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**DEPARTMENT OF CHEMICAL ENGINEERING**

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**GRADUATE PROGRAM REQUIREMENTS**

for the degree of

**Masters of Science, Non-Thesis Option**

Fall 2017

## A. INTRODUCTION

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These guidelines describe the Program requirements for the degree of Master of Science, Non-Thesis in the Department of Chemical Engineering. More detailed general requirements for the various degree program as well as descriptions of courses can be found in the University of Florida Graduate Catalog (<http://graduateschool.ufl.edu/academics/graduate-catalog>). A student is normally regulated by the rules set forth in the catalog published in the academic year of the student's first term. It is the responsibility of the students to know and take appropriate steps to meet all Program requirements in this document and those in the student catalog.

The Masters of Science, Non-Thesis (MSNT) degree program in Chemical Engineering at the University of Florida can be completed in one academic year (namely, consecutive Fall, Spring, and Summer semesters), although most students choose to spread the courses over 1.5 or 2 years. The program provides an opportunity to develop an in-depth knowledge of chemical engineering fundamentals, to emphasize a specific specialization area, and to acquire basic experience in research or industrial practice through a short internship.

## B. PROGRAM REQUIREMENTS for MASTER OF SCIENCE – NON-THESIS (MSNT)

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**Course Requirements** - All requirements can be completed in a minimum of 1 year including the summer, but students can take longer to finish the program. The MSNT program requires a total of 30 credits of graduate courses. Of these, 15 credits must be non-research courses, not including seminar, taken in the Chemical Engineering Department. The chemical engineering courses must include the three Basis courses: **ECH 6937 Advanced Chemical and Bio Lab or Molecular Basis of Chemical Engineering (ECH 6272)**, **ECH 6847 Mathematical Basis of Chem. Eng. and ECH 6270 Continuum Basis of Chemical Eng.** Additionally, a course in the general area of reaction kinetics is required. This requirement can be met by taking reactor design, pharmacokinetics or equivalent. Kinetics course can also meet this requirement but Molecular Basis is a prerequisite for that course. The instructor can however waive the requirement of Molecular Basis as a pre-requisite. MSNT students can also register for credits to either carry out research project in the chosen area of specialization (Individual Work ECH 6905) or to conduct an internship with an industry or a government laboratory facility. Additionally the students are allowed to take 1 or 2 credits in ECH 6926 Chemical Engineering Seminar. The aggregate of credits taken for research/internship and seminars cannot exceed 9 credits. All remaining credits can be taken in elective courses within chemical engineering (at least one) or in other departments, allowing the students to develop a specialization focus. Students can use 6 credits in a chosen department to obtain a minor. Chemical Engineering credits must be in courses numbered 5000 or above. For work outside Chemical Engineering, 6 credits of courses numbered 3000 or above may be taken if part of an approved plan of study.

*A suggested schedule of courses for graduation in a year is shown below. The sequence of courses is organized to allow students to take 10 credits in the Fall semester, 13 credits in Spring semester, and 7 credits in the Summer semester. Your schedule could vary depending on courses that you wish to take to satisfy all the requirements.*

**FALL semester**                      *Total: 10 credits*

- (3) ECH 6847 Mathematical Basis of Chem. Eng.
- (3) ECH 6270 Continuum Basis of Chemical Eng.
- (3) ECH 6937 Advanced Chem and Bio Lab.
- (1) ECH 6929 Chemical Engineering Seminar

**SPRING semester**     *Total: 13 credits*

- (3) Chem. Eng. Dept. course in the general area of kinetics (reactor design, pharmacokinetics, or biochemical course if offered)
- (3) Any Chem. Eng. Dept. course
- (3) Elective course taken inside or outside of the Chem. Eng. Dept.
- (3) Elective course taken inside or outside of the Chem. Eng. Dept.
- (1) ECH 6929 Chemical Engineering Seminar

**SUMMER semester**     *Total: 7 credits*

***(7) ECH 6905 Individual Work (7 credits) - Carry out Research Project or an internship with industry or a US government laboratory. Please make sure that you DO NOT register for Masters Thesis Research (ECH 6971) for these credits. If you wish to conduct research as a part of your MSNT program, you need to take part in the advisor selection process that will be conducted towards the end of the first semester.***

***Research and/or Internships*** - The MSNT program can include a maximum of 7 credits of research activities (ECH 6905) to give the students experience in carrying out academic research. Alternatively, these credits can be used to carry out a 3-month internship with a sponsoring company or US government laboratory, based on the availability of such opportunities. A final written report describing the activities undertaken under the 7 credits of research or internship activities is required for graduation. The report must bear the joint signatures of the student and of the research or internship adviser, and must be submitted and approved by the Graduate Advisor before the end of the semester. Guidelines for preparing the report are provided below.

