THE ESTABLISHMENT OF HYDROGRAPHY AND MARINE TECHNOLOGY PROGRAMME (UTM HYDRO III) FOR MALAYSIAN PROFESSIONAL LAND SURVEYORS

DEPARTMENT OF SURVEY AND MAPPING MALAYSIA (DSMM)
UNIVERSITI TEKNOLOGI MALAYSIA (UTM)
NATIONAL HYDROGRAPHIC CENTRE (NHC)
LAND SURVEYORS BOARD MALAYSIA (LJT)

24 April 2019

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INTRODUCTION

• Practice of **Malaysian Professional Land Surveyors** are often involved in a range of surveying activities such as
  – Cadastral surveys
  – Geodetic surveys
  – Topographical surveys
  – Engineering surveys
  – Photogrammetry
  – Hydrographic surveys
INTRODUCTION

1. Geographic Location and Geopolitical Scenario
   - Ratio area of Malaysia Water and Land
   - 6,036.7 km Coastline
   - 569,845 km² Water Area
   - 329,758 km² Land Area
   - 883 Total Islands

2. Ports and Shipping Sector

3. Oil and Gas Industry

4. Maritime Tourisms and Fishing Activities

5. Sovereignty, Safety and Defense
In 2030, AT LEAST 250 Malaysia Licensed Land Surveyors/Registered Land Surveyors will have a CATEGORY A Competency
Cont....

- The **demand for hydrographic surveys** are increasing due to the rapid development of **ports and coastal engineering, offshore oil and natural gas exploitation**.
- These are **high economic value industries** but it is also **high risk industries** that require **regular monitoring** in order to avoid the potential of adverse environmental impact.
- The varied and dynamic nature of this coastal and offshore area dictates the frequency of hydrographic survey operations. Thus, it is essential to ensure **hydrographic survey are conducted accordingly to the standards by competent personnel**.
Establishment of Hydrography and Marine Technology Programme (UTM HYDRO III)

- an effort to train and expose Malaysian land surveyors towards the international standards, development and market demands in hydrographic surveys

- Designed for Malaysian Professional Land Surveyors
Recognised
To ascertain Malaysian Land Surveyors expertise is recognised either on a national or international level.

Train
To train and expose hydrographic surveyors towards the development and market demand within the mapping and marine industry.

Participate
To participate Malaysian Land Surveyors in international programme.

Current Developments
To train Malaysian Land Surveyors professionally in line with the current developments.

Recognised
To ascertain Malaysian Land Surveyors expertise is recognised either on a national or international level.
DEVELOPMENT OF UTM HYDRO III
The idea to establish the Hydrography and Marine Technology Programme (UTM HYDRO III) was made by the Director General of the Department of Survey and Mapping Malaysia (DSMM),

YBHG. DATO’ INDERA SR MOHD NOOR BIN ISA

in July 2017.
• UTM HYDRO III is conducted by UTM under the Faculty of Built Environment and Surveying

• Only academic institution in Malaysia that has been recognised by FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyor and Nautical Cartographers (IBSC) to conduct Professional Hydrographic Programme since 1995

DSMM is a government agency in Malaysia with the responsibility of providing mapping, cadastre and geodesy products and services.

NHC is an organisation under the Royal Malaysian Navy and is responsible towards hydrographic activities such as hydrographic data collection in producing nautical chart for safety of navigation.

LJT is the corporate body and responsible for controlling and maintaining standards for Licensed Land Surveyors and other related matter; and regulating the practice of land surveying in Peninsular Malaysia.

• PEJUTA is responsible to raise the level of technical, professional, and management expertise among members of the association by promoting continual professional development, upgrading and updating of skills, knowledge and instrumentations.
PURPOSE UTM HYDRO III PROGRAMME

• to give a continuing professional development for Malaysian Professional Land Surveyors with comprehensive and broad-based knowledge in all aspects of the theory, current technologies and practice of hydrographic surveying, and allied with discipline.

• to keep and expose the Malaysian Professional Land Surveyors with the new standards in hydrographic activities.
UTM HYDRO III MANAGEMENT COMMITTEE

- Initiated by the Director General of DSMM, comprising of DSMM, NHC, LJT, UTM and PEJUTA.

- **Aim of this committee** is to establish and manage a international hydrographic programme for Malaysian Professional Land Surveyors.

