Course Orientation

With the ubiquity of the Internet and the World Wide Web, and the pervasivness of web-based applications and systems, such as those for e-commerce and e-business, e-banking, e-government, e-society, IT professionals capable of developing attention-getting web applications are in high demand. This course will teach you many important computer technologies that are widely used in developing web-based systems.

Generally speaking, the architecture of web-based systems consists of three tiers: the client tier, the middle tier, and the information tier. The client tier (or top tier) is what is sent to a web client, or user. It consists of documents marked in HTML and embedded client-site scripts in JavaScript. In Unit 1 and 2 you will learn how to write client tier programs for the Web in HTML5 and JavaScript. Note that in this course we use the term *program* in a generic sense to include scripting and markup languages.

Marking up data in XML is one of the popular practices in today's web-based systems development, while Ajax-enabled web-based systems offer web users a rich experience when browsing the web or using web-based systems. In Unit 3, you will learn what XML is, how to use it in data markup and web-based systems development, and how to develop Ajax-enabled rich Internet applications using XML and JSON.

The information tier (or bottom tier) maintains data for business applications, which need not be web-based. The information tier is closely related to databases. In Unit 4 you will learn how to set up and use some popular database systems for web-based systems and applications. Our focus will be on MySQL, SQL, LINQ, and Java DB.

In web-based systems, the client tier is usually connected to the information tier through the middle tier, which implements business logic and presentation logic to control interactions between the client tier and the information tier. In Unit 5 you will learn how to write programs in PHP for web-based systems. In Unit 6 you will learn how to write programs in ASP.NET in C# (C-sharp) for the middle tier. In Unit 7 you will learn how to write programs in ASP.NET in VB for this tier. Finally, in Unit 8, you will learn how to write programs in Java/JSF for it. Feeling overwhelmed? Fortunately, you need to complete only one of the last three units to pass the course although you are given the materials you need to learn all of these important and useful web technologies.

The Organization of the Study Guide

The course has eight units in total, but you need to study only six units in order to pass the course. You can complete Unit 1–5 plus Unit 6, or Unit 1–5 plus Unit 7, or Unit 1–5 plus Unit 8. Regardless of the choice you make, you should study all units in order and as directed. Each unit consists of three or more sections. Every section covers a chapter (or part of one) of the e-text and includes

- **Learning Objectives**. These tell you what you should achieve from studying the section. It is a good idea to review the learning objectives at the end of every section to assure that you have met them; the learning objectives correspond to the content of the assignments and exams.
- **Activities**. Here the tasks designed to help you accomplish the learning objectives are laid out. They include readings, programming exercises, and case studies.
- **Study Questions**. Use these questions to help focus your reading through the assigned chapters of the e-text or other documents. For some of these questions you will be able to answer fully without looking them up, whereas others will represent new material for you, and you may want to use the Personal Workspace wiki on the course home page to write out answers.
- **Review Questions**. The review section tests your understanding of the content and should be done to consolidate your learning after you have completed the required activities.

Please take some time to email your tutor and to become familiar with the course site and the structure of the course, as well as the requirements for the assignments and your final exam. Most importantly, please introduce yourself to your peers in the class by posting a brief bio to the course general forum in Moodle!

About the Textbook

We have adopted *Internet & World Wide Web: How to Program* (5th edition) by P. Dietel, H. Dietel, and A. Dietel as the textbook for COMP 466. However, because of the rapid development of website technology, frequent revision of any textbook on this subject is unavoidable. While we have tried hard to avoid possible chaos when a new edition of the e-text is used, there may still be some mismatches between the course content and the most recent edition of the e-text.

If that happens, we need your assistance and patience to fix the problems. We want to keep the course healthy and offering the most current and useful web technologies. Please post any problems and suggestions regarding this in the COMP 466 General

Discussion Forum on the course home page. With all the information accessible on the Web, and your ability as intelligent senior students, we should be able to locate and share the necessary resources to achieve your learning goals.

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