

Bachelor of Science in Computer Science / Software Engineering Track-PrgRsv-2015-11-12

- The workflow icon is no longer available. Please click on the Page Status after the orange circle icon near the page title. *

Form Information



First Step: Change the text in the [brackets] so it looks like this: **Bachelors in Criminology Pre-Law-PrgRsv-2015-08-10**

Second Step: Click save on bottom right

Third Step: Make sure the word "**DRAFT**" is in yellow at the top of the proposal

Fourth Step: Click on **EDIT CONTENTS** and start completing the template. When exiting or done, click save on bottom right

When ready to submit click on the workflow icon and hit approve. It will then move to the chair as the next step in the workflow.

Please direct any questions to curriculum-approval@iup.edu

**Indicates a required field*

Proposer*	Terrence Fries	Proposer Email*	t.fries@iup.edu
Contact Person*	Terrence Fries	Contact Email*	t.fries@iup.edu
Proposing Department/Unit*	Computer Science	Contact Phone*	7-4492

Program Revision Options (Check all that apply)

** Teacher Education: Please complete the Teacher Education section of this form (below)*

** Liberal Studies: Please complete the Liberal Studies section of this form (below)*

Course Level:*	undergraduate-level
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Rationale for Proposed Changes	
(A) Why is the program being revised?*	<p>The track is being changed to require the 2 lab sequence for the Natural Science requirement. The department plans to apply for ABET accreditation for this track. ABET requires a minimum of 2 natural sciences with labs.</p> <p>The number of credits for an Economics minor is being changed from 15 to 18 to reflect changes in that minor. The number of credits for a minor is being corrected on the new side and the new name for the Information Assurance Minor– Cyber Security is being used.</p>

<p>(B) Identify the Program Student Learning Outcomes</p> <p>(SLO). Mark any SLOs that are changing as a part of the Program Revision.*</p>	<p>Students in any Computer Science track should set their goals beyond simple programming and should be preparing to</p> <ol style="list-style-type: none"> 1. apply computer science knowledge to application areas from science and industry; 2. apply appropriate data structures and algorithms to analyze and solve new problems; 3. apply software engineering techniques to designing, implementing, documenting, testing, and maintaining software systems; 4. contribute to improving the design and implementation of databases; 5. use more than one programming language and choose an appropriate one for the project; 6. work with and communicate effectively with professionals in various fields; 7. continue a lifelong professional development in computing; 8. act ethically and professionally. <p>A graduate of this track will be prepared to</p> <ol style="list-style-type: none"> 1. develop Web-based applications and interfaces; 2. work with all types of computer systems—legacy, current, and future; 3. apply knowledge of computing to an area of secondary interest (dependent on the minor taken); 4. work with a variety of software tools in designing and implementing computer-based systems; 5. manage activities that are strongly computer-system dependent; 6. be employed at entry-level through project leader positions. <p>There are no changes to the SLOs.</p>
<p>(C) Implications of the change on the program, other programs and the Students:*</p>	<p>The only implication for the program is that the track will be eligible for ABET accreditation. The change has no implication for other programs. The only implication for students is the requirement to take a lab with the second natural science course.</p>

Current Program Information		Proposed Changes	
<p>(D) Current Program Title*</p>		<p>Proposed Program Title</p> <p><i>(if changing)</i></p>	
<p>(E) Current Narrative Catalog Description</p> <p><i>It is acceptable to copy/paste from the current catalog entry.</i></p>	<p>UG Course Catalog: http://www.iup.edu/registrar/catalog/ Grad Course Catalog: http://www.iup.edu/graduatestudies/catalog/</p>	<p>Proposed Narrative Catalog Description</p> <p><i>(if changing)</i></p>	
<p>(F) Current Program</p>	<p>Bachelor of Science - Computer Science/Software Engineering Track</p>		<p>Bachelor of Science - Computer Science/Software Engineering Track</p>

**Requi
rements**

Liberal Studies: As outlined in Liberal Studies 43-44

section with the following specifications:

Mathematics: 3cr, MATH 125 (1)

Liberal Studies Electives: 3cr, MATH 216, no courses with COSC prefix.

Major: 46

Required Courses:

COSC 105 Fundamentals of Computer Science 3cr

COSC 110 Problem Solving and Structured Programming 3cr

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 3cr
COSC 493 Internship in Computer Science (2)

Controlled Electives: 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 & Mining 3cr

Upper-level Electives by Categories: 3cr from
the following: (5) 3cr

Artificial Intelligence: COSC 405

Computer Architecture: COSC 410

Database Management: COSC 444

Distributed Systems: COSC 465

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Liberal Studies: As outlined in Liberal Studies 44

section with the following specifications:

Mathematics: 3cr, MATH 125 (1)

Natural Science: Must choose option 1 with two labs.

Liberal Studies Electives: 3cr, MATH 216, no courses with COSC prefix.

