

Course Syllabus

EE 160 — Programming for Engineers

(Credits: 4 / CRN#: 61313 / Mode: Online)

Instructor: Navtej (Johnny) Singh

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Office Location: Manaopono 110

Office Hours: M F 10:00am – 11:30am**; W 11:30am – 12:30pm, & by appointment

Office Telephone #: (808) 236 – 9278 // Use this during office hours for elaborate help

Effective Date: Spring 2016 Semester

Windward Community College Mission Statement

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

Course Description

Introductory course on computer programming and modern computing environments with an emphasis on algorithm and program design, implementation and debugging. Designed for engineering students, this course includes a hands-on laboratory to develop and practice programming skills.(3 hrs lecture, 3 hrs lab). Pre-Requisite(s): Math 140 or consent of instructor. Recommended Preparation: ICS 101.

Student Learning Outcome

Upon completion of the course, the student will be able to:

- Explain the steps involved in the programming process.
 - Solve simple problems and express those solutions as algorithms.
 - Use the fundamental techniques of selection, looping, assignment, input, and output to describe the steps the computer takes to solve a problem.
 - Write algorithms and code in a top-down manner.
 - Work with arrays in searching and sorting applications.
 - Work with structures and unions types.
 - Write, test, and debug small programs.
 - Write functions and use pointers.
 - Work with characters and strings.
 - Work in text based environment like UNIX.
 - Interface with text base using a GUI interface.
- The above SLOs assessments are embedded in assignments, projects, or exams.

** | Office Hours for 2/5, 3/11, and 4/1 will be held from 12pm – 1:30pm

Learning Resources and Materials

- **Main Course Website:** <https://laulima.hawaii.edu>
All material such as syllabus, tentative schedule, assignment instructions, exam reviews, discussion board and grades will be available through this website. Laulima will also be used to submit and return graded assignments. You can access this site via your UH login and password.
- **Textbook:** “*Engineering Problem Solving with C*” 4th ED by Delores M Etter (ISBN: 9780136085317)
This textbook is highly recommended. There are tremendous open resource websites available on programming in C/C++ that can be used as alternative or supplement to the textbook. In addition, students are expected to independently research and utilize credible free resources available via World Wide Web. Below are some of the useful websites that will complement course textbook:
http://publications.gbdirect.co.uk/c_book/
<http://www-ee.eng.hawaii.edu/~tep/EE160/Book/book.html>
- **Software:** In order for you to write and execute a program, you need an appropriate programming environment. In this class, we will be using a text based environment such as the **UH UNIX Secure Shell Client** (<http://www.hawaii.edu/askus/685>). If you are not familiar with UNIX or Linux, then I recommend you to watch some online tutorial and familiarize yourself with commonly used commands. I also recommend that you learn to use an Integrated Development Environment that uses a graphic user interface such as **jGrasp** (<http://jgrasp.org>). Note that you also need to download appropriate compilers such as GCC (For jGrasp GCC can be downloaded from the following website: <http://users.csc.calpoly.edu/~akeen/courses/csc101/references/gcc.html>). You may also use an online development environment such as **Cloud9 IDE** (<https://c9.io>). This course assumes that you have a reliable computer (Windows, Mac, or Linux OS) with a reliable internet access.

Tasks and Grading

Point Distribution		
Consultations	Four Meetings @ 5 points each	020 pts
Assignments	9 assignments @ 25 points each	225 pts
Midterms	2 Midterms @ 50 points each	100 pts
Final Project	Combination of Everything Learned	055 pts
Total Points		400 pts

Programming Assignment Rubric	
Full-Credit:	All instructions are followed and the program is error free.
2/3-Credit:	The program is error free, but not all of the instructions are followed.
1/3-Credit:	The program contains errors and/or specified concept is not used
No-Credit:	The program won't compile or contains excessive errors

Letter grades will be assigned based on the following standard scale:

A ⇒ 90% ↑ ; B ⇒ 80% ↑ ; C ⇒ 70% ↑ ; D ⇒ 60% ↑ ; F ⇒ below 60%;

Other grade options include N, CR, NR, I, and W. See the following information for detail:

"The 'N' grade indicates that the student has worked conscientiously, attended regularly, finished all work, fulfilled course responsibilities, and has made measurable progress. However, either the student has not achieved the minimal student learning objectives and is not yet prepared to succeed at the next level, or the student has made consistent progress in the class but is unable to complete the class due to extenuating circumstances, such as major health, personal or family emergencies." If you would like to request for N grade in this class, you must provide a formal letter of request to me no later than the time of final examination addressing how you have met the criteria for N grade. Then I will make a decision on whether or not you qualify for the N grade.

