

<b>Academic Year</b>	2019	<b>Semester</b>	2
<b>Course Coordinator</b>	Kunn Hadinoto Ong		
<b>Course Code</b>	BG3880/CH3880		
<b>Course Title</b>	Professional Internship		
<b>Pre-requisites</b>	Completed 4 semesters; Likely to be in study year 3		
<b>No of AUs</b>	10		
<b>Contact Hours</b>	20 Weeks		
<b>Proposal Date</b>	12 Sept 2019		

### A. Course Aims

This 20-week Professional Attachment programme is offered as a core course for all Bioengineering (BIE) and Chemical and Biomolecular Engineering (CBE) undergraduate students in Year 3 and Year 4.

The purpose of this Professional Attachment is to enable the application of knowledge and skills you have learned in the university in an authentic work environment. This is such that you can gain relevant exposures and develop practical industry experiences and skills that will facilitate your career decision and future transition into your selected vocation. It aims for you to develop professional competencies that will enhance your employability and lifelong learning capabilities to support your career and life endeavours and your readiness for the future of work.

### B. Intended Learning Outcomes (ILOs)

At the end of the Professional Attachment, you (as a student) should be able to:

#### I. Cognitive

1. Apply knowledge and skills relevantly and appropriately in the workplace.
2. Identify your own competency gaps at the internship workplace.
3. Evaluate and develop personal learning and development pathways towards bridging competency gaps identified in point (2) above.
4. Develop and apply strategies to solve problems effectively (involves critical thinking and creativity, generating questions, resourcing, application, and reiteration).
5. Evaluate resources and develop insights to make informed judgements and recommendations.

#### II. Context

6. Discuss the internship organisation's nature and context of business.
7. Reflect on the organisational culture at the internship organisation.
8. Appraise the significance and impact of the project/work/assignment undertaken at the internship organisation.
9. Describe the career pathways within the internship organisation as well as the broader industry.
10. Reflect on personal and professional development needs within the internship organisation as well as the broader industry and set strategic goals for advancing along an intended career path.
11. Apply time and task management strategies effectively.

#### III. Relationship

12. Apply effective written and oral communication skills in professional settings when communicating and connecting with relevant stakeholders.
13. Assimilate into the work environment (people, team, hierarchy) and function effectively.

#### **IV. Affective/Moral**

14. Tolerate ambiguity and handle anxiety.
15. Contribute proactively to the internship organisation.
16. Demonstrate responsibility, integrity and professionalism in the fulfilment of all workplace and internship requirements.
17. Demonstrate the persistence to learn, overcome and improve.

#### **V. Technical (including those related specifically to the degree programme learning outcomes)**

18. Use tools that enable and facilitate effective project/work/assignment undertaken at the internship organisation.

#### **C. Course Content**

This internship programme, being a work-integrated education course, has its educational content embedded within the work environment and assignments that students will undertake at each internship organisation. For this reason, the internship job scope will be evaluated by the course instructor/coordinator using the following criteria:

1. It is relevant to the student's discipline of study;
2. It provides the required internship duration;
3. It accommodates NTU's internship periods;
4. It provides sufficient structure and rigour that will enable students to achieve the intended learning outcomes listed above;
5. It provides the appropriate workload for the stipulated internship period;
6. It enhanced the career prospects of the student;
7. The internship workplace is safe and conducive for student learning and development;
8. The internship workplace is equipped with the necessary tools and resources for the internship work;
9. The internship organisation has standing policies to safeguard the welfare of interns;
10. The internship organisation supervisor possesses the competencies, experience, and commitment to provide guidance to the students;
11. The internship organisation will use NTU's internship assessment scheme for students.

