

ISEP

STUDENT GUIDE

2020



NUS
National University
of Singapore

NUS
Graduate School

Integrative Sciences & Engineering Programme

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Coursework Requirements

No.	Area	Requirement	Description
1.	Coursework conducted by NUS faculty and /or RIs.	Min 30 MCs	<p>Comprises the following:</p> <p>1. Compulsory courses All ISEP students have to fulfil 30 MCs which comprise the 3 compulsory ISEP courses:</p> <ul style="list-style-type: none"> • GS6001 (Research Ethics and Scientific Integrity) to be read latest by the 3rd semester upon enrolment, • GS5002 (Academic Professional Skills and Techniques) to be read latest by the 4th semester upon enrolment, • GS6883A (Interface Sciences and Engineering) to be read latest by the 4th semester upon enrolment. <p>2. Other courses supported by supervisor and approved by ISEP.</p> <p>3. Refer to Annex 1 for a list of modules offered by ISEP.</p> <p>Important note:</p> <ul style="list-style-type: none"> • All modules taken should be level 5000 or 6000. • Levels 1000 - 4000 are undergraduate modules and can only be read as "AUDIT". Students who audit a module will not receive a final grade. Audited modules will not appear on the student's transcript / result slip. No record of attendance will be issued to auditors of a module. Note that it is subject to the host Faculty's approval whether students are allowed to audit a module. • Graduate Modules Classified as S/U <ol style="list-style-type: none"> 1. This is applicable to all ISEP students who wish to take graduate modules outside their main undergraduate discipline, to be graded on a S/U system and NOT count towards the CAP. 2. Student may request for up to 3 modules (12 MCs), with the support of your main supervisor. 3. Application for S/U modules has to be done within the first month of the start of the module. Once approved by ISEP and the department hosting the module, students are not allowed to reverse their decision, be it before the examination or after the examination results release. 4. Any request for changes to the modules after the examination results release such as changing grading basis from S to grade, grade to S/U or deleting a module is NOT allowed. <p>NOTE: The 'S' or 'U' grade has no effect on the CAP since they carry no grade point. The modular credits earned with an 'S' grade will count towards the total number of modular credits that a student needs to fulfil his degree programme. On the contrary, a module with an 'U' grade earns no modular credits.</p> <p>In other words, another module which carries the same modular credit needs to be taken to compensate for the "U" graded module, and it should be noted that the limit of three S/U declarations for electives taken by the candidate cannot be exceeded.</p>
2.	Lab rotations		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

		<p>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"> • 600 words (min) including a background of the research project, objective(s) of the project, methodology, results and discussion. • 5 pages (max) including tables, figures, references etc. <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 – GS5101 Research Immersion Module, which include:</p> <ul style="list-style-type: none"> • Attendance of the workshop. • Completion of two lab rotations with two ISEP-approved supervisors, with their performance endorsed by the supervisors. • Submission of two lab rotation reports, with the reports endorsed by the supervisors and approved by the ISEP Director. <p>After the completion of the LRs, students may nominate their Main Supervisor by 02 Jan (for Aug intake) and 01 Jun (for Jan intake).</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>Note:</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 the lab rotations may commence earlier than the proposed timeframes.</p> <table border="1" data-bbox="616 1487 1305 1662"> <thead> <tr> <th>Start date in Semester 1</th> <th>Start date in Semester 2</th> </tr> </thead> <tbody> <tr> <td>1 Sep - 1st rotation (for Aug intake students)</td> <td>1 Feb - 1st rotation (for Jan intake students)</td> </tr> <tr> <td>1 Nov - 2nd rotation (for Aug intake students)</td> <td>1 Apr - 2nd rotation (for Jan intake students)</td> </tr> </tbody> </table>	Start date in Semester 1	Start date in Semester 2	1 Sep - 1st rotation (for Aug intake students)	1 Feb - 1st rotation (for Jan intake students)	1 Nov - 2nd rotation (for Aug intake students)	1 Apr - 2nd rotation (for Jan intake students)
Start date in Semester 1	Start date in Semester 2							
1 Sep - 1st rotation (for Aug intake students)	1 Feb - 1st rotation (for Jan intake students)							
1 Nov - 2nd rotation (for Aug intake students)	1 Apr - 2nd rotation (for Jan intake students)							
3.	Diagnostic English Test (DET)	<p>ISEP requires all international students, especially those from non-English medium universities 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"> determine which students will benefit from a basic level writing module before proceeding to an intermediate module. 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. identify which students may be exempted from taking the above-mentioned modules. <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>Only students with Band 3 result from the DET may be exempted from the Graduate English Course. For information on the result of the DET and its implications, please refer to http://www.nus.edu.sg/celc/programmes/det.html</p> <p>Important Notes</p> <ol style="list-style-type: none"> 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. The DET is a university-level requirement which must be fulfilled before graduation. DET must be completed latest by the second semester of candidature. Without DET, students are not allowed to attempt PhD Qualifying Examination (PQE) or to go for any overseas attachment such as the 2+2.
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

