



Faculty of Science, Engineering and Built Environment

SIT737 Service Oriented Architectures and Technologies

Deakin University Unit Guide

Trimester 1, 2018

CONTENTS

| | |
|--|---|
| WELCOME | 2 |
| WHO IS THE UNIT TEAM? | 2 |
| Unit chair: leads the teaching team and is responsible for overall delivery of this unit | 2 |
| Unit chair details | 2 |
| Administrative queries | 2 |
| ABOUT THIS UNIT | 3 |
| Unit development in response to student feedback | 3 |
| Your course and Deakin's Graduate Learning Outcomes | 3 |
| Your Unit Learning Outcomes | 3 |
| ASSESSING YOUR ACHIEVEMENT OF THE UNIT LEARNING OUTCOMES | 4 |
| Overview | 4 |
| Summative assessments | 4 |
| - Summative assessment task 1 | 4 |
| - Summative assessment task 2 | 5 |
| - Summative assessment task 3 | 6 |
| Your learning experiences in this Unit - and your expected commitment | 6 |
| Contact Hours | 7 |
| Note | 7 |
| UNIT LEARNING RESOURCES | 7 |
| Essential learning resources | 7 |
| Recommended learning resources | 7 |
| KEY DATES FOR THIS TRIMESTER | 8 |
| UNIT WEEKLY ACTIVITIES | 8 |

WELCOME

Welcome to **SIT737 Service Oriented Architectures and Technologies**. This unit of the Master of Information Technology degree is a part of the IT Services specialism. The key focus of this unit is to give you a sound understanding of the use and benefits of distributed systems and the service oriented paradigm to the development of modern day business systems. While there are no prerequisites for the unit, the content and the delivery of the unit assumes that you have knowledge of computer networks and possess basic programming skills. I encourage you to refresh your memory in these two areas as the unit will build on your prior knowledge.

SIT737 is a postgraduate unit and hence requires a considerable amount of self-directed study. The classes and the practicals will provide a foundation in key topics that you should build-on through your individual study. You will have the opportunity to put your theoretical knowledge to use as practical application development will also be covered as part of the course. It is important that you familiarise yourself with this unit guide in its entirety as it explains the structure, content, assessment and rules associated with the unit.

The SIT737 unit website can be accessed through DeakinSync. You can find further subject related information such as the class materials and assignments on the website. As the trimester progresses the contents of the website will be updated. You should ensure that you visit the site regularly. The unit website also gives you the opportunity to interact with your fellow students on subject related matters.

I hope you have a challenging and enjoyable experience as you undertake your study of this unit.

All the best!

Unit Chair.

This Unit Guide provides you with the key information about this Unit. For the best chance of success, you should read it very carefully and refer to it frequently throughout the trimester. Your Unit site (accessed in **DeakinSync**) also provides information about your **rights and responsibilities**. We will assume you have read this before the Unit commences, and we expect you to refer to it throughout the trimester.

WHO IS THE UNIT TEAM?

Unit chair: leads the teaching team and is responsible for overall delivery of this unit

Alessio Bonti

Unit chair details

Campus: Melbourne Burwood Campus
221 Burwood Highway
BURWOOD VIC 3125

Email: a.bonti@deakin.edu.au

Phone: +61 3 924 68106

Administrative queries

If you need help with any aspect of your life at Deakin, you can:

- Contact your Unit Chair or Unit Campus Leader
- Speak to a [Student/Course Adviser](#)
- Ask Watson (accessed in [DeakinSync](#) and your unit sites)
- Drop in or contact [Student Central](#)
- Visit the [Division of Student Life](#)

ABOUT THIS UNIT

SIT737 introduces the concepts, mechanisms and applications of service oriented architectures (SOA), and the key focus is to deploy a real-world SOA web service application. This unit defines the notion of “service” in the field of IT and describes various categories of services from which the concept of service oriented architectures are formed. Students will work on case studies involving business strategies and business needs, and then evaluate the feasibility whether the business can be migrated to a service oriented architecture design. Students will also develop and implement a SOA-compliant web service for a particular business. Students will conduct programming practices in the Microsoft Visual Studio environment. SIT737 also discusses the SOA management issues including the ethical, legal and regulatory implications.

