

# ISEP

## STUDENT GUIDE

2021



NUS  
Graduate School

Integrative Sciences & Engineering Programme

## A Warm Welcome

Dear ISEP student,

Congratulations on gaining admission to the Integrative Science and Engineering Programme (ISEP)! ISEP welcomes you and looks forward to working with you to ensure that your PhD experience is challenging and rewarding. The PhD years should be some of the most enriching of your lives. ISEP aims to enable your intellectual development and help set you on course for a rewarding career.

This guide contains important information and will serve as a valuable resource throughout your years in ISEP. Our staff will be pleased to assist you should you require clarification or additional information.

Professor Wong Lim Soon

ISEP Programme Director

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## Coursework Requirements

No.	Area	Requirement	Description
1.	Coursework conducted by NUS faculty and/or RIs.	Depends on host department	<p>All ISEP students have to fulfil the coursework requirements of the Main Supervisor's host faculty (referred to henceforth as the <b>host department</b>). The Main Supervisor may propose some changes or customization to the coursework requirements of the host department for his ISEP student within the first semester of enrolment. Please refer to the section on "Customization of the PhD program requirements" in the handbook.</p> <p>The following three compulsory ISEP courses (Annex 1) must be completed in the first semester:</p> <ul style="list-style-type: none"> <li>• <b>GS5101</b> Research Immersion Module (2 MCs)</li> <li>• <b>GS6001</b> Research Ethics and Scientific Integrity (2 MCs)</li> <li>• <b>GS6883B</b> Interface Science and Engineering Research (2 MCs)</li> </ul> <p>ISEP students in the Aug 2021 intake are also required to take <b>GS6889C</b> Scientific Communication Primer (2 MCs).</p>
2.	Lab rotations		<p>All new students have to complete two laboratory rotations (LRs) with two ISEP-approved supervisors within the first 4 months of their candidature. Each rotation will last 1.5-2 months. Special approval must be sought before rotation with a supervisor who is not ISEP-approved i.e. students can also claim 2 MCs for a rotation with a supervisor who is not ISEP-approved, provided special approval was granted for this rotation. Only an ISEP-approved supervisor can be nominated as Main Supervisor.</p> <p>Students have to submit a lab rotation report to the supervisor at the end of each rotation. The report should fulfil the following:</p> <ul style="list-style-type: none"> <li>• 600 words (min) including a background of the research project, objective(s) of the project, methodology, results and discussion.</li> <li>• 5 pages (max) including tables, figures, references etc.</li> </ul> <p>The supervisor will evaluate the student's report and performance during the rotation and proceed to submit the "Lab Rotation Evaluation" online form to ISEP. The reports will be reviewed by the ISEP Director.</p> <p>Students are required to participate in a workshop in Sep/Oct that will be facilitated by the module coordinators.</p> <p>Students are eligible for the 2 MCs and a "Compulsory Satisfactory (CS)/Unsatisfactory (CU)" grading, subject to meeting all the criteria of the module – <b>GS5101 Research Immersion Module</b>, which include:</p> <ul style="list-style-type: none"> <li>• Attendance of the workshop.</li> <li>• Completion of two lab rotations with two ISEP-approved supervisors, with their performance endorsed by the supervisors.</li> <li>• Submission of two lab rotation reports, with the reports endorsed by the supervisors and approved by the ISEP Director.</li> </ul>

