

ASSIGNMENT SUBMISSION AND ASSESSMENT

**SMRM5203
SCIENCE AND TECHNICAL RESEARCH METHODOLOGY
SEMESTER JANUARY 2026**

SPECIFIC INSTRUCTION

1. Answer in **ENGLISH**.
2. Number of words: **3500 - 5000 Words** excluding references.
3. Submit your assignment **ONCE** only in **SINGLE** file.
4. Submit your assignment **ONLINE**.
5. Submission date:
6. This assignment accounts for **100%** of the total marks for the course.
7. This assignment consists of **Task 1 (60%), Task 2 (30%) and Task 3 (10%)**.

ASSIGNMENT QUESTION

Purpose:

The purpose of this assignment is to engage students in a comprehensive research process involving both quantitative and qualitative data collection methods. This assignment aims to develop students' skills in designing, executing and analysing data to address a research problem or question.

Task Description:

- Form groups of **TWO (2) to THREE (3)** of students per group.
- The group does not have to be the same master program, you may combine with different master program.
- Each group must nominate a **group leader** responsible for coordinating communication and collaboration among members.
- Suggest a name for your group.
- For submission: All group members should submit the same document content, except for the reflection essay.

Please select one topic from the options provided.

Topic
1. Safety First: Strengthening Risk Assessment Practices in Hazardous Industries
2. Perceived Barriers to PPE Adoption Among Construction Workers
3. The Role of Safety Climate in Shaping Young Workers' Attitudes Towards Risk
4. Barriers to Digital Adoption in Project Scheduling and Monitoring Tools
5. Knowledge Transfer and Retention Challenges in Multi-Generational Project Teams
6. Customer Perceptions of Service Quality in Online Banking Platforms
7. The Role of Project Governance in Ensuring Transparency in Government-Funded Projects

TASK 1 (A): RESEARCH PROPOSAL

Word count: 1500 – 2000 words

A research proposal is intended to convince others that answer the following questions: (i) What you plan to accomplish; (ii) Why you want to do it; and (iii) How you are going to do it.

The elements for research the proposal is structured according to the following tasks:

1. Research Title

As chosen.

2. Introduction

Provide an overview of the current and past issues on your topic. State the reasons why research needs to be conducted on the chosen topic. The background write-up should lead into the research problem.

3. Problem Statement

Write the problem statements and research gap that you intend to research. It should include the following:

- A clear statement that the problem exists. Briefly describe the **MAJOR** issues and sub-problems to be addressed by your research.
- Evidence that supports the existence of the problems (Please provide references from the literature to support the problems accordingly).
- Justification on why these problems need to be addressed and what the consequences are of not addressing them.
- Identifying a research gap is one of the crucial parts of many research projects. In fact, spotting a knowledge gap and setting out to address it is generally what makes your research worthwhile.

4. Research Objectives

Research objectives describe concisely what the research is trying to achieve. Identify **TWO (2) objectives** for the topic chosen and list them out in numbered form. The objectives must in the end addresses the problem statements. Your objectives should be stated using action verbs that are specific enough to be measured.

5. Research Questions

Your **research questions** need to be concise, arguable, and in line with the research objectives.

6. Scope of the Research.

The scope of a study explains the extent to which the research area will be explored in the work and specifies the **parameters** within which the study will be operating. The scope must be realistic and manageable within the stipulated time of the research undertaking.

7. Literature Review

A literature review surveys scholarly articles, books and other sources relevant to a particular issue, area of research or theory, and provides a description, summary, and critical evaluation of these works. The goal of this form of a proposal is to provide an overview of the significant trends in the literature that is published on this topic.

Critically review their content and point out the gaps in the literature requiring further research. Subheadings should be arranged with appropriate themes and in line with your

research objectives. Please be careful not to simply “copy and paste” when citing from the articles. Correct paraphrasing technique is vital to ensure the flow of writing is demonstrated throughout the review.

8. Theoretical AND Conceptual Framework

Create a visual concept map representing the theoretical and conceptual frameworks that illustrate the relationships between variables, concepts, or elements within a specific research context.

9. Proposed Methodology

Propose a **mixed-method approach** that includes both quantitative methods (such as surveys or experiments) and qualitative methods (such as interviews, focus groups, or observations).

Please provide this table.

Research Objectives	Research Questions	Tool/ Instrument
Objective 1	Question 1	<i>Example: questionnaire</i>
Objective 2	Question 2	<i>Example: interview</i>

Briefly explain the suitability of each method for the research question. For the quantitative part, describe the design of the survey or experiment, including sample size, data collection, and analysis methods. For the qualitative part, outline the approach to conducting interviews, focus groups, or observations, specifying participants, the types of questions or observations involved, and how the findings will be interpreted.

[TOTAL: 50 MARKS]

TASK 1 (B): VIDEO RESEARCH PROPOSAL PRESENTATION

Prepare a video research proposal presentation as outlined in Task 1. The video should be submitted via the following link:

[XXX](#)

Submission date: **00/00/2026**

Additionally, ensure that every member of your group actively participates in the presentation to demonstrate collective effort and collaboration. The entire content must be collectively covered within a **5-minute** timeframe, in MP4 format not exceeding 400 MB. The video should be interactive.

[TOTAL: 10 MARKS]

TASK 2: DATA ANALYSIS

Word count: 2000 – 3000

Once the methods are clearly defined, proceed with data collection. For the quantitative part, administer the surveys or conduct the experiments as planned, ensuring all data is accurately recorded. For the qualitative part, carry out the interviews, focus groups, or observations, taking detailed notes or recordings. Collect all data systematically to ensure it is ready for analysis.

Note: Ensure the collection process aligns with ethical guidelines and principles. All research instruments, such as questionnaires, interview guides, and raw data, must be included in the appendix.

The key elements for this task are as follows:

1. Data Analysis

Use appropriate analysis techniques, such as descriptive and inferential statistics, to examine the quantitative data, and visualise the results with relevant graphs or charts.

For the qualitative data, apply thematic analysis methods to code the information, identifying patterns, themes, or categories. Analyse the coded data to extract insights, and interpret these findings in relation to the research question.

2. Discussion and Conclusion

Interprets the results, explaining their significance in relation to the research question and existing literature. Include any recommendations or ideas for future research based on the study's findings.

3. Reflection (Individually)

Prepare a 200 words self-reflection report outlining the group's collaborative process, challenges faced and lessons learned during the assignment.

4. Acknowledgement table: Prepare a table listing each section, contributors, and their specific roles, and place it before the reference list.

5. Reference List: Maintain academic integrity by citing sources appropriately and avoiding plagiarism. Use APA (7th Edition) referencing style. All books, journals or conference proceedings cited across the chapters must be listed in the References section.

[TOTAL: 30 MARKS]

TASK 3 (ONLINE CLASS PARTICIPATION)

Engage in discussions about the assigned task and ethical issues related to your proposed research using online platforms (like WhatsApp and Telegram) with your group members. Ensure that all members actively participate in the conversation, sharing their insights and addressing any concerns or questions that arise. Schedule **THREE** meetings on specific dates, each spanning **around 30 minutes**. Take screen captures of the conversations or prepare a minute meeting and include them in your assignment.

[TOTAL: 10 marks]

[GRAND TOTAL: 100 MARKS]

Assessment Criteria

Your response to each task will be graded separately based on the checklist attached. For maximum credit, be sure that your response addresses each of the tasks in the question.

QN	CLO	Component	Weight	Excellent	Good	Fair	Poor	Unsatisfactory	Marks
				4	3	2	1	0	
TASK 1 (A)- RESEARCH PROPOSAL									
1	CLO 3	Research Title	1.0	Title is creative and original and well described the main points and aim of study.	Title is creative and described the main points and aim of study.	Less creativity and less described the main points and aim of study.	Not creative and did not describe the main points and aim of study.	No title is provided.	4
	CLO 3	Introduction/ Research Background	1.5	Well formulated introduction based on facts with clear definition of key terms and concepts. Comprehensive review of the literature using quality evidence and specifically analyses the research conducted by describing the individual studies and findings that support the thesis and focused problem.	Fairly well formulated introduction that has with some definition of key terms and concepts. Comprehensive review of the literature using quality evidence but does not adequately analyse the research findings; simply reports on the literature.	Introduction is not well constructed and little or no definition of key terms and concepts. Superficial review of the literature that does not describe the research findings; relies heavily on a few studies and uses poor quality resources for information gathering.	Lacks a proper introduction. Superficial review of the literature that is poorly organized and lacks credibility based on the level of evidence and resources presented.	No introduction provided.	6
	CLO 3	Problem Statement & Research Gap	2.0	Clearly posed statement of the problem and	Fairly well posed statement of the problem and research	Statement of the problem and research gap is not clearly	Lack or wrong statement of problem and research gap.	No problem statement &	8

