Philadelphia University
Faculty of Engineering
Department of Computer Engineering
Second semester, 2011/2012

	Course Syllabus
Course Title: Advanced Programming Language	**Course code: 630501**
Course Level: 5th	**Course prerequisite (s) : Dept. Approval** **Corequisite (s): ----------**
Lecture Time: : 11:10-12:10 (Sun-Tue-Thu)	**Credit hours:** 3

Academic Staff Specifics

Name	**Rank**	**Office Number and Location**	**Office Hours**	**E-mail Address**
Dr. Qadri Hamarsheh	Assistant professor	**E712**	**10:00-11:00 (Sun-Tue-Thu)**	qhamarsheh@philadelphia.edu.jo

Course module description:

This course aims to provide students with capabilities to

- Design, develop and deploy mobile applications using different wireless Development Kits: Mobile Internet Toolkits, Microsoft Visual Studio .Net, and VC#.
- Show how these concepts are implemented in practice, students are given hands-on experience of building dynamic mobile site, through in-depth study of Active Server Pages (ASP.NET) and database Access ADO.NET.

Course module objectives:

The choice of appropriate software tools and a good understanding of the main concepts and the framework of mobile applications is the main key to develop the WAP application. This module aims to:

- Have a clear understanding of the principals of wireless systems, including architectures and protocols.
- Be able to use different Wireless Software Developers Tools for different Wireless devices such as Mobile Phones, PDA, and Laptops.
- Gain experience writing programs in C# language, ASP.NET and ADO.NET technologies.
- Understand the object-oriented programming terminology used to describe features of C# and VC# project with their visual mobile components.
- Study .NET Platform and DNA Architecture, ASP.NET Framework components and the development process for mobile applications.

- Understand how to build and develop dynamic mobile forms using the ASP.NET Server Controls: Container, Standard, List, Validation and Special Controls.
- Integrate ASP.NET with different databases using ActiveX Data Objects (ADO.NET) technology and learn how to access mobile data using managed data providers and ADO.NET objects: Connection, DataReader, DataAdapter and DataSet.
- Understand the security challenges and security models for mobile application
- Learn and understand the Caching and Tracing processes using ASP.NET technology.

Course/ module components

- **Books (title , author (s), publisher, year of publication)**
  Title: "Professional WAP".
  Author(s)/Editor(s): Charles Arehart, Mirmal Chidmbaram, et al.
  Publisher: Wrox, 2000
  ISBN: 1-861004-0-44

  Title: "ASP.NET Mobile Controls Tutorial Guide".
  Author(s)/Editor(s): Butler.
  Publisher: Wrox, 2001
  ISBN: 1861005229

Teaching methods:

Duration: 16 weeks, 48 hours in total
Lectures: 34 hours, 2 per week + two exams (two hours)
Tutorial in the Lab.: 8 hours,
Seminar: 3 hours, (last week)
Assignments: 4 Assignments
Project: 0ne E-Commerce Mobile Application

Learning outcomes:

- **Knowledge and understanding**
  1. Have a clear understanding of the principals of wireless systems, including architectures and protocols.
  2. Have a good understanding of the different focus at various stages of the development process for wireless applications.
  3. Be able to use different Wireless Software Developers Tools for different Wireless devices such as Mobile Phones, PDA, and Laptops.
  4. Have a clear understanding of the object-oriented terminology used to describe features of C# and VC# project with their visual components. .
  5. Be able to use the .NET platform to develop dynamic mobile pages with ASP.NET, ADO.NET, Base Class Library and CLR.
  6. Have knowledge of design GUI with visual components guidelines using ASP.NET Mobile Controls.
  7. Be able to configure, and test mobile applications using C#.
  8. Be able to understand the documentation for, and make use of, the MSDN library and different SDK mobile browsers.
- **Cognitive skills (thinking and analysis).**
  1. Have knowledge of design GUI with visual components guidelines using ASP.NET Mobile Controls.
  2. Be able to use different Wireless Software Developers Tools for different Wireless devices such as Mobile Phones, PDA, and Laptops.
  3. Be able to design, code, test and deploy secure mobile applications using C#.

4. Be able to configure, and test mobile applications using C#.
5. Be able to understand the documentation for, and make use of, the MSDN library and different SDK mobile browsers.