		<p>After the completion of the LRs, students may nominate their Main Supervisor by 01 December.</p> <p>Students who do not comply with the requirements of the LR may have their stipend suspended and/or be placed on academic probation.</p> <p><b>Note:</b></p> <p>The table below shows the time frames in which students should embark on their 1st and 2nd lab rotations. Students who have decided on their lab rotations may commence earlier than the proposed timeframes.</p> <table border="1" data-bbox="823 568 1155 719"> <tr> <td><b>Start date in Semester 1</b></td> </tr> <tr> <td>August - 1st rotation</td> </tr> <tr> <td>Oct - 2nd rotation</td> </tr> </table>	<b>Start date in Semester 1</b>	August - 1st rotation	Oct - 2nd rotation
<b>Start date in Semester 1</b>					
August - 1st rotation					
Oct - 2nd rotation					
3.	Diagnostic English Test (DET)	<p>All international students, especially those from non-English medium universities, are required to undergo the Diagnostic English Test (DET). Only students who have studied in NUS, NTU, SUTD and SMU are exempted from the DET.</p> <p>The DET is an English Language test set by the Centre for English Language Communication (CELC).</p> <p>The purposes of the DET are to:</p> <ul style="list-style-type: none"> <li>• determine which students will benefit from a basic level writing module before proceeding to an intermediate module.</li> <li>• determine which students will benefit from an intermediate level writing module before taking an advanced level writing module to help them with their thesis writing.</li> <li>• identify which students may be exempted from taking the above-mentioned modules.</li> </ul> <p>Results from the DET will determine whether students should be exempted from the Graduate English Course (GEC) or should they be placed in a GEC.</p> <p>The courses, which aim to raise English language writing, reading, and speaking proficiency, are offered at three levels: Basic (ES5000), Intermediate (ES5001A/ES5001B) and Advanced (ES5002).</p> <p><b>Only students with Band 3 result from the DET may be exempted from the Graduate English Course.</b> For information on the result of the DET and its implications, please refer to <a href="http://www.nus.edu.sg/celc/programmes/det.html">http://www.nus.edu.sg/celc/programmes/det.html</a></p> <p><b>Important Notes</b></p> <ol style="list-style-type: none"> <li>1. The milestones will be created by CELC in the student's milestone page in EduRec AFTER the student has taken the DET and recommended by CELC to undergo the Graduate English Course (GEC). If the student is exempted from the English course AFTER DET (with BAND 3 result from DET), the GEC milestone will not show in his/her record in EduRec. If the GEC milestone appears in the student's record in EduRec, it means that the student is required to proceed with the recommended level of English course. No exemptions are allowed thereafter.</li> </ol>			

			<ol style="list-style-type: none"> <li>2. The DET is a university-level requirement which <b>must</b> be fulfilled <b><u>before graduation</u></b>.</li> <li>3. DET must be completed latest by the second semester of candidature.</li> <li>4. Without DET, students are not allowed to attempt Qualifying Examination (QE) or to go for any overseas attachment such as the 2+2.</li> </ol>
4.	CITI RCR-Basic course		All graduate research students are required to complete the CITI-Responsible Conduct of Research-Basic course, preferably in their first semester.

## Transfer of Credits

ISEP students will follow the requirements of the host department for the transfer of credits. The application for transfer of credits has to be submitted to ISEP within the first semester of enrolment, latest by December. Applications received thereafter will not be entertained. Applications will be reviewed by the host department.

The general guidelines are provided below:

1. Credit transfer may be allowed for NUS modules that **have NOT been** used towards another degree (can be pre-taken during undergraduate study or from withdrawn or terminated graduate study), under the following conditions:
  - Modules are identical to or are relevant & have comparable content and level of difficulty as existing NUS modules at level 5000 or level 6000.
  - Modules are completed less than (<) 5 years before date of admission to ISEP.
  - The maximum number of modular credits allowed for credit transfer is 12 MCs.
  - Modules approved for transfer would count towards the student's CAP.
2. Credit transfer may be allowed for non-NUS modules that **have NOT been** used towards another degree (can be pre-taken during undergraduate study or from withdrawn or terminated graduate study), under the same conditions listed for (1) above. However, the modules will not be counted towards CAP but will be reflected in the transcript as "Exempted (EXE)."

## Academic Performance Criteria

Depending on the funding source of their scholarship, students must fulfil a minimum CAP requirement for every semester. All ISEP students on the President's Graduate Scholarship (PGF) must fulfil the CAP requirement of at least 4.0 for every semester. Students are advised to refer to the Terms and Conditions of their scholarship for the minimum CAP requirement.

## Grading System and the Cumulative Average Point (CAP)

### Grade Points

Students receive letter grades for each module taken, except for the cases listed below. Each grade corresponds to a grade point as shown below:

Grade	Grade Point
A+	5.0
A	5.0
A-	4.5
B+	4.0
B	3.5
B-	3.0
C+	2.5
C	2.0
D+	1.5
D	1.0
F	0.0

As the above table indicates, a plus (+) or minus (-) suffix added to a grade raises or lowers the grade point value, except in the case of A+, which carries the same grade points as the A grade.

