

## Program Revision Template

**Steps to the approval process:**

1. Complete the applicable template(s) and email them to the departmental or program curriculum committee chair.
2. The curriculum chair emails the proposal to the curriculum committee, then to the department/program faculty for a vote and finally to the department/program chair.
3. The department/program chair emails the proposal to [curriculum-approval@iup.edu](mailto:curriculum-approval@iup.edu); this email will also serve as an electronic signature.
4. Curriculum committee staff will log the proposal, forward it to the appropriate dean's office(s) for review within 14 days and post it on the X Drive for review by all IUP faculty and administrators. Following the dean's review the proposal goes to the UWUCC/UWGC and the Senate.
5. Questions? Email [curriculum-approval@iup.edu](mailto:curriculum-approval@iup.edu).

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Proposing Depart/Unit:	Computer Science	Phone:	724-357-4492

Program Revisions (Check all that apply):  Program Revision     Program Title Change     Catalog Description Change     Credit Hour Change  
 Liberal Studies Requirement Changes     Variability of Delivery     Other: Click here to enter text.

Current Program Information		Proposed Changes	
Current Program Title	Bachelor of Science - Computer Science/Applied Computer Science Track	Proposed Program Title <i>(if changing)</i>	Bachelor of Science - Computer Science/Software Engineering Track
Current Narrative Catalog Description	Click here to enter text.	Proposed Narrative Catalog Description <i>(if changing)</i>	Click here to enter text.
Current Program Requirements	<p><b>Bachelor of Science - Computer Science/Applied Computer Science Track</b></p> <p><b>Liberal Studies: As outlined in Liberal Studies 43-44</b> section with the following specifications:  <b>Mathematics: 3cr</b>, MATH 125 (1)  <b>Liberal Studies Electives: 3cr</b>, MATH 216, no courses with COSC prefix.</p> <p><b>Major: 46</b>  <b>Required Courses:</b>                      COSC 105 Fundamentals of Computer Science 3cr                      COSC 110 Problem Solving and Structured Programming 3cr</p>	Proposed Program Requirements <i>(if changing)</i>	<p><b>Bachelor of Science - Computer Science/Software Engineering Track</b></p> <p><b>Liberal Studies: As outlined in Liberal Studies 43-44</b> section with the following specifications:  <b>Mathematics: 3cr</b>, MATH 125 (1)  <b>Liberal Studies Electives: 3cr</b>, MATH 216, no courses with COSC prefix.</p> <p><b>Major: 46</b>  <b>Core Courses:</b>                      COSC 105 Fundamentals of Computer Science 3cr                      COSC 110 Problem Solving and Structured Programming 3cr</p>