				research gap and supported with high quality (strong) evidence.	gap that provides evidence but the evidence is not as strong as it could be.	stated and/or lacks quality evidence to support the problem.		research gap are provided.	
	CLO 3	Research Objectives & Research Questions	1.0	Clearly stated purpose of the study that connects very well to the introduction and the statement of the problem.	Fairly well stated purpose of the study that connects well to the introduction and the statement of the problem.	Purpose of the study is not clearly stated and/or does not connect well with the introduction and the statement of the problem.	Lacks a purpose of the study statement or does not pertain to the introduction and/or the statement of the problem.	No research objective & research questions are provided.	4
	CLO 1	Scope of Research	0.5	Clearly described scope of research that is realistic and manageable within the stipulated time of the research undertaking.	Fairly well described scope of research that is realistic and manageable within the stipulated time of the research undertaking.	Described scope of research that is realistic and manageable within the stipulated time of the research undertaking.	Poorly described scope of research that is realistic and manageable within the stipulated time of the research undertaking.	No scope of research is provided.	2
	CLO 1	Literature Review	2.5	All materials are relevant to the objectives of the study; shows in-depth understanding of the mechanisms described in the reading materials; provide excellent synthesis and analysis of previous research and its relation to the current study.	Most materials are relevant to the objectives of the study; shows sufficient understanding of the mechanisms described in the reading materials; provide sufficient synthesis and analysis of previous research and its relation to the current study.	Some materials are relevant to the objectives of the study; shows some understanding of the mechanisms described in the reading materials; provide some synthesis and analysis of previous research and its relation to the current study.	Very few materials are relevant to the objectives of the study; shows very limited understanding of the mechanisms described in the reading materials; provides very limited synthesis and analysis of previous research and its relation to the current study.	Fail to provide relevant literature and its relation to the current study.	10

	CLO 1	Theoretical and Conceptual Framework	2.5	Clearly identifies and illustrates all relevant variables/concepts.	Identifies and illustrates most variables/concepts accurately and with clarity.	Identifies and illustrates variables/concepts, but some lack clarity or accuracy.	Variables/concepts mentioned are vague or poorly defined.	Not available	10
	CLO 3	Proposed Methodology	1.5	Identifies appropriate methodologies and research techniques (e.g., justifies the sample, procedures, and measures). Provides appropriate justification for controls. Project is very feasible.	Identifies appropriate methodologies and research techniques but some details are missing or vague.	Identifies appropriate methodologies and research techniques but many details are missing or vague. The methodology is largely incomplete.	The methodologies described are poorly suited. The methodology is under-developed and/or is not feasible.	No research design and methodology are provided.	6
		TOTAL	12.5						50

TASK 1 (B)- VIDEO RESEARCH PROPOSAL PRESENTATION									
2	CLO 3	Content and Depth	1.25	The presentation demonstrates an exceptional level of preparation, professionalism, and understanding of the proposal topic. It effectively communicates the proposed research project and its significance.	The presentation is solid, demonstrating adequate preparation, professionalism, and understanding of the proposal topic. It effectively communicates the proposed research project but may have minor areas for improvement.	The presentation is acceptable but could benefit from additional preparation, professionalism, and understanding of the proposal topic. It communicates the proposed research project but with	The presentation is below expectations, lacking preparation, professionalism, and understanding of the proposal topic. It fails to effectively communicate the proposed research project.	Not available	5

						noticeable room for improvement.			
	CLO 3	Visuals and Multimedia Usage	1.0	Effective use of visuals, graphics, and media.	Mostly effective use of visuals.	Adequate use of visuals but lacks impact.	Visuals lack relevance or impact.	No use of visuals or entirely irrelevant.	4
	CLO 3	Time Management (group)	0.25	Well-paced presentation within the time limit.	Mostly well-paced within the time limit.	Adequate pacing but exceeds/short of time limit.	Poor pacing, significantly exceeds/short of limit.	Presentation not within the time limit.	1
		TOTAL	2.5						10

