

Indiana University Kokomo

School of Sciences

Computer Science Program

2020 - 2025 Assessment Plan

I. Mission statement

The program strives to offer students excellent instruction and educational opportunities in Computer Science. It endeavors to provide its students with a durable technical foundation in an environment of rapid technical change and to enable and promote their professional growth through contact with best professional practice.

II. Student learning outcomes

We have grouped our learning outcomes based on these categories:

- A. Problem-Solving
- B. Professional Quality
- C. Communication, Teamwork, and Diversity
- D. Professionalism and Lifelong Learning

The Computer Science B.S. program will enable students to achieve the following list of learning outcomes grouped based on the categories listed above. By the time of graduation, the student should be able to do the following:

Goal A: Problem-solving

- A1: Students will analyze and design a solution to a problem.
- A2: Students will utilize a programming language to implement software/system.
- A3: Students will test the program to ensure it solves a given problem and is free of errors.

Goal B: Professional Quality

- B1: Students will develop software/system using at least one high-level programming language.
- B2: Students will apply knowledge of data structures, algorithms, and databases while designing/developing a software/system.
- B3: Students will understand the components and functions of computer hardware, architecture, and operating systems.
- B4: Students will apply software engineering skills and development skills to solve real problems.

Goal C: Communication, Teamwork, and Diversity

- C1: Students will communicate effectively through speaking, writing, and the use of presentation tools.
- C2: Students will demonstrate the necessary interpersonal skills to work effectively in diverse and/or multi-disciplinary teams.

Goal D: Professionalism and Lifelong Learning

- D1: Students will understand how technological advances impact society and the social, legal, ethical, and cultural ramifications of computer technology and its usage.
- D2: Students will demonstrate a sense of exploration and develop skills that enable lifelong learning.

III. Curriculum map

- CSCI-B 100 Problem Solving Using Computers
- CSCI-C 101 Computer Programming 1
- CSCI-C 201 Computer Programming 2
- CSCI-C 308 System Analysis & Design
- CSCI-C 311 Programming Languages
- CSCI-C 335 Computer Structures
- CSCI-C 343 Data Structures
- CSCI-C 400 Client-Server Programming for the Web
- CSCI-B 401 Fundamentals of Computing Theory
- CSCI-C 436 Operating Systems
- CSCI-B 438 Fundamentals of computer networks
- CSCI-C 442 Database Systems
- CSCI-C 455 Analysis of Algorithms 1
- CSCI-C 490 Seminar in Computer Science

The following summary provides an overview of the alignment of each Outcome to the curriculum. This indicates where Outcomes are introduced (I), practiced (P), and reinforced (R).

Student Learning Outcomes Students will ...		B	C	C	C	C	C	C	C	B	C	B	C	C	C
		1	1	2	3	3	3	3	4	4	4	4	4	4	4
		0	0	0	0	1	3	4	0	0	3	3	4	5	9
		0	1	1	8	1	5	3	0	1	6	8	2	5	0
A1	analyze and design a solution to a problem.	I	P		R								R		
A2	utilize a programming language to implement software/system.		I	P		R									R
A3	test the program to ensure it solves a given problem and it is free of errors.		I	P										R	
B1	develop software/system using at least one high-level programming language.		I	P		R			R						
B2	apply knowledge of data structures, algorithms, and databases while designing/developing a software/system.			I				P					R	R	
B3	understand the components and functions of computer hardware, architecture and operating systems.	I					P			P	R	R			
B4	apply software engineering skills and development skills to solve real problems.				I				P				R		R
C1	communicate effectively through speaking, writing, and the use of presentation tools.		I		P			P				R			R
C2	demonstrate the necessary interpersonal skills to work effectively in diverse and/or multi-disciplinary teams.	I		P					R						
D1	understand how technological advances impact society and the social, legal, ethical and cultural ramifications of computer technology and their usage.				I	P	P						R		
D2	Demonstrate a sense of exploration and develop skills that enables lifelong learning			I						P				R	

IV. Assessment Plan

Academic Year 2020-2021	
Student Learning Outcomes	<p>Goal A: Problem Solving</p> <p>Outcome A2: Students will utilize a programming language to implement software/system.</p> <p>Outcome A3: Students will test the program to ensure it solves a given problem and it is free of errors.</p>
Measure Description	<p>Computer Science students enrolled in the 2020 offering of CSCI-C101, CSCI-C201, and CSCI-C455 will be evaluated. In C101 and C201, a programming assignment will be used for this assessment evaluation. In C455, a project assignment will be used for this evaluation.</p> <p>The performance criteria that will be used are:</p> <p>Functionality:</p> <ul style="list-style-type: none"> • Program developed do not run • Programs developed run, but does not implement all requirements • Programs run and implements all requirements • Programs run and implements more than required <p>Coding standards:</p> <ul style="list-style-type: none"> • Does not comply • Complies • Exceeds compliance
Benchmark/Target	<p>The level of performance where students create programs that follow coding standards, run and implement all of the requirements as specified in the project specifications document will be considered acceptable. We expect that 70% of students will provide programs that are coded properly, run and implements the requirements or implement more than required.</p>

Academic Year 2021-2022	
Student Learning Outcomes	<p>Goal B: Professional Quality</p> <p>Outcome B1: Students will develop software/system using at least one high-level programming language.</p> <p>Outcome B2: Students will apply knowledge of data structures, algorithms, and databases while designing/developing a software/system.</p>

Academic Year 2022-2023

Student Learning Outcomes	Goal B: Professional Quality Outcome B3: Students will understand the components and functions of computer hardware, architecture and operating systems. Outcome B4: Students will apply software engineering skills and development skills to solve real problems.
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Academic Year 2023-2024

Student Learning Outcomes	Goal C: Communication, Teamwork, and Diversity Outcome C1: Students will communicate effectively through speaking, writing, and the use of presentation tools. Outcome C2: Students will demonstrate the necessary interpersonal skills to work effectively in diverse and/or multi-disciplinary teams.
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Academic Year 2024-2025

Student Learning Outcomes	Goal D: Professionalism and Lifelong Learning Outcome D1: Students will understand how technological advances impact society and the social, legal, ethical, and cultural ramifications of computer technology and its usage. Outcome D2: Students will demonstrate a sense of exploration and develop skills that enable lifelong learning. Goal A: Problem Solving Outcome A1: analyze and design a solution to a problem.
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Computer Science faculty will meet annually to review the assessment plan and to decide, on an annual basis, which courses will be assessed for each goal.