INDIANA UNIVERSITY SOUTH BEND
UNDERGRADUATE COURSES

Curriculum Change
(New Course Requests / Course Change Requests / New Program Requests)

CAMPUS ROUTE SHEET

College of Liberal Arts & Sciences
DIVISION/UNIT/DEPARTMENT Department of Computer & Information Sciences

CHANGE REQUESTED: Add new course CSCI-B100 for Fall 2010

SIGNATURES

Dept/Unit Chair
Debra Swann
Date 2/23/2010

Unit Curriculum Committee Chair
Yi Cheng
Date 3/5/2010

Dean/Assoc Dean
Rebecca Trousdale
Date 3/12/10

Director of General Education
(if applicable)

Date

Senate Curriculum Committee Chair
Anne Pourn
Date 4/15/10

Assoc Vice Chancellor Academic Affairs
John Smith
Date 5/3/10

July 2008
New Course Request

Check Appropriate Boxes:

Undergraduate credit □
Graduate credit □
Professional credit □

1. School/Division Liberal Arts and Sciences
2. Academic Subject Code CSCI
3. Course Number B100 (must be cleared with University Enrollment Services)
4. Instructor R. Adaikkalavan
5. Course Title Problem Solving Using Computers
   Recommended Abbreviation (Optional) ____________________________
   (Limited to 32 Characters including spaces)
6. First time this course is to be offered (Semester/Year): ______________
7. Credit Hours: Fixed at _______ or Variable from _________ to _________
8. Is this course to be graded S-F (only)? Yes ______ No X
9. Is variable title approval being requested? Yes ______ No X
10. Course description (not to exceed 50 words) for Bulletin publication: This course introduces problem solving techniques, critical thinking skills, algorithm development, and computer programming, using real-world problems. Topics include: computer literacy, hardware, data representation, structured and object oriented programming techniques, modularity and reusability, and testing and debugging techniques.
11. Lecture Contact Hours: Fixed at ________ or Variable from _________ to _________
12. Non-Lecture Contact Hours: Fixed at ________ or Variable from ________ to ________
13. Estimated enrollment: ______ of which ______ percent are expected to be graduate students.
14. Frequency of scheduling: Every semester
   Will this course be required for majors? Yes
15. Justification for new course: To provide pre computer science foundational material and experiences
16. Are the necessary reading materials currently available in the appropriate library? Yes
17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials. See attached.
18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant. No
19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: ____________________________ Date: ____________
Department Chairman/Division Director

Dean of Graduate School (when required) ____________________________ Date: ____________

Approved by: ____________________________ Date: ____________
Chancellor/Vice-President

University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.
CSCI B100 – Problem Solving Using Computers
Course URL: www.cs.iusb.edu/~raman/precs
Computer & Information Sciences, Indiana University South Bend
Course Syllabus

Instructor: Dr. Raman Adaikkalavan
Website: http://www.cs.iusb.edu/~raman
Office: North Side Hall 329
Email: Message via http://oncourse.iu.edu

<table>
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<tr>
<th>Lectures</th>
<th>Room</th>
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<tr>
<td>Lab</td>
<td>Room</td>
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<tr>
<td>Office Hours</td>
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COURSE OBJECTIVE & OUTLINE

This course introduces problem solving techniques, critical thinking skills, algorithm development, and computer programming, using real-world problems. Topics include: computer literacy, hardware, data representation, structured and object oriented programming techniques, modularity and reusability, and testing and debugging techniques.

Students will be exposed to modern programming languages and tools such as Visual Basic, C++, and Visual Studio .NET

BOOKS

This course is a new and novel approach to prepare students interested in majoring in Computer Science or Informatics. It is developed by Computer Science and Informatics faculty at Indiana University South Bend. There is currently no single text book that can be used for teaching this course. Necessary lecture notes/PowerPoint slides will be provided to you via the course website. Below is the list of reference books that can be purchased or checked out from the library.

- C++ How to Program, Harvey M. Deitel and Paul J. Deitel, Deitel & Associates (multiple editions available)
- Problem Solving with C++, Walter Savitch, Addison Wesley (multiple editions available)

SOFTWARE

The software used for this course is Microsoft Visual Studio .Net. The campus labs currently run the 2008 edition. Visual Studio versions 2003, 2005 or 2008 are not functionally different from each other. My recommendation is that you download the 2008 edition and install it on your computer. You can obtain the Visual Studio software in two ways: 1) IUSB bookstore sells the DVD package for a nominal cost to IUSB students. 2) Download for FREE from www.iuware.iu.edu but you still need to burn the image to a DVD!

GRADING

Total 900 Points: A+ (>99%), A (>90%), B+ (>87%), B (>83%), B- (>80%), C+ (>77%), C (>73%), C- (>70%), D+ (>67%), D (>63%), D- (>60%), F (<60%)

There will be quizzes (60 p), three exams (320 p), assignments/labs (440 p), and lab exam (50 p). Lowest Lab score and Quiz score will be dropped. Class attendance and participation are vital for active and effective learning and will constitute for 30 points of the grade. This is an initial proposal, and instructor reserves the right to re-distribute the percentages, if deemed necessary. The grading scale may be modified based on the class average.

