Module outline

Qualification	Faculty of Information Technology Bachelor of Science in Information Technology		
Module code	ITSP300	**Module name**	Software Development Project 3
NQF level	7	**Credit value**	20
Co-requisites	N/A	**Pre-requisites**	ITSP200
Semester	Year (2018)	**Year**	3
Module lead	Sonja Visagie	**Internal moderator**	[Enter moderator]
Lecturing hours	26 (02 hours a week)	**Tutorial hours**	N/A
Notional hours	200	**Copy-editor**	[Enter copy-editor name]

The module guide must be read in conjunction with the study guide. This document will be the first port of call in understanding what will be assessed and which assessments form part of the module.

The purpose of the module guide is to highlight:

- The learning outcomes and assessment criteria that need to be met to pass the module.
- The assessment required to be completed for the module.
- The additional resources required for the module.
- The topics that will be focused on for the module.

Module aim

The aim of this module is for students to apply their knowledge of systems development to develop an information system of medium to large complexity for a real customer, and to create the necessary documentation related to the systems development process. This is a group project, and each group should consist of five to six students working together to deliver the project consisting of six deliverables. The lecturer will assign students to groups. Students will not be allowed to choose which group they belong to. The lecturer will ensure that each group contains a mix of skills required to complete the group project.

The students will experience the process of the system life cycle and will develop the information system by following an agile systems development methodology (iterative incremental development). Students will analyse, design and develop the information system to meet the customer's requirements. Students will, with the guidance from the lecturer, identify an organisation and customer for whom the system will be developed. The lecturer will offer guidance and approve the chosen topic to ensure that it is at the right complexity level. The group will work closely with the customer in delivering a final working system with supporting documentation.

Module description

By the end of this group systems development project, the students should be able to demonstrate their ability to identify all the components of a computer-based solution to a complex information processing problem, consider various alternative design strategies and security issues, and participate in managing the development of an information system using the latest software and hardware tools. This project will clearly be at a more advanced level than the second-level project, and could typically involve the development of a web-based distributed application.

Learning outcomes

By the end of this module, students will be able to:

Learning outcomes	Assessment criteria
1. Demonstrate a sound understanding of the underlying technology, and the theory of systems development and management of IT projects	1.1 Investigate a problem or opportunity leading to the business need for an information system 1.2 Understand the basics of IT project management including risk management 1.3 Create a Gantt chart, risk register and user requirements document
2. Demonstrate the ability to systemise, integrate and consolidate their knowledge on information systems, and that they appreciate the relevance of processes that have been taught at an academic level	2.1 Compare different systems development methodologies and use an appropriate method for the project 2.2 Identify the importance of the requirements elicitation process 2.3 Identify different categories of requirements
3. Apply their analysis, design, programming and management skills to develop, implement and document a system that is representative of a real-world information system	3.1 Construct an information system of medium to large complexity 3.2 Use data, process and UML modelling techniques 3.3 Create a context diagram, systems level data flow diagram, primitive level data flow diagrams, a fully-attributed entity relationship diagram, and a use case diagram with narratives 3.4 Perform system interface design by applying Nielsen's usability heuristics 3.5 Identify a range of testing types 3.6 Create testing templates and a test plan and conduct testing with a customer to improve the quality of the system 3.7 Create a user manual and an evaluation report for the information system
4. Demonstrate the ability to work as a member of a group and that they possess the necessary communication skills	4.1 Understand and apply Tuckman's stages of group behaviour and development 4.2 Work in a group where equal contribution and good communication is important 4.3 Conduct a systems demonstration
5. Demonstrate their appreciation of the complexities of running a real-world system development project	5.1 Compile all the deliverables into one professional document 5.2 Review the systems development process, methodology used and group dynamics by creating an evaluation report

Prescribed resources

The following resources will be made available on myLMS:
- Module guide
- Study Guide
- Project deliverable templates
- Project mark sheet

Students are expected to check myLMS regularly for updates.

Recommended resources

Take note, that Information Technology is a fast-developing discipline and textbooks are frequently updated; students should, therefore, use the latest editions, where available. Recommended resources should be used for reference purposes when conducting research for assignments. There is a range of general resources related to this module, including the following:

Textbook/s or e-book/s

Dawson, C.W. 2015. *Projects in computing and information systems: a student's guide*. New York: Addison-Wesley.

Schwalbe, K. 2010. *Managing information technology projects*. 6th edition. Cambridge: Course Technology.

Valacich, J.S.; George, J.F. & Hoffer, J. 2015. *Essentials of systems analysis and design.* Global Edition, 6th edition. Pearson Education. ISBN: 9781292076614.

Whitten, J.L. & Bentley, L.D. 2007. *Systems analysis and design methods*. 7th edition. Boston: McGraw-Hill Higher Education. ISBN: 9780073052335.

