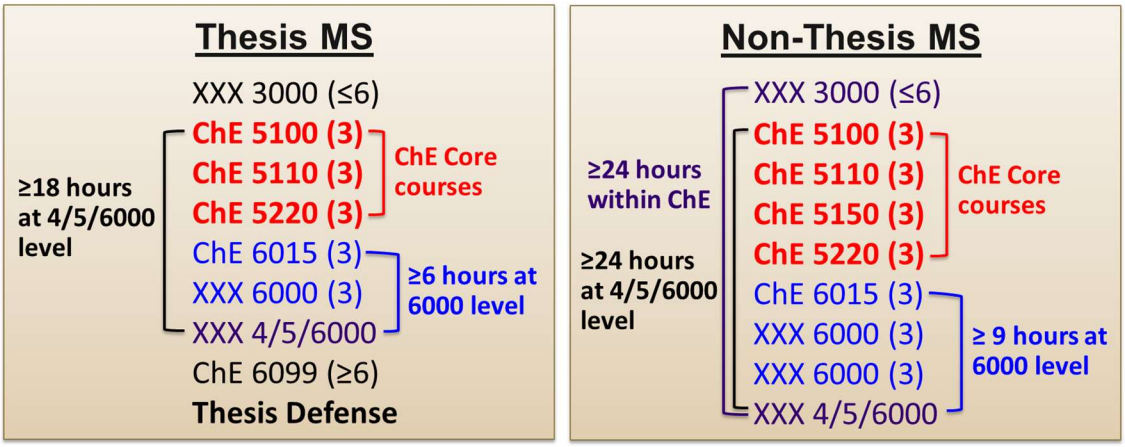
   It is very common for Ph.D. students, with or without prior M.S. degree, to use 10 courses to earn a non-thesis M.S. first. This can be done by applying to the non-thesis M.S. program via the same portal: https://connect.mst.edu/apply/. Note that any course appearing on Form 1/1A cannot be used again on Form 5/5A.

3) **Special purpose courses** such as CHEM ENG 5040 Oral Examination, CHEM ENG 6040 Oral Examination, CHEM ENG 6050 Continuous Registration, and CHEM ENG 6085 Internship will not be accepted as either lecture course or research hours as they are neither. CHEM ENG 5000 Special Problems and CHEM ENG 6000 Special Problems are possible to be counted for lecture credit hours but requires planning and consent of instructor and graduate coordinator.

2. Chemical engineering program requirements

1) **Thesis M.S. students:** must take Chem Eng 5100, Chem Eng 5110, Chem Eng 5220, and 1 credit hour of Chem Eng 6015 in three semesters.

2) **Non-thesis M.S. students:** must take a minimum of 24 credit hours in chemical engineering courses including Chem Eng 5100, Chem Eng 5110, Chem Eng 5220, and Chem Eng 5150 Intermediate Process Computing. No credit hours of ChE 6099 Research can be counted for non-thesis MS degree even for those switching from thesis to non-thesis option. The graphs below summarize the required MS coursework for easier reference.



3. Form 1 (Plan of Study)

During the semester a M.S. student will have completed 9 hours of graduate credit, the student must plan the remainder of their graduate program in consultation with their academic advisor (and selected committee members, if applicable) and submit a Form 1 for approval. This is a campus policy and please visit: https://grad.mst.edu/studentservices/navigatingyourdegreeprogram/forms/masters/ for detail and submission (introduced in Section II). Form 1 has two parts:

1) **thesis committee** (names and email addresses): required for thesis M.S. students and must consist of a minimum of three members. The advisor (chair of the thesis committee) and at least half of the other committee members must be members of Missouri S&T graduate faculty. If a committee member is not a member of the Missouri S&T graduate faculty, a vita verifying equivalent level of education must be provided with the Form 1/1A.

2) **course plan**: required for both thesis and non-thesis MS students. The course plan spreadsheet can be downloaded from the website and filled with courses that have been completed or planned to be taken in future semesters to meet the various campus and departmental credit-hour requirements explained above.

M.S. students very often need to revise plan of study (please keep your latest approved version) and submit the same form as Form 1A to report to the campus

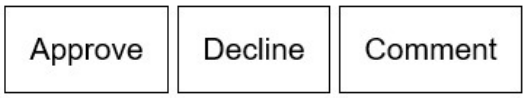
- **Curriculum changes** (add/delete course, change credit hour, etc): only the revised course plan is needed and the student, academic advisor, and department chair or graduate coordinator must approve the Form 1A (no thesis committee involved). Please refer to the Ph.D. example and the following M.S. examples to see how to correctly revise your course plan
- **Committee changes**: no need to upload course plan. An academic advisor and/or committee member being removed must acknowledge their removal. The student, academic advisor, current committee members, and department chair or graduate coordinator must approve the Form 1A. A contingency procedure that addresses circumstances when a student seeks to change the makeup of their graduate advisory committee, but a member or advisor is either unable or unwilling to provide the required authorization can be found on the Graduate Education webpage.