**Guidelines for the Masters of Science (Non-Thesis) Report**

The written report for the Masters of Science (Non-Thesis) must outline the area of research and its importance, problem statement, background to the research area, specific tasks, methods, results, discussions, and potential future steps. A suggested page limit is 15 single-spaced, typed (10-point or larger font) pages, including figures and tables. The report should also include a title, a table of contents, references, and an abstract. Additional material such as submitted papers, detailed derivations, etc could be included as Appendices. The report should provide evidence for your ability to communicate effectively. The main body of the text would typically consist of the following:

1.     **Introduction:** A concise overview of the research area and topic and their importance.
  
2.     **Background:** Literature review and relevant background needed to place the study in the larger context and to highlight the relevance and the novelty of the research. This section should demonstrate your ability to critically read engineering literature.
  
3.     **Problem description:** A description of the specific problem, objectives, and novelty of the research. This section should demonstrate your ability to formulate a problem.
  
4.     **Methods:** A description of the theoretical and/or experimental work. This section should demonstrate your ability to solve engineering problems.

5. **Results and Discussion:** Description of the results accompanied by an analysis or discussion of the results. This section should demonstrate your ability to use the techniques, skills, and modern engineering tools necessary for engineering practice at an advanced level.

6. **Proposed Future tasks:** Details of the potential future research in the same area. This section should demonstrate your ability to identify new problems.

7. **Concluding remarks:** A brief summary of the work with details of what new has been accomplished in your research.

8. **References:** A list of references cited in the report.

9. **Tables & Figures:** Tables and figures used in the proposal should be integrated into the text.

10. **Appendices (if needed):** Submitted papers, detailed derivations, detailed experimental protocols.

**MSNT students who do not do research or internship must submit a report on a chemical engineering related topic of their choice as a requirement for graduation. The report could be a literature review or a critique of a published journal paper. The report must be submitted to the Graduate Advisor before filing your degree application. A passing grade is required in the report to graduate.**

*Other* - MSNT are not eligible for financial support by a Graduate Assistantship. However, students who perform well in the MSNT program can apply for admission to the Ph.D. program; if admitted, such students will receive a Graduate Assistantship and a tuition waiver for the duration of their doctoral studies. MSNT students can also change their degree program to MS (Thesis) with approval from their research advisor and the Graduate Coordinator. If you are interested in pursuing MS (Thesis), submit the filled form provided at the end of this document to the Graduate Coordinator.

#### **ACADEMIC ACHIEVEMENT AWARD**

The Academic Achievement Award is given to qualified students at the time of the admission. If you were not considered to be qualified for the award at the time of the admission, you are not eligible for this award after joining the program irrespective of your academic performance.

To maintain the AA Award you must keep a GPA of 3.0 or higher. If a student that has the AA award fails to maintain the 3.0 GPA after the first semester, the award may discontinue. The student can request the Graduate Coordinator to submit a petition on behalf of the student for continuation of the award if extenuating circumstances led to the poor performance.

**In each case, a petition has to be submitted by the Graduate Advisor to the College of Engineering so please contact him/her well in advance of registration if you require a petition.**

## C. OTHER POLICIES AND REQUIREMENTS

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**Safety:** The Department of Chemical Engineering considers chemical laboratory safety to be both an educational objective and a laboratory imperative. All laboratory personnel (including graduate and undergraduate students, post docs, volunteers, hosted minors, and technicians) are required to take the on-line course EHS861: Chemical Hygiene Plan for Laboratory Staff. Subsequent training, based on the laboratory-specific Chemical Hygiene Program created for your research activities, will be provided by your research director. Annual training is required for all employees who generate or manage hazardous waste. Additional one-time or annual training may be required for researchers working in special-risk areas.

