MURDOCH UNIVERSITY
PERTH, WESTERN AUSTRALIA

School of Information Technology

Semester 1, 2004

Unit Information and Learning Guide
Unit Reader

ICT336
Internet Systems Programming

Unit Information and Learning Guide
Semester 1 2004

Unit Coordinator
H.L. Hiew
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Unit Official Front Page
http://online.murdoch.edu.au/public/ICT336

Unit Materials Web Site
http://www.it.murdoch.edu.au/units/ICT336

Very Important !

All students enrolled in this unit are required to have Internet access to obtain material such as lecture notes from the unit web site. Students are also required to refer regularly to the Announcements group in the discussion forum on the web site for important announcements such as changes to assignment requirements.

School of Information Technology

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UNIT OUTLINE (yellow pages)

UNIT READER (green covers with white pages)

ONE
Introduction

Unit Overview

The focus of this unit is to expand on your technical understanding and proficiency in developing Internet and World Wide Web software. The unit will build on the materials you have learnt in B108/ICT108 Introduction to Multimedia and the Internet. Students who have completed B211/ICT211 Internet Computing will find the material in B211/ICT211 useful as well.

Students should start the semester already having a basic understanding of how the Internet and the WWW works. In this unit, students will be given the chance to explore the detailed nuts and bolts of key technologies, by having hands on experience in writing and managing the software that forms the basis of these technologies.

Students enrolled in this unit should expect very heavy programming work. Students are expected to have good fundamental programming skills.

Learning Objectives

Your learning objectives for this unit are:

1. To understand in detail the technical workings of key Internet and web technologies, specifically web communications (HTTP clients and servers), web application programming, and XML technologies.
2. Be able to write software that drives the technologies in (1).
3. Understand the basic requirements needed to construct Internet solutions for organisations and enterprises.
4. Develop skills in self-learning, communications, research, trial-and-error, etc to derive Internet solutions.

To allow students to achieve these objectives, the content of this unit can be broadly seen in two respects:

a) Material given to you in lectures, study guide, and laboratories to give you the foundations for objectives 1, 2 and 3 above. All assignments and the end-of-semester examinations will assess your progress in achieving these objectives.

b) Information and skills you pick up yourself, while completing assignments, reading extra references given in the lectures and labs, and participating in the discussion forum. This will help you achieve objective 4.

It is a fundamental requirement for anyone to be proficient in the ever-changing world of the Internet that the person has capabilities to independently upgrade their skills and expand their knowledge base. It is for that reason that objective 4 is such a critical part of this unit. For that reason, part of your assessment will be on evidence that you are able to do so. Assessment components where you are expected to gather material OUTSIDE of the course content or more in depth than that which is presented in the lectures and labs[1] will be stated in the assessment description.

See section four of this unit outline for details of the assessments.

Prerequisites

Students are expected to have completed
- B102/ICT102 Introduction to Computer Science, and
- B108/ICT108 Introduction to Multimedia and the Internet.

Unit Coordinator

Your coordinator for this unit is **H.L. Hiew**, in the School of Information Technology.

Contact Details:

Unit Coordinator H.L. Hiew

Room (South St campus): BITL 3.05
Room (Rockingham campus): ACL 2/26
Tel: +61 8 9360 6058
Email: h.hiew@murdoch.edu.au

[1] However, this does NOT mean students cannot make use of unit resources such as fellow students, the unit's online discussion forum, or actively approaching the unit coordinator, other lecturers and tutors. You are strongly encouraged to do so. What the condition means is that you will not find solutions if you only passively assimilate the material given to you in the unit. You have to go out and LOOK!

Administration **(South St campus)**	Secretary, School of Information Technology Room: BITL 1.02 Tel: +61 8 9360 6120 Email: enquiries@it.murdoch.edu.au Divisional Office - Student Services Room: EH 2.002 Tel: (08) 9360 2420 Email: arts@murdoch.edu.au
Administration **(Rockingham campus)**	Ms Anne Allen, Administrative Assistant Room: ACL 2.017 Tel: (08) 9553†7017 Email: A.Allen@murdoch.edu.au
Computer Technical Support	Divisional Helpdesk Room: ECL 1.015 Tel: (08) 9360 6700 Email: artshelp@central.murdoch.edu.au

Withdrawal Dates

Students who enrol in this unit and subsequently withdraw will have different status appearing on your academic records depending on the withdrawal date. The following are withdrawal dates and their corresponding academic statuses.

