

GRADUATE COUNCIL MINUTES

APPROVED

685th Meeting

May 10th, 2024

MEMBERS PRESENT: Chen, Finley, Floyd, Gaillard, Garver, Hunt, Lundstrum, Notebaert, Rohl, Torkinejad-Ziarati, Van Dijk, A. Wu, K. Wu,

MEMBERS ABSENT: Bedeau, Clark, Contreras, Falkoff, Gordon, Klis, Hill, Neal, Ricklefs, Scherer, Swingley, Xia

OTHERS PRESENT: Gawron, Doane, Wilks

Called to Order

- Dean Wilks calls the meeting to order at 9:02am.

New Business

- Curriculum Changes from College of Engineering and Engineering Technology.
 - Motion to approve the curriculum changes from College of Engineering and Engineering Technology by Ann Van Dijk, Second Garver. Passed Unanimously.

Approval of Minutes

- Motion to Approve Minutes from the 5.6.2024 with the added and approved curriculum change by Ann Van Dijk, Floyd Second. Passed unanimously.

Next Meeting

- Next meeting is scheduled for September 9th, 2024, 10:00 am.

Minutes

- Minutes respectfully submitted: Kayla Doane, The Graduate School



NORTHERN ILLINOIS UNIVERSITY

College of Engineering and Engineering Technology

Where Theory Meets Practice

COLLEGE CURRICULUM COMMITTEE OTHER CATALOG CHANGES (other than course changes)

Department:	ISYE	Date:	01/23/2024
Course No:			
Title:			

Undergraduate:		Catalog Year	
Graduate:	X	Catalog Year	2025-2026

Other Catalog Change 2023-2024 Master of Science in Industrial and Systems Engineering
Catalog [Link](#)

Requirements for the Specialization in Engineering Management (30)

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Required Courses (21)

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~~ACCY 505 – Financial Accounting Concepts Credits: 2~~

~~FINA 505 – Fundamentals of Financial Management Credits: 2~~

ISYE 539 - Six Sigma Performance Excellence and Modern Problem Solving Credits: 3

ISYE 542 - Engineering Project Management Credits: 3

OR TECH 694 - Industrial Project Management Credits: 3

Only for students who took the 400-level equivalent ISYE course when completing the B.S. degree requirements with an emphasis in Engineering Management at NIU.

ISYE 590 - Systems Engineering Management Credits: 3

OR ISYE 693 - Advanced Topics in Industrial Engineering Credits: 1-3

Only for students who took the 400-level equivalent ISYE course when completing the B.S. degree requirements with an emphasis in Engineering Management at NIU.

ISYE 620 - Economic Analysis of Industrial Projects Credits: 3

ISYE 699B - Graduate Project Credits: 1-3

~~MGMT 505 – Principles of Management Credits: 2~~

Take one of the following options:

Option 1: ACCY 505 - Financial Accounting Concepts Credits: 2 and FINA 505 - Fundamentals of Financial Management Credits: 2 and MGMT 505 - Principles of Management Credits: 2

Option 2: ISYE 570 - Introduction to Data Analytics for Engineers Credits: 3 and ISYE 504 Operations Research Models for ISYE Applications Credits: 3

Specialization Electives (9)

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Choose Track 1 OR Track 2

Track 1- Engineering Decision Analysis

Three of the following (9)

ISYE 535 - Experimental Design for Engineering Credits: 3

~~ISYE 570 - Introduction to Data Analytics for Engineers Credits: 3~~
ISYE 575 - Decision Analysis for Engineering Credits: 3
ISYE 635 - Advanced Experimental Design for Engineering Credits: 3
ISYE 670 - Data Analytics for Engineers Credits: 3
ISYE 675 - Advanced Decision Analysis for Engineering Credits: 3
TECH 638 - Risk Management Credits: 3
Track 2 - Global Logistics
Three of the following (9)

ISYE 566 - Analysis and Design of Supply Chain Systems Credits: 3
~~ISYE 570 - Introduction to Data Analytics for Engineers Credits: 3~~
ISYE 660 - Facilities Layout and Location Analysis Credits: 3
ISYE 670 - Data Analytics for Engineers Credits: 3
ISYE 671 - Linear Programming and Network Flows Credits: 3
ISYE 681 - Introduction to System Dynamics and Applications Credits: 3
ISYE 693 - Advanced Topics in Industrial Engineering Credits: 1-3

Rationale:

Most students in our online MS in Engineering Management (MSEM) program are working professionals. Regular course schedule and timely course offering are important to MSEM students as they are juggling between school and full-time work. MSEM students are facing hard time with these 3 business courses due to cancellations or the online sections are not offered regularly. Without an immediate action, the enrollment number of MSEM program is expected to be decreased significantly. The revenue generated by credit hours from this program will be decreased accordingly.

