MIT 3107
ADVANCED INTERNET TECHNOLOGIES

Course Outline

Course Purpose

- The course will enable learners to acquire advanced web technologies for advanced web systems and to understand the fundamentals of programming for the internet in the business world.

Learning Outcomes

- By the end of this unit, the learner should be able to:
  - Define and explain advanced technologies used to build the world wide web (WWW) commonly applied in business.
  - Design and implement static web content and Dynamic web content in web servers.
  - Define the web control using various types of business information.
  - Develop an advanced business website with transactional capacity.

Course Content

- Introduction to www client/server model and related protocols, web server properties, client/server scripting, active content data base, server page scripting, Dynamic HTML and XML, Concepts of web servers: internet information server(IIS), apache, I planet

Course Content (Continuation)

- Networking fundamentals such as sockets, IP, TCP, HTTP -Client-side components like HTML, XML, browsers, applets, HTML format, Java script, VB script, Server-side component eg web servers, servlets, CGI, JSP, ASP, PAP, application servers, Database components which include SQL, JDBC, database servers, Architecture and design -I.N-tier designs -user interface database servers, directory servers, transition servers, interfacing to legacy systems -security issues -Object-oriented modeling for web applications using UML and WAC.

Course content (Continuation)

- Development of multi-tier applications Java related: Fundament Java services like servlet life cycle, request and response, Session management and cookies Dynamic HTML generation, Data management using Java database connectivity (JDBC), Java serve pages, Introduction of java servlets and JSP, ASP based -ASP object model -Barrier of ASP such as inputs, output, variable, arithmetic, operations, strings, arrays -Control structures -Object-orientation in ASP like objects, properties, methods and events -Session management which include applications, sessions, cookies -Database access with ASP and ADU object model, Special topics, including: -Distributed component frameworks like COM/Dvom, CORBA, RMI, Joni. -Secure directory access using LDAP -Search engines

Chapter 1: Introduction to Internet and World Wide Web

- Internet and World Wide Web.
- Uses of Internet.
- Servers and Protocols.
- Applications of World Word Web.
- Types of Web Applications.

Chapter 2: Internet Technologies

- Client/Server Programming.
- Client side and server side scripting.
- Introduction to HTML, xHTML, CSS, XML

Chapter 3: Web Servers

- Web servers Fundamentals
- Architecture and design N-tier designs
- Internet Information Server(IIS), Apache Server.
- Database servers, Directory servers, transition servers.
- Interfacing to legacy systems and Security issues

Chapter 4: Multimedia and the Web

- Introduction to multimedia.
- Sound File Formats
- Image File Formats
- Video File Formats
- Data Compression.
- Immersion and texture mapping
- VRML and virtual environments

Chapter 5: Modeling Web Applications

- Modeling fundamentals.
- Phases of modeling.
- Modeling Requirements.
- Object-oriented modeling and UML
- Web Access Control (WAC)

Chapter 6: Web Databases

- File-based Web sites.
- Database approach.
- Static and dynamic Web pages.
- Advantages and disadvantages of Web-DBMS Approach.
- Approaches to Integrating the Web and DBMS.

Course Project

- The project is conducted individually
- The objective is to develop your dynamic, database supported, web site:
  - Choose an application domain: music, trekking, soccer, photography, etc.
  - Manage items (music tracks, trekking paths, soccer matches, cameras, …) and users of the application
  - Identify the functionality (extending the base functionality describe later)

Course Project

- Enable users to access items (search, select, comment) and provide new items. All the techniques illustrated in the lectures must be properly applied (not a simple, static HTML-based web site).
- The project results are a running system and a written report.

Structure of the Project

- The application must run on the application server that we shall indicate in the labs.
- The report must describe clearly in min 2000, max 3000 words (plus images):
- The functions of the web application and their motivation
- The architecture of the application (modules and their roles) – use figures
- Main classes and main methods Major technical problems found during the work

Project Evaluation

- The project will be evaluated according to:
  - coverage and complexity of the implemented functions
  - user interface usability and completeness, organization of the code
  - coverage of the required technologies.

Course Textbooks

- James D.S: Introduction to the Internet, New Jersey: Addison Wesley, ISBN 786-95-89000
- Gopalsamy ,N Information Technology and E-Commerce ,New Age ISBN 978-81-224-2454-6
- Peter Bollop ,Web design for Dummies, ISBN-13: 978-1118540572

Reference Textbooks

- Geelen J. R: Computer Basic: An Introduction to the Internet, Everything Simple.Com Ventures, ISBN 08-67-5634566
- Rose T.M. : An Introduction to Internet Management, Second Edition, New Jersey: Prentice Hall ISBN 976-98756-8900
- Petrr Bollop, Web design and management, second edition ISBN 976-78495-3899

Course Journals

- Acta Informatica ISSN 0001-5903
- Advances in Computational Mathematics ISSN 1019-7168
- Advances in data Analysis and Classification ISSN1 1862-5347
- Annals Of software Engineering ISSN 1022-7091

Reference Journals

- Journal of computer science and Technology ISSN 1000-9000
- Journal of Science and Technology ISSN 1860-4749
- Central European Journal Of Computer Science ISSN 1896-1533
- Cluster computing ISSN 1386-7857