Syllabus ITSE 1302 Southwest College Spring 2001

Prerequisite: ITSC 1301 Windows 98 & Computer Literacy
TextBook: A Structured Programming Approach Using C++
Behrouz A. Forouzan and Richard F. Gilberg

Course description: This is a basic course in structured programming methodology and techniques. It is also a deterministic course, in that you will have an opportunity to decide if you really want to learn computer programming. Emphasis is on a problem solving methodology using a form of generic, top-down structured design with it's implied problem decomposition, logical program design, data flow and modular implementation. C++ just happens to be the programming language we will be using; you will not be doing object oriented programming.

Please be aware that this course does have prerequisites and I must assume you have them. I won't be slowing down to teach something you are supposed to know. Crucial skills that you need are those relating to file management with MS Windows.

Absences: If you must be absent, you should make some arrangements to get any notes and assignments you missed. Best idea is to avoid absences; I do expect you to attend class. You need to realize you can be dropped from the course for absences in excess of 12.5% of scheduled class time (two classes). Should you decide to quit coming to class, it is your responsibility to officially drop the course. Your failure to do so can result in a recorded grade of F. (Reference: Student Handbook)

Tardiness: Your Instructor, at his or her discretion, may enforce the rules set forth in the Student Handbook. However, under no circumstances will habitual tardiness be tolerated.

Disability: The Houston Community College System does not discriminate on the basis of disability in the recruitment and admissions of students or the operation of any of its programs and activities. The designated officer for compliance with the Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973 is the System’s Affirmative Action / Compliance Officer (tel. No.: 713 718-8606).

If a student requires an instructional accommodation due to a disability, the student should contact the appropriate Disability Services Staff for a formal Letter of Accommodation.

Software: HCCS provides the student with the appropriate software development environment in the classrooms and laboratories. You are not permitted to make copies of this software. Neither are you allowed to use personal software on HCCS computers.

Classrooms: You are expected to properly shut down the computers at the end of class and lab periods. You are also to keep the area in which you work neat and clean. When you leave the classroom, make sure that keyboards and chairs are properly in place. I will
appreciate your help with these items. Finally, ABSOLUTELY no smoking, eating or drinking is allowed in the labs.

**Grades:** You will have 3 exams; one is the final. Each exam is worth 20% of your final grade. Programming and lab assignments, quizzes (mostly short and unannounced), class attendance and participation (collectively referred to as lab work) will count for the remaining 40%. I will arrive at your final letter grade by simply totaling all of your exam grades plus the grade for lab work. I will curve the final grade and it is based on the total points accumulated throughout the course. **There are no "take home" exams.**

I encourage you not to miss an exam. As a general rule, I do not give any makeup exams but simply average your other exam scores. I am required to remind you that dishonesty on any work is cause for dismissal from the course.

In other words:  

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<thead>
<tr>
<th></th>
<th>20% Each</th>
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<tr>
<td>3 tests</td>
<td>60%</td>
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<tr>
<td>Homework, lab work</td>
<td>40%</td>
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<td>Total</td>
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Letter grades will be as follows:  

- 90 – 100 A
- 80 - 89 B
- 70 - 79 C
- 60 - 69 D
- below 60 F

**Assignments and lab work:** You must turn in all programming assignments to pass this course. You will be given due dates for each assignment in addition to the exact items you must turn in. Items that I will ask you to turn in will vary; these are set out in detail on the **ASSIGNMENT DUE DATE** hand-out. You can always expect to turn in certain parts of the assignments on a disk – source code and executable files for instance--so be sure that you own several of these floppy disks. Never come to class without your disks. You will sometimes be asked to turn in structure charts, pseudo-code or flow diagrams and source code listings. These become my property, but I will sometimes return them to you with comments and grades.

**KEEP YOUR ASSIGNMENTS UP TO DATE.**

On all assignments, I expect you to use the project/program names that are on the assignment packages.

**Academic Honesty:** Students are expected to complete all materials (exams and exercises) on their own. This does not prevent the student from seeking assistance from other students. You can work in teams to do the design work for the assignments, **BUT each student must code and debug his own program code (no copying).** Copying of
assignments or cheating on exams will result in dismissal from this course and the student may be dismissed from HCCS.