Thesis Master's Degree Course Plan

Name and ID:									
Add/Delete (Form 1A ONLY)	**Sem/Yr**	**Course Prefix/ Course Number**	**Course Title**	**Level/Credit Hours**					
				Transfer	3000- level & non-lec	4000/ 5000- level lec	6000-level lec	Research
	FS 2021	Chem Eng 5100	Intermediate Transport Phenomena			3.0		
	FS 2021	Chem Eng 5220	Intemediate Engineering Thermodynamics			3.0		
	FS 2021	Chem Eng 6099	Research					2.0
	FS 2021	Chem Eng 6015	Lecture Series				1.0	
	SP 2022	Chem Eng 5110	Intermediate Chemical Reactor Design			3.0		
	SP 2022	Chem Eng 5150	Intermediate Process Computing			3.0		
	SP 2022	Chem Eng 6099	Research					2.0
	SP 2022	Chem Eng 6015	Lecture Series				1.0	
	FS 2022	Chem Eng 6180	Advanced Applications of Computational Fluid Dynamics				3.0	
	FS 2022	Chem Eng 6099	Research					5.0
	FS 2022	Chem Eng 6015	Lecture Series				1.0	
	SP 2023	Chem Eng 6099	Research					3.0
							Total credit hours:	**30.0**

Non-thesis Master's Degree Course Plan								
Name and ID:	**Joe Miner 12345678**							
Add/Delete (Form 1A ONLY)	**Sem/Yr**	**Course Prefix/ Course Number**	**Course Title**	**Level/Credit Hours**				
				Transfer	3000- level & non-lec	4000/ 5000- level lec	6000-level lec	Research
	FS22	CHEM ENG 5100	Intermediate Transport Phenomena			3.0		
	FS22	CHEM ENG 5220	Intermediate Engineering Thermodynamics			3.0		
	FS22	CHEM ENG 5810	Introduction to Polymeric Materials			3.0		
	SP23	CHEM ENG 5001	Introduction to colloid checmistry and interfacial enginerring			3.0		
	SP23	MS&E 6060	Chemistry of construction materails				3.0	
D	SP23	CHEM ENG 6110	Advanced Transport Phenomena				(3.0)	
A	SP23	CHEM ENG 6110	Advanced Chemical Engineering Thermodynamics				3.0	
	FS23	CHEM ENG 5150	Intermediate Process Computing			3.0		
	FS23	CHEM ENG 5305	Hazardous Materials Management			3.0		
	FS23	CHEM ENG 6180	Advanced Applications of Computational Fluid Dynamics				3.0	
	SP24	CHEM ENG 5110	Intermediate Chemical Reactor Design			3.0		
						Total credit hours:		**30.0**

Once a student initiates the submission, the academic advisor, dissertation committee members when involved, department chair or graduate coordinator will receive an email from "S&T Graduate Forms Workflow" where they will see three options as shown below,



The campus strongly recommends not to cancel a submission to avoid rejections and complications. For any additional information or update, the "Comment" option may be used to provide suggestions and the student can upload corrected information/course plan to the same submission (File Upload 1, File Upload 2, etc.) using the "File Upload" link in the email. It is very often for course plan to need corrections, so it is highly recommended for a course plan to be reviewed first by the graduate coordinator. For this purpose, please **send a physical or electronic (email) copy to the graduate coordinator for compliance review BEFORE submission**.

4. **Second M.S. Degree:** A student who had earned a master's degree at Missouri S&T or elsewhere in one major can earn a second MS degree in another area at Missouri S&T. The second MS degree requires a minimum of twenty-four additional hours of graduate credit, including a minimum of eighteen credit hours of 4000-, 5000-, and 6000-level lecture courses and a minimum of six credit hours from 6000-level lecture

courses. Additionally, for a second/subsequent master's degree with a thesis, a minimum of six credit hours of graduate research is required.

VI. GRADUATE CERTIFICATE COURSEWORK

The department currently has two graduate certificates which are briefly summarized below. For more information, please consult with the graduate coordinator or refer to the graduate catalog (https://catalog.mst.edu/graduate/graduatecertificates/). M.S. or Ph.D. courses can be used to earn graduate certificate(s) but this needs to be done by application and BEFORE completing the M.S. or Ph.D. degree.

Chemical Process Engineering: This certificate requires two core courses selected from Chem Eng 5100, Chem Eng 5110, Chem Eng 5150, or Chem Eng 5220, and two 3-credit hour Chem Eng lecture courses at 5000 or 6000 level.

Carbon Management Engineering: This certificate requires two core courses in Chem Eng 5325 Carbon Capture Process Engineering and Petro Eng 5050 Carbon Storage, and two 3-credit hour lecture courses from a list of approved Chem Eng, Mech Eng, and Petro Eng courses.

VII. COURSE TRANSFERABILITY (FOR BOTH FORM 1 AND FORM 5)

In general, academia has a long tradition of a "**no double dipping"** rule, that is, one course for one degree and cannot be counted again for another. As a result, courses completed during previous degree study cannot be used for graduate certificate or graduate degrees except for the following cases.

1. **Share-credit and graduate credit courses by Missouri S&T students**
   1) **Graduate Track Pathways (GTP) share credits:** courses taken by students when completing BS degree at Missouri S&T may be designated up to 6 credit hours of 5000 level courses for M.S. degree or up to 12 credit hours of 5000-6000 level courses for Ph.D degree upon the approval of their GTP application.
   2) **Dual Enrollment:** courses taken by students when completing BS degree at Missouri S&T that were separated out of the BS degree via dual enrollment application to be counted as graduate credits.
2. **Graduate courses from another university:** may be transferrable as long as (i) they have not been used to earn another degree, (ii) were registered as graduate credits when they were taken, and (iii) received at least a B grade or equivalent. The university rules concerning transfer courses only specify the maximum numbers of credit hours for different degrees as summarized below, but whether the courses are qualified for transfer and what are the equivalent courses at Missouri S&T, required or elective at 5000 or 6000 level, should be determined by the departments involved.
   - **Ph.D. students without a master's degree** may transfer a maximum of 18 credit hours

- **Ph.D. students with a master's degree** may transfer a maximum of 9 credit hours.
- **M.S. students** may transfer a maximum of 9 credit hours.
- Graduate Certificates in the chemical engineering graduate program does not accept transfer credit.

