

Final Year Project (FYP) Syllabus for DSAA 4591

(2023 intake students)

FYP Format and Aims

The FYP is a year-long project training experience. It develops students' abilities to survey literature, critically analyse and plan projects, design practical solutions, manage a substantial body of work, and communicate findings effectively.

- **General format:** A wide range of topics will be made available to students via the [FYP system](#), and students will form a group of 2-4 members to pair with the projects and supervisors. In HKUST-GZ, students from different majors can freely form a group, and are allowed to select topics proposed by any faculty member (detailed pairing and selection mechanisms as below).
- **Intended Learning Outcomes (ILOs) of DSAA 4591**

Upon completion of the FYP, SMMG students are expected to be able to do the following:

	DSAA 4591 ILOs	Nature of the learning outcomes <i>A - Knowledge/Content Related;</i> <i>B - Academic Skills/Competencies;</i> <i>C - Others</i>
1	Understand the important concepts techniques, and methods in data science.	<i>A</i>
2	Capable of selecting, designing and implementing a complete data science project to solve a scientific or real-world problem.	<i>A, B</i>
3	Capable of working with real data, including noisy data and/or large-scale data.	<i>A, B</i>
4	Capable of understanding the advanced method in the relevant literature and assessing their pros and cons.	<i>A, B</i>
5	Demonstrate effective application of technical tools (including AI-assisted programming) to optimize project efficiency and quality.	<i>A, B</i>

- **FYP system:** Project selection, execution, and reporting will all be accessed from the FYP system: <https://ugfyp.hkust-gz.edu.cn/>

Topic Selection and Paring

➤ Topic releasing and paring

Dates	Actions
Jun 6 th – 12 th	Project releasing: students can access all projects from the FYP system ; Application: each student can apply for three projects, in the order of their preference.
Jun 3 rd	FYP info session (safety and ethics lecture)
Jun 11 th	Prime supervisor review projects
Jun 18 th	Thrust coordination and project confirming

This University-wide FYP is intended to maximise the cross-subject flexibility, while ensuring the student can satisfy their degree-program's requirements. Thus, the roles of the supervisors in the FYP are defined as below:

- **Prime supervisor:** The prime supervisor is also the project owner; each project has only one prime supervisor. Students can choose to pair with prime supervisors who are *not* from their own degree-offering thrusts. The prime supervisor is responsible for defining the project outcomes and deliverables, as well as providing the principal academic guidance for project delivery.
- **Co-supervisor:** In case that the prime supervisor is not from the degree-offering thrust of the student, then a co-supervisor, who is from the student's home thrust, *is mandatory*. The co-supervisor is responsible for assessing and ensuring the student's FYP aligns with and fulfils the ILOs of both the FYP and the degree program. A co-supervisor can be recommended by the prime supervisor, or nominated by the students.

Reporting and Assessments

The FYP spans the whole academic year, with a mid-term review and final delivery as the reporting and assessment tasks. To ensure smooth project execution and to avoid any delay of the graduation, please ensure that you strictly follow the assessment timeline.

Should you experience any difficulties during the project, please ensure to contact your supervisor and the thrust office in time.

➤ Assessment tasks and weight

	Task	Weight	Due date
Mid-term review	Milestone presentation	10 %	Dec 15 th , 2026
	Milestone report	20 %	
Final delivery	Thesis	25 %	May 12 th , 2027
	Oral defence	45 %	May 17-19 th , 2027

Grading rubrics for each assessment task is attached as Appendix:

- [Appendix-1 Milestone Presentation Guideline](#)
- [Appendix-2 DSA FYP Milestone Report Guideline](#)
- [Appendix-3 Final Oral Defence Guideline](#)
- [Appendix-4: DSA FYP Thesis Guideline](#)

➤ Detailed Reporting and Assessment Timeline

Year	Dates	Action
2026	Dec 15 th	Milestone presentation and report due
	Dec 28 th	Supervisor release feedback on the mid-term project progress
2027	May 12 th	Thesis submission due
	May 17-19 th	Project oral defence
	May 24 th	Supervisor release feedback on the thesis and defence
	May 30 th	Thesis revision and final submission due

➤ Project extension

Students unable, under Extenuating Circumstances Affecting Assessment Policy of HKUST-GZ, to give their presentations at the scheduled times should notify their project supervisor and the thrust as soon as possible. For the milestone presentation extension, permission from supervisor is needed; for the final presentation, permissions from the supervisor and the thrust are required.

Extensions to the milestone report shall be permitted by the project supervisor and documented on the feedback.

