SUBJECT OUTLINE

31748 Programming on the Internet

Course area UTS: Information Technology

Delivery Autumn 2021; City

Credit points 6cp

Requisite(s) (31268 Web Systems AND (31267 Programming Fundamentals OR 31465 Object-oriented Programming OR 31488 Programming Foundations OR 31508 Programming Fundamentals OR 48023 Programming Fundamentals))

Result type Grade and marks

Recommended studies: basic knowledge of programming languages and Unix systems

Subject coordinator

Dr. Linchao Zhu

Email: Linchao.Zhu@uts.edu.au

Questions regarding assessment or content within the subject are welcome in lectures or tutorials or alternatively post them to the discussion board in Canvas. This helps ensure that all students get the benefit of the answers given.

The Subject Coordinator may be contacted by email if you have matters of a personal nature to discuss, e.g., illness, study problems, and for issues to do with extensions, group problems or other matters of importance.

All emails sent to subject coordinators, tutors or lecturers must have a clear subject line that states the subject number followed by the subject of the email [e.g. Subject 32702, Request for Extension], and must be sent from your UTS email address.

Consultation hours: Check the Canvas Contact section for details on consultation hours. Requests for appointments outside the given consultation hours may be arranged where circumstances require, and to do so please contact the subject coordinator by email.

Teaching staff

Lecturer : Dr. Linchao Zhu

Tutors: YiFei Dong, Md Sarwar Kamal and Ping Zhu

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Subject description

This subject introduces students to the specifics of the World Wide Web (WWW) and internet-based programming. The evolution of the internet and its technical foundation is studied as well as basic techniques for presenting data, text and pictures on the WWW. The subject focuses on PHP (hypertext preprocessor), MySQL (backend database), JavaScript, AJAX, XML and Object Oriented PHP. This subject provides a sound basis for understanding how the WWW functions, how to construct websites and how to write software for the WWW using advanced scripting techniques.

Subject learning objectives (SLOs)

Upon successful completion of this subject students should be able to:

1. Understand the general concepts pertaining to the Internet and World Wide web such as TCP/IP, protocols, domain names, IP addresses and n-tier architecture. In addition students will understand the roles of browsers, web servers and scripting languages in the general context of the Internet and World Wide Web. (general level of understanding)
2. Possess an insight into what is involved in the developing and securing of non-trivial websites. (general level)

3. Have a good working knowledge of DHTML, JavaScript, AJAX and the principles of website design. (expert's level) Have an insight into how Javascript Libraries such as JQuery can be used to enhance web pages. (general level)
4. Have an introductory knowledge of how XML documents can be used on the Web. (general level)
5. Gain experience in the use of PHP as a server side scripting language as well as the principles involved in using server side scripting languages in general. (expert's level) Have an insight into advanced PHP, such as Object Oriented PHP and other PHP functions. (general level)
6. Gain a sufficient knowledge of Unix so they can effectively manage websites hosted on sites running on any variety of the Unix Operating System. (expert's level)

Course intended learning outcomes (CILOs)

This subject also contributes specifically to the development of the following Course Intended Learning Outcomes (CILOs):

- Socially Responsible: FEIT graduates identify, engage, interpret and analyse stakeholder needs and cultural perspectives, establish priorities and goals, and identify constraints, uncertainties and risks (social, ethical, cultural, legislative, environmental, economics etc.) to define the system requirements. (B.1)
- Design Oriented: FEIT graduates apply problem solving, design and decision-making methodologies to develop components, systems and processes to meet specified requirements. (C.1)
- Technically Proficient: FEIT graduates apply abstraction, mathematics and discipline fundamentals, software, tools and techniques to evaluate, implement and operate systems. (D.1)
- Collaborative and Communicative: FEIT graduates work as an effective member or leader of diverse teams, communicating effectively and operating within cross-disciplinary and cross-cultural contexts in the workplace. (E.1)

Teaching and learning strategies

Subject presentation includes lectures (1 hour/week), laboratory sessions (2 hours/week), and research and development
work for the assignments. Lectures will present the theoretical aspects of Internet programming and web development, including client-side and server side scripting for webpage development. The laboratory sessions are conducted in the lab and require substantial preparation from the students. They will focus on hands-on experience in internet programming and web development. Practical assignments can be performed anywhere, the labs will provide the software necessary to complete these assignments.

