



## Unit outline

### Code and Name of unit

**BUS3009 Project Development and Optimisation**

### Unit description

This unit explores the execution or implementation phase of a defined project management plan to ensure the proper allocation, coordination, and management of human resources, materials, budgets, and other deliverables. While the primary constraints of a project are normally scope, time, and budget, the optimisation of deliverables enables a project's pre-defined objectives to be met.

Unit topics begin with an exploration of how to address the constraints of scope, time, and budget in achieving a project's goals. This includes exploring the principles of project scope management and cost estimation (fixed, variable, sunken, and opportunity costs). Other topics cover the study of basic financial concepts such as comparing 'percentage yield on investment' (IRR) to 'minimum acceptable rate of return' (MARR) data, and Present Worth versus Future Worth. Ultimately, unit topics cover a range of technical and economic considerations to enable accurate data analysis to provide stakeholders with the right information to inform and progress decision-making processes.

Through learning and assessment tasks, students apply basic accounting concepts to analyse project budgets and financial projections and develop evidence-based feasibility reports to optimise project operating costs, procedures, and resources to achieve all project goals within the given constraints.

## SECTION 1 – GENERAL INFORMATION (CORE)

### 1.1 Administrative details

Associated higher education awards	Duration	Level	Unit coordinator
Bachelor of Business	One Trimester	Advanced	Dr Michael Roomina
Bachelor of Information Technology	One Trimester	Advanced	Dr Michael Roomina



## 1.2 Core or elective unit

Indicate if the unit is a:

- core unit  
 elective unit  
 other (please specify below):

## 1.3 Unit weighting

Unit credit points Example: 10 credit points	Total course credit points Example: 320 credit points
6 credit points	144 credit points

## 1.4 Student workload

No. timetabled hours per week (1)	No. personal study hours per week (2)	Total workload hours per week (3)
3	7	10

(1) Total time spent per week at lectures, tutorials, clinical and other placements, etc.

(2) Total time students are expected to spend per week in studying, completing assignments, etc.

(3) Sum of (1) and (2) equals workload hours.

For students requiring additional English language support or learning support, the [Student Learning Support](#) site provides them with resources, webinars and workshops, and consultation sessions with a Learning Advisor.

## 1.5 Delivery mode

- Face to face on site  
 E-learning (online)  
 Intensive/block mode (where the unit or a face to face component is delivered in a block)  
 Mixed/blended  
 Distance/independent learning (untimetabled)  
 Full-time  
 Part-time  
 External



- Fast track
- Other (please specify)

Note: All units are delivered face-to-face. Online delivery is offered when there is a logistical need.

### 1.6 Work-integrated learning activity

N/A

### 1.7 Prerequisites and co-requisites

Are students required to have undertaken a prerequisite or co-requisite unit for this unit?

- Yes  No

If **YES**, provide details of the prerequisite or co-requisite requirements below.

BUS2001 Fundamentals of Project Management

### 1.8 Other resource requirements

Do students require access to specialist facilities and/or equipment for this unit (for example, special computer access, physical education equipment)?

- Yes  No

If **YES**, provide details of specialist facilities and/or equipment below.

## SECTION 2 – ACADEMIC DETAILS (CORE)

### 2.1 Unit Learning Outcomes

#### Learning outcomes for the unit

On successful completion of this unit students will be able to:

ULO 1: Describe the principles of project management economics and project optimisation.

ULO 2: Evaluate the principles of cost-driven project design optimization.



### Learning outcomes for the unit

On successful completion of this unit students will be able to:

ULO 3: Construct project feasibility reports based on the critical analysis of project data.

ULO 4: Apply accounting principles in the analysis of project budgets and financial projections.

ULO 5: Critique the due diligence processes and generate the information required by all project stakeholders.