*Extensions to the final thesis deadline are very limited. A maximum 7-day extension may be granted upon approval by the thrust office. Penalties will be applied, where no extension is granted, for each day that a report is late. The final report will *not* be accepted if *more than 7 days late*.*

➤ Plagiarism avoidance

It is self-evident that research-based project work requires extensive discussion and cooperation with your supervisor and others. However, all reports and presentations must document the individual work of the author, with specific reference being made to any material taken from another source (including concepts, theories, equations, figures or computer code, whether published in the open literature or on websites, or unpublished work obtained by other means). Failure to reference the work of others is cheating and will be penalised.

You must read the HKUST-GZ academic integrity policy (<https://www.hkust-gz.edu.cn/academics/academic-quality-manual/academic-standards-and-learning-outcome/regulations-for-student-conduct-and-academic-integrity/>).

Appendix-1: Milestone Presentation Guideline

- **Purpose:** the milestone presentation is intended to give you an opportunity to describe work in progress and to benefit from criticisms and suggestions from your supervisors and group members. A formal evaluation from your supervisors will be released to you within two weeks.

In making the presentation you will be expected to give clear expression to:

- the aims of the project and their significance;
 - the background and context;
 - your plan of how to achieve the aims;
 - the progress made so far towards fulfilling the plans.
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- **Format:** the prime supervisor will coordinate with the student team, and co-supervisors if applicable, directly to arrange the milestone presentation before the due date. The date and format can be flexible, as arranged by the prime supervisor.

However, it is required that:

- The prime supervisor and the students must attend in person, co-supervisors (if applicable) can attend in person or online;
 - The presentation should be no shorter than: 10 x (student number in the team) minutes;
 - Each student in the team must present
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- **Grading rubrics:** each student is individually graded, by the prime supervisor and the co-supervisor (if applicable).

To ensure the grading is adhering with the ILOs of the student's home thrust, in the cases:

- 1) The prime supervisor is from the student's home thrust (then there is no co-supervisor), then the prime supervisor takes 100% of the grading;
- 2) The prime supervisor is *not* from the student's home thrust (then there must be a co-supervisor from the student's home thrust), then the co-supervisor's grading (referring to the student's home thrust's ILOs) takes 60% weight, and the prime supervisor's grading takes 40% weight.

Detailed grading items are listed as below:

- 1) Research-oriented Projects

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Project background & importance illustration	15%	The project background and significance are clearly defined, with a comprehensive, well-structured context that fully elaborates the motivation and research gap. The importance and objectives are explicitly and compellingly stated.	The project background is adequately defined, with a clear description of the context and basic importance. Key objectives are mentioned but not fully elaborated.	The project background is vaguely stated; context and importance are incomplete, with limited connection to the project goals. Objectives are unclear.	The project background and importance are undefined, incoherent, or irrelevant. No clear objectives are presented.
Literature review	25%	The literature review is comprehensive, critical, and well-synthesized. It demonstrates mastery of key theories, identifies clear gaps in existing research, and logically positions the current work within the field.	The literature review is well-organized, covers key relevant sources, and summarizes major findings. It identifies some gaps but lacks critical synthesis or deep analysis.	The literature review is incomplete, with limited relevant sources. Summaries are superficial, and connections to the project are weak or unclear.	The literature review is disorganized, contains irrelevant or outdated sources, or fails to demonstrate understanding of existing work. No connection to the project is made.
Progress so far	20%	All completed work is clearly presented, with detailed explanations of methods, results,	Completed work is clearly described, with basic explanations of methods and	Progress is partially or unclearly presented. Completed work is	No clear description of completed work is provided. Progress is undefined,

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
		and challenges encountered. Achievements are validated and linked directly to the project plan. Key takeaways are clear.	results. Progress is generally aligned with the plan, though some details may be underdeveloped.	mentioned but lacks detail, and alignment with the project plan is weak. Key takeaways are unclear.	unsubstantiated, or irrelevant to the project plan.
Workplan	20%	The future workplan is detailed, realistic, and well-structured, with clear timelines, milestones, and contingency plans. Risks and mitigation strategies are thoroughly addressed.	The workplan is logical and includes clear next steps and basic timelines. Milestones are identified, though some details or risk considerations may be missing.	The workplan is vague or incomplete. Next steps are mentioned but lack structure, and timelines are unclear. No consideration of risks or contingencies.	The workplan is undefined, unrealistic, or incoherent. No clear next steps or timelines are provided.
Questioning handling	15%	Responds to all questions with confidence, depth, and clarity, demonstrating full mastery of all project aspects. Challenges are addressed thoughtfully and with evidence-based answers.	Responds appropriately to most questions, demonstrating adequate understanding of the project. Answers are mostly clear, though some deeper follow-ups may require additional clarification.	Struggles to address key questions, with unclear or incomplete responses. Demonstrates limited understanding of certain aspects of the project.	Fails to respond to questions, provides irrelevant answers, or shows no understanding of the project's core elements.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Communication skills and timing	5%	The presentation is highly organized, concise, and engaging, with excellent flow and clear visual aids. Strictly adheres to time limits, with smooth transitions and professional delivery.	The presentation is well-organized and clear, with logical flow and appropriate visual aids. Meets time requirements with minor adjustments.	The presentation lacks organization or clarity, with inconsistent flow or poorly designed visual aids. Struggles to meet time limits, with significant pacing issues.	The presentation is disorganized, unclear, or unengaging. Visual aids are missing or ineffective, and time limits are consistently violated.

