

Assignment Title

Assignment 1

Conduct the preliminary stages involved in the creation of an engineering research project.

The purpose of this assessment is to be able to provide a solution to an identified engineering problem, with reference to national and international engineering regulatory regimes, and ethical frameworks.

Scenario

You are junior member of a design and development unit within a large multi-disciplined engineering company. They have recently acquired another engineering facility containing several machining centres. In order to improve the material handling within this facility it has been decided to install an overhead monorail system. (Drawings 1,2,3) It is envisaged to have a minimum of four lifting devices on the tracks at any one-time, each with a maximum lifting capacity of 500kg.

Your research needs to focus on the types of monorail systems available, their safe working loads, anchorage points, track switching, the types of drives and power supply required, trolley design etc..

Task 1 Produce a research project proposal that clearly defines a research question or hypothesis.

Task 2 Discuss the key project objectives, the resulting goals and rationale.

Task 3 Analyse the project specification and identify any project risks

Task 4 Produce a comprehensive project proposal that evaluates and justifies the rationale for the research.

Deliverables

A report containing the answers to Tasks 1 to 4.

All calculations should be shown, all answers should clearly state what has been found rather than just giving a numeric answer and all units should be given.

Assignment Title

Assignment 2

Examine the analytical techniques used to work on all stages of the project and strategies required to overcome the challenges involved in a research project

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✓ Task 1 Conduct a literature review of published material, either in hard copy or electronically, that is relevant to your research project.

Task 2 Examine appropriate research methods and approaches to primary and secondary research.

Task 3 Analyse the strategies used to overcome the challenges involved in the literature review stage.

Task 4 Discuss merits, limitations and pitfalls of approaches to data collection and analysis.

Task 5 Critically analyse literature sources utilised, data analysis conducted and strategies to deal with challenges.

Deliverables

A report containing the answers to Tasks 1 to 5.

Assignment 3

Reflect on the impact the research experience could have in enhancing personal or group performance within an engineering context

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Scenario

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Task 1 Reflect on the effectiveness and the impact the experience has had upon enhancing personal or group performance

Task 2 Evaluate the benefits from the findings of the research conducted

Task 3 Critically evaluate how the research experience enhances personal or group performance within an engineering context

Deliverables

A report containing the answers to Tasks 1 to 3.

Evidence for Learning Outcomes		Achieved
LO	Assessor feedback	
LO 4	Explore the communications approach used for the preparation and presentation of the research project's outcomes.	
Evidence for Grade Descriptors		Achieved
GD	Assessor feedback	
Task 1	Explore the different types of communications approaches that can be used to present the research outcomes.	
Task 2	Communicate research outcomes in an appropriate manner for the intended audience.	
Task 3	Evaluate how the communication approach meets research project outcomes and objectives	
Task 4	Critically reflect how the audience for whom the research was conducted influenced the communication approach used for the preparation and presentation of the research project's outcomes.	