### Cumulative Average Point (CAP)

Academic progress is tracked by the CAP, which is the weighted average grade point of all modules taken by a student. Therefore, a student's CAP is the sum of the module grade points multiplied by the number of MCs for the corresponding module, divided by the total number of MCs. This is represented as follows:

$$\text{CAP} = \frac{\text{sum (module grade point x MCs assigned to module)}}{\text{sum (MCs assigned to all modules used in calculating the numerator)}}$$

Online CAP calculator - [https://inetapps.nus.edu.sg/capcalc/cap\\_calculator.aspx](https://inetapps.nus.edu.sg/capcalc/cap_calculator.aspx).

Average grade simulator - [https://inetapps.nus.edu.sg/capcalc/avg\\_grd\\_simulator.aspx](https://inetapps.nus.edu.sg/capcalc/avg_grd_simulator.aspx).

Modules with no assigned MCs or grade points are excluded from the calculation of CAP.

There are a number of situations for which no grade points are assigned:

### **Completed Satisfactorily/Completed Unsatisfactorily (CS/CU)**

A module may be graded on a 'CS/CU' basis, i.e., whether the module has been 'Completed Satisfactorily' (CS) or 'Completed Unsatisfactorily' (CU). CS/CU modules are typically industrial attachment, internship or enrichment modules. Modular credits will be given for modules that are completed satisfactorily, although no grade point will be assigned. A module is designated 'CS/CU'; unlike modules graded on an S/U basis, it is not an option.

### **Exempted (EXE)**

This grade is awarded when a student is exempted from or given credit for a module under the Advanced Placement process. This refers to transfer of credits without grade or exemption of modules.

### **Incomplete (IC)**

The 'IC' grade is assigned when a student's work is of passing quality but is incomplete for good reasons (e.g., illness during the official examination period). However, even such good reasons will not warrant an 'IC' grade if the work already completed for the module is clearly not of passing quality; instead, students should note that the 'F' grade will be assigned in such cases. A module assigned an 'IC' grade normally cannot be used to fulfil the pre-requisite of a higher-level module. Should a student choose to repeat the module in a subsequent semester, none of the work done previously may be carried forward for assessment purposes.

### **In Progress (IP)**

For a module that extends beyond more than one semester, evaluation of a student's performance is deferred until the completion of the module. The provisional grade of 'IP' is assigned in the intervening semesters. This is replaced with the final grade when the student completes the module.

### **Satisfactory/Unsatisfactory (S/U)**

Students may elect to have certain modules graded on a 'Satisfactory/Unsatisfactory' (S/U) basis.

### **Withdrawn (W)**

When a student withdraws from a module between the first day of Week 3 of the instructional period and the last day of the Recess Week, a 'W' grade will be recorded in the transcript. Withdrawals after this period (i.e. from the first day of Week 7 of the instructional period) will result in an 'F' grade, which will be included in the computation of the CAP and will not be eligible for the S/U option.

## **Teaching Hours**

All ISEP students have to fulfil teaching duties in accordance with the requirement of the source of funding for their scholarship and the requirement of the host department. In general, the requirement follows the President's Graduate Fellowship (PGF), provided below:

- ISEP students who are Singaporeans and Singapore PRs shall, if required by the Head of Department, assist in teaching/laboratory supervision/research duties and other developmental assignments (e.g. conducting tutorials/lab demonstration, preparing teaching materials or developing new experiments for teaching purposes, performing invigilation duties, etc.) without any remuneration. The total number of hours shall not exceed 50% of hours required under the Graduate Assistantship Programme (GAP) for International Students as set out in [Table 1](#).
- ISEP students who are International Students are required to perform duties of 312 hours, under the Graduate Assistantship Programme (GAP). Please refer to [Table 1](#), which shows the maximum hours that can be clocked under the respective categories.



Students are advised to refer to the Terms and Conditions of their scholarship for details.