The application for credit transfer has to be submitted to ISEP **within the first semester of enrolment**. For students admitted in January, transfer of credit request to ISEP has to be submitted latest by July; Students admitted in August, transfer of credit request to ISEP has to be submitted latest by December. Applications received thereafter will not be entertained.

Request of Transfer of Credits or Exemption of modules will be reviewed by the ISEP Director before any approval is granted.

- 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 ISEP/NUS modules at level 5000 or level 6000.
 - Modules are completed less than (<) 5 years before date of admission to the ISEP programme.
 - 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).”

For modules which have been approved for exemption, they will count towards the 12 MCs (or 3 modules) which ISEP allows for S/U modules. For example, 2 modules have been approved for exemption, the student would only be allowed to read 1 more module on S/U grading basis.

Academic Performance Criteria

CAP Requirements and Policies

Effective from AY2011/12 Semester 1 (August 2011)

1. CAP review for students will be done at the end of every Semester 1 & 2 of the Academic Year (AY) after the official release of the examination results (excluding Special Term 3 & 4).
2. ISEP does not practice the Best Cap Calculation policy. All modules read will be used for the computation of the students' CAP, unless the module(s) is graded as S/U or CS/CU.
3. Students whose performance is under review by ISEP are required to read at least 1 module every semester.
4. For students who fail to meet the CAP requirement of 3.80 for every semester, appropriate actions will be taken as follows:

1st academic warning:

- A warning letter will be issued via email (cc. supervisor)

2nd academic warning:

- A warning letter will be issued via email (cc. supervisor).
- Educational Allowances (EA) will be suspended.

3rd academic warning:

- A warning letter will be issued via email (cc. supervisor).
- Educational Allowances (EA) will be suspended.
- For students with:
 - **CAP between 3.50 - 3.79**
Reduction of Research Scholarship (RS) stipend to faculty level:

S\$2000 per month for International Student
S\$2200 per month for Singapore Permanent Resident
S\$2700 per month for Singapore Citizen
 - **CAP below 3.50**
Termination of RS and Candidature by Registrar's Office (RO).

* ISEP will not consider any appeal from students under the 2nd and 3rd academic warnings for waiver of any penalty as stated above.

For students who have already been warned 3 times (with CAP between 3.50 to 3.79 and RS stipend at Faculty level) and achieve a CAP of less than 3.80 in the 4th semester:

1. Termination of RS and Candidature by Registrar's Office (RO).

*RO will send a dismissal letter to student (cc to supervisor).

Notes:

1. The suspension of the EA and the reduction of RS stipend will take effect from the date of release of the exam results of the previous semester to the date of release of the next exam results in the following semester of the academic year.

2. For students who are funded by other sources - ISEP will notify the relevant funding body to recommend similar penalties.

Appeal Procedures for Re-instatement of Candidature - applicable to only dismissed/terminated students with CAP between 3.50 to 3.79

1. Students who were dismissed from their candidature due to poor academic standing and who wish to appeal for re-instatement, should submit their appeal to ISEP within two calendar weeks of the last day of the release of each semester's examination results (with support from supervisor, providing information on research performance, publications list and any other relevant information to support the appeal). ISEP will not consider any appeals after that.
2. Students with potential to be considered for re-instatement will be asked to attend an interview.
3. Students will be notified of decision by ISEP. RO will write to inform the student on the re-instatement of candidature and the student must accept the offer for re-instatement and reply to RO by the deadline given in the letter, failure of which will cause the offer to lapse.