2) Engineering-oriented Projects

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Project background & real-world applicability	20%	The project background, context, and real-world applicability are clearly defined and comprehensively elaborated. The motivation, significance, and practical impact are explicitly and compellingly stated, with clear links to real use cases.	The project background is adequately defined, with a clear description of context and basic real-world relevance. Applicability is mentioned but not fully elaborated.	The project background is vaguely stated; context and applicability are incomplete, with limited connection to real-world scenarios. Objectives are unclear.	The project background and applicability are undefined, incoherent, or irrelevant. No clear objectives or real-world context are presented.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
System development	15%	The system design and implementation are complete, robust, and fully aligned with project requirements. Technical architecture, core features, and functionality are clearly described and justified. The system is fully functional with no critical issues.	The system is implemented and meets core requirements. Design choices are generally appropriate, and the system functions with minor issues that do not affect core goals. Key features are mostly developed.	The system is partially implemented, with incomplete or non-functional components. Some requirements are not met, and the system contains notable technical flaws. Design choices are not clearly justified.	The system is not implemented, severely incomplete, or fundamentally fails to meet stated requirements. No clear description of the design or implementation is provided.
Progress so far	20%	All completed work is clearly presented, with detailed explanations of methods, results, and challenges encountered. Achievements are validated and linked directly to the project plan. Key takeaways are clear.	Completed work is clearly described, with basic explanations of methods and results. Progress is generally aligned with the plan, though some details may be underdeveloped.	Progress is partially or unclearly presented. Completed work is mentioned but lacks detail, and alignment with the project plan is weak. Key takeaways are unclear.	No clear description of completed work is provided. Progress is undefined, unsubstantiated, or irrelevant to the project plan.
Workplan	20%	The future workplan is detailed, realistic, and well-structured, with clear timelines, milestones, and contingency plans. Risks and	The workplan is logical and includes clear next steps and basic timelines. Milestones are identified, though some	The workplan is vague or incomplete. Next steps are mentioned but lack structure, and timelines are	The workplan is undefined, unrealistic, or incoherent. No clear next

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
		mitigation strategies are thoroughly addressed.	details or risk considerations may be missing.	unclear. No consideration of risks or contingencies.	steps or timelines are provided.
Questioning handling	15%	Responds to all questions with confidence, depth, and clarity, demonstrating full mastery of all project aspects. Challenges are addressed thoughtfully and with evidence-based answers.	Responds appropriately to most questions, demonstrating adequate understanding of the project. Answers are mostly clear, though some deeper follow-ups may require additional clarification.	Struggles to address key questions, with unclear or incomplete responses. Demonstrates limited understanding of certain aspects of the project.	Fails to respond to questions, provides irrelevant answers, or shows no understanding of the project's core elements.
Communication skills and timing	10%	The presentation is highly organized, concise, and engaging, with excellent flow and clear visual aids. Strictly adheres to time limits, with smooth transitions and professional delivery.	The presentation is well-organized and clear, with logical flow and appropriate visual aids. Meets time requirements with minor adjustments.	The presentation lacks organization or clarity, with inconsistent flow or poorly designed visual aids. Struggles to meet time limits, with significant pacing issues.	The presentation is disorganized, unclear, or unengaging. Visual aids are missing or ineffective, and time limits are consistently violated.

Appendix-2: DSA FYP Milestone Report Guideline

➤ **Content**

It is common in academic and industrial research to produce an interim report about half-way through a piece of project work. Such a document details the progress to date and outlines the strategy that will be adopted to ensure that the project is completed successfully and on time. It should therefore contain details of technical issues, but must also be well presented and clearly written. The reader will need to be convinced that the work is worthwhile and is likely to result in an interesting and/or useful outcome.