31st Mar 2004:	Does not appear on academic record
16th May 2004:	Appears as "Withdrawn" on academic record
After 16th May 2004:	Appears as "Fail" on academic record
31st March 2003	HECS census date. Withdrawals after this date incur HECS liability

Unit Timetable

The following timetable will help you to plan your study over the semester.

This schedule for the lecture topics and lab exercises **is subject to change** during the semester. Up-to-date timetables can be found on the unit web-site:

http://www.it.murdoch.edu.au/units/ICT336/lectures
http://www.it.murdoch.edu.au/units/ICT336/labs

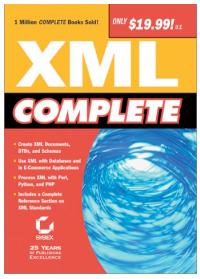
Week	Lecture Topics	Lab Exercises (assessed)	Assignments Due
One (23-27 Feb)	Lect 1: Unit Introduction Lect 2: Web server configuration and administration		
Two (1-5 Mar)	Lect 1: Web server configuration and administration using Apache programming Lect 2: Introduction to Perl programming	Lab introduction and Apache installation	
Three (8-12 Mar)	Lect 1 & 2: Implementing a web client	Configuring and administering Apache; Introduction to Perl Programming	
Four (15-19 Mar)	Lect 1 & 2: Implementing a web server	Implementing a web client	
Five (22-26 Mar)	Lect 1: Introduction to XML Lect 2: The XML Document and the DTD	Implementing a web server	
Six (29 Mar - 2 Apr)	Lect 1: XML Schema Lect 2: XSLT	Writing and validating XML documents	Internal students: Submit plans for Assignment 1 to tutor during labs.
Seven (5-9 Apr)	Lect 1: Namespaces Lect 2: XML parsing and processing	Transforming XML Documents using XSLT	External students: Plans for Assignment 1 and labs week 2-5 due on Thu 8th Apr 2004.
Two-Week Semester Break			
Eight (26-30 Apr)	Lect 1: XML parsing and processing (continued) Lect 2: More XML parsing and processing	Implementing XML parsers and processors with Perl	All students: Assignment 1 due 12noon Mon 26th April 2004.
Nine (3-7 May)	Lect 1: Designing XML solutions Lect 2: XHTML and other example XML applications.	Implementing XML parsers and processors with Perl (cont'd)	Internal students: Submit plans for Assignment 2 to tutor during labs.
Ten (10-14 May)	Lect 1 & 2: Introduction to Web Services	Work on Assignment 2	External students: Plans for Assignment 2 and labs week 6-9 due on Fri 14th May 2004.
Eleven (17-21 May)	Lect 1 & 2: Programming SOAP	Google Web Service API	
Twelve (24-28 May)	Lect 1: Programming SOAP (continued) Lect 2: Programming with WSDL and UDDI	Reading WSDL and manipulating SOAP messages	All students: Assignment 2 due 12noon Mon 24th May 2004.
Thirteen (31 May - 4 Jun)	Lect 1: Developments in Web Service Programming Lect 2: Exam Revision	Exam Revision	External students: Labs week 11-12 due on Fri 4th June 2004.
One-week Study Break			
Examinations Period			

TWO
Resources for the Unit

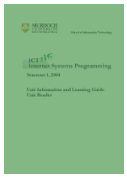
Unit Materials

Essential Textbook

XML Complete, Sybex Inc, 2001.



Unit Guide



ICT336 Unit Information and Learning Guide and
ICT336 Unit Reader
for Semester 1 2004

(this document)

Online Books

This unit makes use of a the following online books, available from the University library through the standard catalogue search (http://wwwopac.murdoch.edu.au/):

- XML and Perl by Mark Riehl and Ilya Sterin, New Riders Publishing, 2002 - Chapter 4.
- Web Services Essentials by Ethan Cerami, O'Reilly, 2002 - Chapters 1, 6, 7.
- Programming Perl (3rd Edition) by Larry Wall, O'Reilly, 2000 - for reference during practical work.

Other useful reading materials can be found on the page:
http://www.it.murdoch.edu.au/units/ICT336/readings.shtml

Computing Facilities

On-campus Students

The laboratory used for this unit will be announced in lectures during the first week of the semester, and is available during normal opening hours of 9am to 5pm. Arrangements to use laboratories outside these hours can be made by seeing the Secretary, ECL Building, room BITL1.02. You will need your Student identity card and a special pass to use the laboratory.

