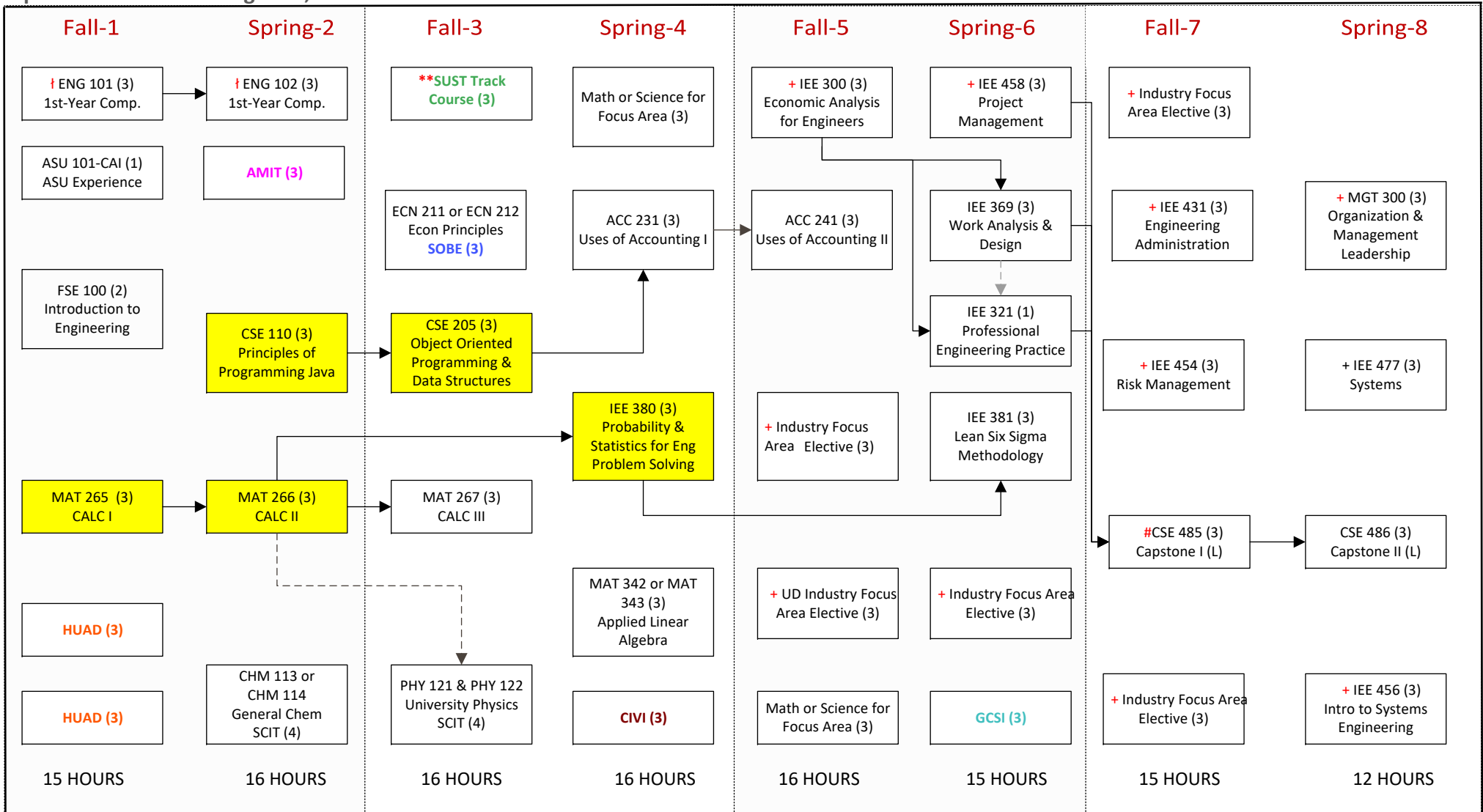


School of Computing & Augmented Intelligence
 Engineering Management, BSE (ESEMGBSE)
 Update - 2024-25 Catalog Year; General Studies GOLD

Name: _____

ID: _____



NOTES: International students may take ENG 107 and ENG 108. Students placing in to ENG 105 will replace ENG 101 with a recommended course
 ** See SCAI Advising Center or SCAI Website (<https://scai.engineering.asu.edu/engineering-management-bse/engineering-management-degree-requirements-ground-campus/>) for degree requirements, SUST TRack courses, and Focus Area Requirements
 + All Upper division XXX courses may require additional prerequisites. Please check the catalog for specific course information.
 # All pre-requisite coursework must be completed prior to taking IEE 485 (IEE 321; IEE 369; IEE 458; ENG 101, 105, or 107)
 Shaded courses designate "Critical Requirements" and must be completed as described above to remain on-track. Off -track twice students will be required to change their major.
 Minimum "C" grade is required in all major courses (see major map for details)
 All students must complete required general studies and First Year Composition. HUAD, SOBE, AMIT, CIVI, GCSI, & SUST classes can be taken in any order.