An important aspect of your milestone report is to identify risks to your project achieving your intended outcomes. You should discuss what these risks are, discuss their likelihood and consider what mitigations you could take. This could include issues such as problems with supply of parts and availability of equipment.

➤ **Style**

You are required to write a technical milestone report conforming to the following rules:

- The length must be between 4-6 A4 pages, including diagrams, references, appendices and all other content elements. A penalty may be applied for insufficient or exceeding the page limit;
- Use 12-point font, single line spacing and 2.5 cm margins all round;
- The title, author's name and a summary should appear at the top of the first page, with the main text continuing. No special coversheets are required
- You may ask your supervisor to comment on an early draft, though make sure you allow plenty of time for this by preparing the draft well before the submission deadline.

- **Grading rubrics:** each student is individually graded, by the prime supervisor and the co-supervisor (if applicable).

To ensure the grading is adhering with the ILOs of the student's home thrust, in the cases:

- 1) The prime supervisor is from the student's home thrust (then there is no co-supervisor), then the prime supervisor takes 100% of the grading;
- 2) The prime supervisor is *not* from the student's home thrust (then there must be a co-supervisor from the student's home thrust), then the co-supervisor's grading (referring to the student's home thrust's ILOs) takes 60% weight, and the prime supervisor's grading takes 40% weight.

Detailed grading items are listed as below:

1) Research-oriented Projects

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Motivation and rationale for work	15%	The motivation and rationale are clearly defined, compelling, and comprehensively elaborated. The problem statement, research goals, and significance are explicitly stated, with strong links to the project's purpose.	The motivation and rationale are adequately defined, with a clear description of the problem and basic research goals. Significance is mentioned but not fully elaborated.	The motivation and rationale are vaguely stated; problem context and goals are incomplete, with limited connection to the project.	The motivation and rationale are undefined, incoherent, or irrelevant. No clear research goals or purpose are presented.
Research on the field and topic (literature review)	30%	The literature review is comprehensive, critical, and well-synthesized. It demonstrates mastery of key theories, identifies clear research gaps, and logically positions the work within the field.	The literature review is well-organized, covers key relevant sources, and summarizes major findings. It identifies some gaps but lacks critical synthesis or deep analysis.	The literature review is incomplete, with limited relevant sources. Summaries are superficial, and connections to the research topic are weak or unclear.	The literature review is disorganized, contains irrelevant or outdated sources, or fails to demonstrate understanding of existing work. No connection to the project is made.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Achievements in the project so far	25%	All completed work is clearly presented, with detailed explanations of methods, results, and challenges encountered. Achievements are validated and directly linked to the initial project goals. Key takeaways are clear.	Completed work is clearly described, with basic explanations of methods and results. Progress is generally aligned with project goals, though some details may be underdeveloped.	Progress is partially or unclearly presented. Completed work is mentioned but lacks detail, and alignment with project goals is weak. Key takeaways are unclear.	No clear description of completed work is provided. Achievements are undefined, unsubstantiated, or irrelevant to the project goals.
Quality of structure and detail in the plan for future work	20%	The future workplan is detailed, realistic, and well-structured, with clear timelines, milestones, and contingency plans. Risks and mitigation strategies are thoroughly addressed.	The workplan is logical and includes clear next steps and basic timelines. Milestones are identified, though some details or risk considerations may be missing.	The workplan is vague or incomplete. Next steps are mentioned but lack structure, and timelines are unclear. No consideration of risks or contingencies.	The workplan is undefined, unrealistic, or incoherent. No clear next steps or timelines are provided.
Professionalism of the report	10%	The report is highly professional, well-organized, and error-free, with consistent formatting, clear language, and a logical flow. All requirements are fully met.	The report is professional and well-structured, with minor formatting or clarity issues that do not impact understanding.	The report lacks professionalism, with inconsistent formatting, unclear language, or significant structural issues.	The report is unprofessional, disorganized, or contains major errors that hinder readability and comprehension.

2) Engineering-oriented Projects

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Motivation and rationale for work	25%	The motivation and rationale are clearly defined, compelling, and comprehensively elaborated. The problem statement, research goals, and significance are explicitly stated, with strong links to the project's purpose and real-world impact.	The motivation and rationale are adequately defined, with a clear description of the problem and basic research goals. Significance is mentioned but not fully elaborated.	The motivation and rationale are vaguely stated; problem context and goals are incomplete, with limited connection to the project.	The motivation and rationale are undefined, incoherent, or irrelevant. No clear research goals or purpose are presented.
System development	20%	The system design and implementation are complete, robust, and fully aligned with stated requirements. Technical architecture, core features, and functionality are clearly described and justified. The system is fully functional with no critical issues.	The system is implemented and meets core requirements. Design choices are generally appropriate, and the system functions with minor issues that do not affect core goals. Key features are mostly developed.	The system is partially implemented, with incomplete or non-functional components. Some requirements are not met, and the system contains notable technical flaws. Design choices are not clearly justified.	The system is not implemented, severely incomplete, or fundamentally fails to meet stated requirements. No clear description of the design or implementation is provided.
Achievements in the project so far	25%	All completed work is clearly presented, with detailed	Completed work is clearly described, with basic	Progress is partially or unclearly presented.	No clear description of completed work is