**TABLE 1**

Mode of Clocking Graduate Assistantship Programme Hours (per candidature)	Hours	Remarks
Teaching/Laboratory Supervision (min.20%)	at least 63	<p>Official office hours and preparation of the class can be taken into account.</p> <p>As a guide, preparation time taken for the assignment should not take more than half of the time required for the assignment.</p>
Research assistant duty, inclusive of research supervision (max.60%)	up to 188	<p>The quality of the research supervision or research assistant duty needs to be endorsed by the student's supervisor(s).</p> <p>No preparation time is to be clocked in this assignment. The research assistant duty should go beyond the scope of the research project undertaken by the student to fulfil the requirement of the graduate programme.</p>
Other developmental assignments (max.20%)	up to 63	<p>Other assignments with developmental value approved by the ISEP Director and/or the host department. These could include:</p> <ol style="list-style-type: none"> <li>1. ISEP Buddy Scheme (10 hours)</li> <li>2. ISEP Student Ambassador Scheme (10 hours)</li> <li>3. Attendance of ISEP PhD Oral Defence Seminars</li> <li>4. Giving seminars or conducting a workshop</li> <li>5. Conference Organization</li> </ol> <p>For more details, please refer to <a href="#">Table 2</a>.</p>

TABLE 2

No.	Modes of Clocking Teaching Hours	Maximum Hours to Clock	Remarks
1.	ISEP Buddy Scheme	10 hours	<p><b>It is mandatory for students to participate in the Buddy System. For example, students from the August 2021 intake will take on the roles of senior buddies to the freshmen of the subsequent August 2022 intake.</b></p> <ul style="list-style-type: none"> <li>• Senior must meet with the freshmen at least 2 times in that academic year (~1x per semester) and obtain satisfactory feedback from the freshmen (Note: Only 10 hours can be claimed regardless how many freshmen the senior has).</li> <li>• The Online Buddy Report Form is applicable to both the Senior &amp; Freshmen who are in the Buddy program; Submission of the form <b>MUST</b> be made <u>once every semester</u> in the freshmen's <b>first year of study only</b>.</li> <li>• Deadline to submit the form in <u>Semester 1 is 01 July</u> and <u>Semester 2 is 02 January</u>; late submissions will not be accepted and incomplete forms received after the deadline of each semester will be considered as void.</li> <li>• Both forms for the Senior and Junior <b>MUST</b> be submitted. Therefore, the Senior Buddy must ensure that the Junior Buddy submits the form every semester and vice versa.</li> <li>• 5 hours will be uploaded to Senior's teaching milestone at the end of each semester (up to a max of 10 hours). ISEP reserves the right to revoke the 5 hours uploaded should the senior not fulfil his/her buddy duties and not submit the subsequent (or 2nd) form required.</li> </ul>
2.	ISEP Student Ambassador Scheme	10 hours	<p>Current students may receive an invitation from ISEP to serve as a Student Ambassador to prospective ISEP students. Student Ambassadors should have a positive outlook, excel in research, enjoy meeting new people and have time to nurture positive relationships with prospective students.</p> <p>Student Ambassadors may be called upon to participate in recruitment events, answer questions from prospective students, stay in touch with new students from the time they receive the scholarship offer and assist them in settling into campus life.</p>
4.	Attendance of ISEP PhD Oral Defence Seminars		<ul style="list-style-type: none"> <li>• Students may clock 1 hour for each PhD Oral Defence Seminar they attend.</li> <li>• To be awarded the hours, students have to sign in their attendance at <b>each</b> seminar and after <b>each</b> session, and submit to ISEP the PhD Oral Defence Seminar Report Form to share what they have learnt.</li> </ul>
5.	Giving a seminar or Conducting a workshop		These seminars/workshops should be research seminars/workshops of >30 mins in length, and <u>exclude</u> those that would count towards the requirement of a seminar-based module, or part of an organized mandatory departmental graduate seminar series.
6.	Conference Organization		Students have to submit a request and to seek approval from the ISEP Director for this option.

## Nomination of Research Supervisor

Students are given up to **4 months** from their candidature start date to nominate a main supervisor. Students admitted in August will have to confirm their supervisor nomination by **1 December**. Supervisor nomination is only formalized once the student submits the '[Nomination of Supervisor Form](#)' to ISEP, and an official approval from ISEP in the form of an email, copied to the student and supervisor has been given. The nomination of a co-supervisor is optional.

**The student is required to fulfil the PhD program requirements and timeline of the host department, including core modules, Qualifying Examination (QE), thesis proposal, thesis, thesis examination and Advisory Committee requirements.**

ISEP students should select a main supervisor from NUS, who is ISEP-approved. Please refer to <https://isep.nus.edu.sg/choose-a-supervisor/> for the list of ISEP-approved supervisors. A supervisor from the Research Institute (RI) is only possible if he/she is jointly appointed by NUS and the RI and is ISEP-approved.