**Concurrent degree program** is simultaneous study on an individualized basis that leads to two master's degrees in two different graduate programs or two master's degrees in the same major. Such a program is initiated by the student and requires prior approval of each academic unit and the Graduate School. If the student is approved to pursue two master's degrees, no more than 9 credits of course work from one degree program may be applied toward the second master's degree.

Graduate students who wish to enroll in a concurrent degree program must obtain the appropriate forms from the graduate school. The graduate coordinator will sign these forms *only after consulting the chair and after the student's graduate adviser has given written approval for the student to enroll in the concurrent degree program*. A copy of all communications regarding the application for the program will be maintained in the student's graduate folder with the Graduate Program Assistant (Shirley Kelly).

**Minor** is a block of course work completed in any academic unit outside the major, if approved for master's or doctoral programs listed in this catalog. *Minor work must be in an academic unit other than the major. If a student earns more than one course from an academic unit contributing to the major of another, the student is not eligible to earn a minor from the contributing academic unit.* If a minor is chosen, the supervisory committee must include a representative from the minor field. If a minor is chosen, at least 6 credits of work are required in the minor field. Two 6-credit minors may be taken with the major academic unit's permission. A 3.00 (truncated) GPA is required for minor credit. The minor appears on the student's transcript along with the program name and the degree awarded. The minor department may have other specific requirements in addition to those above so please contact the department if you are considering getting a minor.

**Transfer of credit:** Only graduate-level (5000-7999) work with a grade of B or better, is eligible for transfer of credit. A maximum of 15 transfer credits are allowed. These can include no more than 9 credits from institution/s approved by UF, with the balance obtained from post baccalaureate work at the University of Florida. Credits transferred from other universities are applied toward the degree requirements, but grades earned are not computed in the student's grade point average. Acceptance of transfer of credit requires approval of the student's supervisory committee and the Dean of the Graduate School.

Petitions for transfer of credit for a master's degree must be made during the student's first term of enrollment in the Graduate School.

**Academic Honesty and Ethical Conduct in Research** - All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. Students are expected to produce their own work in homework, projects, and exams. Unauthorized collaboration in take-

home exams, projects, and individual assignments is a serious violation of the university honor code and could lead to a grade decrease, course failure, and loss of degree status.

Students are expected to maintain high ethical standards in the conduct and reporting of scientific and scholarly research. Students are responsible for ethical research conduct to the University, to the academic community, to those sponsoring the research, and to the community at large. Research Misconduct, including fabrication or falsification of data, or plagiarism in proposing, performing, or reviewing research or reporting of results, is a most serious offense that can greatly damage the welfare and reputation of the students, faculty, and the University. For more information regarding Research Misconduct, see <http://www.admin.ufl.edu/DDD/attach06-07/R10101-0704.pdf>

From the UF Student Handbook: "Plagiarism is not tolerated at the University of Florida. Plagiarism in a thesis or dissertation is punishable by expulsion. If the plagiarism is detected after the degree has been awarded, the degree may be rescinded. For a thorough discussion and the law, see [www.rbs2.com/plag.htm](http://www.rbs2.com/plag.htm). A briefer discussion and some tips for avoiding it are provided at [www.indiana.edu/~wts/pamphlets/plagiarism.shtml](http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml).

**Request for converting degree program from MSNT to MS (Thesis)**

To

The Graduate Coordinator

Chemical Engineering

**Subject: Changing status from MSNT to MS**

I am currently a MSNT student in the chemical Engineering department. I joined the MSNT program in \_\_\_\_\_ and was assigned to conduct my research with Professor \_\_\_\_\_. I am now interested in converting my status from MSNT to MS, Thesis. I have discussed this with my advisor and he supports this request.

Sincerely,

\_\_\_\_\_

\_\_\_\_\_

(Include your name, email address, UF ID, and sign and date)

I approve this request.

\_\_\_\_\_

(Research advisor)

I approve the change of status from MSNT to MS

\_\_\_\_\_

(Graduate Coordinator)