- A series of meeting and discussion took place to design the syllabus of UTM HYDRO III that comply with the new standard known as FIG/IHO/ICA Standards of Competence for Category 'A' (Publication S-5A, First Edition, Version 1.0.1–June 2017).
JAN 2017: THE IDEA AND NEED NEW HYDROGRAPHIC PROGRAMME FOR PROFESSIONAL LAND SURVEYORS

APRIL 2017: ESTABLISHMENT UTM HYDRO III COMMITTEE (1ST MEETING)

JUNE 2017 DESIGNED UTM HYDRO III PROGRAMME (2ND MEETING)

SEPT 2017 AMENDMENT TO DESIGNED UTM HYDRO III PROGRAMME (SYLLABUS AND SUBJECTS) AND LECTURER SELECTION (3RD MEETING)

NOV 2017 FINALISED DRAFT UTM HYDRO III PROGRAMME (4TH MEETING)

DEC 2017 SUBMITTED DRAFT UTM HYDRO III TO IBSC

APRIL 2017 PRESENTATION UTM HYDRO III PROGRAMME AT 41ST IBSC MEETING IN INSTITUTE TECHNOLOGY BANDUNG, INDONESIA

JUN 2018 SUBMITTED CORRECTION TO IBSC

MAC 2018 RECOGNITION LETTER AND CERTIFICATE CATEGORY ‘A’ UTM HYDRO III (14 NOV 2018)

MAY 2018 MoU UTM, DSSM, NHC, LJ, PEJUTA

SEPT 2018 UTM HYDRO III COMMITTEE (1ST INTAKE) (6TH MEETING)

OCT 2018 1ST UTM HYDRO III PROGRAMME OFFERED AT UTM KUALA LUMPUR
FIG WORKING WEEK 2019
22–26 April, Hanoi, Vietnam

“Geospatial Information for a Smarter Life and Environmental Resilience”
FIG WORKING WEEK 2019
22–26 April, Hanoi, Vietnam

“Geospatial Information for a Smarter Life and Environmental Resilience”

TRAINING COLLABORATION between
FACULTY OF GEOINFORMATION AND REAL ESTATE (FGRE)
UNIVERSITI TEKNOLOGI MALAYSIA (UTM)
and
NATIONAL HYDROGRAPHIC CENTRE (NHC)
DEPARTMENT OF SURVEY AND MAPPING MALAYSIA (DSMM)
LAND SURVEYORS BOARD MALAYSIA (LTJ)

ORGANISED BY

PLATINUM SPONSORS
Sr Mohd Noor Isa and Malaysian delegates with Mr. Adam Greenland, Chairman of IBSC after presentation UTM HYDRO III Programme
FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC)

CERTIFICATE OF RECOGNITION

The FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, having reviewed the programme “Hydrography and Marine Technology Programme (UTM Hydro III)” submitted by the UNIVERSITI TEKNOLOGI MALAYSIA-UTM (MALAYSIA) against the Standards of Competence for Category “A: Hydrographic Surveyors, S-5 A: Edition 1.0.1, and being satisfied that it meets the requirements prescribed in the Standards, hereby awards this certificate of recognition for a period of six (6) years.

Signed at Monaco

Adam Greenland
Chairman of the Board
This day the 31 of March 2018
PROGRAMME STRUCTURE
PROGRAMME STRUCTURE

- (UTM HYDRO III) has been designed to be flexible with the programme being delivered in **42 weeks (6-8 hours/day)** by modular approach.

- The programme is designed with **seven (7) modules** and it offers the adaptable and flexible mode to complete this programme in two years.

- The programme contains a series of modules and formal training sessions as well as additional **practices, tutorials** and **field experience**.

