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Brisbane, Australia 6–10 April

# Hydrography and Marine Technology Programme at Universiti Teknologi Malaysia : Ensuring Compliance to S-5A Standards of Competence for Registered and Licensed Land Surveyors in Malaysia

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FIG Working Week 2025  
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6-10 April 2025

6-10 April 2025 in Brisbane, Australia  
Presented at the FIG Working Week 2025



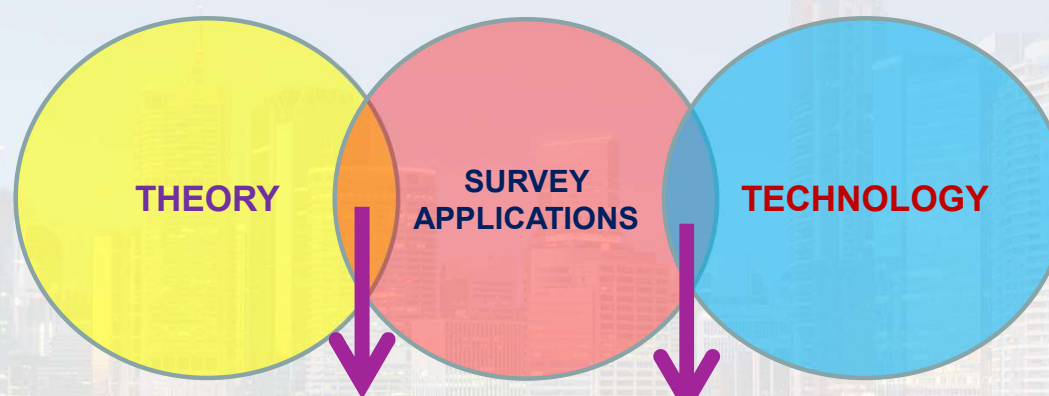
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## The Needs for Hydrographic Surveys in Malaysia



### Conceptual Diagram



**Surveyors must possess adequate knowledge in hydrographic surveying to keep update to IHO S-5A standards.**

**Latest advancement in hydrographic surveying as a tool to fulfill survey standards eg. as stated in IHO S-44.**

## S-5A Standards

**Name of  
Programme**



**Hydrography and Marine  
Technology Programme or UTM  
HYDRO III.**

**Reference  
Standards**



**Against FIG/IHO/ICA S-5A  
Standards of Competence for  
Category "A" Hydrographic  
Surveyors  
(according to Edition 1.0.2, June  
2018).**

## Rationale of the Programme

### Recognition

- ❖ To ascertain Malaysian Land Surveyors expertise is recognised either on a national or international level

### Current Developments

- ❖ To train Malaysian Land Surveyors professionally in line with the current developments



### Training

- ❖ To train and expose hydrographic surveyors towards the development and market demand within the mapping and marine industry

### Participation

- ❖ To participate Malaysian Land Surveyors in international programme

This programme is designed for the Licensed Land Surveyors and Registered Land Surveyors in Malaysia, to participate in an internationally recognised programme and to train them professionally in line with the current developments.



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## National Collaboration

The Hydrography and Marine Technology Programme (UTM HYDRO III) is offered by Universiti Teknologi Malaysia (UTM) in collaboration with the Land Surveyors Board Malaysia, the Association of Authorised Land Surveyors Malaysia, Department of Survey and Mapping Malaysia and the National Hydrographic Centre of the Royal Malaysian Navy, with the main aim to produce hydrographic surveyors that fulfill the Standards of Competence for Hydrographic Surveyors according to the S-5A Standards.



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## PROGRAMME INFORMATION

Programme Identification				
<b>Name of the Programme</b>	HYDROGRAPHY AND MARINE TECHNOLOGY PROGRAMME (UTM HYDRO III)			
<b>Institution</b>	Universiti Teknologi Malaysia			
<b>Level of Recognition</b>	Category A			
<b>Duration of the Programme</b>	<b>Week</b>	40 Weeks	<b>Self-Guided</b>	188 hours
	<b>Hours</b>	1,260 hours	<b>Assignment</b>	49 hours
	<b>Theory</b>	511 hours	<b>Presentation</b>	14 hours
	<b>Tutorial</b>	73 hours	<b>Quiz/ Test</b>	20 hours
	<b>Practical</b>	126 hours	<b>Examination</b>	39 hours
<b>Duration of Final Project</b>	CMFP : 240 hours			
<b>Language of Instruction</b>	English			
<b>Program Capacity</b>	20 Students			