Content (topics)

1. The Internet and World Wide Web – General Principles;
2. Introduction to dynamic web programming; PHP; JavaScript;
3. MySQL database; extending the power of PHP;
4. Javascript Libraries and AJAX;
5. XML (data); XML Schema (code structure); XSL (presentation);
6. Website Management and Security;
7. Object Oriented PHP.

Program

Week/Session	Dates	Description
1	22 Feb	Preparation Week: Subject Overview (Subject Outline explanation) Introduction to the Course (Background knowledge) a) Three-Tier e-Commerce (video-1) Discussion Session b) Web Interface Design (video-2)

		Discussion Session c) Object Oriented Programming concepts (video 3) Discussion Session d) 5G Mobile Communication (video 4) Discussion Session e) Internet of Things (IoT) (video 5) Discussion Session **Notes:** Welcome video. These videos are required to be watched.
2	1 Mar	Introduction to Internet. Layered protocols. The context of the web **Notes:** Tutorial: Introduction to Unix system, available at Canvas
3	8 Mar	Introduction to Dynamic Web Programming **Notes:** Tutorial: Introduction to a variety of DHTML methods and solutions. Exercises on these methods, available at Canvas Specification of 'Assignment One' handed out
4	15 Mar	PHP Functions and Arrays **Notes:** Tutorial on PHP Functions and Arrays, including exercises on applying PHP functions in the program, available at Canvas
5	22 Mar	PHP Forms, Sessions and MySQL Database **Notes:** Tutorial on PHP Forms, Sessions and MySQL Database, including exercises on creating and applying PHP session variables in the program, available at Canvas
6	29 Mar	JavaScript and AJAX **Notes:** Tutorial on JavaScript and AJAX, including exercises on applying AJAX and Javascript in the program to establish data communication sessions, available at Canvas Specification of 'Assignment Two' handed out

Stu-Vac	5 Apr	Mid Session Student Vacation **Notes:** No Lecture and Tutorial
7	12 Apr	JavaScript Libraries (JQuery) **Notes:** Class Quiz 1 (Assignment 3), 10%
8	19 Apr	XML Schema **Notes:** Tutorial on JQuery, including exercises on applying JQuery in the web pages to create standard window-like applications, available at Canvas Assignment One submission (due at 11:59 pm, 23/4/2021)
9	26 Apr	PHP DOM (advanced scripting) **Notes:** Tutorial on XML Schema, including exercises on defining data structures and storing data in XML, available at Canvas
10	3 May	Object Oriented PHP **Notes:** Class Quiz 2 (Assignment 4), 10%
11	10 May	Advanced PHP and Web Security **Notes:** Tutorial on PHP DOM and OO PHP, including exercises on using OO programming concepts to write PHP programs, available at Canvas Assignment Two submission (due at 11:59 pm, 14/5/2021)
12	17 May	PHP for Website Management and Review **Notes:** Course Review and Tutorial on Website Management, including exercises on using PHP to create web log file for web data analysis, available at Canvas

Assessment

The deliverables for Assignments 1 and 2 will be uploaded to the subject website before the due dates described in the program table and a log file with the date, student ID, and the submission content will be maintained through the course. The details of the submission procedure will be described in the assignment specification. Students will be able to check their marks of assignments through the subject website and get feedback (comments) from tutors who marked assignments.

The deliverables for Assignments 3 and 4 will be in the laboratory session as class quizzes. Students are required to complete each assignment independently in class and must hand it in to the tutor at the end of the lab session without delay. The tutor will mark the assignments.

Assessment task 1: Online Web Interface to a Database System

Objective(s): This assessment task addresses the following subject learning objectives (SLOs):

1, 2, 3 and 6

This assessment task contributes to the development of the following Course Intended Learning Outcomes (CILOs):

B.1, C.1, D.1 and E.1

Type: Project

Groupwork: Individual

Weight: 45%

Task: This is an individual programming assignment where students have to demonstrate the use of advanced DHTML, PHP, MySQL and JavaScript to solve the given problems in the design and the implementation of a website. The assignment consists of four components (or tasks) and addresses objectives 1, 2, 3, and 5.