## 2.2 Topics

### Topics included in the unit

Week 1 Introduction to unit; overview of the concept of project development and optimisation

Week 2 Understanding of Principles of Engineering Economy; Defining the Problem and Developing Alternatives; Economic Analysis Procedure

Week 3 Understanding of Concept of Cost; Cost Terminology; Fixed Cost, Variable Cost; Sunk Cost and Opportunity Cost

Week 4 Understand the concept and approaches of cost estimation Key concepts of project scope management

Week 5 Time Value of Money; Interest rates - nominal and effective, Inflation; Present Worth (PW); Future Worth (FW)

Week 6 Project Evaluation; Minimum Attractive Rate of Return (MARR); Internal Rate of Return (IRR)

Week 7 Understand basic concepts of comparing alternatives using MARR and cashflow diagram

Week 8 Depreciation concept and terminology including classical depreciation method & income taxes

Week 9 Debt capital, Equity capital, and Capital allocation

Week 10 Identify stakeholders, Stakeholder engagement, and manage and monitor stakeholders

Week 11 Unit review and assessment preparation

Week 12 Unit review and assessment preparation



## 2.3 Assessment Tasks

Type (	When assessed – year, session and week	Weighting (% of total marks for unit)	Cross reference to Unit learning outcomes
<b>Quiz</b> Students will complete eight quizzes designed to assess their understanding of key unit concepts (10 mins each)	Year 1, Trimester 1, Weeks 2, 3, 4, 5, 6, 7 ,8 and 9,	40% = (8 x 5%)	ULO1 ULO2 ULO4
<b>Project Report: Part A</b> In groups, students will develop stage one (Part A) of a project report (Part A: 2000 words)	Year 1, Trimester 1, Weeks 6	15%	ULO1 ULO2 ULO3 ULO4 ULO5
<b>Project Report: Part B</b> In groups, students will develop stage two (Part B) of a project report (Part B: 3000 words)	Year 1, Trimester 1, Weeks 12	15%	ULO1 ULO2 ULO3 ULO4 ULO5
<b>Case Study</b> Students will analyse a case study related to project development and optimisation (1500 words)	Year 1, Trimester 1, Week 10	30%	ULO1 ULO2 ULO3 ULO4

## 2.4 Prescribed and recommended reading

### Prescribed text(s):

Sullivan, WG, Wicks, EM & Koelling, CP 2019, *Engineering economy*, 17th edn, Pearson Higher Education, New York.

### Recommended text(s):

Brunet, M, Fachin, F & Langley, A 2021, 'Studying projects processually', *International Journal of Project Management*, vol. 39, no. 8, pp.834-848,  
<https://doi.org/10.1016/j.ijproman.2021.10.006>

Freitas, F, Silva, FJ, Campilho, RDSG, Pimentel, C & Godina, R 2020, 'Development of a suitable project management approach for projects with parallel planning and execution', *Procedia Manufacturing*, vol. 51, pp.1544-1550,  
<https://doi.org/10.1016/j.promfg.2020.10.215>

Kakar, A & Khan, AN 2021, 'The impacts of economic and environmental factors on sustainable mega project development: role of community satisfaction and social media', *Environmental Science and Pollution Research*, vol. 28, pp.2753-2764,  
<https://doi.org/10.1007/s11356-020-10661-y>



Project Management Institute 2021, *A guide to the project management body of knowledge (pmbok guide)*, 7<sup>th</sup> edn, Chicago: Project Management Institute

Shams, SR & Thrassou, A 2019, 'Theorization and industry-based research project development: Bridging the industry–academia research gap', *Industry and Higher Education*, vol. 33, no. 2, pp.79-82, <https://doi.org/10.1177/0950422218797919>

