

## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705221
Course Title	web services
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



**Brief Course Description:**

- ❖ Up until now, it has been very difficult to communicate and transfer data between different platforms. The surge of XML as a universal text-based standard readable and interpreted by any other system available, has opened the channel to enhance the development of cross-functional applications. Students will learn to describe the XML data, processes it, and prepare it for presentation, as well as modeling and designing functional components that will later be used to drive applications. Topics include: creating well-formed and valid XML documents, parsing the documents and creating the format to display through the client's browser, design functional components and content syndication with RSS.

**Course Objectives:**

At the completion of this course, the student will be able to:

1. Write well-formed XML documents.
2. Create style sheets to display the XML document in a presentable format.
3. Select appropriate XML technologies for an architecture (DTDs, XML Schema 1.0, XSLT 1.0, DOM2, SAX2, XPath 1.0, Namespaces).
4. Describe the basics of Web Services (SOAP, WSDL, UDDI).
5. Summarize XML security concerns and solutions.
6. Describe and create a content syndication using RSS.
7. Implement a XML Web Service by using Microsoft Visual Studio .NET.



## Detailed Course Description:

الفترة الزمنية	اسم الباب	محتوى الباب	الرقم الباب
W1	INTRODUCTORY CLASS: Review course objectives, timelines, project criteria, hardware and software requirements/recommendations  What Is XML	Of Data, Files, and Text So What Is XML? Origin of the XML Standards Where XML Can Be Used, and What You Can Use It For	BXML Chapter 1
W2	Well-Formed XML  XML Namespaces	Parsing XML Tags and Text and Elements, Oh My! Attributes Comments Empty Elements XML Declarations Processing Instructions Illegal PCDATA Characters Errors in XML Errors in XML How XML Namespaces Work Understanding URIs When to Use Namespaces	BXML Chapter 2  BXML Chapter 3
W3	Document Type Definitions (DTD)	Running the Samples Sharing Vocabularies Anatomy of a DTD Developing DTDs DTD Limitations	BXML Chapter 4
W4	XML Schemas (XSD)  XPath	Benefits of XML Schemas Do We Still Need DTDs? XML Schemas Creating a Schema from Multiple Documents Documenting XML Schemas Ways of Looking at an XML Document Modeling XML Documents Visualizing XPath Abbreviated and Unabbreviated	BXML Chapter 5  BXML Chapter 7

		<p>Syntax XPath 1.0 Axes XPath 1.0 Functions Predicates Structure of XPath Expressions XPath 2.0</p>	
W5	<p>XSLT  CSS</p>	<p>What Is XSLT? How an XSLT Processor Works Running the Examples Procedural versus Declarative Programming Foundational XSLT Elements Getting Information from the Source Tree Influencing the Output with the &lt;xsl:output&gt; Element 306 Conditional Processing The &lt;xsl:for-each&gt; Element The &lt;xsl:sort&gt; Element XSLT Modes XSLT Variables and Parameters Named Templates and the &lt;xsl:call-template&gt; Element XSLT Functions XSLT 2.0 Why Stylesheets? Introducing CSS Using CSS for Layout of XML Documents Laying Out Tabular Data Links in XML Documents Images in XML Documents Using CSS to Add Content to Documents Attribute Content</p>	<p>BXML Chapter 8  BXML Chapter 17</p>
W6	<p>XQuery  XML and Databases</p>	<p>Why XQuery? XQuery Tools Some XQuery Examples The XQuery Data Model XQuery Expressions XQuery Functions Using Parameters with XQuery</p>	<p>BXML Chapter 9  BXML Chapter 10</p>

		<p>User-Defined Functions</p> <p>Looking Ahead</p> <p>The Need for Efficient XML Data Stores</p> <p>Approaches to Storing XML</p> <p>Using Native XML Databases</p> <p>XML in Commercial RDBMSs</p> <p>XML in Open Source RDBMS</p> <p>Choosing a Database to Store XML</p> <p>Looking Ahead</p>	
W7	<p>The Document Object Model (DOM)</p> <p>Simple API for XML (SAX)</p>	<p>Purpose of the XML DOM</p> <p>The Document Object Model at the W3C</p> <p>Two Ways to View DOM Nodes</p> <p>Tools to Run the Examples</p> <p>The Node Object</p> <p>The Document Interface</p> <p>How the XML DOM Is Used in InfoPath 2007</p> <p>What Is SAX and Why Was It Invented?</p> <p>Receiving SAX Events</p> <p>Good SAX and Bad SAX</p> <p>Consumers, Producers, and Filters</p> <p>Other Languages</p>	<p>BXML Chapter 11</p> <p>BXML Chapter 12</p>
W8	RSS and Content Syndication	<p>Syndication and Meta Data</p> <p>Working with News Feeds</p> <p>A Simple Aggregator</p> <p>Useful Resources</p>	BXML Chapter 13
W9	<p>Web Services</p> <p>SOAP and WSDL</p>	<p>What Is an RPC?</p> <p>RPC Protocols</p> <p>The New RPC Protocol: Web Services</p> <p>Taking a REST</p> <p>The Web Services Stack</p>	<p>BXML Chapter 14</p> <p>BXML</p>

		The New RPC Protocol: SOAP Defining Web Services: WSDL	Chapter 15
W10	See BB for groups and objectives  Understanding the .NET Framework	Mortgage Calculations What You'll Need Online Loan Calculator Integrating the Calculation Web Service Enhancing the Display with SVG Adding the Frame to the Main Page Overview of the .NET Framework Understanding the Common Language Runtime Understanding the Managed Execution Process Understanding Assemblies and the Global Assembly Cache Understanding Configuration and Security Understanding Application Domains and Run-Time Hosts Introducing the .NET Framework Tools	CASE STUDY (Group Project)  XMLWS Chapter 1
W11	Creating and Managing Windows Services  Creating and Consuming Serviced Components  Creating and Consuming .NET Remoting Objects	Understanding Windows Services Creating Windows Services Handling Events and Logging Information from a Windows Service Application Adding Installers, Specifying Security Context, and Installing and Uninstalling a Windows Service Managing Windows Services Configuring and Debugging Windows Services Overview of COM+ Programming Understanding, Creating, and Registering Serviced Components Utilizing COM+ Services Managing Serviced Components	XMLWS Chapter 2  XMLWS Chapter 3  XMLWS Chapter 4

		Using the Component Services Tool Implementing Security for Serviced Components Understanding .NET Remoting Implementing Server-Activated and Client-Activated Objects Transporting Messages Across Application Domains Using Channels Implementing Events and Delegates Implementing Asynchronous Methods Configuring and Securing .NET Remoting Objects	
W12	Creating and Consuming XML Web Services  Advanced XML Web Services Programming	Understanding XML Web Services Creating XML Web Services Deploying and Discovering XML Web Services Consuming an XML Web Service Controlling the Characteristics of a Web Method Using Attributes Creating Asynchronous Methods Using SOAP Extensions Configuring and Securing a Web Service	XMLWS Chapter 7  XMLWS Chapter 8
W13	Database Programming Using ADO.NET  Accessing and Manipulating XML Data	Understanding ADO.NET Understanding .NET Data Providers Working with DataSets Understanding the XML Document Object Model Working with XmlReader and XmlWriter Working with XPathNavigator Understanding the XML Schema Object Model Validating an XML Document Working with XML and DataSets	XMLWS Chapter 5  XMLWS Chapter 6
W14	Testing and Debugging XML Web Services	Designing Unit Test Plans Overview of Visual	XMLWS Chapter 9

	Deploying XML Web Services and Windows Services	Studio .NET Debugging Tools Code Instrumentation Creating and Testing Multicultural Satellite Assemblies and Test Data Understanding .NET Deployment Features NET Deployment Options and Setup Programs Registering and Locating Components and Assemblies Implementing Versioning and Side-by-Side Deployment	XMLWS Chapter 10
W15	Project PRESENTATIONS		

**Evaluation Strategies:**

Exams		Percentage	Date
Mid		20%	
project		20%	
Final Exam		40%	
Assignments / Quize		20%	
Total		100%	





**Teaching Methodology:**

❖ Lectures

Using the Applications

1. Text Pad or a high-level text editor (Free download)
2. XML Spy 2006 (Free demo)
3. Microsoft SQL Server 2005
4. Microsoft Visual Studio .NET 2005

**Text Books & References:**

Textbook:

- Hunter, D., et al., Beginning XML, 4rd Edition, WROX 2007. Referred to as BXML in the schedule.
- Microsoft Corp., Developing XML Web Services and Server Components - Exams 70-310 & 70-320. Referred to as XMLWS in the schedule.

References:

- Exam 70–320: Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and Visual C# .NET



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705131
Course Title	Computer Animation
Credit Hours	1
Theoretical Hours	0
Practical Hours	3



**Brief Course Description:**

This course introduces various computer animation techniques including key-frame based techniques, interpolations, physically based animation, human animation

**Course Objectives:**

Upon successful completion of this course, students will be able to:

- View a Flash movie and modify the appearance of the Stage.
- Draw, paint, and create custom colors and line styles using Flash tools.
- Manipulate objects, experiment with shape interaction, and import artwork.
- Build layers and use them to create effects.
- Add text, and manipulate its behavior and appearance.
- Create frame-by-frame, shape tweened, and motion tweened animation.
- Publish a Flash movie.



**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
W1	Introduction to class, Flash 8 Interface, Drawing, and color tools	Understanding the flash8 framework Interface fundamental Drawing in flash Applying color	Ch1 Ch4 Ch5 Ch7
W2	<u>Time line</u> Document properties Animation	TimeLine Animation Interface fundamental Animation Strategies	Ch11 Ch4 Ch10
W3	Shape Tween Edit Multiple frames Animating Gradients	TimeLine Animation Animation Strategies	Ch11 Ch10
W4	Symbols & Instances Motion Tween Buttons	Symbols, Instances, and the Library Timeline Animation	Ch6 Ch11
W5	Movie Clip Layers Mask	Controlling Movie Clips Applying Layer Type	Ch25 Ch13
W6	Library Common Libraries MCQ	Symbols, Instance, and the Library	Ch6

W7	<p><u>Text</u></p> <p>Components</p> <p><u>Audio</u></p>	<p>Working With Text</p> <p>Using Component</p> <p>Adding sound</p>	<p>Ch8</p> <p>Ch33</p> <p>Ch15</p>
W8	<p>Mid exam</p>		
W9	<p><u>Video</u></p> <p>Popup Menu</p> <p><u>Action</u> script</p>	<p>Displaying Video</p> <p>Knowing the Nuts and Blots of code</p>	<p>Ch17</p> <p>Ch24</p>
W10	<p>Functions</p> <p>Analog clock</p> <p>Control Structures</p>	<p>Using Function and Arrays</p>	<p>Ch26</p>
W11	<p>Event Handler Methods</p> <p>Event Listeners</p> <p>paths</p>	<p>Understand Action And Event Handlers</p> <p>Using Component</p>	<p>Ch18</p> <p>Ch33</p>
W12	<p>Preloader</p> <p>with &amp; this</p> <p>Classes</p>	<p>Sharing and loading Asset</p> <p>Knowing the Nuts and Blots of code</p>	<p>Ch28</p> <p>Ch24</p> <p>Ch25</p>

		Controlling movie clip	
W13	Arrays Digital clock Open web site	Using Function And Array Integrating Flash Content with Web Pages	Ch26 Ch22
W14	attach Movie Fsccommand Auto run	Controlling Movie Clips Integrating Flash Content with Web Pages Knowing the Nuts and Blots of code	Ch25 Ch22 Ch24
W15	Drawing with Action Script Final Group Project Presentations	Knowing the Nuts and Blots of code	Ch24
W16	FINAL EXAMINATION		



Evaluation Strategies:

Exams		Percentage	Date
Mid		20%	
project		20%	
Final Exam		40%	
Assignments/quiz		20%	
Total		100%	

Teaching Methodology:

- ❖ Lectures
- ❖ Using Application Macromedia Flash 8

Text Books & References:

Textbook:

Macromedia Flash 8 Bible by Robert Reinhardt and Snow Dowd. ISBN 0471746762

References:

1. . Macromedia Flash Basic 8



## Information Management and Libraries Program

Specialization	Common
Course Number	20404121
Course Title	Digital Fundamentals
Credit Hours	(2)
Theoretical Hours	(2)
Practical Hours	(0)





**Brief Course Description:**

Study of numerical systems, theory of Boolean algebra and Logic circuits. Applications to different types of circuits Study of flip-flop counters. Registers and accumulators. Digital system memory including RAM, ROM and EPROM. Introduction to Microprocessors, Types of Microprocessors, Architecture, Assembly Language, Applications

**Course Objectives:**

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

1. Define and study of number systems and codes.
2. Discuss and explain Boolean algebra and logic simplification.
3. Study combinational logic.
4. Explain the principle of operation for flip – flops, counters, and shift registers.
5. Become familiar with fixed – function Integrated Circuits and (PLDs).
6. Study microprocessors.