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
		explanations of methods, results, and challenges encountered. Achievements are validated and directly linked to the initial project goals. Key takeaways are clear.	explanations of methods and results. Progress is generally aligned with project goals, though some details may be underdeveloped.	Completed work is mentioned but lacks detail, and alignment with project goals is weak. Key takeaways are unclear.	provided. Achievements are undefined, unsubstantiated, or irrelevant to the project goals.
Quality of structure and detail in the plan for future work	20%	The future workplan is detailed, realistic, and well-structured, with clear timelines, milestones, and contingency plans. Risks and mitigation strategies are thoroughly addressed.	The workplan is logical and includes clear next steps and basic timelines. Milestones are identified, though some details or risk considerations may be missing.	The workplan is vague or incomplete. Next steps are mentioned but lack structure, and timelines are unclear. No consideration of risks or contingencies.	The workplan is undefined, unrealistic, or incoherent. No clear next steps or timelines are provided.
Professionalism of the report	10%	The report is highly professional, well-organized, and error-free, with consistent formatting, clear language, and a logical flow. All requirements are fully met.	The report is professional and well-structured, with minor formatting or clarity issues that do not impact understanding.	The report lacks professionalism, with inconsistent formatting, unclear language, or significant structural issues.	The report is unprofessional, disorganized, or contains major errors that hinder readability and comprehension.

➤ **Evaluation and feedback from the supervisors**

Students will receive the formal evaluation and feedback of the mid-term assessment from their supervisors within two weeks.

Students should also take regular opportunities to receive feedback from supervisors the project progressing and final assessment preparations.

Appendix-3: Final Oral Defence Guideline

- **Purpose:** the oral defence is intended to give students an opportunity to systematically illustrate and communicate their original work to professional audiences. The final presentation should focus on the most significant aspect of your project. It is not necessary, or indeed sensible, to try and include all the information from the thesis.

In making the presentation you will be expected to give clear expression to:

- Define the problem addressed by the project;
 - Explain briefly the significance;
 - Describe how the problem was tackled;
 - Present the most important results and explain their significance;
 - Highlight the conclusions.
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- **Format:** the oral will be scheduled by the prime supervisor and the degree-offering thrusts. Student teams will take turns to present their work in a randomised order.
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- **Defence format:** the oral defence can start with a group project overview for less than 5 minutes. Then each member of the group should deliver an individual presentation for 8-10 minutes.
 - **Assessment committee:** the assessment committee is formed with at least three faculty members from HKUST(GZ), including the prime supervisor, co-supervisors (if applicable) and an independent faculty member from DSA Thrust or the student's RBM academic supervisor.

- **Grading rubrics:**

The oral defence is graded individually for each student, combining the scores from three committee members:

Committee member	Roles	Weight
Member-1	Either prime- or co- supervisor who must be from the student home thrust*	60 %
Member-2	Another faculty member or prime supervisor	20 %
Member-3	Another independent faculty member from DSA or your RBM academic supervisor	20 %

*In the case that the student's prime supervisor is *not* from the student's home thrust, then the student must have a co-supervisor from their home thrust, who will take the majority weight (60%) of the grading, to ensure that grading is adhering to the ILOs of the FYP course offered by the student's home thrust. In this case, the prime supervisor's grading will take 20%.

Detailed grading items:

1) Research-oriented Projects:

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Problem and background illustration	15%	The research problem is clearly defined, with a comprehensive, well-structured background that contextualizes its significance. Research gaps and objectives are explicitly and compellingly stated.	The research problem is adequately defined, with a clear background that identifies key context and basic objectives. Some research gaps are mentioned but not fully elaborated.	The research problem is vaguely stated; background information is incomplete, with limited connection to the problem. Research objectives are unclear.	The research problem and background are undefined, incoherent, or irrelevant. No clear objectives are presented.
Literature review	25%	The literature review is comprehensive, critical, and well-synthesized. It demonstrates mastery of key theories, identifies clear gaps in existing research, and logically positions the current work within the field.	The literature review is well-organized, covers key relevant sources, and summarizes major findings. It identifies some gaps but lacks critical synthesis or deep analysis.	The literature review is incomplete, with limited relevant sources. Summaries are superficial, and connections to the research problem are weak or unclear.	The literature review is disorganized, contains irrelevant or outdated sources, or fails to demonstrate understanding of existing work. No connection to the research problem is made.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Methodology and experimental design	25%	The methodology is rigorous, clearly justified, and fully aligned with research objectives. Experimental design is detailed, reproducible, and addresses potential biases or limitations proactively.	The methodology is appropriate and clearly described, with a logical experimental design. Key steps are explained, though some minor details or justifications may be missing.	The methodology is partially described, with unclear alignment to objectives. Experimental design lacks detail, reproducibility, or adequate consideration of basic controls/limitations.	The methodology is undefined, inappropriate, or inconsistent with research goals. Experimental design is incomplete, flawed, or not explained.
Results and explanation on the significance	20%	Results are presented clearly, comprehensively, and objectively, with thorough analysis. Their significance is deeply interpreted, linking back to the research problem, literature gaps, and potential impact/implications.	Results are clearly presented and analyzed, with basic interpretation of their significance. Connections to the research problem are clear, though deeper implications may be underdeveloped.	Results are partially or unclearly presented, with limited analysis. Interpretation of significance is superficial or weakly linked to the research objectives.	Results are missing, incomplete, or misinterpreted. No explanation of significance or connection to the research problem is provided.
Questioning handling	10%	Responds to questions with confidence, depth, and clarity, demonstrating full mastery of all project aspects. Addresses challenges thoughtfully and provides well-reasoned, evidence-based responses.	Responds appropriately to questions, demonstrating adequate understanding of the project. Answers are mostly clear, though some deeper follow-ups may require additional clarification.	Struggles to address key questions, with unclear or incomplete responses. Demonstrates limited understanding of certain aspects of the project.	Fails to respond to questions, provides irrelevant answers, or shows no understanding of the project's core elements.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Communication skills and timing	5%	Presentation is highly organized, concise, and engaging, with excellent flow and clear visual aids. Strictly adheres to time limits, with smooth transitions and professional delivery.	Presentation is well-organized and clear, with logical flow and appropriate visual aids. Meets time requirements with minor adjustments.	Presentation lacks organization or clarity, with inconsistent flow or poorly designed visual aids. Struggles to meet time limits, with significant pacing issues.	Presentation is disorganized, unclear, or unengaging. Visual aids are missing or ineffective, and time limits are consistently violated.

2) Engineering-oriented Projects:

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Problem and background illustration	20%	The problem is clearly defined, with a comprehensive, well-structured background that contextualizes its significance. The system's purpose, motivation, and intended impact are explicitly and compellingly stated. Key challenges are fully elaborated.	The problem is adequately defined, with a clear background that identifies key context and basic system objectives. Some challenges are mentioned but not fully elaborated.	The problem is vaguely stated; background information is incomplete, with limited connection to the system. System objectives are unclear.	The problem and background are undefined, incoherent, or irrelevant. No clear system objectives are presented.
System development	15%	The system design and implementation are complete, robust, and fully aligned with stated requirements. Technical architecture, core features, and	The system is implemented and meets core requirements. Design choices are generally appropriate, and the system functions with minor issues that	The system is partially implemented, with incomplete or non-functional components. Some requirements are not met, and the system contains notable	The system is not implemented, severely incomplete, or fundamentally fails to meet stated requirements. No clear

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
		functionality are clearly described and justified. The system is fully functional with no critical issues.	do not affect core goals. Key features are mostly developed.	technical flaws. Design choices are not clearly justified.	description of the design or implementation is provided.
Methodology and experimental design	20%	The methodology is rigorous, clearly defined, and fully aligned with project goals. The experimental design is detailed, reproducible, and includes clear metrics for evaluating system performance. Steps are justified and supported with evidence.	The methodology is appropriate and clearly described. The experimental design is logical, with basic evaluation metrics and steps explained. The approach is generally consistent with project goals.	The methodology is poorly described or not fully aligned with goals. The experimental design lacks detail, with unclear or incomplete evaluation plans. Key steps are underdeveloped.	The methodology and experimental design are missing, undefined, or fundamentally inconsistent with the project's purpose. No clear evaluation plan is provided.
Results, real-world applicability and explanation on the significance	25%	Results are clearly presented, thoroughly analyzed, and fully validated. The system's real-world applicability is convincingly demonstrated, with clear links to the problem context. Significance, impact, and limitations are clearly and coherently explained.	Results are presented and analyzed appropriately. Real-world applicability is mentioned, and significance is generally explained, though deeper implications or limitations may be underdeveloped.	Results are incomplete, poorly analyzed, or weakly linked to the project goals. Discussion of real-world applicability and significance is superficial or unclear.	Results are missing, misinterpreted, or irrelevant. No explanation of real-world applicability or significance is provided.
Questioning handling	10%	Responds to all questions with depth, clarity, and confidence,	Responds appropriately to most questions, demonstrating	Struggles to address key questions, with unclear or	Fails to respond to questions, provides irrelevant answers,