Unit development in response to student feedback

Every trimester, we ask students to tell us, through eVALUate, what helped and hindered their learning in each Unit. You are strongly encouraged to provide constructive feedback for this Unit when eVALUate opens (you will be emailed a link).

If you have any concerns about the Unit during the trimester, please contact the unit teaching team - preferably early in the trimester - so we can discuss your concerns, and make adjustments, if appropriate.

Your course and Deakin's Graduate Learning Outcomes

| | |
|---|---|
| GLO1 Discipline knowledge and capabilities: | appropriate to the level of study related to a discipline or profession |
| GLO2 Communication: | using oral, written and interpersonal communication to inform, motivate and effect change |
| GLO3 Digital literacy: | using technologies to find, use and disseminate information |
| GLO4 Critical thinking: | evaluating information using critical and analytical thinking and judgment |
| GLO5 Problem solving: | creating solutions to authentic (real world and ill-defined) problems |
| GLO6 Self-management: | working and learning independently, and taking responsibility for personal actions |
| GLO7 Teamwork: | working and learning with others from different disciplines and backgrounds |
| GLO8 Global citizenship: | engaging ethically and productively in the professional context and with diverse communities and cultures in a global context |

Each Deakin course has **course learning outcomes** which explain what the Deakin Learning Outcomes mean in your discipline. Learning in each unit builds towards the course learning outcomes.

Your Unit Learning Outcomes

Each Unit in your course is a building block towards these Graduate Learning Outcomes - not all Units develop and assess every Graduate Learning Outcome (GLO).

| | These are the Learning Outcomes (ULO) for this Unit At the completion of this Unit, successful students can: | Deakin Graduate Learning Outcomes |
|------|--|-----------------------------------|
| ULO1 | Apply the definition of IT services and the principles of service orientation to realise a service oriented architecture (SOA) for certain business. | GLO1, GLO4, GLO5 |
| ULO2 | Work as a team to assess the feasibility of SOA according to various business setups and analyse the effectiveness. | GLO1, GLO4, GLO7 |
| ULO3 | Implement a functional web service that fulfils SOA principles and business requirements. | GLO1, GLO3, GLO5 |
| ULO4 | Reflect the ethical, legal and regulatory implications of the use of SOA based applications and related technologies. | GLO8 |

ASSESSING YOUR ACHIEVEMENT OF THE UNIT LEARNING OUTCOMES

Overview

In brief, these are the assessment tasks for this Unit (details below):

Case study teamwork report 20%, programming project 20%, examination 60%

Summative assessments

(tasks that will be graded or marked)

NOTE: It is your responsibility to keep a backup copy of every assignment where it is possible (eg written/digital reports, essays, videos, images). In the unusual event that one of your assignments is misplaced, you will need to submit the backup copy. Any work you submit may be checked by electronic or other means for the purposes of detecting collusion and/or plagiarism.

When you are required to submit an assignment through your unit site (accessed in DeakinSync), you should receive an email to your Deakin email address confirming that it has been submitted. You should check that you can see your assignment in the Submissions view of the Assignment folder after upload, and check for, and keep, the email receipt for the submission.

- Summative assessment task 1

| | Case study teamwork report |
|--------------------------------------|--|
| Brief description of assessment task | In this assessment task, students will demonstrate their ability to explain approaches to services oriented architectures (SOA) based on given business scenarios. Students will be required to investigate the business setup and requirements and then propose an appropriate SOA model for the business using service analysis and modeling process. Students will be tested on their ability to describe, analyse and justify the chosen SOA models. |

| | |
|--|---|
| Detail of student output | <p>This is a group assessment task. Students will form a group of 2-3 members. Cloud students can form a group with other campus or cloud students. Students are required to submit a case study report of approximately 3000 words as well as exhibits to support findings and a bibliography. This report should consist of:</p> <ul style="list-style-type: none"> • an overview of the scenario • description of the IT service information related to the business case and identify the top level business processes required • list of available IT service options • analysis of the advantages and disadvantages of the listed options by using SOA principles • analysis and presentation of the service models using service configuration and related diagrams |
| Grading and weighting (% total mark for unit) | 20% (10% will be based on contribution from independent problem solving, 10% will be based on teamwork in preparing the report), numerically marked. |
| This task assesses your achievement of these Unit Learning Outcome(s) | <p>ULO1 - Apply the definition of IT services and the principles of service orientation to realise a service oriented architecture (SOA) for certain business.</p> <p>ULO2 - Work as a team to assess the feasibility of SOA according to various business setups and analyse the effectiveness.</p> |
| This task assesses your achievement of these Graduate Learning Outcome(s) | <p>GLO1 – through student knowledge of service oriented architectures and broad information technology knowledge related to IT systems used by business.</p> <p>GLO4 – through student ability to reflect and critically analyse given scenarios</p> <p>GLO5 – through student competence in applying IT concepts and techniques</p> <p>GLO7 – through student ability to work as a team in investigating and solving IT service problems</p> |
| How and when you will receive feedback on your work | Students will be provided with regular feedback in the practical sessions to improve their skills in gathering information, analysing the scenarios and proposing solutions. |
| When and how to submit your work | Case study teamwork report submission should be made electronically via the unit site accessed in DeakinSync and is due by Week 6 Monday at 5.00pm. |