**Detailed Course Description:**

Unit Number	Unit Name	Unit Content	Time Needed
1.	Number Systems and Codes	<ul style="list-style-type: none"> <li>▪ Introduction</li> <li>▪ Decimal, binary</li> <li>▪ Octal and hexadecimal number systems, number systems conversion</li> <li>▪ Binary Arithmetic, 1's and 2's complements of binary number, binary coded decimal (BCD)</li> <li>▪ Digital codes (Gray, Excess – 3 and ASC II codes)</li> </ul>	
2.	Logic Gates	<ul style="list-style-type: none"> <li>▪ The inverter,(AND,OR, NAND, NOR, EX – OR, EX – NOR)</li> <li>▪ Fixed – function logic (IC Gates )</li> <li>▪ Data sheets, troubleshooting, programmable logic</li> </ul>	
3.	Boolean Algebra and Logic Simplification	<ul style="list-style-type: none"> <li>▪ Boolean operations and expressions, laws and rules of Boolean algebra, De Morgan's theorems</li> <li>▪ Simplification using Boolean algebra, standard forms of Boolean expressions</li> <li>▪ Boolean expressions and truth tables, the Karnaugh map, Karnaugh map minimization</li> </ul>	
4.	Combinational Logic	<ul style="list-style-type: none"> <li>▪ Basic combinational logic circuits</li> <li>▪ Implementing combinational logic</li> <li>▪ The universal property of NAND and NOR gates</li> <li>▪ Combinational logic using NAND and NOR gates</li> <li>▪ Logic circuit operation with pulse waveforms</li> <li>▪ Troubleshooting and digital system application</li> </ul>	
5.	Function of Combinational Logic	<ul style="list-style-type: none"> <li>▪ Half and full adder, half and full subtractor, parallel binary adders, comparators, encoders and decoders</li> <li>▪ Multiplexers (data selectors) and demultiplexers, digital system application</li> </ul>	
6.	Flip – Flops	<ul style="list-style-type: none"> <li>▪ Latches, edge – triggered flip – flops</li> </ul>	

		( SR, JK, D, T )	
		<ul style="list-style-type: none"> <li>▪ Master – slave flip – flops, flip – flop operating characteristics</li> <li>▪ Flip – flop applications</li> </ul>	
7.	Counters	<ul style="list-style-type: none"> <li>▪ Asynchronous counters</li> <li>▪ Synchronous counters</li> <li>▪ Up/down synchronous counters</li> <li>▪ Design of synchronous counters</li> <li>▪ Cascaded counters, counter applications</li> </ul>	
8.	Shift Registers	<ul style="list-style-type: none"> <li>▪ Basic shift register functions.</li> <li>▪ Serial in / serial out shift registers</li> <li>▪ Serial in / parallel out shift registers</li> <li>▪ Parallel in / serial out shift registers</li> <li>▪ Parallel in / parallel out shift registers</li> <li>▪ Shift register counters</li> <li>▪ Shift registers applications</li> </ul>	

Evaluation Strategies:

Exams		Percentage	Date
Exams	First Exam	20%	--/--/----
	Second Exam	20%	--/--/----
	Final Exam	50%	--/--/----
Homework and Projects		10%	--/--/----
Discussions and lecture Presentations			

Teaching Methodology:

- ❖ Lectures

Text Books & References:

Text Books:

1. Thomas L. Floyd, Digital Fundamentals, prentice hall international, eighth edition, 2003.

References:

1. Digital Design, M. Mano, prentice hall, 1998.
2. Digital Electronics, William Kleitz, third edition, prentice hall, 1993.



## Information Management and Libraries Program

Specialization	Common
Course Number	20404122
Course Title	Digital Fundamentals Lab
Credit Hours	(1)
Theoretical Hours	(0)
Practical Hours	(3)



**Brief Course Description:**

Lab in support of the Digital fundamentals course. Conducted in small groups. Each student must complete the assigned work in the lab time. Logic circuits. Flip-flops. Counters, Registers. RAM, ROM. EPROM. Microprocessors, Assembly Language, Applications.

**Course Objectives:**

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

1. Become familiar with number systems and codes.
2. Construct and test logic circuits.
3. Distinguish between the functions of logic gates.
4. Analyze and understand the functions of combinational logic (adders, subtractors, comparators, encoders.....etc).
5. Construct and analyze the principle of operation for ( flip – flops, counters, shift registers ).
6. Study microprocessors.



**Detailed Course Description:**

Lab Number	Lab Name	Lab Content	Time Needed
1.	Logic gates ( NOT, OR, AND, NOR, NAND, EX – OR, EX – NOR)		
2.	Boolean algebra and DeMorgan's theorems		
3.	Karnaugh maps		
4.	Half and full adder, half and full subtractor and parallel binary adders		
5.	Comparators		
6.	Encoders		
7.	Decoders and seven – segment display		
8.	Multiplexers ( data selectors) and demultiplexers		
9.	flip - flops		
10.	Counters		
11.	Shift Registers		
12.	Microprocessors		
13.	Assembly programs		

**Evaluation Strategies:**

Exams		Percentage	Date
Exams	Assignments	30%	--/--/----
	Med- term Exam	20%	--/--/----
	Final Exam	50%	--/--/----
Homework and Projects			--/--/----
Discussions and lecture Presentations			

**Teaching Methodology:**

- ❖ Laboratory

**Text Books & References:**

References:

1. Laboratory Manual for Digital Fundamentals, David Buchla, prentice hall, 1999.
2. Thomas L. Floyd, Digital Fundamentals, prentice hall international, eighth edition, 2003.

## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705241
Course Title	Artificial Intelligence
Credit Hours	3
Theoretical Hours	3
Practical Hours	0



### Brief Course Description:

يشتمل هذا المساق على شرح أساسيات الذكاء الاصطناعي والتي تعبر عن الجيل الخامس لتكنولوجيا الحاسبات والتي تختلف في الخواص والمضمون عن الأجيال السابقة التي اعتمدت أصلاً على نوعية المكونات المادية الرقمية للنظم الحاسوبية حيث يستخدم الذكاء الاصطناعي المعالجة الرمزية والتي يتميز بها الجيل الخامس علاوة على الإمكانيات المتاحة للنظم الرقمية والتي تفي بالتطبيقات التجارية والمحاسبية حيث يشمل هذا المساق على ثلاث محاور المحور الأول المعالجة الرمزية والمحور الثاني المعالجة المتوازية والمحور الثالث الشبكات العصبية

### Course Objectives:

تهدف هذه المادة إلى:

- التعرف على مفاهيم الذكاء الاصطناعي وأساسياته ومجالاته وعلاقته بالذكاء الإنساني
- ان يتعرف الطالب على مجالات النظم الخبيرة المختلفة وبعض النظم التطبيقية
- ان يتعرف الطالب على أسس المعالجة الرمزية والنمذجة الحاسوبية وتمثيل المعارف وآليات وتقنيات الاستدلال
- ان يتعرف الطالب على لغات البرمجة والتي تشمل المعالجة الرمزية والمعالجة المختلطة
- التعرف على أساسيات الشبكات العصبية





**Detailed Course Description:**

الرقم الباب	محتوى الباب	اسم الباب	الفترة الزمنية
الفصل الاول	<ul style="list-style-type: none"> <li>● مقدمة في الذكاء الاصطناعي</li> <li>● العقل الانساني ومعالجة المعرفة</li> <li>● التمثيل الرمزي للمعرفة</li> <li>● مراحل تطور الذكاء الاصطناعي</li> <li>● العلاقة بين الذكاء البشري والاصطناعي</li> <li>● اساسيات نظم الذكاء الاصطناعي</li> </ul>	الذكاء الاصطناعي والذكاء الإنساني	W1
الفصل الثاني	<ul style="list-style-type: none"> <li>● مجالات الذكاء الاصطناعي</li> <li>● النظم الخبيرة</li> <li>● اثبات النظريات اليا</li> <li>● التفهم والتعرف على لغات الطبيعة</li> <li>● علم الروبورتات</li> <li>● تمثيل المعارف اليا</li> <li>● التعليم والتعلم باستخدام الحاسبات</li> <li>● التعليم الذكي باستخدام الحاسبات</li> <li>● مقومات تصميم نظم التعليم الذكي</li> <li>● الوسائط المتعددة</li> </ul>	مجالات الذكاء الاصطناعي	W2
الفصل الثالث	<ul style="list-style-type: none"> <li>● النظم الخبيرة</li> <li>● الخصائص والمتطلبات العامة للنظم الخبيرة</li> <li>● تقنيات البرمجة للنظم الخبيرة</li> <li>● اللغات والحزم المناسبة للنظم الخبيرة</li> <li>● أدوات بناء النظم الخبيرة</li> <li>● الادوات المساعدة</li> </ul>	النظم الخبيرة ومجالاتها المختلفة	W3

W4	المجالات التطبيقية للنظم الخبيرة	<ul style="list-style-type: none"> <li>المجالات التطبيقية للنظم الخبيرة</li> <li>قائمة النظم الخبير</li> </ul>	الفصل الرابع
W5	حاسبات الجيل الخامس	<ul style="list-style-type: none"> <li>نظم الحاسبات</li> <li>نظم الحاسبات المعتمدة على ذكاء الاصطناعي</li> <li>حاسبات الجيل الخامس (المشروع الياباني)</li> <li>نتائج المشروع</li> </ul>	الفصل الخامس
W6	الأسس الرياضية للمعالجة الرمزية	<ul style="list-style-type: none"> <li>الاسس الرياضية للمعالجة الرمزية</li> <li>الشبكات الدلالية</li> </ul>	الفصل السادس
W7	النمذجة الحاسوبية وتمثيل المعارف	<ul style="list-style-type: none"> <li>النمذجة الحاسوبية</li> <li>خواص التمثيل لنظم الاستدلال المبني على النماذج</li> <li>القواعد الهندسية للنمذجة</li> <li>التمثيل باستخدام الاطارات</li> <li>التعرف على طرق تمثيل المعرفة</li> </ul>	الفصل السابع
W8	آليات تقنيات الاستدلال (المنطق الرمزي الحسبي)	<ul style="list-style-type: none"> <li>المنطق الرمزي الحسبي</li> <li>التعبير الرمزي عن الجملة</li> <li>قاعدة التضمن الشرطي</li> <li>التسلسل المتقدم</li> <li>شبكات الاستدلال</li> <li>قاعدة التضمن الشرطي الايجابي</li> <li>الاسنادات والمتغيرات</li> <li>المنطق الاسنادي</li> <li>محددات الكمية</li> <li>ايجاد حلول للمشكلات</li> <li>التوحيد</li> </ul>	الفصل الثامن

W9	نظم الاستدلال المعتمدة على القواعد	<ul style="list-style-type: none"> <li>• نظم الانتاج</li> <li>• الاستدلال المتسلسل المعتمد على القواعد</li> <li>• التسلسل الخلفي</li> </ul>	الفصل التاسع
W10	الذكاء الاصطناعي ولغات البرمجة	<ul style="list-style-type: none"> <li>• المعالجة الرمزية ولغات البرمجة</li> <li>• نظم المعالجة المحتلطة</li> <li>• التمثيل الحسابي وتراكيب البيانات</li> <li>• الفرض الوصفي للبرمجة المنطقية</li> <li>• الشروط الواجبة في لغات الذكاء الاصطناعي</li> <li>• المتطلبات البيئية لنظم البرمجة</li> <li>• تصنيف لغات البرمجة</li> </ul>	الفصل العاشر
W11	استخدام لغة البرمجة المنطقية برولوج	<ul style="list-style-type: none"> <li>• لغة البرمجة المنطقية برولوج</li> <li>• لغة البرمجة المنطقية السريعة</li> <li>• التمثيل الرمزي للكيانات والعلاقات</li> <li>• الاهداف المركبة</li> <li>• التتبع الخلفي</li> <li>• النفي باستخدام الاداة (not)</li> <li>• المجالات القياسية</li> <li>• تمثيل توصيف الاشياء المركبة</li> <li>• التكرار</li> <li>• القوائم</li> <li>• ميكانيكية البحث</li> <li>• التحكم بالبحث لاحراز الاهداف</li> <li>• التتبع الخلفي المدفوع</li> </ul>	الفصل الحادي عشر

W12	المعالجة الرمزية للعمليات الحسابية والرسوم التصويرية	<ul style="list-style-type: none"> <li>المعالجة الرمزية للعمليات الحسابية</li> <li>ايجاد الحل لمعادلة الدرجة الثانية</li> <li>الدوال الحسابية</li> </ul>	الفصل الثاني عشر
W13	قواعد البيانات الديناميكية	<ul style="list-style-type: none"> <li>قواعد البيانات الديناميكية</li> <li>قواعد البيانات الديناميكية الممتدة</li> <li>المميزات العامة للغة البرمجة المنطقية السريعة</li> </ul>	الفصل الثالث عشر
W14	بناء نظم تطبيقية	<ul style="list-style-type: none"> <li>نظام تعليمي بسيط للتعرف على الحيوان</li> <li>نظام اولي لتقدير افضل المسارات بين المدن</li> <li>(نظم الانقاذ) اختيار المسار الامن</li> <li>محاكاة الدوائر المنطقية الرقمية</li> <li>حل الغاز</li> <li>تخمين الكلمات</li> </ul>	الفصل الرابع عشر
W15	تطوير الشبكات العصبية الاصطناعية	<ul style="list-style-type: none"> <li>الشبكات العصبية الاصطناعية</li> <li>تطور الشبكات العصبية الاصطناعية</li> <li>السمات العامة للنيرون</li> <li>ميكانيكية التعليم في النيروتات البسيطة</li> </ul>	الفصل السادس عشر
W16	الامتحان النهائي		

**Evaluation Strategies:**

Exams	Percentage	Date
الامتحان الأول	20%	
الامتحان الثاني	20%	
الامتحان النهائي	50%	
الواجبات	10%	
المجموع	100%	

Teaching Methodology:

- ❖ محاضرات نظرية

Text Books & References:

Textbook:

الذكاء الاصطناعي والشبكات العصبية للاستاذ الدكتور محمد علي الشرفاوي

References:

Artificial Intelligence ( الذكاء الاصطناعي )

Fields of Artificial Intelligence. ( مجالات الذكاء الاصطناعي )

General Features of AI/Expert Systems Programming Languages :

List Programming (LISP).