- **Communication skills (personal and academic).**
  1. Have a good understanding of the different focus at various stages of the development process for wireless applications.
  2. Have a clear understanding of the object-oriented terminology used to describe features of C# and VC# project with their visual components.
  3. Be able to use the .NET platform to develop dynamic mobile pages with ASP.NET, ADO.NET, Base Class Library and CLR.
  4. Be able to design, code, test and deploy secure mobile applications using C#.
  5. Be able to configure, and test mobile applications using C#.
  6. Be able to work effectively alone or as a member of a small group working on some programming tasks.
- **Practical and subject specific skills (Transferable Skills).**
  1. Have a good understanding of the different focus at various stages of the development process for wireless applications.
  2. Be able to design, code, test and deploy secure mobile applications using C#.
  3. Be able to work effectively alone or as a member of a small group working on some programming tasks.

Assessment instruments

Allocation of Marks	
Assessment Instruments	**Mark**
First examination	20%
Second examination	20%
Final examination: 50 marks	40%
Reports, research projects, Quizzes, Home works, Projects	20%
Total	100%

** Make-up exams will be offered for valid reasons only with consent of the Dean. Make-up exams may be different from regular exams in content and format.*

Documentation and academic honesty

Practical Submissions

The assignments that have work to be assessed will be given to the students in separate documents including the due date and appropriate reading material.

Documentation and Academic Honesty

Submit your home work covered with a sheet containing your name, number, course title and number, and type and number of the home work (e.g. tutorial, assignment, and project).

Any completed homework must be handed in to my office (room E712) by 15:00 on the due date. After the deadline "zero" will be awarded. You must keep a duplicate copy of your work because it may be needed while the original is being marked.

You should hand in with your assignments:

1- A printed listing of your test programs (if any).
2- A brief report to explain your findings.
3- Your solution of questions.

For the research report, you are required to write a report similar to a research paper. It should include:

- **Abstract**: It describes the main synopsis of your paper.
- **Introduction**: It provides background information necessary to understand the research and getting readers interested in your subject. The introduction is where you put your problem in context and is likely where the bulk of your sources will appear.
- **Methods (Algorithms and Implementation)**: Describe your methods here. Summarize the algorithms generally, highlight features relevant to your project, and refer readers to your references for further details.
- **Results and Discussion (Benchmarking and Analysis)**: This section is the most important part of your paper. It is here that you demonstrate the work you have accomplished on this project and explain its significance. The quality of your analysis will impact your final grade more than any other component on the paper. You should therefore plan to spend the bulk of your project time not just gathering data, but determining what it ultimately means and deciding how best to showcase these findings.
- **Conclusion**: The conclusion should give your reader the points to "take home" from your paper. It should state clearly what your results demonstrate about the problem you were tackling in the paper. It should also generalize your findings, putting them into a useful context that can be built upon. All generalizations should be supported by your data, however; the discussion should prove these points, so that when the reader gets to the conclusion, the statements are logical and seem self-evident.
- **Bibliography:** Refer to any reference that you used in your assignment. Citations in the body of the paper should refer to a bibliography at the end of the paper.

• Protection by Copyright

1. Coursework, laboratory exercises, reports, and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.
2. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.
3. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.

• Avoiding Plagiarism.

1. Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.

2. Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.
3. Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.
4. Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized, and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

Course/module academic calendar

week	Basic and support material to be covered	Homework Reports and their due dates

(1)	**Wireless Architecture**
	• Components of Wireless Networks.
	  ◦ WAP Browser.
	  ◦ WAP Gateway: Corresponding WAP Protocols, Information Flow.
	  ◦ WAP Server.
	• Adopting Wireless Standards.
	  ◦ Options in Markup Languages: WML, cHTML, HDML.	

(2)	**WML Programming using Wireless Development Kits** • Openwave UP.SDK. • Nokia WAP Toolkit. • Introduction to WML. • Overview of WML Syntax: Text Formatting. • Navigating Between Cards and Decks.	
(3)	**WML Programming using Wireless Development Kits (cont.)** • Handling User Input. • Event Handling. • Using Timers. • Using Variables.	Tutorial 1 Assignment 1

(4)	**Mobile Programming using Microsoft Mobile Internet Toolkit**
	• **Introducing the Microsoft .NET Platform:**
	  ◦ .NET Platform, DNA Architecture.
	  ◦ .NET Platform Features: Multilanguage Development, Platform and Processor Independence.
	  ◦ .NET Components: Common Type System CTS, Common Language Specification CLS, .NET Base Class Library (BCL).
	• **Introducing C# Programming:**
	  ◦ Data Types, Value Types, Reference Types.	