Due: 11.59pm Friday 23 April 2021
Submission through Canvas

Further information: The details of the marking scheme will be given in week 3.

Assessment task 2: XML/AJAX Processing

Objective(s): This assessment task addresses the following subject learning objectives (SLOs):

1, 2, 3, 4, 5 and 6

This assessment task contributes to the development of the following Course Intended Learning Outcomes (CILOs):

B.1 and C.1

Type: Project

Groupwork: Individual

Weight: 35%

Task:	This is an individual programming assignment where students have to demonstrate the use of XML and/or AJAX in the exchange of data. The assignment addresses objectives 1, 2, 4 and 6.
Due:	11.59pm Friday 14 May 2021 Submission through Canvas
Further information:	The details of the marking scheme will be explained in the assignment specification that will be available in week 5.

Assessment task 3: Class quizzes

Objective(s):	This assessment task addresses the following subject learning objectives (SLOs): 1, 2, 3, 4, 5 and 6 This assessment task contributes to the development of the following Course Intended Learning Outcomes (CILOs): B.1 and C.1
Type:	Quiz/test
Groupwork:	Individual
Weight:	20%
Due:	Week 7 and Week 10
Further information:	Each quiz takes 1 hour of the lab session and addresses objectives 1 to 6.

Assessment feedback

Students will receive feedback during lab sessions or consultation time to allow them to evaluate their progress in the subject before census date.

The marking criteria of assessments is published at the time we publish the assignment specifications. This makes very clear to the student what technical aspects we are going to assess in their assignments (practical work).

A “Marking Sheet” for Assignments 1 and 2 with detailed marking result against the marking criteria point by point will be available on request to the student after the marking - around two weeks after we receive the submission.

Minimum requirements

In order to pass the subject, a student must achieve an overall mark of 50% or more.

References

The following books may be helpful on specific topics.

Welling, Thomson: PHP and MySQL Web Development, Sams Publishing 2005, ISBN 0-672-32672-8

Hadlock, Kris: Ajax for Web Application Developers, Sams Publishing 2006, ISBN 0-672-32912-3

Zeldman, Jeffrey : Designing with Web Standards (3rd Edition) 978-0321616951

Keith, Jeremy : DOM Scripting: Web Design with JavaScript and the Document Object Model 978-1590595336

Holzner, Steven. Teach Yourself XML in 21 Days. 3nd Edition (or later) Sams Publishing 2004 ISBN 0672-325-764.

Bibeault, Bear : JQuery in Action Manning 2008 : ISBN 1-933988-353

Online material will be available to support aspects of the subject.

Other resources

The Canvas website provides online support for teaching and learning in this subject:

The support includes online curriculum, online tutorial, online notice/news, online assignment submission and online mark checking.

Graduate attribute development

For a full list of the faculty's graduate attributes refer to the FEIT Graduate Attributes webpage.

For the contribution of subjects taken in the Bachelor of Engineering (Honours) or Master of Professional Engineering to the Engineers Australia Stage 1 Competencies, see the faculty's Graduate Attributes and the Engineers Australia Stage 1 Competencies webpage.

Assessment: faculty procedures and advice

Marking criteria

Marking criteria for each assessment task will be available on the Learning Management System: Canvas.

Extensions

When, due to extenuating circumstances, you are unable to submit or present an assessment task on time, please contact your subject coordinator before the assessment task is due to discuss an extension. Extensions may be granted up to a maximum of 5 days (120 hours). In all cases you should have extensions confirmed in writing.

Special consideration

If you believe your performance in an assessment item or exam has been adversely affected by circumstances beyond your control, such as a serious illness, loss or bereavement, hardship, trauma, or exceptional employment demands, you may be eligible to apply for Special Consideration.

Late penalty

For Graded subjects:

Work submitted late without an approved extension is subject to a late penalty of 10 per cent of the total available marks deducted per calendar day that the assessment is overdue (e.g. if an assignment is out of 40 marks, and is submitted (up to) 24 hours after the deadline without an extension, the student will have four marks deducted from their awarded mark). Work submitted after five calendar days is not accepted and a mark of zero is awarded.