Programming By Logic (PROLOG).

Object Oriented Programming ).

(السمات العامة للغات البرمجة للذكاء الاصطناعي ونظم الخبرة)

أ - ليسب      ب - برولوج      ج - البرمجة الشيئية



❖ تطبيق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705261
Course Title	Internet Programming(ASP).net
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



### **Brief Course Description:**

- This course highlights the code separation and modularity features that ASP.NET allows the student to create solid, easily-maintainable Web sites. In addition, ASP.NET's new Web Controls will be covered, including list, and grid controls along with postback features that maintain state and advanced repeater. Database access with ADO.NET is demonstrated, as disconnected data is read and updated via objects such as datasets and data views

### **Course Objectives:**

- In this course, you will create ASP.NET Web pages that dynamically display content, display, manipulate, and modify data in a relational database, and display, manipulate

### **Learning Outcomes:**

The aim of this course is to equip you with the knowledge you will need to build basic Web sites By the end of this course you should be able to:

- recognize the difference between HTML, XHTML, ASP, and ASP.NET.
- differentiate between ASP Web & HTML Controls
- understand different Web controls
- understand connecting Web pages with DB.



**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
W1	<ul style="list-style-type: none"> <li>The Evolution of Web Development</li> <li>The .NET Framework</li> <li>VB 2005, and the .NET Languages</li> <li>The Common Language Runtime</li> <li>The .NET Class Library</li> <li>Visual Studio 2005</li> <li>.NET 2.0</li> <li>The Promise of Visual Studio.</li> <li>Creating a Website</li> <li>Designing a Web Page</li> <li>Writing Code.</li> <li>al Studio Debugging</li> </ul>	<p>Introducing the .NET Framework</p> <p>Introducing Visual Studio 2005</p>	<p>CH1</p> <p>CH4</p>
W2	<ul style="list-style-type: none"> <li>The Anatomy of an ASP.NET Application</li> <li>A Simple One-Page Web Application</li> <li>Improving the Currency Converter</li> <li>A Deeper Look at HTML Control Classes.</li> <li>The Page Class</li> <li>ASP.NET Configuration</li> </ul>	Web Form Fundamentals	CH5
W3	<ul style="list-style-type: none"> <li>Stepping Up to Web Controls.</li> <li>Web Control Classes</li> <li>List Controls</li> <li>Table Controls</li> <li>Web Control Events and AutoPostBack</li> <li>A Simple Web Page.</li> </ul>	Web Controls	CH6
W4	<ul style="list-style-type: none"> <li>Common Errors</li> <li>Exception Handling</li> <li>Handling Exceptions</li> <li>Throwing Your Own Exceptions.</li> <li>Logging Exceptions</li> <li>Error Pages.</li> <li>Page Tracing.</li> </ul>	Tracing, Logging, and Error Handling.	CH7



W5	<ul style="list-style-type: none"> <li>• Validation</li> <li>• A Simple Validation Example</li> <li>• Understanding Regular Expressions.</li> <li>• Rich Controls</li> <li>• Pages with Multiple Views</li> </ul>	Validation and Rich Controls	CH8
W6	<ul style="list-style-type: none"> <li>• The Problem of State</li> <li>• View State.</li> <li>• Transferring Information.</li> <li>• Custom Cookies.</li> <li>• Session State</li> <li>• Session State Configuration</li> <li>• Application State</li> <li>• An Overview of State Management Choices.</li> <li>• The Global.asax Application File</li> </ul>	State Management.	CH9
	<ul style="list-style-type: none"> <li>• Master Page Basics.</li> <li>• Advanced Master Pages.</li> <li>• Themes</li> </ul>	Master Pages and Themes	CH10
W8	Mid exam and review		
W9	<ul style="list-style-type: none"> <li>• Site Maps</li> <li>• The SiteMapPath Control</li> <li>• The TreeView Control</li> <li>• The Menu Control</li> </ul>	Website Navigation	CH11
W10	<ul style="list-style-type: none"> <li>• ASP.NET Applications and the Web Server</li> <li>• IIS (Internet Information Services)</li> <li>• Managing Websites with IIS Manager</li> <li>• Deploying a Simple Site</li> <li>• Deploying with Visual Studio 2005.</li> </ul>	Deploying ASP.NET Applications	CH12
W11	<ul style="list-style-type: none"> <li>• ADO.NET and Data Management</li> <li>• SQL Basics</li> </ul>	ADO.NET Fundamentals.	CH13

	<ul style="list-style-type: none"> <li>• ADO.NET Basics.</li> <li>• Direct Data Access</li> <li>• Creating a Connection</li> <li>• Defining a Select Command</li> <li>• Updating Data</li> <li>• Disconnected Data Access.</li> <li>• Updating Disconnected Data</li> </ul>		
W12	<ul style="list-style-type: none"> <li>• Introducing Data Binding</li> <li>• Single-Value Data Binding</li> <li>• Repeated-Value Data Binding</li> <li>• Data Source Controls</li> </ul>	Data Binding	CH14
W13	<ul style="list-style-type: none"> <li>• The GridView</li> <li>• Formatting the GridView.</li> <li>• Selecting a GridView Row</li> <li>• Editing with the GridView</li> <li>• Sorting and Paging the GridView</li> <li>• Using GridView Templates</li> <li>• The DetailsView and FormView.</li> </ul>	The Data Controls	CH15
W14	<ul style="list-style-type: none"> <li>• Files and Web Applications</li> <li>• File System Information</li> <li>• Reading and Writing with Streams</li> <li>• Allowing File Uploads</li> </ul>	Files and Streams.	CH16
W15	Final Group Project Presentations		



Evaluation Strategies:

Exams	Percentage	Date
Mid	20%	
project	20%	
Final Exam	40%	
Assignments/ QUIZE	20%	
Total	100%	

**Teaching Methodology:**

- ❖ Lectures
- ❖ Using the Application VS .NET 2005

**Text Books & References:**

**Textbook:**

Beginning ASP.NET 2.0 in VB 2005: From Novice to Professional  
Copyright © 2006 by Matthew MacDonald  
ISBN-13 (pbk): 978-1-59059-621-0  
ISBN-10 (pbk): 1-59059-621-8

**References:**

- 1.Any ASP.NET book



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705262
Course Title	Programming(Java)
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



**Brief Course Description:**

This course is designed to teach a high level language that can be beneficial to variety of applications in the real world. The course introduces the basic concepts of the selected programming language as well as its properties. The course involves several applications, case studies and exercises; the course might include a project developed under the selected programming language

**Course Objectives:**

**The objectives of this course include the following:**

- experience learning a programming language "on your own" as is commonly the case in industry
- understand the syntax and semantics of the Java language
- understand how to develop and implement (web) applets and application programs in the Java language
- understand various forms of data, control and object structures supported by the Java language
- recognize similarities and common characteristics between Java and other programming languages

The student should develop or enhance skills in the following areas:

- proficient programming in the Java language and programming in general
- design and revision of Java computer programs
- debugging techniques appropriate for the Java language



**Detailed Course Description:**

الفترة الزمنية	اسم الباب	محتوى الباب	الرقم الباب
W1	Introduction to Java Applications	<p><u>1.1</u> Introduction</p> <p><u>1.2</u> What Is a Computer?</p> <p><u>1.3</u> Computer Organization</p> <p><u>1.4</u> Early Operating Systems</p> <p><u>1.5</u> Personal, Distributed and Client/Server Computing</p> <p><u>1.6</u> The Internet and the World Wide Web</p> <p><u>1.7</u> Machine Languages, Assembly Languages and High-Level Languages</p> <p><u>1.8</u> History of C and C++</p> <p><u>1.9</u> History of Java</p> <p><u>1.10</u> Java Class Libraries</p> <p><u>1.11</u> FORTRAN, COBOL, Pascal and Ada</p> <p><u>1.12</u> BASIC, Visual Basic, Visual C++, C# and .NET</p> <p><u>1.13</u> Typical Java Development Environment</p> <p><u>2.2</u> First Program in Java: Printing a Line of Text</p> <p><u>2.3</u> Modifying Our First Java Program</p> <p><u>2.4</u> Displaying Text with printf</p> <p><u>2.5</u> Another Java Application: Adding Integers</p> <p><u>2.6</u> Memory Concepts</p>	Chapters 1 , 2

		<p><u>2.7</u> Arithmetic</p> <p><u>2.8</u> Decision Making: Equality and Relational Operators</p>	
W2	<p>Introduction to Classes and Objects</p> <p>Control Statements</p>	<p><u>3.1</u> Introduction</p> <p><u>3.2</u> Classes, Objects, Methods and Instance Variables</p> <p><u>3.3</u> Declaring a Class with a Method and Instantiating an Object of a Class</p> <p><u>3.4</u> Declaring a Method with a Parameter</p> <p><u>3.5</u> Instance Variables, set Methods and get Methods</p> <p><u>3.6</u> Primitive Types vs. Reference Types</p> <p><u>3.7</u> Initializing Objects with Constructors</p> <p><u>3.8</u> Floating-Point Numbers and Type double</p> <p>Outline</p> <p><u>4.1</u> Introduction</p> <p><u>4.2</u> Algorithms</p> <p><u>4.3</u> Pseudocode</p> <p><u>4.4</u> Control Structures</p> <p><u>4.5</u> if Single-Selection Statement</p> <p><u>4.6</u> if...else Double-Selection Statement</p> <p><u>4.7</u> while Repetition Statement</p>	Chapters 3-4

		<p><u>4.8</u> Formulating Algorithms: Counter-Controlled Repetition</p> <p><u>4.9</u> Formulating Algorithms: Sentinel-Controlled Repetition</p> <p><u>4.10</u> Formulating Algorithms: Nested Control Statements</p> <p><u>4.11</u> Compound Assignment Operators</p> <p><u>4.12</u> Increment and Decrement Operators</p> <p><u>4.13</u> Primitive Types</p>	
W3	Control Statements	<p><u>5.1</u> Introduction</p> <p><u>5.2</u> Essentials of Counter-Controlled Repetition</p> <p><u>5.3</u> for Repetition Statement</p> <p><u>5.4</u> Examples Using the for Statement</p> <p><u>5.5</u> do...while Repetition Statement</p> <p><u>5.6</u> switch Multiple-Selection Statement</p> <p><u>5.7</u> break and continue Statements</p> <p><u>5.8</u> Logical Operators</p>	Chapters 5
W4	Methods: A Deeper Look	<p><u>6.1</u> Introduction</p> <p><u>6.2</u> Program Modules in Java</p> <p><u>6.3</u> static Methods, static Fields and Class Math</p> <p><u>6.4</u> Declaring Methods with Multiple Parameters</p>	Chapter 6



		<p><u>6.5</u> Notes on Declaring and Using Methods</p> <p><u>6.6</u> Method Call Stack and Activation Records</p> <p><u>6.7</u> Argument Promotion and Casting</p> <p><u>6.8</u> Java API Packages</p>	
W5	Arrays	<p>Outline</p> <p><u>7.1</u> Introduction</p> <p><u>7.2</u> Arrays</p> <p><u>7.3</u> Declaring and Creating Arrays</p> <p><u>7.4</u> Examples Using Arrays</p> <p><u>7.5</u> Case Study: Card Shuffling and Dealing Simulation</p> <p><u>7.6</u> Enhanced for Statement</p> <p><u>7.7</u> Passing Arrays to Methods</p> <p><u>7.8</u> Case Study: Class GradeBook Using an Array to Store Grades</p> <p><u>7.9</u> Multidimensional Arrays</p> <p><u>7.10</u> Case Study: Class GradeBook Using a Two-Dimensional Array</p> <p><u>7.11</u> Variable-Length Argument Lists</p> <p><u>7.12</u> Using Command-Line Arguments</p>	Chapter 7
W6	Classes and Objects: A Deeper Look	<p><u>8.1</u> Introduction</p> <p><u>8.2</u> Time Class Case Study</p>	Chapter 8

		<p><u>8.3</u> Controlling Access to Members</p> <p><u>8.4</u> Referring to the Current Object's Members with the this Reference</p> <p><u>8.5</u> Time Class Case Study: Overloaded Constructors</p> <p><u>8.6</u> Default and No-Argument Constructors</p> <p><u>8.7</u> Notes on Set and Get Methods</p> <p><u>8.8</u> Composition</p> <p><u>8.9</u> Enumerations</p> <p><u>8.10</u> Garbage Collection and Method finalize</p> <p><u>8.11</u> static Class Members</p> <p><u>8.12</u> static Import</p> <p><u>8.13</u> final Instance Variables</p> <p><u>8.14</u> Software Reusability</p> <p><u>8.15</u> Data Abstraction and Encapsulation</p> <p><u>8.16</u> Time Class Case Study: Creating Packages</p> <p><u>8.17</u> Package Access</p>	
W7	<p>Classes and Objects: A Deeper Look</p> <p>Inheritance</p>	<p><u>9.2</u> Superclasses and Subclasses</p> <p><u>9.3</u> protected Members</p> <p><u>9.4</u> Relationship between Superclasses and Subclasses</p> <p><u>9.4.1</u> Creating and Using a</p>	Chapters 8,9