Off-campus Students

External students must arrange their own access to a computer. The computer must have Internet access. Besides accessing the on-line unit materials, external students will also need to use the computer for programming exercises in assignments.

External students are not required to purchase any software of their own. All software required for this unit is either on a server, or is in the public domain. Further instructions on accessing the server will be given as the semester progresses. Instructions on software to download for home use is available at:

http://www.it.murdoch.edu.au/units/ICT336/downloads

There are various ways of getting Internet access. Refer to the following page for advice on how to gain Internet access:

http://www.murdoch.edu.au/studentit/internetaccess.html

THREE
Lectures and Laboratories

Lectures

There will be 3 hours of lectures every week, for the duration of the 13 weeks of the semester. Attendance in the lectures is not compulsory, but is highly recommended for internal students. Instructions relevant for internal students may be given in the lectures. The timetable for the lectures can be found at:

http://www.murdoch.edu.au/oss/legacy_pages/timetable_enquiry.html

The overheads used in the lectures will be put up on the unit web-site after the relevant lectures. These overheads only contain points used in the lecture presentation. They are not substitutes for lecture attendance and the prescribed reading. The lecture overheads will be available at:

http://www.it.murdoch.edu.au/units/ICT336/lectures

The online lecture overheads are password protected. The username and password required to access the overheads will be made available in the first lecture. External students should consult your tutors to get the username and password.

Laboratory Session

Lab sessions will be run from week 2 to week 13 of the semester. The lab exercises will involve programming work related to material given in the lectures. More specific information about using the relevant software will be supplied. The lab exercises are critical to your understanding of the Internet. You will not be able to complete (or even start) the assignments without doing the exercises.

You will be allocated a tutor responsible for:
1. assisting you in the lab exercises every week,
2. assessing your laboratory exercise work,
3. marking all your assignments
4. answering any queries related to the unit material.

Every internal student will be required to sign up for a two-hour lab session every week. Note that for all labs, the tutor will only be available for the

first hour of the session. Instructions on how to sign up for labs will be given in the first lecture of the semester.

Links to the lab exercises every week will be put in the following page as the semester progresses:

http://www.it.murdoch.edu.au/units/ICT336/labs

The online lab exercise sheets are password protected. The username and password required to access the exercises will be made available in the first lecture. External students should consult your tutors to get the username and password.

FOUR
Assessments

Assessment components

You will be assessed on the basis of two assignments, your weekly lab exercises, and the examination.

Assessments	Description	Value	Due Date
Lab Exercises	Assessable components of lab exercises	10%	Internal students demonstrate to tutor every week. External students see page iv of this document.
Assignment 1	Apache installation and management Implementing a web server and client	30%	See page iv of this document.
Assignment 2	XML solutions	30%	See page iv of this document.
Examination	Questions on materials from lectures, labs, and required readings.	30%	Examination period

Assignments

The questions and descriptions of the assignments may be found at on the unit web site.

http://www.it.murdoch.edu.au/units/ICT336/assignments

Important Note

Please read the section regarding *Dishonesty in Assessments* and *Plagiarism and Collusion* below. The unit coordinator and the University views issues of plagiarism very seriously. You may from time to time come across programs and scripts on the web that may be appropriate as solutions for the assignments. Students may not submit such downloaded material for assessment, **UNLESS**:

1. The student enhances the downloaded material significantly, in line with the unit's objectives (see section 1 of this Unit Outline).
2. The student notifies the unit coordinator BEFORE submitting the work, and fully documents the parts of the work that is theirs.

The reason for allowing students to enhance downloaded work is because most work in Internet development is about building on other people work and

components to make better products. What is **NOT** acceptable is when developers pass work other people work off as their own.

Do not test the unit coordinator's ability to detect plagiarised work when you do not include appropriate acknowledgements. It takes quite considerable effort to modify someone else' work to pass off as your own. All unacknowledged plagiarised work will be passed on to the Head of School for disciplinary action.

Late submissions

Late assignments will have **10% of the student's final mark** deducted per day.