AGS students may select a main supervisor from the RI who is ISEP-approved, or a main supervisor from NUS who is ISEP-approved. If in doubt, AGS students should seek advice from A\*STAR and ISEP.

ISEP has imposed a quota of three ISEP/AGS students for each ISEP-approved supervisor as the main supervisor or co-supervisor. Prior to the nomination of a supervisor, students are advised to check with ISEP or the respective supervisor on whether he/she can accept any more student(s).

## Change of Research Supervisor

If the student has to change supervisors during the candidature, he/she should identify a potential new supervisor and inform the current supervisor, the host department and ISEP. The student should submit the paperwork to change supervisors to the host department.

## Customization of the PhD program requirements

The supervisor may propose some changes or customization to the PhD program requirements and timeline of the host department for his ISEP student within the first semester of enrolment, latest by December. The changes must be approved by the ISEP Academic Affairs Committee and the Vice-Dean for Graduate Studies of the host department.

The supervisor may propose up to 6 MCs reduction in program requirements for his ISEP student (or up to 4 MCs for an AGS student).

For a student whose previous degree was in a discipline that is sufficiently different from the discipline of the host department, the supervisor may propose partially waiving the QE of the host department (if there is QE requirement) and/or substituting/dropping some required core modules of the host department.

For a student whose research requires expertise in the discipline of the host department and in at least one other sufficiently different co-discipline, the supervisor may propose substituting some required core modules of the host department by some modules in the co-discipline that are more directly relevant to the student's research.

In the event that an ISEP student does not perform up to expectations, he is permitted to follow the exit pathways of the PhD program of the host department, such as termination or downgrade to a master-degree program of the host department. The appropriate exit pathway will be determined by the established procedure of the host department.

## Progress Reports

The student is required to receive the minimum research progress rating of 'Very Good' in each semester for the scholarship to be renewed. If the rating is 'Good', the student will be issued a warning. The scholarship will be terminated immediately if the student receives the rating of 'Good' for the following semester. In addition, if the student receives the rating below 'Good' for any semester, the scholarship will be terminated immediately.

## PhD Thesis Examination

ISEP students will follow the requirements of the host department for thesis examination. The general guidelines are provided below:

### a) Format of Thesis

Candidates should refer to the University's [Handouts for Thesis Examination](#) (available at myPortal@NUS) for more information for general guidelines on format of thesis. Candidates who wish to apply for an extension of the word limit for their theses will have to seek approval from their supervisors and the examination office of the host department.

Permission or license for reproduction must be obtained for any figures, captions or other materials taken from published or online sources, and such permissions/licenses should be explicit stated in the text in an appropriate format sanctioned by the copyright owner/publisher. The candidate should include, as far as possible, only his/her own work in the thesis. Work done by others could be included, with explicit acknowledgement, under the sections of Introduction, Discussion or Appendix, only if these aid logical flow of the writing and would facilitate a more wholesome understanding of the research. Presentation of work done by co-workers in the "Results" section should be avoided. However, if this is necessary, explicit acknowledgement should be made, and permissions to quote or reproduce results from co-workers should be obtained and clearly stated.

Candidates whose thesis format is likely to significantly deviate from the above should seek the approval and support of the Thesis Advisory Committee, and consult the examination office of the host department. If the TAC is agreeable with the proposed format, candidates are to submit an appeal for the Board of Examiners' consideration, at least two months before the expected thesis submission.

### b) Deadline for Submission

Candidates have to submit their theses for examination (after being approved by their supervisor(s) and Head of Department) by the maximum period of candidature or such date as stipulated by the supervisor(s) or the University, whichever date is earlier.

Application for extension of candidature is only applicable to candidates who need more time beyond five (5) years. In such a case, candidates who wish to apply for extension of candidature need to complete the Extension of Candidature form and submit it through the supervisor(s), preferably three (3) months before the expiry date of their candidature, for consideration by the host department. For students who do not require an extension of candidature beyond five (5) years, but need a grace period of up to two (2) weeks to submit their thesis for examination, may request permission from the host department to do so. The request for the grace period has to be submitted to the host department before the expiry of the candidature and has to be supported by the main supervisor. Note that the request for grace period is NOT applicable to students who have been granted prior candidature extension(s) nor students who are submitting their revised/final approved thesis. Any late request would be considered as reinstatement of candidature and an administrative fee of S\$250 will be imposed for all successful reinstatements.

