Industrial and Systems Engineering

Revised 5/2019

Freshman Year

Fall Semester	Spring Semester
Math 1371 Calculus I *(placement or pre-req)* [4cr]	Math 1372 Calculus II *(1371)* [4cr]
Phys 1301W Intro Physics I *(&Math 1371)* [4cr]	◊ Phys 1302W Intro Physics II *(1301, &Math 1372)* [4cr]
Liberal Education course (recommend Biol 1009) [3 or 4cr]	◊ Chem 1065 Chem Principles I Lab *(&1061)* [1cr]
Liberal Education course or Writ 1301 [3 or 4cr]	◊ Chem 1061 Chem Principles I *(placement or 1015, &1065)* [3cr]
CSE 1001 First Year Experience [1cr]	Liberal Education course or Writ 1301 [3 or 4cr]

Sophomore Year

Fall Semester	Spring Semester
◊ Math 2374 Multivariable Calculus *(1372)* [4cr]	Math 2373 Linear Algebra & Differential Equations *(1372)* [4cr]
◊ **IE 1101 Foundations of ISyE** *(CSE, Math 1372)* [4cr]	IE 3521 Stats, Quality, & Reliability *(Math 1372)* [4cr]
◊ **IE 2021 Engineering Econ** *(CSE, Math 1372)* [4cr]	Econ 1101 Microeconomics [4cr]
CSci 1133 Intro to Computing & Programming Concepts *(&Math 1371)* [4cr]	Liberal Education course [3 or 4cr]

Junior Year

Fall Semester	Spring Semester
IE 3011 Optimization I *(UD, Math 2374, 2373)* [4cr]	**IE 3522 Quality Engineering & Reliability** *(UD, 3521, Math 2373, 2374)* [4cr]
Business Course Requirement (choose from Mktg 3001, SCO 3001, Mgmt 3001, Fina 3001, Acct 3001, IDSC 3001) [3cr]	**IE 3012 Optimization II** *(UD, 3011)* [4cr]
Technical Elective I [3 or 4cr]	**IE 4011 Stochastic Models** *(UD, 3521, Math 2373, 2374)* [4cr]
Liberal Education course [3 or 4cr]	**IE 4551 Production & Inventory Control** *(UD, 1101, 2021, 3011, 3521)* [4cr]

Senior Year

Fall Semester	Spring Semester
IE 3553 Simulation *(UD, 3521, CSci 1133)* [4cr]	**IE 4041W Senior Design** *(UD, 3012, 3522, 3553, 4011, 4511, 4551, 4541)* [4cr]
IE 4511 Human Factors *(ISyE senior)* [4cr]	Technical Elective III [3 or 4cr]
IE 4541W Project Management *(ISyE senior)* [4cr]	Technical Elective IV [3 or 4cr]
Technical Elective II [3 or 4cr]	Technical Elective V [3 or 4cr]

Additional Information About This Plan

- **Bold courses** are only offered in the indicated semester.
- *Course pre-requisites and co-requisites (designated by &)* are listed (in *italics*) with the course number and title. *Upper division (UD)* requires admission to the major prior to enrollment.
- The APAS is the official method for tracking completion of your specific degree requirements. This plan is not a contract and curriculum can change.

Applying to Your Major

Courses required for admission to this major (indicated by "◊" above):
Phys 1302W, Chem 1061/65, Math 2374,
IE 1101, IE 2021
For more information about applying to your major (GPA requirements, timeline, and to apply) visit the database at z.umn.edu/csemajorapp.

Department Contact Information

- Website: isye.umn.edu
- Main Phone: 612-624-1582; Main Office: Mechanical Engineering 130
- Director of Undergraduate Studies: Professor Lisa Miller
- Email: info@isye.umn.edu

University Degree Requirements

All students must complete the following Writing & Liberal Education requirements, as noted on the APAS report. Requirements with an (*) will be fulfilled by taking courses at UM-TC required for this major.

Writing Requirements:

University Writing:	Writ 1301/1401 or equivalent
Writing Intensive (WI):	Two: 1xxx or 2xxx level ** One: 3/4/5xxx level (in major)* One: 3/4/5xxx level (any dept.)*

Liberal Education:

Cores:	Themes *(choose 4 of 5)*:
Biological Sciences w/Lab	Civic Life and Ethics
Physical Sciences w/Lab*	Diversity and Social Justice in the US
Historical Perspectives	The Environment
Social Sciences*	Global Perspectives*
Literature	Technology & Society
Arts/Humanities	
Mathematical Thinking*	

Total Credits Needed for Degree: 122