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
		demonstrating full mastery of the system, methodology, and results. Challenges are addressed with well-reasoned, evidence-based answers.	adequate understanding of the project. Answers are mostly clear, though some deeper follow-ups may require additional clarification.	incomplete responses. Demonstrates limited understanding of certain aspects of the project.	or shows no understanding of the project's core elements.
Communication skills and timing	10%	The presentation is highly organized, concise, and engaging, with excellent flow and clear visual aids. Strictly adheres to time limits, with smooth transitions and professional delivery.	The presentation is well-organized and clear, with logical flow and appropriate visual aids. Meets time requirements with minor adjustments.	The presentation lacks organization or clarity, with inconsistent flow or poorly designed visual aids. Struggles to meet time limits, with significant pacing issues.	The presentation is disorganized, unclear, or unengaging. Visual aids are missing or ineffective, and time limits are consistently violated.

Appendix-4: DSA FYP Thesis Guideline

➤ Planning the thesis

Leave plenty of time for writing-up. A good plan would be to produce a first draft before week-7 of the Spring term. Your supervisor can then provide you feedback, which you will have sufficient time to improve your thesis. Before you start writing, it is essential that, from the start, you have a clear view of the technical level at which the report should be pitched. Remember that you are writing for two readers:

- your **project supervisor**, who should know the aims and the technical background of your project; and
- an **assessor** (an independent faculty member from DSA Thrust or your RBM academic supervisor) who will know something about the subject area but will not be familiar with details.

There are no set rules for how a thesis should be structured and the pattern may depend on the nature of your project. What is certain is that *you must have a technical abstract, an introduction and conclusions*. Between the introduction and conclusions, the theme of the thesis should be developed in the manner which you judge to be most clear and logical.

➤ Style

The final report should be between 30-55 A4 pages in total, comprising the title page, no more than two pages for the technical abstract and no more than 50 pages for everything else. The main text must be typeset in 12-point font, though ancillary material that does not form part of the central narrative (*e.g.*, the bibliography, appendices with code listings) may be typeset in a smaller font if necessary. Margins are to be approximately 25 mm all round.

A copy of the standard coverage is available to download from the FYP system. Students should make sure that they fill in all the information and sign/date the declaration at the foot of the coversheet.

➤ A typical layout

A typical layout for a thesis on an experimental project might be:

- Technical abstract

The final report *must* begin with a technical abstract of not more than two pages in length. This should be designed as a self-contained document and should provide a concise overview of the report structure and the key features of your work (*e.g.*, the problem being addressed, techniques used, main results, and conclusions).

- Introduction

An important section in which you can point out what has been done before and put the project into context. Many students seem to confuse introduction and summary. In this section you explain why you are doing the work. If you don't know, ask your supervisor.

- Theory and design of experiment

Explain the assumptions behind the theoretical development you are using and the application of the theory to your particular problem. Any heavy algebra or details of computing work should go into an appendix.

- Apparatus and experimental techniques

This section should describe the running of the experiment or experiments and what equipment was used, but should not be a blow by blow account of your work. Experimental accuracy could be discussed here.

- Results and discussion

This could be split into two separate sections but it may be easier to present the results and your discussion of them in the one section. This is the most difficult part of the report: you must present the results, interpret them and compare them with any theory or other published results.

- Conclusions

This should contain the main findings and possibly ideas for future work. You should reflect on your work in the project considering what elements you think worked well, which did not and how you could have improved your work.

- References

List the sources of information which you have quoted in your background material, theory, or experimental methods in sufficient detail for anyone else to find the sources in a library or online.

All figures and graphs in the report should be clearly labelled with figure numbers and captions. Make sure that you show scales and label the axes on all your graphs.

➤ **Grading rubrics**

The thesis will be graded by your supervisor (weighting 60%) and a second reader (an independent faculty member from DSA Thrust or RBM academic supervisor, weighting 40%).

(RBM suggests: for 4+1 students, if their RBM academic supervisor is different as their FYP supervisor, then their RBM academic supervisor should be the second reader of their FYP thesis, to help ensure students do not self-plagiarize.)