Candidates who have been given the two (2) weeks grace period but are still unable to submit their theses should consult their supervisor(s) first before applying for any reinstatement and extension of candidature.

Candidates who wish to submit their theses before the [minimum residency](#) period must submit a written request to the host department, through the supervisor(s), for approval before submission.

### c) Thesis Submission Date & Fees Payable

Tuition and miscellaneous fees are payable until the thesis is submitted for examination. However, the insurance premium will continue to be payable for full-time students unless the candidate converts his/her candidature to part-time. A candidate who converts his/her candidature to part-time after Instructional Week 2 is liable to pay the insurance premium for that semester.

The tuition fees payable for the semester in which the thesis is submitted for examination depends on the thesis submission date (i.e. the date of receipt by the host department).

Date of Submission	Tuition Fees Payable
By end of Instructional Week 2	Exempted
<u>During first half of semester</u> Sem 1: Instructional Week 3 to 30 September Sem 2: Instructional Week 3 to 31 March	Half of fees for the semester

<u>During second half of semester</u> Sem 1: October to end of semester Sem 2: April to end of semester	Full fees for the semester
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Exemption of fees will take effect from the semester after the thesis is submitted for examination, except if the thesis is submitted within Instructional Week 2 of the semester

**Note:** For current research scholars, the last day of award will be the date of receipt of the Thesis Submission Form by the host department. If the research scholar did not submit the form to host department as soon as he/she could have, ISEP can terminate the scholarship earlier than the date the form is received.

#### d) Thesis Check and Copyright Issues

Candidates are strongly encouraged to put their drafts through the plagiarism check link at [iThenticate](#).

Please note that all ISEP students are subscribed to the usage of this site. This site should be used strictly for checking of PhD thesis and QE report drafts only, not term papers or other module assignments. The latter should be performed using their respective module links.

Students are also reminded to: -

1. check out all potential copyright issues in the thesis by ensuring that permissions for reproduction of all materials taken from others (be it personal communications or from public domains) have been obtained in writing.
2. ensure that the source of any material(s) taken from others, reproduction permission aside, is explicitly acknowledged so that it would not constitute as plagiarism.

#### e) Procedures for First Submission of Thesis for Examination

Candidates have to log in to myEduRec (navigate to Academics > Graduate Research > Submit Thesis) once the thesis is ready for submission:

- Complete the online Thesis Submission Form.
- Upload a soft-copy (PDF format) of the thesis.
- Prepare a printed soft-bound copy of the thesis and submit to ISEP if requested by the administrator.

#### \* Note for Payment:

Please refer to <http://www.nus.edu.sg/registrar/edu/gd-fees.html> for implications of outstanding fees.

For research scholars who have received excess Research Scholarship stipend and have yet to refund the excess, the University reserves the right to withhold student status letters, results slips or transcripts, status letters, thesis examination and the confirmation of the award of the degree.

### Process of Thesis Examination

**Important:** Candidate should not, under any circumstances, communicate with any examiner on matters related to the thesis examination.

#### a) Nomination of Thesis Examiners

Candidates should maintain close contact with their supervisors, so that the main supervisor is aware of their progress and will initiate the nomination of examiners process via EduRec, typically one month before the thesis is expected to be submitted for examination.

Supervisors are required to nominate a minimum of 2 internal examiners. Examiners must be internationally-recognized scientists in the field identified by the usual criteria (research output, citations, etc). Supervisors can request to appoint an external examiner, in the event that the supervisor believes that potential reviewers within the university lack the necessary

expertise to evaluate the PhD candidate's thesis. The external examiner appointed can be in addition to, or in lieu of, one of the internal examiners, to fulfil the requirement of a minimum of two examiners.

External examiners who have to examine a thesis with patentable/confidential materials will need to read and agree to the Terms & Conditions on the Non-Disclosure Agreement (NDA) form before the thesis is sent to him/her. (Candidates and supervisors are reminded that proprietary/confidential information which is not critical to the thesis for which consent has not been granted should be excluded from the thesis.)

