Submission Format

Please append your answers to the end of this brief. Include ALL pages of this brief in your submission.

Do not submit separate documents.

You should submit: -

Evidence of completed activities (logbook or similar), a professional project report of at least 3000 words, a presentation of a summary of your project report (video of approximately 10 minutes in length, with speaker notes), a project reflection report of at the very least 500 words.

Structurally, you should submit a report with the following sections: -

Cover page - This should feature your name and assignment title – perhaps a nice graphic, if you like (no page number on this sheet).

Contents page - Lists each section in the document and the page number where that section begins (these pages are numbered i, ii, iii etc).

Introduction - An introduction states the purpose and goals of your report. A few sentences will suffice here (this is always section 1, and numbered page 1).

Sections - sections 2, 3 ------- etc. This is the main body of the report.

Bibliography - A **bibliography** lists all the sources you used when researching your assignment but you have not referenced.

References - List of all the sources that you have referred to in your text, using either the Harvard or Vancouver referencing system, should be listed fully here. ***Do not use Wikipedia as a source.***

Appendices - If required.

Note: Use appropriate schematic for block diagrams and sketches.

Relevant Learning Outcomes and Assessment Criteria					
Pass		Merit		Distinction	
LO2	***Conduct planned project activities to generate outcomes which provide a solution to the identified engineering problem.***			**LO2**	
P3	Conduct project activities, recording progress against original project plan.	**M2**	Explore alternative methods to monitor and meet project milestones, justify selection of chosen method(s).	**D2**	Critically evaluate the success of the project plan making recommendations for improvements.
LO3	***Produce a project report analysing the outcomes of each of the project processes and stages.***			**LO3 & LO4**	
P4	Produce a project report covering each stage of the project and analysing project outcomes.	**M3**	Use appropriate critical analysis and evaluation techniques to analyse project findings.	**D3**	Critically analyse the project outcomes making recommendations for further development.
LO4	***Present the project report drawing conclusions on the outcomes of the project.***				
P5	Present the project report using appropriate media to an audience.	**M4**	Analyse own behaviours and performance during the project and suggest areas for improvement.		

Unit Learning Outcomes

LO2 Conduct planned project activities to generate outcomes which provide a solution to the identified engineering problem.

LO3 Produce a project report analysing the outcomes of each of the project processes and stages.

LO4 Present the project report drawing conclusions on the outcomes of the project.

Assignment Brief and Guidance

Scenario:

Within your new role as an Assistant Engineering Project Manager at Tourat Industries, your engineering-based project has been approved by your line manager, who can see that you have justified your project selection and that you have created and submitted a suitably detailed project plan.

This next stage will include the implementation of your project, in which you will be required to achieve the objectives set out in your earlier project plan, name[illegible]ldress and solve the initial problem. Given that this is a professional engineering project you will ne[illegible]ddress and analyse all relevant engineering activities for your project, and to provide good evid[illegible]. the impact such activities might have on health, safety and the environment. Your project must also show that you have investigated the core theme of efficiency and that this has been implemented within your project.

In addition to satisfying the above your line manager has requested that you address the following tasks and produce the key documents as described below:

Tasks:

1. **Produce a Report on your project,** with a front title sheet and numbered contents page.
   For this you will identify the main stages of your project and discuss the outcome of each stage, analysing the outcome and providing practical conclusions, ensuring that **efficiency** forms part of your discussion throughout.
   Be sure to include a critical analysis of your project findings using suitable evaluation techniques.

2. **Produce a detailed record** of your project activities including progress, milestones, delays, project changes, showing how you have monitored and managed these in relation to your original project plan. (You may use the logbook template contained in the resources section within Moodle) You may also explore alternative project monitoring methods that you could employ to help achieve milestones, giving practical and logical reasons for their use.
   (Note that your detailed record can added to your main project report, described in 1 above, in an appendix section).

3. **Project Reflection Report.**
   For this task you will be required to provide a discussion on your own performance and behaviours that you exercised throughout your project. Your aim will be to take a critical look at the outcomes from your project and to analyse them and then make recommendations for potential future improvements. You should include a specific section here which reflects on the core theme of **Efficiency** in relation to your project.
   This may also be included in a separate appendix section of your main project report described in 1 above).

4. **Produce a separate video presentation.**
   For this task you will record a video presentation of your project report. This will be produced in a standard format, designed to present to a group made up of relevant and interested parties and where you will be clearly visible. This should be supplemented by a separate or combined transcript in PowerPoint or other means to help others navigate through your presentation content. You may also include a question-and-answer section Q&A of your own creation as appropriate.

Important notes:

- Guidance on the set theme can be found in the 'Guidance for Students' document in the appendix to this assignment brief.
- Be innovative and consider a wide range of resources, you are also encouraged to engage with your own employer.