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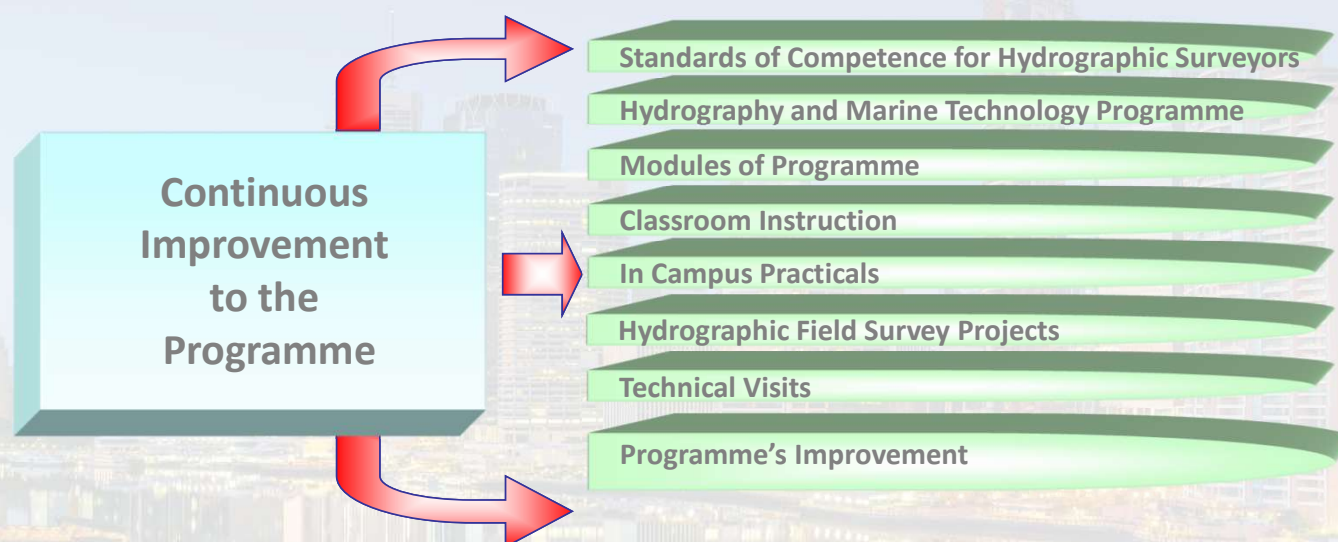
No.	MODULE	CODE	COURSES	HOURS	WEEKS
1	1	MA3	Mathematics and Statistics	66	6.67
2		CP3	Computer Programming	62	
3		PY3	Physics	72	
4	2	GE3	Geodesy	96	6.33
5		TI3	Tides: Theory and Practice	94	
6	3	HP3	Hydrographic Positioning	96	9.00
7		HS3	Hydrographic Surveys	174	
8	4	HI3	Hydrographic Information	85	4.67
9		LS3	Law of the Sea	55	
10	5	SN3	Seamanship and Navigation	48	3.00
11		MM3	Marine Meteorology	42	
12	6	OS3	Dynamic Oceanography and Sedimentology	70	4.33
13		RS3	Remote Sensing	60	
14	7	HF3	Hydrographic Field Survey Project (CMFP)	240	6.00

Total  
Duration  
of Each  
Courses



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## Practical Exercises

The list and details of all practical exercises is provided, no practical exercises should be done only on the Final Project that is dedicated to enable the students to demonstrate they have acquired the skills necessary to carry out the various hydrographic surveying tasks.



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## Final Project

The Final Project is coordinated and directly supervised by the institution.

A detailed and comprehensive narrative description of the Final Project (CMFP) is provided.

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A Complex Multi-disciplinary Field Project (CMFP) is required, which will include analytical reasoning, decision making and development of solutions to non-routine problems.

The instruction for the CFMP must include a complex multi-disciplinary scenario from which the students must develop the survey specifications and plan the survey operation.



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An example of the Final Project instruction as provided to the students.

A sample of submitted student deliverables and reports is included.

A final project description table is completed in the specified template provided / it is described in terms of Task Outcomes the intended result of the completed task.



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## Students' Submission (CMFP)

- Slide Presentations
- Field Survey Report

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### Instruction Room



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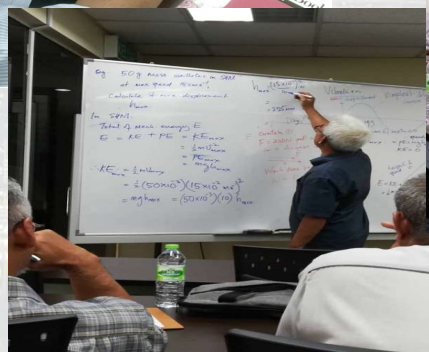
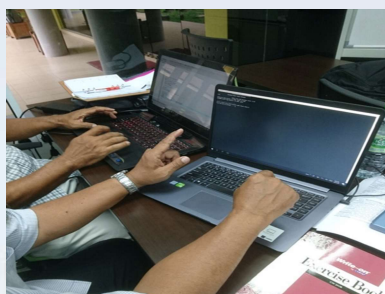
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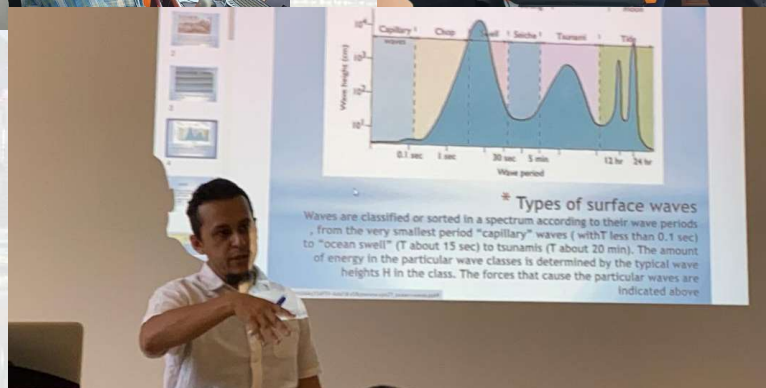
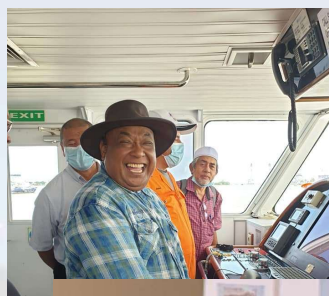
**Instruction Room**