After deemed transferrable, the qualified graduate courses is done by listing them individually on Form 1 or Form 5 (Plan of Study) with the MST equivalent courses (course number and title) written in parenthesis within the same box. It is important to note that **a student cannot take the same course again for a new degree even if the course has multiple course numbers**. If a required core course can be transferred or has been taken before, the student should take another course with the approval of the Graduate Coordinator based on educational objectives, research needs, and number of credit hours. Consult the Graduate Coordinator and/or graduate advisor in the Office of Graduate Education (https://grad.mst.edu/) for additional questions.

VIII. GPA AND GRADE REQUIREMENTS FOR GRADUATE STUDENTS

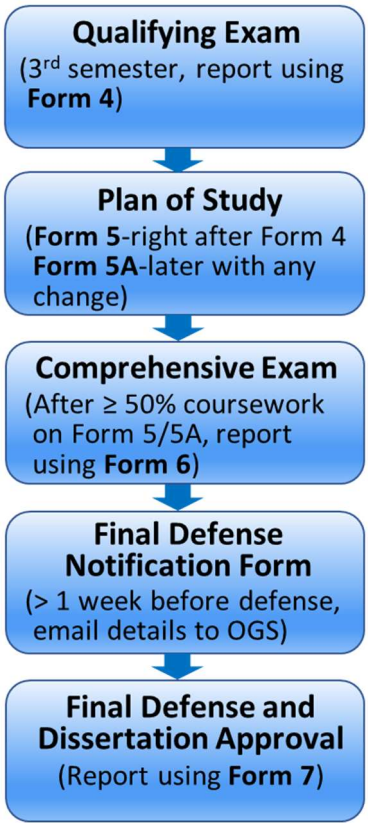
1. In order to earn a graduate degree a student must achieve both a cumulative GPA of 3.0 or higher for all graduate courses listed on the plan of study (Form 1 or Form 5) and cumulative GPA of 3.0 or higher in all coursework taken at Missouri S&T. No substitution may be made on the Plan of Study for courses in which the student has earned less than a B grade.
2. In order to earn a graduate certificate, a student must achieve a cumulative GPA of 3.0 or higher in the courses approved for the certificate. If a graduate certificate student applies and gets admitted to MS program, only the courses receiving A or B grades can be counted toward the subsequent MS degree.
3. If a semester graduate GPA falls below 3.0, the student will be placed on probation for the following semester. If the graduate GPA is not 3.0 or above in the following semester that coursework is taken, the student shall no longer be a candidate for a graduate degree or certificate from Missouri S&T.
4. In cases where a graduate student repeats a course, both the original and repeat grades will be used in calculating the student's GPA, and both will appear on the student's transcript.

   In addition, the ChBE department maintains an additional GPA requirement for PhD students, which is ≤ 9 credit hours of C grades over the course of PhD study.

IX. DOCTORAL FORMS

Several graduate forms are required for and represent different milestones in a student's pursuit of the Ph.D. degree. They must be submitted online here: (https://grad.mst.edu/studentservices/navigatingyourdegreeprogram/forms/doctoral/). More details are explained in more detail below.

1. Form 4 and Qualifying Examination (3rd semester)



The goal of the qualifying exam is to examine the critical thinking and analysis capabilities of new PhD students. **PhD students are required by our department to take it during their 3rd semester** and given two chances to pass the qualifying exam. The outcome of each attempt will be reported by the Graduate Coordinator to the Office of Graduate Education using Form 4. **If the student fails both times, the university rule disqualifies the student to continue their PhD study in the department.** Those who enter the PhD program in the Summer will be considered together with those entering in the Fall semester. Other details of the exam include:

1) A qualifying exam committee, of at least three faculty members, will be formed for each academic year by the department chair in consultation with the graduate committee. To avoid conflict of interest, the advisor of the student taking the exam should not be part of the qualifying exam committee or participate during the oral presentation or exam. Instead, the advisor should be replaced by another faculty member for the student's qualifying exam.
2) Between the qualifying exam committee, graduate committee, and research advisor, a pool of papers will be given to the student who should select one and report the selection back within a week to the Graduate Secretary in the department office to pass it to the exam committee. The Graduate Secretary will then schedule a qualifying exam time for the student.
3) The student will be required to critically review the literature and prepare a review manuscript which is centered around the selected paper and may provide foundational background for the student's dissertation research topic. This should be the student's work so the advisor should not help nor provide feedback to the student on this task.
4) The review manuscript should be at least 7 pages long but not more than 10 pages in length including written narrative, tables and figures (12 point, Times New Roman, single spaced with 1" margins) with sufficient references to indicate familiarity with the research topic (reference list and title page not included in the page limit). The manuscript should reflect the student's critical analysis and understanding of the literature related to the chosen research topic. **It is strongly recommended to organize your analysis and manuscript according to the following suggestion**:
   A. **Introduction:** general perspectives of the scope and importance of the research area (e.g., CO_2 management, battery, bioengineering, etc.)

