

Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

Expected Implementation in Academic Year (New format)	
Semester/Trimester/Others (specify approx. Start/End date)	
Course Author * Faculty proposing/revising the course	URECA Office
Course Author Email	
Course Title	UNDERGRADUATE RESEARCH 2nd URECA
Course Code	ES5916
Academic Units	4
Contact Hours	52
Research Experience Components	

Course Requisites (if applicable)

Pre-requisites	- A full-time matriculated NTU undergraduate; - Meet enrolment criteria as set by the university; - 2nd Year (in a 3-year Bachelor's degree programme); - 2nd or 3rd Year (in a 4-year Bachelor's degree programme); - 2nd, 3rd or 4th Year (in a 5-year Bachelor's degree programme); - Require a minimum of 1 academic year remaining (semester 1 and semester 2) before graduating.
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	

Course Aims

The URECA undergraduate research programme aims to cultivate a research culture among the outstanding undergraduates in NTU. The 11-month (August to June) URECA programme provides you with an opportunity to pursue appropriate independent research under the supervision of a professor of your choice in your chosen field of research. You will learn to apply knowledge beyond textbook and classroom, develop a deeper understanding of what you are studying, handle open ended research challenges and acquire the research skills necessary to your field of study and future career in research or elsewhere. URECA programme aims to prepare you for your postgraduate research studies by providing appropriate foundations in research in your chosen area.

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	define research problems;
ILO 2	conduct literature review;
ILO 3	formulate hypothesis and research planning;
ILO 4	analyze and interpret research data;
ILO 5	identify appropriate research methodologies;
ILO 6	reflect on how you have conducted the research in your chosen area;
ILO 7	Communicate research ideas and information across different platforms (poster, academic writing & presentation).

Course Content

You will experience independent learning through research work of your chosen project under the supervision of a professor.

Reading and References (if applicable)

List of readings and references are dependent on the research field of your chosen project. Supervising professor will recommend the list of readings and references.

Planned Schedule

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
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Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Research Experience	You will need to adopt a hands on method of achieving research experience in which you are usually assigned to the laboratory or research groups of postdoctoral researchers and PhD research students of your supervising professor. This inculcates a culture of research mindset and learning under open endedness. You will review published literature to achieve a greater understanding of your research area, which leads you to define the research problem under the guidance of your supervising professor. The roles of your supervising professors are to mentor students, facilitate discussion and to guide you to acquire research experience, research fundamental and methodologies related to the chosen research area. You are expected to do independent research, under the mentorship and guidance of the supervising professor. You are expected to apply theories and methodologies and conduct appropriate experiments, surveys or analysis as appropriate to your research area. Finally you are expected to communicate your research through research poster, abstract of research and finally conclude your work with preparing a research paper in journal format. The workshops are integral part of this programme which provides the necessary skills to do the above.

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Description of Assessment Component	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Others([quiz/test] Workshops & Quiz)	2,4,7	Communication, Creativity, Civic-Mindedness, Competence and Character	15		Individual		
2	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] Research poster)	1,2,3,4,5,7	Communication, Creativity, Civic-Mindedness, Competence and Character	20		Individual		
3	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] Abstract of research)	1,2,3,5,7	Communication, Creativity, Civic-Mindedness, Competence and Character	10		Individual		
4	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] Research paper)	1,2,3,4,5,6,7	Communication, Creativity, Civic-Mindedness, Competence and Character	30		Individual		
5	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] Reflection of research experience)	6	Communication, Creativity, Civic-Mindedness, Competence and Character	10		Individual		

No.	Component	ILO	Related PLO or Accreditation	Weightage	Description of Assessment Component	Team/Individual	Rubrics	Level of Understanding
6	Continuous Assessment (CA): Others([group or individual projects/evaluations] Professor assessment of research experience demonstrated during URECA)	1,2,3,4,5,6,7	Communication, Creativity, Civic-Mindedness, Competence and Character	15		Individual		

Description of Assessment Components (if applicable)

Formative Feedback

You will receive individual formative feedback either written / verbal or both written and verbal from your supervising professor on the progress of your research project and URECA deliverables.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
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Course Policy

Policy (Academic Integrity)

Policy (General)

Policy (Absenteeism)

Policy (Others, if applicable)

During Add/Drop Period:

You may change URECA project/supervising professor or withdraw from URECA programme during the Add/Drop period (up to end of September). URECA programme withdrawn during the Add/Drop period will not be reflected in the official transcript. During add/drop period, with the approval of your URECA supervising professor you may change supervisor or withdraw from the URECA programme by requesting your URECA supervising professor to deregister you. You should receive an auto notification email of your withdrawal after your URECA supervising professor has activated it.

