INFORMATION TECHNOLOGY: SOFTWARE ENGINEERING
SE 255 – Spring 2017
Advanced C#

Course Information:

Meeting Days, Times, and Rooms:

Section 05:		
On-Campus (N245)	Discuss & Lab	Wed. 7:45 AM to 11:15 AM
On-Campus (N245)	Discuss & Lab	Thur. 7:45 AM to 9:25 AM
Section 55:		
On-Campus (N208)	Discuss & Lab	Wed. 5:45 PM to 10:40 PM
Online (Wk3)	Discuss & Lab	Fri. 5:45 PM to 10:15 PM

Instructor: Scott Lambert, Associate Professor

Email: slambert@neit.edu Phone: (401) 739-5000 X3454

Office Location: EA N240 B

Office Hours

Monday	11:00 AM to 12:15 PM	N240B & Online
Wednesday	11:15 AM to 12:15 PM	N240B & Online
Thursday	11:15 AM to 12:00 PM	N240B & Online
Friday	11:15 AM to 1:15 PM	N240B & Online

Course Description

2 Class Hours / 4 Lab Hours / 4 Quarter Credit Hours
Students will study advanced topics in C#. At the end of the course, the student will be able to write C# programs that include classes, polymorphism, operator overloading, templates and exception handling. Special attention will be given to object-oriented design principles.

Course Prerequisites: SE-245

Text

There are texts for the course. There may also be supplemental readings and videos assigned as homework.

Murach, J. (2010). *Murach's C# 2010/2012*. Fresno, CA: Murach Publishing.

Required Materials

- **Computer with Win 7, 8, 10 Operating System**
- **Visual Studio 2010/2012/2015**
- **.NET Framework**
- **Portable USB 2.0 Hard Disk Drive with at least 8 GB** of space available for this course.
- **Headphone/Microphone Headset (Staples/BestBuy)**

Overarching Objectives

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

- Analyze, design, code, test and document modular programs as evidenced by satisfactory performance on programming assignments and a practical final exam.
- Perform input, output, documentation and editing techniques as evidenced by satisfactory performance on programming assignments and a practical final exam.
- Use flowcharting components such as constants, variables, expressions, loops, conditional statements, and logical operators as evidenced by satisfactory performance on programming assignments and a practical final exam.
- Use control breaks, interactive processing, array and menu processing as evidenced by satisfactory performance on programming assignments and a practical final exam.
- Use proper object-oriented programming techniques as evidenced by programming assignments and practical mid-term and final exams.
- Build coding interfaces implementing classes, as evidenced by programming assignments and practical mid-term and final exams.
- Retrieve and display information from a database, as evidenced by programming assignments and practical mid-term and final exams.

- Explain and document their code and projects, as evidenced by their code documentation and explanations within the class discussions as well as those specifically with the teacher.

- Students will demonstrate the necessary steps involved in developing small to medium-sized applications/programs from start to finish as evidenced by the satisfactory completion of the required Lab Assignments and the Cumulative Practical Final Exam. Where industry data is requires, students will complete the research and analysis necessary to legally and ethically apply the appropriate coding and data within their technical documents, and code implementation.

Assessments of Outcomes

Objective multiple-choice tests, essay questions and a final exams/projects will be used to assess the student's ability to list, describe compare, recognize and identify appropriate concepts, tools and procedures described in the course objectives. Scores of 60% or higher for all quizzes and exams are expected to be achieved.

Homework questions/exercises will be used for student self-assessment of the ability to list, describe compare, recognize and identify appropriate concepts, tools and procedures described in the course objectives.

Laboratory exercises will be used to reinforce, demonstrate and practice concepts and procedures described in the course objectives. A minimum of 90% of all assigned lab activities are expected to be completed to the satisfaction of the instructor.