		<p>CommissionEmployee Class</p> <p><u>9.4.2</u> Creating a BasePlusCommissionEmployee Class without Using Inheritance</p> <p><u>9.4.3</u> Creating a CommissionEmployeeBasePlusCommissionEmployee Inheritance Hierarchy</p> <p><u>9.4.4</u> CommissionEmployeeBasePlusCommissionEmployee Inheritance Hierarchy Using protected Instance Variables</p> <p><u>9.4.5</u> CommissionEmployeeBasePlusCommissionEmployee Inheritance Hierarchy Using private Instance Variables</p> <p><u>9.5</u> Constructors in Subclasses</p> <p><u>9.6</u> Software Engineering with Inheritance</p> <p><u>9.7</u> Object Class</p>	
W8	<p>Inheritance</p> <p>Polymorphism</p>	<p><u>10.1</u> Introduction</p> <p><u>10.2</u> Polymorphism Examples</p> <p><u>10.3</u> Demonstrating Polymorphic Behavior</p> <p><u>10.4</u> Abstract Classes and Methods</p> <p><u>10.5</u> Case Study: Payroll System Using Polymorphism</p> <p><u>10.5.1</u> Creating Abstract Superclass Employee</p> <p><u>10.5.2</u> Creating Concrete Subclass SalariedEmployee</p> <p><u>10.5.3</u> Creating Concrete Subclass</p>	<p>Chapters 9+10</p>

		<p>HourlyEmployee</p> <p><u>10.5.4</u> Creating Concrete Subclass CommissionEmployee</p> <p><u>10.5.5</u> Creating Indirect Concrete Subclass BasePlusCommissionEmployee</p> <p><u>10.5.6</u> Demonstrating Polymorphic Processing, Operator instanceof and Downcasting</p> <p><u>10.5.7</u> Summary of the Allowed Assignments Between Superclass and Subclass Variables</p> <p><u>10.6</u> final Methods and Classes</p>	
W9	Polymorphism	<p><u>10.7</u> Case Study: Creating and Using Interfaces</p> <p><u>10.7.1</u> Developing a Payable Hierarchy</p> <p><u>10.7.2</u> Declaring Interface Payable</p> <p><u>10.7.3</u> Creating Class Invoice</p> <p><u>10.7.4</u> Modifying Class Employee to Implement Interface Payable</p> <p><u>10.7.5</u> Modifying Class SalariedEmployee for Use in the Payable Hierarchy</p> <p><u>10.7.6</u> Using Interface Payable to Process Invoices and Employees Polymorphically</p> <p><u>10.7.7</u> Declaring Constants with Interfaces</p> <p><u>10.7.8</u> Common Interfaces of the Java API</p>	Chapter 10
W10	Exception Handling	<p>Introduction</p> <p><u>13.2</u> Exception-Handling Overview</p>	Chapter 13

		<p><u>13.3</u> Example: Divide By Zero Without Exception Handling</p> <p><u>13.4</u> Example: Handling ArithmeticExceptions and InputMismatchExceptions</p> <p><u>13.5</u> When to Use Exception Handling</p> <p><u>13.6</u> Java Exception Hierarchy</p> <p><u>13.7</u> finally block</p> <p><u>13.8</u> Stack Unwinding</p> <p><u>13.9</u> printStackTrace, getStackTrace and getMessage</p> <p><u>13.10</u> Chained Exceptions</p> <p><u>13.11</u> Declaring New Exception Types</p> <p><u>13.12</u> Preconditions and Postconditions</p> <p><u>13.13</u> Assertions</p>	
W11	Multithreading	<p>Introduction</p> <p><u>23.2</u> Thread States: Life Cycle of a Thread</p> <p><u>23.3</u> Thread Priorities and Thread Scheduling</p> <p><u>23.4</u> Creating and Executing Threads</p> <p><u>23.5</u> Thread Synchronization</p> <p><u>23.6</u> Producer/Consumer Relationship without Synchronization</p> <p><u>23.7</u> Producer/Consumer Relationship with Synchronization</p> <p><u>23.8</u> Producer/Consumer Relationship:</p>	Chapter 23

		<p>Circular Buffer</p> <p><u>23.9</u> Producer/Consumer Relationship: ArrayBlockingQueue</p> <p><u>23.10</u> Multithreading with GUI</p> <p><u>23.11</u> Other Classes and Interfaces in java.util.concurrent</p> <p><u>23.12</u> Monitors and Monitor Locks</p>	
W12	GUI Components	<p>Introduction</p> <p><u>11.2</u> Simple GUI-Based Input/Output with JOptionPane</p> <p><u>11.3</u> Overview of Swing Components</p> <p><u>11.4</u> Displaying Text and Images in a Window</p> <p><u>11.5</u> Text Fields and an Introduction to Event Handling with Nested Classes</p> <p><u>11.6</u> Common GUI Event Types and Listener Interfaces</p> <p><u>11.7</u> How Event Handling Works</p> <p><u>11.8</u> JButton</p> <p><u>11.9</u> Buttons That Maintain State</p> <p><u>11.9.1</u> JCheckBox</p> <p><u>11.9.2</u> JRadioButton</p> <p><u>11.10</u> JComboBox and Using an Anonymous Inner Class for Event Handling</p> <p><u>11.11</u> JList</p>	Chapter 11

		<p><u>11.12</u> Multiple-Selection Lists</p> <p><u>11.13</u> Mouse Event Handling</p> <p><u>11.14</u> Adapter Classes</p> <p><u>11.15</u> JPanel Subclass for Drawing with the Mouse</p> <p><u>11.16</u> Key-Event Handling</p> <p><u>11.17</u> Layout Managers</p> <p><u>11.17.1</u> FlowLayout</p> <p><u>11.17.2</u> BorderLayout</p> <p><u>11.17.3</u> GridLayout</p> <p><u>11.18</u> Using Panels to Manage More Complex Layouts</p> <p><u>11.19</u> JTextArea</p>	
W13	Files and Streams	<p>Introduction</p> <p><u>14.2</u> Data Hierarchy</p> <p><u>14.3</u> Files and Streams</p> <p><u>14.4</u> Class File</p> <p><u>14.5</u> Sequential-Access Text Files</p> <p><u>14.5.1</u> Creating a Sequential-Access Text File</p> <p><u>14.5.2</u> Reading Data from a Sequential-Access Text File</p> <p><u>14.5.3</u> Case Study: A Credit-Inquiry Program</p>	Chapter 14

		<p><u>14.5.4</u> Updating Sequential-Access Files</p> <p><u>14.6</u> Object Serialization</p> <p><u>14.6.1</u> Creating a Sequential-Access File Using Object Serialization</p> <p><u>14.6.2</u> Reading and Deserializing Data from a Sequential-Access File</p> <p><u>14.7</u> Random-Access Files</p> <p><u>14.7.1</u> Creating a Random-Access File</p> <p><u>14.7.2</u> Writing Data Randomly to a Random-Access File</p> <p><u>14.7.3</u> Reading Data Sequentially from a Random-Access File</p> <p><u>14.7.4</u> Case Study: A Transaction-Processing Program</p> <p><u>14.8</u> Additional java.io Classes</p> <p><u>14.9</u> Opening Files with JFileChooser</p>	
W14	<p>Introduction to Java Applets</p> <p>Networking</p>	<p>Introduction</p> <p><u>20.2</u> Sample Applets Provided with the JDK</p> <p><u>20.3</u> Simple Java Applet: Drawing a String</p> <p><u>20.3.1</u> Executing an Applet in the appletviewer</p> <p><u>20.3.2</u> Executing an Applet in a Web Browser</p> <p><u>20.4</u> Applet Life-Cycle Methods</p> <p><u>20.5</u> Initializing an Instance Variable with Method init</p>	<p>Chapters 20 , 24</p>



		<p><u>20.6</u> Sandbox Security Model</p> <p><u>20.7</u> Internet and Web Resources</p> <p>Introduction</p> <p><u>24.2</u> Manipulating URLs</p> <p><u>24.3</u> Reading a File on a Web Server</p> <p><u>24.4</u> Establishing a Simple Server Using Stream Sockets</p> <p><u>24.5</u> Establishing a Simple Client Using Stream Sockets</p> <p><u>24.6</u> Client/Server Interaction with Stream Socket Connections</p> <p><u>24.7</u> Connectionless Client/Server Interaction with Datagrams</p> <p><u>24.8</u> Client/Server Tic-Tac-Toe Using a Multithreaded Server</p> <p><u>24.9</u> Security and the Network</p> <p><u>24.10</u> Case Study: DeitelMessenger Server and Client</p> <p><u>24.10.1</u> DeitelMessengerServer and Supporting Classes</p> <p><u>24.10.2</u> DeitelMessenger Client and Supporting Classes</p>	
W15	Final Group Project Presentations		



**Evaluation Strategies:**

Exams	Percentage
Mid Exam	20%
project	20%
Final Exam	40%
Assignments/quiz	20%
Total	100%

**Teaching Methodology:**

- ❖ Lectures
- ❖ Using the Application Java Editor

**Text Books & References:**

Textbook:

Harvey & Paul Deitel, Java How to Program, 6th Edition, Prentice Hall, 2005.

References:

- 1 – Sun's Application Programming Interface, available in CodeWarrior.
- 2 – *The Java Class Libraries*, Chan and Lee, Addison Wesley (c) 1997.
- 3 – *Java Source Book*, Ed Anuff, The John Wiley and Sons, Inc., First Edition, 1996.
- 4 – *The Java Programming Language*, K. Arnold & J. Gosling, Addison Wesley, Second Edition.



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705161
Course Title	Windows programming (VB.net)
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



### Brief Course Description:

This course explores the character and features of the event driven Visual Basic programming language to create sophisticated Visual Basic-based windows applications to solve problems. This course covers user interface management systems, design and implementation of on-line applications, report generations, and Internet applications. The principal goal is to provide students with most marketable skills together with fundamental concepts so that they can prepare themselves in the rapidly changing dynamic world of information technology.

### Course Objectives:

Upon successful completion of this course, students will be able to:

- List the major elements of the .NET Framework and describe some of the major enhancements to the new version of Visual Basic.
- Describe the basic structure of a Visual Basic .NET project and use the main features of the integrated development environment (IDE).
- Use the new language features and syntax in Visual Basic .NET.
- Explain the basic concepts and terminology of object-oriented design specifically for Visual Basic .NET.
- Explain and use the basic concepts and terminology of object-oriented programming in Visual Basic .NET.
- Create applications by using Microsoft Windows® Forms.
- Create Internet applications that use Web Forms and Web Services.
- Create applications that use ADO .NET.
- Create components in Visual Basic .NET.
- Design object-oriented components with inheritance and polymorphism
- Explain and use the basic concepts and terminology of object-oriented programming
- Create applications by using Microsoft Windows Forms.
- Create components in Visual Basic .NET.
- Set up and deploy various types of Visual Basic .NET-based applications.
- Prepare existing Visual Basic-based applications for upgrade to Visual Basic .NET.
- Access relational data using ADO.NET



**Detailed Course Description:**

الفترة الزمنية	اسم الباب	محتوى الباب	الرقم الباب
W1	Intro to Computers, Internet and VB.NET Intro to the Visual Studio .NET IDE	1.1 .NET Languages. Introduction 2.2 Overview of the Visual Studio .NET IDE 2.3 Menu Bar and Toolbar 2.4 Visual Studio .NET IDE Windows 2.4.1 Solution Explorer 2.4.2 Toolbox 2.4.3 Properties Window 2.5 Using Help 2.6 Simple Program: Displaying Text and an Image.	Chapter 1 , 2
W2	Intro to VB Programming	3.1 Introduction 3.2 Simple Program: Printing a Line of Text 3.3 Another Simple Program: Adding Integers 3.4 Memory Concepts 3.5 Arithmetic 3.6 Decision Making: Equality and Relational Operators 3.7 Using a Dialog to Display a Message	Chapter 3 ,
W3	GUI: Windows Forms	12.2 Windows Forms 12.3 Event-Handling Model 12.4 Control Properties and Layout 12.5 Labels, TextBoxes and Buttons 12.6 GroupBoxes and Panels 12.7 CheckBoxes and RadioButtons 12.8 PictureBoxes 12.9 Mouse-Event Handling 12.10 Keyboard-Event Handling	chapter 12
W4	Control Structures: Part I and Part 2	4.1 Introduction 4.2 Algorithms 4.3 Pseudocode 4.4 Control Structures 4.5 If/Then Selection Structure 4.6 If/Then/Else Selection Structure 4.7 While Repetition Structure 4.8 Do While/Loop Repetition Structure	Chapter 4 , 5