B. **Background and motivation** of the work discussed in the manuscript: description and discussion of the purposes, methods, results, and findings of your key references, plus their limitations either reported or identified by yourself, that point out directions for ongoing or future research (e.g., what have been done to reduce CO_2 emission, capture and storage CO_2, or utilize/convert CO_2)
C. **The current state of art** in the selected research area: summary of key research accomplishments to date and known remaining challenges and of desired research outcomes to meet future needs (e.g., latest reactions and processes for CO_2 conversion).
D. **Areas for future work** in the research area: there should be several worthy of pursuit based on based on sections B and C, including your PhD project (e.g., new reactions or catalysts for CO_2 conversion).
E. **A proposed theoretical and/or experimental plan** to address a topic from the future work: your PhD project, needed to be explained why it is important and even necessary to work on.
F. A summary and outlook of the selected research topic: the potential contributions of and the likely future situation affected by your PhD project.
G. Potential learning and benefits that address the following questions:
    a) What the candidate learned from the literature that might be helpful towards his/her own research thesis work?
    b) What the candidate might use from their review towards his/her own research thesis topic?
    c) What literature the candidate might apply to their own research, and
    d) Ideas generated during the literature review that might advance the candidate's own research thesis work and/or might be suitable for a future funded proposal.
H. Tables and Figures (with reference if taken from the literature)
I. List of References (ACS journal format)

5) The student will provide a copy of their written manuscript to the department Graduate Secretary no less than two (2) weeks prior to the scheduled examination date. The writing should be the student's own work and the department will check for plagiarism using related software. Plagiarism of one's own or other's work is an ethical violation and will be grounds for disqualification from taking the qualifying exam. An important way to avoid such mistakes is to cite references properly in the manuscript and presentation file.

6) The student will be required to submit a power point presentation of no more than 30 slides to the Graduate Secretary at least two (2) weeks prior to the scheduled exam who will provide it to the examining committee. The advisor must not help the student prepare these slides. The presentation time allowed during the exam

   will be limited to 30 minutes, followed by a closed portion for examination questions by the committee. The presentation should reflect what is presented in the written manuscript.

7) During the closed portion of the exam, the committee may ask general questions related to reaction engineering, transport phenomena, and thermodynamics that are considered relevant to the selected research topic. The student will be required to address them orally to the exam committee.

8) If the student does not pass the first time, retaking the exam will require he/she to repeat the entire procedure described above. The committee will work with the student to schedule a proper time for re-examination which allows sufficient time for the student to prepare for and retake the qualifying exam. The second attempt should be completed before the end of the same semester when the student took the qualifying exam for the first time.

9) Shortcomings identified by the committee from the qualifying exam will be provided in writing and/or verbal explanation to the student and the advisor. The committee may suggest remedial actions that the student can work on independently or together with advisor to address the identified shortcomings.

2. Form 5/5A: Plan of Study

Please refer to section IV.3 for all the relevant details. Please note that Form 5 is a plan, not a contract, so changes can be made as many times as needed. The office of Graduate Education usually relies on the last approved Form 5/5A to review current submission, so it is to your best interest to keep a (physical or electronic) copy of your latest course plan and use it to prepare new submission.

3. Form 6: Report on Doctoral Comprehensive Examination

After a PhD candidate has **completed at least 50% of the coursework required** for the doctoral degree that were listed on their approved Form 5/5A, the candidate should consult their research advisor and committee members to arrange for comprehensive examination. The purpose of the comprehensive exam is to ensure that the student is knowledgeable enough with his or her area of research to make an original contribution and to determine whether the student should be permitted to "advance to candidacy"—that is, to go on and write a PhD dissertation. It is also an opportunity to assess graduate student learning outcomes for the department and for the university. For this reason and purpose, **the student/advisor should (i) inform the gradate coordinator or graduate secretary when and where is the comprehensive exam, (ii) bring the graduate learning outcome (GLO) assessment rubric forms to the exam to be used by every dissertation committee member** to assess various learning outcomes of the student's PhD study, and **(iii) report the exam outcome and give the rubric forms back to the department/graduator coordinator**. To report the outcome of the comprehensive exam, **Form 6** should be submitted via electronic workflow to get email recommendations/approvals from advisor, committee members, gradate coordinator, and then the Office of Graduate Education.

The current format of PhD comprehensive examination comprises a written report and oral presentation of a research proposal. Relevant details of the exam include the following:

1) According to campus policy II-20, the student must be enrolled on the date of the comprehensive exam. Failure to do so may invalidate the exam. Concerning the intersessions between semesters, if the student is enrolled in the previous semester, the enrollment will be automatically extended to cover the intersession so that the **student can conduct comprehensive exam during the intersession** without having to enroll in any course.

2) The student will submit the required written report to the advisory committee **at least one week before the comprehensive exam presentation**. The report could be considered the first draft of the student's Ph.D. dissertation and the oral presentation should reflect what is presented in the written report. It may be beneficial to think of comprehensive exam as a sort of pre-defense.

3) Plagiarism of one's own or other's work is an ethical violation and will be grounds for disqualification from taking the qualifying exam. An important way to avoid such mistakes is to cite references properly in the manuscript and presentation file.