**Class Participation:** I expect you to ask questions about the assignments as well as about the material being covered during the lectures. I plan to give you some hands-on time during many of the class sessions. This is a good time for you to ask questions and make comments about any assignment. However, if you do not ask questions, I have no way of knowing what areas you might need some help on. You should also ask questions about items and topics you want to clarify. These questions and answers are going to be the best source of assignment feedback available to you. Reason is, there is no way that I can comment in detail on all of the individual assignments. If you do not ask questions, I am going to assume that you understand the lectures, reading assignments, methods, etc. Please remember that your class participation may affect your grade.

**Newsletter:** The Computer Science Technology Department maintains a newsletter type of Mailing List used for sending information to students and others interested in any of its courses and programs. A newsletter is sent about three times a month and contains information helpful to students. We encourage students to become members of this mailing list. This is NOT a “listserve”, but a “one-way” distribution; therefore no one will be flooded with e-mail by subscribing.

Follow these steps to join:

Go to your e-mail account and send an e-mail to:

`majordomo@tc6.hccs.cc.tx.us`

Leave the subject line blank and type `subscribe cscinews` as the text message and send it.

You may unsubscribe at any time by following the directions at the end of each newsletter.

**For you to begin to think about.** All I can do is steer you and teach you some mechanical things and certain concepts. I cannot do the work for you; neither can I or anyone else learn for you. My primary job is to mentor and teach this class; yours is to learn. Remember, though, **YOU are able, capable and equipped to learn those things you must know to pass this course.** Please bypass any opportunity to think otherwise about yourself and, for goodness sakes, avoid those people who tell you how difficult this course is and how you will barely pass it, if at all.

**Homework.** Here is an interesting statistic: In previous introductory programming classes, the students who do well will spend in excess of eight to 12 or 14 hours per week outside of class doing the reading and programming assignments. That time has not decreased over the past semesters.
Final comment: If you have any concerns about this course you need to talk to me about it. I encourage you to communicate with me about any ideas, suggestions, or disenchantment that you have with the way the course is progressing. Please keep in mind that I will not hold it against you if you make suggestions or comments about the course. I do ask you to please keep in mind that we must cover a set amount of material (course goals and objectives) and that you must complete the programming assignments.

Make a commitment and stick to it. Work in support groups and teams.

The following is a tentative schedule of the reading topics. We may, as a class, change it to reflect other needs and preferences. I will make programming and lab assignments as additions to these reading assignments. Do your reading prior to class. Lectures will address and emphasize problem solving methodologies (primarily STRUCTURED DESIGN and TECHNIQUES) in conjunction with the appropriate listed topics. Lectures do not necessarily address all topics.

Note: These assignments probably deal with an enormous amount of new “stuff” for most of you. I strongly suggest you start NOW and do not get behind.

Week 1 (starting 1/16):
Introduction and Syllabus review.

Chapter 1:                  Computer Hardware
                           pg. 2 – 3        3 – 4
                           7 – 9
                           12 – 19 System Development
                           pg. 103 - 104 Software Engineering and Style. Read it and heed it.

Chapter 4  pg 149 – 152 Structure Charts
           111 – 112 Designing Structured Programs

Understand these ideas and techniques as aids and tools in problem solving and not as bureaucratic rules and laws.

Week 2 (starting 1/22):

Continue with problem solving techniques.

Introduction to C++:

Chapter 2          Background
                  pg 26 – 27 Structure, Syntax and semantics
                  28 – 32 Data Names
                  63 – 64 Data Types
                  33 – 38 Variables
                  38 – 39 Constants
                  41 – 46 Standard Output
| 55 – 56 | Standard Input              |
| 62 – 65 | Software Engineering and Style. Read and heed it. |

Chapter 13.2  592 – 597  Strings

**Note:** Character string is a ‘special’ data type. Read this section to familiarize yourself with the concept of a string variable. You have already been introduced the string constant. Take good notes in class when the lecture covers strings. We will go into this topic in more detail when we cover selection and repetition.