QN	CLO	Component	Weight	Excellent	Good	Fair	Poor	Unsatisfactory	Marks
				4	3	2	1	0	
TASK 2: RESEARCH INSTRUMENT, DATA COLLECTION AND ANALYSIS									
	CLO 2	Data Analysis (Quantitative)	2.5	Uses accurate descriptive and inferential statistics, and visualises data with clear, appropriate graphs or charts that effectively enhance understanding.	Uses appropriate descriptive and inferential statistics, with clear visualisation of data that supports the analysis.	Uses basic descriptive and inferential statistics with adequate visualisation, though some aspects could be clearer or more detailed.	Uses limited or somewhat inaccurate statistical techniques; visualisation is unclear or insufficient.	Fails to use appropriate statistical techniques; visualisation is missing or irrelevant.	10
	CLO 2	Data Analysis (Qualitative)	2.5	Applies thorough thematic analysis, accurately coding	Conducts thematic analysis effectively, with accurate coding	Completes basic thematic analysis with adequate coding and	Performs limited thematic analysis with unclear coding or	Fails to perform appropriate	10

				data, identifying meaningful patterns, and interpreting findings with strong relevance to the research question.	and clear identification of patterns, linking findings well to the research question.	pattern identification, though some insights may lack depth or clarity.	patterns; connection to research question is weak.	thematic analysis; coding is incorrect or missing, with no clear patterns or insights.	
	CLO 3	Discussion and Conclusion	1.0	Provides a comprehensive interpretation of results, clearly linking them to the research question and literature; offers insightful recommendations and future research ideas.	Interprets results effectively, linking them well to the research question and literature, with useful recommendations and future research suggestions.	Offers a basic interpretation of results, with some connection to the research question and literature; recommendations and future research ideas are somewhat relevant.	Provides a limited interpretation of results with weak connections to the research question and literature; recommendations and future research suggestions are vague.	Fails to interpret results meaningfully, with little to no connection to the research question and literature; no relevant recommendations or future research ideas are provided.	4
	CLO 3	Reflection Essay	0.5	Provided	-	-	-	Not provided	2

	CLO 3	References and citations.	0.5	Properly and explicitly cited. Reference list matches citations.	Properly cited and have a few instances in which proper citations are missing.	The proposal has several instances of improper use of citations. Contains several statements without appropriately citing.	The proposal lacks citations and not matched with reference list.	No proper citations and/ no reference list.	2
	CLO 3	Relevance of Publication Year.	0.5	Recent (within 1-2 years).	Moderately recent (3-5 years).	Somewhat recent (6-10 years).	Somewhat outdated (11-15 years).	Outdated (more than 15 years).	2
		TOTAL	7.5						30

TASK 4 (ONLINE PARTICIPATION)									
3	CLO 2	Conversation among Team	0.75	The discussion sparked interesting and meaningful conversations among members.	The discussion successfully sparked good and engaged conversation among members.	Lack of involvement from all the team members.	Lack of involvement from all the team members.	No postings were given as proof of participation in the discussion.	3
		Individual Contribution	1.5	The individual's postings showed depth of knowledge, were well-researched, and sparked interesting and meaningful conversations.	The individual's postings showed a good understanding of the context and successfully sparked good and engaging conversation.	The individual's postings showed a basic understanding of the context but lacked depth or were not particularly engaging.	The individual's postings showed limited understanding of the context and were not engaging.	No postings were provided as proof of participation.	6
		Duration and timeline	0.25	All three meetings are precisely 30 minutes,	Meetings are close to 30 minutes and mostly	Meetings vary slightly in duration or show	Meetings significantly deviate from the	Meetings lack alignment	1

				arranged on specified dates, and meet the stated timeline.	follow the specified timeline.	minor deviations from the timeline.	duration or timeline specified.	with the specified duration and timeline, or are missing.	
		TOTAL	2.5						10
		OVERALL TOTAL	25						100