- The total class duration is **1,330 hours** and it has been divided according to the structured subjects in this programme.
MODULE 1  FOUNDATION OF HYDROGRAPHY AND MARINE TECHNOLOGY  194 HOURS

MODULE 2  MARINE DATA ACQUISITION I  180 HOURS

MODULE 3  MARINE DATA ACQUISITION II  276 HOURS

MODULE 4  GEOSPATIAL DATA AND LEGAL ASPECT  150 HOURS

MODULE 5  INDUSTRIAL TECHNOLOGY FOR HYDROGRAPHIC DEVELOPMENT I  90 HOURS

MODULE 6  INDUSTRIAL TECHNOLOGY FOR HYDROGRAPHIC DEVELOPMENT II  130 HOURS

MODULE 7  HYDROGRAPHIC FIELD SURVEY PROJECT  320 HOURS
**DETAILS OF PROGRAMME STRUCTURE**

**DURATION : 42 WEEKS (1,330 HOURS)**

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<td>Theory (513 hours)</td>
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<td>b.</td>
<td>Tutorials (169 hours)</td>
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<td>Practical (66 hours)</td>
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<td>d.</td>
<td>Self-Guided (177 hours)</td>
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<td>e.</td>
<td>Assignment (79 hours)</td>
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<td>f.</td>
<td>Examinations (46 hours)</td>
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<td>g.</td>
<td>Hydrographic Field Survey Project (280 hours)</td>
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<td>Mathematics and Statistic</td>
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<th>Module 7: Hydrographic Field Survey Project</th>
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<td>Hydrographic Field Survey Project</td>
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HYDROGRAPHIC FIELD SURVEY PROJECT
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Aim of Hydrographic Field Survey Project is to expose the students with experience by combining the material covered in the previous modules and to supply the hands-on experience with field equipment which is not available in the classroom.
HYDROGRAPHIC FIELD SURVEY PROJECT

• In this field project, a comprehensive survey operation starting from survey planning which includes collecting data from the existing records, establishing survey control, and hydrographic data acquisition, up to the completion of the field sheet in the form suitable to be submitted to the field sheet checking unit.

• Apart from manual entry, the students will also be exposed to the use of hydrographic softwares i.e. real-time data acquisition system and post-processing software. All these are covered in chronological order and each Malaysian Professional Land Surveyors works on every aspect of the survey. The Hydrographic Field Survey Project will be conducted with multibeam survey and other related hydrographic sensors.
HYDROGRAPHIC FIELD SURVEY PROJECT

• The Hydrographic Field Survey Project will be conducted with multibeam survey and other related hydrographic sensors.

• Most of the system and vessel currently used for the practical Hydrographic Field Survey Project belongs to NHC.

• The vessel will be optimised for shallow water applications and equipped with multibeam echo sounder system and single beam echo sounder, a sub bottom profiler, side scan sonar, inertial navigation system, GNSS positioning and etc.
VESSEL (NHC)
CHALLENGING PHASE ON UTM HYDRO III PROGRAMME

- The challenging points during the Hydrography and Marine Technology Programme (UTM HYDRO III) are as shown below:
  - Implementation of theories and principles with current technologies in Category ‘A’ syllabus.
  - Syllabus designed to comply with the standard and parallel with experiences of Malaysian Professional Land Surveyors.
1st UTM HYDRO III PROGRAMME
1ST UTM HYDRO III PROGRAMME

- Started: 5 October 2018
- The Opening Ceremony was officiated by the Director General of Department of Survey and Mapping Malaysia
- Attended by a total of 18 Malaysian Professional Land Surveyors
- The programme was delivered on modular approach at UTM Kuala Lumpur, Malaysia.
FIG WORKING WEEK 2019
22–26 April, Hanoi, Vietnam

“Geospatial Information for a Smarter Life and Environmental Resilience”
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BENEFITS OF THE PROGRAMME

1. Expose the Malaysian Professional Land Surveyors to theory, principle and standard of operation in conducting hydrographic survey activity in accordance with predetermined standards.

2. The Continues Professional Development (CPD) in hydrographic field will open the students to a broader field of career and professionalism.

3. This programme will produce a competent Malaysian Professional Land Surveyors that can be Malaysian Subject Matter Expert in hydrographic surveying.
CONCLUSION

• The UTM HYDRO III has made a significant contribution towards ensuring that the Malaysian Professional Land Surveyors is expose to the current hydrographic surveys technologies that follows the hydrography standards or standards of procedure especially on engineering, marine cadastre development and marine explorations in Malaysian Waters.

• The certification of UTM HYDRO III that meets a Category 'A' standard will provides additional confidence in the survey activities by the Malaysian Professional Land Surveyors
Secretary General IHO-Dr. Mathias Jonas

Sea define the land or land the sea?

Each drew new meaning through the waves collision. Sea broke on land to full identity.

Seamus Heney
THANK YOU