After Add/Drop Period:

A student who is still registered for URECA programme after the URECA Add/Drop period but did not subsequently complete the project will be deemed to have read and failed the course. An 'F' grade will appear on your official transcript.

True exception:

After add/drop period you can only withdraw from URECA under truly exceptional circumstances. In such exceptional circumstance you may complete the URECA De registration form from URECA website and submit for approval. Your withdrawal is subject to approval from all concerned. Once your withdrawal is approved, you will be de registered and issued with a notification email as confirmation.

FYP and URECA:

If you have started / are starting / will be starting your FYP (Semester 1 or 2) in the same academic year as the URECA, you are not eligible to take up URECA. A student cannot simultaneously be registered for URECA and FYP in the same academic year. No exceptions will be given. URECA and FYP are both intensive projects, hence cannot be completed in the same academic year.

ABP and URECA:

If you are an ABP (Accelerated Bachelor Programme) student who will be starting your FYP (Semester 1 or 2) in the same academic year as URECA, you will have to DROP ABP in order to take up URECA. A student cannot simultaneously be registered for URECA and FYP in the same academic year. If you are currently under ABP, please make a choice between the two immediately. No exception will be given. URECA and FYP are both intensive projects, hence cannot be completed in the same academic year.

If you would like to take up URECA, you need to inform the Office of Academic Services to be dropped from ABP.

If you decide to continue with ABP and have registered for URECA, you need to inform your URECA professor to deregister you from URECA as soon as possible.

Internship and URECA:

If you are / will be on Internship for 1 semester, your eligibility to take URECA is subject to your (i) internship company, (ii) school and (iii) URECA supervising professor are agreeable and support the continuation of your URECA project outside

Internship hours.

Before enrolling in URECA Programme, you need to inform the supervising professor of your commitment and discuss detailed plan with him/her for mutual agreement to carry out the research work. As research projects have different requirements, it is important for supervising professor to consider each case prior to registering students.

You are required to have the following before the supervising professor can register you to a URECA research project:

1. make known to your internship company the URECA Workload in semester 2 to be carryout after office hours during the period of internship;
2. obtain approval from your internship company (email from internship company required);
3. obtain approval from your school to register for URECA (email from your school required).

Upon successful enrolment, you must complete all URECA deliverables (poster, abstract of project, paper & reflection) by the stipulated deadline and submit through Student Link while on Internship with no exception.

Exchange and URECA:

If you are / will be on Exchange for 1 semester, your eligibility to take URECA is subject to your (i) school and (ii) URECA supervising professor are agreeable and support the continuation of your URECA project during the period of exchange. Before enrolling in URECA Programme, you need to inform the supervising professor of your commitment and discuss detailed plan with him/her for mutual agreement to carry out the research work. As research projects have different requirements, it is important for supervising professor to consider each case prior to registering students.

You are required to obtain approval from your school to register for URECA before the supervising professor can register you to a URECA research project (email from your school required).

The assessment and approval for URECA eligible student to register for URECA while on 1 semester exchange will be at the discretion of student's school.

Upon successful enrolment, you are expected to complete all URECA deliverables (poster, abstract of project, paper & reflection) by the stipulated deadline and submit through Student Link while on Exchange with no exception.

Academic Integrity:

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

Collaboration is encouraged for your research because peer-to-peer learning helps you understand the subject better and working in a team trains you to better communicate with others. As part of academic integrity, crediting others for their contribution to your work promotes ethical practice.

You must write up your URECA deliverables by yourself and understand anything that you hand in.

If you do collaborate, you must write on your paper the names of the students you worked with. If you did not collaborate with anyone, please explicitly write, "No collaborators." Failure to do so constitutes plagiarism.

Use of materials outside the course is strongly discouraged. If you use outside source, you must reference it in your solution.

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