

IE2060 Introduction to the Use of Computers (Spring 2008)

Credit hours: (3)

INSTRUCTOR: Ricardo Calix, 3403 CEBA
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Course website: <http://blackboard.lsu.edu/>
LABS: Section 1, 2:40-5:30 PM, Mondays, Room 3136
Section 2, 3:10-6:00 PM, Thursdays, Room 3136

TEXT: Course book is provided.

DESCRIPTION: 2060 Introduction to the Use of Computers (3) Prereq.: eligibility to take MATH 1550 or equivalent; credit or registration in IE 1002. 2 hrs. lecture; 3 hrs. lab. Principles of digital programming; application of subroutines; application of electronic computers to typical engineering problems; OS operation, Microsoft Office, and Groupware.

COURSE OBJECTIVES: For students to 1. understand the basic principles of how computers work; 2. be able to design and write computer programs (specifically, in VB.NET); 3. be able to read and critique computer code written in VB.NET; 4. understand the core principles of object oriented programming; 5. understand how programming skills can be applied toward engineering problems; 6. develop skills for working in a team and improve oral and written communication skills; 7. develop a basic competency in the office software tools that will be frequently used throughout their education and careers.

COURSE POLICIES

EVALUATION:	Mid semester exam	30%
	Final exam	35%
	Semester project	20%
	Homeworks, Quizzes, & Lecture Summaries (8-10)	<u>15%</u>
		100%

Note: Blackboard is ONLY used for recording of individual grades. The "points earned" and weighted scores in Blackboard should be ignored. The Blackboard system provides no mechanism to account for hw bonus pts (for example, for attending student chapter meetings and various events) or points lost due to absences (see attendance section on the next page).

GRADING: $0 \leq F < 65 \leq D < 70 \leq C < 80 \leq B < 90 \leq A \leq 100$.

ASSIGNMENTS, QUIZZES, & LECTURE SUMMARIES

- All assignments must be turned in at the beginning of the class period in which they are due. Late homeworks & labs will receive a penalty of 20 points (out of 100) for each day overdue, and will not be accepted after solutions are posted.
- Assignments must be printed or neatly written, and stapled or otherwise properly bound (no folded corners or paper-clipped assignments will be accepted).
- Assignments requiring coding: In addition to a printed report describing operation of the code, you must also submit the code electronically to my email address or to the Blackboard digital drop box as instructed. Please zip all files into a single zip file prior to submission. If emailing, rename the extension .zxx as LSU's email system filters zip attachments. Make sure you have included all files. NOTE: Code must be well documented. Significant points will be taken off for lack of commenting and good programming etiquette.
- Every effort will be made to return graded assignments within 2 weeks of submittal.
- Quizzes may be given at any lecture or lab; no prior notice will be given. Each quiz will count as 1/4 of a homework.
- A one page written lecture summary is due by 6pm on each lecture date. It may be submitted by email or in print.

SEMESTER PROJECT:

A semester term project is required and factors into your grade. Teams may be composed of 2 or 3 people; I expect proportionally greater work from larger groups, and that all members contribute equally to technical as well as written work. Peer reviews and individual interviews will be used to assess individual contribution to the team, and team members may receive different grades based on the outcome of this assessment and interviews I conduct with team members. Weekly progress reports, a design report, a final report, a final oral presentation, and a final poster will be required. Requirements for each report / deliverable will be discussed in-class when they are assigned. Opportunity for revisions of each deliverable based on feedback from me will be provided (with deadlines). Late reports will not be accepted, and will be assigned a zero.

EXAMS:

One midterm exam will be administered (tentatively 3/3/08). A comprehensive final exam will be given Thu May 08, 2008 from 3:00-5:00 PM during finals week. I will not consider requests for giving “early” exams. Please plan accordingly.

Only basic calculators are allowed in exams (if needed). Cell phone devices, PDA’s, calculators with infrared ports or wireless capabilities, and similar devices are prohibited. Cell phones that go off during the exam will result in a 5pt deduction from your exam for each occurrence.

Once an exam has started, you may not leave the room. If you must leave (restroom, etc), you will need to turn in the exam.

Missed exam policy: 1) Exams missed for confirmable legitimate reasons: remaining grades will be re-weighted at my discretion (no makeup exams will be given); 2) Exams missed for non-legitimate reasons will be assigned a grade of zero.

ATTENDANCE:

Attendance at lectures and labs is mandatory. Attendance may be taken in any lecture and lab period. ***It is your responsibility to insure you are signed in, even when late.*** 1 point will be deducted from your final grade for every unexcused absence over 4. Arriving 5 or more minutes late (or leaving early) counts as ½ of an absence. Students missing classes are responsible for getting lecture notes and handouts from their fellow students.

