

MEMORANDUM OF UNDERSTANDING BETWEEN STUDENT AND SUPERVISOR

We, the undersigned, have read and agree to the general terms of the CPUT Memorandum of Understanding (MoU)* between research students and supervisors, and submit the following additional points of agreement in relation to the details of the intended work.

**Notes on MoU provided on page 5 of this document*

Subject: Industrial Design Project 3

• STUDENT DETAILS:

Full name of student:	Jordan Fraser Williams
Student number:	221343687
Project title: Open-Source based AUV	
Email:	221343687@mycput.ac.za
Telephone no:	+27 78 136 7086
Faculty:	Built environment and design

• SUPERVISOR DETAILS:

Title, Initials, Surname:	Dr. Mnguni (Supervisor), Mr. B. Williams (Co-Supervisor)
Staff no:	30017940
Telephone no:	021-959-4368
Faculty:	Built environment and design
Department or Unit:	DEECE

• SUPERVISOR'S EXPECTATIONS AND ARRANGEMENTS

Supervisor's expectations:

After discussion, the supervisor should set out what he/she expects of the student in terms of reaching certain milestones or goals during the course of the research.

Expected milestones or goals:

- Proposal updates weekly (due 14th March)
- Conceptual design and system overview (due 12th April 2024)
- List of core and peripheral electronics (due 12th April 2024)
- Progress presentation (1st submission 7th April 2024, 2nd submission 29th April 2024, Final submission 20th May 2024)
- Meet weekly to discuss progress and challenges. (Thursday's)
- Bench test (Date dependent on parts required however initial planning / testing 12th April 2024 continued final testing 26th April 2024)
- Project completion
- Results and thesis (due 3rd October)

Supervisor's plans and commitments:

The supervisor should record his/her plans for providing supervision, including the pattern and intended frequency of meetings, contributions from other researchers etc:

- Weekly meetings scheduled for Thursdays.
- Bi-weekly check in on literature reviewed and theory covered.
- Available in the automation Lab on set scheduled meetings for project feedback, testing, setup, support in software applications.
- Assist with additional time in lab when developing simulation.

Supervision arrangements:

- Assist with access to the lab that will be supervised.
- Ensuring software required is available.
- Laboratory work – testing, connection, commissioning – supervisor will be present.
- Availability of devices that are current, within the limitations of course financial commitments.

(a) Laboratory work:

- Work in laboratory will be scheduled.
- Work will be restricted to the rig identified for the study.
- Simulation and coding on available software platform in the Automation Laboratory.
- All commissioning and testing to be done under supervision.
- Strict adherence to all laboratory rules.
- All works to be compliant to all relevant safety regulations.
- All works will follow timelines as stipulated in expected goals and milestones.

(b) Outline lab arrangements (if any) and supervision arrangements for lab work:

- All lab work to be scheduled well in advance.
- Strict adherence to lab rules and times.
- No "live" work without supervision.
- All connections to be checked twice and proven current with the use of available multi-meters in the lab.

(c) Estimated Meeting times

12:00 - 13:00 (Lab time 14:00 - 16:00)
(d) Access to computers and software:
use of personal computer and software requirements (TBA)

• **EXPECTATIONS AND PLANS OF THE STUDENT**

After discussion, the student should set out any expectations and requests to the supervisor and the department	
<p>Aid in purchasing of components, available for consultation, expertise relevant to project.</p> <p>Project outline: An AUV/ASV electronics system developed using open-source software and hardware integrated into a pre-existing chassis.</p> <p>Project goals</p> <ul style="list-style-type: none"> • Use open-source software and off-the-shelf modules to develop a navigation system for an AUV/ASV. (Start May/June) • Log data from sensors to capture external environmental readings (ie. Temperature, depth, dissolved oxygen, salinity etc.) (Start June) • Incorporate a BMS to monitor and control battery charge and discharge. (Start June/July) • Navigate via pre-determined waypoint and/or remote commands from a pilot. (Start July/August) 	
Comment by the supervisor on this:	
Well written and clear objectives for the completion of this project – supported with set goals and milestones.	
The student and supervisor should record their agreed plan and broad timetable for the completion of the Project. The candidate should be informed on the Departmental maximum time limits for completion.	
<p>March – Proposal</p> <p>April – Conceptual designs and system overview</p> <p>May – circuit design and begin ordering electronic components.</p> <p>June – Prototyping and module tests</p> <p>July – prototyping and module tests</p> <p>August – Integration and improvements</p> <p>September – Final system tests, functionality and data analysis, fault finding.</p> <p>October – Final report</p>	
Agreed intended date of completion:	October 2024


• **INTELLECTUAL PROPERTY ISSUES AND ETHICS**

Intellectual property:
CPUT policy on intellectual property (IP) is available on request. Students and supervisors should make themselves aware of university policies relating to both ethics and IP.
(a) Authorship:
Points on authorship must be noted here by the supervisor, including arrangements about the order of listing of co-authors:
1st Author: Student, 2nd Author: Supervisor, 3rd Author: Co-supervisor