		<p>4.9 Do Until/Loop Repetition Structure                      4.10 Assignment Operators                      5.1 Introduction                      5.2 Essentials of Counter-Controlled Repetition                      5.3 For/Next Repetition Structure                      5.4 Examples Using the For/Next Structure</p> <p>5.5 Select Case Multiple-Selection Structure                      5.6 Do/Loop While Repetition Structure                      5.7 Do/Loop Until Repetition Structure                      5.8 Using the Exit Keyword in a Repetition Structure                      5.9 Logical Operators</p>	
W5	Procedures	<p>6.1 Introduction                      6.2 Modules, Classes and Procedures                      6.3 Sub Procedures                      6.4 Function Procedures                      6.5 Methods                      6.6 Argument Promotion                      6.7 Option Strict and Data-Type Conversions                      6.8 Value Types and Reference Types                      6.9 Passing Arguments: Pass-by-Value vs. Pass-by-Reference                      6.10 Duration of Identifiers                      6.11 Scope Rules                      6.12 Random-Number Generation                      6.13 Example: Game of Chance                      6.14 Recursion                      6.15 Example Using Recursion: Fibonacci Series                      6.16 Recursion vs. Iteration                      6.17 Procedure Overloading and Optional Arguments                      6.17.1 Procedure Overloading                      6.17.2 Optional Arguments                      6.18 Modules</p>	Chapter 6

W6	Arrays, Exception Handling	<p>7.2 Arrays  7.3 Declaring and Allocating Arrays  7.4 Examples Using Arrays  7.4.1 Allocating an Array  7.4.2 Initializing the Values in an Array  7.4.3 Summing the Elements of an Array  7.4.4 Using Arrays to Analyze Survey Results  7.4.5 Using Histograms to Display Array Data Graphically  7.5 Passing Arrays to Procedures  7.6 Passing Arrays: ByVal vs. ByRef  7.7 Sorting Arrays  7.8 Searching Arrays: Linear Search and Binary Search  7.8.1 Searching an Array with Linear Search  7.8.2 Searching a Sorted Array with Binary Search  7.9 Multidimensional Rectangular and Jagged Arrays  7.10 Variable-Length Parameter Lists  7.11 For Each/Next Repetition Structure  11.1 Introduction  11.2 Exception Handling Overview  11.3 Example: DivideByZeroException  11.4 .NET Exception Hierarchy  11.5 Finally Block  11.6 Exception Properties  11.7 Programmer-Defined Exception Classes  11.8 Handling Overflows</p>	Chapter 7 , 11
W7	OO Programming: Inheritance	<p>8.1 Introduction  8.2 Implementing a Time Abstract Data Type with a Class  8.3 Class Scope  8.4 Controlling Access to Members  8.5 Initializing Class Objects: Constructors  8.6 Using Overloaded Constructors  8.7 Properties  8.8 Composition: Objects as Instance</p>	Chapter 8

		<p>Variables of Other Classes              8.9 Using the Me Reference              8.10 Garbage Collection              8.11 Shared Class Members              8.12 Const and ReadOnly Members              8.13 Data Abstraction and Information Hiding              8.14 Software Reusability              8.15 Namespaces and Assemblies              8.16 Class View and Object Browser</p>	
W8	Mid exam and review		
W9	Polymorphism	<p>9.1 Introduction              9.2 Base Classes and Derived Classes              9.3 Protected and Friend Members              9.4 Relationship between Base Classes and Derived Classes              9.5 Case Study: Three-Level Inheritance Hierarchy              9.6 Constructors and Finalizers in Derived Classes              9.7 Software Engineering with Inheritance              10.1 Introduction              10.2 Derived-Class-Object to Base-Class-Object Conversion              10.3 Type Fields and Select Case Statements              10.4 Polymorphism Examples              10.5 Abstract Classes and Methods              10.6 Case Study: Inheriting Interface and Implementation              10.7 NotInheritable Classes and NotOverridable Methods</p>	Chapter 9, 10
W10	GUI: Part II	<p>13.1 Introduction              13.2 Menus              13.3 LinkLabels              13.4 ListBoxes and CheckedListBoxes              13.4.1 ListBoxes              13.4.2 CheckedListBoxes              13.5 ComboBoxes              13.6 TreeViews              13.7 ListViews              13.8 Tab Control</p>	Chapter 13



		13.9 Multiple-Document-Interface (MDI) Windows 13.10 Visual Inheritance 13.11 User-Defined Controls	
W11	Expressions	15.1 Introduction 15.2 Fundamentals of Characters and Strings 15.3 String Constructors 15.4 String Length and Chars Properties, and CopyTo Method 15.5 Comparing Strings XII 15.6 String Method GetHashCode 15.7 Locating Characters and Substrings in Strings 15.8 Extracting Substrings from Strings 15.9 Concatenating Strings 15.10 Miscellaneous String Methods 15.11 Class StringBuilder 15.12 StringBuilder Indexer, Length and Capacity Properties, and EnsureCapacity Method 15.13 StringBuilder Append and AppendFormat Methods 15.14 StringBuilder Insert, Remove and Replace Methods 15.15 Char Methods 15.16 Card Shuffling and Dealing Simulation 15.17 Regular Expressions and Class Regex	Chapter 15
W12	Strings, Characters and Regular Files and Streams	17.1 Introduction 17.2 Data Hierarchy 17.3 Files and Streams 17.4 Classes File and Directory 17.5 Creating a Sequential-Access File 17.6 Reading Data from a Sequential-Access File 17.7 Random-Access Files 17.8 Creating a Random-Access File 17.9 Writing Data Randomly to a Random-Access File 17.10 Reading Data Sequentially from a	Chapter 17

		Random-Access File	
W13	XML	18.1 Introduction 18.2 XML Documents 18.3 XML Namespaces 18.4 Document Object Model (DOM) 18.5 Document Type Definitions (DTDs), Schemas and Validation 18.5.1 Document Type Definitions 18.5.2 Microsoft XML Schemas 18.6 Extensible Stylesheet Language and XslTransform	Chapter 18
W14	Database, SQL and ADO.NET	19.2 Relational Database Model 19.3 Relational Database Overview: Books Database 19.4 Structured Query Language (SQL) 19.4.1 Basic SELECT Query 19.4.2 WHERE Clause 19.4.3 ORDER BY Clause 19.4.4 Merging Data from Multiple Tables: INNER JOIN 19.4.5 Joining Data from Tables Authors, AuthorISBN, Titles and Publishers 19.4.6 INSERT Statement 19.4.7 UPDATE Statement 19.4.8 DELETE Statement 19.5 ADO .NET Object Model 19.6 Programming with ADO .NET: Extracting Information from a DBMS 19.6.1 Connecting to and Querying an Access Data Source 19.6.2 Querying the Books Database 19.7 Programming with ADO .NET: Modifying a DBMS 19.8 Reading and Writing XML Files	Chapter 19
W15	Final Group Project Presentations		
W16			

**Evaluation Strategies:**

Exams	Percentage
Mid	20%
project	20%
Final Exam	40%
Assignments/quiz	20%
Total	100%

**Teaching Methodology:**

- ❖ Lectures
- ❖ Using the Application VS.NET 2005

**Text Books & References:**

**Textbook:**

Deitel, Visual Basic .NET; How to Program, 2 Edition, Prentice Hall, 2002.

**References:**

Vb.net 2005 step by step

[Visual Basic.net](#)

Sturm

[Building Distributed Applications with Visual Basic.net](#)

Dan Fox

[Learn to Program with Visual Basic.NET](#)

John Smiley

[Visual Basic.Net Programming with Peter Aitken](#)

Peter G. Aitken



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705132
Course Title	Computer Graphics
Credit Hours	3
Theoretical Hours	1
Practical Hours	6



### Brief Course Description:

- ❖ تدريس الطالب كيفية استخدام البرامج التطبيقية المستخدمة في مجال علم GRAPHICS وكيفية بناء التطبيقات ومعالجة الصور تقنياً ، كما يتم تدريس ربط هذه التطبيقات ومخرجاتها مع برامج ذات تخصصات أخرى تحتاج إلي الدعم الفني في إنشاء الواجهات الرسومية والإيضاحية.

### Course Objectives:

تهدف هذه المادة إلى:

- ❖ التعرف بالبرامج المستخدمة في تطبيقات GRAPHICS وكيفية التعامل مع عناصرها وأدواتها بالشكل الذي يتيح بناء أو تعديل المدخلات بشكل علمي وتقني سليم .
- ❖ فهم وتطبيق برامج ذات التوجه في مجال الرسومات والأشكال والصور بشكل تقني سليم.
- ❖ القدرة على التفكير المنظم السليم للتعامل مع البرمجيات ذات الاستخدام التخصصي في مجال الرسومات والأشكال مهارة الابتكار والمعالجة تقنياً. تطوير التفكير والابتكار في إنشاء الأشكال ومعالجة الصور تقنياً.
- ❖ ممارسة البرامج التطبيقية ذات التوجه الرسومي بشكل سليم مع التركيز علي الابتكار مستفيداً من تطور مثل هذه البرامج بشكل مستمر مما يزيد الدارس خبرة في تطوير نفسه ذاتياً.
- ❖ المخرجات التعليمية: بعد إكمال المساق، سيتمكن الطالب من أداء التالي بنجاح:
- ❖ القدرة على ممارسة الرسم باستخدام الفتوشوب.
- ❖ تصميم الإعلانات.
- ❖ تصميم الشعارات.
- ❖ تصميم صورة مثالية لاستخدامها في صفحات الانترنت.
- ❖ إمكانية تعديل الصورة للفضل.
- ❖ إنشاء صور متحركة.

- To introduce the students with the concepts and principles of computer graphics.
- To give a thorough description of computer graphics hardware.
- To understand the theory and application of Transformation.



Detailed Course Description:

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
W1	<ul style="list-style-type: none"> <li>• ما هو الفوتو شوب سي اس</li> <li>• لماذا الفوتوشوب يحظى بانتشار واسع</li> <li>• تعريف بيكسل</li> <li>• انواع برامج الجرافيكس والفارق بينهم (bitmap, victors)</li> <li>• دقة الصورة (Image Resolution)</li> <li>• النماذج اللونية (HSB Model,RGB Model,CMYK Model)</li> <li>• انظمة الالوان التي يستخدمها برنامج فوتوشوب</li> <li>• انواع الصور الرقمية</li> <li>• مكونات واجهة عمل فوتوشوب</li> <li>• شرح قوائم برنامج فوتوشوب</li> <li>• تحرير القوائم</li> <li>• التعرف على صندوق الادوات</li> <li>• Overview of Computer Graphics Systems Graphics Primitives and Packages,The Graphical Pipeline *</li> </ul>	<p>Welcome to Photoshop (text books)</p> <p>Knowing Just Enough about Digital Images</p> <p>Taking the Chef's Tour of Your Photoshop Kitchen(text books)</p> <p>Making Color Look Natural(text books)</p> <p>Graphics Hardware *</p>	<p>Ch1 ,2,3,6</p> <p>Chapter 2*</p>
W2	<ul style="list-style-type: none"> <li>• كيفية تحميل الخطوط (Fonts)</li> <li>• اقتطاع جزء من الصور</li> <li>• تغيير ابعاد الصور</li> <li>• كيفية انشاء الاشكال الذكية Smart Object</li> <li>• Image Wrap</li> <li>• CRT, Raster-Scan*</li> </ul>	<p>Giving Your Images a Text Message (text box)</p> <p>Crop tool (ref 2)</p> <p>Resize an Image (ref2)</p> <p>Smart Object (ref2)</p>	<p>Ch13 (text box)</p> <p>Page14</p> <p>Page 172</p> <p>Page</p>

		Giving Your Images a Text Message (text box) Graphics Hardware *	364 Ch13 (text box) Chapter 2*
W3	<ul style="list-style-type: none"> <li>حفظ الملفات</li> <li>ازالة تأثير العين الحمراء Red Eye</li> <li>Smart Guides</li> <li>Vanishing point</li> <li>انشاء خلفيات مضيئة</li> <li>Random-Scan displays, Color CRT Monitors*</li> </ul>	<ul style="list-style-type: none"> <li>Red Eye Tool (ref2)</li> <li>Smart guide (ref2)</li> <li>Combining Images (text box)</li> <li>Background color (ref2)</li> <li>Graphics Hardware *</li> </ul>	<ul style="list-style-type: none"> <li>Page 78</li> <li>Page 38</li> <li>Ch10</li> <li>Page4</li> <li>Chapter 2*</li> </ul>
W4	<ul style="list-style-type: none"> <li>انشاء كتابة معدنية</li> <li>انشاء كتابات زجاجية</li> <li>انشاء كتابات مشعة</li> <li>انشاء كتابات مشعة من المركز</li> <li>.Flat-Panel Displays*</li> </ul>	<ul style="list-style-type: none"> <li>تمرين رقم 35(مرجع 1)</li> <li>تمرين رقم 2</li> <li>تمرين رقم 58</li> <li>تمرين رقم 18</li> <li>Graphics Hardware *</li> </ul>	Chapter 2*
W5	<ul style="list-style-type: none"> <li>انشاء الفنون الكتابية</li> <li>اضافة زخارف على كتابة</li> <li>انشاء الزخارف الملونة</li> <li>Threshold , Video Controller*</li> </ul>	<ul style="list-style-type: none"> <li>تمرين رقم 8</li> <li>تمرين رقم 11</li> <li>تمرين 85</li> <li>تمرين 17</li> <li>Graphics Hardware *</li> </ul>	Chapter 2*
W6	<ul style="list-style-type: none"> <li>عمل ضوء الكاميرا</li> <li>عمل ملمس حجر</li> <li>انشاء كتابات بعمق</li> <li>انشاء كتابات مرصعة بالالماس</li> </ul>	<ul style="list-style-type: none"> <li>تمرين 70</li> <li>تمرين 33</li> </ul>	Chapter 2*