## 2.5 Constructive Alignment

Unit Title		BUS3009 Project Development and Optimisation		
Course learning outcomes (CLO) - BBUS		Unit learning outcomes (ULO) on completion of the unit the student should be able to:	Assessment	
1	CLO 1: Broad and coherent knowledge of a range of business and related disciplines including accounting, project management, economics, statistics, general management, and marketing.	ULO1	Describe the principles of project management economics and project optimisation	<b>Quiz</b> Students will complete eight quizzes designed to assess their understanding of key unit concepts (10 mins each)
		ULO2	Evaluate the principles of cost-driven project design optimization.	
		ULO4	Apply accounting principles in the analysis of project budgets and financial projections	
2	CLO 1: Broad and coherent knowledge of a range of business and related disciplines including accounting, project management, economics, statistics, general management, and marketing. CLO 2: Broad and demonstrated knowledge of business practice, and industry standards and expectations including business ethics, codes of practice, and corporate governance standards.	ULO1	Describe the principles of project management economics and project optimisation	<b>Project Report – Part A</b> In groups, students will develop stage one (Part A) of a project report (Part A: 2000 words)
		ULO2	Evaluate the principles of cost-driven project design optimization.	
		ULO3	Construct project feasibility reports based on the critical analysis of project data.	
		ULO4	Apply accounting principles in the analysis of project budgets and financial projections	
		ULO5	Critique the due diligence processes and generate the information required by all project stakeholders	
3	CLO 1: Broad and coherent knowledge of a range of business and related disciplines including accounting, project management, economics, statistics, general management, and marketing.	ULO1	Describe the principles of project management economics and project optimisation	<b>Project Report – Part B</b> In groups, students will develop stage two (Part B) of a project report. (Part B: 3000 words)
		ULO2	Evaluate the principles of cost-driven project design optimization.	
		ULO3	Construct project feasibility reports based	



	CLO 2: Broad and demonstrated knowledge of business practice, and industry standards and expectations including business ethics, codes of practice, and corporate governance standards.		on the critical analysis of project data.	
		ULO4	Apply accounting principles in the analysis of project budgets and financial projections	
		ULO5	Critique the due diligence processes and generate the information required by all project stakeholders	
4	<p>CLO 1: Broad and coherent knowledge of a range of business and related disciplines including accounting, project management, economics, statistics, general management, and marketing.</p> <p>CLO 3: Cognitive skills to undertake basic research and to analyse and evaluate new concepts and evidence from a range of business, industry, and academic sources.</p>	ULO1	Describe the principles of project management economics and project optimisation	<p><b>Case Study</b></p> <p>Students will analyse a case study related to project development and optimisation (1500 words)</p>
		ULO2	Evaluate the principles of cost-driven project design optimization.	
		ULO4	Apply accounting principles in the analysis of project budgets and financial projections	

## Section 3 Other Details

### 3.1 Assessment 1 Details

#### Assessment 1: Online Quiz

<i>Due date:</i>	Weeks 3, 4,5, 6, 7, 8, 9 and 10
<i>Group/individual:</i>	Individual
<i>Word count / Time provided:</i>	10 – 15 minutes
<i>Weighting:</i>	(8 x 5%) = 40%
<i>Unit Learning Outcomes:</i>	ULO1, ULO2, ULO4



### Assessment 1: Detail

These weekly quizzes will assess your knowledge of key concepts of scope management as per best project management practices. Quizzes will be completed in-class.

For successful completion of the quiz, you are required to study the material provided (lecture slides, tutorials, and reading materials), engage in the unit's activities, and in the discussion forums. The prescribed textbook is the main reference along with the recommended reading material.

### Assessment 1: Marking Information

Each quiz will be marked out of 5 and will be weighted 5% of the total unit mark (40% in total).

## 3.2 Assessment 2 Details

### Assessment 2: Project Report: Part A

<i>Due date:</i>	Week 6
<i>Group/individual:</i>	Group
<i>Word count / Time provided:</i>	2000 words
<i>Weighting:</i>	15%
<i>Unit Learning Outcomes:</i>	ULO1,2, 3 and 4

### Assessment 2: Details (Part A)

This assessment is a staged submissions assessment, and it should be conducted in two parts.

APIC Project Development & Optimisation Pty Ltd is considering and evaluating the various projects and you're one of the project managers to investigate the engineering economy of the following project. You are required to make a recommendation on whether the project is a sound capital investment or not.

To reduce greenhouse gases and pollutant emissions, the project requires the installation of a new solar system with capacity of 50KWh electricity per day in a designated site.