Data analysis, including data collection, processing, visualization, etc. is becoming more and more important for engineering management decision making. Operation research models also play a critical role in engineering management by offering the foundational tools for IE problem solving. Thus, we are proposing to move these two courses ISYE 570 and ISYE 504 to the required course for Requirements for the Specialization in Engineering Management in M.S. in Industrial and Systems Engineering program. ISYE 504 can be taught by multiple faculties at ISYE and offers an introduction to more general and fundamental knowledge that is critical to MSEM students. This will also offer an option for students with business and management degrees in our program to not repeat taking MGMT 505, ACCY 505 and FINA 505 courses again. There are several students in our graduate program who already come with credits for these courses. These students can now take ISYE 570 and ISYE 504.

Below are questions from the GC Executive Committee that the College/department resolved. The italics are the GC Executive question comments, the normal font are the responses:

- *It is requested to notify COB concerning the COB courses being changed from required to optional for the ISYE program.*

We have notified COB about the proposed catalog change.

- *More substantially, the GC Executive is requesting additional information concerning why ISYE is making the changes in particular such as:*
o Why did ISYE choose to make the business courses optional with ISYE 570 and ISYE 504? They seem substantially different from each other. They understand the practical reasons why the switch is occurring, but they would like to know the academic reasons why they feel their students would be better served with less business courses and these ISYE courses in particular.

ISYE 570 provides a broad introduction to the key analytical tools and techniques to effectively extract and interpret complex patterns found in large amounts of data. ISYE 504 also plays a critical role in engineering management by offering the foundational tools for ISYE applications and problem solving. In today's digital world, data analytics (i.e., data collection, processing, visualization, etc.) coupled with operations research modeling/analysis is integral to business and becoming more important for engineering management. Students who take ISYE 570 and ISYE 504 will reinforce their statistical and mathematical modeling/analysis skills. These skills will strengthen their decision-making capabilities and improve operations efficiency in the business world. The skills identified by the faculty are in line with the industry needs and consulted with our industry advisory board.

Introduction of the two ISYE courses is not only to overcome the scheduling issues that we have faced recently, but also to provide more options for our student body who come with varying educational backgrounds. For example:

- Students who have a business degree at undergraduate level need not repeat the MGMT, FINA, and ACCY courses. They should have already taken these business courses.
- Students from our BS in ISYE or B.S. in ISYE with engineering management specialization would have taken ACCY, MGMT, and ECON courses. Some of the courses are electives or required courses. ISYE students are inclined to take these courses as electives. These students will now have an option not to repeat similar subjects.
- Most of our students from industry already have basic exposure to ACCY, FINA and MGMT and do not want to repeat these courses.

Our intention is to recommend all students with no business courses exposure to take the three business courses and provide more options for others. If the business school does not offer these courses regularly, we will have an option to provide a pathway for these students.

- *They are also curious on if this is meant to be built as an either/or, or if students can mix and match. For example, is the requirement take ACCY 505, FINA 505, and MGMT 505 OR ISYE 570 and ISYE 504, where if a student takes ACCY 505 and then does not take FINA/MGMT, they would have to "start over" with that requirement and take ISYE 570 and ISYE 504? Given how it is currently worded, "mixing and matching" does not seem to be an option. If it is an either/or, an update to the wording is needed for the requirement.*
- *The way the requirement currently reads is something the catalog system cannot display. I would recommend a separate line such as "Electives (6)" and then listing the course options (assuming they can mix and match). If they cannot mix and match, the line should read "Take one of the following options" and then it would be the two lists of courses (ACCY/FINA/MGMT and ISYE separately).*

Thank you for pointing these out. Yes, it is an either/or. We have updated the wording for the requirement and followed the language based on the GC committee's suggestions (please see the attached updated catalog change).

Niechen Chen	01/23/2024
Submitted by	Date
Niechen Chen	01/23/2024
Chair, Department Curriculum Committee	Date
Gary Chen	01/23/2024
Chair, Department	Date

Chair, College Curriculum Committee

Date