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# SoTL Bulletin Vol3.0/2020

## //////// Content in this Volume



# SOTL INQUIRY INTO CURRICULUM DEVELOPMENT

**Chen Chwen Jen**
Centre for Applied Learning and Multimedia (CALM)

## 1 GOAL

Quality Assurance and Enhancement of Curriculum

## 2 RATIONALES

- Create and sustain high quality and evidence-based curriculum practices via systematic inquiry
- Advance knowledge in curriculum leadership

## 3 SIGNIFICANCE OF SOTL OUTCOMES

- Enable informed decisions on curriculum design and enhancement
- Inform the institution on the necessary improvement, adjustment, policies and/or professional development programmes
- Impact a faculty or university curriculum practices when outcomes are shared via professional development workshops, sharing sessions, etc.
- Contribute to the scholarship of teaching and learning when outcomes are made public

## 4 CURRICULUM DEVELOPMENT PROCESS

**ASSESS NEEDS | DESIGN | DELIVER | MONITOR | REFLECT**

### ASSESS NEEDS

**Discover Needs**

Students (Prospective)
expectation, perspective, characteristics
interview, survey

Lecturers
knowledge, experiences, competencies
interview, focus group, meeting (individual or group), reflection

Industries
employability skills (knowledge, skills and attributes) demanded by employers
interview, survey

Local Community, National, Regional and Global Expectations
alignment with local community, national priorities and policies and/or global trends
policy document, standard

Ministry/Governing Bodies (accrediting agencies, professional boards, etc.)
compliance to compulsory standards and requirements

Literature and Credible Resources
best practices in teaching and learning, subject matter, related curricula
literature review

### DESIGN

**Resolution Ideas of Identified Needs/Problems**

Informed by

**SoTL Methods**
credible references
outcomes of systematic inquiries

**Non-SoTL Methods**
expert experience, assumptions, beliefs, expectations
disciplinary traditions, standards
learning environments
political landscapes

### DELIVER & MONITOR

**Discover Problems/ Resolution Ideas**

Students (Existing & Alumni)
expectation, perspective, characteristics, learning style, performance, learning experience, student selection criteria
interview, survey, course performance analysis, curriculum analytics, course feedback, reflection, alumni's career path

Lecturers
availability, knowledge, motivation, experiences, competencies, professional development needs
interview, focus group, meeting (individual or group), observation, self-reflection, peer review, student feedback
teaching and learning process (content, delivery and assessment)
outcomes of SoTL inquiry at the course level

Industries
employability skills (knowledge, skills and attributes) demanded by employers
industrial training report, interview, survey, industry advisory report

Expert Panels
Review Report

Local Community, National, Regional and Global Expectations
alignment with local community, national priorities and policies and/or global trends
policy document, standard

Ministry/Governing Bodies (accrediting agencies, professional boards, etc.)
compliance to compulsory standards and requirements

Literature and Credible Resources
best practices in teaching and learning, subject matter, related curricula
literature review

### REFLECT

**Redesign Curriculum**

## 5 OUTCOME

Evidence-Based Curriculum
(constructive alignment)

- aim, learning outcomes & subject matter/content
- teaching & learning delivery methods and learning resources
- assessment

# A PRELIMINARY STUDY ON STRENGTHENING CINEMATOGRAPHY UNDERGRADUATE PROGRAMME TOWARDS FUTURE READY CURRICULUM

**by Yow Chong Lee, Candida Jau Emang, Teo Miaw Lee, Aliffazraie Jali, Affendi Azizan, Mohd. Jefri Samaroon and Abdul Riezal Dim**

**Introduction**

The Cinematography Programme is a programme of studies offered by the Faculty of Applied and Creative Arts (FACA), Universiti Malaysia Sarawak (UNIMAS). The faculty was established in 1994, where it offered six major programmes of studies namely, Cinematography, Art Management, Design Technology, Fine Art, Music, and Drama and Theatre. These programmes were developed to cater the needs of the creative arts industry, academics, as well as art practitioners. Ever since its establishment, the programmes have flourished, developed and went through a few changes due to market needs and technological change.

In 1994, the Cinematography Programme opened its door for enrolment and accepted its first batch of students. It was a degree designed for a 4-year programme in which upon completion, students will be awarded the Bachelor of Applied Arts with Honours (Cinematography). The curriculum offered by the Programme then was designed based on an 'integrated arts' approach and driven by the mission and vision of the Faculty. During the first-year enrolment to the Faculty, students were made compulsory to take all the fundamental courses before they decided on their major programme in the following year. This curriculum structure was seen fit to cater for a 4-year degree programme. However, after a careful study, the first major change was introduced to the Programme in 1997. Instead of retaining its 4-year programme, the Faculty decided to adopt a 3-year programme of study.

The change was applied immediately, and from 1997 onwards, the Cinematography Programme offered a 3-year degree programme.
The followings are the changes made to the curriculum offered by the Cinematography Programme:
***1994:*** Integrating visual and performing arts at the beginning, only in year two that the students register for film related courses such as scriptwriting, videography and Television workshop and documentary

***1997:*** Changes were made to the duration of study for all programmes offered by FACA. A 3-year programme of study was introduced to replace the 4-year programme.
***2004:*** To meet the demand of the film industry, more field related courses were offered, i.e. Cinematography, Film Directing, Audio in Film, Editing, and Production Design
***2007:*** Digital Production was introduced in line with the influx of digital technology
***2010:*** Curriculum review was conducted to focus on the Malaysia Qualification Agency (MQA) requirements. A few changes were made on the Programme's structure, student's learning time, and course alignment as per required by the MQA as well as Ministry of Education (MoE).
***2014:*** To remain relevant with the industry and to be up to date with current technology, a few new courses were introduced. The courses were Producing for film and television, Sound design, Digital post-production and Hybrid media.

Apart from these curriculum changes and developments, there is a need to improve students' learning experience in line with 21st century learning. There is a need for a transformation in teaching and learning from a classroom-based learning to project-based learning, be it inside or outside of studio. By so doing, students will be able to learn holistically and being assessed not only based on their knowledge but also their skills and involvements.
Thus, changes are imminent should the programme wish to provide Future Ready Curriculum with elements of Higher Impacts Educational Practices (HIEPs). In short, this study aims to explore possible distinctive features in designing the future ready curriculum for Cinematography programme in Universiti Malaysia Sarawak.

**Methodology**
Here are the three research questions to be answered under the SOTL grant that our programme is going to tackle:
- How to design a future-ready curriculum with distinctive feature(s)?
- How can the curriculum content, transformative teaching and learning delivery and alternative assessment practices be strategically aligned?
- How to assess the significance of the redesigned curriculum practices?

In order to address the first two abovementioned questions, we opted for the following approaches:
- Cross-checking with MQF2.0 and other requirements
- Interview the External Examiner and Industrial Advisory Panel
- Interview the External Assessors who had assessed final year students' projects
- Alumni and market survey
- Setting Benchmark with other universities that offer a similar programme

However, for the purpose of this symposium, the research managed to address only the first research question as the research is still in progress.

**Preliminary Findings**
**Cross-checking with MQF2.0**
There are two major requirements set under MQF2.0, namely acquisition of digital and numeracy skills by students throughout their study under our programme (Malaysian Qualification Agency, 2017). These two functional work skills were newly introduced into the existing clusters of learning outcomes. These two skills have been taught in courses offered by Cinematography programme, but, they had never been highlighted on official document. For that, we proposed an update of our Programme Educational Outcomes (PEO) as well as Programme Learning Outcomes as per below:

| PEOs | Proposed PEOs |
|---|---|
| PEO with an addition of digital skills | PEO1:<br>Practice the knowledge, digital and technical skills in-line with the film and media industry requirements. |
| PEO with an addition of numeracy skills | PEO3:<br>Formulate solutions and visual information innovatively and ethically. |

| PLOs | Proposed PLOs |
|---|---|
| PLO with digital skill | PLO6:<br>Use a broad range of information, media and digital technology applications to support study and/ or work. |
| PLO with numeracy skill | PLO7:<br>Apply numerical data and visual information for study and/ or work. |

By indicating statements of PEO and PLO, we will be having a clear direction in providing a curriculum that is up to the national's demand.

**Interview and Feedback from External Examiner**

When we were collecting feedbacks from External Examiner on existing curriculum, he suggested the following:

- Some overlapping courses need to be changed, e.g. Cinematography and Videography, either rebranding or combined
- Include a course on film business for final year students

From the feedback, we have made the following changes during our curriculum review:

- We have replaced GKS1033 Videography with GKS1323 Digital Video Production to avoid confusion. This course serves as introductory for students to be exposed with digital video production using camera and light before they were to enrol for GKS2294 Cinematography.
- Since we have a course on producing, we have included the elements of business in the particular course. The course has also been renamed as GKS2344 Producing and Film Business to reflect the essence of the course.

**Interviewing and getting feedback from External Assessor**

In a special meeting with one of our external assessors for Final Year Project in 2017 we have collected his opinions and feedbacks on the existing curriculum. He then gave us feedback on what to improve. For him, there is a need to include the following skills in our programme, namely acting, pre-production and production management as well as skills of becoming assistant director (Teo, 2017).

From this feedback, we created a new course namely GKS2334 Film Directing II as a continuation from GKS1053 Film Directing. These two courses, together with GKS2344 Producing and Film Business are meant to provide opportunity for students to acquire skills as mentioned above.

**Conclusion**

The efforts in strengthening Cinematography programme is an ongoing process. The preliminary research data indicates the needs to relook into existing courses offered by the programme as well as the skills deemed needed for the programme's future graduates.

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# MARKETING CURRICULUM OVERHAUL: ASSESSING FUTURE MARKETERS VIA ALTERNATIVE ASSESSMENTS

## Introduction

The traditional approach produces smart learners through paper-and-pen assessment appears not to reflect the learners' true potential in marketing skills. With the current transformation in the marketing field, Bachelor of Business Administration with Honours (Marketing) is redesigned towards a future-ready curriculum via the implementation of alternative assessment. Alternative assessment is a substitute for assessing learners' work which motivates self-learning and self-assessment process with the aim to develop creativity and critical thinking, as well as to better demonstrate the learners' strengths and weaknesses.

## Objectives

1. To produce a future-ready curriculum with distinctive feature(s).
2. To strategically align the curriculum content, transformative teaching and learning delivery and alternative assessment practice.

## Research Questions

1. How to design a future-ready curriculum with distinctive feature(s)?
2. How can the curriculum content, transformative teaching and learning delivery and alternative assessment practices be strategically aligned?

## Methodology

To achieve OBJ1/RQ1:

a. Review of external examiner


b. Review of industrial advisory panel


c. University benchmarking

d. Exit, Alumni, Market surveys


To achieve OBJ2/RQ2:

a. Adhere to BUSINESS STUDIES Program standard


b. Discussion among lecturers and UPIK team

c. Aligning alternative assessment types and marketing courses


d. Revising/Improving course content

## Preliminary Findings

1. Redesign the curriculum structure by considering BUSINESS STUDIES program standard, MQF 2nd version, and stakeholders' feedback.
2. Mapping of the alternative assessment types with marketing specialization courses.

**Team members:**

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Time for a Marketing Curriculum Overhaul: Designing a Future-ready Marketing Curriculum

# Assessing Future Ready Curriculum Elements in Physical Science Foundation Programme

By George Tan Geok Shim

## INTRODUCTION

Types of Elements of Future Ready Curriculum

- FLUID & ORGANIC CURRICULUM STRUCTURE
- TRANSFORMATIVE LEARNING & TEACHING DELIVERY
- ALTERNATIVE ASSESSMENTS

## OBJECTIVE

**To produce a future-ready curriculum (preliminary investigation)**

## METHOD

**Group discussion with programme academic members with the focus on alternative assessments.**

## PROGRAM STRUCTURE

Core Courses
72%

University Courses
28%

## FINDINGS

Physical Science Foundation Programme Courses

**Performance-Based Assessment**
33.3%
Critical Thinking Session (CTS)

**Challenged-Based Assessment**
8.3%
Bazaar

**Contemporary Assessment**
16.8%
Mini Research, Colloquium

**Authentic Assessment**
25.0%
Problem Solving Session (PSS)

**Profiling Assessment**
8.3%
Proficiency Test

**Real Time Assessment**
8.3%
Lab session

## CONCLUSION

Physical Science Foundation Programme Course has incorporated the above **alternative assessment** elements in its future-ready curriculum.

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# Assessing Future Ready Curriculum Elements in Life Science Foundation Programme

By Mohamad Razif Bin Othman

## Introduction

Elements in future-ready curriculum :

- Fluid & Organic Curriculum Structure
- Transformative Learning & Teaching Delivery
- Alternative Assesments

## Objective

To produce a future-ready curriculum (preliminary investigation)

## Methodology

Information collection via group discussion with programme academic members with the focus on alternative assessments.

## Program Structure

- 3+1=4 — Core Courses 72%
- University Courses 28%

## Findings

- **Performance-Based Assessments** 33.3% Problem Based Learning
- **Challenge-Based Assessments** 8.3% Bazaar
- **Contemporary Assessments** 16.8% Mini Research, Colloquium
- **Authentic Assessments** 25.0% Problem Solving Session
- **Profiling Assessments** 8.3% Proficiency Test
- **Real Time Assessments** 8.3% Laboratory Sessions

## Conclusion

Life Science Foundation Programme has **incorporated 6 types of alternative assessments** in its future-ready curriculum.

**Acknowledgement**

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# STRATEGIC DEVELOPMENT, IMPLEMENTATION, AND ASSESSMENT OF COUNSELLING UNDERGRADUATE PROGRAMME

**by Fatahyah Yahya, Nor Mazlina Ghazali, Azzahrah Anuar, Merikan Aren and Nor Hasniah Ibrahim**

**Introduction**

The counselling programme in UNIMAS has been implementing a curriculum that is in alignment with the Malaysian Council for Accreditation of Counseling and Related Educational Programmes (CACREP). Within the higher education, accreditation is a "quality assurance and enhancement mechanism" based on self-regulation through intensive self-study and external programme review (Urofsky, 2013). Accreditation is very significant in ensuring the relevancy of prospective students (Ritchie & Bobby, 2011) and obtaining such accrediation status will provide better prospects to graduated students.