	<ul style="list-style-type: none"> <li>• انشاء تدرجات متعاكسة</li> <li>• Display Processor*</li> </ul>	<p>تمرين 34</p> <p>تمرين 28</p> <p>تمرين 53</p> <p>Graphics Hardware *</p>	
W7	<ul style="list-style-type: none"> <li>• انشاء انعكاسات للضوء</li> <li>• انشاء دوار الشمس</li> <li>• انشاء الواح الخشب</li> <li>• Translation, Basic Scaling*</li> </ul>	<p>تمرين 68</p> <p>تمرين 55</p> <p>تمرين 9</p> <p>2D Transformations*</p>	Chapter 5*
W8	<ul style="list-style-type: none"> <li>• طرق ازالة العتمة من صور</li> <li>• كيفية انشاء ساعات الديجيتال</li> <li>• كيفية انشاء ماء</li> <li>• عمل بروز للأشكال</li> <li>• BasicRotation, Composite Transformations*</li> </ul>	<p>تمرين 10</p> <p>تمرين 14</p> <p>تمرين 75</p> <p>تمرين 49</p> <p>2D Transformations*</p>	Chapter 5*
W9	<ul style="list-style-type: none"> <li>• 3D Gradient Bar1</li> <li>• 3D Gradient Bar2</li> <li>• عمل ضباب</li> <li>• تعتيق الصورة</li> <li>• كيفية عمل حائط</li> <li>• General Scaling*</li> </ul>	<p>تمرين 51</p> <p>تمرين 59</p> <p>تمرين 89</p> <p>تمرين 82</p> <p>تمرين 64</p> <p>2D Transformations*</p>	Chapter 5*
W10	<ul style="list-style-type: none"> <li>• انشاء قطرات ماء</li> <li>• انشاء الطرق المتعرجة</li> <li>• انشاء حبال</li> <li>• General Rotation*,</li> </ul>	<p>تمرين 90</p> <p>تمرين 93</p> <p>تمرين 71</p> <p>2D Transformations*</p>	Chapter 5*
W11	<ul style="list-style-type: none"> <li>• Script</li> <li>• صناعة الكرات الزجاجية</li> <li>• سكتش صورة بالابيض والاسود</li> </ul>	<p>Streamlining Your Work in Photoshop</p> <p>تمرين 92</p> <p>تمرين 6</p>	Ch16 Chapter 5*



	<ul style="list-style-type: none"> <li>• انشاء ظلال خارجية جميلة</li> <li>• Reflections, Shearing.*</li> </ul>	<p>تمارين 38</p> <p>2D Transformations*</p>	
W12	<ul style="list-style-type: none"> <li>• عمل غيوم في السماء</li> <li>• الصور المتحركة في فوتوشوب</li> <li>• تنقيح الصور</li> <li>• انشاء غروب الشمس على صور</li> <li>• Surface blur</li> <li>• طوي اطراف الصور</li> <li>• الأفتحة وأنواعها وطرق التعامل معها</li> <li>• اكشن</li> <li>• Translation, Basic Scaling,*</li> </ul>	<p>تمارين 96</p> <p>Spiffing Up Your Online Offerings</p> <p>تمارين 73</p> <p>The Fun Side of Photoshop</p> <p>Type Mask tool (ref2)</p> <p>Record an Action (ref2)</p>	<p>Ch17</p> <p>Ch15</p> <p>Page 374</p> <p>Page 126</p> <p>Chapter 11*</p>
W13	<ul style="list-style-type: none"> <li>• تلوين الشخصيات الكرتونية</li> <li>• حذف العناصر من الصورة</li> <li>• صناعة ازرار الويب</li> <li>• الطبقات والتعامل معها</li> <li>• Basic Rotation, General Scaling,*</li> </ul>	<p>تمارين 19</p> <p>Eraser Omit Unwanted Area (ref2)</p> <p>Layer Merge/Flatten: combine layer content</p> <p>Matting: Eliminate an Unwanted Edge</p>	<p>Page 22</p> <p>Page306</p> <p>Page312</p> <p>Chapter 11*</p>
W14	<ul style="list-style-type: none"> <li>• انشاء براغي معدنية</li> <li>• Image Ready</li> <li>• عمل بنز متحرك</li> <li>• General Rotations, Examples.*</li> </ul>	<p>تمارين 23</p> <p>Jump to Image Ready (ref2)</p> <p>Spiffing Up Your Online Offerings (text box)</p>	<p>Page228</p> <p>Ch17</p> <p>Chapter 11*</p>
W15	<p>تسليم ومناقشة المشروع</p>		

**Evaluation Strategies:**

Exams	Percentage	Date
First(Theory)	10%	
امتحان المتوسط	15%	
Second(Theory)	10%	
المشروع	10%	
Final(Theory)	15%	
امتحان النهائي	30%	
الواجبات والامتحانات القصيرة	10%	
المجموع	100	

**Teaching Methodology:**

- ❖ محاضرات نظرية
- ❖ استخدام برنامج فوتوشوب

**Text Books & References:**

Textbook:

1. Photoshop® CS2 For Dummies® Published by Wiley Publishing, Inc.  
ISBN-13: 978-0-7645-9571-4  
ISBN-10: 0-7645-9571-7
2. Computer Graphics with Open Gl, D. Hearn and M. Baker, 3rd Ed., Prentice Hall, 2004 \*

REFERENCE

- 1 فوتوشوب 99 لتصميم والاعلان للمؤلف نادية سعيد جارودي
- 2 Photoshop cs2 Visual Encyclopedia , ISBN :0-7645-9860-0
- 3 Introductory Adobe Photoshop CS2 Basics. Current Edition. Course Technology, One Main Street, Cambridge, MA 02142, 1-800-648-7450;
- 4 Computer Graphics using Open GL by F. Hill, 2nd Ed., Prentice Hall, 2001.
- 5 Computer Graphics (Principles and Practice) by Foley, Van Dam et al, 2nd Ed. Addison Wesley, 1990.
- 6 Fundamentals of 3D Computer Graphics, by Alan Watt, latest Ed., Addison Wesley.

\* Theory Materials



❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705271
Course Title	Application Database
Credit Hours	2
Theoretical Hours	0
Practical Hours	6



**Brief Course Description:**

- ❖ Basis and Application of MS-SQL Server setup , Architectural Overview , Planning for and Installing SQL Files , Databases and Database Files , Querying Database and ERD Model .

**Course Objectives:**

- Describe the SQL Server 2003 RDBMS, including its essential components.
- Describe several of the important features of SQL Server 2003.
- Identify the various editions of SQL Server 2003
- Identify and describe the various components that make up SQL Server 2003.
- Identify and describe the various components that make up the SQL Server architecture.



**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
W1	What Is SQL Server 2003? SQL Server 2003 Features Editions of SQL Server 2003	Introduction to Microsoft SQL Server 2003	1.
W2	Overview of the SQL Server 2003 Components SQL Server 2003 Relational Database Engine SQL Server 2003 Replication SQL Server 2003 DTS SQL Server 2003 Analysis Services SQL Server 2003 English Query SQL Server Meta Data Services SQL Server Books Online SQL Server 2003 Tools 2.10 Command Prompt Tools 2.11 User Interface Tools	Using Transact-SQL on a SQL Server Database	2.
W3	Database Architecture Logical Database Components Physical Database Architecture Relational Database Engine Architecture Memory Architecture Input/Output (I/O) Architecture Full-Text Query Architecture Transactions Architecture Administration Architecture 3.10 Data Definition Language, Data Manipulation Language, and Stored Procedures 3.11 Automated Administration Architecture 3.12 Backup/Restore Architecture 3.13 Data Import/Export Architecture 3.14 Data Integrity Validation 3.15 Replication Architecture	Designing a SQL Server Database	3.
W4	4.1.1 Creating a SQL Server Database 4.1.2 Methods for Creating a SQL Server Database 4.1.3 Managing a SQL Server Database 4.1.4 Deleting a SQL Server Database 4.2.1 System-Supplied Data Types 4.2.2 User-Defined Data Types 4.3.1 Creating Tables in a SQL Server Database 4.3.2 Determining Column Nullability 4.3.3 Auto numbering and Identifier Columns 4.3.4 Managing Tables in a SQL Server Database	Implementing SQL Server Databases and Tables	4.
W5	Introduction to Data Integrity	Implementing	5.

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	<p>Enforcing Data Integrity Types of Data Integrity Implementing Integrity Constraints Introduction to Integrity Constraints PRIMARY KEY Constraints UNIQUE Constraints FOREIGN KEY Constraints CHECK Constraints</p>	Data Integrity	
W6	<p>Accessing Data in a SQL Server Database The Fundamentals of a SELECT Statement The SELECT Clause The INTO Clause The FROM Clause The WHERE, GROUP BY, and HAVING Clauses The ORDER BY Clause Using Advanced Query Techniques to Access Data Using Joins to Retrieve Data Defining Subqueries inside SELECT Statements Summarizing Data Modifying Data in a SQL Server Database Inserting Data into a SQL Server Database Modifying Data in a SQL Server Database Deleting Data from a SQL Server Database</p>	Accessing and Modifying Data	6.
W7	<p>Importing and Exporting Data Using the bcp Utility and the BULK INSERT Statement Using DTS Using Distributed Queries to Access External Data Introduction to Distributed Queries Using Linked Server Names in Distributed Queries Using Ad Hoc Computer Names in Distributed Queries Using Cursors to Retrieve Data Introduction to Cursors Fetching and Scrolling Controlling Cursor Behavior Cursor Locking</p>	Managing and Manipulating Data	7.
W8	Mid Exam & Review		
W9	<p>Introduction to Stored Procedures Purpose and Advantages of Stored Procedures Categories of Stored Procedures Creating, Executing, Modifying, and Deleting Stored Procedures How a Procedure Is Stored</p>	Implementing Stored Procedures	8.

	<p>Methods for Creating Stored Procedures          Executing a Stored Procedure          Modifying Stored Procedures          Deleting Stored Procedures          Programming Stored Procedures          Parameters and Variables          The RETURN Statement and Error Handling          Nesting Procedures          Cursors</p>		
W10	<p>9.1 Introduction to Triggers          9.1.1 Extending Data Integrity with Triggers          9.1.2 Trigger Events          9.2 Creating and Managing Triggers          9.2.1 Creating Triggers Using Transact-SQL          9.2.2 Creating a Trigger Using Enterprise Manager          9.2.3 Trigger Management          9.2.4 Viewing, Dropping, and Disabling Triggers          9.3 Programming Triggers          9.3.1 The Inserted and Deleted Pseudo Tables          9.3.2 Trigger Syntax, System Commands, and Functions          9.3.3 Common Trigger Programming Tasks</p>	Implementing Triggers	9
W11	<p>10.1 Introduction to Views          10.1.1 Overview of Views          10.1.2 Scenarios for Using Views          10.2 Creating, Modifying, and Deleting Views          10.2.1 Creating Views          10.2.2 Modifying Views          10.2.3 Deleting Views          10.3 Accessing Data through Views          10.3.1 Viewing Data through Views          10.3.2 Modifying Data through Views</p>	Implementing Views	10
W12	<p>11.1 Index Architecture          11.1.1 Purpose and Structure          11.1.2 Index Types          11.1.3 Index Characteristics          11.1.4 Index Information          11.1.5 Full-Text Indexing          11.2 Index Creation and Administration          11.2.1 Index Creation          11.2.2 Index Administration          11.2.3 Choosing to Index          11.2.4 Index Performance</p>	Implementing Indexes	11
W13	12.1 Transaction and Locking Architecture	Managing SQL	12

	<p>12.1.1 Transaction Log Architecture                  12.1.2 Concurrency Architecture                  12.1.3 Locking Architecture                  12.1.4 Distributed Transaction Architecture                  12.2 Managing SQL Server Transactions                  12.2.1 Overview of SQL Server Transactions                  12.2.2 Types of Transactions                  12.2.3 Distributed Transactions                  12.3 Managing SQL Server Locking                  12.3.1 Types of Concurrency Problems                  12.3.2 Optimistic and Pessimistic Concurrency                  12.3.3 Customizing Locking</p>	Server Transactions and Locks	
W14	<p>13.1 Overview of SQL Server 2003 Security                  13.1.1 Physical Security                  13.1.2 Network Protocol Security                  13.1.3 Domain Security                  13.1.4 Local Computer Security                  13.1.5 SQL Server Security                  13.2 Designing a Database Security Plan                  13.2.1 Requirements                  13.2.2 Nesting and Ownership Chains                  13.2.3 Security Design Recommendations                  13.3 Database Security Implementation and Administration                  13.3.1 Administering Authentication                  13.3.2 Administering Authorization                  13.3.3 Administering Permissions                  13.3.4 Administering Roles</p>	Designing and Administering SQL Server 2003 Security	13
W15		Presentation for Project	14





Evaluation Strategies:

Exams		Percentage	Date
Mid Exam		20%	
Final Exam		40%	
Assignments		10%	
Project		20%	
Total		100%	

**Teaching Methodology:**

- ❖ Lectures
- ❖ Using Sql Server 2003

**Text Books & References:**

**Textbook:**

Application Database, Mr.kim G-T, The Korea Chamber of Commerce and industry.

**References:**

2. .



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705263
Course Title	Software Developing
Credit Hours	3
Theoretical Hours	3
Practical Hours	0



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### **Brief Course Description:**

This course covers the basic principle and formal method for the procedural development of software system.