Major: 46

Core Courses:

COSC 105 Fundamentals of Computer Science 3cr

COSC 110 Problem Solving and Structured Programming 3cr

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 3cr
COSC 493 Internship in Computer Science (2)

Controlled Electives: 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 & Mining 3cr

Upper-level Electives by Categories: 3cr from
the following: (5) 3cr

Artificial Intelligence: COSC 405

Computer Architecture: COSC 410

Database Management: COSC 444

Numerical Methods: COSC 427	
Systems Programming: COSC 430, 432	
Theory of Languages: COSC 420, 424, 460	
Other Requirements	3
Additional Mathematics:	
MATH 219 Discrete Mathematics	3cr
Minor: Complete a minor from one of the following areas: 8-18	
Information Assurance	18cr
Any department in the College of Natural Sciences and Mathematics	9-20cr
Designated Business courses	18cr
Designated Economics courses	15cr
Designated Communications Media courses	18cr
Free Electives:	9-20
Total Degree Requirements:	120

- (1) MATH 125 can be substituted by MATH 121.
- (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.
- (3) Upper-level electives may be counted as controlled electives. 3cr of Intermediate Level foreign language may be applied toward controlled electives.
- (4) COSC 316 cannot be counted for major credit if a student does an Information Assurance minor.
- (5) *Controlled and upper level electives may not be applied toward more than one track in Computer Science.*

Distributed Systems: COSC 465	
Numerical Methods: COSC 427	
Systems Programming: COSC 430, 432	
Theory of Languages: COSC 420, 424, 460	
Other Requirements	3
Additional Mathematics:	
MATH 219 Discrete Mathematics	3cr
Minor: Complete a minor from one of the following areas: 9-20	
Cyber Security	18cr
Any department in the College of Natural Sciences and Mathematics	9-18cr
Designated Business courses	18cr
Designated Economics courses	18cr
Designated Communications Media courses	18cr
Free Electives:	7-18
Total Degree Requirements:	120

- (1) MATH 125 can be substituted by MATH 121.
- (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.
- (3) Upper-level electives may be counted as controlled electives. 3cr of Intermediate Level foreign language may be applied toward controlled electives.
- (4) COSC 316 cannot be counted for major credit if a student does an Information Assurance minor.
- (5) *Controlled and upper level electives may not be applied toward more than one track in Computer Science.*

(G) Supporting Documents*	Are you making a major change?				
	NO				
	If making a major change, please attach a document with a summary of any/all changes.				
	<table border="1"> <thead> <tr> <th>File</th> <th>Modified</th> </tr> </thead> <tbody> <tr> <td colspan="2"><hr/></td> </tr> </tbody> </table>	File	Modified	<hr/>	
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Liberal Studies Section


- Complete this section only for a new Liberal Studies course or Liberal Studies course revision

If Completing this Section, Check the Box to the Right:	<input type="checkbox"/>
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Liberal Studies Course Designations (Check all that apply)	
Learning Skills:	
Knowledge Area:	
Liberal Studies Elective	<i>Please mark the designation(s) that apply - must meet at least one</i>
Expected Undergraduate Student Learning Outcomes (EUSLOs)	<i>Describe how each Student Learning Outcome in the course enables students to become Informed Learners, Empowered Learners and/or Responsible Learners</i> <i>See http://www.iup.edu/WorkArea/DownloadAsset.aspx?id=181694</i>
Description of the Required Content for this Category	<i>Narrative on how the course will address the Selected Category Content</i>
<p>All Liberal Studies courses are required to include perspectives on cultures and have a supplemental reading.</p> <p>Please answer the following questions.</p>	
<p>Liberal Studies courses must include</p> <p>the perspectives and contributions</p> <p>of ethnic and racial minorities and</p> <p>of women whenever appropriate to</p> <p>the subject matter. Please explain</p> <p>how this course will meet this</p> <p>criterion.</p>	
<p>Liberal Studies courses require the</p> <p>reading and use by students of at</p> <p>least one non-textbook work of</p> <p>fiction or non-fiction or a collection</p> <p>of related articles. Please describe</p> <p>how your course will meet this</p> <p>criterion.</p>	

Teacher Education Section

- Complete this section only for a new Teacher Education course or Teacher Education course revision

<p>If Completing this Section, Check the Box to the Right:</p>	
<p>Course Designations:</p>	
<p>Key Assessments</p>	
	<p>For both new and revised courses, please attach (see the program education coordinator):</p> <ul style="list-style-type: none"> • The Overall Program Assessment Matrix • The Key Assessment Guidelines • The Key Assessment Rubric <p style="text-align: center;">File Modified</p> <hr/> <p>No files shared here yet.</p> <ul style="list-style-type: none"> • Drag and drop to upload or browse for files 
<p>Narrative Description of the Required Content</p>	<p><i>How the proposal relates to the Education Major</i></p>

For Deans Review
<p>Are Resources Available/Sufficient for this Course?</p>
<p>Is the Proposal Congruent with the College Mission?</p>
<p>Has the Proposer Attempted to Resolve Potential Conflicts with Other Academic Units?</p>
<p>Comments:</p>

Please scroll to the top and click the Page Status if you are ready to take action on the workflow.
Please submit an ihelp if you have any questions <http://ihelp.iup.edu>