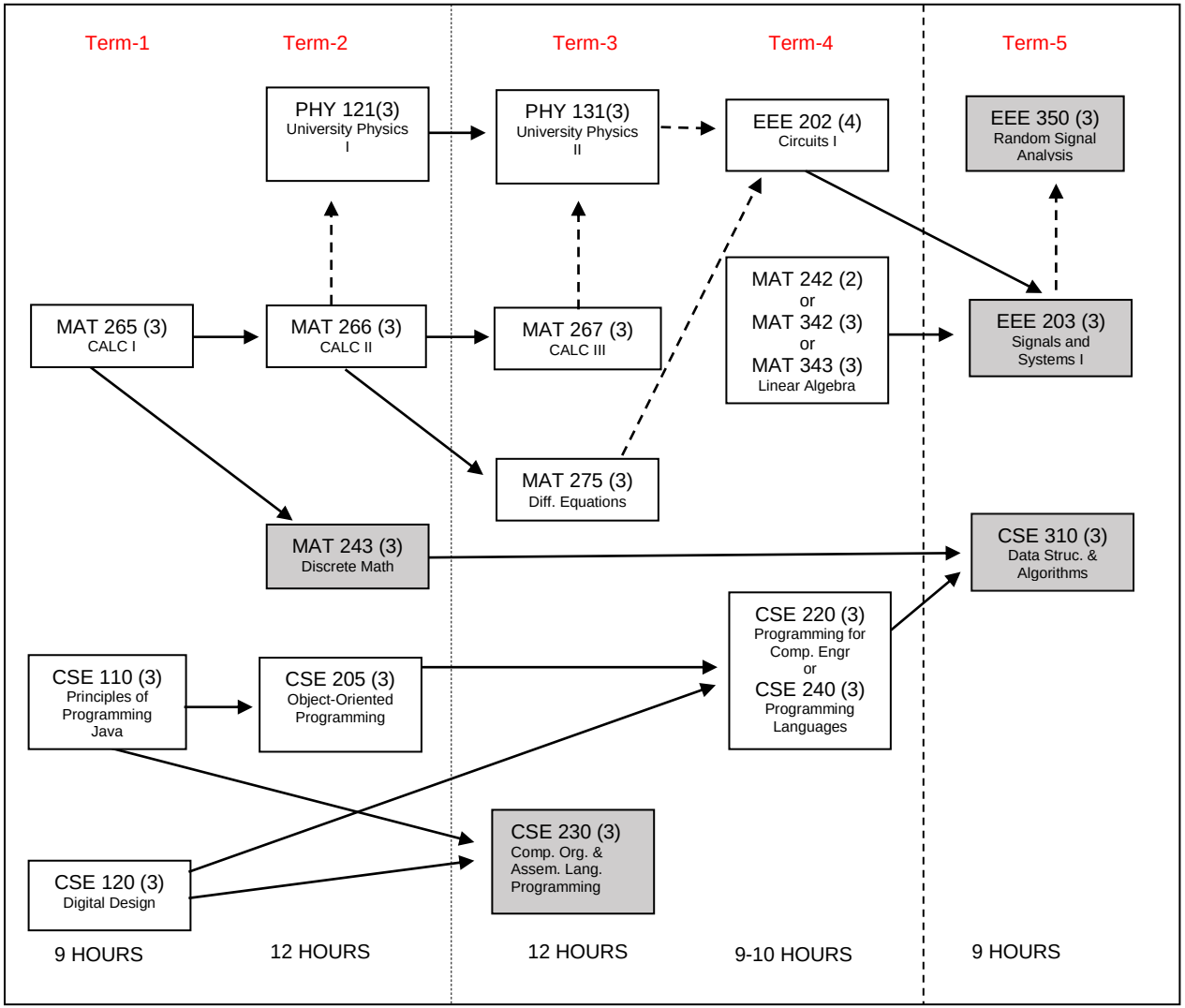
Computer Engineering, MS and Ph.D.
Deficiency Courses
http://cidse.engineering.asu.edu/forstudent/prospective-students/graduate-admissions/



Extensive knowledge in shaded courses is required for CEN admission.

Prerequisite →

Pre or Co-requisite - - - - - - - - - - →

Additional Admission Requirements
(See website for details)

1. Transcripts/Academic Credentials.
2. Official GRE Test Scores.
3. Three letters of recommendation.
4. Statement of Purpose.
5. If applicable, English Proficiency (TOEFL).
6. GPA Requirement is 3.0 or higher in the last 60 hours of the undergraduate degree.

Ready to apply?

Apply now through the Office of Graduate Education online graduate application (https://webapp4.asu.edu/dgsadmissions/Index.jsp). Read the FAQs (https://students.asu.edu/graduate/faqs) about your graduate application.

Rev. 1/2016

Term 1

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

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

CSE 120: Digital Design Fundamentals-Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits.

Term 2

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.

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

PHY 121: **University Physics I: Mechanics -** Kinematics; Newton's laws; work, energy, momentum, conservation laws; dynamics of particles, solids, and fluids.

MAT 243: Discrete Mathematical Structures-Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science.

Term 3

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

PHY 131: University Physics II: Electricity and Magnetism - Electric charge and current, electric and magnetic fields in vacuum and in materials, and induction. AC circuits, displacement current, and electromagnetic waves.

MAT 275: Modern Differential Equations-Introduces differential equations, theoretical and practical solution techniques. Applications. Problem solving using MATLAB.

CSE 230: Computer Organization & Assembly Language Programming-Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling.

Term 4

CSE 220: Programming for Computer Engineering-Introduction to C/C++, systems programming, and concurrency.

or

CSE 220: Programming Languages – Introduction to C/C++, systems programming, and concurrency.

MAT 242: Elementary Linear Algebra - Introduces matrices, systems of linear equations, determinants, vector spaces, linear transformations, and eigenvalues. Emphasizes development of computational skills.

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.

or

MAT 342: Linear Algebra - Linear equations, matrices, determinants, vector spaces, bases, linear transformations and similarity, inner product spaces, eigenvectors, orthonormal bases, diagonalization, and principal axes.

EEE 202: **Circuits I**-Principles for analyzing linear and nonlinear circuits. Uses SPICE and MATLAB. Design and measurement of linear analog electrical systems.

Term 5

CSE 310: Data Structures and Algorithms-Advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, external sorting.

EEE 350: Random Signal Analysis -Probabilistic and statistical analysis as applied to electrical signals and systems.

EEE 203: Signals and Systems I - Introduces continuous and discrete time signal and system analysis, linear systems, Fourier, and z-transforms.