The CR/NC grades require written instructor consent. Overall score of 70% or higher is consider CR and below 70% is NC. Students must apply for CR/NC grading option at the Admissions Office by the posted deadline. If a student does not apply for CR/NC grading option at the Admissions Office by the required deadline and if s/he does not withdraw, a letter grade (A, B, C, D, F, N) will be assigned for the course.

The W grade is given only when the student officially withdraws from the course by the posted deadline.

The "I" grade is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond his or her control. The "I" grade is given by student request and must be approved by the instructor.

Midterms

There will be two proctored midterms for this course that students must take at the testing center. A review sheet or sample test for each midterm will be provided to assist you with studying. You may also use an 8½-in by 11-in sheet of notes (both sides) and a scientific calculator. For Midterm date(s), refer to the schedule page of this syllabus. The website <http://www.hawaii.edu/dl/testcenters> provides information on all available testing sites in Hawaii. Your default test taking site will be The Testing Center (TTC) located in the WCC library Room 228. You may call at (808) 235 – 7498 to find out additional information at this testing site. If this location is inconvenient or you reside on one of the neighboring islands, please let me know your preferred test taking location at the beginning of the semester so that I can mail your midterm to the appropriate testing location.

Assignments

All assignments will be either posted on Lualima or emailed to your UH email address at least one week before the due date. Assignment topics and due dates are listed on the last page of this syllabus. Students are allowed to work together on assignments but each student must turn in their own interpretation of the work for grading. I encourage you to utilizing the online tools such as message board to communicate with each other. Feel free to come by my office anytime during office hours or make an appointment for consultation to get help. I recommend that you start on your assignments early and ask for help if needed. Do not wait till the last minute to get starts since it may be overwhelming. Submissions of these assignment results, including code files, reports, data files, testing results, trouble reports, etc. will be made by uploading a single .zip file to Lualima (or send me an email with attachment as a secondary option) titled with your name and assignment number. Details will be specified in each assignment. All assignments must be uploaded to Lualima by the due date indicated. You will encounter one point penalty

for each day your assignment is late. May 13th is the absolute last date to submit late work. Note that there is no make-up opportunity of any missed work.

Important Information

Note that this syllabus is subject to change in extenuating circumstances. Due to the nature of the subject, you need to know the previous information in order to understand the next topic. All assigned tasks are due by the due date indicated on the assignment and there is no make-up opportunity for missed work unless specified by the instructor. For important academic information refer to WCC website www.windward.hawaii.edu or go to www.hawaii.edu for system wide information. Plagiarism, or copying and use of another's work without proper acknowledgment, is not permitted and may result in failing grade for the course.

Consultations

There are four required consultations for this class worth mentioned points. I prefer students to come in person for these consultations but can be done via other methods of communication. While these consultations can be done anytime during the semester and for various reasons, below are the suggested time frame and objective for each consultation:

1. First Consultation should be done within first week of classes so that I can help you get started with this course and show you where to write your first program. We can also go over any questions you may have regarding the syllabus, homework assignments/programs, or finding useful material online.
2. Second Consultation could be done to get help on assignment(s), check your progress, or/and get help on midterm #1 review.
3. Third Consultation may be conducted to get help on assignment(s), go over midterm #1, or/and get help on midterm #2 review.
4. Last Consultation can be used to get help on the final project. The time can also be used to discuss your projected grades in the course.

