ISYS301
Enterprise Systems Integration
S2 Day 2019
Dept of Computing

Contents

General Information  2
Learning Outcomes  3
Assessment Tasks  3
Delivery and Resources  5
Unit Schedule  7
Learning and Teaching Activities  9
Policies and Procedures  9
Graduate Capabilities  10
Changes from Previous Offering  15
Grading  15

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## General Information

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TBD

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TBD

Practical Demonstrator
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Contact via Email  
TBD

**Credit points**
3

**Prerequisites**
39cp at 100 level or above including (ISYS224 or ISYS254 or COMP255)

**Corequisites**

**Co-badged status**
ITEC601
Unit description
This unit aims to provide an understanding of how information systems can be integrated into the overall business layer of an organisation. The unit focuses on methods and techniques to enhance the alignment of information systems with business strategy, objectives and processes. Issues covered include: process modelling, corporate modelling, workflow modelling, business process re-engineering, enterprise resource planning, business-to-business integration and supply chain management. Various technical approaches to tackling integration problems are discussed.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://students.mq.edu.au/important-dates

Learning Outcomes
1. Ability to acquire knowledge needed to integrate new systems and processes of an organisation
2. Competence in IT strategic planning.
3. Ability to use various modelling techniques to describe information flows and processes in an organisation.
4. Competence in XML (eXtensible Markup Language) to web enable business applications.
5. Competence in Web Services Description Language (WSDL) and Business Process Execution Language (BPEL).

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>10%</td>
<td>No</td>
<td>19th August 2019</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>No</td>
<td>9th September 2019</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>20%</td>
<td>No</td>
<td>28th October 2019</td>
</tr>
<tr>
<td>Exam</td>
<td>50%</td>
<td>Yes</td>
<td>11/11 - 29/11 2019</td>
</tr>
</tbody>
</table>

Assignment 1
Due: **19th August 2019**
Weighting: **10%**

A report on eBusiness principles
This Assessment Task relates to the following Learning Outcomes:

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation
- Competence in IT strategic planning.

Assignment 2
Due: 9th September 2019
Weighting: 20%

Business Process Modelling

This Assessment Task relates to the following Learning Outcomes:

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation
- Competence in IT strategic planning.
- Ability to use various modelling techniques to describe information flows and processes in an organisation.

Assignment 3
Due: 28th October 2019
Weighting: 20%

Group assignment implementing eBusiness solution. These will be peer moderated and marks assigned individually within the group. Groups will be self-selecting. If individuals have not allocated themselves to a group within a set time, people will be allocated to a group by the lecturer.

This Assessment Task relates to the following Learning Outcomes:

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation
- Ability to use various modelling techniques to describe information flows and processes in an organisation.
- Competence in XML (eXtensible Markup Language) to web enable business applications.
- Competence in Web Services Description Language (WSDL) and Business Process Execution Language (BPEL).

Exam
Due: 11/11 - 29/11 2019
Weighting: 50%

This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

The final examination in this unit is a hurdle requirement. You must get a mark of at least 40% in the examination to pass the unit. If you get a mark of at least 30% in your first attempt at the final examination you will be given a second and final attempt.

Supplementary Exams

If you receive special consideration for the final exam, a supplementary exam will be scheduled. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

If you are given a second opportunity to sit the final examination as a result of failing to meet the minimum mark required, you will be offered that chance during the same supplementary examination period and will be notified of the exact day and time after the publication of final results for the unit.

This Assessment Task relates to the following Learning Outcomes:

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation
- Competence in IT strategic planning.
- Ability to use various modelling techniques to describe information flows and processes in an organisation.
- Competence in XML (eXtensible Markup Language) to web enable business applications.
- Competence in Web Services Description Language (WSDL) and Business Process Execution Language (BPEL).

Delivery and Resources

CLASSES

Each week you should attend three hours of lectures. The two hours on the Tuesday will be standard lecture format. The third hour of lecture on the Wednesday will act as a tutorial. There will also be a practical class covering the technology - modelling tools, XML etc..

For details of days, times and rooms consult the timetables webpage.

Note that the practical classes commence in week 2.

You should have selected a practical class enrollment. It will not particularly matter if you do not
attend the practical you are enrolled in as practical attendance is not compulsory, but should be useful to you. If you do not have a class, or if you wish to change one, you should see the enrollment operators in the E7B courtyard during the first two weeks of the semester. Thereafter you should go to the Student Centre.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

Textbook

The textbook for ITEC601 this semester is:

- Papazoglou, M., Ribbers, P., (2006) *e-Business: Organizational and Technical Foundations* John Wiley & Sons Ltd. Chichester West Sussex U.K. There is also a companion website by the publisher at [www.wiley.com](http://www.wiley.com). This site contains links to example material and more.