4) **1 credit hour per semester reduced enrollment:** After passing the comprehensive examination and completing all the minimum requirements in lecture credit hours, research credit hours, and years of residency**,** the student can submit **Reduced Enrollment Form**, which is available in the ISSS Gateway Portal (https://international.mst.edu/isssgatewayportal/), to get approval to take one credit hour of special problems (Chem Eng 6000) or graduate research (Chem Eng 6099) each semester until the degree is completed.

4. Final Defense Notification Template (≥1 week prior to defense)

Please note that there must be at least 12 weeks between passing the comprehensive examination and holding the defense. A PhD candidate should submit this form via electronic workflow **no later than 1 week prior to the defense date**. Prior to or around submission of this form, the PhD candidate should also distribute a copy of PhD dissertation to each advisory committee member. Failure to do so may result in an invalid defense.

When writing your PhD dissertation, you want to ensure your document is presented in the most professional manner possible. For this purpose, the following website: https://grad.mst.edu/studentservices/thesisdissertationguide/ **provides many useful resources on formatting your document properly (traditional format or publication option), binding your work professionally, and more**. You are strongly recommended to visit this website from the beginning to the final stage of writing your dissertation. If additional help is needed, the campus offers a free program called Thesis & Dissertation Writing Camp on a regular basis. To participate, visit https://grad.mst.edu/currentstudents/thesisanddissertationwritingcamp/. All these online resources are provided and maintained by the Office of Graduate Education.

5. Form 7: Report on Final Examination (Defense) and Dissertation Approval

Similar to comprehensive exam and Form 6, **the student/advisor should (i) inform the gradate coordinator or secretary when and where is the PhD defense, (ii)**

bring the GLO assessment rubric forms to the defense to be used by every dissertation committee member to assess student learning outcomes, and **(iii) report the defense outcome and give the rubric forms back to the department/graduator coordinator**. A candidate will be considered to have **passed the defense if all, or all but one, of the advisory committee members** vote that the candidate passed. Regardless of the outcome, **Form 7 must be submitted by the student via electronic workflow to the campus.** Once this form has been approved by the dissertation committee and the Office of Graduate Education, no other content changes can be made except for changes to the format outlined by the Thesis/Dissertation Specifications.

6. ChBE Departmental PhD Dissertation Award

The department created a PhD dissertation award to recognize and honor PhD students who have accomplished excellent PhD dissertations, and to also encourage all PhD students to actively write or participate in writing papers for their research projects. The departmental Graduate Committee has been given charge and thus established the following instructions to handle this award rigorously and consistently. For those who are interested, please consider

1) **Eligibility:** PhD students in their last semester who have successfully defended their PhD dissertations and produced a minimum of three qualified publications. Since summer has no commencement, PhD students graduating in summer can apply to be considered in the preceding Spring semester.
2) **Qualified publications:** published archival papers, accepted/in-press manuscripts, and filed nonprovisional utility patents, which must also be
   - peer-reviewed,
   - with the PhD applicant being the first author, and
   - included in the student's PhD dissertation.

   Delayed publications due to confidentiality reasons may also qualify with advisor's certification.
3) **Application:** Because the Graduate Committee has no or limited access to the needed information, interested and qualified PhD students should apply by submitting digital(pdf) versions of their dissertations and publications as well as a completed **application form** to the Graduate Coordinator on behalf of the Graduate Committee at least one week prior to the commencement.
4) **Awardee:** every applicant who has met the above qualifications, completed their application in time, and received a majority vote from the Graduate Committee will be awarded.

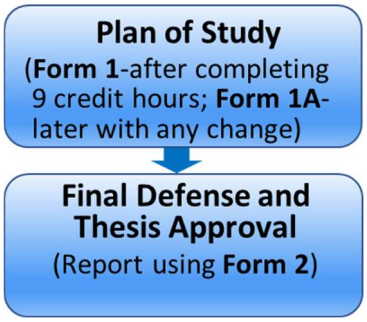
7. Application to Conduct Off-Campus Research

This form must be submitted to request prior approval to conduct off-campus research to ensure that such an endeavor will result in educational experiences which are equivalent, or superior, to those that a student might expect to have at Missouri S&T.

X. MASTER FORMS

The following are graduate forms required or potentially needed for MS students to complete their MS study. They must be submitted via electronic workflow (https://grad.mst.edu/studentservices/navigatingyourdegreeprogram/forms/masters/).

1. **Form 1/1A: (Revised) Plan of Study**



   Please refer to section V.3 for all the relevant details. Please note that Form 1 is a plan, not a contract, so changes can be made as many times as needed. The office of Graduate Education usually relies on the last approved Form 1/1A to review current submission, so it is to your best interest to keep a (physical or electronic) copy of your latest course plan and use it to prepare new submission.

   Switching between thesis and non-thesis MS study is also done using Form 1/1A by checking a different box during a new submission. It needs to be approved by advisor, graduate coordinator, and then Office of Graduate Education.

2. **Form 2: Report on Final Examination (Defense) and Thesis Approval**

   When ready, a thesis MS student can consult with advisor and thesis committee members to arrange a date for defense. The candidate should distribute a copy of MS thesis to each committee member **at least seven days prior to the defense date**. **The student/advisor should (i) inform the gradate coordinator or secretary when and where is the MS defense, (ii) bring the assessment rubric forms attached in the appendix to the defense to be used by every dissertation committee member** to assess student learning outcomes, and **(iii) report the defense outcome and give the rubric forms back to the department/graduator coordinator**.