The following criteria will be considered in the assessment:

1) Research-oriented Projects:

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Effort	30%	Demonstrates exceptional practical skill in experimental, computational, design or theoretical work. Shows consistent diligence and strong persistence in overcoming all difficulties to fully achieve project objectives.	Demonstrates adequate practical skill in core project work. Shows regular diligence and persistence in overcoming most difficulties to meet key objectives.	Demonstrates limited practical skill, with inconsistent diligence. Struggles to overcome difficulties, leading to partial achievement of objectives.	Lacks basic practical skill, diligence, or persistence. Fails to make meaningful progress or achieve basic project objectives.
Achievement	50%	Fully appreciates the significance of the project; demonstrates excellent competence in planning problem-solving and managing risk. Shows strong initiative, ingenuity, deductive reasoning, and a clear appreciation of	Adequately appreciates the significance of the project; demonstrates good competence in planning problem-solving and managing risk. Shows some initiative, ingenuity and deductive reasoning, with basic awareness of	Has limited appreciation of the project's significance; demonstrates basic competence in planning problem-solving and managing risk. Shows little initiative or ingenuity, with weak deductive reasoning and	Shows no appreciation of the project's significance; lacks competence in planning problem-solving and managing risk. Demonstrates no initiative, ingenuity, or awareness of environmental, social and ethical issues.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
		environmental, social and ethical issues.	environmental, social and ethical issues.	minimal awareness of broader issues.	
Communication	20%	The content has excellent overall structural planning with rigorous, smooth logical progression. The technical abstract is concise, precise and highly clear; main text & analysis are easy to follow with tight reasoning. Language is polished, highly readable and completely error-free. Diagrams and graphs are well-designed, perfectly labelled and intuitively informative.	The content has reasonable overall planning and coherent logic. The technical abstract and main analysis are mostly clear; language is readable with only trivial errors. Diagrams and graphs are properly presented with minor labelling or layout flaws that do not affect understanding.	The overall content planning is loose with obvious logical gaps. The abstract and main analysis have ambiguous expressions; language has noticeable errors that hurt readability. Diagrams/graphs have unclear labels or messy layouts, interfering with information delivery.	There is no effective overall planning, and the content logic is chaotic. The abstract and main analysis are incomprehensible; language has frequent severe errors leading to poor readability. Diagrams/graphs are unlabelled, irrelevant or visually confusing, failing to convey valid information.

2) Engineering-oriented Projects:

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Effort	40%	Demonstrates exceptional practical skill in experimental, computational, design or theoretical work. Shows consistent diligence and strong persistence in overcoming all difficulties to fully achieve project objectives.	Demonstrates adequate practical skill in core project work. Shows regular diligence and persistence in overcoming most difficulties to meet key objectives.	Demonstrates limited practical skill, with inconsistent diligence. Struggles to overcome difficulties, leading to partial achievement of objectives.	Lacks basic practical skill, diligence, or persistence. Fails to make meaningful progress or achieve basic project objectives.
Achievement	40%	Fully appreciates the significance of the project; demonstrates excellent competence in problem-solving planning and risk management. Shows strong initiative in adopting new technologies and improving solutions, along with high ingenuity, deductive reasoning, and clear awareness of environmental, social and ethical issues.	Adequately appreciates the project's significance; demonstrates good competence in problem-solving planning and risk management. Shows some initiative in exploring new technologies, with adequate ingenuity, deductive reasoning, and basic awareness of broader issues.	Has limited appreciation of the project's significance; demonstrates basic competence in problem-solving planning and risk management. Shows little initiative, with weak ingenuity, deductive reasoning, and minimal awareness of broader issues.	Shows no appreciation of the project's significance; lacks competence in problem-solving planning and risk management. Demonstrates no initiative, ingenuity, or awareness of environmental, social and ethical issues.

Item	Weight %	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Communication	20%	The report has excellent overall planning and logical flow. The technical abstract, main text, and analysis are clear, precise, and well-structured. Language is polished, highly readable, and error-free. Diagrams and graphs are clear, well-labelled, and effectively support the content.	The report has reasonable planning and logical flow. The abstract, main text, and analysis are mostly clear. Language is readable with only minor errors. Diagrams and graphs are mostly clear with minor issues that do not affect understanding.	The report has loose planning with noticeable logical gaps. The abstract, main text, and analysis are unclear in parts. Language has significant errors that reduce readability. Diagrams and graphs are unclear or poorly labelled.	The report lacks clear planning and logical flow. The abstract, main text, and analysis are incomprehensible. Language has severe errors that render the text unreadable. Diagrams and graphs are unlabelled, irrelevant, or confusing.