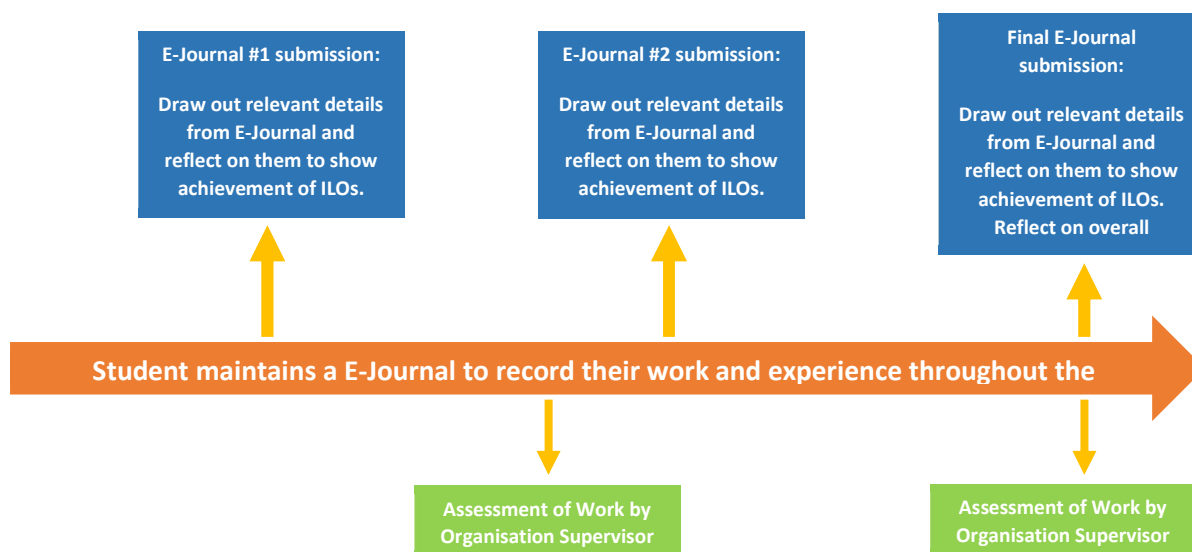
#### **D. Assessments**

This is a Pass/Fail course with the final outcome determined collectively by your Faculty Supervisor and your Organisation Supervisor.

The assessments will be based on the intended learning outcomes (ILO) in section (B) above and you should familiarise yourself with them as they will be your focus throughout the internship.

Your Organisation Supervisor will assess your performance at the internship workplace through an evaluation form "Assessment of Work in the Organisation" (AWO). He/She will complete this evaluation once every 10 weeks of your internship.

To facilitate your workplace learning during their internship, you are advised to maintain a E-Journal, preferably in softcopy, to record your internship work and project details, activities as well as experiences throughout your internship. You can then draw on these records to demonstrate, in the required submissions, that the course ILOs have been achieved.



Your Faculty Supervisor will facilitate and assess your learning, development, and growth through your E-Journal submissions. The E-Journal submissions are where you will reflect on your experience, learning, growth and achievement of the relevant ILOs. Keep the ILOs in mind throughout your experience and undertake or seek challenges in the workplace that will provide you with opportunities to generate experience and evidences regarding your competencies.

A guidance template will be provided for the E-Journal and Final E-Journal submissions.

Component	Course ILOs assessed	Graduate Attributes* assessed	Weighting	Team / Individual	Assessment Rubrics
Assessment of Work in the Organisation (AWO).  This component evaluates your performance at the workplace.	1, 4, 5, 11, 12, 13, 14, 15, 16, 17, 18	a, b, c, d, e, f, h, i, j, l	50	Individual	See Annex 1 for rubric.  Assessed by Organisation Supervisor.
E-Journal 1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	a, b, c, d, e, f, i, j, l	10	Individual	See Annex 2 for rubric.  Assessed by Faculty Supervisor.
E-Journal 2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	a, b, c, d, e, f, i, j, l	10	Individual	See Annex 2 for rubric.  Assessed by Faculty Supervisor.