Conditions for Re-instatement of Candidature

1. ISEP will not provide Research Scholarship (RS) stipend.
2. ISEP will not provide Tuition Fee (TF) subsidy.
3. ISEP will not provide Educational Allowances (EA).
4. Students who are re-instated should still be reading course(s) in the current semester to improve on their CAP to >3.8, failure of which will result in a 2nd dismissal (with no appeal for second re-instatement). The student will have to achieve the minimum CAP required for continuation and graduation in the current semester.

For students who have improved their CAP to >3.8, ISEP will consider on a case-by-case basis to re-instate their RS/TF/EA.

Refer to **Annex 2** for the Performance Review Flowchart.

Grading System and the Cumulative Average Point

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.

Average grade simulator - 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 as part of their coursework requirement.

- **ISEP students who are Singaporeans and Singapore PRs have to fulfil a total of 40 hours of teaching duties.** This is normally to be completed by the end of the 2nd year of enrolment at ISEP. The teaching requirements should be fulfilled within the academic settings of NUS or where appropriate and subject to approval, other institutions within Singapore. There are different options of clocking the teaching hours, as listed 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 2, which shows the maximum hours that can be clocked under the respective categories.

TABLE 1

No.	Modes of Clocking Teaching Hours	Maximum Hours to Clock	Remarks
1.	Undergraduate Teaching	40 hours	<ul style="list-style-type: none">• Compulsory for all ISEP students to participate in undergraduate teaching in NUS.• Normally to be completed by the end of the 2nd year of enrolment at ISEP.• Feedback will be required within 4 weeks of the teaching being completed.• No MCs will be allocated for teaching.• Marking hours cannot be used as part of teaching hours. Only the direct teaching or demonstrating hours can be clocked
2.	Research Supervision	10 hours	<ul style="list-style-type: none">• Students are encouraged in the later stages of their research career to participate in supervision of JC, Honours and UROP students

			<p>undertaking research projects in their host institution, normally in the laboratory of their Main Supervisor or Co-Supervisor (if any).</p> <ul style="list-style-type: none"> This can be used to fulfil up to 25% of the 40 hours teaching requirement, provided it can be adequately documented. The Supervisor and the students being supervised will certify the quality of the supervision.
3.	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.	ISEP Buddy Scheme	10 hours	<p>It is mandatory for students to participate in the Buddy System. For example, students from the August 2015 intake will take on the roles of senior buddies to the freshmen of the subsequent August 2016 intake.</p> <ul style="list-style-type: none"> 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). The Online Buddy Report Form is applicable to both the Senior & Freshmen who are in the Buddy program; Submission of the form MUST be made <u>once every semester</u> in the freshmen's first year of study only. Deadline to submit the form in <u>Semester 1</u> is 01 July and <u>Semester 2</u> is 02 January; late submissions will not be accepted and incomplete forms received after the deadline of each semester will be considered as void. Both forms for the Senior and Junior MUST be submitted. Therefore, the Senior Buddy must ensure that the Junior Buddy submits the form every semester and vice versa. 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.
5.	Attendance of ISEP PhD Oral Defence Seminars	5 hours	<ul style="list-style-type: none"> Students may clock a maximum of 5 hours; 1 hour for each PhD Oral Defence Seminar they attend. These 5 hours may be used to fulfil the mandatory 40 hours of teaching requirement. To be awarded the hours, students have to sign in their attendance at each seminar and after each session, and submit to ISEP a PhD Oral Defence Seminar Report Form to share what they have learnt.
6.	Giving a seminar or Conducting a workshop	5 hours	<p>These seminars/workshops should be research seminars/workshops of >30 mins in length, and <u>excluding</u> those that would count towards the requirement of a seminar-based module, or part of an organized mandatory departmental graduate seminar series.</p>
7.	Conference Organization	5 hours	<p>Students have to submit a request and to seek approval from the ISEP Director for this option.</p>

Note for (4) – (6), up to 5 teaching hours could be claimed for each of the above approved academic/educational activities. Any claim of number of teaching hours exceeding the 5-hour cap for any of the activities above is subject to review and approval by the ISEP Director.

Graduate Assistantship Programme

Since AY2014/2015, all international students awarded the ISEP Scholarship are required to perform duties under the Graduate Assistantship Programme as set out in the table below.