(b) Ownership of intellectual property rights developed in the course of the research: The IP emanating from research conducted at CPUT is (in general) owned by the University but additional points on this to be noted below:
N/A
(c) Patents: Should any patents emanate from this study, in whose name(s) will this be registered.
Student, Supervisor & Co-Supervisor

Assessment of ethics in research: The supervisor and student should discuss the ethical issues involved in the research project and record their conclusions here. The student should confirm here that she/ he is aware of the requirement to complete and submit an ethics form prior to collecting or analysing data.
No ethical concerns to declare

• **SIGNATURES:**

Student signature:		Date: 03/04/2024
Supervisor signature:		Date:
Co-Supervisor signature:		Date:

• **CONFIRMATION BY THE LECTURER**

I have reviewed this completed MoU and am satisfied that it reflects the shared understanding of the supervisor and the student and that the department is able to meet the obligations to candidates set out in this MoU:	
<i>Name:</i>	Dr. Mnguni
<i>Signed:</i>	
<i>Date:</i>	

NOTES ON MEMORANDUM OF UNDERSTANDING

INTRODUCTION

The purpose of this MoU is:

- to provide a clear outline of what each party to the student-supervisor relationship may expect from the other,

- to clarify, from the start, the agreed roles and responsibilities of both candidate and supervisor, and
- to ensure that the supervision experience is as mutually productive as possible.

It is intended to promote the development and maintenance of a sound and productive relationship between the two parties. The resolution of any disputes that might arise between undergraduate students and their supervisors will be strongly informed by the content of this document.

For this reason, this document *extends* – and does not replace – any other agreements between the University and its students or staff, and should therefore be read in conjunction with the general rules governing enrolment of students and the conditions of employment for staff.

INSTRUCTIONS:

The MoU must be completed and signed by students within three (4) weeks of initial registration (or within the first four (4) weeks of the term in which the student starts the project).

CODE OF PRACTICE

This section defines the expected behaviour and attitude of all members of the university involved in undergraduate education and research. Students and staff should uphold the highest standards of professional and ethical conduct, in particular, relating to:

Academic standards: All parties must be committed to the relevant study and research programmes, striving for excellence. For students this requires attendance at, and contribution to, all the forms of learning (lectures, tutorials, laboratories, seminars, field trips etc) which make up their programme. Staff, in turn, must be committed to creating learning and research environments that encourage such scholarship.

Interpersonal Behaviour: All individuals should treat others with respect and no-one should be subjected to unfair discrimination.

University Rules and Guidelines: All individuals should commit themselves to obeying all University rules and regulations.

Safety and Security: Staff and students must commit themselves to acting responsibly, safely, and with consideration for the welfare of all others with whom they come in contact, and to ensuring that security, both of people and property, is not compromised by their actions or inattentiveness.

Assessment and Examinations: Staff have the responsibility to treat all students fairly and impartially when assessing their work. Students must behave with integrity and absolute honesty. Incidents of plagiarism or cheating must be reported and dealt with appropriately.

Use of Resources: All parties must use institutional resources responsibly and diligently, accepting the necessity for accountability.

GUIDELINES FOR SUPERVISOR-STUDENT WORKING RELATIONSHIPS

Students and supervisors working together:

The completion of the research is primarily the responsibility of the student. The supervisor should ensure that the necessary facilities to carry out the project are made available to the student for a reasonable time, such time being sufficient to enable the project to be completed. Any changes to the research programme must be agreed between the student and the supervisor

The supervisor and the student must agree to meet regularly, with an agreed programme of meeting times (which may be flexible), and the supervisor will give timely feedback on the student's progress and will return any work submitted by the student within a reasonable time, normally three (3) weeks.

Research outputs and intellectual property:

Intellectual property (IP) generated in the course of undergraduate study belongs to the University. It may also be subject to confidentiality based on contracts and agreements pertaining to the research. The student must be made aware of such conditions by the supervisor and both must adhere to them.

The research project may produce novel outcomes and the student may be required to assign IP generated in the course of the project to the University or, if requested by the University to do so, to a third party designated by the University, including but not limited to a research sponsor. The student and supervisor will be entitled to share in any financial benefits which may accrue to the University and/or the Department as a result of exploitation of project IP by the University, according to guidelines specified in CPUT policies.

The student must undertake not to enter into any agreement with a third party concerning the project (including but not limited to IP agreements and/ or secrecy agreements), without obtaining prior consent from the supervisor and, where necessary, the university authorities.

Bearing in mind such issues of IP or confidentiality, the student must discuss any proposed publication or presentation on the project with the supervisor prior to submission or presentation, and the supervisor will in turn discuss any proposed publication or presentation with the student.