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Technical  
Visit  
(locally)

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**In Campus Practical**





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**In Campus Practical**

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**Hydrographic  
Surveys  
Project**



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### Hydrographic Surveys Project



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**Completion of  
Hydrographic  
Surveys  
Project**



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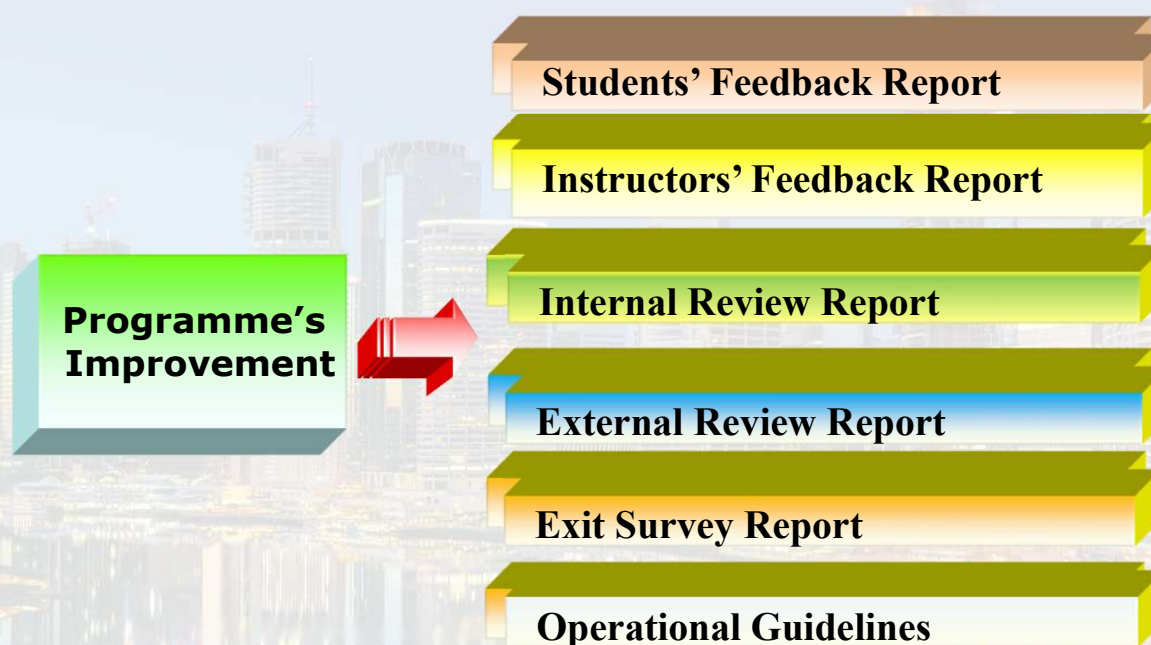
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## Technical Visit to Portugal Hydrographic Institute (IHPT)

18-20 September 2023  
Lisbon, Portugal



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## Technical Visit to Italian Hydrographic Institute (IIM)

13-14 May 2024  
Genoa, Italy

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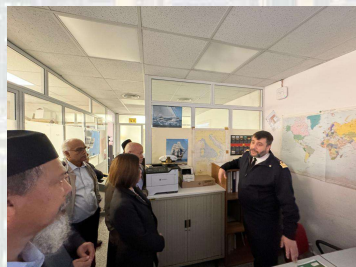
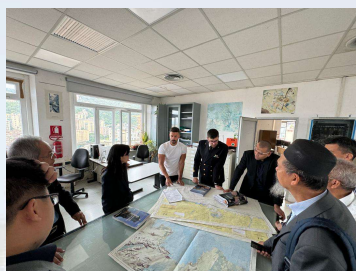
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## CONCLUSIONS

- In order to be competent as a hydrographic surveyor, it is encourage attending those recognised programmes set up by the relevant institution and authorities. The institution should always update their programmes in line with the latest Standards.
- Technical visit to the established authorities are a step further in pursuing recent development in hydrographic surveys work.
- Continuous professional educational development will expose the hydrographic surveyors to the new technology and knowledge applicable to the hydrographic surveys carry out.



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## ACKNOWLEDGEMENTS

The continuous support by the Land Surveyors Board Malaysia, the Association of Authorised Land Surveyors Malaysia, Department of Survey and Mapping Malaysia, and the National Hydrographic Centre, are acknowledged and very much appreciated.

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Visit to IHO  
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