#### **b) Period of Thesis Examination**

Examiners are given seven weeks from the date thesis is sent to them, to complete the examination of the thesis and submit an evaluation report. Reminders will be sent by the host department to examiners before the deadline and those who fail to submit their evaluation reports by the deadline.

Candidates are required to attend their oral examination **physically in Singapore** after the theses have been examined. (Candidates are to bring a copy of the thesis for the oral examination).

#### **c) Oral Examination**

After all the examiners' reports are received:

##### **Ph.D. thesis**

If there are no / minor amendments, the candidate will be notified of the confirmed oral examination date. A copy of the Faculty's guidelines on the oral presentation will also be given to the candidate.

Candidate is strongly advised, with the assistance of the supervisor(s), to identify and respond to major issues and criticisms raised by all examiners in their reports.

These responses could be drafted in a form of a concise point-to-point written rebuttal that could be communicated to the examiners before the viva, or on the day itself, through the host department. Candidates and supervisors are reminded that they should not communicate directly with any of the examiners.

However, the candidate may be asked to revise and resubmit the thesis for further examination before the oral examination is scheduled.

#### **Oral Examination Format**

ISEP students will follow the requirements of the host department for the oral examination. The general guidelines are provided below:

The Oral Examination Panel will be chaired by the Chair of the students' Thesis Advisory Committee (TAC). Along with him/her will be the internal examiners who would form the examination panel. External examiner(s) may be present but this is not mandatory.

The examination comprises the following components: -

- Open Seminar, of approximately 45 minutes (together with examiners)
- Question & Answer Session, of approximately 15 minutes for general audience to ask questions
- Closed-Door Examination (with examiners only)

The candidate should: -

- Give a brief overview of the thesis;
- Discuss key findings and new contributions made to the field;
- Justify the methodology and theoretical framework used; and
- Analyze the implications of study for future research or applications

The candidate is expected to answer satisfactorily any questions raised on the subject matter of the research thesis and related subjects by the oral panel, who will then discuss the merit of the PhD in private and reach a decision.

## d) Outcome of Thesis Examination

After the oral examination, the candidate will be informed by the Oral Panel of the outcome, on the amendments to the thesis and the person(s) to advise the candidate on the amendments, if applicable.

Please note that if major revisions to the thesis are required, the candidate may have to pay fees for 1 semester, even if the period granted to do the revision is less than six months. If the candidate is unable to complete the revisions in six months, s/he will be required to pay another semester's fees. The total revision period cannot exceed 12 months.

After examination/re-examination, the candidate should submit the required documents in accordance with the guidelines of the host department.

The final approved thesis must be uploaded electronically. (Please refer to guide - [Instructions to Higher Degree \(by Research\) Students on Submission of Electronic Thesis](#).) The candidate will be notified via email when the system is open for a week for him/her to upload the thesis. The candidate is required to check and ensure that the uploaded thesis is the final, complete and correct version. The uploaded electronic thesis will be accepted **without** any further verification from the host department or supervisor(s). Therefore, the candidate must be responsible in ensuring that the correct version is uploaded onto the system.

One copy (in any form agreed with the supervisors) of the final approved thesis should be submitted to the supervisor(s).

## Award of Degree

The candidate will be considered for award of the degree by the Board of Graduate Studies if all minor/major revisions are incorporated in the thesis to the satisfaction of the supervisor(s) and the Oral Panel member (if applicable); and after the uploaded electronic thesis has been verified by the host department.

After the degree has been awarded by the Board of Graduate Studies, the Chancellor's approval will be sought for the degree to be conferred in writing. The approximate timeframe for approval by Board of Graduate Studies and Chancellor is about two months after the thesis has been uploaded onto the system.

### **IMPORTANT NOTE:**

The candidate should inform the Registrar's Office of any change in mailing address by updating it via EduRec so that the outcome of the thesis examination can be communicated promptly.

## Assistance for Students

Prior to matriculation, incoming students are strongly advised to familiarize themselves with the requirements of the ISEP PhD program. They should contact potential thesis advisors early and consider which labs to carry out their lab rotations in. Students can email ISEP program administrators for questions related to the program.

International students would also need to make arrangements for long-term accommodation on-campus or off-campus.

Students can approach the Office of Student Services (OSA) on student-related issues. These include immigration matters and accommodation advice for international students. More information can be found on the OSA website (<https://nus.edu.sg/osa/>).

Students can visit the Student Service Centre at Yusof Ishak House Level 1 for information and services related to academic transcripts, tuition fees and financial matters.

## Student Health and Well-being

The University Health Centre (UHC) provides comprehensive outpatient medical treatment to all students at a minimal charge. More information can be found at the UHC website (<http://www.nus.edu.sg/uhc/>).

The University Counselling Services (UCS) offers a wide range of services such as individual counselling and crisis intervention. It is located at level 2 of the UHC. A 24-hour hotline is available for students in extreme distress and cannot wait for a scheduled appointment. Students can call LifeLine NUS at 6516 7777 for immediate assistance or contact Dr Joan Lee at [ngslscj@nus.edu.sg](mailto:ngslscj@nus.edu.sg).

Students are welcome to use the sports facilities on campus. More information can be found at <https://uci.nus.edu.sg/suu/facilities/about-suu-sports-facilities/>.

## Activities for ISEP students

ISEP students are encouraged to foster professional and social connections with each other. Senior students are expected to guide the juniors and take a leadership role in organizing and running various activities for students. Activities include research updates, book clubs and regular online/physical informal meetings. Students can join one of the Student Research Communities, Student Support Groups and interest groups e.g. sports, performing arts etc. to forge meaningful ties with other students. Throughout the year, the program will support ad-hoc events such as Movie Night and Community Engagement Day. The University also organizes wellness activities and career enhancement workshops for the student body.



## Annex 1

### ISEP Compulsory Modules

Module Code	Module	MCs
GS5101	Research Immersion Module	2 (CS/CU)
GS6001	Research Ethics and Scientific Integrity	2
GS6883B	Interface Science and Engineering Research	2 (CS/CU)
GS6889B	Academic Skills and Research Ethics (for SCELSE/IDS/MBI students only)	2 (CS/CU)

#### **GS5101 Research Immersion Module (2 MCs, CS/CU)**

Students will complete two lab rotations in their first semester with ISEP. Each rotation will last for at least 2 months. At the end of each lab rotation, students will submit a lab rotation report that includes a description of the research project that the student has worked on and the supervisor's assessment of the student's performance and commitment during the lab rotation. Students will attend a workshop, facilitated by the principal lecturers, before they start their second lab rotation. They will discuss research mentorship, research planning and management and articulate the learning experiences gleaned from their first lab rotation. Modular credits and a 'Completed Satisfactory (CS)/Unsatisfactory (CU)' grade are awarded on the basis of satisfactory performance for both rotations, completion of two lab rotation reports and attendance of the workshop.

#### **GS6001 (Research Ethics and Scientific Integrity), 2 MCs**

The module covers issues that any graduate student in science and engineering shall face at some point during their PhD candidature and in their subsequent academic careers. Through lectures, discussions and presentations, students shall ponder on and analyze ethical issues and dilemmas associated with data archival, mentoring, authorship, credit sharing and conflicts of interest. They shall rationalize internationally sanctioned rules and regulations in dealing with ethically sensitive research subjects. They shall be taught sensible and appropriate approaches in dealing with incidents of scientific misconduct, and how ethical integrity should and could be maintained in spite of research intensity and competition.

#### **GS6883B Interface Science and Engineering Research (2 MCs, CS/CU)**

This module aims to cultivate an interdisciplinary mindset among postgraduate students. Through interactive lectures, the module will expose students to various research themes to broaden their knowledge and examine the role of integrative approaches in addressing 21st century challenges. Through journal clubs, the module will prepare students to critically evaluate research literature across the science and engineering disciplines and recognize the broader significance of work presented within the context of each field.

#### **GS6889B Academic Skills and Research Ethics (2 MCs, CS/CU)** (ONLY for SCELSE/IDS/MBI students)

The module equips students with the academic know-how to succeed in graduate school. Students shall be coached by university experts on their academic writing and presentation skills and receive guidance on the process of scientific publication, as well as to intellectual property and patent issues. Students shall participate in a two-day ethics workshop, where they will analyze ethical issues and dilemmas associated with mentoring, authorship, conflicts of interest and dealing with ethically sensitive research subjects.



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