Discussion boards- Students will have online tutorials and exercises that they follow for their first and second moments of learning. Students post their exercises during the online portion in order to receive feedback and assistance. During the on-campus lab, students are required to post their lab programs in a team-based discussion forum where teammates will assess each other's programs

Instructional Strategies / Methodology

This course utilizes a variety of instructional strategies and theories to engage and instruct a diverse group of learners. Theoretical content is provided through lectures, reading assignments and instructional videos. Laboratory exercises are used to complement the theory and encourage the development of skills in applying the course content. Review questions are assigned to help the student merge the facts and concepts presented by the various content sources into a comprehensive understanding of the material. Programming projects are presented throughout the course to help the student recognize the student's strengths and weaknesses in each topic area.

Different learning styles are accommodated by offering lectures, readings, videos, hands-on activities, review and self-assessment.

MI Assessment:

http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks3/ict/multiple_int/index.htm

Evaluation and Grading Criteria

The final grade will be based on the instructor's evaluation of how well the student has mastered the course objectives. The evaluation will be based primarily on a composite of the student's performance on quizzes, homework, labs, exams, and class participation. Weighting of the major criteria is as follows:

Grade Percentages Assigned:

Weekly Questions/Discussions	20%
Labs	45%
Mid-Term Exam / Project	15%
Final Exam / Portfolio Project	20%

The assignments are due on the date indicated. Your score for an assignment is based on the correctness of your solution as well as how you solved the problem (did you do it the round-about-way or the straight-forward way).

All assignments are due by the time specified on each assignment. You lose 10 points once it is late. Programs will not be accepted more than one week late. You are allowed one and only one "Late Card" allowing a regular assignment to be handed in late without penalty within one week.

Any Bonus Sections of an assignment are Null and Void once a program is late. No Bonus points will be given once an assignment is late. Do bonuses when you have completed the project ahead of time.

Course Policies

Course policies are set by the instructor and will vary from one instructor to another and from one course to another. Students are encouraged to ask the instructor for clarification of any policy that is not clearly stated.

Notebook Computers, Cell Phones, Pagers and other Electronic Devices

Refer to the student handbook for details. Essentially this means that **no** electronic devices of any kind may be used in the classroom at any time without the expressed consent of the instructor.

Inappropriate Computer Use

Software such as packet sniffers, key loggers, port scanners or any software that may compromise computer or network security may not be used in the classroom at any time without the knowledge and expressed consent of the instructor. Any violation of this policy will be reported to the Provost's office for possible disciplinary action.

Playing of games other than those developed in class are prohibited.

In-Class Assignments and Labs

Assignments must be completed in a timely fashion, and completion demonstrated to the instructor. ***Students are to run all laboratory exercises on the laboratory computers and periodically backup the images to the required USB hard disk drive.*** Sufficient time is provided during class periods for timely completion of labs. Students who have excessive absences may jeopardize their ability to complete all of the assigned labs.

Review Questions

The course covers a number of general topic areas, and each topic is accompanied by a set of review questions. Students are required to submit answers to the questions for each section via the Blackboard Assignment system before the respective due date for the questions. Review questions submitted after the due date will receive a score of 50 or less (out of 100) at the discretion of the instructor.

Mid-Term and Final Exam Projects

The exam projects are cumulative, covering all material presented during the course up to that point. They will be given during Weeks 5 and 10 of the term. The projects may include a series of base game components that will be required for a base grade and a series of options added to your game to obtain a grade higher than the base. Students are required to create a game other than those created within class samples. Details about the final examination will be presented in class and on the Blackboard site.

Attendance and Class Participation

Regular attendance is important to successful completion of the course. Factual material and practical insights will be presented in class in addition to those covered in the required reading assignments. A significant portion of this class is lab work which must be done in class. Absence from class prevents the student from contributing to the class and in benefiting from the contributions of other students. Students missing classes, and the work associated with those classes, may jeopardize their ability to pass the course.

Class participation means more than simply being present in class. Class participation means coming to class prepared by having read and studied the assigned readings and having completed assigned homework. Participation also means contributing to class discussions and answering questions that arise during the discussion of required material.

Arriving at class on time is also important. Late arrivals not only risk missing important information, but can cause distraction to the class. Being punctual is even more important in the working world, and should be practiced conscientiously in school.

COLLEGE POLICIES

Academic Honesty Policy

Any project, paper, or examination is expected to be the student's own work, in the student's own words. Academic dishonesty (including but not limited to copying another student's work or allowing one's own work to be copied; using notes or books during an examination without the instructor's advance permission; presenting information or images copied from a book, journal, or online source as one's own) will not be tolerated. See the web site for the full policy)

The design of this course as outlined in the syllabus requires you to do work outside of class to be successful.

Other Policies

Each student is responsible for accessing the http://wcb.neit.edu/shandbook/syllabuspolicies.pdf web site and becoming familiar with all academic policies.

"**The design of this course as outlined in the syllabus requires you to do work outside of class to be successful."**

Course Schedule

Week	Topic	Out of Class Activity (Due by 1st class of the week)	In-class Activity/Assignment (Due by end of 1st class of next week.)
One	Introduction & Syllabus Introducing Structures and Classes, Indexes, Events, Inheritance **Topical Objectives** **Students will…** • **Create a Windows application project** • **Create a structure and associated properties** • **Advance the structure to a class** • **Use a structure or class within input and output scenarios.** • **Discuss the pitfalls of using public scoped properties.**	*Read Chapts 12-14* *Watch Video(s)* *Read/Play -Code* *Discussion Board* Gardner MI Assessment: http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks3/ict/multiple_int/index.htm	*Lab Assignment #1* *Have an online peer assessment forum for each lab*
Two	Interfaces, Organizing and documenting Classes **Topical Objectives** Students will… • Create private properties within a class	*Read Chapt 15-16* *Watch Video(s)* *Read/Play -Code* *Answer Questions*	*Lab Assignment #2* *Have an online peer assessment forum for each*

	• Create and Accessor methods (gets) • Create and Mutator methods (sets) • Use Accessor and Mutator methods to get or set property values within a class. • Move the class definition to a separate Class file. • Understand and be able to explain the pros & cons of using private-scoped properties. • Understand and be able to explain the pros of using a separate Class file.		*lab*
Three	*Using Classes as Function Libraries* **Topical Objectives** Students will… • Create a validation class using static functions • Understand and be able to explain the use of classes as static function libraries • Implement static classes only using local variables and passed parameter values. Create and document	*Read Chapt 17-18* *Watch Video(s)* *Read/Play -Code* *Discussion Board*	*Lab Assignment #3* *Have an online peer* *assessment forum for each* *lab*

	overloaded functions		
Four	Constructors, Inheritance, and Inserting Data….Oh My! **Topical Objectives** Students will… • Create and implement constructors • Create a new class that builds on a previous class using inheritance • Make a proper connection to a database file or server • Create a database table to represent an instance of our class object • Create a method within the new child class that receives form data and adds the data to a database.	*Read Chapt 19* *Watch Video(s)* *Read/Play -Code* *Discussion Board*	*Lab Assignment #4 & #5* *Have an online peer assessment forum for each lab*
Five	***Mid-Term***	*Read Mid-Term Spec Sheet & Ask Questions.*	*Mid-Term (Due last class this week)*
Six	Searching Data and Displaying Results **Topical Objectives** Students will…	*Read Chapt 20 (Finding and Displaying Data)*	*Lab Assignment #6*

	• Create a basic query that gathers all results from a database table • Create a database query that utilizes form data to narrow the search results • Utilize a DataGrid to display query results • Utilize the DataGrid's events and properties to query the database for one specific record • Utilize a DataReader to populate a form with the results of a single-record query • Understand and explain various uses of the drill-down search process	*Watch Video(s)* *Read/Play -Code* *Discussion Board*	*Have an online peer* *assessment forum for each* *lab*
Seven	*Editing/Deleting Data* **Topical Objectives** Students will… • Create a query that will allow the user to edit and update existing data within a database table • Create a query that deletes one or more records from a database table.	*Read Chapt 20* *(Insert/Update/Del)* *Watch Video(s)* *Read/Play -Code* *Discussion Board*	*Lab Assignment #7* *Have an online peer* *assessment forum for each* *lab*

