Computer Science

120 credit hours total

YEAR 1

FALL

***MATH 220 (4)**
Analytic Geometry and Calculus I
KSC-3

CIS 115 (2)
Introduction to Computing Science
PR/CO: CIS 116

CIS 116 (1)
Introduction to Programming

***ENGL 100 (3)**
Expository Writing I
KSC-1

***COMM 106 (3)**
Public Speaking
KSC-2

*** Elective (3)**
Social and Behavioral Sciences
KSC-5

(16 credit hours)

SPRING

MATH 221 (4)
Analytic Geometry and Calculus II
PR: MATH 220 ≥ C

CIS 200 (4)
Programming Fundamentals
PR: CIS 116 ≥ C
PR/CO: MATH 205 or 220 ≥ C

ECE 241 (3)
Introduction to Electrical and Computer Engineering

▲*Elective (4)
Natural Science with Laboratory
KSC-4

(15 credit hours)

YEAR 2

FALL

CIS 300 (3)
Data and Program Structures
PR: CIS 200 ≥ C

CIS 301 (3)
Logical Foundations of Programming
PR: CIS 200 ≥ C

***ENGL 200 (3)**
Expository Writing II
KSC-1
PR: ENGL 100

▲Elective (4)
Natural Science with Laboratory

(13 credit hours)

SPRING

MATH 510 (3)
Discrete Mathematics
PR: MATH 221

CIS 400 (3)
Object-Oriented Design, Implementation and Testing
PR: CIS 300 ≥ C

CIS 415 (3)
Ethics and Conduct for Computing Professionals
PR: CIS 300 ≥ C

▲Elective (3)
Unrestricted

▲Elective (3)
Unrestricted

(15 credit hours)

YEAR 3

FALL

CIS 308 (1)
C Language Laboratory
PR: CIS 300 ≥ C

CIS 501 (3)
Software Architecture and Design
PR: CIS 400 ≥ C

CIS 505 (3)
Introduction to Programming Languages
PR: CIS 400 ≥ C

***Elective (3)**
Social and Behavioral Sciences
KSC-5

***Elective (3)**
Arts and Humanities
KSC-6

***Elective (3)**
Institutional
KSC-7

(16 credit hours)

SPRING

STAT 510 (3)
Introductory Probability and Statistics I
PR: MATH 221

CIS 450 (3)
Computer Architecture and Operations
PR: ECE 241 ≥ C
PR/CO: CIS 308 ≥ C

CIS 560 (3)
Database System Concepts
PR: CIS 300/301 ≥ C
PR/CO: MATH 510 ≥ C

CIS 575 (3)
Introduction to Algorithm Analysis
PR: CIS 300/301 ≥ C
PR: MATH 510 ≥ C

ENGL 415 (3)
Written Communication for Engineers
PR: ENGL 200

OR

ENGL 516 (3)
Communication for the Sciences
PR: ENGL 200

(15 credit hours)

YEAR 4

FALL

▲Elective (3)
Technical

▲Elective (3)
Technical

▲Elective (3)
Math

***Elective (3)**
Arts and Humanities
KSC-6

***Elective (3)**
Institutional
KSC-7

(15 credit hours)

SPRING

▲Elective (3)
Technical

▲Elective (3)
Technical

▲Elective (3)
Upper division

▲Elective (3)
Upper division

▲Elective (3)
Upper division

(15 credit hours)

KANSAS STATE UNIVERSITY | Carl R. Ice College of Engineering

KEY

- ◪ = Prerequisite for another course
- PR = Prerequisite requirement
- PR/CO = Prerequisite or concurrent requirement
- * = K-State Core (KSC) course
- ▲ = See department approved electives
- ● = Only offered in the semester shown

Degree map is for advising purposes only. Students are responsible for complying with University Catalog requirements.

Computer Science Curriculum Notes

To graduate with a B.S. in computer science, students must have at least a 2.3 GPA in all classes at the 400 level or above taken for undergraduate credit from the Carl R. Ice College of Engineering at Kansas State University. Course grades that have been removed by the K-State Retake Policy will not apply to this GPA calculation.

All students new to the CS department must complete CIS 015.

Additional information is available at **cs.k-state.edu/academics/undergraduate/computer-science .**

Technical Electives

Technical electives must be comprised of the following:

- Either CIS 520-Operating Systems I, CIS 525-Introduction to Network Programming, or CIS 625-Concurrent Software Systems.
- A capstone experience consisting of either CIS 598-Computer Science Project, CIS 599 Cybersecurity Project, or the two-semester course consisting of CIS 642-Software Engineering Project I and CIS 643-Software Engineering Project II.
- Additional 500-level or higher CIS courses or other approved computing-related courses to bring the total number of technical elective credits to 12.

Electives

- Math and Natural Science electives must have departmental approval.
- Upper division electives may be any courses at the 300 level or above.
- Students who satisfy all or part of K-State Core Institutional Electives (Requirement #7) with courses that satisfy other degree requirements may use additional unrestricted electives to meet the degree requirement of 120 credit hours.

Communications Overlay

All students must complete at least two courses (6 hours), which may be used as unrestricted electives or, where applicable, K-State Core requirements, from the following list:

- Any K-State Core Communications course (KSC-2) (3)
- COMM 323 Nonverbal Communication (3)
- COMM 326 Group Communication (3)
- MANGT 220 Principles of Management (3)
- THTRE 261 Fundamentals of Acting (3)
- THTRE 265 Fundamentals of Improvisation I, II (3)

K-State Core

The K-State Core (KSC) is the university's version of the systemwide general education framework established by the Kansas Board of Regents.

KSC requirement 1 – English (6 hours)
KSC requirement 2 – Communications (3 hours)
KSC requirement 3 – Math and Statistics (3 hours)
KSC requirement 4 – Natural and Physical Sciences (4-5 hours)
KSC requirement 5* – Social and Behavioral Sciences (6 hours)
KSC requirement 6* – Arts and Humanities (6 hours)
KSC requirement 7 – Institutional Electives (6 hours)

To view course lists for each requirement, visit **k-state.edu/general-education** .

**Requires two courses from two different subject areas.*