Assignment submission

For on-campus students (options D and Z), assignments should be placed in the ICT336 assignment box outside the School of IT corridor in level 2, north wing of ECL building, by 12noon on the due date. The cover sheet with the declaration completed must be attached. Cover sheets for each assignment will be available from the page:

http://www.it.murdoch.edu.au/units/ICT336/assignments

Off-campus students (options X) should submit their assignments as instructed by the External Studies Office. The instructions may be found at

http://external.murdoch.edu.au/support/index.html

Off-campus students should include the unit assignment cover sheet, as well as the official external studies cover sheet supplied.

Assignments are occasionally lost in the system, so **all students are required to keep copies of their assignments** until the end of the appeals period after the semester.

Extensions for assignments will be granted only in exceptional circumstances. If something exceptional arises that requires an extension you should contact the unit coordinator *before* the deadline expires. Only the unit coordinator can grant extensions.

Important Note

Reasons which are **not** sufficient to warrant an extension include computer failures; car failures or other transportation difficulties; work conflicts, other study commitments, and dog eating your assignments. 'Losing' work through "computer failure" is not accepted as a reason for late submission of an assignment; students using a computer should know to frequently save and backup your work. Also, you should identify conflicts with other work and study commitments at the beginning of semester and schedule your time accordingly. If

you are unable to do so, contact the unit coordinator for advice and special arrangements.

Assignment submissions cannot be accepted after the examination has commenced unless deferred assessment on the unit as a whole has been approved. Deferred assessment may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Applications for deferred assessment must be submitted by the end of week 13 of the semester or, in the event of circumstances arising after that date, before the examination. Refer to the current University Handbook for details or

http://www.murdoch.edu.au/admin/legsln/regs/bachelor.html#deferred

Lab Exercises

The lab exercises from week 3 to week 12 will include sections that are assessed. The requirements for the assessment will be described in the lab exercises each week, given at:

http://www.it.murdoch.edu.au/units/ICT336/labs

Internal students (options D) should demonstrate to their tutors that they have completed the lab exercises in the week they are given, or the week after. No marks will be given if the student does not demonstrate they have completed their work within that time.

External students (options Z and X) should submit answers and programs required for assessment from the lab exercises as given by the schedule on page iv of this document.

Examination

The final examination will be of 3 hours duration and held during the examination period at the end of the semester. It will be closed book exam. The questions in the exam will assess your understanding of the materials in the lectures and labs.

Further guidelines to the examinations, as well as sample examinations will be available on the unit web-site reaching the end of the semester.

On-campus students (internal or external) are expected to take the examination on campus, while arrangements will be made for off-campus students to take the final examination locally.

The University requires that all students sitting end-of-semester examinations (including those held off-campus) must show their 2003 Murdoch University Student Card to facilitate photographic identification. **No other form of identification will be accepted.**

Students may inspect their marked examination scripts and discuss the marking with the unit coordinator within 14 days of the posting of results (Degree Regulation 43).

Determination of the final grade

In order to pass this unit you must:

- achieve a satisfactory performance (45%) in the final examination, and
- achieve a satisfactory performance (45%) in the practical component.
- achieve a satisfactory performance (50%) in the aggregate mark.

Your final grade for the unit will be based on your combined aggregate score for the practical and examination components. Your final grade will be reported by a letter grade according to the following percentage ranges.

Notation	Grade	Percentage Range
HD	High Distinction	Normally 80 – 100
D	Distinction	Normally 70 – 80
C	Credit	Normally 60 – 70
P	Pass	Normally 50 – 60
CP	Conceded Pass	Normally 40 – 49
N	Fail	Normally below 50

Supplementary assessments can be awarded to a student who failed only if the student is close to passing. This normally requires the student to achieve two of the three criteria for passing above, and is within 5% of the third criteria.

The cut-off points of marks denoting the grades (HD, D, C, P, N, S) vary between units, and, from year to year, within a unit. cut-off points are determined by the unit coordinators after marking, and are based on the standard of work, which, in their opinion, is reflected by a particular range of marks. Coordinators use their professional judgement in the allotment of grades at the margin between successive grades, based on students' overall performance in relation to the objectives of the unit.

The Unit coordinator may re-scale marks across assessment tasks, some of which may prove to be easier than others, or across tutors, some of whom mark more or less highly than others. Also, because we have the right to scale overall marks, the grade cut-offs given above are notional and may be changed if we consider the overall results for the unit too far from the standard norms of the University.

University policy on assessment

Refer to the links on the unit official front page for the University's policies on assessments.

http://online.murdoch.edu.au/public/ICT336/