Final E-Journal	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	a, b, c, d, e, f, i, j, l	30	Individual	See Annex 3 for rubric.  Assessed by Faculty Supervisor.
<b>Total</b>			<b>100%</b>		

<b>* Graduate Attributes</b>	
a.	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, natural science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.
b.	<b>Problem Analysis:</b> Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
c.	<b>Design/development of Solutions:</b> Design solutions for complex engineering problems and design systems, components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
d.	<b>Investigation:</b> Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
e.	<b>Modern Tool Usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
f.	<b>The engineer and Society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
g.	<b>Environment and Sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for the sustainable development.
h.	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
i.	<b>Individual and Team Work:</b> Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
j.	<b>Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
k.	<b>Project Management and Finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and economic decision-making, and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
l.	<b>Life-long Learning:</b> Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## **E. Formative Feedback**

Continuous feedback on progress and performance can be expected from student's internship organisation supervisor.

Student's faculty supervisor will also provide feedback through the student's internship E-Journal submissions and/or site visits.

## **F. Learning and Teaching Approach**

An internship is an experiential learning programme done in a professional setting. Students will be placed in an organisation for the entire internship period and will undertake work assignments and/or projects in the organisation. It is through such work in the real-world environment where students learn and develop the competencies and experiences relevant to the intended learning outcomes of this course.

Each student will be supervised by (1) an Organisation Supervisor at the internship organisation, and (2) a Faculty Supervisor in NTU.

The Organisation Supervisor will be the key person working with and interacting with the student on a day-to-day basis. The Organisation Supervisor will be one providing guidance and feedback to the student on a regular basis.

The Faculty Supervisor from NTU will serve to facilitate student's learning and progress through interactions via E-Journal submissions, email, phone, and/or visits. The Faculty Supervisor will also be each student's first point of contact for any matters arising from the internship. Student can also contact the respective Internship Programme Manager at NTU's Career and Attachment Office as an alternative.

## **G. Reading and References**

### **NTU Student Internship Handbook**

Please refer to the respective Professional Internship/Attachment Teamsites via NTU Studentlink for the Internship Handbook.

### **NTU Work-Integrated Education Blog - Career School**

[https://blogs.ntu.edu.sg/cao\\_internship/](https://blogs.ntu.edu.sg/cao_internship/)

### **Harvard Business Review: 6 Ways to Make the Most of Your Internship**

<http://bit.ly/2J81BU2>

### **Huffington Post: 21 Ways to Make the Most of Your Internship**

<http://bit.ly/2kK6Fz5>

### **Vault: How to Successfully Manage your Assignments:**

<http://bit.ly/2LNfrlX>

## **H. Course Policies and Student Responsibilities**

Please refer to the respective Professional Internship/Attachment Teamsites via NTU Studentlink for detailed Internship Policy and Procedures.

Further information can be obtained from NTU's Career and Attachment Office (CAO) via [cao\\_internship@ntu.edu.sg](mailto:cao_internship@ntu.edu.sg).

## **I. Professional and Academic Integrity**

An internship concerns work in a professional setting. As with good academic work, good professional work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of professional and academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values. Refer to this link for details: <http://www.ntu.edu.sg/ai/Pages/shared-values-honour-code.aspx>

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of integrity in all the work you do as a student of NTU. Not knowing what is involved in maintaining integrity does not excuse professional and academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of professional and academic dishonesty, including and not limited to, plagiarism, fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. Consult your faculty supervisor if you need any clarification about the requirements of professional and academic integrity in the course.

## **J. Course Instructors**

Your Faculty Supervisor for the period of your internship will be allocated to you after the placement process is completed.

This internship course is managed and administered by your school's internship course coordinator as well as NTU's Career & Attachment Office.

## **K. Planned Weekly Schedule**

Your internship work schedule will follow that provided by your Internship Organisation.

**Annex 1:****Assessment Rubrics for Assessment of Work in the Organisation (AWO)**

Criteria for the assessment of student performance in the internship organisation by the organisation supervisor:

<b>ILOs</b>	<b>Focus</b>	<b>Criteria</b>
1	Knowledge and Skills	Able to apply knowledge and skills (whether prior or newly learned) appropriately in the workplace and/or projects/tasks.
4	Problem-solving	Able to solve problems systematically and effectively.
5	Resourcefulness	Able to source for relevant information to make informed judgement, decisions and/or recommendations.
11	Time and Task Management	Able to plan, organise, manage and complete assignments effectively and in a timely manner.
12	Written and Oral Communication	Able to communicate effectively and appropriately in writing and verbally.
13	Team Work	Able to function effectively with other colleagues/stakeholders in the work environment.
14	Adaptability	Able to function effectively under ambiguity and/or change.
15	Initiative	Able to remain consistently pro-active towards contributing to the work and/or organisation.
16	Responsibility	Consistently demonstrates commitment, responsibility, integrity, professionalism and ethical behaviour at the workplace.
17	Persistence to Learn and Improve	Consistently demonstrates persistence and grit to overcome challenges, to learn and improve continuously at the workplace.
18	Fluency with Tools	Able to use tools, whether software or hardware tools, (and learn new ones where necessary) proficiently to accomplish tasks and assignments.

Please see accompanying detailed assessment rubrics.

## **Annex 2:**

### **Assessment Rubrics for E-Journal.**

You are required to submit a total of two (2) E-Journal submissions and one (1) Final E-Journal documenting and reflecting on your internship experience in relation to the relevant intended learning outcomes of this course.

The two (2) E-Journal submissions (E-Journal 1 and E-Journal 2) will be assessed in week 6 and week 12 respectively during the internship. These are purposed to be formative assessments where you will receive feedback on your progress.

For each of these submissions, you are to present evidences and reflections for the specified three (3) ILOs (part of the list in section D above). A guidance template will be provided to you by the start of your internship:

- Evidences can be provided in the form of text descriptions, photographs, or drawings (ensure you seek clearance from your internship organisation should sensitive information be involved).
- Reflect critically on the evidences and the experience producing them, relating them to how they demonstrated your achievement of the specific ILO (or how they helped you to do so): Particularly but should not be limited to - what were the tasks (or observations) and their contexts, actions taken (or lessons drawn) by you and their reasons, and results achieved? What did you learn (e.g. information, knowledge, skills)? Evaluate your own capabilities and attitude where appropriate.
- E-Journal 2 should focus on another 3 ILOs.

### **Criteria for E-Journal 1 and E-Journal 2 submissions (10% each).**

<b>Focus</b>	<b>Criteria</b>
Evidence for each ILO	Evidence provided is relevant to and supports the ILO.
Reflection on each ILO	Critical and thoughtful reflection on the experience of achieving the ILO. Clear and concise articulation of thoughts.
Achievement of ILO	Conclusive achievement of ILO.

Please see accompanying detailed assessment rubrics.



**Annex 3:  
Assessment Rubrics for Final E-Journal.**

Your Final E-Journal submission will be assessed at the end of your internship.

For this final submission, your focus is to cover the remaining specified 4 ILOs and present evidences and reflections on them. In addition, an overall reflection on your internship experience as a whole is expected:

- Evidences can be in the form of text descriptions, photographs, or drawings (ensure you seek clearance from your internship organisation should sensitive information be involved).

Reflect critically on the evidences and the experience producing them, relating them to how they demonstrated your achievement of each ILO (or how they helped you to do so): Particularly but should not be limited to - what were the tasks (or observations) and their contexts, actions taken (or lessons drawn) by you and their reasons, and results achieved? How are the achievements validated (by supervisor, colleagues, stakeholders, etc.)? What did you learn (e.g. knowledge, skills)? How will you do things differently and better?

- Your overall internship reflection will include but not limited to: Your overall experience in the internship, what are your strengths and weaknesses? Did the experience affirm or revealed them? How will you build up your strengths and reduce your weaknesses? How do you now view this industry and this sort of work? What alternatives will you consider? Knowing what you now know, what are your tentative career plans after graduation? What will you do from this point onwards to put those plans in act?

**Criteria for Final E-Journal submission (30%):**

<b>Focus</b>	<b>Criteria</b>
Evidence for each ILO	Evidence provided is relevant to and supports the ILO.
Reflection on each ILO	Critical and thoughtful reflection on the experience of achieving the ILO. Clear and concise articulation of thoughts.
Achievement of ILO	Conclusive achievement of ILO.
Overall Internship Reflection	Clear and critical reflection on the internship experience as a whole.

Please see accompanying detailed assessment rubrics.