- Summative assessment task 2

| | |
|---|---|
| | Programming project |
| Brief description of assessment task | In this assessment task, students will continue their investigation from assignment-1 for the business case. |
| | They will write a web service to fulfil business needs based on the given business rules of the case. Students will need to prepare SOA design for the the service models from assignment-1. Then choose the appropriate setup, and implement a web service to solve the problem. Students must demonstrate and defend their codes to the marking tutor in the practical session (for campus students) or by using a PowerPoint file (for cloud (online) students). |
| Detail of student output | <p>This is an individual assignment task and student will continue with the work in assignment-1. Students are required to submit a programming project from assignment-1 that correctly implements functionalities according to the selected business rules. The submission must include:</p> <ul style="list-style-type: none"> • a functional project with specified web services • working and correct programming implementations based on given rules • correctly solve the given problems • description that defends the implemented coding solution |
| Grading and weighting (% total mark for unit) | 20%, numerically marked. |

| | |
|--|---|
| This task assesses your achievement of these Unit Learning Outcome(s) | ULO1 - Apply the definition of IT services and the principles of service orientation to realise a service oriented architecture (SOA) for certain business ULO3 - Implement a functional web service that fulfils SOA principles and business requirements. |
| This task assesses your achievement of these Graduate Learning Outcome(s) | GLO1 – through student knowledge of web services and programming paradigms GLO3 – through student ability and competence in using web programming technologies to process information GLO4 – through student ability to reflect and critically analyse the given business rules and the problem before implementing solutions GLO5 – through student competence in writing programs to solve real-world problems |
| How and when you will receive feedback on your work | Students will have the opportunity to seek regular feedback during the weekly and practical sessions to deepen their knowledge and to rectify misunderstandings and misinterpretation. |
| When and how to submit your work | Programming project submission should be made electronically via the unit site accessed in DeakinSync and is due by Week 10 Monday at 5.00pm. |

- Summative assessment task 3

| | |
|--|--|
| | Examination |
| Brief description of assessment task | This closed book examination will assess student's knowledge of the concepts of service oriented architectures. Students must demonstrate an ability to relate, analyse and respond to questions around IT services, SOA systems, and web services under examination conditions. |
| Detail of student output | Students are required to sit the 2-hour closed book examination under supervised conditions. The examination comprises short-answer, long-answer and multiple-choice questions. |
| Grading and weighting (% total mark for unit) | 60% |
| This task assesses your achievement of these Unit Learning Outcome(s) | ULO1 - Apply the definition of IT services and the principles of service orientation to realise a service oriented architecture (SOA) for certain business ULO4 - Reflect the ethical, legal and regulatory implications of the use of SOA based applications and related technologies. |
| This task assesses your achievement of these Graduate Learning Outcome(s) | GLO1 – through student knowledge of service oriented architectures and broad information technology knowledge related to IT systems used by business. GLO4 – through student ability to reflect and critically analyse given scenarios GLO5 – through student competence in applying IT concepts and techniques. GLO8 –through evidence of application of high-level ethical and professional standards in completing work tasks as required. |
| How and when you will receive feedback on your work | Deakin University will release the final assessment results at the stipulated timeframe. Students will receive a mark, which is an indicator of their overall performance in this unit of study. |
| When and how to submit your work | Students will be required to attend a supervised examination during the end of trimester examination period. It is the responsibility of students to review their examination timetable when it is released via DeakinSync. |

Your learning experiences in this Unit - and your expected commitment

To be successful in this unit, you must:

- Read all materials in preparation for your classes or seminars, and follow up each with further study and research on the topic;
- Start your assessment tasks well ahead of the due date;
- Read or listen to all feedback carefully, and use it in your future work;
- Attend and engage in all timetabled learning experiences as follows:

Contact Hours

Campus: 1 x 1 hour class per week, 1 x 2 hour practical per week.