For some assessment tasks a late penalty may not be appropriate – these are clearly indicated in the subject outline. Such assessments receive a mark of zero if not completed by/on the specified date. Examples include:

a. weekly online tests or laboratory work worth a small proportion of the subject mark, or
b. online quizzes where answers are released to students on completion, or
c. professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date, or
d. take-home papers that are assessed during a defined time period, or
e. pass/fail assessment tasks.

For Pass/Fail subjects:

Work submitted late without an approved extension will only be assessed at the subject coordinator's discretion. Students who do not submit assessment tasks by the due dates may be referred to the Responsible Academic Officer under Student Rule 3.8.2, and a fail result may be recorded for the subject.

Querying results

If you believe an error may have been made in the calculation of your result in an assessment task or the final result for the subject, it is possible to query the result with the Subject Coordinator within five (5) working days of the date of release of the result.

Academic liaison officer

Academic liaison officers (ALOs) are academic staff in each faculty who assist students experiencing difficulties in their studies due to: disability and/or an ongoing health condition; carer responsibilities (e.g. being a primary carer for

small children or a family member with a disability); and pregnancy.

ALOs are responsible for approving adjustments to assessment arrangements for students in these categories. Students who require adjustments due to disability and/or an ongoing health condition are requested to discuss their situation with an accessibility consultant at the Accessibility Service before speaking to the relevant ALO.

Statement about assessment procedures and advice

This subject outline must be read in conjunction with the Coursework Assessments policy and procedures.

Statement on copyright

Teaching materials and resources provided to you at UTS are protected by copyright. You are not permitted to re-use these for commercial purposes (including in kind benefit or gain) without permission of the copyright owner. Improper or illegal use of teaching materials may lead to prosecution for copyright infringement.

Statement on plagiarism

Plagiarism and academic integrity

At UTS, plagiarism is defined in Rule 16.2.1(4) as: 'taking and using someone else's ideas or manner of expressing them and passing them off as ... [their] own by failing to give appropriate acknowledgement of the source to seek to gain an advantage by unfair means'.

The definition infers that if a source is appropriately referenced, the student's work will meet the required academic standard. Plagiarism is a literary or an intellectual theft and is unacceptable both academically and professionally. It can take a number of forms including but not limited to:

- copying any section of text, no matter how brief, from a book, journal, article or other written source without duly acknowledging the source
- copying any map, diagram, table or figure without duly acknowledging the source
- paraphrasing or otherwise using the ideas of another author without duly acknowledging the source
- re-using sections of verbatim text without using quote marks to indicate the text was copied from the source (even if a reference is given).

Other breaches of academic integrity that constitute cheating include but are not limited to:

- submitting work that is not a student's own, copying from another student, recycling another student's work, recycling previously submitted work, and working with another student in the same cohort in a manner that exceeds the boundaries of legitimate cooperation
- purchasing an assignment from a website and submitting it as original work
- requesting or paying someone else to write original work, such as an assignment, essay or computer program, and submitting it as original work.

Students who condone plagiarism and other breaches of academic integrity by allowing their work to be copied are also subject to student misconduct Rules.

Where proven, plagiarism and other breaches of misconduct are penalised in accordance with UTS Student Rules Section 16 – Student misconduct and appeals.

Avoiding plagiarism is one of the main reasons why the Faculty of Engineering and IT is insistent on the thorough and appropriate referencing of all written work. Students may seek assistance regarding appropriate referencing through UTS: HELPS.

Work submitted electronically may be subject to similarity detection software. Student work must be submitted in a format able to be assessed by the software (e.g. doc, pdf (text files), rtf, html).

Further information about avoiding plagiarism at UTS is available.

Retention of student work

The University reserves the right to retain the original or one copy of any work executed and/or submitted by a student as part of the course including, but not limited to, drawings, models, designs, plans and specifications, essays, programs, reports and theses, for any of the purposes designated in Student Rule 3.9.2. Such retention is not to affect any copyright or other intellectual property right that may exist in the student's work. Copies of student work may be retained for a period of up to five years for course accreditation purposes. Students are advised to contact their subject coordinator if they do not consent to the University retaining a copy of their work.

Statement on UTS email account

Email from the University to a student will only be sent to the student's UTS email address. Email sent from a student to the University must be sent from the student's UTS email address. University staff will not respond to email from any other email accounts for currently enrolled students.