   A candidate will be considered to have **passed the MS defense if all, or all but one, of the advisory committee members** vote that the candidate passed. Regardless of the outcome, **Form 2 must be submitted by the student via electronic workflow to the campus.** Once this form has been approved by the dissertation committee and the Office of Graduate Education, no other content changes can be made except for changes to the format outlined by the Thesis/Dissertation Specifications.

   When writing your MS thesis, you want to ensure your document is presented in the most professional manner possible. For this purpose, the following website: https://grad.mst.edu/studentservices/thesisdissertationguide/ **provides many useful resources on formatting your document properly (traditional format or publication option), binding your work professionally, and more**. You are strongly recommended to visit this website from the beginning to the final stage of writing your dissertation. If additional help is needed, the campus offers a free program called Thesis & Dissertation Writing Camp on a regular basis. To participate, visit https://grad.mst.edu/currentstudents/thesisanddissertationwritingcamp/. All these online resources are provided and maintained by the Office of Graduate Education.

3. **Request for Waiver of Enrollment Requirements**

   Although graduate teaching and research assistants (GTA/GRA), graduate instructors, and graduate fellows are required to be enrolled full time each semester when they receive the assistantship, a one-time-only exit semester of reduced enrollment may be allowed, by submitting this form for MS students receiving assistantship.

XI. GRADUATE CERTIFICATE FORMS

Graduate Certificates are open to existing M.S. and Ph.D. students who can apply via the same application portal: https://connect.mst.edu/apply/. If planned properly, the student can earn a graduate certificate or two without having to take any additional course as certificate courses are allowed to be used again for Form 1/1A or Form 5/5A. However, the student must complete the certificate program before their graduate degree is awarded, otherwise those courses become "locked in" to that graduate degree and cannot be used toward the certificate.

Once a student is active in a certificate program, the relevant courses completed by the student will automatically be pulled into the appropriate sections of their degree audit. The student will only need to apply for completion/graduation via Joe'SS when finishing the last course and no additional form will be needed.

There are two special circumstances where clarification is needed by filling out the following forms.

1. **Substitution for Required Certificate Course(s) Form**

   When a required course for a graduate certificate is no longer available or has been taken for a previous degree, this form can be submitted to substitute the required certificate course with an acceptable alternate course.

2. **Certificate Program Courses Form**

   When a certificate student is active in more than one certificate program, this form is required to designate courses for each certificate. Courses taken for a specific certificate cannot be counted toward an additional certificate (no "double-dipping"). This form must be submitted before a second and/or subsequent certificate(s) can be awarded.

XII. GOOD STANDING

1. **University rules and regulations concerning graduate studies** are inflexible but can be updated on an annual basis. They are stated in the Missouri S&T graduate catalog (http://catalog.mst.edu/graduate/) which is updated and published by the Office of Graduate Education (https://grad.mst.edu). The applicability of the rules, regulations, and their changes is determined by the student's catalog year based on the date of admission to the degree program. Students may request to **change to a future catalog year** via electronic workflow. If a student changes their catalog year,

they are responsible for fulfilling all of the graduation requirements in the newly chosen catalog and are not permitted to use a combination of catalogs to satisfy degree requirement.

