

## **Unit 6: Planning a Computing Project (Pearson-set)**

**Unit code** H/618/7407

**Unit type** Core

**Unit level** 4

**Credit value** 15

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### **Introduction**

This unit is assessed through a Pearson-set assignment. The project brief will be set by the centre, based on a theme provided by Pearson (this will change annually). The theme and chosen project within the theme will enable students to explore and examine a relevant and current topical aspect of computing in the context of a business environment.

As computing systems and technologies continually develop so do the ways in which businesses utilise technologies to support their operations and remain competitive. As a computing professional it is important to understand the ways in which technology evolves and how it can be utilised in different sectors.

The aim of this unit is to give students an opportunity to demonstrate the research skills required for developing a deeper understanding of a subject and the ability to use evidence to inform decisions. Students will undertake independent research, and investigation of a theme set by Pearson. Students will also investigate and research an industry sector as outlined in the centre-set project brief. Students will use the outcomes of their research to help them plan a computer-based project and to support recommendations for how the identified business could utilise the tools and technologies identified as part of their research.

On successful completion of this unit, students will have the confidence to engage in decision making, problem solving, research activities and project planning tasks. They will have the fundamental knowledge and skills that will enable them to investigate and examine relevant computing concepts in a work-related context, determine appropriate outcomes, decisions or solutions and present evidence to various stakeholders in an acceptable and understandable format.

## **Learning Outcomes**

By the end of this unit students will be able to:

- LO1 Conduct small-scale research, information gathering and data collection to generate knowledge on an identified subject
- LO2 Explore the features and business requirements of organisations in an identified sector.
- LO3 Produce project plans based on research of the chosen theme for an identified organisation
- LO4 Present your project recommendations and justifications of decisions made, based on research of the identified theme and sector.

## Essential Content

### LO1 **Conduct small-scale research, information gathering and data collection to generate knowledge on an identified subject**

#### *Project execution phase:*

Selecting appropriate methods of information gathering, data collection and material resourcing.

The distinct phases that support a coherent and logical argument. Use of secondary research to inform a primary empirical study.

Qualitative and quantitative research methods.

#### *Field work:*

Selecting a sample of the consumer market, businesses or individuals (those who meet certain characteristics relevant to the research theme) used to gather data (qualitative or quantitative).

Sampling approaches and techniques, including probability and non-probability sampling.

#### *Analysing information and data:*

Using data collection tools, such as interviews and questionnaires, and their advantages and disadvantages.

Using analytical techniques such as trend analysis, coding and typologies.

Sources of, and access to, data, including open and public data, administrative and sensitive data, research data.

The principles of data to govern data, including data has value, data should be reusable, data is managed according to its value, data should be fit for purpose.

#### *Ethics, reliability and validity:*

Ensure that all research is conducted, data stored, processed and used in an ethical way.

Research should also be reliable (similar results achieved from a similar sample) and valid (the research should measure what it aimed to measure).

Ensure validity and reliability of secondary data and information used, including consideration of who wrote or collected the information or data, age of data collected, original purpose of the data collection, potential errors or variability in the data, potential bias, e.g. sample size, sample participants, questions used, interpretation of results.

## LO2 **Explore the features and business requirements of organisations in an identified sector**

### *Features of businesses:*

Types of business, their ownership and liability.

Private, e.g. sole trader, private limited company, public limited company.

Public, e.g. government department, not-for-profit, e.g. charity, voluntary.

Industry sectors, including primary, secondary, tertiary, quaternary.

How an organisation may provide a specific product(s) or service within a sector.

How some organisations provide both products and services.

The concept of diversification to aid business success.

### *Operational areas of businesses:*

The operational areas of a business ('business functions') and how they support the organisation's purpose, e.g. human resources, research and development, sales, marketing, purchasing, production and quality, finance, customer service, IT, administration.

### *Stakeholders:*

Internal stakeholders, e.g. management, employees, shareholders.

External stakeholders, e.g. suppliers, customers, government agencies, communities.

How stakeholders influence business processes and decisions.

The impact of stakeholders on an organisation's success.

### *Challenges to the success of a business:*

Legislation and industry standards relevant to the organisation and sector.

Change management, including planned change, e.g. expansion, diversification, changes in legislation, system upgrades.

Unplanned change, e.g. response to a security breach, disaster response and recovery.

Communication of need for change to stakeholders.

Management of stakeholders before during and after change, e.g. training, target setting, support

Method of implementation of change, e.g. parallel running, direct change over, phased changeover.

Documenting the change process, testing changes to the system and business.

Security and privacy concerns relevant to the organisation and sector.

### **LO3 Produce project plans based on research of the chosen theme for an identified organisation**

#### *Project planning and initiation:*

The role of a business or systems analyst and the activities they undertake as part of initiation of a project.

Analysing the features and requirements of an identified organisation to establish their requirements.

Recommend potential solutions to identified business needs, including carrying out a cost/benefit analysis, defining business objectives, scope and purpose of the project.

Comprehensive project plans, including defining functional and non-functional requirements of the system, stakeholder requirements and expectations, carrying out impact analysis, prioritising requirements, describing the deliverables to be produced, timescales and time management, costs, change management planning, risk and challenges analysis.

Success criteria to be used, e.g. Key Performance Indicators (KPIs), performance metrics, quality metrics, and business targets.

Use of an identified project management methodology, e.g. Waterfall, Agile, Rapid Application Development (RAD).