	• Utilize a search query before deleting records in order to reduce errors • Modify the Graphical User Interface (GUI) through code in order to make the program more intuitive for the user.		
Eight	User Interfaces Securing your program **Topical Objectives** Students will… • Create a hard-coded Login process for your application. • Create database-driven Login process for your application. • Reduce human error by populating list objects from a database table.	*Read Chapt 24* *Watch Video(s)* *Read/Play -Code* *Discussion Board*	*Lab Assignment #8* *Have an online peer assessment forum for each lab*
Nine	*Application Deployment* ***Final Exam Project Specifications Discussed***	*Read Chapt 25* *Watch Video(s)* *Read/Play -Code* *Discussion Board*	*Cumulative Practical Final Given* *Have an online peer assessment forum for each lab*

Ten	Final Project Due w/ all necessary documentation.		*Practical Final Exam* Due Last Class

Feedback

Students are encouraged to meet with the instructor outside of class time to discuss the student's progress in the course and any concerns the student may have regarding the content, pacing and evaluation of the material presented. Office hours are posted on the Blackboard site. Appointments may be made to meet with the instructor if the office hours are inconvenient. You do **not** need an appointment to meet with the instructor during posted office hours, but are highly encouraged, just in case of conflicts

Students are encouraged to send questions or comments via email, if a personal meeting is not convenient. When sending email to the instructor, be sure to use your NEIT email account

Most email is answered within 24-36 hours (except for weekends, holidays and school breaks). If you do not receive a response from the instructor in a timely fashion, assume that the message was not received and resend your message.

Academic Support Services

The College offers a variety of support services for the student including the following:

IT Department

If you have concerns or questions about IT Department issues please contact

Marty Truchon

Assistant Department Chair

etruchon@neit.edu

739-5000 ext 3651

Tutoring

Tutoring can be made available to students who are having difficulty with the course material. Any student in need of tutoring or extra assistance should contact the instructor, the student's advisor or one of the department chairs for additional information. There is no cost or charge to the student for tutoring.

Students who feel they may need tutoring should seek assistance as early in the quarter as possible.

Academic Skills Center (ASC)

The ASC is a resource for students. ASC provides a wide range of personalized services from assessment and placement to academic advising and tutoring.

Office of Student Support Services (OSSS)

The main purpose of the OSSS is to ensure that students receive the full benefit of all the services provided at the College. The department's responsibilities include student counseling, student assistance, student attendance and re-entry of former students.

Advisor for Bachelor Candidate Students: Lee Peebles – (401) 739-5000 X3414

Library

The NEIT Library offers resources (e.g., books, periodicals and videos) and search tools as well as several series of booklets on various subjects to help the student.

Final Notes…

- You are responsible for your own choices and actions, whether the result is an A or an F
- The only stupid questions are the ones that are NOT asked. I am here to help…. ask away!
- You pay for this class, and the best way to get your money's worth is to give me feedback.
- Give me your opinions whether they are good or bad…just do it politely. Thanks.
- I hope we all enjoy this class and learn from each other!
- Honesty is always the best possibility. Try it…it has it's rewards.

I will be attempting to lead this class in a manner as close to the "**real world**" development environment as possible. This means that you should consider this class as a "**job**". You will be expected to behave as if you are learning a new technology in the workplace. In the workplace, you (should) share a common goal with your co-workers. That goal is to add as much as you can to the common task of producing a great tool or product and meeting the needs of the customer (or in this case, the instructor). You have to work together, effectively present information that others need from you, and find the information that you need from others. You should be helping your fellow students (co-workers) to succeed by giving them valuable feedback in code reviews and discussions. You should be asking questions to ensure that you and your co-workers are staying focused on the common goal and avoiding wasteful usage of your valuable time. Those who do the best job of creating a positive and proactive classroom environment will find the greatest success in this class and eventually in the workplace.

Caveat

NEIT reserves the right to change the above schedules and requirements without advance notice.