This project was selected to be evaluated due to its sustainability aspect. It is also in line with the Australian government's policy to focus more on renewable energy in addressing the environmental impact of climate change.

It is required to focus on cost consideration and estimate cash-flow items both inflows and outflows for each alternative. The basis of estimations for estimates should be given. It is required to decide about the interest rate, project life, and other parameters that can affect economic analysis in this activity and apply one of the evaluation techniques to evaluate each alternative and select the best one.

Guidelines for writing project report:



1. Develop the total project cost as well as providing clear work breakdown structures (WBS).
2. Provide Cash flow diagrams
3. Provide details of any assumptions made if needed
4. Estimation Techniques used
5. Economy analysis and evaluation of the project by Present Worth (PW), or Internal rate of return (IRR)
6. Conclusions, findings, reasons for recommendation

### **Assessment 2: Marking Information (Part A)**

The assessment will be marked out of 100 and will be weighted 15% of the total unit mark.



**Assessment 2 (Part A): Marking Criteria and Rubric**

Marking Criteria	Not satisfactory (0-49% of the criterion mark)	Satisfactory (50-64% of the criterion mark)	Good (65-74% of the criterion mark)	Very Good (75-84% of the criterion mark)	Excellent (85-100% of the criterion mark)
<b>Cost structure description (20 marks)</b>	Inadequate cost structure description	Basic cost structure description	Exhibits a factual and/or conceptual skills for cost structure description	Exhibits accurate and detailed breadth and depth for cost structure description	Displays excellent cost structure description
<b>Provide Cash flow diagrams (10 marks)</b>	Inadequate cash flow diagrams	Basic cash flow diagrams	Exhibits a factual and/or conceptual skills to provide cash flow diagrams	Exhibits accurate and detailed breadth and depth to provide cash flow diagrams	Displays excellent cash flow diagrams understanding
<b>Estimation Techniques used (10 marks)</b>	Inadequate estimation techniques	Basic estimation techniques	Exhibits a factual and/or conceptual skills to provide estimation techniques	Exhibits accurate and detailed breadth and depth to provide estimation techniques	Displays excellent estimation techniques understanding
<b>Economy analysis and evaluation of the project (20 marks)</b>	Inadequate economy analysis and evaluation of the case project	Basic Economy analysis and evaluation of the case project	Exhibits a factual and/or conceptual skills to provide economy analysis and evaluation	Exhibits accurate and detailed breadth and depth to provide Economy analysis and evaluation	Displays excellent economy analysis and evaluation of the case project
<b>Conclusions, findings, recommendation (10 marks)</b>	Inadequate conclusions, findings, recommendation	Basic conclusions, findings, recommendations	Exhibits a factual and/or conceptual skills of Conclusions, findings, recommendation	Exhibits accurate and detailed breadth and depth to provide Conclusions, findings, recommendation	Displays excellent conclusions, findings, recommendation
<b>Academic Writing Skills (20 marks)</b>	Inadequate academic writing skills	Basic academic writing skills	Exhibits a factual and/or conceptual skills of academic writing	Exhibits accurate and detailed breadth and depth of Writing skills	Displays excellent writing skills
<b>Report Structure and Presentation (10 marks)</b>	Inadequate report structure and presentation skills	Basic report structure and presentation skills	Exhibits a factual and/or conceptual skills of structure and presentation skills	Exhibits accurate and detailed breadth and depth of structure and presentation skills	Displays excellent structure and presentation skills



## Assessment 2: Project Report: Part B

<i>Due date:</i>	Week 12
<i>Group/individual:</i>	Group
<i>Word count / Time provided:</i>	2000 words
<i>Weighting:</i>	15%
<i>Unit Learning Outcomes:</i>	ULO1, ULO2, ULO3 and ULO4

### Assessment 2: Details (Part B):

This assessment is the second part of Assessment 2 and it should be conducted in continuation of Assessment 2 (Part A).