Refering to the feedback and comments from the External Examiner (EE) and the Industrial Advisory Panel (IAP), UNIMAS Counselling Programme should improve its curriculum structure. First, the programme should connect the curriculum with transformative teaching and learning delivery, new approaches in assessment, and increase practicality of the content. According to Svensson, Lundqvist, and Middleton (2017), the transactional model of this framework relies upon self-directed, problem-solving, collaboration and engagement in authentic learning environments; and, the transformative model appreciates the whole learning person, how the learners connects with themselves, others and the world. In other words, the effective curriculum should tally with transformative teaching and learning delivery. Kolb and Kolb (2008) proposed that learning results from synergetic transactions between the person and the environment, and it is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested and integrated with new, more refined ideas. UNIMAS Counselling Programme did implement a partial approach related to work-based learning. The programme embeds experiential and immersive approaches in courses such as Consultation, Counselling Laboratory II (Group), Counselling Issues Seminar and Career Information System. Those courses have partially embedded the elements mentioned above. However, the holistic implementation of Work-Based Learning especially in terms of assessment and delivery in curriculum might become a new approach for UNIMAS Counselling Programme, which is in alignment with the suggestion from EE and IAP.

Second, the feedback and comments also emphasise on the content focus of the curriculum for the sustainability of the programme. In particular, the Industrial Advisory Panel (IAP) stated the UNIMAS Counselling Programme should equip students with the knowledge and practices that are aligned with the needs of industries. Nowadays, a curriculum structure that is aligned with the industries has become a priority in ensuring the high rate of graduate employability. UNIMAS Counselling Programme needs to be transformed based on this need. For instance, in a hospital setting, they requested students who have the knowledge and practical ability in dealing with clients who might have psychiatric issues. Besides, they also need to be equipped with knowledge and skills to deal with clients in crisis. Therefore, it is suggested that the structure of the counselling programme should be organised and reviewed according to the need of the industries. For instance, courses which involved knowledge and practices should be combined and offered as one course to ensure students gain a better understanding and connection from that particular course. The feedback and comments are also emphasised on certain courses (such as Assessment 1 and Assessment 2) in ensuring these two (2) courses are able to become a complementary course for students who are ready to work in industries.

Finally, the EE and IAP also suggested a revision to the number of credit hours for UNIMAS Counselling Programme. The current number of credit hours is 140, comprises core, remedial and elective courses. The Internship Course is currently 9 credit hours which is offered during the final semester of the programme. The credit number is quite high compared to the number required by the Malaysian Council for Accreditation of Counselling. With 140 credit hours, students will be taking a minimum of 18 credit hours in all 7 semesters (excluding 9 credit hours for Internship during their final semester of semester 8), which is considerably high. All the feedback and comments given by both EE and IAP are to be taken for improvement.

This study aims to produce a future-ready curriculum with distinctive feature(s). Besides, it also aims to strategically align the curriculum content with transformative teaching and learning delivery, and alternative assessment practices. In addition, it assesses the perception towards work-based learning in the programme.

**Review of the Curriculum Structure**

In reviewing the curriculum structure, the Course Learning Outcomes (CLO) for all 25 Core Courses of Counselling Programme; 6 courses for Year 1, 7 courses for Year 2, 8 courses for Year 3, and 4 courses for Year 4, have been revised thoroughly. The revision of the CLO includes revising the construct of each CLOs for all courses. Besides, standardising the number of CLO for all courses to become THREE (3), as several courses had only 2. The revision also includes the re-arrangement of the Bloom Taxonomy for all CLOs.

**Table 1: Number of Core Courses of UNIMAS Counselling Undergraduate Programme**

| CORE COURSES OF UNIMAS COUNSELLING UNDERGRADUATE PROGRAMME | |
|---|---|
| **YEAR** | **NUMBER OF COURSES** |
| 1 | 6 |
| 2 | 7 |
| 3 | 8 |
| 4 | 4 |
| **TOTAL NUMBER** | **25** |

Finally, all the CLOs for all 25 Counselling Core Courses have been mapped as to align with the new Programme Learning Outcomes (PLO) domains of the Malaysian Qualifications Framework (MQF) Version 2.0. This is a massive process as there are changes between MQF 1.0 (with 8 categories) and the MQF 2.0. (with 11 categories). Most of the courses are mapped equally with the 9 domains of MQF 2.0 which include; Knowledge and Understanding; Cognitive Skills; Practical Skills; Communications; Personal and Interpersonal Skills; Leadership; Entrepreneurial; and Ethics & Professionalism. However, the programme has very few courses that are mapped with the Numeracy and Digital Skills domain of MQF 2.0. This is due to the nature of the programme which focuses more on skill-based practice and learning.

The next phase will be conducting a Focus Group Discussion (FGD) among counselling practitioners, relevant industries, counselling lecturers and counselling students to evaluate the revised and mapped course structures to

find out whether the content and the delivery are aligned with the learning outcomes. The final stage would be to evaluate and implement the output from Research Question 1 and Research Question 2.

**Table 2: Programme Learning Outcomes by Malaysian Qualifications Framework (MQF)**

| Programme Learning Outcomes (PLO) in the Malaysian Qualifications Framework (MQF) | |
|---|---|
| **MQF 1.0 (Implemented Previous)** | **MQF 2.0 (To Be Implemented)** |
| 1) Knowledge | 1) Knowledge & Understanding |
| 2) Problem Solving & Scientific Skills | 2) Cognitive Skills |
| 3) Practical Skills | 3) Practical Skills |
| 4) Communication, Leadership, Team Skills | 4) Interpersonal Skills |
| 5) Social Skills & Responsibilities | 5) Communications |
| 6) Values, Attitudes, and Professionalisms | 6) Digital Skills |
| 7) Management and Entrepreneurship Skills | 7) Numeracy Skills |
| 8) Information Management & Lifelong Learning Skills | 8) Leadership. Autonomy and Responsibility |
| | 9) Personal Skills |
| | 10) Entrepreneurial Skills |
| | 11) Ethics & Professionalism |

## Conclusion

It is hoped that a future-ready curriculum with distinctive features would be the ultimate output of this research. The process would require periodic revision as the curriculum structures are dynamic. This could be materialised by adding elements of innovation, creativity, communication, collaboration and critical thinking. Moreover, higher education has to constantly keep abreast of societal changes.

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# EVALUATING THE ALTERNATIVE ASSESSMENT PRACTICES IN ALL CURRENT COURSES OFFERED BY WC11 PROGRAMME

**by Seleviawati Tarmizi, Kartinah Zen, Johari Abdullah, Tan Chong Eng, Lau Sei Ping, Halikul Lenando, Adnan Shahid Khan, Mohamad Imran Bandan, Ahmad Hadinata Fauzi, Rajan Thangaveloo, Noralifah Annuar, Azlina Ahmadi Julaihi**

WC11 Network Computing Programme offered Bachelor of Computer Science with Honours (Network Computing) since 2003. The curriculum structure covers fundamental and advance network computing concepts on the use of computers and other devices in a linked network, rather than as unconnected, stand-alone devices. Network computing is a dynamic area of study. Therefore, teaching and learning approaches for network computing has to adapt with the progressive development of the network technologies.

There is always a need to revisit the WC11 curriculum to investigate its effectiveness and whether the existing curriculum addresses the future-ready curriculum framework introduced by the Jabatan Pengajian Tinggi (JPT) (Hassan, 2018 ; Tarmizi, 2018). This evaluation report addresses the current practices of the alternative assessment in WC11 programme.

Tasir (2018) defined alternative assessment as a holistic assessment of two major learning elements namely outcomes and processes. It emphasizes on what the students can and cannot do, rather than merely focusing on the mastery of knowledge. Similarly, Brigham Young University (2019) refers alternative assessment as performance test or authentic assessment, measuring applied proficiency rather than knowledge only.

Table 1 lists the courses offered by WC11 Network Computing Programme for semester 1 and semester 2 of UNIMAS academic calendar with the percentage of formative and summative assessments. The percentage is calculated based on the latest version of the course outlines for each WC11 course in UNIMAS iCLASS system https://academia.unimas.my/iclass.

**Table 1: List of courses in WC11 Network Computing Programme**

| No. | Course Code | Course Name | Formative Assessment Percentage (%) | Summative Assessment Percentage (%) |
|---|---|---|---|---|
| 1 | TMF1214 | Computer Architecture | 60 | 40 |
| 2 | TMF1254 | Communication and Computer Network | 60 | 40 |
| 3 | TMF2234 | Operating System | 60 | 40 |
| 4 | TMN2073 | Computer Security | 60 | 40 |
| 5 | TMN3213 | Internetworking Technology Laboratory | 80 | 20 |
| 6 | TMN3073 | Wireless and Mobile Network | 60 | 40 |
| 7 | TMN3093 | Computer System Administration & Management | 60 | 40 |
| 8 | TMN4013 | Distributed System | 60 | 40 |
| 9 | TMN4033 | Embedded System | 70 | 30 |
| 10 | TMN4133 | System Programming | 60 | 40 |
| 11 | TMN4053 | Broadband Network Technology | 60 | 40 |
| 12 | TMN4093 | Advanced Topics in Computer Networking | 70 | 30 |
| 13 | TMN4113 | Network Performance and Simulation | 60 | 40 |

As a common practice in WC11, the formative assessment includes a variety of assessments that test the student's performance such as assignment, project, quiz, lab, and so on. On the other hand, the summative assessment includes a variety of assessments that test the student's knowledge through examination-based assessment such as mid semester examination and final examination.

Thus, the initial step to identify the level of alternative assessment practices in all current courses offered by WC11 programme is by examining the percentage of formative and summative assessments in each course.

Clearly, Table 1 shows that all WC11 courses are currently practicing higher percentage of formative assessment compared to summative assessment. Therefore, as an initial evaluation result, WC11 is currently practicing the alternative assessment in all of its courses with the average of 63.07% of the overall assessment. The next phase of this study will focus on how each formative assessment practice is conducted and the collection of practice evidences is required for a more extensive analysis.

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# A PRELIMINARY STUDY ON STRENGTHENING INFORMATION SYSTEMS (IS) UNDERGRADUATE PROGRAMME TOWARDS FUTURE-READY CURRICULUM

**by Fatihah Ramli, Mohd Nazri Khairuddin, Rosita Mohamed Othman, Suhaila Saee, Lee Jun Choi and Jennifer Fiona Wilfred Busu**

**Introduction**

The Information Systems (IS) undergraduate programme was established in 2003 at the Faculty of Information Technology (FIT), Universiti Malaysia Sarawak (UNIMAS). The curriculum was developed more than 16 years ago, and it was regularly revised to fulfil immediate market needs especially in Sarawak. Some major revisions were done when the Faculty decided to focus more on Computer Science and changed its name to the Faculty of Computer Science and Information Technology (FCSIT). One of the major changes performed was the duration of the programme; from three years to four years with new courses added to the curriculum. The development of IS curriculum is based on the inputs from external examiner, industry advisor panels and in line with the MQA requirements. In 2018, the Malaysian Qualifications Agency (MQA) paid a visit to the faculty to audit the programme. Among the feedback was on the programme naming. MQA panels commented that the name of the award/degree conferred to IS graduates was not compliant to MQA standards.

Therefore, the faculty decided to take immediate action in renaming the programme major, ensuring that the name is part of Computer Science field. According to MQA Programme Standards for Computing 2015 (Malaysian Qualifications Agency, 2015), subject to major in Bachelor's Degree and its nomenclature, specific learning outcomes for the four disciplines are identified in this programme. The four disciplines are Computer Science, Software Engineering, Information Technology and Information Systems. For instance, *Computer Science – Bachelor in Computer Science (subject area)*. The requirement for the naming has to reflect a subject area in Computer Science. The name "Information Systems" is not suitable because it is a discipline by its own. For now, the faculty has declared that IS programme in FCSIT are based on Computer Science discipline. Currently, the IS programme complies more than half of the Body of Knowledge for Computer Science. Thus, it is very important for the programme to decide a suitable name for our programme major and the changes will address the future ready curriculum framework introduced by the Jabatan Pendidikan Tinggi (JPT), Ministry of Education (MoE).

In order to accomplish these important tasks, the programme has conducted a study with the assistance of the Scholarship of Teaching and Learning (SoTL) Grant, an internal university grant. In addition, this scholarly approach can assist to assess the quality assurance and enhancement of new curriculum to bring significant impact on students' learning. This research aims to restructure the existing curriculum into a new curriculum which is in line with MQA requirements and towards future ready curriculum. This study also needs to align the new curriculum content with appropriate teaching and learning delivery and alternative assessment practices. Throughout this process, challenges are identified. Furthermore, the significance of the newly designed curriculum towards future ready curriculum will be assessed to ensure that requirements are fulfilled, and students benefit from the new curriculum.

The research is based on the combination of qualitative and quantitative approach via questionnaires, focus group interviews and observation. The interpretation of data is then thematically analysed. The expected outcome of this research will contribute towards a future ready curriculum with distinctive features in terms of its potential courses, teaching and learning approaches and assessment.

**Methodology**

This phase encompasses three major research activities which are the initial study and planning (initiation of the research, development of a research plan), review of the literature which include the construction of a preliminary of theoretical framework of Strengthening Information Systems (IS) Undergraduate Programme towards Future Ready Curriculum. A preliminary study was initiated. The purpose of the preliminary study is to determine whether to pursue a system development research project, and, if so, to perform the necessary preparatory work. In this phase, a number of steps are taken. The strategy that we applied for this research will be based on the research questions. There are three research questions for this research. It is essential to understand the term used from the title of the research. With ICT competency, future-ready curriculum is tight closely with the technology used. Nevertheless, the literature review on RQ1: How to design a future-ready curriculum with distinctive feature (s)? requires outlining the most influential methods applied and also the technology used. Findings from RQ1 will provide us ample of information about the transformation in teaching and learning. Therefore, performing a literature review will enable us to obtain more information regarding the course of future-ready curriculum as well as the current practice in information systems programme. We would consider this phase as the analysis phase. In another word, we will conduct a preliminary study on the design of a future-ready curriculum from articles and reviewing other universities curriculum. In conducting the literature review, the source of information would be obtained from journal articles, conference paper, reports and also from questionnaires or survey to selected higher education institution. Some of the articles showed the best practices, case study and comparative study on the current state of the academic programmes. There exists the current practice of future-ready curriculum in some universities abroad and also in local universities. Somehow, the practice of these universities could be differing from one and another.

In this research, data collection as being part of research strategies is divided into two smaller parts which is quantitative research and qualitative research. Quantitative research is where statistics are made out of the usage of large-scale survey research obtained from methods such as questionnaires, while qualitative research studies the attitudes, behaviour and experiences through methods like interviews or focus groups with the aim to get detailed opinions from participants. Apart from that, the definition of the future-ready curriculum needs to be understood thoroughly with the outline of the literature review. From the preliminary study, the research could determine information on the best practices on strengthening the programme.

**Preliminary Results**

The initial result is on analysis of current structure. In order to do this analysis, we refer to some universities abroad and also local universities and programme standard of computing as a benchmark. We have conducted a discussion with programme members to get some ideas and opinions from them on the strength and weaknesses of our current structure. During the discussion, we found that our programme graduates are lacking some skill sets such as statistical skill, skills to process different media data (text, image, sound and biological data) which is essential to be incorporated towards future ready curriculum.

To complement these skillsets, members of the programme has suggested to include some new course as part of redesigning the current structure to strengthen our programme. All the suggestions are shown in Table 1. The justifications of each suggestion were described as follows:

1. One of our faculty courses are not related to the Body of Knowledge (BOK) of programme standard: computing. We have decided to replace with a new course that is more relevant to our new programme majoring.
    a. Replace Mathematic for Computing with Statistics
2. Renaming of certain courses to fit the new curriculum as their present names are either too general or too specific to a certain topic. This is also to avoid confusion of different expectations based on frequently used terms within the computing field.
    a. Rename and restructure Advanced Database Management System to Database Management System.
    b. Rename and restructure Information System in Organization to Management Information System.
    c. Rename Computer Security to Cyber Security.

d. Rename and restructure Human Centred Technology to Text & Speech Processing.
e. Rename and restructure Information Systems laboratory to Data Engineering Laboratory.
f. Rename and restructure Advanced Topics in Information Systems to Special Topics in Data Engineering.
g. Rename and restructure Java Programming to Mobile Programming.

3. Merging certain courses with overlapping content to facilitate smooth teaching and learning delivery.
   a. Merge Collective Intelligent with Data Mining to become one course "Data Mining".

**Table 1: List of suggestion for new courses**

| Current Courses | Proposed Changes |
|---|---|
| Introduction to Programming | - |
| Discrete Mathematics | - |
| System Analysis and Design | - |
| Mathematic for Computing | Replace with Statistics |
| Communication and Computer Network | - |
| Data Structure and Algorithms | - |
| Computer Architecture | - |
| Database Concept and Design | - |
| Object Oriented Software Development | - |
| Operating Systems | - |
| Intelligent Systems | - |
| Information Systems in Organization | Rename and restructure to Management Information System |
| Advanced Database Management System | Rename and restructure to Database Management System |
| Java Programming | Rename and restructure to Mobile Programming |
| Web based System Development | - |
| Project Management | - |
| Ethics & Professionalism | - |
| Information Systems Laboratory | Rename and restructure to Data Engineering Laboratory |
| Human Centred Technology | Rename and restructure to Text & Speech Processing |
| Data Mining | Merge to form new Data Mining course |
| Collective Intelligent | |
| Advanced Topics in Information Systems | Rename and restructure to Special Topics in Data Engineering |
| Computer Security | Rename to Cyber Security |
| Technopreneurship and Product Development | - |
| Final Year Project | - |
| Industrial Training | - |

## Conclusion

This paper presents preliminary results of an ongoing research project that examines current structure to strengthen our programme. The findings show that there is a set of skills that our programme graduate must have for the new programme majoring.


## Acknowledgement

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSKTM/2019(2)/041. The authors would like to thank Universiti Malaysia Sarawak for supporting this work.


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Malaysian Qualifications Agency (2015). *Programme Standards: Computing*. Retrieved October 1, 2019, from http://www2.mqa.gov.my/QAD/garispanduan/2019/PSComputing.pdf.

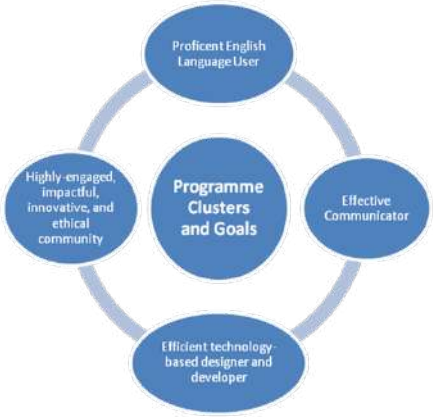
# ENHANCING THE ENGLISH FOR GLOBAL COMMUNICATION PROGRAMME TOWARDS A FUTURE-READY CURRICULUM

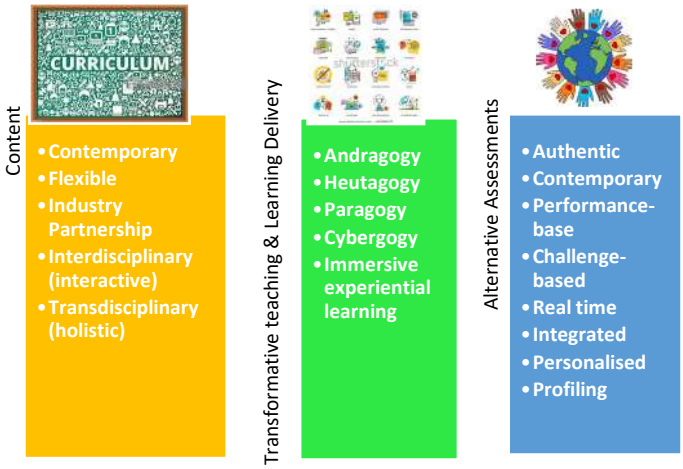
**by Monaliza Sarbini, Joseph Ramanair, Radina binti Mohamad Deli, Pung Wun Chiew, Ahmad Shamsul Bahri Mohamad Tuah, Jayapragas Gnaniah, Yvonne Michelle Campbell, & Florence Gilliam Kayad**

- **Programme**: Bachelor of Arts in English for Global Communication (with Honours)
- **Duration**: 4 hours
- **Ist intake/ No. of students**: Semester 1, 2019/20 - 68
- **Total Credit**: 126
- **Main components**: Foundations of English Language
  Global culture & communication
  Communication-oriented & ICT-based skills
- **Mission**: Our graduates should be able to:
  - ✓ understand better the role of English as an international language and use it to communicate proficiently and effectively in a global environment
  - ✓ apply linguistic knowledge critically and creatively in various communicative contexts.
  - ✓ Possess life-long transferable skills and technological skills to be applied for creative and professional purposes to serve the communities locally and globally.

**RQ1: How can we enhance a future-ready curriculum with distinctive features?**

**RQ2: How can the curriculum content, transformative teaching and learning, delivery and alternative assessment practices be strategically aligned?**




## Course-to-Course Alignment and Enhancement Elements

**PBW 1033 Structure of English**

- ✓ Content: Forms the basis for analysing English language at the word/sentence level to be applied to other courses such as Reading and World Englishes and Technical Writing.
- ✓ Transformative T&L delivery: Heutagogy,
- ✓ Alternative assessments: Self/peer assessment.

**PBW 2073 Technical Writing**

- ✓ Content: Focuses on interdisciplinary i.e. writing in scientific/technical documents.
- ✓ Transformative T&L delivery: Experiential learning with real samples of industry-based writing.
- ✓ Alternative assessments: Authentic assessments.
- ✓

**PBS 2023 Popular Culture**

- ✓ Content: Unpack the complex relationship between Popular Culture and the society.
- ✓ Transformative T&L delivery: Critically discuss real world current issues.
- ✓ Alternative assessments: PBL, portfolio, exhibition.

**PBW3203 World Literature**

- ✓ Content: Up-to-date literature work and trend.
- ✓ Transformative T&L delivery: e-based learning, e-book.
- ✓ Alternative assessments: e-portfolio, e-book, exhibition.

**PBW4313 Creative writing and Self-publishing**

- ✓ Content: Theory; approaches to creative writing, self-publishing.
- ✓ Transformative T&L delivery: current materials/trends, seminars, writers' talks.
- ✓ Alternative assessments: portfolio, publishing, exhibition.

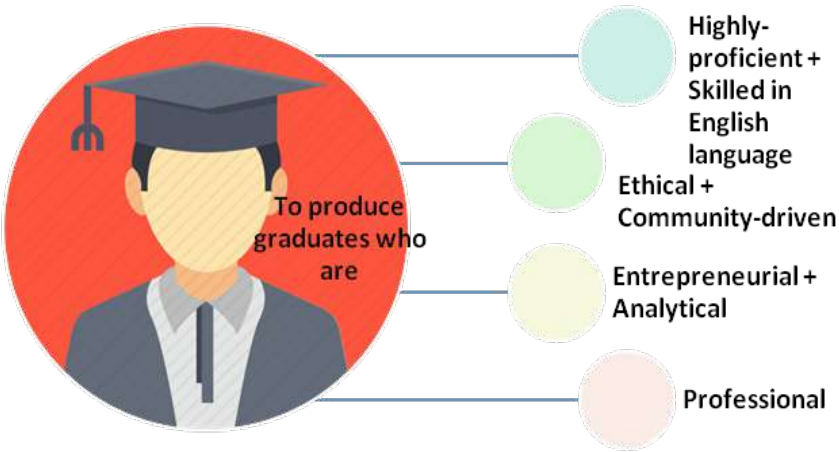
**PBZ 3203 Strategic Communication in Business and Professions & PBW 3153 Management and Global Trends**

- ✓ Content: Incorporating and extending some content/units of PBZ 3203 in PBW 3153. Ethics included.
- ✓ Transformative T&L delivery: A case concerning ethical malpractice. Students use their knowledge gained in both courses to discuss violations of ethics and justify which course of action(s) to take to avoid ethical malpractice.
- ✓ Alternative assessments: Case studies.

**PBW 3163 Multinational Corporations and Global Communication & PBW 3183 Global Literacy**

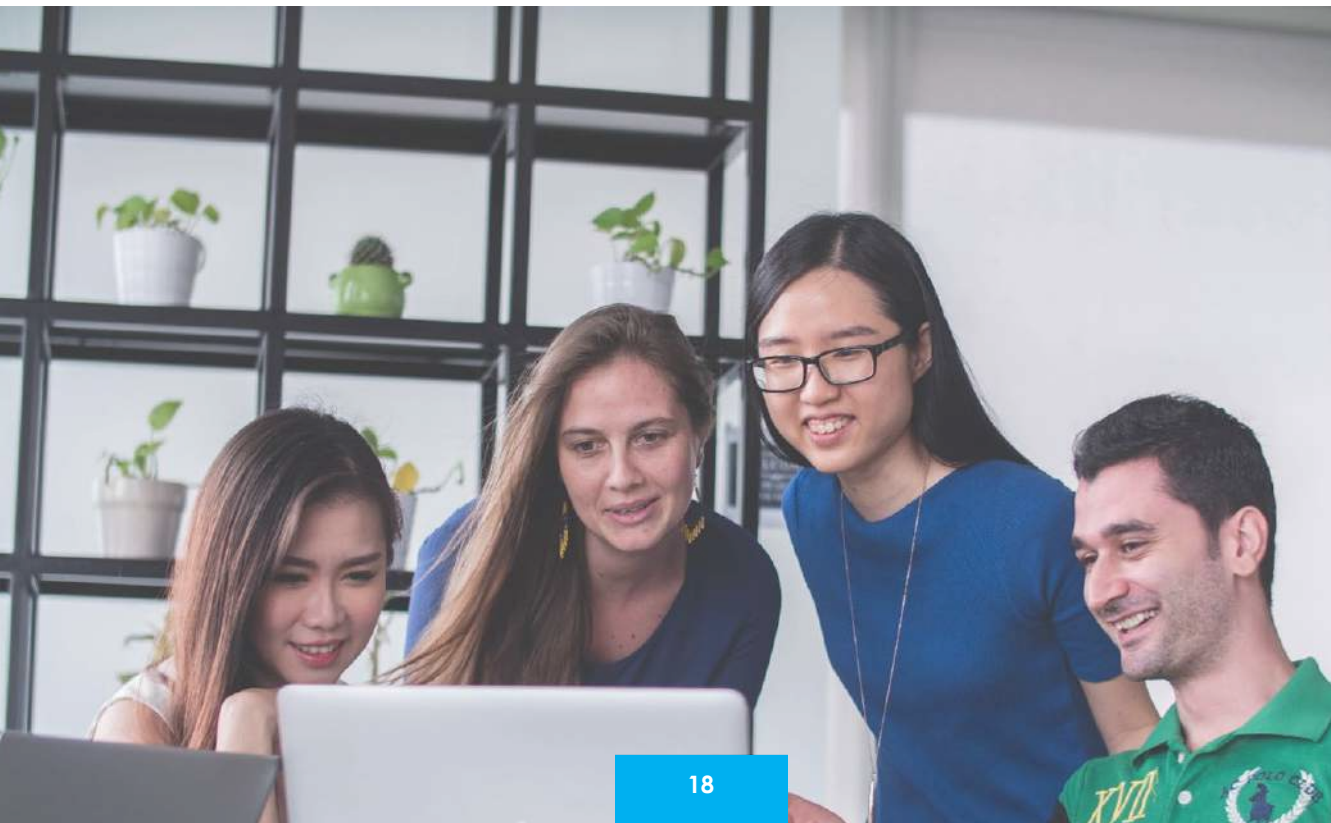
- ✓ Content: Basics and application of knowledge and skills in analysing, interpreting, presenting a case.
- ✓ Transformative T&L delivery: Seminar, forum, conference call with industry, etc.
- ✓ Alternative assessments: Case study, project-based, video presentations.

Consensus on programme goals and foci among programme members




**Acknowledgement**

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FBK/2019(2)/008. The authors would like to thank Universiti Malaysia Sarawak for supporting this work.



## Towards Future Ready Curriculum

# CORPORATE MANAGEMENT PROGRAMME

by Mohd Uzairi Ahmad Hajazi

## Background

In developing graduates who meet the future needs of industry, academic curriculum must be able to develop knowledge and skills such as critical and creative thinking skills, problem solving, communication and collaborative skills. Therefore, it is imperative to revaluate the current academic programme and explore alternative T&L approaches in order to develop a future-ready curriculum.

## Objectives

1. To produce a future-ready curriculum with distinctive feature(s)
2. To strategically align curriculum content, transformative teaching and learning delivery and alternative assessment practices
3. To assess the impact of alternative assessment in business studies related course(s) towards student learning experience and outcome

## Methodology

1. Benchmarking, Survey, Interview, Review report
2. Brainstorming, Aligning
3. Implementation, Satisfaction survey, Review students' reflection

## Preliminary Findings

1 2 New curriculum structure based on programme standard, stakeholders' feedback and MQF2.0 ;

2 3 Implementation of alternative assessment in specialization course

**ACKNOWLEDGEMENT:** *This project is supported by* SoTL(A)/FEP/2019(2)/039

# STRATEGIC DEVELOPMENT AND IMPLEMENTATION OF DIGITAL FINANCE TECHNOLOGY FOR FINANCE UNDERGRADUATE PROGRAMME

by Mohd Naim bin Kamaruzaman, Nurul Syuhada binti Zaidi, Josephine Yau Tan Hwang, Jennifer Fiona anak Wilfred Busu, Sophee Sulong bin Balia, Abu Hassan bin Md Isa, Rayenda Khresna Brahmana, Mohamad bin Jais & Fatihah binti Ramli

## Background

- digital finance technologies
- e = wallet/ e= money
- AI investment
- online financing/ P2P/ crowdfunding

- physical presence financial institutions
- job losses
- Re-organisation, re-structure financial industry

- redesign finance programme
- incorporate digital finance technology's skills and knowledge
- future ready-curriculum in T&L

## Objectives

1. To produce a future-ready curriculum with distinctive feature(s);
2. To strategically align curriculum content, transformative teaching, and learning delivery and alternative assessment practices;

## Research Question

1. How to design a future-ready curriculum with distinctive feature(s)?
2. How can the curriculum content, transformative teaching and learning delivery and alternative assessment practices be strategically aligned?

## Methodology

1. Review of external examiner and industry advisor reports
2. Discussion among faculty members and FCSIT members
3. Alumni, Industry and Student Exit Survey
4. Review of MQA PROGRAMME STANDARDS: FINANCE
5. Universities Benchmarking

## Results & Findings

"Collaboration with related industries" - EE (En. Muhammad Shukri. FAA)
"to include new development in finance such as Fintech and the likes. - IAP (Prof. Dr. Annuar. UPM)

Identify IT courses related to Finance

- Information/Knowledge Technologies (Information Science)
- Information Security
- ICT Application

"Please suggest the list of courses that you might think relevant to the programme especially related to Industrial Revolution (IR 4.0" - Industry Survey. 102 respondents

"Big Data Analytic" "Computer Application and software" "Data management Analysis" "Cryptocurrencies" "Digital consumer services" "Fintech" "Automaton Finance" "Financial AI"

Recommended Topics in Programme Standard:

- Digital banking
- E-Marketing for finance
- mobile technologies
- Information technologies in Insurance

"Implemented as sub topic in various courses" - IPT A & IPT B

## Discussions

1. Incorporate digital financial technologies in few courses such as Finance Seminar, Takaful, Financial Institutions, Portfolio Management, Entrepreneurial Finance, Islamic Finance, Capital Market Regulation, Bank Management, Personal Finance and Takaful.
2. New programme elective courses - Marketing of Financial Products and Services (E-Marketing)
3. Finance Seminar - ICT Application, Information Securities and Information/ Knowledge Technologies

**Acknowledgement: This project is supported by Grant No: SoTL(A)/FEP/2019(2)/035**

# ALTERNATIVE ASSESSMENT PRACTICE IN COMPUTATIONAL SCIENCE PROGRAMME CORE COURSES

**by Phang Piau, Jane Labadin, Chiew Kang Leng, Hamimah binti Ujir, Sarah Flora Anak Samson Juan, Sze San Nah, Shapi-ee bin Abd Rahman, Nuha binti Loling Othman, Cik Ling Yeong Tyng, & Terrin Lim**

This paper reports on the current assessment practice for eight programme core courses in Computational Science (CS) programme which are conducted by instructors within the CS programme, Faculty of Computer Science and Information Technology (FCSIT).

Apart from using conventional assessments such as written assignment, quiz, test and final examination (see the slices in greyscale colours in Figure 1) to measure students' knowledge, our programme instructors also employ alternative assessment strategies such as peer evaluation, group- and/or performance-based assessment and transdisciplinary assessment to measure students' applied proficiency on completing a real-life specific (and complex) task (see Table 1). Only in two courses, namely CS Lab and SMM, more than half of their assessment components are alternative assessments, whereas another two courses, namely MC and OR, have no alternative assessment components. As 6 out of these 8 courses are Mathematics-based courses, none of the courses listed below are using portfolio- and/or technology-based assessments. Since courses such as DE, MC and NM are actually preparing our students for taking SMM in their fourth year, SMM course implements problem-based learning (PBL) whereby students work on mathematical modelling project which requires mathematics (or statistics), computer science and other field domain-specified knowledge. Hence, transdisciplinary assessment is used in SMM.

**Table 1: The percentages of alternative assessment components in CS programme core courses**

| Course | Abbr. | Year | Peer evaluation | Group-based assessment | Performance-based assessment | Transdisciplinary assessment |
|---|---|---|---|---|---|---|
| Computational Science Laboratory | CS Lab | 2 | - | 10+20 | 15+10 | - |
| Differential Equations | DE | 2 | - | - | 10 | - |
| Multivariable Calculus | MC | 2 | - | - | - | - |
| Numerical Methods | NM | 3 | 5+5 | - | - | - |
| Operational Research | OR | 3 | - | - | - | - |
| Parallel Processing | PP | 4 | - | 15 | 20+10 | - |
| Statistical Data Analysis | SDA | 4 | 5+5 | 10+10 | - | - |
| Mathematical Modelling and Simulation | SMM | 4 | - | - | 30 | 30 |

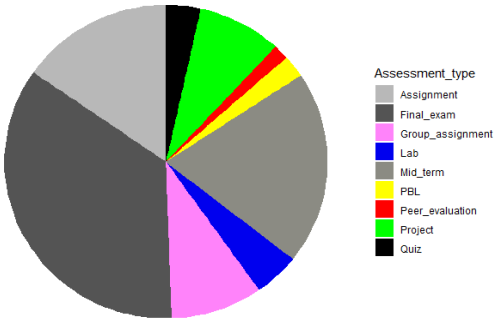



**Figure 1: The sub-components of conventional and alternative assessments**

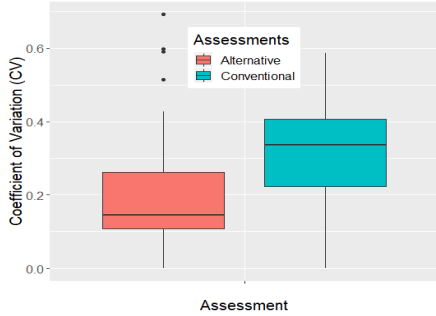



**Figure 2: The coefficient of variation (CV) for the conventional and alternative assessments**

Except for greyscale colours slices, all other non-greyscale colours slices in pie chart in Figure 2 denote alternative assessment components. It follows that only one fourth of our assessments can be categorized as alternative assessments. Not only that, by calculating the coefficient of variation (CV) for all the assessment components in our programme core courses, we find that, overall, the CVs of alternative assessments are much lower than its conventional assessments counterpart (see Figure 2). The lower the CV, the lower the level of dispersion around the mean. This implies that our current alternative assessments practice does not provide much degree of variation on students' course performance while the conventional assessments do, except for some outliers CV, denoted by dots, in alternative assessments boxplot, in Figure 2.

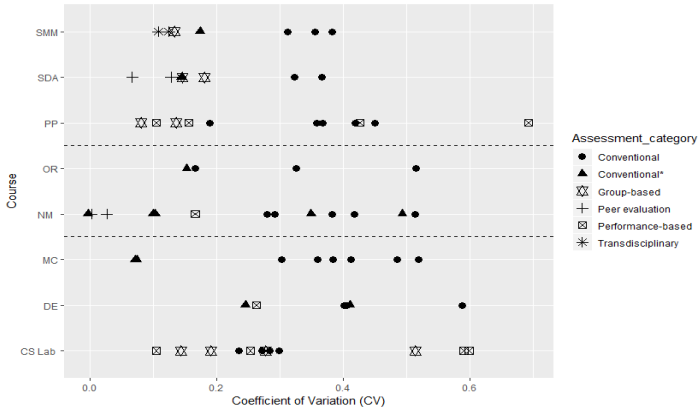



**Figure 3: The coefficient of variations (CV) for all CS programme core courses.**

We inspect the CV for four types of alternative assessments across all 8 programme core courses in Figure 3. We purposely divide the conventional assessments into two, in which the conventional* (▲) denotes the take-home written assignments (or reports) for measuring students' knowledge or cognitive skill, meanwhile the conventional (•) denotes the non-take-home paper-based tests. From Figure 3, we find that most assessment components with low CV are take-home conventional assessments and alternative assessments. Even though the alternative assessments are marked based on certain rubric, the grading process is somehow a little more subjective than the conventional assessments. This reflects that our current alternative assessment practice cannot be completely effective in capturing the variability of our students' proficiency level in completing real-life and complex tasks in our programme core courses.

**Acknowledgement**

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSKTM/2019(2)/043. The authors would like to thank Universiti Malaysia Sarawak for supporting this work.

# FRAMING IRLS IN THE EYES OF MAJOR STAKEHOLDERS: DESIGNING A FUTURE-READY IRLS

**by Claudia Jiton, Dzulzalani bin Eden, Goy Siew Ching, Awang Ideris B. Awang Daud, Awang Mashabi bin Awang Mohamad, Siti Fateha binti Dolhadi and Dayang Asmah binti Awang Hamdan**

This project aims to design a future ready curriculum with distinctive features and the curriculum content is aligned with transformative teaching and learning delivery as well as alternative assessment practices for Industrial Relations and Labour Studies (IRLS) undergraduate programme. This project is expected to transform the conventional teaching and learning delivery to a transformative teaching and learning delivery. The conventional teaching and learning delivery is insufficient to expose students to the real-life experience in the industry.

The design of a future-ready curriculum with distinctive feature(s) is based on the review reports by external examiner and industrial advisor as well as brainstorming and discussion among programme members. From the reviews and discussions, it has been suggested that the engagement with the industries and communities are very important in order to produce future-ready graduates. According to Rowe and Zegwaard (2017), work-integrated learning (WIL) is a key to promote graduate employability (directly linked with being future-ready) in which putting in a nutshell is a range of experiential and practice based learning models (e.g., service learning, cooperative education, work-based learning) and activities (e.g., internships, fieldwork, volunteering, project based work, simulations). WIL is able to provide opportunities to build students' confidence in professional practice and create development of skills such as teamwork, professional judgment, communication, and problem solving. Therefore, the engagement with the industries is vital to produce graduates who are future ready and always relevant to the industries. As shown in Figure 1, the chart depicts the macro changes to the concept and implementation of the programme.

The curriculum content, transformative teaching and learning delivery and alternative assessment practices are strategically aligned based on the brainstorming and discussion among programme members and through evaluation of course files and interviewing of lecturers to see whether learning outcomes and delivery are constructively aligned. Figure 2 shows the proposed changes to the delivery and assessment of the programme.

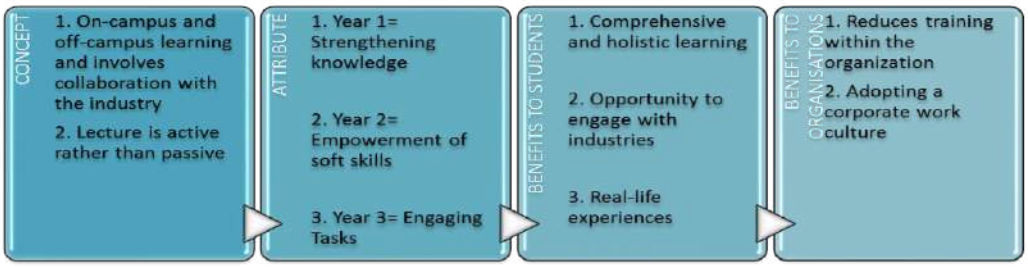



**Figure 1: Proposed macro changes (Incorporating work-integrated learning)**

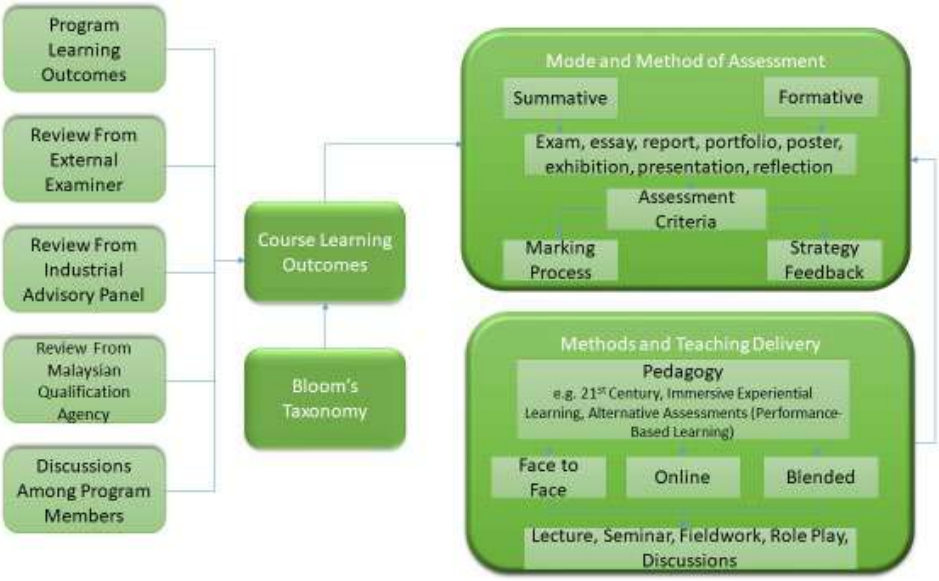



**Figure 2: Proposed changes in delivery and assessments of the programme.**

This study is expected to transform the existing teaching and learning delivery to a meaningful immersive experiential learning. Apart from that, this study will give positive experiences for students as it encourages students to be aware of what they have learned and still need to work on and also encourages an empirical examination of teaching in relation to student learning.

Furthermore, it will provide responsive instructions which takes on the following qualities: awareness of student abilities and capabilities, reflective teaching and improved instruction, and culturally responsive classroom practices. Appropriate teaching and learning as well as assessment methods are introduced for the Millennial students as to prepare them for the Industrial Revolution 4.0 or IR4.0 Era. The transformative teaching and learning delivery and alternative assessments can provide a better stimulus for students in their journey to be future ready graduates. If these features are successfully adopted and implemented, the implementations could lead to a better cohort of graduates who are relevant and ready to meet the needs of the industry.

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## Acknowledgments

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSSK/2019(2)/001.

# TRANSFORMATION ON TEACHING AND LEARNING IN POLITICS AND GOVERNMENT STUDIES PROGRAMME

**by Dick Lembang Dugun, Neilson Ilan Mersat, Stanley Bye Kadam Kiai, Ahi Sarok, Arnold Puyok & Mohd Shazani bin Masri**

The teaching and learning process has to constantly change in order to meet the demand of the education system. Thus, the university has to inculcate new approaches in teaching and learning to ensure alignment with the progression of technology advancement in IR 4.0 era. Politics and Government Studies programme (WA21) is also making a progress on the needs of restructuring its teaching and learning activities.

To ensure that our curriculum is aligned with our goal to produce marketable graduates, we have introduced new courses applicable to students of 2019/2020 intake. Our programme also proposed to rename the programme after receiving feedbacks from the industrial and external examiners. The structures of all core courses in our programme have been improved to ensure alignment with the future ready curriculum. Currently, all the core courses are implementing the future ready curriculum elements. For example, experiential learning through the implementation of service-based learning (SBL) can expose students to reality-based education as well as strengthen their soft skills such as presentation skills, communication and others.

There are two key-points addressed in this article with regards to designing a future ready curriculum programme:

- Key-point 1: The number of academic programmes implementing Service Based Learning(SBL)/ Community Based Learning (CBL) & other High-Impacts Educational Practices (HIEPs).
- Key-point 2: Future Ready Curriculum

For key-point 1, SBL was implemented for teaching and learning activities in one of the courses for 3rd year students. The course that has been identified for SBL is SSP3034 Politics in Developing Countries. Through this course, the project entitled *Ngeratan Jeman Ngemansangka Bangsa* had been implemented at SK Nanga Kesit and Rumah Saong, Serubah Ulu Lubok Antu which was a remote area in rural Sarawak. A total of 62 participants which were the 3rd year students enrolled in this course.

We believe that community services can give students huge impact in their learning. This is because SBL involve the process of surveying, planning and lastly, implementing it. The students can learn a lot of skills in the process of handling this project, particularly their communication skills. According to Ayiesah Ramli et al. (2010), communication skills consists of making effective presentations, having the ability to put up a good logical argument to persuade others, as well as the ability to express idea verbally – one to one or in group and have relevant skills in written communication such as emails, reports, letters to clients, the ability to listen attentively and respond to others' comments ideally.

SBL or CBL is all about knowing the culture and problem of the people, and working together with them to bring development and benefits to the community. The students also impart or share the knowledge about health care with the community. In this SBL project, the initiatives of the students helped the community by imparting knowledge for sustainability living. As service-learning courses become more prevalent, it is increasingly important to ensure that they are mutually beneficial to both universities and communities (Lewis, 2004).

As for High-Impacts Educational Practices (HIEP's), programme WA21 has been implementing interdisciplinary approach of assessment especially for SSP 2034 Malaysian Legal Systems course. Students are assessed with different methods of assessment through their assignment regarding the structures of Malaysia legal system. It involves case studies on legal systems of other countries and how the students give reviews based on the different laws that they have learned.

As for for global learning or diversity approach, programme WA21 has been implementing it

through SSP2043 Comparative Political Systems course. Students are taught on different types of political system around the world. For the assessment, students are asked to come out with posters for different political systems of any countries around the world. Thus, students are expose to the different types of political systems around the world.

Next, SSP2054 Public Policy course and SSF3034 Final Year Project course have been implementing intensive academic writing and empirical research. For academic writing through SPP2054 course, students are assessed with intensive writing task on their individual assignment on different policies in our country. While, for SSF3034 Final Year Project course, students have to conduct field work for their final year project. They have to collect the data to support their arguments in their research. This also helps the students to justify and being able to stand for their own ideas.

The future ready curriculum is indispensable in the process of teaching and learning to ensure the curriculum create marketable graduates in the IR 4.0 era. Cranton (1996) described the three types of group learning as a means to understanding that working in a group is not synonymous with collaboration. She distinguished between cooperative, collaborative, and transformative group learning.

Therefore, for the transformative learning and teaching delivery, some of our core courses in WA21 need to be aligned with these elements. As for the 21st century pedagogies of teaching, some of the faculty core courses such as SSF1013 Introduction to Social Sciences, SSF1083 Gender, Ethnicity and Class and SSF1093 Statistics for Social Sciences are applying the cybergogy approach of teaching. For example, in SSF1038, the paragogy approach is applied due to the big number of student in one class. For instance, after having a discussion of any topics among the students and lecturer, students are given opportunities to discuss among themselves. The lecturers give learners a space to discuss with their peers (paragogy approach).

Then, immersive experiential learning is indeed as Keith (1994:312) notes, serves as a "mechanism to promote the active involvement of students in a learning process which is integrative and eschews artificial divisions between developmental and academic tasks and between classroom and life experiences." For example, through SSP3034 Politics of Developing Countries course, the students get the real experiences by conducting a survey and also do service-based learning programme. In this course, the students are exposed and engaged with the community. It is very important for students to interact with the different people during their service-based learning programme. The most important part is when the students can gain some additional skills through immersive experiential learning approach.

In term of assessment, most of WA21 courses apply the alternative assessment in assessing students. There are various types of assessment that have been used by the lecturers in different courses. In assessment, there are multiple ways and methods of collecting information at different times and contexts (Law and Eckes,1995).

Four types of assessment, which include authentic, real time, performance based and integrated have been employed by WA21 programme in assessing students. As for authentic assessment, it has been used in SSP2043 Comparative Political Systems course where students have to analyse the real differences of the political system practices by different countries as their assignment. The students have to come out with poster and report writing as their final products.

SSP2031 Modern Political Thought course is implementing the real-time assessment by providing prompt feedback to students at the end of the online activities conducted through eLEAP. For performance-based approach assessment, most of WA21 core courses apply this assessment to assess students. For example, the courses applying this assessment are SSP3054 Public Finance and SSP2054 Public Policy. Students have to do their presentation on the tasks that are given to them. Meaning to say that, students will be assessed through their performance in their presentations.

As for integrated assessments, SSP2024 Malaysian Legal System course has applied integrated assessment method. It is considered as an integrated assessment because students are asked to choose a case study and analyse it based on the laws that they have learned. Students are also asked to differentiate the structure of different types of courts system in Malaysia.

In conclusion, it is important to transform the teaching and learning process particularly in the university. The fast-evolving technology in teaching and learning should be adapted to the approaches of teaching and learning delivery and assessment of students. For WA21 programme, the initiatives to rebrand the programme is the right move to ensure sustainability of the programme. In addition, with the transformation of the teaching and learning process in WA21 programme, it will provide opportunities to the students to gain different skills and experiences which will ensure WA21 graduates to be more marketable and competitive in the job market.

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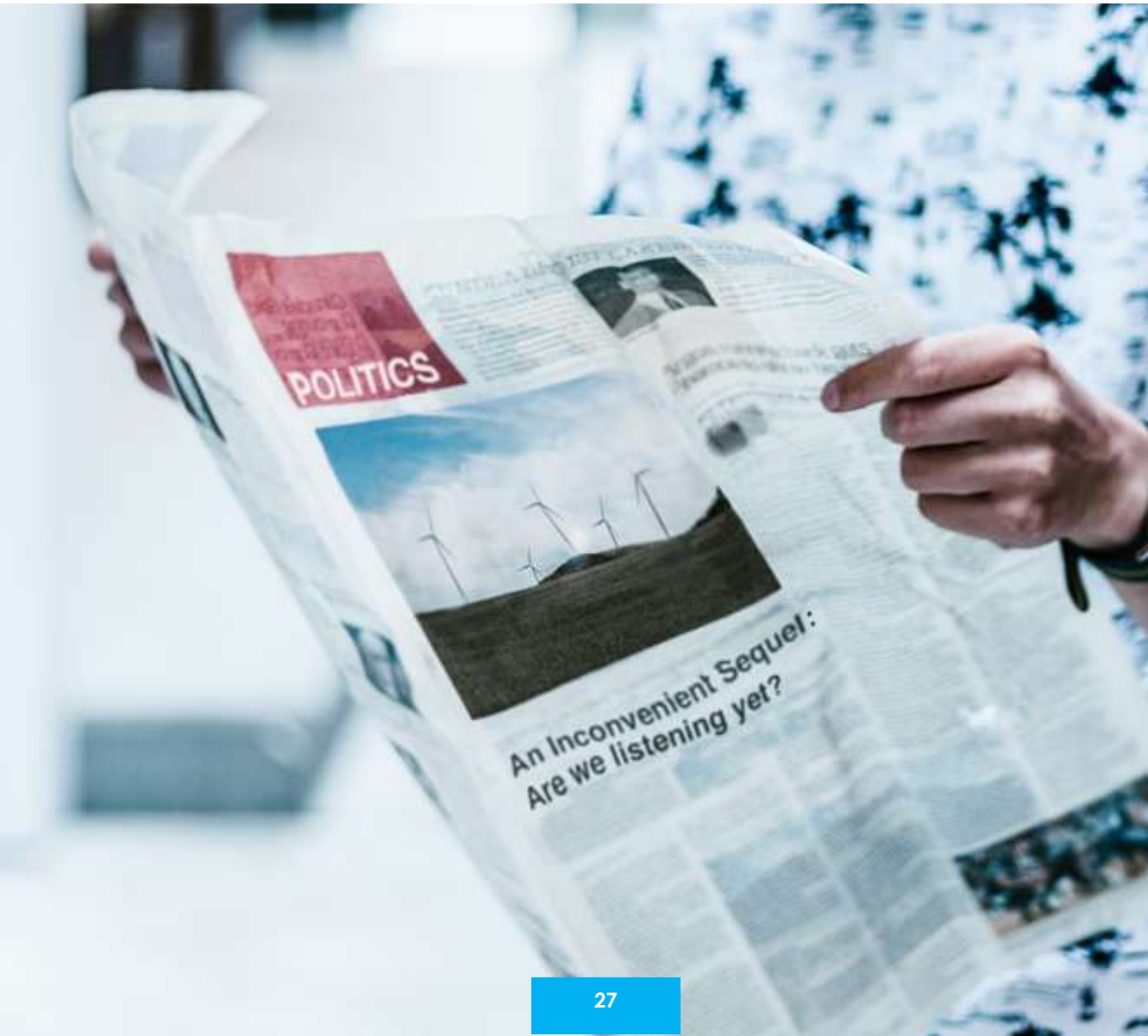
**Acknowledgements**


This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSSK/2019(2)/004.

# COMPLEX PROBLEM SOLVING (CPS) IN MECHANICAL ENGINEERING

## OVERVIEW

Future ready curriculum was designed based on the review of Engineering Accreditation Council and External Examiner's reports, feedback from the department members and alumni.

Results of the feedback shows that the top 5 characteristics required by our students are Novel and Adaptive Thinking, Sense Making, Transdisciplinary, Cognitive Load Management and Computational Thinking.

CPS activities is associated with Novel and Adaptive Thinking.

Assessment practice can be strategically aligned with future ready curriculum through CPS activities which involves solving real life engineering scenarios.

A preliminary study was conducted on 10 courses to generally evaluate students' performance in CPS.

## FACTORS THAT CONTRIBUTE TO STUDENTS' PERFORMANCE IN CPS

**NATURE OF ASSESSMENT QUESTIONS**

CALCULATION

VS

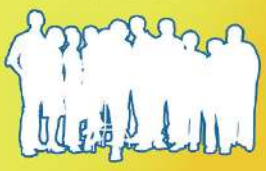
THEORY

**NATURE OF ASSESSMENT MODE**

INDIVIDUAL

VS

GROUP



## PASSING RATES IN 10 COURSES ON COMPLEX PROBLEM SOLVING


THERMODYNAMICS 1


MANUFACTURING SYSTEM

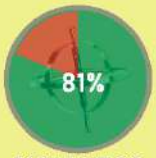

MECHANICAL VIBRATION


FLUID MECHANICS 1


FLUID MECHANICS 2


SOLID MECHANICS 2


ROBOTICS AND AUTOMATION




DYNAMICS


ADVANCED MANUFACTURING


ENGINEERING DESIGN 2


AUTHORS:

NUR TAHIRAH RAZALI

SITI NOOR AIN MUSA
KHAIRUL FIKRI TAMRIN
DAVID CHUA SING NGIE
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MARINI SAWAWI
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**Acknowledgement**

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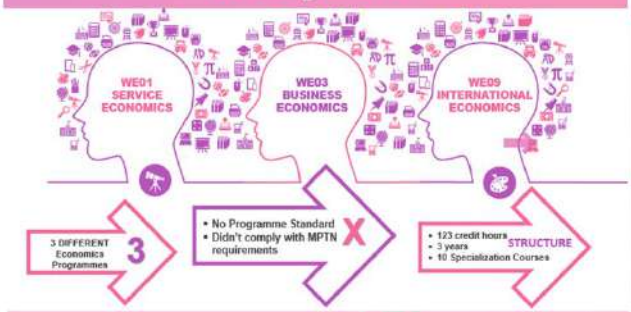
# REDESIGNING BACHELOR OF ECONOMICS WITH HONOURS

## Background




## Objective 1 & 2; RQ1 & 2


**ALL THREE Programes: SIMILAR Objectives 1 & 2 DIFFERENT Objective 3**

**WE01**

**Obj. 3 (Service Economics)**

To assess the effectiveness of Project-Oriented Problem Based Learning (POPBL) Assessment in Service Economics Programme's courses

**WE03**

**Obj. 3 (Business Economics)**

To assess the effectiveness of new learning design and assessment structure of the Business Economics program elective course towards the future-ready curriculum

**WE09**

**Obj. 3 (International Economics)**

To assess the significance of the redesigned curriculum practices in International Economics studies discipline

**ALL THREE Programes: SIMILAR RQ1 & RQ2 DIFFERENT RQ3**

**WE01**

**RQ3 (Service Economics)**

How to assess the significance of the redesigned curriculum practices in **health & information economics'** studies discipline

**WE03**

**RQ3 (Business Economics)**

How do the new learning design and assessment structure for **Business Economics Programme** elective can fulfil the future-ready curriculum requirement?

**WE09**

**RQ3 (International Economics)**

What is the impact of implementation of HIEPS element in the related courses under **International Economics' Programme** towards students' learning outcomes and experience?

## Methodology: RQ1

01 Review of Code of Practice for Programme Accreditation (COPPA) & Code of Practice for Institutional Audit (COPIA)

02 Review of Guidelines for Good Practices: Monitoring, Review & Continually Improving Institutional Quality (GGP-MRCIIQ);

03 Review of External Examiner (EE) and Industrial Advisor Panel (IAP) reports;

04 Review of curriculum of other universities (BENCHMARKING)

05 Exit Survey, Alumni Survey & Market Survey

## Methodology: RQ2

01 Review of Code of Practice for Programme Accreditation (COPPA) & Code of Practice for Institutional Audit (COPIA)

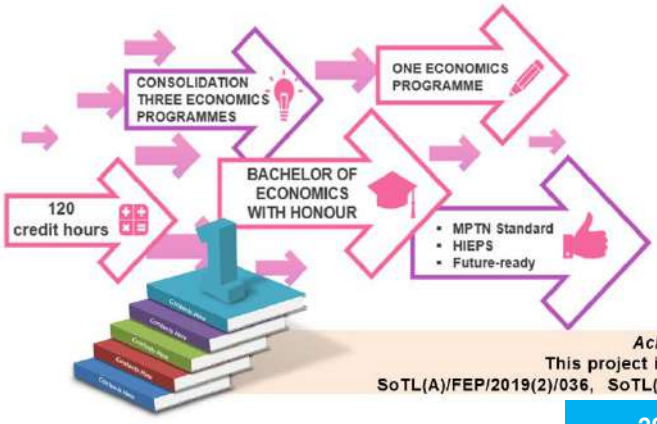
02 Review of Guidelines for Good Practices: Monitoring, Review & Continually Improving Institutional Quality (GGP-MRCIIQ);

03 Review of External Examiner (EE) and Industrial Advisor Panel (IAP) reports;

04 Review of curriculum of other universities (BENCHMARKING)

05 Exit Survey, Alumni Survey & Market Survey

## Preliminary Findings




**SoTL(A)/FEP/2019(2)/037**
**Afiza AB, Haslan Ottot, Evan Lau, Dayang Affizzah Awang Marikan, Liew Khim Sen, Muhammad Asraf Abdullah & Rosita Hamdan**

**SoTL(A)/FEP/2019(2)/036**
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**SoTL(A)/FEP/2019(2)/038**
**Afiza AB, Mohd Khairul Hisyam Hassan, Mohammad Affendy Arip, Jerome Kueh Swee Hui, Shazali Abu Mansor, Puah Chin Hong & Rosita Hamdan**

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# DESIGNING A FUTURE-READY CURRICULUM FOR WA22 PROGRAMME

By Siti Khatijah Zamhari, Regina Garai, Christopher Perumal, Haslina Hashim & Farah Zaini

## Project Description and Objective

Development Planning and Management programme (WA22) is designed to equip students with the latest technical skills and knowledge in the field of development studies. The significant aspects in the curriculum include exposing students to the use of technology in development planning and management activities. WA22 programme also adopts multidisciplinary approach and scope to expose the students to the studies of sociology, economy and physical environment. Students learns theories and applied the skills in development studies to enable them to play their roles effectively in working with individuals, groups and communities. However, the current curriculum needs to be assessed and enhanced in order to produce a future ready curriculum that can prepare graduates in meeting the challenges in 21st century. Hence, learning and teaching delivery should be redesigned to be more student centered while promoting experiential learning to achieve learning goals. Integrating digital technologies into teaching and learning process will add value to the process itself. Therefore, the objective of the study is design a future ready curriculum with distinctive feature for Development Planning and Management programmeme (WA22).

## Methodology

The objective of this study is to design a future-ready curriculum for WA22 programme. The study uses a qualitative approach to collect the relevant data. Focus group discussion and observation are methods of data collection. Relevant documents such as external examiner report, MQA report, student's evaluation report and alumni report are analysed and discussed in designing the future-ready curriculum for Development Planning and Management Programme.

## FINDINGS

There are THREE aspects that need to be considered in designing future-ready curriculum for WA22 programme.

### Collaborative & Applied Learning

WA22 programme has a distinctive feature in its curriculum, where the programme emphasises on learning through experience. The programme curriculum takes into consideration collaboration with the community and industries as suggested by the panel of MQA. The experiential learning approach provides students with an opportunity to discover, apply and reflect on what has been experienced. To ensure the effectiveness of experiential learning, the WA22 programme will be considering the four phases in education suggested by Dewey (as cited by Bower, 2014): (i) social environment-engagement with educators, students, community and industries; (ii) knowledge and content organization; (iii) students readiness and experience and (iv) learning outcomes.

### Formative & Summative Assessment

WA22 Progamme adopts a holistic assessment to improve, enrich and guide the students in their learning process. Lecturers use formative and summative assessment in identifying on what students can and able to do. Based on the report provided by MQA audit panel, WA22 implemented the appropriate mechanism for assessment such as the use of quiz, individual/ group presentation, written assignment and examination. These assessments are appropriate and relevant to the current curriculum of WA22 programme.

### Application of Technology

UNIMAS has been implementing e-learning initiative since 2002 to enhance the quality of teaching and learning in the university through the blended learning policy. WA22 programme is also moving towards the adoption of technology in teaching and learning process through blended learning. Apart from that, the programme is also involved in the making of Massive Open Online Course for one of its courses. Based on the course evaluation result, majority of the students agreed for the all courses to be made available on el EAP

**Reference**

Bower, G. G. (2014). Theory and practice: Utilizing Dewey's experiential learning theory to implement a 5K road race. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 15, 61-67

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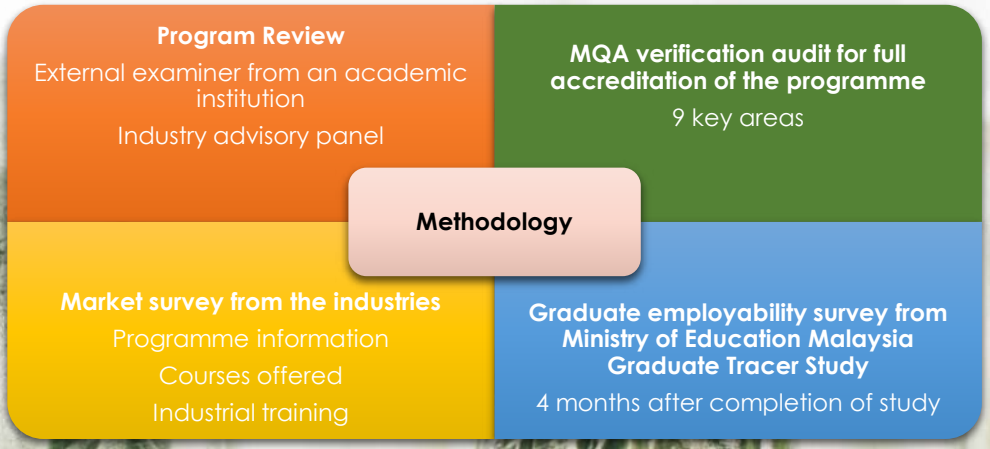
# THE ASSESSMENT OF CURRICULUM CONTENT FOR PLANT RESOURCE SCIENCE AND MANAGEMENT PROGRAMME

**by Hollena Nori, Hashimah Elias, Mohd Hasnul Bolhassan, Ismail Jusoh, Vu Thanh Tu Anh, Hafsah Nahrawi, and Mogeret Sidi**

In UNIMAS, a major curriculum review is conducted every 3-5 years to meet the educational needs of students and the objectives of the programme. In conducting a review, the programme re-assessed its purpose, requirement, courses and its future directions and goals. The process of curriculum review begins with (1) a formal assessment from external examiner from an academic institution, industry advisory panel and MQA panel, (2) market survey from the industries and (3) graduate employability survey.

**Methodology**




**Reports from External Examiner**

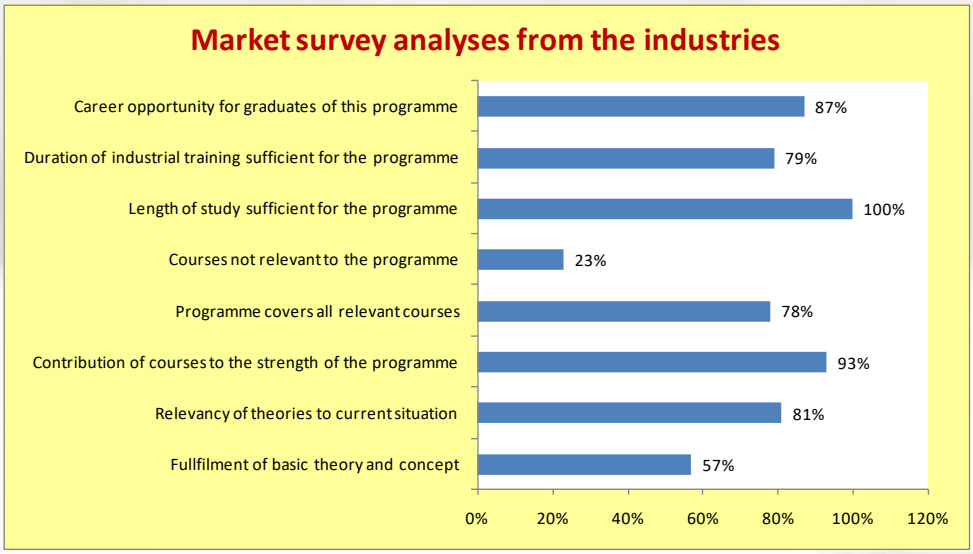
- Programme content, delivery and assessment
- Programme development
- Programmeme management and administration
- Staff development

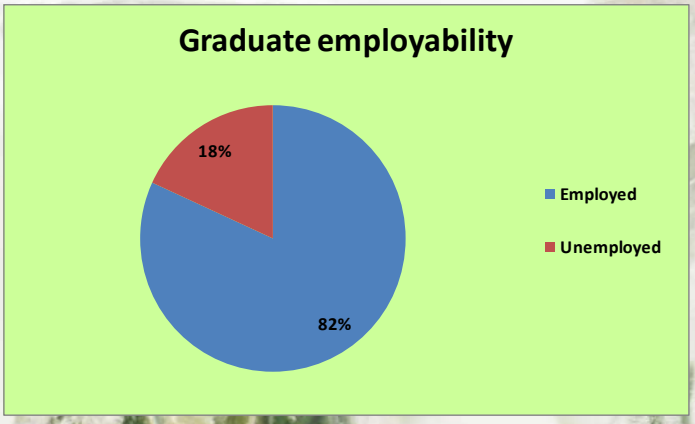
**Reports from Industrial Advisory Panel**

- Curriculum
- Streamlining topics in each course
- Class size, laboratory activities and field visit
- Networking and industrial training

**Reports from MQA panel**

- Vision, Mission, PEO, PLO
- Student selection & support service
- Programme review & monitoring
- Curriculum design & delivery
- Academic staff
- Leadership, governance & administration
- Student assessment
- Education resources
- Continuous quality improvement




**Findings and Conclusion**

The feedback reports from the external examiner, industrial advisory panel and MQA panel as well as market survey analyses from the industries and data on graduate employability were taken into account in restructuring the curriculum content of the programme in the upcoming major curriculum review. Such actions include rebranding of the programme, reconsidering the programme duration of study and industrial training, addition of new courses, removal of irrelevant courses and revision of course learning outcomes and content.

To meet the demands of new labour market, the programme content, delivery and assessment must be directed towards future ready curriculum. Conventional methods of teaching and learning will be replaced by flexible and technology-based approaches to cater the needs of modern world.

**Acknowledgements**

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSTS/2019(2)/013.

# STRATEGIC DEVELOPMENT, IMPLEMENTATION AND ASSESSMENT OF PSYCHOLOGY UNDERGRADUATE PROGRAMME: A PRELIMINARY STUDY

**by Kartini Abd Ghani, Lee Jun Choi, Sopian Bujang, Ida Juliana Hutasuhut, Jamayah Saili, Muhamad Sophian Nazaruddin, Rizal Abu Bakar, Mai Sumiyati Ishak, and Mohamad Azhari Abu Bakar**

**Abstract**

The Psychology undergraduate programme has started since 2017 with 53 students for the first cohort. The curriculum was developed more than 4 years back and focusing on the market need to offer psychology programme in Sarawak. The Psychology programme is currently in the process of obtaining full accreditation from the Malaysian Qualification Agency (MQA). Now, the psychology programme is in its third year and as yet to produce its first batch of graduates. Although the programme is still in the early stage, there is still a need to revisit the psychology curriculum to investigate its effectiveness and whether the existing curriculum addressed the future ready curriculum framework introduced by the Ministry of Higher Education. Thus, the study aims to address the need to enhance the existing curriculum to be future ready and identify the distinctive feature of the psychology programme that makes it stands out and unique. The study also involves investigation into aligning the curriculum content with appropriate teaching and learning deliveries and alternative assessment practices. Thus, it is important for the programme to employ a scholarly approach to curriculum leadership to provide a strategic foundation for quality assurance and quality enhancement of psychology programme as to bring significant impact on students' learning.

**Introduction**

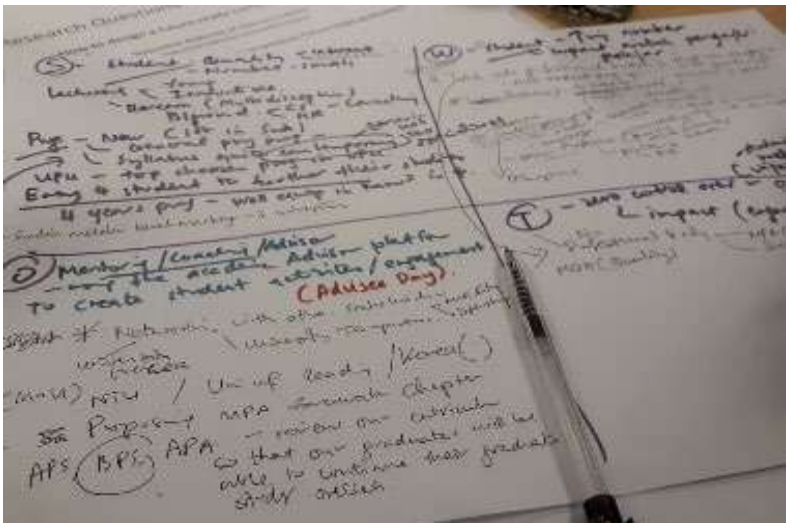
The Psychology undergraduate programme is designed to produce professionals with a broad knowledge of psychology who study personality, human development, social behavior, abnormal behavior, cognitive neuroscience, and physiological aspects of human being. The programme offers academic and service activities that are relevant to the needs of diverse stakeholders and the broader community. Based on current trend and issues in the country, no doubt many regard psychology services as a significant service that could promote personal development, foster potential, and nurture well-being. There is also a growing awareness among people, at all levels in the society, about the need for psychologists; be it general practitioners, policymakers, or researchers.

The first batch/intake for the psychology programme was in the year 2017 (Session 2017/2018, Semester 1) and the number of students' enrolment up to now is about 170 students. This year (Session 2019/2010, Semester 1) will be the third batch/intake of students for this programme. Psychology programme is a four-year full-time programme of studies leading to Bachelor of Psychology with Honours. Currently, the Psychology programme is given 'Provisional Accreditation' status by MQA and is in the process of obtaining Full Accreditation.

During the preliminary stage, answers to RQ1 and RQ2 were explored:

**RQ1: How to design/enhance a future-ready curriculum with distinctive feature(s)?**

During this phase, a brainstorming session was conducted with the programme members using the SWOT technique to identify Strengths, Weaknesses, Threats and Opportunities for the Psychology Undergraduate Programme (WA19). Documents such as External Examiner report and Benchmarking visit report were also analysed. The following are the main points delivered through SWOT brainstorming and document review:



**STRENGTHS:**

**Students:**

- The **quality** of students registering for WA19 is very good. Most of the psychology students applying this programme because of their interest in the field as well as having high academic qualification. Most of our 1st and 2nd intake psychology students received above 3.50 CGPA (Dean's List) every semester.

- The **small number of students** per intake (50 students per intake) is also a strength where it encourages interaction between academics and students, academics can focus on teaching while students can actively participate in class tasks and programmes activities.

**Resources:**

- **Academic Staff** in the Psychology programme consists of 1 Associate Professor, 8 Senior Lecturers/Lecturer (7 with Doctorate degree and 2 with Masters). Most of our lecturers are young and innovative coming from different/multi-disciplinary fields in their specialization including Cognitive Science, Human Resource, Clinical as well as Counselling.

**The Undergraduate Programme:**

- The Bachelor of Psychology with Honours programme is the 4th programme offered by the faculty and the 1st in Sarawak. Our psychology programme or courses offered in this programme is very general (**generic** not too specialized) but also quite **contemporary** in nature. The curriculum was designed to be a bit generic so that psychology graduates can easily further or continue their studies in their chosen areas of psychology.

- The four-year programme although a bit different from other local universities which offer psychology programme (other universities offer a 3-year programme), it enables candidates to **gain broader psychological knowledge.**

  *"The four years' duration of UNIMAS Psychology programme though somewhat different from other psychology programmes at other HEIs, is good for allowing candidates to gain a broad and solid degree of psychology before receiving a Bachelor of Psychology with Honours" Report from External Examiner*

- The curriculum was benchmarked against professional bodies such as Australian Psychological Society (APS), British Psychological Society (BPS) and American Psychological Association so that our graduates will be able to easily continue their graduate studies overseas.

- The demand for Psychology Programme is very high. It was the **top** chosen undergraduate programme in UPU.

**WEAKNESSES:**

**Students:**

- The number of students applying for WA19 programme **increasing** over the three years from 50 to almost 80. It will have an impact on the instructor to student ratio which according to the Psychology Programme Standard (MQA), a good ratio is 1:25. Although, our current ratio is 1:25 (based on the latest EE report), this ratio does not represent the actual scenario.

**Resources:**

- **Academic Staff**
  - Currently, few academics in the psychology programmes have to divide their focused on psychology and another discipline (Human Resource or Counselling), staff need to be **more focused** on the programme that they are in.
  - The is a need to have at least one **senior Professor** who has been practicing psychology in terms of providing services to community or industry so that the programme can be directed/guided towards experiential learning in his/her leadership/expertise.

  *"According to the Psychology Programme Standard the ratio of lecturers required for the Bachelor of Psychology programme is 1:25, while the current ratio of 9: 108 equals 1:12. Based on this ratio, the number of teachers compared to the students is sufficient. However, the recruitment of educators should be made primarily in terms of providing the right specialists in specific fields of psychology." Report from External Examiner*

- **Facilities/Labs**
  - **Research activities in Psychology** need to be **strengthened** so that our Labs or Research Centres can be expanded/visible according to our niche or expertise.

*"Existing laboratories appear to be satisfactory with relatively good yields. It can be improved with the addition of better and more advanced apparatus as the field progresses very fast. It is possible for the programme to provide two types of laboratories one for humans and one for animals. Next the laboratory using simulation tools is also welcome. Labs like these help teach the raw material." Report from External Examiner*

**THREATS:**

- **Zero control** over the number of students being offered the programme resulted in overflowing the number projection set for the year. It will have an impact on resources especially on the staff student ratio thus affect engagement with students.
- **No professional body** - although we have Malaysian Qualifications Agency (MQA) & Psychology Standard Programme guideline to review and managed our programme quality, there should be a strong stable professional body that can also engage with the government/ministry and other parties to provide or guide us the direction of the country so that our programme curriculum is aligned with the aspiration.

**OPPORTUNITIES:**

**Mentoring/Coaching/Advisor**

- Using the **Academic Advisor platform** to **create student activities**/engagement. Suggest to organise a specific event such as Advisee Day to know our Advisee and to plan social/community activities with them. Each Advisor-Advisee group can propose an activity and align with **Persatuan Siswa Psikologi (PERSEPSI) UNIMAS**

so that the activity can be visible and have impact to the community.

**Networking** with other stakeholders

- **Mobility** or **Internship programmes** or **Certification for students (Added value)** from our MoU partners such as Nottingham Trent University (NTU), University of Reading Malaysia (UoRM), or Korean Universities (mobility) thus encouraging **Flexible Education.**

Proposing **Malaysia Psychology Association (MPA) Sarawak Chapter**

Proposing **Master's programme in Psychology (Postgraduate programmes)**. During the benchmarking visit on the 7-8 August 2019 to Sultan Idris Education University (UPSI), they offer postgraduate degree in Psychology via coursework specializing in Clinical Psychology together with USM (Joint Degree USM-UPSI). Thus, our psychology programme also have the same opportunity to offer a Master Programme together with UPSI in Sarawak.

**RQ2: How can the curriculum content, transformative teaching and learning delivery and alternative assessment practices be strategically aligned?**

Brainstorming and discussion will be conducted with the programme members and documents and records of courses in terms of the performance and feedback will be collected. Findings from this session will identify methods/ways to align curriculum with appropriate transformative T&L delivery and appropriate alternative assessment. The data collected will also identify and clarify the relationships between courses (content & assessment).

Although, psychology programme might be one of the most popular programmes that students choose to pursue in higher education, some students might find psychology as one of the hardest subjects as well (Toal, 2007). The initial reason of why students choose to learn psychology is having interest in people and ability to help them in the future (Trapp, 2007). However, courses in psychology programmes requires students to be familiar with psychology terminology and jargons as well as history and philosophy of psychology in the earlier stage of the programme. Having no prior knowledge about this concept will result in students not making the correct association between what they know with new knowledge in psychology. In the effort to enhance students learning experience, Hunt, Chalmers and Macdonald (2013) suggested several issues when designing effective learning environments such as selecting content, organizing content and using a variety of learning and teaching activities. This is what the study intents to address.

Currently, we only have data based on the UNIMAS i-class system that allow us to analyse PLO and CLO achievements.

**Data from U-LEARN @ Academia system (UNIMAS i-class)**

Figure 1 & Figure 2 shows that PLO1, PLO2, PLO5 & PLO6 were more than 95% achieved for both intake 2017/2018 & 2018/2019 except for PLO3 which was at 82% for the 2018/2019 intake. While PLO4, PLO7 & PLO8 will only be assessed when students are in their 3rd and final year.

**PROGRAMME LEARNING OUTCOMES (PLO)**

1. Possess knowledge in the field of psychology.
2. Competent in applying psychological principles into practices.
3. Involve proactively in psychological services for community and organizational development.
4. Implement ethical principle of psychology while practice as psychology practitioner.
5. Skilful in communication, leadership and teamwork in conducting programmes related to psychological field.
6. Apply the scientific approach, critical and creative thinking skills in solving problems related to psychological issues.
7. Practice knowledge management and lifelong learning skills in providing psychological services.
8. Practice management and entrepreneurship skills in providing psychological services.

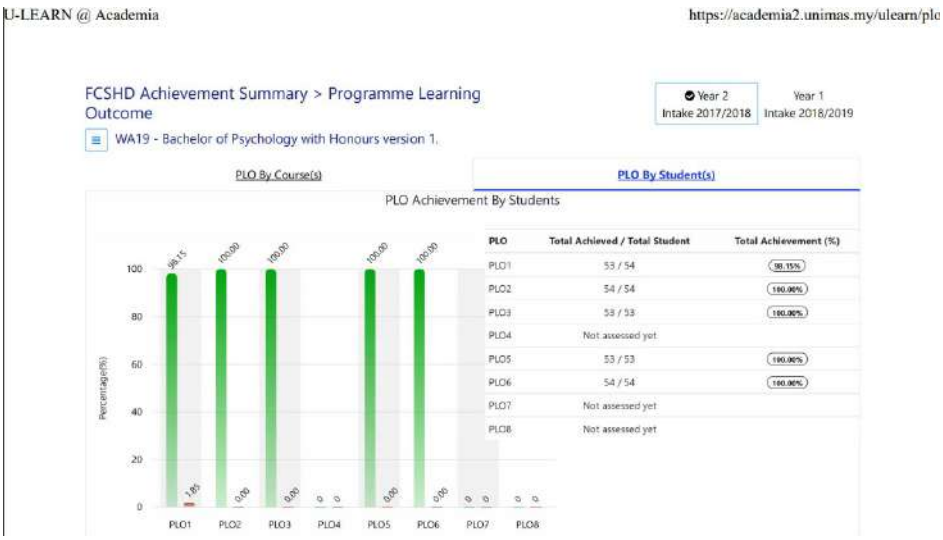



**Figure 1: WA19 Intake 2017/2018 PLO Achievement (Percentage %)**


**Figure 2: WA19 Intake 2018/2019 PLO Achievement (Percentage %)**

Thus, based on these data, our current students after 1 to 2 years of going through our curriculum possesses some knowledge in the field of psychology, are competent in applying psychological principles into practices, involved proactively in psychological services for community and organizational development, skilful in communication, leadership and teamwork in conducting programmes related to psychological field and able to apply scientific approach, being critical and using creative thinking skills in solving problems related to psychological issues.

However, the data for course learning outcomes achievements, course evaluation and students' feedback for each course involving psychology students were not available yet. Once obtained, the data will be discussed together with members of the programme to allow deliberation on the content of the course, teaching strategies and assessment alignment.

**Conclusion**

The Bachelor of Psychology with Honours programme offered at Universiti Malaysia Sarawak is generally a good programme that is required by the industries and stakeholders. However, there are opportunities to improve the programme especially in terms of the structure of the curriculum to meet the requirements of the Psychology Programme Standards and KPT-MQA Nominees. The aim of the research is in alignment with the requirement of JPT to form future ready curriculum which is to at least satisfying one of the elements of the Malaysia future ready curriculum framework (Fluid and Organic Curriculum Structure, Transformative Teaching and Learning Delivery and Alternative Assessment). Although we have data to answer RQ1 and RQ2, there is still some more systematic inquiry that need to be done to answer it well. Especially for RQ2, we are going to continue with compiling and aligning Course Files, Course Content Analysis, Teaching & Learning Delivery strategies and Alternative Assessment. Through the SoTL Grant we will further investigate the significance of the change or effectiveness of the improvement of a particular method or approach identified in RQ1 & RQ2.

**Acknowledgement**

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through **SoTL(A)/FSKPM/2019(2)/022.** The authors would like to thank Universiti Malaysia Sarawak for supporting this work.

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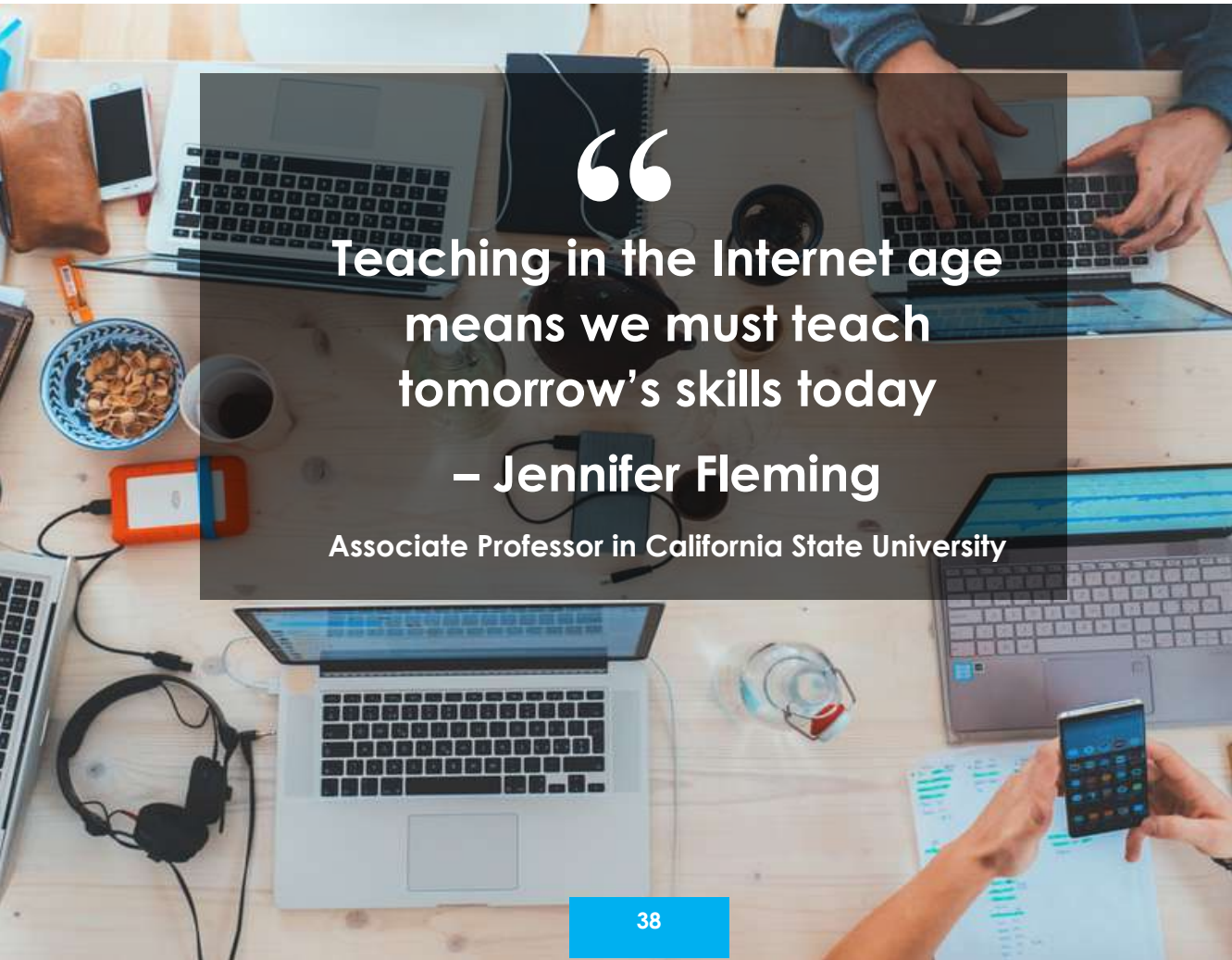


# IMPROVING SOFTWARE ENGINEERING PROGRAMME FROM STUDENTS' PERCEPTION

## INTRODUCTION

Software Engineering is one the programmes under Bachelor of Computer Science offered by Faculty of Computer Science and Information Technology, UNIMAS. The MQA has suggested the programme to change the degree to Bachelor of Software Engineering according to the Programme Standards by MQA.