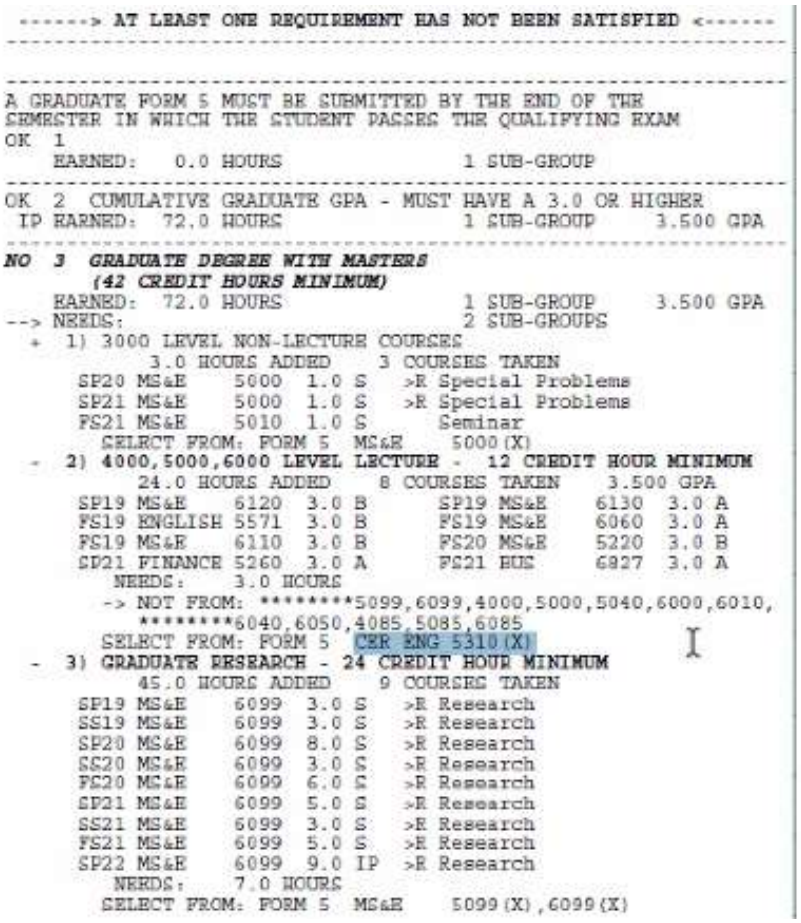
2. Once admitted to a degree program, on campus graduate students must remain continuously enrolled in each fall and spring semester while summer enrollment is not required except when campus resources are used. A graduate student will be given a specified amount of time (three years for certificate, six years for master's, eight years for doctoral) to complete the program. A student may take a leave of absence, up to one year only, which will not count toward the specified time limit. For this purpose, **Request for Leave of Absence Form** must be submitted via electronic workflow by the student in a timely manner.
3. Graduate students can visit https://registrar.mst.edu/psinfo/degreeaudit/index.html any time to check on their **degree audit**, catalog year, and academic progress towards their degree, including required graduate forms that have been submitted or not. All categories of requirements will have to show 'OK' for graduation.
4. **Academic probation:** "if a semester graduate GPA falls below 3.0, the student will be placed on probation for the following semester. If the graduate GPA is not 3.0 or above in the following semester that coursework is taken, the student shall no longer be a candidate for a graduate degree or certificate from Missouri S&T." A formal notice/letter will be emailed to the student and the department from the Office of Graduate Education.
5. **Full-time enrollment: ≥ 9 credit hours in fall or spring semester and ≥ 3 credit hours in summer session.** Note that **full-time enrollment is required for tuition waiver for sponsored students.** Graduate teaching and research assistants (GTA/GRA), graduate instructors, and graduate fellow are required to be enrolled full time in each semester and summer session when they receive the assistantship except (i) MS students in their exit/last semester and (ii) PhD students completing comprehensive examination and all coursework. The eligible MS and PhD students must submit **Reduced Enrollment Request Form** via electronic workflow to be approved by the campus to maintain full time status with less than full time load.
6. **International students**, with or without assistantship, are required to enroll in a minimum of 9 credit hours in each fall and spring semester. Summer enrollment is optional but a minimum of 3 hours becomes required when a graduate student receives summer assistantship. International students are further subject to US government rules and regulations, including I-20, student visa, OPT, and CPT, which are handled by the Office of International Affairs (https://international.mst.edu/) and the Office of Graduate Education (https://grad.mst.edu/). Please consult with the advisors in these offices for more information and possible changes/ extensions/exceptions in these regards.
7. Those who have been admitted conditionally without satisfactory English proficiency must meet the campus minimum standard within the first year of their graduate study: TOEFL ≥ 79, IELTS ≥ 6.5, Duolingo ≥ 105, or PTE ≥ 53.

8. There will be no financial support from the department without good standing. "Good standing" indicates conforming to relevant rules, regulations, and ethical standards, as well as showing satisfactory progress towards the degree on a regular basis in terms of coursework and research. In this respect, the dissertation/thesis advisor plays pivotal roles as the advisor controls advising hold, runs funded projects (funding source for GTA), approves various graduate forms, and chairs the dissertation/thesis committee. The advisor's endorsement is an important foundation for the confirmation of good standing.

XIII. ADDITIONAL INFORMATION

1. **Joe'SS** (pronounced "Joe's") is short for Joe Miner's Self-Service (https://joess.mst.edu/), a web portal that is accessible anywhere and allows students access to their academic and financial information such as course enrollment, payment options and history, billing statements, financial aid information, transcripts, and degree audit. To access financial information and aid communication with the Cashiers and Student Financial Assistance Offices, students need to agree to e-Consent. For more information about Joe'SS, visit https://registrar.mst.edu/psinfo/.