Term 1

ENG 101: First-Year Composition

ASU 101-IEE: The ASU Experience

FSE 100: Introduction to Engineering - Introduces the engineering design process; working in engineering teams; the profession of engineering; engineering models, written and oral technical communication skills.

MAT 265: Calculus for Engineers I (MATH)- Limits and continuity, differential calculus of functions of one variable, introduction to integration. Not open to students with credit in MAT 270.

Humanities, Arts, and Design

Humanities, Art, and Design

Term 2s

ENG 102: First-Year Composition

CSE 110: Principles of Programming with Java (QTRS)- Concepts of problem solving using Java, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems. Social and ethical responsibility.

MAT 266: Calculus for Engineers II - Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, Taylor series.

CHM 113 or CHM 114: General Chemistry I or General chemistry for Engineers

American Institutions

Term 3

CSE 205: Object-Oriented Programming & Data Structures - Problem solving by programming with an object-oriented programming language. Introduces data structures. Overview of computer science topics.

Global Sustainability: Choose one of the following - TBD

ECN 211 or ECN 212: Microeconomics Principles (SOBE) - Basic microeconomic analysis. Theory of exchange and production, including the theory of the firm.

PHY 121/122: University Physics I: Mechanics and laboratory - Kinematics; Newton's laws; work, energy, momentum, conservation laws; dynamics of particles, solids, and fluids. Both PHY 121 and PHY 122 must be taken to secure SQ General Studies credit.

MAT 267: Calculus for Engineers III - Vector-valued functions of several variables, partial derivatives, multiple integration.

Term 4

IEE 380: Probability and Statistics for Engineering Problem Solving - Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems.

Math or Science Elective: (depends on Industry Focus Area)

ACC 231: Uses of Accounting I - Introduces the uses of accounting information focusing on the evolution of the business cycle and how accounting information is used for internal and external

MAT 342 or MAT 343 Applied/Linear Algebra - Solving linear systems, matrices, determinants, vector spaces, bases, linear transformations, eigenvectors, norms, inner products, decompositions, applications.

Problem solving using MATLAB.

Governance and Civic Engagement

Term 5

IEE 300: Economic Analysis for Engineers - Economic evaluation of alternatives for engineering decisions, emphasizing the time value of money.

ACC 241: Uses of Accounting II - Introduces the uses of accounting information focusing on the evolution of the business cycle and how accounting information is used for internal and external purposes.

Industry Focus Area Elective: (see the Major Map for options or meet with SCAI Advising)

UD Focus Area Elective: (see the Major Map for options or meet with SCAI Advising)

Math or Science Focus Area Elective

Term 6

IEE 458: Project Management - Life-cycle processes for selecting and managing large-scale projects to ensure successful completion. Topics include project phases, defining milestones, work breakdown structure, group decision making and teamwork, organizational structure, human resource management, technological and economic feasibility, configuration management, budget control, and resource allocation and scheduling. Use of modern tools for planning and controlling project performance.

IEE 369: Work Analysis & Design - Planning, analysis and design of methods of accomplishing work. Emphasizes human factors, work planning, methods analysis and design, and work measurement.

Applications in diverse fields

IEE 321: Professional Engineering Practice - Methods and tools for preparing students for work in industry including ethics, technical writing and communications; understanding how learned undergraduate skills are used in the workplace and in engineering problem solving.

IEE 381: Lean Six Sigma Methodology - Define, measure, analyze, improve and control (DMAIC) steps of six sigma methodology for business and quality improvement. Reviews the necessary statistical tools and illustrates their integration into the problem-solving process. Overview of lean principles and design for six sigma. Unique features of applying six sigma and DMAIC in transactional and service

Industry Focus Elective

Global Communities, Societies, and Individuals

Term 7

IEE 454: Risk Management - Methods and tools for identifying, assessing, mitigating and controlling risk in business and engineering design activities. Decision tools include cost-benefit analysis, decision trees, value of information, Bayesian statistical decision making, fault trees, and failure modes and effects analysis (FMEA).

IEE 485: Systems Design Capstone I - Senior capstone project provides students with the skills required to effectively complete a capstone project in design and development.

IEE 431: Engineering Administration - Introduces quantitative and qualitative approaches to management functions, engineering administration, organizational analysis, decision making, and communication.

Industry Focus Area Elective: (depends on Industry Focus Area)

Industry Focus Area Elective: (depends on Industry Focus Area)

Term 8

IEE 456: Introduction to Systems Engineering - Foundation course addressing the concepts needed for successful system planning, design and build process. Topics include successfully bringing large-scale systems to completion on schedule and on budget, modeling and cost estimating techniques, risk and variability.

IEE 477: Systems Dynamics & Thinking - Methods for the modeling and analysis of system dynamics; metrics to measure business performance; continuous simulation tools for evaluation of system performance over time.

MGT 300: Organization & Management Leadership - Analyzes strategic, behavioral, and human resource management perspectives, including principles of strategic management and leadership of human resources.

IEE 486: Systems Design Capstone II - Project in design and development. Individual or team capstone project in creative design and synthesis.