(5)	• **Introducing C# Programming (cont.)**
	  ◦ Understanding Properties.
	  ◦ Using Object-Oriented Programming OOP.
	• **ASP.NET Mobile Applications**
	  ◦ Introduction to ASP.NET.
		Tutorial 2

	Content Components: ASP.NET Server Controls. Code Component: ASP.NET Architecture.	
(6) First exam	• **ASP.NET Mobile Applications (cont.)** Code Component. ASP.NET Architecture. Developing Mobile Forms. ASP.NET Mobile Controls: Container, Standard, List, Validation and Special Controls.	Tutorial 3 Project: Part 1 E-Commerce Application (Interface) 2 weeks
(7)	• **ASP.NET Mobile Applications (cont.)** Linking. User Inputs: Text and Password, List Controls. Data Binding.	Tutorial 4 Assignment 2
(8)	• **ASP.NET Mobile Applications (cont.)** Event Handling. Input Validation Controls: Required Field, Compare Validator, Range Validator, Regular Expression Validator, Custom Validator, And Validation Summary Control. DataGrid.	Tutorial 5
(9)	• **Accessing Mobile Data (cont.)** Accessing Data with ADO.NET. ADO.NET Architecture: Managed Data Providers.	Project: Part 2 E-Commerce Application (Server-Side Scripting) 6 weeks
(10)	• **Accessing Mobile Data (cont.)** ADO.NET Connection Object, Connection String. ADO.NET DataReader.	Tutorial 6 Assignement 3
(11) Second exam.	• **Accessing Mobile Data (cont.)** ADO.NET DataAdapters. ADO.NET Dataset	Tutorial 7
(12)	• **Accessing Mobile Data (cont.)** ADO.NET Dataset DataTable. DataColumn.	Tutorial 8 Assignment 4
(13)	• **Accessing Mobile Data (cont.)** DataRow DataRelation	
(14)	• **State Management** ViewState. Application State. Session State.	
(15)	• **Securing Mobile Data** Security Challenges. Security Models. Form-Based Authentication. Passport Authentication Provider. Windows-Based Authentication	
(16) Final Exam	**Seminars**	

Expected workload:

On average students need to spend 3 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive

a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Module references

Students will be expected to give the same attention to these references as given to the Module textbooks.

Books

1- Ben Forta, et al. "WAP Development with WML and WMLScript", Sams 2000.
2- Steve Milory, et al. ".NET Mobile Mobile Developer's Guide", Syngress 2002.
3- Microsoft Mobile Internet Toolkit, Microsoft Corporation, 2001.
4- Ryan Fife, et al. "Mobilemaster's Guide to the Wireless Internet", Syngress 2001.
5- Mark Ridgeway. ".NET Wireless Programming", Sybex 2002.
6- Valentino Lee, et al. "Mobile Applications: Architecture, Design, and Development", Prentice Hall 2004.
7- Kenneth S. Lind, Marj Rempel, "MCAD/MCSD Visual C# .net Certification All-in-One Exam Guide(Exams 70-315, 70-316 & 70-320)", McGraw-Hill/Osborne 2002.
8- Hanspeter Mössenböck, Wolfgang Beer and others, ".NET Application Development with C#, ADO.NET, ASP.NET and Mobile Services", Pearson Addison Wesley, 2003.
9- Jeffrey Richer, Dan Hurwitz: Programming ASP.NET and ADO.NET, Microsoft Press, 2002.
10- A.Turtschi et.al. "Mastering Visual C# .Net", Sybex 2002.
11- Anders Hejlsberg et.al. "C# Language Reference", Microsoft Corporation 2000.

Journals **----------**

Mobilesites

- http://www.Microsoft.com
- http://ww.openwave.com
- http://forum.nokia.com/main.html
- http://www.microsoft.com/mobile
- http://www.wapforum.org
- http://developer.phone.com
- http://www.ericsson.com
- msdn.micrsoft.com (MSDN library's documentation)
- www.w3schools.com (Online Training Courses)
- www.gotdotnet.com (.NET Framework community)
- www.microsoft.com /data (Microsoft mobile site about accessing data sources)
- www.asp.net (General mobile site on ASP.NET)