Recommended Resources

Type of Resource	Resource Titles	Links
Books	Energy Efficiency and Management for Engineers (MECHANICAL ENGINEERING) Hardcover – 17 Nov. 2019 Authors: Mehmet Kanoglu and Yunus A. Cengel Dr.	ISBN-10: 1260459098 ISBN-13: 978-1260459098 Publisher: McGraw Hill
Books	First Fuel : India's Energy Efficiency Journey and a Radical Vision for Sustainability Hardcover – 23 July 2021 Author: Padu Padmanabhan	ISBN-10: 9390742234 ISBN-13: 978-9390742233 Publisher: Pan Macmillan Publishing India Pvt. Ltd.
Books	Designer's Guide to Energy Efficient Electrical Installations Author: The IET	ISBN-13: 978-1-78561-181-0 ISBN-10: 178561181X Publisher: The IET
Books	Energy Efficiency Concepts and Calculations Authors: Daniel Martinez, Ben Ebenhack and Travis Wagner	ISBN: 9780128121115 Publisher: Elsevier
Books	The Digital Transformation of Supply Chain Management Author: Michela Pellicelli	ISBN: 9780323855327 Publisher: Elsevier
Books	IoT for Smart Operations in the Oil and Gas Industry Author: Mohsen Amini Salehi	ISBN: 9780323911511 Publisher: Elsevier
Books	System Efficiency by Renewable Electricity: Strategies for Efficient Energy Supply until 2050 Author: Prof. Dr. Günther Brauner (2022)	Softcover ISBN 978-3-658-35137-3 eBook ISBN 978-3-658-35138-0 Publisher: Springer
Books	Product Lifecycle Management. Green and Blue Technologies to Support Smart and Sustainable Organizations Editors: Osiris Canciglieri Junior, Frédéric, Noël, Louis Rivest, Abdelaziz Bouras.	eBook ISBN: 978-3-030-94399-8 Publisher: 18th IFIP WG 5.1 International Conference, PLM 2021, Curitiba, Brazil, July 11–14, 2021, Revised Selected Papers, Part II

Books	Women in Mechanical Engineering Energy and the Environment Editors: Margaret Bailey, Laura Shackelford	Publisher: Springer Cham Series ISSN 2509-6427 Series E-ISSN 2509-6435

Useful resources for underlying principles, examples of articles for the theme:

Type of Resource	**Resource Titles**	**Links**
Web	Energy efficiency must be an industrial strategy priority	https://www.raeng.org.uk/policy/policy-themes/industrial- strategy/energy
Web	Why doing more with less won't cost the earth – it'll save it	https://www.theiet.org/impact- society/sectors/design-and- manufacturing/design-and- manufacturing-blog-posts/why- doing-more-with-less-wont-cost-the-earth-it-ll-save-it/
Web	Energy technologies for net zero	https://www.theiet.org/impact- society/factfiles/energy- factfiles/energy-generation-and- policy/energy-technologies-for-net-zero/
Web	Efficient engineering of comprehensive projects in energy automation	https://www.copadata.com/en/industries/energy- infrastructure/energy- insights/efficient-engineering-energy/
Web	Digitalisation, sustainable industrialisation and digital rebound – Asking the right questions for a strategic research agenda	https://www.sciencedirect.com/science/article/pii/S22146296210038 7X
Web	Connecting data driving productivity and innovation	https://www.raeng.org.uk/publications/reports/connecting-data- driving-productivity
Web	Case study 12: Barts Sustainability Strategy - Achieving energy efficiency and improved patient experience	http://reports.raeng.org.uk/engineering-better-care/case-study-12- barts-sustainability-strategy/
Web	Additive Manufacturing - Moving Towards Zero Waste Manufacturing The Additive Manufacturing Sustainability Issue	https://www.raeng.org.uk/publications/other/chris-tuck
Web	Energy Efficiency	https://www.theiet.org/media/4096/sub1082.pdf

Additional materials
Neil G. Siegel (2019) Engineering Project Management. 1st edition: Wiley
Peter F Cranston (2019) The Project Engineer's Toolkit. Cranston Engineering Ltd.

APPENDIX...

Guidance for Students

You should read this information before starting on your project. You should refer to these instructions as you complete work for this unit.

- You must complete the project in order to complete your work for this unit.
- Your centre will set a project brief based on the topic and theme released by Pearson in the first week of March of every year.
- Read the brief and think about what the project brief is asking.
- Research what the project brief is asking. How can you approach the problem, opportunity, hypothesis and requirements being posed?
- Apply a range of secondary research sources to plan/scope and support the project and its findings. Secondary research sources may include textbooks, journal articles, newspapers and magazine articles (not factual accounts).
- Develop your project plan based on the deliverables of the project, the constraints of the project and the assumptions made.
- Conduct your project according to your stated project plan and meet with your tutor to receive a sign-off at each stage of the project process.
- Primary research sources may include original first-hand accounts, legal and historical documents, results of experiments and research data collection. Apply both qualitative and quantitative research methods to evaluate data collected from primary research.
- Keep notes of your progress throughout the project. It is important to keep a record of your work, which must be used to record the development of your ideas and your progress through the project. For example, a logbook could be used and include:
    - A record of what you did, when and what you were thinking.
    - A record of where things went wrong and what you did to overcome any unexpected results.
- You will be asked to reflect on the success of your project and your own performance in a personal performance review at the end of the project. This is a written reflection of around 500 words.