### **Course Objectives:**

#### Knowledge

- The understanding of the different software processes, differences among them as well as the best scenario(s) to select each one.
- How to elicit requirements from a client and how to convert them into specifications, through revision, checking for correctness, completeness, etc.
- Learn the design methodologies and process in the large, including principled choice of a software architecture, the use of modules and interfaces to enable separate development, and design patterns.
- Understanding good software engineering practices, including requirements gathering and documentation, communications among the software project team and contracts.
- Learn the various quality assurance or testing techniques, including unit testing, functional testing, integration and systems testing, ..etc.

#### Experience

- Working in a team
- Putting software process into practice
- Learn how to communicating with clients ( in principles).



**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
Week 1	<ul style="list-style-type: none"> <li>• What is software?</li> <li>• What are the attributes of good software?</li> <li>• What is software engineering and why is it important?</li> </ul>	Software Engineering and System Engineering	
Week 2, 3, 4	<ul style="list-style-type: none"> <li>• What is software engineering process?</li> <li>• Software Process Models                             <ol style="list-style-type: none"> <li>1. The Waterfall model.</li> <li>2. Evolutionary development</li> <li>3. Incremental development</li> <li>4. Spiral development</li> <li>5. Unified process model</li> </ol> </li> <li>• Software Process Activities                             <ol style="list-style-type: none"> <li>1. Software Specification</li> <li>2. Software Design</li> <li>3. Software Implementation</li> <li>4. Software Validation</li> <li>5. Software evolution</li> </ol> </li> <li>• CASE tools</li> <li>• Rapid development techniques</li> </ul>	The Software Engineering Process	
Week 5	<ul style="list-style-type: none"> <li>• What is software project management?</li> <li>• Project Management activities</li> <li>• Proposals and feasibility studies</li> <li>• Project Planning</li> <li>• Project costing</li> <li>• Project Staffing</li> <li>• Project scheduling</li> <li>• Risk Management</li> </ul>	Software Project Management	
	First Exam		
Week 6	<ul style="list-style-type: none"> <li>• What is software requirement?</li> <li>• User vs. System requirements</li> <li>• Functional vs. Non-functional requirements</li> </ul>	Software Requirements	

Week 7	<ul style="list-style-type: none"> <li>• The Requirement Engineering Process</li> <li>• feasibility study</li> <li>• What is requirement engineering</li> <li>• Requirements elicitation and analysis</li> <li>• Stakeholders</li> <li>• Problems</li> <li>• A generic process model</li> <li>• Viewpoint-oriented elicitation</li> <li>• Scenarios</li> <li>• System modeling: what and why?</li> </ul>	Requirements Engineering Processes	
Week 8 & 9	<ul style="list-style-type: none"> <li>• Perspectives and types of system models</li> <li>• Context Models.</li> <li>• Behavioral Models</li> <li>• Data Models</li> <li>• Object Models</li> </ul>	System Models	
Week 10	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• _What is software design?</li> <li>• _The design process</li> <li>• _Specification and design</li> <li>• _Design description</li> <li>• _Design Quality</li> </ul>	Software Design	
	Second Exam		
Week 11	<ul style="list-style-type: none"> <li>• _What is the architectural design</li> <li>• _Advantages of architectural design</li> <li>• _Activities</li> <li>• _Architectural models</li> <li>• _Architectural design and non-functional requirements</li> <li>• _Phases of architectural design</li> <li>• _System Structuring models</li> <li>• _Control Models</li> <li>• _Modular Decomposition Models</li> <li>• _Domain Specific Models</li> </ul>	Architectural Design	
Week 12	<ul style="list-style-type: none"> <li>• _Client-server architectures</li> </ul>	Distributed systems architectures	
Week 13	<ul style="list-style-type: none"> <li>• _Objects, Object classes and UML notations</li> <li>• An Object Oriented design process</li> </ul>	Object Oriented design	

Week 14	<ul style="list-style-type: none"><li>• System Testing</li><li>• Component testing</li><li>• Test case design</li><li>• Test automation</li></ul>	Software Testing	
Week 15	Final Exam		

**Evaluation Strategies:**

Exams	Percentage	Date
First Exam	20%	
Second Exam	20%	
Final Exam	50%	
Assignments	10%	
<b>Total</b>	<b>100%</b>	

**Teaching Methodology:**

- ❖ Lectures

**Text Books & References:**

Textbook:

Sommerville, Ian. Software Engineering 8th ed. Addison-Wesley

References:



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## Information Management and Libraries Program

<b>Specialization</b>	<b>Applications Software</b>
<b>Course Number</b>	<b>21705162</b>
<b>Course Title</b>	<b>Introduction to C++ Programming Language</b>
<b>Credit Hours</b>	<b>2</b>
<b>Theoretical Hours</b>	<b>2</b>
<b>Practical Hours</b>	<b>0</b>



**Brief Course Description:**

- ❖ The goal of this course is to introduce students to the skills of reading, understanding and development C++ code. It focuses on the introduction to primitive data types and variables. Then, its proceeds to the introduction of main C++ language constructions such as condition and looping statements. After this, it migrates to explaining the concepts of functions, arrays and matrices

**Course Objectives:**

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

1. To understand the concept of computer programming.
2. To understand the steps of writing, saving, editing programs.
3. To understand of program compilation. Linking and execution
4. To understand how to write an application program





**Detailed Course Description:**

Unit Number	Unit name	Unit Content	Time Needed
1.	Introduction to Computer Skills	<ul style="list-style-type: none"> <li>▪ General lecture on how use Turbo C++ .</li> <li>▪ Running, navigation through the menu items.</li> <li>▪ Writing a simple program "Hello word"</li> <li>▪ Enhancing the editing capabilities, running and compilation of program</li> </ul>	
2.	Data Types and Variables	<ul style="list-style-type: none"> <li>▪ Declaration of variables and constants</li> <li>▪ Distinguishing between the different data types</li> <li>▪ Using of cin and cout classes</li> <li>▪ Using of arithmetical operations</li> </ul>	
3.	Conditional and Multiconditional Operators	<ul style="list-style-type: none"> <li>▪ Operator if and its usage during programming</li> <li>▪ The if/else selection structure</li> <li>▪ The use of switch statement</li> <li>▪ Operators break and continue</li> </ul>	
4.	Programming of Iterative Processes	<ul style="list-style-type: none"> <li>▪ Looping in C++, the for statement</li> <li>▪ The use of while and do while statement</li> <li>▪ Loops block nesting in C++</li> </ul>	
5.	Introduction to Functions in C++	<ul style="list-style-type: none"> <li>▪ Declaration of functions, its implementation and calling</li> <li>▪ Function prototypes</li> <li>▪ Delegation of program control and returning of result</li> <li>▪ Local and global variables</li> <li>▪ The usage of recursive functions</li> </ul>	
6.	Arrays and Matrices	<ul style="list-style-type: none"> <li>▪ Declaring arrays</li> <li>▪ Using and manipulation by single and multidimensional arrays</li> <li>▪ Algorithm of searching and sorting.</li> <li>▪ Operations on matrices</li> </ul>	



Evaluation Strategies:

Exams		Percentage	Date
Exams	First Exam	20%	--/--/----
	Second Exam	20%	--/--/----
	Final Exam	50%	--/--/----
Homework and Projects		10%	
Discussions and lecture Presentations			

**Teaching Methodology:**

- ❖ Lectures

**Text Books & References:**

Textbook:

1. Zak,Diane.2001. An Introduction to Programming with C++. Second Edition

References:

1. Deitel & Deitel .C++ How to Program, fourth edition, Prentice Hall, 2004
2. Nell Dale. A Laboratory course in C++, Jones and Bartlett Publishers, fourth edition, 2004



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705163
Course Title	Introduction to C++ Programming Language Lab
Credit Hours	1
Theoretical Hours	0
Practical Hours	3



**Brief Course Description:**

- ❖ Laboratory works must concentrate on writing and executing programs using C++ language. This must cover writing Simple and structured control and conditional statements, simple and nested loop statements, single and multi-dimensional arrays, standard functions and recursive functions

**Course Objectives:**

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

1. To understand the steps of writing, saving, editing programs.
2. To understand of program compilation, linking and execution
3. Writing simple and advanced programs



**Detailed Course Description:**

Lab Number	Lab name	Lab content	Time Needed
1.	Assignment, Input/Output Statements		
2.	Simple and Structured Control and Conditional Statements		
3.	Simple and Nested Loop Statements		
4.	Single and Multi-Dimensional Arrays		
5.	Standard Functions and Recursive Functions		

**Evaluation Strategies:**

Exams		Percentage	Date
Exams	Med - term Exam	20%	--/--/----
	Practical experiments and assignments	30%	--/--/----
	Final Exam	50%	--/--/----

**Teaching Methodology:**

- ❖ Laboratory

**Text Books & References:**

Textbook:

1. Zak,Diane.2001. An Introduction to Programming with C++.Second Edition

References:

1. Deitel & Deitel .C++ How to Program, fourth edition, Prentice Hall, 2004.
2. Nell Dale. A Laboratory course in C++, Jones and Bartlett Publishers, fourth edition, 2004



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705181
Course Title	Analysis of Algorithms
Credit Hours	2
Theoretical Hours	2
Practical Hours	0



**Brief Course Description:**

The algorithms for various practical problems occurred in Computer Science as well as Science and Engineering are studied. They are analyzed in the context of time and space required for their execution. It also study the correctness of each algorithm dealt in the course.

**Course Objectives:**

To provide the students with the following:

- 1) The fundamentals of algorithms and algorithmic techniques,
  - 2) The ability to decide on the suitability of a specific technique for a given problem,
  - 3) The ability to analyze the complexity of a given algorithm,
- Techniques learned.

**Learning Outcomes**

After completing the course, the student must demonstrate the knowledge and ability To:

1. Show the importance of the algorithm analysis and design.
2. Recognize different techniques for analyzing and designing algorithms.
3. Recognize the suitable design technique for a given problem.
4. Design efficient algorithms for new problems.



## Detailed Course Description:

الرقم الباب	اسم الباب	محتوى الباب	الفترة الزمنية
3.1-3.2	Growth of function	<u>Introduction, administration, time and space complexity</u> <u>Basics: asymptotic notation</u>	W1
4.1 4.3, 6.1-6.2	Recurrence Heapsort	<u>Basics: recurrences (mergesort)</u> <u>Basics: recurrences continued, master theorem</u>	W2
6 7.1-7.3 7.4	Heapsort Quicksort	<u>Sorting: intro to heapsort</u> <u>Sorting: heapsort, priority queues</u>	W3
5.1-5.3 5.4 last section	Probabilistic Analysis and Randomized Algorithms	<u>Sorting: quicksort</u> <u>Sorting: quicksort average case analysis</u>	W4
8.1-8.2 8.3-8.4	Sorting in Linear Time	<u>Sorting: linear time sorting algorithms</u> <u>Sorting: linear time algorithms continued;</u>	W5
9.1-9.2 9.3	Medians and Order Statistics	<u>Order statistics: selection in expected linear time</u> <u>Order statistics: selection in worst-case linear time</u>	W6
		<u>Review for exam</u>  Exam 1	W7
12.1-12.3 13.1-13.2	Binary Search Trees Red-Black Tree	<u>Structures: binary search trees</u>  <u>Structures: red-black trees</u>	W8
13.3-13.4 --	Red-Black Tree	<u>Structures: red-black trees (insertion)</u>  <u>Structures: skip lists</u>	W9

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W10	<u>Structures: skip lists, hash tables</u>  <u>Structures: hash tables (hash functions)</u>	Hash Tables	11.1-11.2  11.3-11.4
W11	<u>Structures: hash tables (universal hashing)</u>  <u>Augmenting structures: dynamic order statistics</u>	Hash Tables  Augmenting Data Structure	11.3-11.4  14.1-14.2
W12	<u>Augmenting structures: interval trees</u>  <u>Graph algorithms: the basics</u>	Augmenting Data Structure  Elementary Graph Algorithms	14.3  22.1-22.3
W13	<u>Graph algorithms: BFS</u>  <u>Graph algorithms: DFS</u>	Elementary Graph Algorithms  Minimum Spanning Trees	22.3  23.1
W14	<u>Minimum spanning trees</u>	Minimum Spanning Trees	23.2
W15	<u>Review for final</u>		
W16	FINAL EXAMINATION	-	





**Evaluation Strategies:**

Exams	Percentage	Date
Exam I	20%	
Exam II	20%	
Final Exam	50%	
Assignments	10%	
Total	100%	

**Teaching Methodology:**

- ❖ Lectures

**Text Books & References:**

Textbook:

*Introduction to Algorithms (Second Edition)* by Cormen, Leiserson, Rivest, and Stein, McGraw-Hill (2001).

References:

1. M. H. Alsuwaiyel, *Algorithms Design Techniques and Analysis*. World Scientific, 1999.
2. Sara Baase, *Computer Algorithms: Introduction to design & Analysis*, Addison Wesley Longman, Third Edition, 2000.
3. Robert Sedgewick, *Algorithms in C++*, Addison Wesley, 1998.



## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705171
Course Title	Database
Credit Hours	3
Theoretical Hours	3
Practical Hours	0



**Brief Course Description:**

Introduction and History, DBMS Architecture, Storage Hierarchy, Indexes, Entity-relationship (E-R) modeling, the relational model, Relational Query Language (SQL), Query processing and optimization.