Consider approaches to continuous integration, version and source control.

#### *Tools:*

Tools for effective project planning, resource planning and allocation, and work breakdown structure, including Project Initiation Documents (PID), bar and Gantt charts, Critical Path Analysis (CPA), risk matrix.

### **LO4 Present your project recommendations and justifications of decisions made based on research of the identified theme and sector**

#### *Presenting and communicating project recommendations:*

Presenting to different technical and non-technical stakeholders, e.g. emphasis on operational or strategic information, technical terminology used, levels of detail given and simplifying concepts.

Consider the methods and mediums to be used, including written or verbal, report, online or presentation.

Understand how project research and intended audience will influence on method and medium.

### *Justification of decisions made:*

Justification of recommendations, including use of key points from cost/benefit analysis, deliverables, success criteria, impact analysis.

Justifications of planning, including chosen development methodology, work and resource allocation, key deadlines and timescales.

Rationale for decisions made in the recommended solution and project plan, including use of research and data for the identified technology and business sector, analysis of evidence and business requirements, contextual factors specific to the identified organisation.

### *Reflection on the quality of research:*

Quality of secondary and primary data used to inform planning and make decisions.

Awareness that some studies may result in generalised findings and how this can impact on the quality of decisions and the accuracy of conclusions made.

Evaluate the quality of the data and information used to inform project initiation plans, e.g. sample size, sample characteristics, user experience during collection, domain context.

Reach conclusions as to the likely accuracy and reliability of assertions made.

## Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
<b>LO1</b> Conduct small-scale research, information gathering and data collection to generate knowledge on an identified subject		<b>LO1 and LO2</b>  <b>D1</b> Interpret findings to generate knowledge on how the research theme supports business requirements in the identified sector.
<b>P1</b> Demonstrate qualitative and quantitative research methods to generate relevant primary data for an identified theme.  <b>P2</b> Examine secondary sources to collect relevant secondary data and information for an identified theme.	<b>M1</b> Analyse data and information from primary and secondary sources to generate knowledge on an identified theme.	
<b>LO2</b> Explore the features and business requirements of organisations in an identified sector		
<b>P3</b> Discuss the features and operational areas of a businesses in an identified sector.  <b>P4</b> Discuss the role of stakeholders and their impact on the success of a business.	<b>M2</b> Analyse the challenges to the success of a business in an identified sector.	

Pass		Merit	Distinction
<b>L03</b> Produce project plans based on research of the chosen theme for an identified organisation			<b>L03 and L04</b>  <b>D2</b> Evaluate the project planning recommendations made in relation to the needs of the identified organisation and the accuracy and reliability of the research carried out.
<b>P5</b> Devise comprehensive project plans for a chosen scenario, including a work and resource allocation breakdown using appropriate tools.	<b>M3</b> Produce comprehensive project plans that effectively consider aims, objectives and risks/benefits for an identified organization.		
<b>L04</b> Present your project recommendations and justifications of decisions made, based on research of the identified theme and sector			
<b>P6</b> Communicate appropriate project recommendations for technical and non-technical audiences.  <b>P7</b> Present arguments for the planning decisions made when developing the project plans.  <b>P8</b> Discuss accuracy and reliability of the different research methods applied.	<b>M4</b> Assess the extent to which the project recommendations meet the needs of the identified organisation, including fully-supported rationales for planning decisions made.		



## Recommended Resources

### Textbooks

Costley, C., Elliot, G. and Gibbs, P. (2010) *Doing Work Based Research: Approaches to Enquiry for Insider-researchers*. London: SAGE.

Dawson, C. (2016) *Projects in Computing and Information Systems: A Student's Guide*. UK: Pearson Education.

Flick, U. (2011) *Introducing Research Methodology: A Beginner's Guide to Doing a Research Project*. London: SAGE.

Gray, D. (2009) *Doing Research in the Real World*. 2nd edn. London: SAGE.

Guay, M., Schreiber, D. and Briones, S. (2016) *The Ultimate Guide to Project Management: Learn everything you need to successfully manage projects and get them done*. Free Kindle Edition. US: Zapier Inc.

Lock, D. (2013) *Project Management 8th edn*. UK: Routledge.

Pinto, J. K. (2015) *Project Management: Achieving Competitive Advantage 4th edn*. Pearson.

### Journals

*International Journal of Quantitative and Qualitative Research (IJQQR)* – EA Journals

*Qualitative Research Journal (QRJ)* – Sage Journals

### Web

<a href="http://www.apm.org.uk">www.apm.org.uk</a>	Association for Project Management (General Reference)
<a href="http://www.gov.uk/government/publications">www.gov.uk/government/publications</a>	Department of Business Innovations and Skills, <i>Guidelines for managing projects – How to organise, plan and control projects</i> . (Report)
<a href="http://www.hesa.ac.uk">www.hesa.ac.uk</a>	Higher Education Statistics Agency (HESA) – data collection and analysis for higher education
<a href="http://www.ons.gov.uk">www.ons.gov.uk</a>	Office for National Statistics (ONS) (General Reference)
<a href="http://www.pmi.org.uk">www.pmi.org.uk</a>	Project Management Institute UK (General Reference)

## **Links**

This unit links to the following related units:

*Unit 3: Professional Practice*

*Unit 16: Computing Research Project (Pearson-set)*

*Unit 17: Business Process Support*

*Unit 35: Systems Analysis & Design.*