Communication

Since this is a distance learning class, communication is an important part of this course. The following methods will be used to communicate:

- Email will be the preferred method of communication for this class, so please check your @hawaii.edu e-mail account frequently for important information. I will do my best to response to your email within 24 hours on instructional days (perhaps much sooner). This is an effective method of communication if you expect a short response.
- If you need to speak with me, you can call me at my office (808) 236 – 9278 during my office hours or leave a message for me to return your call.
- If you live within commuting distance of Windward Community College (WCC), you can stop by office anytime during my office hours. If you need to meet with me in person and my office hours do not fit your schedule, an appointment can be setup via email. Coming in person is ideal if you need extra help on homework assignments.
- If you live further away from WCC and visual communication is necessary, an arrangement can be made to connect with me via Skype (ID: nsj006) or UH google video chat (ID: navtej).
- At last but not least, online discussion board can be used to interact with classmates by asking homework questions and answering previously posted problems. I will post hints, announcements, and

answers to commonly occurring questions or mistakes at Lualima discussion board. I also encourage you to use the discussion board to posting helpful comments, questions, and response.

Whenever you post something to the discussion board or other online forums or write an email, you are expected to follow proper netiquette. Be respectful at all times. Do not use obscene language or make disparaging comments, even if it is meant as a joke. Remember that others cannot see your facial expression nor hear your tone of voice, so they will not know you are trying to be witty. Do not use all caps. Using all caps is normally interpreted to be shouting. Discussion boards are to be used for class work only. Do not post political or other comments or statements, nor solicit sales for any type of product. I will be monitoring all communication in Lualima and will take appropriate action when necessary.

Student's Responsibility

Responsible students take ownership of their actions by exhibiting the following behaviors in this class:

- Take an active role in learning and seek immediate help when needed.
- Maintain a positive and inquiry attitude towards learning.
- Set aside adequate time for doing assignments and not waiting till the last minute to do assigned work.
- Complete assignments by the designated dates with attention to quality of work.
- Stay current and don't procrastinate since new concepts are built on previously learned material.
- Attend classes regularly, participate, and maintain accurate class notes.

Disabilities Accommodation

If you have a physical sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help your succeed in this class. Ann Lemke can be reached at (808) 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.

Remarks

All programming languages use same basic concepts and logic, so it's easier to master other languages after learning one. By writing your initial program in pseudocode, you should be able to use any programming language to code your software. It is vital that you understand programming concepts so that you can use them throughout your studies as a programmer or Software Engineer afterward.

EE 160 Tentative Schedule for Spring 2016

Week	Dates (M-F)	Lessons/Topics/Assignments/Due Dates
1	1/11 – 1/15	Reed Course syllabus and Come in for 1 st Consultation
2*	1/18 – 1/22	Assignment 1 – Hello World (Due by 1/24 @ 11:59pm)
3	1/25 – 1/29	Assignment 2 – Variables (Due by 1/31 @ 11:59pm)
4^	2/1 – 2/5	Assignment 3 – Control Structure (Due by 2/7 @ 11:59pm)
5	2/8 – 2/11	Assignment 4 – Data Files (Due by 2/13 @ 11:59pm)
6*	2/15 – 2/19	Assignment 5 – Functions (Due by 2/19 @ 11:59pm)
7	2/22 – 2/26	Review for Midterm #1 & Possible 2 nd Consultation
8*	2/29 – 3/4	Midterm #1 (Must take it at a testing between 2/29 and 3/4)
9	3/7 – 3/11	Assignment 6 – Arrays and Matrices (Due by 3/13 @ 11:59pm)
10	3/14 – 3/18	Assignment 7 – Pointers (Due by 3/20 @ 11:59pm)
11*	3/21 – 3/25	Spring Break
12	3/28 – 4/1	Assignment 8 – Structures (Due by 4/3 @ 11:59pm)
13	4/4 – 4/8	Review for Midterm #2 and Possible 3 rd Consultation
14	4/11 – 4/15	Midterm #2 (Must take it at a testing between 4/11 and 4/15)
15	4/18 – 4/22	Assignment 9 – Programming in C++ (Due by 4/24 @ 11:59pm)
16	4/25 – 4/29	Final Project – Problem Solving (Due by 5/13 @ 11:59pm)
17	5/2 – 5/6	Recommended Week for Last Consultation
18	5/9 – 5/13	Final project is the Replacement for the Final Exam

^Drop Dates: February 1, 2016 – Last day to withdraw without a W grade
 *Holidays: January 18, 2016 – Martin Luther King Jr. Day
 February 16, 2016 – Presidents Day
 March 4, 2016 - Excellence in Education Day (Testing Center Open)