There are a few more books you may wish to acquire, these are not compulsory but potentially helpful.


UNIT WEBPAGE AND TECHNOLOGY USED AND REQUIRED

**echo360**

Digital recordings of lectures are available. Read instructions [here](https://unitguides.mq.edu.au/unit_offerings/104335/unit_guide/print).

**Technology**

Technology used will include IBM BP Modeller, Adonis etc. Students are also expected to make use of MS Word, MS Excel and MS Powerpoint and editing software to undertake XML and BPEL.

**Discussion Boards**

When groups are chosen for the group assignment, you will have the opportunity to discuss issues amongst yourselves on iLearn.
<table>
<thead>
<tr>
<th>Week</th>
<th>Lectures</th>
<th>Tutorial-lecture</th>
<th>Practical</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>World of eBusiness</td>
<td></td>
<td>Background to eBusiness</td>
<td>No practical</td>
</tr>
<tr>
<td></td>
<td>eBusiness strategy</td>
<td></td>
<td>eBusiness strategy</td>
<td>Papazoglou and Ribbers chapters 1, 2</td>
</tr>
<tr>
<td></td>
<td>- What is eBusiness strategy</td>
<td></td>
<td>- Strategic positioning</td>
<td></td>
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<tr>
<td></td>
<td>- Strategic positioning</td>
<td></td>
<td>- Level of eBusiness strategy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Level of eBusiness strategy</td>
<td></td>
<td>- Strategic alignment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Strategic alignment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Business models</td>
<td></td>
<td>eBusiness models</td>
<td>Introduction to modelling</td>
</tr>
<tr>
<td></td>
<td>- Pressures forcing business changes</td>
<td></td>
<td>eBusiness relationships</td>
<td>Papazoglou and Ribbers chapter 3, 4</td>
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<tr>
<td></td>
<td>- Classifications of business models</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>eBusiness Relationships</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Governance Structures</td>
<td></td>
<td>Governance structures</td>
<td>Assignment finalisation</td>
</tr>
<tr>
<td></td>
<td>Business process modeling</td>
<td></td>
<td>Business process modelling</td>
<td>Introduction to modelling cont.</td>
</tr>
<tr>
<td></td>
<td>- Business process modelling methodologies</td>
<td></td>
<td>- Supply chain operations reference (SCOR) model</td>
<td>Papazoglou and Ribbers chapter 5, 12</td>
</tr>
<tr>
<td></td>
<td>- Model driven architecture (MDA)</td>
<td></td>
<td>- Business process modelling notation (BPMN)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Business process modelling notation (BPMN)</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Knowledge Management</td>
<td></td>
<td>Assignment 1 (10%) due 19th August</td>
<td>Busch (2008)</td>
</tr>
<tr>
<td></td>
<td>(Recorded lecture)</td>
<td></td>
<td>Modelling exercise</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>eBusiness Technological Infrastructure</td>
<td></td>
<td>KM material</td>
<td>Papazoglou and Ribbers chapter 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modelling exercise</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Revision weeks 1-6</td>
<td></td>
<td>Technology infrastructure</td>
<td>Introduction to XML</td>
</tr>
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</tbody>
</table>

Unit guide ISYS301 Enterprise Systems Integration
<table>
<thead>
<tr>
<th>Week</th>
<th>(Student)</th>
<th>Date</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 7    | Guanfeng | 9/9  | XML, EDI and Middleware  
- EDI concepts and standards  
- Middleware concepts, architecture and systems |
|      |          |      | XML, EDI and middleware  
Assignment 2 (20%) due 9th September |
|      |          |      | Papazoglou and Ribbers chapters 7, 14 |
|      |          |      | Mid Semester Break: 14/9 - 29/9 |
| 8    | Guanfeng | 30/9 | Loosely coupled eBusiness solutions  
- Concept of software as a service  
- Web services  
- Web service architecture |
|      |          |      | eBusiness solutions  
XML, Middleware |
|      |          |      | Papazoglou and Ribbers chapter 19 |
| 9    | Guanfeng | 8/10 | Workflow systems  
- Workflow concepts  
- Workflow elements  
- Workflow modeling  
- Workflow verification |
|      |          |      | Workflow solutions  
Business solutions, Workflow systems |
|      |          |      | Papazoglou and Ribbers chapters 18 |
| 10   | Guanfeng | 14/10| Enterprise Application Integration (EAI)  
- Concepts  
- Technologies |
|      |          |      | EAI  
Assignment work |
|      |          |      | Papazoglou and Ribbers chapter 17 |
| 11   | Guanfeng | 21/10| Leverage legacy applications |
|      |          |      | Legacy applications  
Group assignment (20%) due 28th October |
|      |          |      | Papazoglou and Ribbers chapter 16 |
| 12   | Guanfeng | 28/10| Business protocols  
- Why are business protocols and standards needed  
- XML technology stack for eBusiness integration  
- RosettaNet  
- Electronic business XML |
|      |          |      | Business protocols  
XML |
|      |          |      | Papazoglou and Ribbers chapter 20 |
| 13   | Peter/Guanfeng | 4/11 | Revision for the exam |
|      |          |      | No third lecture |

https://unitguides.mq.edu.au/unit_offerings/104335/unit_guide/print
Learning and Teaching Activities