   Degree audit can also be directly accessed via https://mydegree.mst.edu. The following is an example in 2UP format (option under UM in the upper right corner)



```
------> AT LEAST ONE REQUIREMENT HAS NOT BEEN SATISFIED <------
-----------------------------------------------------------------

-----------------------------------------------------------------
A GRADUATE FORM 5 MUST BE SUBMITTED BY THE END OF THE
SEMESTER IN WHICH THE STUDENT PASSES THE QUALIFYING EXAM
OK  1
    EARNED:   0.0 HOURS                1 SUB-GROUP
-----------------------------------------------------------------
OK  2  CUMULATIVE GRADUATE GPA - MUST HAVE A 3.0 OR HIGHER
 IP EARNED:  72.0 HOURS                1 SUB-GROUP      3.500 GPA
-----------------------------------------------------------------
NO  3  GRADUATE DEGREE WITH MASTERS
       (42 CREDIT HOURS MINIMUM)
    EARNED:  72.0 HOURS                1 SUB-GROUP      3.500 GPA
--> NEEDS:                             2 SUB-GROUPS
  +  1) 3000 LEVEL NON-LECTURE COURSES
          3.0 HOURS ADDED    3 COURSES TAKEN
     SP20 MS&E    5000  1.0 S   >R Special Problems
     SP21 MS&E    5000  1.0 S   >R Special Problems
     FS21 MS&E    5010  1.0 S      Seminar
       SELECT FROM: FORM 5  MS&E    5000(X)
  -  2) 4000,5000,6000 LEVEL LECTURE -  12 CREDIT HOUR MINIMUM
          24.0 HOURS ADDED    8 COURSES TAKEN    3.500 GPA
     SP19 MS&E    6120  3.0 B      SP19 MS&E    6130  3.0 A
     FS19 ENGLISH 5571  3.0 B      FS19 MS&E    6060  3.0 A
     FS19 MS&E    6110  3.0 B      FS20 MS&E    5220  3.0 B
     SP21 FINANCE 5260  3.0 A      FS21 BUS     6827  3.0 A
        NEEDS:    3.0 HOURS
       -> NOT FROM: ********5099,6099,4000,5000,5040,6000,6010,
          ********6040,6050,4085,5085,6085
       SELECT FROM: FORM 5  CER ENG 5310(X)
  -  3) GRADUATE RESEARCH - 24 CREDIT HOUR MINIMUM
          45.0 HOURS ADDED    9 COURSES TAKEN
     SP19 MS&E    6099  3.0 S   >R Research
     SS19 MS&E    6099  3.0 S   >R Research
     SP20 MS&E    6099  8.0 S   >R Research
     SS20 MS&E    6099  3.0 S   >R Research
     FS20 MS&E    6099  6.0 S   >R Research
     SP21 MS&E    6099  5.0 S   >R Research
     SS21 MS&E    6099  3.0 S   >R Research
     FS21 MS&E    6099  5.0 S   >R Research
     SP22 MS&E    6099  9.0 IP  >R Research
        NEEDS:    7.0 HOURS
       SELECT FROM: FORM 5  MS&E    5099(X),6099(X)
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The usual rule of thumb for completing a degree is to get OK for every block, each a sub- requirement, signified by dashed lines. When ***NO*** is given instead, the degree audit usually provides brief explanation and recommendation. Please consult your advisor or graduate coordinator for further questions.

2. It is beneficial to visit the websites of the Office of Graduate Education (https://grad.mst.edu/) and The Council of Graduate Students (https://cgs.mst.edu/) occasionally to get familiar with all the relevant rules and regulations, available resources, ongoing events, and new opportunities. They are also a good starting point when you face special situations and need certain help.

3. Student code of conduct: Student Honor Code can be found at this link: http://stuco.mst.edu/honor-code/. Conduct of students subject to sanctions can be found here: https://registrar.mst.edu/academicregs/conductofstudents/, and falls into the following categories:

1) Academic dishonesty, such as *cheating*, *plagiarism*, or *sabotage*.
2) Forgery, alteration, or misuse of University documents, records or identification, or knowingly furnishing false information to the University.
3) Obstruction or disruption of teaching, *research*, administration, conduct proceedings, or other University activities, including its public service functions on or off campus.
4) Physical abuse or other conduct which threatens or endangers the health or safety of any person.
5) Stalking another by following or engaging in a course of conduct with no legitimate purpose.
6) Academic dishonesty, such as cheating, plagiarism, or sabotage.
7) Forgery, alteration, or misuse of University documents, records or identification, or knowingly furnishing false information to the University.
8) Obstruction or disruption of teaching, research, administration, conduct proceedings, or other University activities, including its public service functions on or off campus.
9) Physical abuse or other conduct which threatens or endangers the health or safety of any person.
10) Stalking another by following or engaging in a course of conduct with no legitimate purpose.
11) Academic dishonesty, such as cheating, plagiarism, or sabotage.
12) Forgery, alteration, or misuse of University documents, records or identification, or knowingly furnishing false information to the University.
13) Obstruction or disruption of teaching, research, administration, conduct proceedings, or other University activities, including its public service functions on or off campus.
14) Physical abuse or other conduct which threatens or endangers the health or safety of any person.
15) Stalking another by following or engaging in a course of conduct with no legitimate purpose.

16) Hazing, participation or cooperation by the person(s) being hazed does not excuse the violation. Failing to intervene to prevent (and/or) failing to discourage (and/or) failing to report those acts may also violate this policy.
17) Misuse of computing resources in accordance with University policy.
    a. Actual or attempted theft or other abuse.
    b. Unauthorized entry into a file to use, read, or change the contents, or for any other purpose.
    c. Unauthorized transfer of a file.
    d. Unauthorized use of another individual's identification and password.
    e. Use of computing facilities to interfere with the work of another student, faculty member, or University official.
    f. Use of computing facilities to interfere with normal operation of the University computing system.
    g. Knowingly causing a computer virus to become installed in a computer system or file

4. **Research Integrity and Ethics** is an important graduate learning outcome. To provide additional insights and guidelines, and to address potential issues, a special seminar will be presented annually to the graduate students. The presentation slides and relevant materials will be made available to the students via email and department websites.

5. **Title IX:** Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises. Contact Missouri S&T's Title IX Coordinator (203 Centennial Hall; 573-341-6038) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit http://titleix.mst.edu.

6. **Disability Support:** If special accommodations are needed for research and classes due to certain documented and approved disability, please consult the Disability Services staff at 204 Norwood Hall, Tel: 341-4211, email: dss@mst.edu, web: http://dss.mst.edu, your advisor and course instructors.

7. **Well-Being and UCARE** (https://go.mst.edu/ucare-report)
Any of us may experience strained relationships, increased anxiety, feeling down, alcohol/drug misuse, decreased motivation, challenges with housing and food insecurity, etc. When your mental well-being is negatively impacted, you may struggle

academically and personally. If you feel overwhelmed or need support, please make use of S&T's confidential mental health services at no charge. If you are concerned about a friend or would like to consult with a Care Manager, please make a UCARE referral for support and assistance.