

## Qualifying Examination in Science, Mathematics and Technology

**Purpose.** Student in Science, Mathematics and Technology (SMT) cluster must take a PhD Qualifying Examination (QE) to assess if the student has a good understanding of his/her research topic, the organizational and conceptual abilities to conduct a successful research, and the capability of clearly presenting his/her research outcomes in writing and oral presentation. SMT strives to extend the purpose of its QE beyond simply testing engineering and science competency to include

- providing a framework for success in research
- motivating analysis of the state-of-the-art in specific fields
- inspiring new questions and cross-disciplinary study (understand how different fields view the same problems)
- developing critical skills in evaluating a research project
- assessing the quality of research work done
- effectively presenting and defending research ideas and concepts.

**Requirements for taking Qualifying Examination (QE).** The QE can only be taken if the student maintains a minimum cumulative GPA of 3.5 out of 5.0, and after completion of the course work components:

- 4/5 graduate level courses for the student with Master/Bachelor degree
- 2 seminars

The student should apply for the QE to the Graduate Committee of SMT at least **three months** ahead of the QE oral presentation.

**Qualifying Examination (QE) Format.** All SMT QEs will be scheduled by the student and PhD advisor within 12 to 24 months of the student's start date via the PG committee. It consists of one written report (around 10 pages) and one 45 minute oral presentation. The written report should contain:

- 1) Abstract
- 2) A problem statement, supported by a thorough literature review
- 3) Methods
- 4) Preliminary results
- 5) Future directions and timelines
- 6) References

The written report will provide the foundation for the oral presentation, where the student will defend the proposed research in front of the Qualifying Examination Committee (QEC). The student should submit the written report to the QEC **one month** prior to the QE.

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**Qualifying Examination Committee (QEC).** The QEC consists of 4-5 faculty members including a Chair (tenured faculty from SMT), the PhD advisor, and at least two or three other faculty members of SUTD (from any related pillars/clusters). The committee members can optionally include one additional external member not within SUTD.

**The Chair** is responsible for convening the committee and determining the scheduling of the examination. The Chair will also submit a QE results form with results and recommendations to the Graduate Committee of SMT upon completion of the QE, no later than 7 days after completion of the examination.

The PhD advisor is responsible for inviting and organizing the QEC. The PhD advisor should inform **the Head of SMT** or **the Graduate Committee Chair** of SMT about the members of QEC **two months** prior to the QE.

All the committee members are responsible for evaluating the student’s research, as well as the student’s ability to succeed as an independent researcher in the field.

The same QEC may serve as the Thesis Examination Committee (TEC). Members can be added or removed after the QE, subject to notification of the Graduate Committee of SMT.

After the oral presentation, the QEC should fill out the Qualifying Examination Results Form in Appendix 1 to conclude the student has passed the QE /passed the QE with minor revision/failed the QE.

**Timeframe**

<b>Timing</b>	
Student apply for the QE to the (PG) Committee	At least 3 months in advance
Student and advisor will select QEC, and inform HOC and PG Committee	At least 2 months in advance
Student and advisor will schedule exam date with QEC	At least 1.5 months in advance
Student to provide written report to QEC for evaluation	At least 1 month in advance
<b>Exam</b>	
QEC chair submits QE results form to PG Committee	Not later than 7 days after completion

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**APPENDIX 1: Qualifying Examination (QE) Results Form**

**SECTION A – TO BE COMPLETED BY STUDENT DURING THE QE ORAL PRESENTATION**

Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Date of Enrolment  
 (Intake Month and Year): \_\_\_\_\_

Date of Oral  
 Presentation: \_\_\_\_\_

Main Advisor: \_\_\_\_\_

Co-Advisor (if any) : \_\_\_\_\_

Co-Advisor (if any): \_\_\_\_\_

Title of Thesis: \_\_\_\_\_  
 \_\_\_\_\_

**SECTION B – TO BE COMPLETED BY QUALIFYING EXAMINATION COMMITTEE (QEC)**

SN	Roles	Name & Signature	Date
1	QE Committee Chair		
2a	Main Advisor		
2b	Co-advisor (if any) (SUTD / External)*		
3	QEC Member (SUTD)		
4	QEC Member (SUTD)		
5	QEC Member (SUTD / External^)*		
6	QEC Member (SUTD / External^)*		

^ The appointment of External TEC Member is optional

\* Delete where appropriate

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**SECTION C – QEC’s DECISION ON THE QE ORAL PRESENTATION**

1.  **Pass**

Comments for Pass:

2.  **Pass with Minor Revision**

For pass with MINOR revision, the student is given **2 weeks** for revision and subsequent submission to PhD main advisor to verify that the revision has met the recommendation given by the QEC.

Comments for Minor Revision:

After the minor revision, the PhD advisor and the committee chair are required to endorse in following table to confirm the student has passed the QE with minor revision.

**We certify that the minor revision has been corrected and the candidate has passed the QE.**

	Name & Signature	Date
Main Advisor		
QE Committee Chair		

5.  **Fail**

Comments for Fail: