Geomatic Undergraduate Programme at the Universiti Teknologi Malaysia – Students and Alumni Perspectives

Farah Aishah ALIAS, Malaysia

Key words: Geomatic Programme, Undergraduate, Outcome Based Education, and Best Practice

SUMMARY

Geomatic education at undergraduate level in Malaysia started many decades ago. The pioneer institution in this land surveying and mapping or geomatic discipline is the Universiti Teknologi Malaysia (UTM), and then followed by other institutions at much later stage. UTM has produced many land surveyors since then and they are being employed in various sectors (both in government and private). This paper discusses some aspects of the UTM geomatic undergraduate academic programme’s curriculum and syllabus and highlights some reflections of the programme by several alumni and existing students. This 4-year programme has been benchmarked by several institutions within or beyond Malaysian border. Revising and improving the programme to a much better level of acceptance by various stakeholders including the industry are being continuously carried out by the institute. The outcome of the interview, survey and questionnaire on the programme provides vital feedback to the programme owner and thus to the university. Engaging or benchmarking the programme at the international arena is also important and could determine the sustainability of the programme both for local and international students and this aspect will form part of the discussion for an improvement to the programme. The remaining of this paper highlights the acceptance level among the existing students and alumni towards the programme. Outcome based education within the programme is also being evaluated and monitored by the programme owner with the aim to provide the best undergraduate geomatic programme in the country. The feedback from the students as well as from new graduates provides vital input to the success of the programme.
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1. INTRODUCTION

In general, many land surveyors graduated from Universiti Teknologi Malaysia (UTM) since several decades ago and UTM still busy with the geomatic programme since then. The geomatic undergraduate programme is one of the academic courses being offered by the Department of Geoinformation. It has been synonymous that when it comes to surveying education in Malaysia, then UTM is the place to look to or to be. This paper attempts to discuss the popularity of the program among current and past students (alumni) of which the outcomes of the questionnaire could be utilized as feedback to the programme owner. The questionnaire has been designed in such way that several aspects related to the programme could be addressed immediately (if possible) or in the near future.

The remaining of the paper discusses the structure of the four-year programme in Section 2, the feedback of the programme in Section 3. Section 4 highlights the concluding remarks.

2. THE FOUR-YEAR PROGRAMME

UTM runs this four-year geomatic engineering programme since more than a decade ago. It has been the backbone undergraduate programme for the Department of Geoinformation of UTM since then. Standard output figure for yearly graduate of this programme is approximately between 50 to 70, and most of these graduates work in various sectors such as government departments, private sectors and also as freelance surveyors. Academically, the programme is based on 133 credit hours with the following categories of courses (80 credits for core courses, 33 credits for elective courses, and 20 credits for university courses). The structure of the programme as illustrated below (Undergraduate Handbook 2013/2014, Faculty of Geoinformation and Real Estate, UTM):

<table>
<thead>
<tr>
<th>Year 1</th>
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<tbody>
<tr>
<td>Semester 1</td>
</tr>
<tr>
<td>SGHU 1012</td>
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<tr>
<td>SGHU 1013</td>
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<td>SGHU 1093</td>
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SGHU 1412  Computer Aided Design for Surveyors  
SSE 1523  Mathematic for Surveyors  
UICI 1012  Islamic and Asian Civilization  
UHAS 1151  Ethnic Relations  

**Year 1**  
**Semester II**  
SGHU 1043  Engineering Survey  
SGHU 1203  Field Astronomy  
SGHU 1452  Photogrammetry I  
SGHU 1502  Cartography  
SSE 1442  Statistics for Surveyors  
ULAB 1112  English for Academic Communication  
UHAS 2112  Critical and Creative Thinking  
UKQ* 1**1  Co-Curriculum I  

**Year 2**  
**Semester I**  
SGHU 2043  Engineering Survey Technology  
SGHU 2452  Photogrammetry II  
SGHU 2513  Hydrographic Surveying  
SGHU 2552  Introduction to GIS  
SGHU 2602  Geodesy I  
SGHU 2922  Technical Writing  
UICI 2022  Human, Technology and Science  
or  
UHA 1012  Malay Language Communication (for International students)  

**Year 2**  
**Semester II**  
SGHU 2252  Satellite Positioning  
SGHU 2313  Cadastral Survey  
SGHU 2412  Introduction to Adjustment Computation  
SGHU 2613  Geodesy II  
SGHU 2901  Survey Camp  
SGHU 2**3  Elective I  
ULAB 2112  Advanced English for Academic Communication  
UKQ* 1**1  Co-Curriculum II  

**Year 3**  
**Semester I**  
SGHU 3**3  Elective 2  
SGHU 3**3  Elective 3  

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<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SGHU 3**3</td>
<td>Elective 4</td>
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<tr>
<td>SGHU 3**4</td>
<td>Elective 5</td>
</tr>
<tr>
<td>SGHU 2403</td>
<td>Introduction to Remote Sensing</td>
</tr>
<tr>
<td>SGHU 4313</td>
<td>Land Law and Survey Regulation</td>
</tr>
</tbody>
</table>

**Year 3**

**Semester II**
- SGHU 3903 Industrial Training - Seminar
- SGHU 3909 Industrial Training – Field

**Year 4**

**Semester I**
- SGHU 3**3 Elective 6
- SGHU 4**3 Elective 7
- SGHU 4**3 Elective 8
- SGHU 4**3 Elective 9
- SGHU 4332 Land Administration
- SGHU 4942 Undergraduate Project I
- ULAB 3**2 English (Elective)

**Semester II**
- SGHU 4**3 Elective 10
- SGHU 4**3 Elective 11
- SGHU 4342 Professional Practice
- SGHU 4372 Project management for Surveyors
- SGHU 4944 Undergraduate Project II
- UHAS 3012 Entrepreneurship and Enterprise Development

**Elective courses**
- SGHU 2523 Hydrographic Surveying Technology
- SGHU 3253 Global Navigation Satellite System
- SGHU 3283 Least Square Estimation
- SGHU 3553 Land Information System
- SGHU 3723 Falaq Syarie
- SGHU 3743 Physical Oceanography
- SGHU 3763 LIS Database Management
- SGHU 4133 Topographic Mapping using Remoetly Sensed Data
- SGHU 4273 Utility Mapping
- SGHU 4313 Land Law and Survey Regulation
- SGHU 4323 Cadastre Survey Practice

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The evaluation of the programme is based on OBE (Outcome Based Education). However, in reality, not all courses were on OBE, it is mainly due to obvious reasons e.g. not all lecturers were OBE savvy, and it would take some time to materialize the 100% OBE. However, most of the academic members have been trained towards OBE.

3. THE FEEDBACK

A survey has been conducted among existing students of year 3 and year 4 especially and their views show that the programme provides the right environment for learning the courses. Majority have indicated that they like the programme and only small number of correspondents provide negative views. One aspect of learning process such as the Industrial Training in year 3 (semester II) has been suggested to organize for longer period, e.g. 3 months rather than 2 weeks training currently.

Feedback from ex-students are quite interesting to note – majority of them agree that the programme provides excellent knowledge on the geomatic discipline. A number of alumni work either locally or within international companies, ranging from typical land surveying jobs to hydrographic companies and information system. However, some alumni have suggested for more knowledge on cartography, fundamental mapping courses, e.g. geodesy and photogrammetric mapping. Mathematics for geomatic also needs to be revised and addressed in the next version of the curriculum.

4. CONCLUSION

This paper described the academic structure of the programme and highlighted several points that needs to be addressed as suggestions for improvement. Majority of the correspondents are happy with the programme, however, the groups also suggested several points for improvement.
REFERENCES


BIOGRAPHICAL NOTES

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