Website/s
- Web pages provide access to a further range of Internet information sources.
- Lecturers may download the web-related material for students to access offline.
- Students must use this resource with care, justifying the use of information gathered.

Lamp, J. 2013. *The index of information systems journals*. [Online] Available at: http://lamp.infosys.deakin.edu.au/journals/ [Accessed: 12 December 2017].

Nielsen, J. 1995. *10 usability heuristics for user interface design*. [Online] Available at: http://www.nngroup.com/articles/ten-usability-heuristics/ [Accessed: 12 December 2017].

Supporting documents

Dietrichsen, P. & Bester, R. 2017. *Academic Skills.* Johannesburg: CTI Education Group.

Makati, P. et al. 2017. *PIHE Guide to Referencing.* Johannesburg. Pearson Institute of Higher Education

Essential requirements

- Access to a resource centre or a library with a wide range of relevant resources, including: textbooks and e-books, newspaper articles, journal articles, organisational publications, databases, etc.
- Access to a range of academic journals in electronic format via PROQUEST or other databases

Employer engagement and vocational contexts

- Students will gain skills and competencies necessary for developing software by actively engaging in group work. Students will obtain an opportunity to apply the software development theory in practice, by completing a project for an existing organisation and customer. The organisation could be directly linked to the IT industry or from any other industry, depending on the approved project topic. Students will gain experience related to customer engagement and professionalism.
- The lecturer will invite two IT industry guest speakers to present on topics related to this module throughout the year. The aim of these lectures is to enhance students' knowledge of software development in the IT industry.

ICT requirements

ICT required	Reason	Lecture week/s
Software requirements • Microsoft Office 2016, including MS Project 2013 • Microsoft Visio 2013 • Database and programming software	For research, class activities and completing the deliverables	Semester 1: Weeks 1 – 12 Semester 2: Weeks 1 – 13

All practical work must be completed on desktop computers.

Assessment details

The module consists of one project, comprised of six deliverables which will be submitted to the lecturer throughout this module. The six deliverables are as follows:

Methods of assessment	Weighting[1]	Due dates
Deliverable 1: System background, initial requirements and risk management	–	19/03/2018 - 23/03/2018 AC: 1.1, 1.2, 1.3, 2.2, 2.3, 4.1, 4.2
Deliverable 2: Methodology, development plan and user requirements document	–	07/05/2018 - 11/05/2018 AC: 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.2, 4.1, 4.2
Deliverable 3: System design and test plan	–	06/08/2018 – 10/08/2018 AC: 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.2
Deliverable 4: System construction, interface design and testing results	–	03/09/2018 – 07/09/2018 AC: 3.1, 3.4, 3.6, 4.1, 4.2
Deliverable 5: User manual and evaluation report	–	08/10/2018 – 12/10/2018 (User manual) 15/10/2018 – 19/10/2018 (Evaluation report) AC: 3.7, 4.1, 4.2, 5.2
Deliverable 6: Final Project (all deliverables) and systems demonstration	100%	29/10/2018 – 02/11/2018 – Final documentation (all deliverables) 05/11/2018 – 09/11/2018 (Systems demonstration) AC: 4.1, 4.2, 4.3, 5.1
Supplementary opportunity	100%	January 2018

Supplementary opportunity

The following procedure and rules apply to the supplementary opportunity for this module:

- All assessments for this module are compulsory.
- Students/groups who fail this project with a subminimum of 40% automatically receive an opportunity to resubmit the same project after improving on their project work.
- The resubmission date is the same as that of the supplementary examinations.
- A maximum of 50% may be awarded for the resubmission.
- A resubmission application form should be obtained from the academic department and a fee will be applicable to resubmit the final project.

[1] Refer to the **CTI Programme Handbook**, available on e-Active.

Duration of Qualification

Full-time students registering for:

- A three (3) year undergraduate degree programme, have a maximum of six years within which to complete the qualification. Failure to do so will result in exclusion from the programme.

Putting together a portfolio of evidence

Students must demonstrate, through the presentation of evidence, that they have met all module requirements within the qualification being undertaken. To do this, they must organise their evidence into what is known as a 'portfolio'.

A portfolio will take time and effort to complete; it is also a means of focusing and demonstrating student strengths and achievements to others. A portfolio is thus an important resource that many students may find useful to retain once they have achieved their qualification, particularly when applying for future positions.

Students are encouraged to read more into building their portfolio and to begin populating their evidence to illustrate their full skill-set to future employers.

Consultations

Lecturers will be available to assist students during campus hours in accordance with their individual consultation schedules. It is the students' responsibility to take note of these times and plan their time accordingly.

Module content – Semester 1

Students are required to attend all classes and group meetings; in addition, exercises and activities, which are supplied by lecturers, are compulsory.

Note
The lecturer will invite one IT industry guest speaker to present on a topic related to this module. This lecture is scheduled in week 11 (or another week as communicated by the lecturer).