At the end of assessment 2(Part A) students should have decided on the base scenario. In this assessment, students should continue the project development and optimise their case report by conducting a sensitive analysis, Identification stakeholders and their needs, understanding due diligence process. It is important that sustainability be considered during project development and optimisation process.

For sensitivity analyses, parameters should be selected, and scenarios of sensitivity analyses should be defined accordingly. For each scenario, the economic analysis should be carried out, and results should be compared and explained.

The student should also identify stakeholders, gather the information needed for stakeholders and supporters of the project by considering due diligence process.

As a project manager, your recommendations on the project are critical. In your report assessing of the project, the report should address brief on the importance of sustainability and how the stakeholders of this project to be engaged.

#### Guidelines for writing project report:

1. Identification and Justifications of parameters used in the sensitivity analysis
2. Conduct a sensitivity analysis with respect to interest rate and economic analysis.
3. Identify Stakeholders
4. Consider due diligence process and provide stakeholders engagement plan
5. Consider project management and optimisation with focus on sustainability
6. Final conclusion, recommendations

### Assessment 2: Marking Information (Part B)

The assessment will be marked out of 100 and will be weighted 15% of the total unit mark.



**Assessment 2: Marking Criteria and Rubric**

<b>Marking Criteria</b>	<b>Not satisfactory (0-49% of the criterion mark)</b>	<b>Satisfactory (50-64% of the criterion mark)</b>	<b>Good (65-74% of the criterion mark)</b>	<b>Very Good (75-84% of the criterion mark)</b>	<b>Excellent (85-100% of the criterion mark)</b>
<b>Identification and Justifications of parameters used in the sensitivity analysis (15 marks)</b>	Inadequate identification and Justifications of parameters used in the sensitivity analysis	Basic identification and Justifications of parameters used in the sensitivity analysis	Exhibits a factual and/or conceptual skills for identification and justifications of parameters used in the sensitivity analysis	Exhibits accurate & detailed breadth & depth Identification and for Justifications of parameters used in the sensitivity analysis	Displays excellent identification and justifications of parameters used in the sensitivity analysis
<b>Conducting a sensitivity analysis and economic analysis (15 marks)</b>	Inadequate sensitivity analysis and economic analysis	Basic sensitivity analysis and economic analysis	Exhibits a factual and/or conceptual skills in sensitivity analysis and economic analysis	Exhibits accurate & detailed breadth & depth in sensitivity analysis and economic analysis	Displays excellent sensitivity analysis and economic analysis
<b>Identification of Stakeholders, considering due diligence process and providing stakeholders engagement plan (20 marks)</b>	Inadequate Identification of Stakeholders, considering due diligence process and providing stakeholders engagement plan	Basic Identification of Stakeholders, considering due diligence process and providing stakeholders engagement plan	Exhibits a factual and/or conceptual skills in Identification of Stakeholders, considering due diligence process and providing stakeholders engagement plan	Exhibits accurate & detailed breadth & depth in Identification of Stakeholders, considering due diligence process and providing stakeholders engagement plan	Displays excellent identification of Stakeholders, considering due diligence process and providing stakeholders engagement plan
<b>Considering project management and optimisation with focus on sustainability (15 marks)</b>	Inadequate Considering project management and optimisation with focus on sustainability	Basic Considering project management and optimisation with focus on sustainability	Exhibits a factual and/or conceptual skills in Considering project management and optimisation with focus on sustainability	Exhibits accurate & detailed breadth & depth in Considering project management and optimisation with focus on sustainability	Displays excellent considering project management and optimisation with focus on sustainability
<b>Conclusions and recommendations (5 marks)</b>	Inadequate Conclusions and recommendations	Displays Basic Conclusions and recommendations	Exhibits a factual and/or conceptual skills of Conclusions and recommendations	Exhibits accurate and Detailed breadth and depth in Conclusions and recommendations	Displays excellent conclusions and recommendations
<b>Writing and Presentation (20 marks)</b>	Inadequate writing and presentation skills	Basic writing and presentation skills	Exhibits a factual and/or conceptual skills of writing and presentation skills	Exhibits accurate and Detailed breadth and depth in writing and presentation skills	Displays excellent writing and presentation skills