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<p>COSC 210 Object-Oriented and GUI Programming 3cr            COSC 220 Applied Computer Programming 4cr            COSC 300 Computer Organization and Assembly Language 3cr            COSC 310 Data Structures and Algorithms 3cr            COSC 319 Software Engineering Concepts 3cr            COSC 341 Intro to Database Management Systems 3cr            COSC 365 Web Architecture and Application Development 3cr            COSC 380 Seminar in Computing Profession and Ethics 2cr            COSC 480 Seminar on Technical Topics 1cr            COSC 473 Software Engineering Practice or COSC 493 Internship in Computer Science (2) 3cr</p> <p><b>Controlled Electives:</b> 9cr from the following (3)            COSC/MATH 250 Introduction to Numerical Methods 3cr            COSC 316 Host Computer Security (4) 3cr            COSC 345 Computer Networks 3cr            COSC/IFMG 354 Testing and Controlling LANs 3cr            COSC 355 Computer Graphics 3cr            COSC 356 Network Security 3cr            COSC 362 Unix Systems 3cr            COSC 481 Special Topics in Computer Science (only sections approved for majors) 1-4cr            COSC 482 Independent Study 1-4cr            IFMG 455 Data Warehousing &amp; Mining 3cr</p> <p><b>Upper-level Electives by Categories:</b> 3cr from the following: 3cr            Artificial Intelligence: COSC 405            Computer Architecture: COSC 410            Database Management: COSC 444            Distributed Systems: COSC 465            Numerical Methods: COSC 427, 451            Systems Programming: COSC 430            Theory of Languages: 420, 424, 460</p> <p><b>Other Requirements</b> 6  <b>Additional Writing:</b>            ENGL 222 Technical Writing 3cr  <b>Additional Mathematics:</b>            MATH 219 Discrete Mathematics 3cr</p> <p><b>Minor:</b> Complete a minor from one of the following areas: <b>8-20</b>            Information Assurance 12-18cr            Any department in the College of Natural Sciences and Mathematics 8-20cr            Designated Business courses 18cr            Designated Economics courses 12-15cr            Designated Communications Media courses 18cr</p>	<p>COSC 210 Object-Oriented and GUI Programming 3cr            COSC 220 Applied Computer Programming 4cr            COSC 300 Computer Organization and Assembly Language 3cr            COSC 310 Data Structures and Algorithms 3cr            COSC 319 Software Engineering Concepts 3cr            COSC 341 Intro to Database Management Systems 3cr            COSC 365 Web Architecture and Application Development 3cr            COSC 380 Seminar in Computing Profession and Ethics 2cr            COSC 480 Seminar on Technical Topics 1cr            COSC 473 Software Engineering Practice or COSC 493 Internship in Computer Science (2) 3cr</p> <p><b>Controlled Electives:</b> 9cr from the following (3), (5)            COSC/MATH 250 Introduction to Numerical Methods 3cr            COSC 316 Host Computer Security (4) 3cr            COSC 345 Computer Networks 3cr            COSC/IFMG 354 Testing and Controlling LANs 3cr            COSC 355 Computer Graphics 3cr            COSC 356 Network Security 3cr            COSC 362 Unix Systems 3cr            COSC 481 Special Topics in Computer Science (only sections approved for majors) 1-4cr            COSC 482 Independent Study 1-4cr            IFMG 455 Data Warehousing &amp; Mining 3cr</p> <p><b>Upper-level Electives by Categories:</b> 3cr from the following: (5) 3cr            Artificial Intelligence: COSC 405            Computer Architecture: COSC 410            Database Management: COSC 444            Distributed Systems: COSC 465            Numerical Methods: COSC 451            Systems Programming: COSC 430            Theory of Languages: 420, 424, 460</p> <p><b>Other Requirements</b> 3  <b>Additional Mathematics:</b>            MATH 219 Discrete Mathematics 3cr</p> <p><b>Minor:</b> Complete a minor from one of the following areas: <b>9-20</b>            Information Assurance 12-18cr            Any department in the College of Natural Sciences and Mathematics 9-20cr            Designated Business courses 18cr            Designated Economics courses 12-15cr            Designated Communications Media courses 18cr</p>
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	<p><b>Free Electives:</b> 4-17</p> <p><b>Total Degree Requirements:</b> 120</p> <p>(1) MATH 125 can be substituted by MATH 121.</p> <p>(2) COSC 493 may be selected after completion of sophomore year. Note: Only 3cr of first 6cr of COSC 493 can be counted toward controlled electives or 6cr of a total 12cr of COSC 493 can be counted towards major. A student who does not complete all 12cr of COSC 493 must take COSC 473.</p> <p>(3) Upper-level electives may be counted as controlled electives. 3cr of Intermediate Level foreign language may be applied toward controlled electives.</p> <p>(4) COSC 316 cannot be counted for major credit if a student does an Information Assurance minor.</p>		<p><b>Free Electives:</b> 7-19</p> <p><b>Total Degree Requirements:</b> 120</p> <p>(1) MATH 125 can be substituted by MATH 121.</p> <p>(2) COSC 493 may be selected after completion of sophomore year. Note: Only 3cr of first 6cr of COSC 493 can be counted toward controlled electives or 6cr of a total 12cr of COSC 493 can be counted towards major. A student who does not complete all 12cr of COSC 493 must take COSC 473.</p> <p>(3) Upper-level electives may be counted as controlled electives. 3cr of Intermediate Level foreign language may be applied toward controlled electives.</p> <p>(4) COSC 316 cannot be counted for major credit if a student does an Information Assurance minor.</p> <p>(5) <i>Controlled and upper level electives may not be applied toward more than one track in Computer Science.</i></p>
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**Rationale for Proposed Changes**

<p>Why is the program being revised?</p>	<p>The track name is being changed to reflect current program names in other universities. It also allows prospective employers to better understand the intent of the program.</p> <p>The remainder of this program revision represents the department’s effort to comply with PASSHE Policy 1990-06-A which limits a Bachelor of Science degree to no more than 60 semester credit hours in courses required by the major, including required cognate courses in related disciplines. The revision also adds minor adjustments the controlled and upper level electives to limit the ability to apply credit for a single class to multiple tracks in Computer Science. The specifics are:</p> <p>a. Remove ENGL 222 as an additional writing requirement. This was done to reduce the number of required credits to 60.</p> <p>b. Add note (5) to limit the ability to apply credit for a single class to multiple tracks in Computer Science.</p>
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<p>Identify the <b>Program</b> Student Learning Outcomes (SLO). Mark any SLOs that are changing as a part of the Program Revision.</p>	<p>Students in a Computer Science track should set their goals beyond simple programming and should be preparing to</p> <ol style="list-style-type: none"> <li>1. apply computer science knowledge to application areas from science and industry;</li> <li>2. apply appropriate data structures and algorithms to analyze and solve new problems;</li> <li>3. apply software engineering techniques to designing, implementing, documenting, testing, and maintaining software systems;</li> <li>4. contribute to improving the design and implementation of databases;</li> <li>5. use more than one programming language and choose an appropriate one for the project;</li> <li>6. work with and communicate effectively with professionals in various fields;</li> <li>7. continue a lifelong professional development in computing;</li> <li>8. act ethically and professionally.</li> </ol> <p>A graduate of this track will be prepared to</p> <ol style="list-style-type: none"> <li>1. develop Web-based applications and interfaces;</li> <li>2. work with all types of computer systems—legacy, current, and future;</li> <li>3. apply knowledge of computing to an area of secondary interest (dependent on the minor taken);</li> <li>4. work with a variety of software tools in designing and implementing computer-based systems;</li> <li>5. manage activities that are strongly computer-system dependent;</li> <li>6. be employed at entry-level through project leader positions.</li> </ol> <p>There are no changes to the SLOs..</p>
<p>Implication of the Change on:</p> <ul style="list-style-type: none"> <li>- Program</li> <li>- Other programs</li> <li>- Current Students</li> </ul>	<p>There is no effect on this program or current students.</p> <p>This change may affect the enrollment in ENGL 222. While the department is reluctant to remove that requirement, it is necessary to reduce the number of cognate credits as required by the Board of Governors.</p>