

BCCEC Fall 2011 meeting (Douglas College)

*University of Victoria Institutional Report
(prepared by Mike Zastre)*

Core Curriculum

We have completed the first phase of our “core curriculum” project. (This only applies at present to our in-house Majors, Honours and options.) For each year in our program we have identified the computer-science courses that must be completed by all students:

- Year 1: CSC 110 (“Fundamentals of Programming I”), CSC 115 (“Fundamentals of Programming II”), and CSC 106 (“The Practice of Computer Science”)
- Year 2: CSC 225 (“Algorithms and Data Structures I”), CSC 230 (“Introduction to Computer Architecture”), and SENG 265 (“Software Development Methods”)
- Year 3: CSC 320 (“Foundations of Computer Science”), CSC 360 (“Operating Systems”), and CSC 370 (“Database Systems”). In addition students must complete at least four more computer-science courses at the 300 level. A big change here is that Numerical Methods / Numerical Analysis is now only required for the Honours program.
- Year 4: Students must complete at least three more computer-science courses at the 400 level.

Changes to the academic calendar are now being approved. In the next phase of our review we will examine how our current curriculum departs from the model proposed by the ACM/IEEE with further changes to the core informed by such an examination.

New first-year course

As part of our outreach to the UVic academic community we are introducing a new course entitled “World Wide Web and Mobile Applications” (CSC 130) with the following description:

An introduction to the Internet, the World Wide Web (WWW) and mobile communications technologies. Topics include: HTML; web-page design tools; development of simple mobile applications. Additional topics selected from: location-aware e-commerce; multimedia chat services; mobile social networking; software development for smartphone and tablets. Emphasis is on relating Internet technologies to the role they play enabling mobile computing.

This may be suitable for articulation with other institutions. The first possible offering will be May 2012.

A number of languages in first-year courses

At present we have three or four (depending on the term) languages used by students in first-year programming courses: C, C#, Java and Python. How do other institutions handle similar kinds of diversity?

Textbooks

Here are texts used at UVic in Fall 2011 for lower-level courses offered by our department.

CSC 100 (Elementary Computing)

- Introductory: Tomorrow's Technology and You, George Beekman, Michael J.Quinn, 9th edition, 2009. Prentice Hall, Inc., USA, ISBN: 0-13-212736-9
- Guide to Web Page Creation and Design and JavaScript, Custom Edition for University of Victoria, Pearson/Prentice Hall, ISBN: 0-536-49044-9
- (The course uses clickers)

CSC 105 (Computers and Information Processing)

- Introductory: Tomorrow's Technology and You, George Beekman, Michael J.Quinn, 9th edition, 2009. Prentice Hall, Inc., USA, ISBN: 0-13-212736-9
- Guide to Web Page Creation and Design and JavaScript, Custom Edition for University of Victoria, Pearson/Prentice Hall, ISBN: 0-536-49044-9
- (The course uses clickers)

CSC 110 (Fundamentals of Programming: I)

- Building Java Programs: A Back to Basics Approach, Second Edition Stuart Reges, Marty Stepp Addison Wesley, ISBN: 978-0-13-609181-3

CSC 111 (Fundamentals of Programming with Engineering Applications)

- Engineering Programming: C, Matlab, Java, M. Austin and D. Chancogne, John Wiley & Sons, 1999, ISBN 0-471-00116-3

CSC 115 (Fundamentals of Programming: II)

- Data Abstraction and Problem Solving with Java: Walls and Mirrors (2nd Ed.), by Frank M. Carrano and Janet J. Prichard, Addison-Wesley, 2005.

CSC 167 (Game Strategy, Interaction and Design)

There is no required text. The following texts are recommended reading:

- Introduction to Game Development, Edited by Steve Rabin, Charles River Media
- Game Architecture and Design, Rollings and Morris, Coriolis Publishing.
- Game Design: The Art and Business of Creating Games, Bates, Prima Tech.
- Andrew Rollings and Ernest Adams on Game Design: Rollings and Adams, New Riders.
- Game Design: Theory and Practice, Rouse, Wordware Game Developer's Library.
- 3D Game Engine Design, David H. Eberly, Morgan Kaufmann.
- Game Programming Gems 1, 2, 3, 4 Mark DeLoura, Charles River Media.

CSC 205 (2D Computer Graphics and Image Processing)

There is no required text for this course. The following texts are optional:

- Digital Image Processing: An Algorithmic Introduction using Java Burger and Burge Springer; 1 edition (November 28, 2007), ISBN-10: 1846283795
- Digital Image Processing 3rd Ed. (DIP/3e) by Gonzalez and Woods 2008

CSC 225 (Algorithms and Data Structures: I)

- Algorithms, Fourth edition, by Robert Sedgewick and Kevin Wayne, Addison-Wesley, Toronto, 2011.

CSC 230 (Introduction to Computer Architecture)

- Computer Organization, Hamacher, Z. Vranesic, S. Zaky, McGraw-Hill, 5th edition

SENG 265 (Software Development Methods)

There is no required text for this course.

SENG 271 (Software Architecture and Systems)

- Using UML: Software Engineering with Objects and Components (2nd ed), Stevens & Pooley, Addison-Wesley, ISBN: 0-321-26967-5