Lecture weeks	Topics and assessment criteria covered	Study Guide references and deliverable submissions
1 05/02/2018 - 09/02/2018	• Introduction • Group selection (5 – 6 students per group) • AC: 1.1, 4.1	• Introduction
2 12/02/2018 - 16/02/2018	• Unit 6: Group project documentation • Organisation and customer selection (lecturer to approve) • AC: 3.1, 4.2, 4.3, 5.1, 5.2	• Unit 6
3 19/02/2018 - 23/02/2018	• Unit 1: The context of information systems development • Organisation and customer selection (lecturer to approve) • AC: 1.1	• Unit 1
4 26/02/2018 - 02/03/2018	• Unit 1: The context of information systems development • Group interviews with customer (lecturer) • AC: 1.1	• Unit 1
5 05/03/2018 - 09/03/2018	• Unit 2: IT project management basics • Group interviews with customer (lecturer) • AC: 1.2, 1.3	• Unit 2
6 12/03/2018 - 16/03/2018	• Unit 2: IT project management basics • AC: 1.2, 1.3	• Unit 2
7 19/03/2018 - 23/03/2018	• Students complete Deliverable 1	• Submit Deliverable 1
Semester test 26/03/2018 - 06/04/2018	**No lectures**	
Semester break 09/04/2018 - 13/04/2018	**No lectures**	

Lecture weeks	Topics and assessment criteria covered	Study Guide references and deliverable submissions
8 16/04/2018 - 20/04/2018	• Unit 3: The system life cycle and system development methodologies • AC: 2.1	• Unit 3
9 23/04/2018 - 26/04/2018	• Unit 4: Systems analysis, design, construction, implementation, operations and support • AC: 2.2, 2.3, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	• Unit 4
10 30/04/2018 - 04/05/2018	• Unit 4: Systems analysis, design, construction, implementation, operations and support • AC: 2.2, 2.3, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	• Unit 4
11 07/05/2018 - 11/05/2018	• Students complete Deliverable 2 • Guest lecture	• Submit Deliverable 2 – URD & Methodology and plan • Guest speaker
12 14/05/2018 - 18/05/2018	• Students start with Deliverable 3	

Module content – Semester 2

Students are required to attend all classes and group meetings; in addition, exercises and activities, which are supplied by lecturers, are compulsory.

Note
The lecturer will invite one IT industry guest speaker to present on a topic related to this module. This lecture is scheduled in week 7 (or another week as communicated by the lecturer).

Lecture weeks	**Topics and assessment criteria covered**	**Study Guide references and deliverable submissions**
1 23/07/2018 – 27/07/2018	• Unit 4: Systems analysis, design, construction, implementation, operations and support • Students start with iterative incremental systems development • AC: 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7	• Unit 4
2 30/07/2018 – 03/08/2018	• Students continue with iterative incremental systems development • AC: 3.1	
3 06/08/2018 – 10/08/2018	• Students continue with iterative incremental systems development and schedule testing sessions with customer • Students complete Deliverable 3 • AC: 3.1	• Submit Deliverable 3
4 13/08/2018 – 17/08/2018	• Unit 5: System documentation and support • Students continue with iterative incremental systems development and schedule testing sessions with customer • AC: 3.1, 3.7	• Unit 5
5 20/08/2018 – 24/08/2018	• Unit 5: System documentation and support • Students continue with iterative incremental systems development and schedule testing sessions with customer • AC: 3.1, 3.7	• Unit 5

Lecture weeks	Topics and assessment criteria covered	Study Guide references and deliverable submissions
6 27/08/2018 – 31/08/2018	• Unit 6: Group project documentation • Students continue with iterative incremental systems development and schedule testing sessions with customer • AC: 3.1, 4.2, 4.3, 5.1, 5.2	• Unit 6
7 03/09/2018 – 07/09/2018	• Students complete Deliverable 4 • Guest lecture	• Submit Deliverable 4 • Guest speaker
Semester test 10/09/2018 – 19/09/2018	**No lectures**	
Semester break 20/09/2018 – 30/09/2018	**No lectures**	
8 01/10/2018 – 05/10/2018	• Students complete Deliverable 5	
9 08/10/2018 – 12/10/2018	• Students complete Deliverable 5	• Submit Deliverable 5 – User manual
10 15/10/2018 – 19/10/2018	• Students complete Deliverable 5	• Submit Deliverable 5 – Evaluation report
11 22/10/2018 – 26/10/2018	• Students complete Deliverable 6	
12 29/10/2018 – 02/11/2018	• Students complete Deliverable 6	• Submit Deliverable 6 – Final Project
13 05/11/2018 – 09/11/2018	• Students demonstrate the system • Students submit peer assessment sheets	• System demonstrations
January 2018	**Supplementary opportunity**	