EE1301: Introduction to Computing Systems

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Dept. of ECE

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Course Information

• Class webpage
  – Login to http://moodle.umn.edu
  – http://umn.edu/~kia/Courses/EE1301

• Instructor:
  – Kia Bazargan kia@umn.edu
  – Office: EE/CSci 4-159
  – Phone: (612) 625-4588
  – Office hours: Tue 11-Noon, or by appointment
Resources

• Textbook (neither required):
  – Kernighan and Ritchie, “The C Programming Language”, 2nd Edition. (You can find it either new or used in good bookstores or from online sellers, or rent it from the usual places.)

• C Compiler
  – Mac users: use gcc, but instructions on how to use it are not provided in the lectures

• Lab Kits
  – Particle “Photon” board and miscellaneous components Available at the ECE Depot

• Documents posted on Moodle
  – Slides, Lecture notes, (try to do) class videos
Coding Environments

- Software programs
  - Microsoft Visual Studio (windows)

- Hardware platform
  - Photon Board (from Particle)

- Online development environment
  [https://build.particle.io/build](https://build.particle.io/build)
Setting up Compilers / Board

• Software side:
  • Install Visual Studio (Mac users talk to me)
  • Create Project
    – Click on New Proj…
    – Choose C++ as the language
    – Choose Console Application

• Hardware labs
  – Lab 1 IoT manual will guide you through setting up your board
Visual Studio: First Time Use

Discover what's new in Express 2015 for...
Visual Studio: First Time Use
## Rough Course Overview

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<tr>
<th>Topic</th>
<th>Hours</th>
<th>&quot;text&quot;</th>
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<tr>
<td>Fundamental concepts: computers, compilers</td>
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<td>PP 4, 11</td>
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<tr>
<td>&quot;Hello World&quot; program, data types, basic arithmetic</td>
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<td>KR 2, PP 12</td>
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<tr>
<td>Arithmetic Operator Precedence, Casting</td>
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<td>KR 2</td>
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<td>IF-else constructs and conditional expressions</td>
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<td>KR 3, PP 13</td>
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<td>Basic Loop Constructs (while, for)</td>
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<td>KR 3, PP 13</td>
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<td>Arrays (1D and 2D)</td>
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<td>KR 5, PP 16.3</td>
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<td>Variable addresses in memory, including 2D arrays</td>
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<td>KR 5, PP 16.2</td>
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<td>Data Structures, struct</td>
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<td>KR 6, PP 19</td>
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<td>Functions</td>
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<td>KR 4</td>
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<td>Global and local variables, array initialization</td>
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<td>KR 4</td>
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<td>Recursive Functions, File I/O</td>
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<td>KR 7, 8, PP 17, 18</td>
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<td>The C library, strings</td>
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<td>KR Apdx B</td>
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<td>Dynamic Memory Management</td>
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<td>KR 8</td>
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<td>An Introduction to Object-Oriented Programming</td>
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Grading Policy

• Labs (25%)
  – Primarily programming assignments

• Final Project (15%)
  – Either purely software-based, or embedded system (e.g., Particle boards)

• Midterm exam (30%)
  – In class, open book, open notes, calculators permitted

• Final exam (30%)
  – In class, open book, open notes, calculators permitted
A Simple “Computer”

http://media.digikey.com/photos/Lumex%20Photos/SSA-LXH1025GD.jpg

http://www.doc.ic.ac.uk/~ih/doc/nxt-i2c/voti_switches_big.jpg
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