

## School of Computing and Information Sciences

**Course Title:** Windows Programming for IT

**Date:** 10/8/2018

**Course Number:** COP-4005

**Number of Credits:** 3

<b>Subject Area:</b> Application Development	<b>Subject Area Coordinator:</b> Kip Irvine <b>email:</b> irvinek@cis.fiu.edu
<b>Catalog Description:</b> Application development techniques in Windows: Classes, Objects, Controls, Forms and Dialogs, Database, and Multitier Application Architecture. Students cannot receive credit for both COP4005 and COP4226.	
<b>Textbook:</b> Starting out with Visual Basic 2008 Tony Gaddis and Kip Irvine Addison-Wesley (Pearson Education)	
<b>References:</b> Visual Basic .NET Francisco Balena Microsoft Press. ISBN: 0735613753	
<b>Prerequisite Courses:</b> CEN 3721 and (COP 3804 or COP 3337)	
<b>Corequisite Courses:</b> COP 4703	

Type: IT Elective for Application Development area

Prerequisites Topics:

- Object-oriented programming concepts
- File-handling concepts
- Data types, decision patterns, iteration patterns, arrays

Course Outcomes:

1. Master the use of classes and objects in multitier applications
2. Master structured exception handling in programs
3. Master the use of Windows desktop controls
4. Master the use of interactive error trapping techniques
5. Master the use of data-bound controls and database access
6. Master the use of a database application programming interface
7. Be familiar with common user-centered design and user interface engineering principles
8. Be exposed to software testing and test-driven development techniques

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**Relationship between Course Outcomes and Program Outcomes**

<b>BS in IT: Program Outcomes</b>	<b>Course Outcomes</b>
a) Demonstrate practical hands-on expertise in selection, installation, customizing and maintenance of the state-of-the-art computing infrastructure.	
b) Demonstrate practical proficiency in selection, installation, customizing and maintenance of the state-of-the-art software systems.	
c) Demonstrate general understanding of at least one field where Information Technology plays a central role.	1, 2, 3, 4, 5, 6, 7, 8
d) Demonstrate understanding of the social and ethical concerns of the practice of Information Technology.	
e) Demonstrate the ability to work cooperatively in teams.	
f) Demonstrate effective communication skills.	
g) Demonstrate familiarity with fundamental ideas and issues in the arts, humanities and social sciences.	

**Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes**

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School's Assessment Plan:  
<http://www.cis.fiu.edu/programs/undergrad/it/assessment/>

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**Outline**

<b>Topic</b>	<b>Number of Lecture Hours</b>	<b>Outcome</b>
<ul style="list-style-type: none"> <li>• Object-Oriented Programming               <ul style="list-style-type: none"> <li>○ designing classes with properties &amp; methods</li> <li>○ creating class instances, calling methods</li> <li>○ multi-tier application design</li> </ul> </li> </ul>	3	1
<ul style="list-style-type: none"> <li>• User interface engineering               <ul style="list-style-type: none"> <li>○ usability standards</li> <li>○ user-centered design fundamentals</li> <li>○ error trapping methods and tools</li> </ul> </li> </ul>	4	3,4,7
<ul style="list-style-type: none"> <li>• Exception handling               <ul style="list-style-type: none"> <li>○ principles behind error trapping</li> <li>○ Using Try and Catch</li> <li>○ designing custom exception classes</li> </ul> </li> </ul>	1.5	2
<ul style="list-style-type: none"> <li>• Windows desktop controls               <ul style="list-style-type: none"> <li>○ survey of most commonly used controls</li> <li>○ detailed examples of control properties</li> <li>○ advanced controls and applications</li> </ul> </li> </ul>	6	3
<ul style="list-style-type: none"> <li>• Data-bound controls and database access               <ul style="list-style-type: none"> <li>○ basic database concepts</li> <li>○ connecting to databases</li> <li>○ running SQL queries</li> <li>○ displaying and updating fields using data-bound controls</li> </ul> </li> </ul>	10	5
<ul style="list-style-type: none"> <li>• Software testing               <ul style="list-style-type: none"> <li>○ unit testing fundamentals</li> <li>○ designing tests for applications</li> <li>○ test-driven development</li> </ul> </li> </ul>	6	8
<ul style="list-style-type: none"> <li>• Database Objects               <ul style="list-style-type: none"> <li>○ Using DataReader, DataAdapter, DataSet, and TableAdapter objects</li> <li>○ Creating and using Command objects</li> <li>○ Using DataRelation objects</li> </ul> </li> </ul>	4	6

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**Course Outcomes Emphasized in Laboratory Projects / Assignments**

	<b>Outcome</b>	<b>Number of Weeks</b>
1	classes and objects in multitier applications Outcomes: 1	2
2	structured exception handling Outcomes: 2	1
3	use of Windows desktop controls Outcomes: 3, 7	2
4	interactive error trapping Outcomes: 4, 7	1
5	data-bound controls and database access Outcomes: 5, 6	2
6	designing medium-sized data-driven applications Outcomes: 1,2,3,4,5,6,7	3
7	testing applications Outcomes: 8	2

**Oral and Written Communication**

No significant coverage

<b>Written Reports</b>		<b>Oral Presentations</b>	
Number Required	Approx. Number of pages	Number Required	Approx. Time for each
0	0	0	0

**Social and Ethical Implications of Computing Topics**

No significant coverage

Topic	Class time	Student performance measures

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**Estimate Curriculum Category Content (credit hours)**

<b>Fundamental IT Area</b>	<b>Core</b>	<b>Advanced</b>
Human computer interaction		0.5
Information management		0.5
Web systems and technologies		
System administration and maintenance		
Programming		2.0
Networking		
Information assurance and security		
System integration and architecture		

**Theoretical Contents**

<b>Topic</b>	<b>Class time</b>
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**Problem Analysis Experiences**

1. 

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**Solution Design Experiences**

1. 

Reading a problem description and designing an appropriate database schema, user interface, and class relationships.
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2. 

Design a testing plan for an application.
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