### 3.3 Assessment 3 Details

#### Assessment 3: Case Study

<i>Due date:</i>	Week 10
<i>Group/individual:</i>	Individual
<i>Word count / Time provided:</i>	1500 words
<i>Weighting:</i>	30%
<i>Unit Learning Outcomes:</i>	ULO1, ULO2, ULO3, ULO4

#### Assessment 3: Details

The assignment is designed for students to practice the Capital Budgeting Process in project management by studying 1 real case study.

#### Guidelines for writing Critical Review & Evaluation:

1. Choose one of the following companies as your case study
  - a) Capital budgeting: A case study analysis of the role of formal evaluation techniques in the decision-making process
  - b) The Bus Decision: A Case Study Employing Capital Budgeting and Creative Thinking
2. Provide background of the case study
3. Describe Capital Budgeting Process used in the case study.
4. What other factors were considered besides Capital financing and allocation functions during Capital Budgeting Process? Was there any managerial considerations and complications?
5. Provide critical review and evaluation. Evaluate and make recommendations in relation to the capital invested in this case study.

The Report should include:

- Introduction
- Body of report (background of the case study, cost structure, factors affecting decision besides the cost, critical evaluation)
- Concluding section (findings, recommendations)

#### Assessments 3: Marking Information

The assessment will be marked out of 100 and will be weighted 30% of the total unit mark. The marking criteria and rubric are shown on the following page.



**Assessment 3: Marking Criteria and Rubric**

Marking Criteria	Not Satisfactory (0-49% of the criterion mark)	Satisfactory (50-64% of the criterion mark)	Good (65-74% of the criterion mark)	Very Good (75-84% of the criterion mark)	Excellent (85-100% of the criterion mark)
<b>Introduction</b> Providing an introduction and background to the selected case study <b>(10 marks)</b>	Inadequate knowledge to provide an introduction to the project case,	Basic knowledge of writing an introduction to the case project,	Exhibits a factual and/or conceptual skills to provide introduction to the case project	Exhibits accurate & detailed breadth & depth of background of case project	Displays excellent skills in writing an introduction to the case project,
<b>Description of Capital Budgeting Process</b> Describing Capital Budgeting Process for the chosen case study. Capital financing and allocation functions <b>(30 marks)</b>	Inadequate description of capital budgeting process	Basic knowledge of capital budgeting process	Exhibits a factual and/or conceptual skills to describe capital budgeting process	Exhibits accurate & detailed breadth & depth to describe capital budgeting process	Displays eExcellent skills to describe capital budgeting process
<b>Consideration of other factors</b> Consideration of other factors, managerial considerations and complications <b>(30 marks)</b>	Inadequate, Consideration of other factors, managerial considerations & complications	Basic knowledge to consider other factors, managerial considerations & complications	Exhibits a factual and/or conceptual skills to consider other factors, managerial considerations & complications	Exhibits accurate & detailed breadth & depth to consider other factors, managerial considerations & complications	Displays excellent skills in considering other factors, managerial considerations & complications
<b>Writing and Presentation</b> Evidence of good academic writing; Free of any grammatical errors; using correct sentence structure; applying an extensive range of vocabulary; Consistent formatting with suitable headings and sub-headings <b>(20 marks)</b>	Inadequate writing and presentation skills	Basic writing and presentation skills	Exhibits a factual and/or conceptual skills of writing and presentation skills	Exhibits accurate and detailed breadth and depth in Writing and Presentation skills	Displays excellent writing and presentation skills



<b>Referencing</b> Comprehensive Reference list. Appropriate Referencing using Harvard guidelines <b>(10 marks)</b>	Inadequate understanding of referencing	Basic knowledge only of referencing	Exhibits breadth and depth of understanding of developing and using referencing	Exhibits accurate & detailed breadth & depth of understanding of developing & using referencing	Displays exceptional understanding of developing and using referencing
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