Total Hours Required to Serve during Candidature
312 hours

The below table sets out the maximum hours that can be clocked under the respective categories:

TABLE 2

No.	Mode of Clocking Graduate Assistantship Programme Hours (per candidature)	Hours	Remarks
1.	Teaching / Laboratory Supervision (min. 20%)	At least 63	<p>Official contact hours with students only. Time taken for preparation for the class, marking of assignments and assistantship with journal clubs can be taken into account.</p> <p>As a guide, time taken for preparation and marking should not take more than half of the total time clocked for the assignment. For e.g. Total hours clocked for the assignment = 20 hours; Total hours claimed for preparation and marking = 10 hours (max).</p> <p>Note: The final decision on hours allowed for claiming will be made at ISEP' discretion.</p>
2.	Research Assistant (RA) 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>
3.	Other developmental assignments (max. 20%)	up to 63	<p>Other assignments with developmental value approved by the ISEP Director.</p> <p>This could include:</p> <ol style="list-style-type: none"> 1. ISEP Buddy Scheme (10 hours) 2. ISEP Student Ambassador Scheme (10 hours) 3. Attendance of ISEP PhD Oral Defence Seminars 4. Giving a seminar or Conducting a workshop 5. Conference Organization <p>For more details, please refer to Table 1, #3, #4, #5, #6 and #7.</p>
Total Hours		312	

1. The awardee will not be paid any remuneration for the hours clocked under the Graduate Assistantship Programme.
2. The awardee should work with the supervisor(s) on the plan to fulfil the required hours on a yearly (Academic Year) basis.

3. The awardees have to complete at least half of the required hours (156) by PQE (2-year point) or 208 hours by the end of the 3rd year.”
4. The duties can only be clocked for work done deemed satisfactory by the University.
5. If the required hours are not met according to the annual plan or the quality of the work done is unsatisfactory, ISEP can
 - reduce or withhold the stipend, and/or the tuition fee subsidy, and/or terminate the Scholarship; and or
 - withhold the transcript (both official and unofficial) and student status letter, conferment letter until the requirements are met.

Nomination of Research Supervisor

Students are given up to **5 months** from their candidature start date to nominate a main supervisor.

For students in the August intake, they have to confirm their supervisor nomination by 02 January of the following year; students enrolled in the January intake, they have to confirm their supervisor nomination by 01 June of the same year.

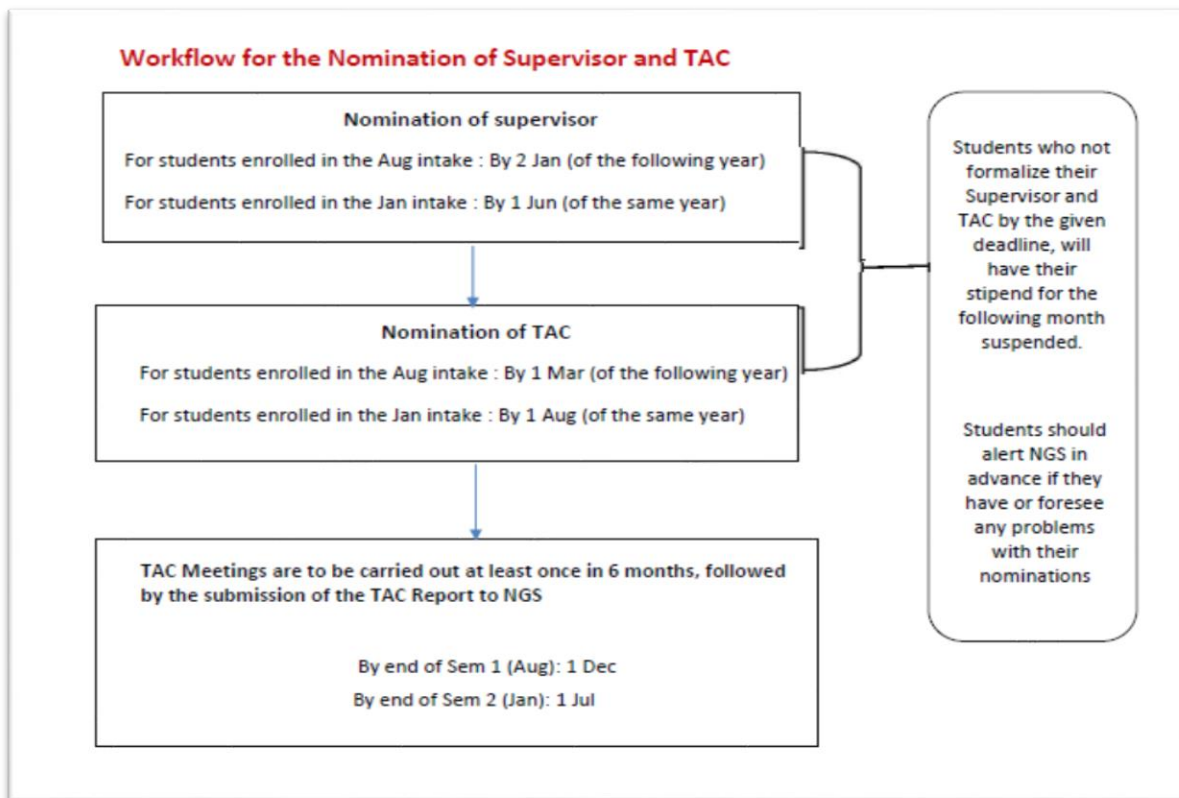
Supervisor nomination is only formalized once the student submits the “**Nomination of Supervisor Form**” to ISEP, and an official approval from ISEP in the form of an email, copied to the student and supervisor has been given.

AGS students may only select either a supervisor from NUS or the Research Institutes (RIs). The Supervisor from the RI needs to be an approved member of ISEP. Please refer to <https://isep.nus.edu.sg/choose-a-supervisor/> for a list of RI supervisors.

ISEP students should select a main supervisor from NUS, who is ISEP-approved. A supervisor from the RI is only possible if he/she is jointly appointed by NUS and the RI, and is ISEP-approved.

The nomination of a co-supervisor is optional. However, should a co-supervisor be appointed, he/she should be either an ISEP-NUS faculty, or a non-ISEP NUS faculty who is approved by the Deanery based on supervisory needs of a candidate. A co-supervisor from ASTAR institutes must be a full-fledged AGA supervisor. No person who is a non-NUS faculty or non-AGA supervisor should be supervising an ISEP/AGS student as either supervisors or co-supervisors.

ISEP has imposed a quota on the number of students a supervisor may have as a 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). The workflow for nomination of supervisor and TAC is enclosed.



Thesis Advisory Committee (TAC)

The Thesis Advisory Committee must be formed within 2 months after the student has confirmed his/her supervisor. For students enrolled in the Aug intake, it is 01 Mar (of the following year); For students in the Jan intake, it is 01 Aug of the same year.

Composition of TAC

1. The TAC should consist of the supervisor, co-supervisor (if any) and at least two other non-supervisory members (capped at 5 persons in the TAC).

The possible compositions of a TAC are listed in the table below.

Main Supervisor	Co – supervisor (1)	Co – supervisor (2)	Non-supervisory member (1)	Non-supervisory member 2	Total no. in the TAC
1	-	-	1	1	3
1	1	-	1	1	4
1	1	1	1	1	5

2. At least one member of the TAC should be from a different Faculty/School to that of the student/supervisor.
3. Both the supervisor and student are jointly responsible for the timely formation of the TAC.
4. No-one directly involved in supervising the student shall act as the Chair of the TAC. ISEP would review and appoint the nominee. The Chair should be appointed before the first formal meeting with the student.
5. **The Chair of the TAC should be nominated by the supervisor and the Chairperson has to be an ISEP supervisor.**

ONLY for AGS students:

6. Members of the TAC shall be proposed by the main supervisor, and must be approved by ISEP and A*STAR. They need not be “official” co-supervisors from A*STAR.
 - a. If the supervisor is from an RI, there must be at least one TAC member from NUS.
 - b. If the supervisor is from NUS, there must be at least one TAC member from an RI.
 - c. At least one member (ideally two) must not be directly involved in the supervision of the students.
 - d. Joint Supervision of students between NUS staff and RIs is encouraged but is not mandatory.

Roles of TAC

1. The TAC is responsible for monitoring the student's progress.
2. The student should meet with the Thesis Advisory Committee (TAC) at least once every 6 months or once every semester. There should be **a minimum of 2 TAC meetings prior to the PQE**, and there should be a **final meeting no later than 3 months prior to the submission of the thesis**.
3. The student or Chair of the TAC may call for the TAC meetings on a **regular** basis as indicated in (2) above, but meetings may be held more frequently if the student is known to be having problems
4. It is strongly advisable to have all TAC members, including supervisor and co-supervisor (if applicable) present at all TAC meetings. If this is not possible, at least **two-thirds of the** TAC members must be present **per** meeting. The student must seek input from those absent after the meeting at their earliest availability, with the supplementary meetings duly documented.
5. The Chair of the TAC has to complete an Online TAC Report Form after the meeting. Note that the form (Click [HERE](#)) is only accessible to the Chair of the TAC. Therefore, **ONLY the Chair of the TAC** may access the form, to fill and submit it.

Note: The Chair of the TAC may have up to 2 weeks (from the date of the TAC Meeting) to complete the submission of the form.
6. The Chair of the TAC should communicate the discussion and comments of the meeting to the student. To do that, the Chair of the TAC can download a PDF copy of the TAC Report and email it to the student for his/her reference.
7. The outcome of the meetings may be incorporated into the student's 6-monthly online progress reports in January and August of every year, by the main supervisor on behalf of the TAC members.
8. The Chair of the TAC should inform ISEP of any cases of serious project related or personal difficulties encountered by the student, so that additional oversight and assistance could be provided.
9. PhD Qualifying Examinations
 - a. If a student fails to apply for the PhD Qualifying Exam (PQE) by 18-24 months into his/her PhD programme, a TAC meeting should be convened immediately to determine the reasons for this
 - b. In cases where the student has made little or no progress with the thesis project by the 18-20-month mark, and the student appears to be at risk of not obtaining a PhD, the TAC will refer the student's case to ISEP.

PhD Qualifying Examination

Students must take a PhD Qualifying Examination (PQE) to assess their fitness to progress to the PhD degree not later than 24 months from the time of registration / enrolment. There must be at least 2 TAC meetings before a student is allowed to attempt a PQE.

Guidelines, Requirements and Policies

Areas	Guidelines / Requirements / Policies
Requirements prior to PQE	A student should fulfil at least 16 MCs of coursework, obtain a minimum CAP of 3.80, have at least 2 TAC meetings. With effect from August 2014, international students from the August 2014 intake onwards must complete <u>at least</u> half of the required teaching hours, which is 156 hours out of 312 hours.
Timeline / Deadline to take PQE	PQE can be attempted after 18 months in the programme (with 16 MC of coursework fulfilled) and should be cleared by the 24 th month. <u>Maximum allowable attempt for PQE:</u> Twice. If a student fails the 2nd attempt, his/her research scholarship and candidature will be terminated.

<p>Examination format / documents for submission</p>	<p>1. A detailed written report of up to 30 pages prefaced by a 1-paged abstract, which includes tables, figures, references etc.</p> <p>The report* should describe:</p> <ul style="list-style-type: none"> • The general field of study, and the specific focus. • A comprehensive literature review. • Preliminary results. • Development of a rationale and/or research plan; experimental design. • Expected final outcome. <p>Note:</p> <p>1. The report should be presented with 1.5-line spacing, Times New Roman, font size 12.</p> <p>* Primary focus of the report should emphasize on the student's research work. The above are intended to be general guidelines. Supervisors are responsible for guiding their students on the format and scientific / technical content of the detailed written report.</p> <p>2. An oral presentation (which includes an oral defence).</p> <p>3. Copies of any manuscript(s) submitted, accepted or published.</p>
<p>Coursework and CAP</p>	<p>Coursework: Completed at least 16 MCs, AND CAP: minimum CAP of 3.80.</p> <p>Note: Prior to taking PQE, student should not do more than 8 MCs per semester.</p> <p>Student with low CAP (between 3.50 to 3.79) but with a good first authored publication may apply to ISEP for consideration to take his/her PQE. ISEP will consider each appeal on a case-by-case basis. Student who is allowed to take his/her PQE will still be subject to the stipulated reduction of research scholarship and suspension of educational allowances (even if he/she has passed the PQE, which is considered as a provisional pass) until his/her CAP recovers to 3.80).</p>
<p>Penalty: Student who do not complete his/her PQE by the 24th month.</p> <p>Student who does not complete his/her PQE by the 24th month AND CAP is below 3.50.</p>	<p>1. Monthly research scholarship (RS) stipend will be reduced by S\$500.</p> <p>2. Educational allowances will be suspended.</p> <p>Note: ISEP will only reinstate both the RS and EA after the students has completed and passed the PQE.</p> <p>3. RS and candidature will be terminated.</p>

Procedures

<p>Student</p>	<p>To complete PhD Qualifying Examination Form (Section A) and submits to his main supervisor and TAC members with the following documents BEFORE the oral examination.</p> <p>1. A detailed written report of up to 30 pages prefaced by a 1-paged abstract, which includes tables, figures, references etc.</p> <p>The report* should describe:</p> <ul style="list-style-type: none"> • The general field of study, and the specific focus. • A comprehensive literature review. • Preliminary results. • Development of a rationale and/or research plan; experimental design. • Expected final outcome. <p>Note: - The report should be presented with 1.5 line spacing, Times New Roman, font size 12.</p> <p>* Primary focus of the report should emphasize on the student's research work. The above are intended to be general guidelines. Supervisors are responsible for guiding their students on the format and scientific / technical content of the detailed written report.</p> <p>2. Copies of any manuscript(s) submitted, accepted or published.</p>
<p>Student</p>	<p>To schedule a suitable date and time for examination (oral presentation and oral defence) with supervisor and TAC members.</p> <p>Note:</p> <ul style="list-style-type: none"> • Date and venue may be decided upon by the student, supervisor and TAC members. • ISEP does not need to be involved.
<p>TAC/Supervisor</p>	<p>To conduct the examination and recommend continuation / termination of candidature of the student. Reason(s) for recommending continuation/termination of candidature must be provided in the form.</p> <p>To forward the completed PhD Qualifying Examination Form to the ISEP office no later than 1 week from the date of examination.</p> <p>Note: <i>Student may submit the required documents to ISEP, on behalf of the TAC members. But it should be in a sealed envelope so that the student does not have access to the content of the PQE Examination Form.</i></p>
<p>ISEP</p>	<p>Reviews the comments and approves / disapproves continuation of Student's candidature. Student and TAC members will be notified through email on the outcome of the examination.</p>

PhD Thesis Examination

a) General Guidelines on 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 ISEP.

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 ISEP examination office. 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 (available at myPortal@NUS) and submit it through the supervisor(s), preferably three (3) months before the expiry date of their candidature, for consideration by ISEP. 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 ISEP to do so. The request for the grace period has to be submitted to ISEP 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-extension of candidature.

Candidates who wish to submit their theses before the [minimum residency](#) period must submit a written request to ISEP, 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 ISEP Office).

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

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 ISEP Office. If the research scholar did not submit the form to ISEP 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

Students, who are submitting their PhD thesis, 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 PQE 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 ISEP 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 ISEP. 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

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. In some cases, ISEP will nominate additional ISEP supervisors to participate in the examination. 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 following must be submitted to ISEP Office by the stipulated deadline: -

1. Report Form on Amended PhD Thesis (ISEP/F/016/07) duly signed and completed
2. Detailed summary of amendments made (if applicable)
3. Electronic Thesis / Dissertation Submission Form (RO/667) duly signed and completed
4. Feedback on Research Guidance Form
5. Updated list of publications

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- and 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.

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
GS5002	Academic Professional Skills and Techniques	4
GS6001	Research Ethics and Scientific Integrity	4 or 2 (from AY2021/2022 Sem 2)
GS6883A	Interface Sciences and Engineering	2 (CS/CU)
GS5101	Research Immersion Module	2 (CS/CU)

GS5002 (Academic Professional skills and Techniques), 4 MCs

The module equips students with the academic know-how to succeed in graduate school. Students shall be introduced to the school's academic structure, aspirations and expectations, with advice from faculty research directors and prominent ISEP alumni in a workshop. Students shall be coached on their academic writing and presentation skills. They shall engage in in-depth research discussions and learn how to conduct a scientific dialogue, and to make impressive presentations at meetings and conference. Students shall be lectured by university experts on the process of scientific publication, as well as to intellectual property and patent issues. The within-discipline and cross-discipline journal club components shall provide intense training in scientific assessment and critique on topics within and outside a student's original discipline, at an advanced level with instructors and peers in a small group setting.

GS6001 (Research Ethics and Scientific Integrity)

4 MCs (module taken prior to AY2021/2022 Sem 2) or **2 MCs** (module taken in AY2021/2022 Sem 2)

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 analyse ethical issues and dilemmas associated with data archival, mentoring, authorship, credit sharing and conflicts of interest. They shall rationalise 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.

