

EG4079 Interdisciplinary Final Year Project – for full time students only

Academic Year	AY2019/20	Semester	1 & 2
Course Coordinator	Associate Professor Li Hua		
Course Code	EG4079		
Course Title	Interdisciplinary Final Year Project (ID-FYP)		
Pre-requisites	Year 4 standing		
Mutually Exclusive with:	MA4079 Final Year Project (MAE) IM4080/EE4080/EE4079 Final Year Project (EEE) BG4801/CH4801 Final Year Project/Final Year Design Project (SCBE) MS4089 Final Year Project (MSE) CV4911/EN4911 Final Year Project (CEE) CE4079/CZ4079 Final Year Project (SCSE)		
No of AUs	8		
Contact Hours	Practicals: 288 hrs		
Proposal Date	14 January 2019		

Course Aims

You are required to analyse and synthesise problems in an interdisciplinary team through a project that requires the application of basic engineering principles. This cross-disciplinary project may take any one or a combination of the following forms: feasibility study, innovation and product development, computer modelling and analysis, design and construction, testing and experimental investigation. The emphasis is in motivating you to learn, undertake and manage a project in collaboration with students from various engineering disciplines, to its successful completion and to write good technical reports.

Intended Learning Outcomes (ILO)

Upon successful completion of the course, you will be able to:

- 1) Collaborate in an interdisciplinary team to undertake projects so that under similar professional requirement as engineers, you will be able to perform and complete cross-disciplinary projects successfully.
- 2) Make sound decisions in order to progress with the project successfully.
- 3) Write good quality technical reports so that readers can understand the significance of the problems addressed and the application of engineering knowledge in reaching the solutions presented within the reports.
- 4) Deliver presentations that are required of you as engineers.

Course Content

N/A

Assessment (includes both continuous and summative assessment)

Component	Course LO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment Rubrics
1. Individual a)Progress and Contribution b)Interim Report c)Final Report d)Peer Evaluation by Team members	1 - 4	EAB SLO* a to l	45%	Individual	
			5%		
2. Team a)Phase 1 b)Phase II c)Results/Findings/Prototype d)Final Presentation	1 - 4	EAB SLO* a to l	50%	Team	
Total			100%		

* EAB SLO stands for the Engineering Accreditation Board Student Learning Outcomes. The list is below:

- a) **Engineering knowledge:** Apply the knowledge of mathematics, natural science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.
- b) **Problem Analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- c) **Design/development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- d) **Investigation:** 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) **Modern Tool Usage:** 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) **The engineer and Society:** 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) **Environment and Sustainability:** 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) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- i) **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
- j) **Communication:** 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) **Project Management and Finance:** 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) **Life-long Learning:** 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

Formative feedback

Formative feedback will be given verbally and/or in writing over the 2 semesters.

Learning and Teaching Approach

Approach	How does this approach support students in achieving the learning outcomes?
Introduction of Project	You will need to understand the relevant background of the problem, and the motivation of the project.
Literature Review	You need to read up on the related subjects and review what has been achieved critically. The process enables you to work out a suitable scope of the project and be able to support all the decisions taken during the work.
Methodology	This requires you to analyze all factors in the problem and formulate a workable method or approach for the solution, noting dependency of constraints.
Result Analysis and Discussion	You will develop the skills to present the results, obtained from simulation/experiments, in a professional way before you can interpret and discuss the results and draw conclusions.
Conclusion and Recommendation of Future Work	This requires you to review the value of the work completed and the limitations. An estimate of the cost of solution to be included if appropriate. You will need a higher-level critical thinking to recommend meaningful future work.

Reading and References

N/A

Course Policies and Student Responsibilities

As a student of the course, you are required to abide by both the University Code of Conduct and the Student Code of Conduct. The Codes provide information on the responsibilities of all NTU students, as well as examples of misconduct and details about how students can report suspected misconduct. The university also has the Student Mental Health Policy. The Policy states the University's commitment to providing a supportive environment for the holistic development of students, including the improvement of your mental health and wellbeing. These policies and codes concerning students can be found in the following link: <http://www.ntu.edu.sg/SAO/Pages/Policies-concerning-students.aspx>

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of 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.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic 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 instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Course Instructors

Instructor	Office Location	Phone	Email
Li Hua (MAE coordinator)	N3-02c-79	6790 4953	LIHUA@ntu.edu.sg
Li Fang (SCSE coordinator)	N4-02b-42	6790 6106	ASFLi@ntu.edu.sg
Goh Wang Ling (EEE coordinator)	S2-B2c-93	6790 4943	EWLGoh@ntu.edu.sg
Xue Can (MSE coordinator)	N4.1-02-29	6790 6810	CXUE@ntu.edu.sg
Kunn Hadinoto Ong (SCBE coordinator)	N1.2-B2-31	6514 8381	KunnOng@ntu.edu.sg
Lim Siow Yong (CEE coordinator)	N1-01a-15	6790 5287	CSYLim@ntu.edu.sg
FYP supervisor (varies)			

Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	Project briefing	1 - 2	N/A
2 ~ 7	Project planning	1 - 3	
5 ~ 25	Project execution	1 - 3	
13	Interim report and assessment	3	
23	Final report	3	
26	Oral presentation and final assessment	4	