Cloud (online): 1 x 1 hour scheduled online workshop per week.

Students will on average spend 150 hours over the trimester undertaking learning and assessment activities for this unit. For campus students this includes class time as described, designated activities in the practical sessions, assessment tasks, readings and study time. For cloud students the time should be divided between online learning activities, discussion boards, designated activities in the practical sessions, assessment tasks, readings and study time.

Students can engage in different learning experiences in this unit including face-to-face classes, Blackboard Collaborate seminars, Campus seminars and via the unit site accessed in DeakinSync. Recordings of all classes will be available to students. The case studies and the assignments are designed intentionally to allow students to develop novel and innovative solutions that reflect real-world scenarios. All learning materials can be accessed through DeakinSync.

Note

At Deakin,

- *Lectures* are referred to as *classes* (definition: a general meeting for all students, for which students do not need to register and where students are engaged through presentations and learning activities)
- *Tutorials, workshops and seminars* are referred to as seminars (definition: more interactive meetings for smaller groups of students).
- For the complete list of agreed definitions for learning experiences, see the [Course Design and Delivery Procedure](#).

UNIT LEARNING RESOURCES

Your unit learning resources are available in your unit site accessed in DeakinSync.

Essential learning resources

There is no particular textbook that is a comprehensive resource for the unit. The reference books below will prove to be a useful resource for the student. Additional materials will be provided on the unit site (accessed in DeakinSync) which will form the required reading for this unit. All readings are available through the Deakin library.

Recommended learning resources

Suitable reference books for this unit include:

1. Thomas Erl, *Service Oriented Architecture: Concepts, Technology and Design*, Prentice Hall, 2012.
2. SOA Principles of Service Design, Thomas Erl, Prentice Hall, 2008

3. SOA Design patterns, Thomas Erl, Prentice Hall ,2008
4. Tanenbaum and M. van Steen, *Distributed Systems. Principles and Paradigms*, Prentice Hall, 2002
5. G. Coulouris, J. Dollimore, T. Kindberg, *Distributed Systems. Concepts and Design*, Fourth Edition, Addison Wesley, 2005.
6. M.P. Papazoglou, *Web Services: Principle and Technology*, Pearson, Second Edition, 2012.

KEY DATES FOR THIS TRIMESTER

| | |
|---|---------------------------------------|
| Trimester begins (classes begin) | Monday 5 March 2018 |
| Intra-trimester break (a short break during trimester) | Friday 30 March - Sunday 8 April 2018 |
| Trimester ends (classes cease) | Friday 25 May 2018 |
| Study period (examination preparation period) | Monday 28 May - Friday 1 June 2018 |
| Examinations begin | Monday 4 June 2018 |
| Examinations end | Friday 15 June 2018 |
| Inter-trimester break (the period between trimesters) | Monday 18 June - Friday 6 July 2018 |
| Unit results released | Thursday 5 July 2018 (6pm) |

UNIT WEEKLY ACTIVITIES

| Week | Commencing | Topic | Assessment activity |
|------|---------------|---------------------------|----------------------------|
| 1 | 05 March 2018 | SOA Fundamentals - I | |
| 2 | 12 March | SOA Fundamentals - II | |
| 3 | 19 March | SOA Delivery Lifecycle | |
| 4^ | 26 March | No Class (Good Friday) | |
| 5 | 09 April | SOA Analysis and Modeling | |
| 6 | 16 April | SOA Design | Case Study Teamwork Report |
| 7* | 23 April | SOA Design Patterns -I | |
| 8 | 30 April | SOA Design Patterns - II | |
| 9 | 07 May | SOA and Web Services | |
| 10 | 14 May | SOA and Cloud Computing | Programming Project |
| 11 | 21 May | Unit Review | |

^ Easter vacation/Intra-trimester break: **Friday 30 March - Sunday 8 April 2018** (between weeks 4 and 5)

*ANZAC Day observed, **Wednesday 25 April - University closed**