**Course Objectives:**

**The objectives of this course are to:**

Introduce the basic DBMS concepts from both theoretical and practical perspectives.

Provide an understanding of the motivation behind DBMS, and discusses the fundamental information processing requirements.

Provide an in-depth understanding of the Entity-Relationship model, Database design, Relational data model, Relational algebra, and the SQL query language

Elevate the student's knowledge about DBMS to a technical level that would qualify him/her for DBMS application development as well as DBMS administration with the provision of proper training.



**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
Week 1	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• An Example</li> <li>• Characteristics of the Database Approach</li> <li>• Actors on the Scene</li> <li>• Workers behind the Scene</li> <li>• Advantages of Using the DBMS Approach</li> <li>• A Brief History of Database Applications</li> <li>• When Not to Use a DBMS</li> </ul>	Databases and Database Users	Chapter 1
Week 2	<ul style="list-style-type: none"> <li>• Data Models, Schemas, and Instances</li> <li>• Three-Schema Architecture and Data Independence</li> <li>• Database Languages and Interfaces</li> <li>• The Database System Environment</li> <li>• Centralized and Client/Server Architectures for DBMSs</li> <li>• Classification of Database Management Systems</li> </ul>	Database System Concepts and Architecture	Chapter 2
Week 3&4	<ul style="list-style-type: none"> <li>• Using High-Level Conceptual Data Models for Database Design</li> <li>• An Example Database Application</li> <li>• Entity Types, Entity Sets, Attributes, and Keys</li> <li>• Relationship Types, Relationship Sets, Roles, and Structural Constraints</li> <li>• Weak Entity Types</li> <li>• Refining the ER Design for the COMPANY Database</li> <li>• ER Diagrams, Naming Conventions, and Design Issues</li> <li>• Example of Other Notation: UML Class Diagrams</li> </ul>	Data Modeling Using the Entity-Relationship (ER) Model	Chapter 3

	<ul style="list-style-type: none"> <li>Relationship Types of Degree Higher Than Two</li> </ul>		
Week 5 & part of week 6	<ul style="list-style-type: none"> <li>Subclasses, Superclasses, and Inheritance</li> <li>Specialization and Generalization</li> <li>Constraints and Characteristics of Specialization and Generalization Hierarchies</li> <li>Modeling of UNION Types Using Categories</li> <li>An Example UNIVERSITY EER Schema, Design Choices, and Formal Definitions</li> <li>Example of Other Notation: Representing Specialization and Generalization in UML Class diagrams</li> <li>Data Abstraction, Knowledge Representation, and Ontology Concepts</li> </ul>	The Enhanced Entity-Relationship (EER) Model	Chapter 4
Week6	First Exam		
Week 7	<ul style="list-style-type: none"> <li>Relational Model Concepts</li> <li>Relational Model Constraints and Relational Database Schemas</li> <li>Update Operations, Transactions, and Dealing with Constraint Violations</li> </ul>	The Relational Data Model and Relational Database Constraints	Chapter 5
Week 8	<ul style="list-style-type: none"> <li>Unary Relational Operations: SELECT and PROJECT</li> <li>Relational Algebra Operations from Set Theory</li> <li>Binary Relational Operations: JOIN and DIVISION</li> <li>Additional Relational Operations</li> <li>Examples of Queries in Relational Algebra</li> <li>The Tuple Relational Calculus</li> <li>The Domain Relational Calculus</li> </ul>	The Relational Algebra and Relational Calculus	Chapter 6

Week 9	<ul style="list-style-type: none"> <li>• Relational Database Design Using ER-to-Relational Mapping</li> <li>• Mapping EER Model Constructs to Relations</li> </ul>	SQL-99: Schema Definition, Constraints, Queries, and Views	Chapter 7
Week 10+part of week 11	<ul style="list-style-type: none"> <li>• SQL Data Definition and Data Types</li> <li>• Specifying Constraints in SQL</li> <li>• Schema Change Statements in SQL</li> <li>• Basic Queries in SQL</li> <li>• More Complex SQL Queries</li> <li>• INSERT, DELETE, and UPDATE Statements in SQL</li> <li>• Specifying Constraints as Assertions and Triggers</li> <li>• Views (Virtual Tables) in SQL</li> <li>• Additional Features of SQL</li> </ul>	SQL-99: Schema Definition, Constraints, Queries, and Views	Chapter 8
Week 11	Second Exam		
Week12+ 13	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Secondary Storage Devices</li> <li>• Buffering of Blocks</li> <li>• Placing File Records on Disk</li> <li>• Operations on Files</li> <li>• Files of Unordered Records (Heap Files)</li> <li>• Files of Ordered Records (Sorted Files)</li> <li>• Hashing Techniques</li> <li>• Other Primary File Organizations</li> <li>• Parallelizing Disk Access Using RAID Technology</li> <li>• New Storage Systems</li> </ul>	Disk Storage, Basic File Structures, and Hashing	Chapter 9
Week 14	<ul style="list-style-type: none"> <li>• Types of Single-Level Ordered Indexes</li> <li>• Multilevel Indexes</li> </ul>	Indexing Structures for Files	Chapter 10
Week 15		Algorithms for Query Processing and Optimization	Chapter 11



**Evaluation Strategies:**

Exams	Percentage	Date
First Exam	20%	
Second Exam	20%	
Final Exam	50%	
Assignments	10%	
<b>Total</b>	<b>100%</b>	

**Teaching Methodology:**

- ❖ Lectures

**Text Books & References:**

Textbook:

El-Masri and Navathe, Fundamentals of DBMS, 5<sup>th</sup> edition, Addison-Wesley, 2007. ISBN 0321369572



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## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705191
Course Title	Operating Systems
Credit Hours	2
Theoretical Hours	1
Practical Hours	3



**Brief Course Description:**

- Lectures on process concept, CPU scheduling, process synchronization and deadlocks,
- Windows operating software setup, Management file & folder, Windows operating GUI, Control Panel, Multimedia utility, Disk and System management, Format/Disk Management, Communication tools and Compress/UnCompress

**Course Objectives:**

After completing this course, the student should be able to:

- Recognize the concepts and principles of operating systems.
- Understand the structure and components of traditional OSs.
- Acquire the skills of dealing with common operating systems like UNIX, Linux and Windows.
- Install Windows XP Professional and upgrade to Windows XP Professional.
- Automate an installation of Windows XP Professional by using answer files and Uniqueness Database Files (UDFs), or by using the Microsoft Windows 2000 System Preparation Tool.
- Configure and manage hardware on a computer running Windows XP Professional.
- Manage disks.
- Configure and manage file systems.
- Troubleshoot the boot process and other system issues.
- Configure the desktop environment, and use profiles to control desktop customization.
- Configure and support Transmission Control Protocol/Internet Protocol (TCP/IP).
- Configure Windows XP Professional to operate on Windows networks.
- Support remote users.
- Configure Windows XP Professional for mobile computing.
- Monitor resources and performance



**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
Weeks 1 & 2		<ul style="list-style-type: none"> <li>• Introduction to OS*</li> <li>• Installing Microsoft Windows XP professional</li> <li>• Automating an Installation of Microsoft Windows XP Professional</li> </ul>	Chapter 1* Chapter 1,2
Weeks 3,4 & 5		<ul style="list-style-type: none"> <li>• Computer-System Structures*</li> <li>• Configuring Hardware on a Computer Running Microsoft Windows XP Professional</li> <li>• Managing Disks</li> </ul>	Chapter 2* Chapter 3,4
	First Exam		
Weeks 6 & 7		<ul style="list-style-type: none"> <li>• Operating-System Structures*</li> <li>• Configuring and Managing File Systems</li> <li>• Troubleshooting the Boot Process and Other</li> </ul>	Chapter 3* Chapter 5,6
Weeks 8,9 & 10	Mid Exam	<ul style="list-style-type: none"> <li>• Processes*</li> <li>• Configuring the Desktop Environment</li> <li>• Configuring TCP/IP Addressing and Name Resolution</li> </ul>	Chapter 4* Chapter 7,8
	Second Exam		
Weeks 11,12 & 13		<ul style="list-style-type: none"> <li>• CPU Scheduling*</li> <li>• Configuring Microsoft Windows XP Professional to Operate in Microsoft Windows Networks</li> <li>• Supporting Remote Users</li> <li>• Configuring Microsoft Windows XP for Mobile Computing .</li> </ul>	Chapter 6* Chapter 9,10,11



Weeks 14 & 15		<ul style="list-style-type: none"><li>• Deadlocks*</li><li>• Monitoring Resources and Performance</li><li>• Presentation For Project</li></ul>	Chapter 7* Chapter 12
	Final Exam		



**Evaluation Strategies:**

Exams	Percentage	Date
First Exam	10%	
Second Exam	10%	
Med Exam	20%	
Final Exam	50% Theory (25%) Practical(25%)	
Assignments	10%	
Total	100%	

**Teaching Methodology:**

- ❖ Lectures
- ❖ Using XP Operating System

**Text Books & References:**

Textbook:

- \*Silberschatz, P. B. Galvin, and G. Gagne "Operating System Concepts" (sixth Edition),

John Wiley & Sons, Inc.

- MCSA/MCSE Windows XP Professional, Lisa Donald with James Chellis, Second Edition.

**References:**

\* Theory Material



❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

## Information Management and Libraries Program

Specialization	Applications Software
Course Number	21705111
Course Title	Computer Architecture
Credit Hours	2
Theoretical Hours	2
Practical Hours	0



**Brief Course Description:**

Introduction to logic design; Assembly language Programming; The design of computer systems and components; Processor design; Instruction set design and addressing ; computer Arithmetic; control structures and microprogramming; memory system design, caches, and memory hierarchies; system buses and Input / Output structures; pipelining and RISCs.

**Course Objectives:**

To become familiar with the basic concepts in the logic design of the computers, Memory organization , CPUs, Input/Output, Instruction sets, Parallel processors, Pipelining.





**Detailed Course Description:**

الفترة الزمنية	محتوى الباب	اسم الباب	الرقم الباب
Weeks 1	1.1. Historical Background. 1.2. overview for logic design. 1.3. Architectural Development & Styles. 1.4. Technological Development.	Introduction to Computer Systems.	Chapter 1
Weeks 2	1.5. Performance Measures. 2.1. Memory Locations and Operations. 2.2. Addressing Modes.	Introduction to Computer Systems.  Instruction Set Architecture & Design.	Chapter 1, 2
Weeks 3	2.3. Instruction Types. 2.4. Programming Examples. 3.1. A Simple Machine.	Instruction Set Architecture & Design.  Assembly Language Programming.	Chapter 2,3
Weeks 4	3.2. Instructions Mnemonics and Syntax. 3.3. Assembler Directives and Commands. 3.4. Assembly and Execution of Programs.	Assembly Language Programming.	Chapter3
Weeks 5	4.1. Number Systems. 4.2. Integer Arithmetic. 4.3. Floating Point Arithmetic. 5.5. Control Unit.	Computer Arithmetic.  Processing Unit Design.	Chapter 4,5

Weeks6	Exam 1 and review		
Weeks 7	5.1. CPU Basics. 5.2. Register Set. 5.3. Data Path.	Processing Unit Design.	Chapter 5
Weeks 8	5.4. The CPU Instruction Cycle. 6.1. Basic Concepts. 6.2. Cache Memory5.4. The CPU Instruction Cycle.	Processing Unit Design. Memory System Design	Chapter 5,6
Week9	6.1. Basic Concepts. 6.2. Cache Memory 7.1. Main Memory.	Memory System Design Memory System Design II.	Chapter 6,7
Week10	7.2. Virtual Memory. 7.3. Read-Only Memory. 8.1. Basic Concepts.	Memory System Design II. Input-Output Design and Organization.	Chapter 7,8
Week11	Exam2 and review		
Week12	8.2. Programmed I/O. 8.3. Interrupt-Driven I/O. 8.4. Direct Memory Access (DMA).	Input-Output Design and Organization.	Chapter 8
Week13	8.5. Busses. 8.6. Input-Output Interfaces. 9.1. General Concepts.	Input-Output Design and Organization. Pipelining Design Techniques.	Chapter 8,9

Week14	9.2. Instruction Pipeline. 9.3. Arithmetic pipeline 10.1. RISC/CISC Evolution Cycle.	Pipelining Design Techniques. Reduced Instruction Set Computers (RISCs).	Chapter 9,10
Week15	10.2. RISCs Design Principles. 10.3. Overlapped Register Windows. 10.4. RISCs Versus CISCs. 10.5. Pioneer RISC Machines. 10.6. Example of Advanced RISC Machines.	Reduced Instruction Set Computers (RISCs).	Chapter 10

#### Evaluation Strategies:

Exams	Percentage	Date
First Exam	20%	
Second Exam	20%	
Final Exam	50%	
Assignments	10%	
Total	100%	

#### Teaching Methodology:

- ❖ Lectures
- ❖ Using XP Operating System

#### Text Books & References:

##### Textbook:

1. A special textbook for Eng. Mohammad Al-Showbaky
2. Fundamentals of Computer Organization and Architecture, (Abd-El-Barr, Mostafa, El-Rewini; Hesham / 2005).

##### References:

1. digital logic and computer organization / Rajaraman & Radha / 2006
  2. Computer organization and design / D. Patterson and J. Hennessy / 2nd edition / 1998
- Computer organization and design / David A. Patterson / 3rd edition