| Chapter 5.5 | 205 – 206 | Dependent Statements |
| Appendix H   | 802 – 805 | Coding Standards and Style |
**Week 3 (starting 1/29)**:
Continue with problem solving techniques

| Chapter 3 | pg. 72 – 82   | Expressions |
|           | 82 – 84       | Precedence and Associativity |
|           | 86 – 89       | Evaluating Expressions |
|           | 89 – 91       | Mixed Type Expressions |
|           | 91 – 94       | Statements |
| Chapter 2 | pg. 49 – 55   | Formatting Output |
|           | 50 - 56       | Go through and understand the examples on these pages |
|           | 46 – 47       | Standard Files, data streams |
| Chapter 13.3 | 597 – 601   | String Input and Output |
| Appendix K | 827 - 828     | Character Input and Output Functions |
| Chapter 7  | 289 – 291     | Files and Streams |
|           | 292 – 295     | Standard Library I/O Functions |
|           | 296 – 305     | Formatting Input and Output |

**Week 4 (starting 2/5)**:
Continue with problem solving by design.

**Note:** The following material is somewhat more challenging than we have covered so far. I want to encourage you to continue a diligent and disciplined approach to problem solving by using the techniques we have discussed in class. Apply the concepts properly and they will help you understand and apply the concepts of function parameter passing.

| Chapter 4 | pg. 112 – 115 | Functions in C++ |
|           | 115 – 120     | User defined Functions (value returning functions) |
|           | 137 – 143     | Standard Library Functions |
|           | 196 – 198     | More Standard Library Functions |

**Week 5 (starting 2/12)**:
Continuing with functions

| Chapter 4 | pg. 120 – 130 | Void functions with and without parameters |
|           | 130 – 135     | Parameter Passing |
|           | 144 – 145     | Scope |

Continue with the above topics and apply them to the programming problems as described in the Assignment Package 1 you were given earlier.

**Week 6 (starting 2/19)**:
Finish Assignment Package 1.

Exam 1.

Week 7 (starting 2/26):

Chapter 5 pg. 167 - 172 Logical Operators, Precedence
173 - 177 Two way selection (IF expressions)
177 - 179 Nested IF expressions
181 Conditional Expressions
205 Dependent Statements (review)

Read it and note especially the indentation rules in table 5-8.

Week 8 (starting 3/5):

Continue with the study of the selection structure using the IF statement.

Chapter 5 pg 183 – 187 Go through and understand this example by reviewing the design aspect and the code for it.

Chapter 6 pg 220 – 223 Concept of a loop and how it works.
223 – 225 Event and counter controlled loops
225 – 228 The WHILE loop
228 – 231 The FOR loop

Go through and understand the flowcharts and implied activity on these pages. Review the logic and understand the examples on pg. 227 and 230.

Chapter 6 pg 231 – 236 The DO … WHILE loop
236 – 237 more on the FOR loop
240 – 241 more on the WHILE loop
241 – 244 more on the DO … WHILE loop

Go through other comments relating to looping on Thoroughly review the example, its logic and code on pg 237 – 240.

Week 9 (starting 3/12):

SPRING BREAK

Week 10 (starting 3/19):

Chapter 6 pg 245 – 247 Other statements relating to looping, continue and break functions.

Week 11 (starting 3/26):

Continue with study of selection and repetition structures. Take good notes in class and review them after class.
Finish Assignment Package 2.

Exam 2.
**Week 13 (starting 4/9):**

Single dimension arrays and problem solving for Assignment Package 3.
Chapter 8 pg 330 – 339 Single dimension arrays.

April 10 – Last day to withdraw
April 13 – 15 – Easter Holiday.

**Week 14 (starting 4/16):**

Continue with problem solving for Assignment Package 3.
Chapter 8 pg 357 – 364 Searching
pg 349 – 357 Sorting.
Note the logic for bubble and insertion sorting.

**Week 15 (starting 4/23):**

Study the example on pg. 339 carefully, noting its logic and coding.
Finish problem solving for Assignment Package 3.

**Week 16 (starting 4/30):**

All assignments are due. No late work is accepted.
May 6 is the last day of instruction.

**Week 17 (starting 5/7):**

Final exam week.