Lectures 1 and 2
Covers lecture material every week

Lecture 3
Covers tutorial material every week

Practical
Covers practical components of the course in the computer labs and is more for the first half of semester.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy (Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released
directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

**Late Assignment Submission policy:** Late work will be accepted with a penalty of 10% of the marks for the assignment per day submitted late. Hence, an assignment submitted five days late will get at most half the marks. If you cannot submit on time because of illness or other circumstances, please contact the lecturer before the due date.

**Student Support**

Macquarie University provides a range of support services for students. For details, visit [http://students.mq.edu.au/support/](http://students.mq.edu.au/support/)

**Learning Skills**

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

**Student Enquiry Service**

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

**Equity Support**

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

**IT Help**

For help with University computer systems and technology, visit [http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University’s IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

**Graduate Capabilities**

**Discipline Specific Knowledge and Skills**

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where
relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

**Learning outcomes**

- Competence in IT strategic planning.
- Ability to use various modelling techniques to describe information flows and processes in an organisation.
- Competence in XML (eXtensible Markup Language) to web enable business applications.
- Competence in Web Services Description Language (WSDL) and Business Process Execution Language (BPEL).

**Assessment tasks**

- Assignment 2
- Assignment 3
- Exam

**Learning and teaching activities**

- Covers lecture material every week
- Covers tutorial material every week
- Covers practical components of the course in the computer labs and is more for the first half of semester.

**Problem Solving and Research Capability**

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

**Learning outcomes**

- Competence in IT strategic planning.
- Ability to use various modelling techniques to describe information flows and processes in an organisation.
- Competence in XML (eXtensible Markup Language) to web enable business
Assessment tasks

- Assignment 2
- Assignment 3
- Exam

Learning and teaching activities

- Covers tutorial material every week
- Covers practical components of the course in the computer labs and is more for the first half of semester.

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- Competence in IT strategic planning.

Assessment tasks

- Assignment 1
- Assignment 2
- Assignment 3
- Exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- Competence in IT strategic planning.

Assessment tasks

- Assignment 2
Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

**Learning outcome**

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation

**Learning and teaching activities**

- Covers lecture material every week

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

**Learning outcome**

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation

**Learning and teaching activities**

- Covers lecture material every week

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:
Learning outcomes

• Ability to acquire knowledge needed to integrate new systems and processes of an organisation
• Competence in IT strategic planning.

Assessment tasks

• Assignment 1
• Assignment 3
• Exam

Learning and teaching activities

• Covers tutorial material every week

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

• Ability to acquire knowledge needed to integrate new systems and processes of an organisation
• Competence in IT strategic planning.
• Competence in Web Services Description Language (WSDL) and Business Process Execution Language (BPEL).

Assessment tasks

• Assignment 2
• Assignment 3
• Exam

Learning and teaching activities

• Covers lecture material every week
• Covers tutorial material every week
• Covers practical components of the course in the computer labs and is more for the first half of semester.
Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

**Learning outcomes**

- Ability to acquire knowledge needed to integrate new systems and processes of an organisation
- Competence in IT strategic planning.
- Ability to use various modelling techniques to describe information flows and processes in an organisation.
- Competence in XML (eXtensible Markup Language) to web enable business applications.
- Competence in Web Services Description Language (WSDL) and Business Process Execution Language (BPEL).

**Learning and teaching activities**

- Covers lecture material every week

**Changes from Previous Offering**

The recorded lecture now takes place in week 4 as does the guest lecture by Professionals Australia.

Ms. Hasina Rahman replaces Mr. Dan Phan as practical demonstrator this year.

Mr. Yuk-Tung ‘Tonnie’ Lam *may* return as a backup practical demonstrator this year.