GS6883A (Interface Sciences and Engineering), 2 MCs (CS/CU)

The module consists of a series of lectures and discussions/presentations that would provide students with an interdisciplinary exposure and knowledge foundation for selected research areas/themes that are of prime importance to humankind, and where interdisciplinary science and engineering are frequently practiced. Some of these areas are traditional strategic areas which NUS have great research strength in, and others are emerging areas of intense interest. Each theme is taught and coordinated by two instructors, who will contribute to different, yet complementary, perspectives of the theme. The areas/themes shall include "infectious agents and global pandemics", "Omics", "Renewable Energy", "Human-Computer Interactions" and "Environmental problems/climate change".

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

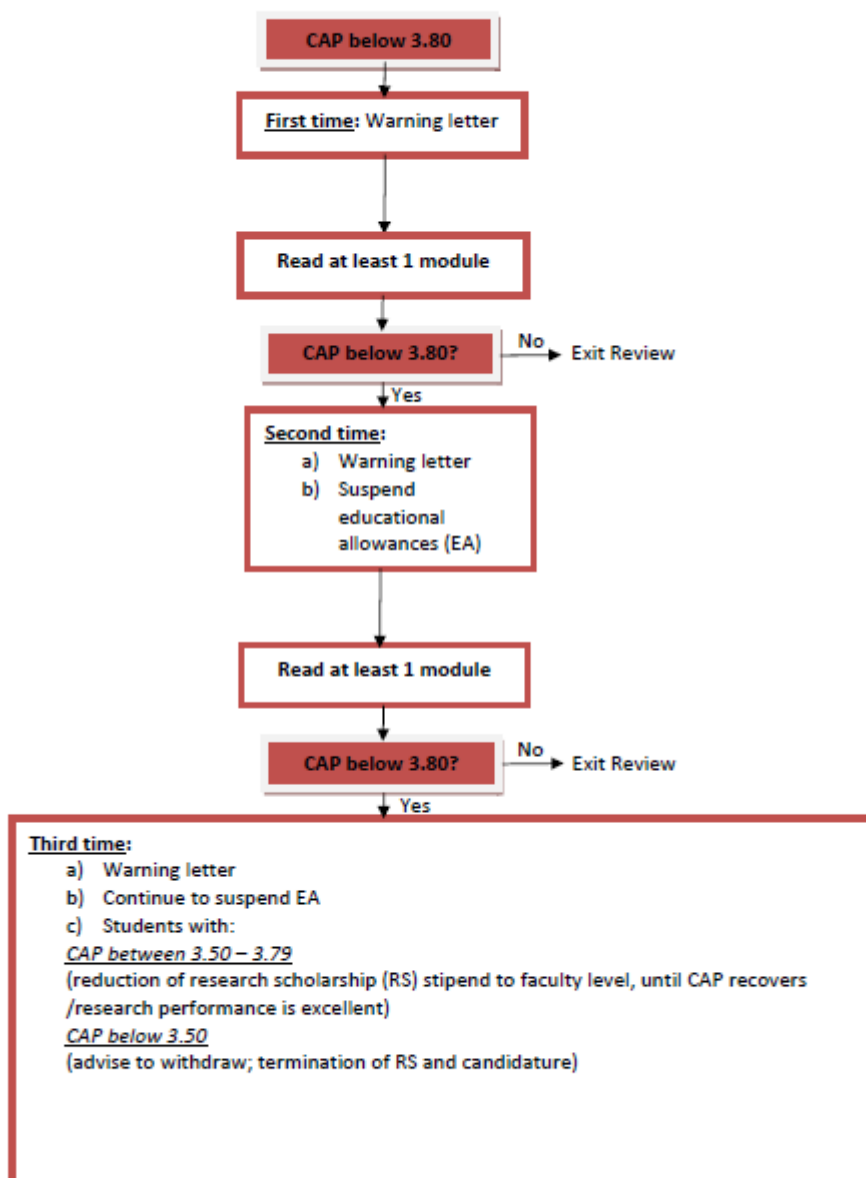
Students will complete two lab rotations in their first semester with ISEP. Each rotation will last for at least 2 months. At the end of each lab rotation, students will submit a lab rotation report that includes a description of the research project that the student has worked on and the supervisor's 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.

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.

Annex 2

Flowchart for Performance Review:





NUS
Graduate School

Integrative Sciences & Engineering Programme

Integrative Sciences &
Engineering Programme
University Hall, #05-03,
Tan Chin Tuan Wing Level 5,
21 Lower Kent Ridge Road,
Singapore 119077