Cell devices, PDA’s, or any other digital communication devices must be kept away and turned off during lectures and labs.

CHEATING / ETHICS

A professional engineer is required to uphold the highest ethical standards in their professional career. Any ethical lapses will be referred to the Dean of Students office for judicial action. This includes cheating on exams, copying of others work on homework, plagiarism, and similar actions.

For homeworks worked individually, you may meet with fellow students to discuss general aspects of a problem (for instance, to clarify what is being asked for), or specifics like syntax of statements, or how a particular statement works. However, each problem is ultimately to be worked individually – no sharing of code or written solutions. For team-base assignments, each team is to work problems separately – no code or written solutions are to be shared between teams.

Under no circumstances are assignment problems to be worked by tutors or on a “hire” basis. If you decide to take advantage of tutoring, you will need to have them work similar types of problems or provide general guidance on a solution approach.

COMMUNICATION-INTENSIVE COURSE:

This class has been certified by the CxC as a Communication-Intensive (C-I) course for Visual & Technological communication. However, it actually covers skills in all four communication areas – writing, oral, visual, and technological. It may be applied toward students’ pursuing the LSU Distinguished Communicator certification. For more information about the Distinguished Communicator designation, go to the CxC website at www.cxc.lsu.edu.

The ability to communicate effectively is critically important in industrial engineering, underlying your ability to effectively collect data and analyze business and manufacturing systems as well as forming the basis for assessment of your knowledge and abilities by peers, supervisors, and clients. In addition to introducing you to technical skills in programming, logical analysis, and algorithm design, every aspect of this courses also incorporates developing your skills in professional communications.

Topics (Tentatively)

Lecture Topics	Approx # Lectures
Ch. 1: Course introduction & Syllabus; Introduction to Computing: Computer Architecture and Components, BIOS, Operating Systems, Software/Programs, Programming Languages; Program organization & syntax; Number systems	2
Ch. 2: Programming Fundamentals: Using Visual Studio; Variables & primitive data types; assignment statements, operators, expressions, system functions, and typecasting; Interfacing with the user; Comments & code documentation	2
Ch. 3: Working With Date & String Types: Date/time operations; String operations; Formatting output	2
Ch. 4: Controlling Program Flow – Conditional structures, if, select; Loop structures, Do, While, For	2
Ch 5: Error Handling, Validation, & Debugging: Compiler, linker & run-time errors; Try..Catch structure; Catching user input errors – validation logic; debugging - trace, breakpoints, watches	1
Ch. 6: Subroutines & Functions (Methods)	2
Ch. 7: Systems analysis: Systems analysis process; Structured programming process; Program planning & documentation	3
Ch. 8: Data structures: Arrays, lists, queues, stacks, collections, hashtables, structures (records), structures of structures	4
Ch. 9: Working with Files & File Systems: File systems; Types of files; Text file operations; Binary file operations; XML operations	2
Ch. 10: Engineering-Related Algorithms: Numerical methods; Sorts & searches; Matrix operations; Graph problems	3
Ch. 11: Graphics	2
Ch. 12: Forms & Business Application Logic: Controls, layouts, form events & event handling, form logic; Systems Analysis revisited	2
Ch. 13: Object Oriented Programming: OOP concepts; properties, methods, events; polymorphism	2
Ch. 14: Code libraries (DLLs) (time permitting)	1
Lab Topics	
Lab #1: Intro to Visual Studio.NET Integrated Development Environment; Overview of the MS Office 2007 applications (Word, Frontpage, Excel, Powerpoint, Access, & Visio)	
Lab #2: Program Fundamentals: Variables, Primitive data types, Operators, & Expressions; Simple programs; Using MS Word - Techniques; Lab problems	
Lab #3: Flow control examples and problems; Error handling & validation; Using MS Word – Writing Guidelines; Lab problems	
Lab #4: Subroutines & Function; Using Excel - Techniques; Lab problems	
Lab #5: Subroutines & Functions (continued); Using Excel – Data Presentation; Lab problems	
Lab #6: Data Structures; Using Visio - Techniques; Using Snag-It & Camtasia; Lab problems	
Lab #7: File Operations; Using Visio – Programming Diagrams; Lab problems	
Lab #8: Engineering problems; Using PowerPoint - Techniques; Lab problems	
Lab #9: Working with Graphics; Using PowerPoint – Presentation Guidelines; Lab problems	
Lab #10: Form Design & Operations; Using Frontpage & Dreamweaver; Lab Problems	
Lab #11: Form Design & Operations; Using Access; Lab Problems	
Lab #12: Object-Oriented Programming – implementing properties, methods, events & event handlers; Using Access; Lab problems	