ATTENDANCE & MAKE-UP

There are NO make-ups after the scheduled time. If you miss a quiz or an exam with a VALID excuse (University excused absence (e.g., representing IUSB); or Proper documentation of an illness (for the entire period)), your Final Exam grade
will count in place of that grade. Attendance is required. If you are unable to attend class, you are responsible for completing the material covered. Please keep me informed about any extenuating circumstances that may affect your attendance.

HOW TO DO WELL IN THIS COURSE

Students who get the most out of this course will be the ones who put in the most effort. If you want to do well, attend all the lectures, participate in discussions, read the assigned topics, and start early on your assignments. If you are having difficulty, you owe it to yourself to get help. I will be more than happy to help you. Don't be afraid or feel shy to come and see me, as no question is a dumb question. If you cannot make it to office hours but really need help, contact me via email to set up appointment. I sincerely want all of you to do well. It is your responsibility to check the course website, and read oncourse Emails/Announcements. I would recommend you to utilize oncourse effectively.

HOMEWORKS & PROJECTS

- Students work alone or as a group on assignments.
- Late assignments can be submitted for credit with NO penalty, with a valid excuse. For most of the assignments, 10% penalty will be applied every 24 hours for the first 96 hours. After 96 hours assignments will NOT be accepted.
- Students are allowed to take an automatic extension of 24 hours on two homework assignments without any penalty, by sending an email to the instructor. After 24 hours usual penalties apply.
- After the graded sheets are returned, students will have 10 business days to discuss any grading issues. For submissions during the end of the semester and final exam, check with the instructor.

ACADEMIC HONESTY STATEMENT

It is the responsibility of the student to know of the prohibited actions such as cheating, fabrication, plagiarism, academic, and personal misconduct, and thus, to avoid them. All students are held to the standards outlined in the code. Please reference the entire code for a complete listing (www.dsa.indiana.edu/Code/). Any violation may result in serious academic penalty, ranging from receiving a warning, to failing the assignment, to failing the course, to expulsion from the University. “Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced with zero tolerance.”

DISABILITIES STATEMENT

If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Disabled Student Services (Administration Building, room 149, telephone number 520-4832), as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for Office of Disabled Student Services http://www.iusb.edu/~sbcss/

ACCOMMODATIONS FOR RELIGIOUS OBSERVANCES STATEMENT

If any student will require academic accommodations for a religious observance, please provide me with a written request to consider a reasonable modification for that observance by the end of the second week of the course. Contact me after class, during my office hours, or by individual appointment to discuss the issue. If after discussion we reach no consensus, either party or both should seek the advice of the Department Chair or the Dean, and if no consensus is reached, then the advice of the Vice Chancellor of Academic Affairs (“VCAA”). Either the instructor or the student may appeal the VCAA’s decision to the Office of Affirmative Action within ten business days of the determination.

EFFECTIVE LEARNING ENVIRONMENT

To provide effective learning environment all devices (laptops, phones, PDAs, music players, etc) must be turned off. In all do not disturb the class session.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
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| 1    | - Computer Literacy Survey  
      - Introduction to Computers (software, hardware, components, types of computing devices, binary number system) |
| 2    | - Introduction to Problem Solving  
      - Software Development Steps (requirement specification, problem analysis, algorithm design, implementation, testing, documentation, maintenance) |
| 3    | - Software Development Steps  
      - Basic arithmetic operators (e.g., +, -, /, *)  
      - Writing algorithms for doing arithmetic calculations (e.g., area of circle, temperature conversion, cubic feet)  
      - Lab and Homework Assignments |
| 4    | - Arithmetic operators (e.g., MOD, Integer Division), Random numbers, Precedence, Associativity  
      - Group Problem Solving (e.g., coin collection, time conversion)  
      - Lab and Homework Assignments |
| 5    | - Console & GUI Programming  
      - Data representation (Variables, Type casting), Input & Output (using built-in functions and procedures)  
      - Group Problem Solving (e.g., Calculating Body Mass Index using Console & GUI, Web browser application)  
      - Lab and Homework Assignments |
| 6    | - Exam 1 |
| 7    | - Conditional Statements (If, Switch, Boolean)  
      - Group Problem Solving (e.g., Multimedia player, Using web services such as Google Maps, Salary Calculation, Calculating Student Grades)  
      - Assignment 1 Discussion (e.g., Creating virtual tour application using digital cameras and interviews) |
| 8    | - Repetition Statements & File Input/Output  
      - Group Problem Solving (e.g., manipulating a comma separated file, random number generation, multiplication table creation) |
| 9    | - Repetition Statements & File Input/Output  
      - Assignment 2 Discussion (e.g., GeoTagging applications using GPS devices) |
| 10   | - Exam 2 |
| 11   | - Modularity & Reusability – User-defined Procedures (Sub, Event), Functions  
      - Group Problem Solving (e.g., computing dashboard application, amortization)  
      - Assignment 3 Discussion (e.g., Poker game development) |
| 12   | - Arrays  
      - Group Problem Solving (e.g., weather data display using charts, simple statistical analysis of data) |
| 13   | - Objects and User defined data structures  
      - Group Problem Solving (e.g., simple student address book class)  
      - Assignment 4 Discussion (e.g., medical informatics) |
| 14   | - Review of concepts |