**Grading**

Standards

Four standards, namely HD, D, CR, P summarize as many different levels of achievement. Each standard is precisely defined to help students know what kind of performance is expected to deserve a certain mark. The standards corresponding to the learning outcomes of this unit are given below:

<table>
<thead>
<tr>
<th>L.O. #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
</tr>
</tbody>
</table>
comprehending strategic strengths of companies

understanding that organisations have strengths, expressed through basic statements articulating how some organisations may be better than others

some indication that literature exists providing wider examples of competitive strengths in organisations

satisfactory recourse to the literature, illustrating similar company profiles with regard to their competitive advantage and how these factors relate to the material under study

a comprehensive study of the literature providing wider examples of similar companies and how their strengths have made them stronger over their competitors

understanding the impact of internet limited understanding with regard to what the internet can deliver to business improvement

some awareness of how ecommerce changed the modern business by showing minimal examples from the literature providing numerous examples from the literature showing how the internet has changed the modern business world

an excellent analysis of the literature, including the weekly readings, illustrating the impact of the internet on modern business

### Criteria for LO #2

<table>
<thead>
<tr>
<th>LO #2</th>
<th>LO #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>undertaking SWOT analysis</td>
<td>a limited understanding of what SWOT is and how it works, perhaps making a few simple mistakes</td>
</tr>
<tr>
<td></td>
<td>competent analysis of SWOT for a given organisation listing a few each of S, W, O and T factors</td>
</tr>
<tr>
<td></td>
<td>good SWOT analysis, with some recourse to the literature providing similar examples in the case of other organisations</td>
</tr>
<tr>
<td></td>
<td>outstanding SWOT analysis with comprehensive recourse to the literature</td>
</tr>
</tbody>
</table>

### Criteria for LO #3

<table>
<thead>
<tr>
<th>LO #3</th>
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[https://unitguides.mq.edu.au/unit_offerings/104335/unit_guide/print](https://unitguides.mq.edu.au/unit_offerings/104335/unit_guide/print)
<table>
<thead>
<tr>
<th>Criteria for L.O. #4</th>
<th>Understanding how use of code such as XML will enable ecommerce</th>
<th>Competence in XML</th>
<th>WSDL and BPEL enable ecommerce</th>
<th>Competence in WSDL and BPEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workflow Modelling to Improve Workflow Efficiency</strong></td>
<td>limited understanding of workflow modelling, some obvious mistakes</td>
<td>competent understanding of XML, with some recourse to examples in the literature, perhaps just relying on the textbook or lecture notes</td>
<td>good understanding of the role of WSDL and BPEL, with some recourse to examples in the literature, beyond just knowledge of WSDL and BPEL from the lecture notes</td>
<td>proficient but perhaps inefficient coding in WSDL and BPEL, still displaying some mistakes, parameters names obtuse and commenting limited</td>
</tr>
<tr>
<td><strong>L.O. #5</strong></td>
<td>understanding how WSDL and BPEL enable ecommerce</td>
<td>basic competence in coding, shows obvious and basic mistakes in coding</td>
<td>outstanding understanding of the role WSDL and BPEL play, with comprehensive recourse to the literature providing further examples beyond what was asked for in the assignment</td>
<td>basic competence in coding, shows obvious and basic mistakes in coding</td>
</tr>
<tr>
<td><strong>Understanding how WSDL and BPEL enable ecommerce</strong></td>
<td>limited understanding of what WSDL and BPEL actually is and does, however showing some understanding of how they enables ecommerce</td>
<td>proficient but perhaps inefficient coding in WSDL and BPEL, with some recourse to examples in the literature, beyond just knowledge of WSDL and BPEL from the lecture notes</td>
<td>proficient coding in WSDL and BPEL, perhaps a few trivial mistakes still in evidence, but generally codes quite competently</td>
<td>proficient but perhaps inefficient coding in WSDL and BPEL, still displaying some mistakes, parameters names obtuse and commenting limited</td>
</tr>
<tr>
<td><strong>Competence in WSDL and BPEL</strong></td>
<td>basic competence in coding, shows obvious and basic mistakes in coding</td>
<td>proficient coding in WSDL and BPEL, perhaps a few trivial mistakes still in evidence, but generally codes quite competently</td>
<td>outstanding coding in WSDL and BPEL, with code efficiencies clearly displayed, all parameters using meaningful names, code well commented</td>
<td>proficient but perhaps inefficient coding in WSDL and BPEL, still displaying some mistakes, parameters names obtuse and commenting limited</td>
</tr>
</tbody>
</table>

For each task, those standards translate into a mark and the different component marks are...
added up. You will then be given a grade that reflects your achievement in the unit. The following description of the different grades is still in draft form and therefore not official as yet

- **Fail (F)**: does not provide evidence of attainment of all learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; and incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.

- **Pass (P)**: provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; and communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.

- **Credit (Cr)**: provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; plus communication of ideas fluently and clearly in terms of the conventions of the discipline.

- **Distinction (D)**: provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.

- **High Distinction (HD)**: provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application.

The final examination in this unit is a hurdle requirement. You must get a mark of at least 40% in the examination to pass the unit. If you get a mark of at least 30% in your first attempt at the final examination you will be given a second and final attempt.

The final mark for the unit will be calculated by combining the marks for all assessment tasks according to the percentage weightings shown in the assessment summary.