## OBJECTIVES

- To identify current problems with the existing curriculum structure.

Bachelor of Computer Science (Software Engineering) → Bachelor of Software Engineering

## MEASURED CRITERIA

- Curriculum Structure (study plan)
- Course Contents
- Teaching Staff
- Teaching & Learning facilities
- Assessment Method
- Course Delivery
- Academic Advisory

## METHODOLOGY

- Restructure the curriculum to fulfill MQA standards.
  - Data collection from the survey (students)
  - Document analysis from valid sources such as SWEBOK.

## RESPONDENTS

- N= 102 students
  - 47.1 % - 3rd Year
  - 28.4 % - 2nd Year
  - 20.6 % - 4th Year
  - 3.9 % - 5th Year

## FINDINGS

### STRENGTHS

3

Assessment Methods (50%)
Course contents (47.1%)
Curriculum Structure (44.1%)

### WEAKNESSES

3

Course Delivery (37.3%)
Course contents (29.4%)
Teaching & Learning facilities (26.5%)

## SUGGESTED IMPROVEMENTS

- Students need more exposure and examples especially for programming related course, eg: more lab sessions and guidance from senior.
- Course contents need review to identify components that are perceived as good and otherwise.
- Provide more conducive learning environment to the students.

RESEARCH GRANT: STRENGTHENING SOFTWARE ENGINEERING UNDERGRADUATE PROGRAMME WITH NEW STRUCTURE OF CURRICULUM SOTL(A)/FSKTM/2019(2)/042

Researchers: Yanti Rosmunie Bujang, Wang Hui Hui, Nurfauza Jali, Edwin Mit, Azman Bujang Masli, Cheah Wai Shiang, Abdul Rahman Mat, Tan Ping Ping, Norazian binti Mohamad Hamdan, Mohamad Johan bin Ahmad Khiri, Wee Bui Lin, Eaqerzilla Phang, Mohamad Asyraf bin Khairuddin

# CONTEMPLATING AN ACCELERATED PATHWAY FOR THE ACCOUNTING PROGRAMME

Sharon Cheuk, Esmie Nichol, Asri Marsidi, Sharifah Sabrina Syed Ali, Salawati Sahari, Shaharudin Jakpar, Michael Tinggi, Suzila Mohamed Yusof, Ahmad Syubaili Mohamed & Damien Lee

## BACKGROUND

- Accelerated pathways have been explored in the medical field in the US. Recently accelerated pat h-ways have been explored for accounting in Malaysia, via the ACCA Accelerate whereby the univ er-sities involved must offer an ACCA-accredited programme.
- Benefits for universities include obtaining a competitive edge to attract students, providing added value to the programme offered, the ability to offer a fast tracked, discounted route to a world-le ading professional qualification, higher employability scores, and ultimately an enhanced reputatio n. Benefits for students are discounts and postponement on exemption fees, and discounted regi stra-tion and subscription fees, and the opportunity to start doing professional ACCA papers duri ng their undergraduate years.
- UNIMAS has been a part of the Accelerate programme since 2017.
- In 2019, UNIMAS has been exploring another accelerated pathway with the Institute of Chartered Accountants Scotland (ICAS).
- ICAS has given full accreditation to the UNIMAS accounting programme, with students allowed to do the Advanced Level ICAS papers in the 3rd and 4th years.
- The programme's 6-month Industrial Training programme is also recognised as part of the ICAS 3 -year training requirement.
- Several potential partnership models were explored in this study.
- A more involved model would involve the incorporation of a large part of ICAS' syllabi, which are constantly updated to reflect latest industry developments, and the training of lecturers to deliver the materials in the same way as that of other ICAS learning centres in the UK.

## METHOD

Discussion amongst faculty members on the best partnership model to be embarked upon.

## PRELIMINARY FINDINGS

- Choose a partnership model that does not involve embedding ICAS' subjects into the existing UNIMAS accounting programme
- Advanced Level ICAS modules remain separate and optional for students who choose to pursue the qualification. These modules will be taught by UNIMAS lecturers trained by ICAS.
- This is due to 2 reasons:

(a) the accounting programme may be revamped via the upcoming Hala Tuju 4 and the number of study years may be reduced from 4 to 3. In view of such impending changes, it was judged wise not to make any syllabi revisions until then.

(b) the accounting programme is already in compliance with Hala Tuju 3 and has been MQA-accredited in 2017. Any major change in syllabus would need to go through MQA and KPT approval, which implies a time delay.

## CONCLUSION

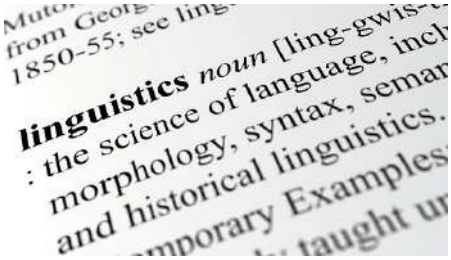
- The ICAS pathway will provide added value to accounting students and will contribute to the reputation of UNIMAS
- However, the programme is constrained in making syllabi changes due factors beyond the program me's control. Hence, the partnership model to be adopted will be one that runs parallel to the existing programme.

*Acknowledgement*
This project was supported by SoTL Grant No. SoTL(A)/FEP/2019(2)/019

# PEMBANGUNAN, IMPLEMENTASI, DAN PENILAIAN STRATEGIK DALAM PROGRAMME LINGUISTIK

**By Dexter Sigan John, Siti Marina Kamil & Remmy Anak Gedat**

Programme Ijazah Sarjana Muda Sastera (Linguistik) Dengan Kepujian merupakan programme pertama yang ditawarkan di Fakulti Bahasa dan Komunikasi UNIMAS dengan ambilan kohort yang pertama pada sesi 2014/2015. Kini programme sudah mengambil pelajar kohort keenam untuk sesi 2019/2020 dengan penambahbaikan terhadap struktur kurikulum.



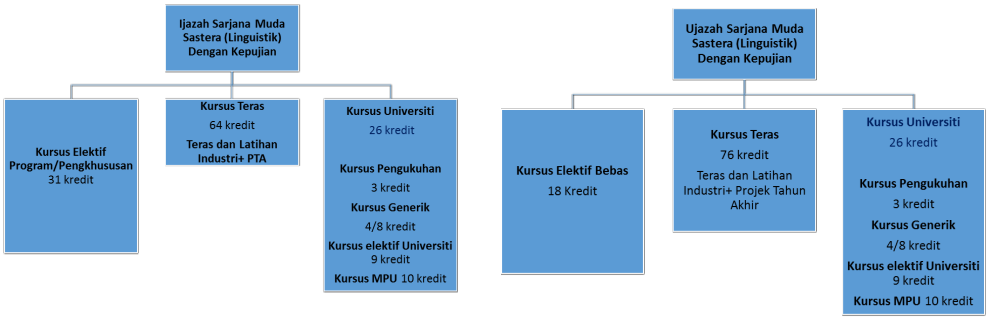

Kursus-kursus yang ditawarkan dalam programme ini melengkapkan pengetahuan pelajar dalam bidang linguistik khususnya terhadap Bahasa-bahasa Borneo. Hal ini merupakan keunikan yang tersendiri bagi programme ini kerana negeri Sarawak kaya dengan pelbagai etnik dan bahasa, sejarah dan warisan yang harus dipelajari dan dikuasai oleh masyarakat sekitarnya. Berdasarkan struktur programme terkini, kursus teras programme yang berjumlah 20 kursus (64 kredit) manakala 9 kursus (19 kredit) merupakan kursus pengkhususan wajib. Kursus universiti menyumbang sebanyak 26 kredit yang menjadikan jumlah kredit untuk bergraduat ialah 121 kredit. Dua persoalan kajian dirungkai melalui dapatan yang diperolehi.

**RQ1: Bagaimana merekabentuk kurikulum sedia ada berciri khas?**

**RQ2: Bagaimana kandungan kurikulum, penyampaian pengajaran dan pembelajaran secara transformatif dan amalan penilaian alternatif boleh diselarikan secara strategik?**


**Struktur Programme selepas Kajian Semula Kurikulum**

**Versi Sedia Ada** **Versi Penambahbaikan**




Selepas Kajian Semula Kurikulum, perubahan kredit diperlukan untuk memasukkan unit-unit pengajaran yang baharu yang lebih berdaya saing selaras dengan tuntutan Revolusi Industri 4.0. Selaras dengan tuntutan ini, bagi menghasilkan graduan yang 'future-ready' maka kandungan dan penilaian kursus-kursus lebih bercorak lawatan sambil belajar, kajian lapangan, pembentangan dan penglibatan pihak komuniti. Perubahan kredit dalam kurikulum juga dituntut bagi memenuhi jam pembelajaran pelajar (*student learning time*). Di samping itu, dapatan daripada lawatan penanda aras telah menunjukkan bahawa universiti-universiti lain mula memberikan tambahan masa untuk sesi tutorial bagi kursus-kursus linguistik. Maklum balas MQ02 juga turut diambil kira bagi memastikan penawaran kredit tidak melebihi 20 kredit bagi semester panjang. Tuntasnya, perubahan ini dilakukan agar kandungan kurikulum adalah sentiasa relevan dan menepati kehendak industri. Programme linguistik ini diluluskan atas kapasiti situasi di Sarawak yang multilingual dan penawarannya yang berfokus pada bahasa Borneo dilihat berupaya menyerlahkan keunikan programme ini jika dibandingkan dengan programme linguistik di universiti lain di Malaysia.

**Penghargaan**
Kajian ini disokong oleh UNIMAS Scholarship of Teaching and Learning (SoTL) Grant melalui SoTL(A)/FBK/2019(2)/007.

# A PRELIMINARY STUDY ON THE CURRICULUM STRUCTURE OF RESOURCE BIOTECHNOLOGY UNDERGRADUATE PROGRAMME: STUDENTS' PERSPECTIVE

**by Dayang Salwani Awang Adeni, Chung Hung Hui, Lee Kui Soon, Micky Vincent, Nurashikin Suhaili and Hashimatul Fatma Hashim**

**Introduction**

Biotechnology can be viewed as a multi-sectoral and multi-disciplinary field involving the integration of knowledge and skills drawn from various disciplines in fundamental and applied aspects of life sciences, engineering, mathematics and technology. Biotechnology can be used as a tool to contribute to the achievement of a number of the United Nations Sustainable Development Goals in the areas of food security, healthcare, economic growth and environment as well as being one of the key drivers of Industry Revolution 4.0.

Resource Biotechnology under the Faculty of Resource Science and Technology, Universiti Malaysia Sarawak (UNIMAS) is an undergraduate programme that has started since August 1993. The curriculum was developed according to the Biotechnology Programme Standard (PS) which was first enforced by the Malaysian Qualifications Agency (MQA) in 2009. The programme curriculum has been developed after several series of consultations with the academic staff as well as feedback and suggestions received from various stakeholders. The courses were designed and taught by lecturers in the programme based on their area of specialization and in consultation with the external panel of experts, including the industry partners. There is also a curriculum review conducted at the faculty and programme levels once in every three years to keep abreast with scientific, technological and knowledge development on biotechnology and socio-economic issues related to biotechnology. The most recent curriculum review was completed in 2018, in which the discussion aspects cover course synopsis, learning outcomes, learning units, review examination statistic and feedback from stakeholders including the external examiner (EE) and industry advisory panel (IAP). In addition to that, continual quality improvement (CQI) will be conducted whenever necessary to keep pace with changes in the field of biotechnology and requirements of stakeholders.

A future ready curriculum is a framework or design for action that prepares graduates with necessary knowledge, skills and competencies to meet challenges of the 21st century. The curriculum has to be fluid and organic, able to be adapted along with, and even ahead of, changes in the environment. Hence current study aimed to answer the following questions: RQ1-How to design a future-ready curriculum (FRC) with distinctive feature(s) for Resource Biotechnology Programme? RQ2-How can the curriculum content, transformative teaching and learning delivery and alternative assessment practices in Resource Biotechnology Programme (RBP) be strategically aligned?

The curriculum is a crucial component of any education activities, thus, understanding and evaluating the quality of education requires a comprehensive picture of the unique and complex characters of the system that produced them (Markus, 2014). Final year students of a particular undergraduate programme are those who had undergone the learning process. They are the future of any society, an established position of biotechnology is needed among the future decision-makers (Fritz et al., 2003). In the literature, even though there are several studies on biotechnology pertaining to consumers and producers, only a few have focused on the assessment of students' educational awareness and attitude toward biotechnology. Hence, to response with RQ1 and RQ2, students' perception is one of the factors need to be considered as a reference in developing curriculum towards FRC.

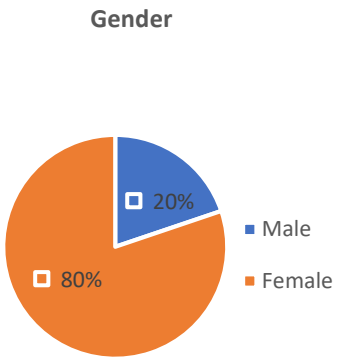
**Methodology**

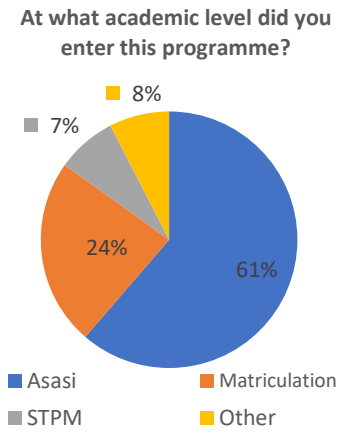
A survey questionnaire was distributed to final year students of Resource Biotechnology Programme at Faculty of Resource Science and Technology, UNIMAS upon completing their third's year study. This group of students was under the cohort 2016/2017 intake and have completed their studies in June 2019. The questionnaire was designed based on following sections: (A) students background, (B) education experience, (C) curriculum structure and (D) PEO achievement as well as student overall perception on Resource Biotechnology Programme.

**Results**

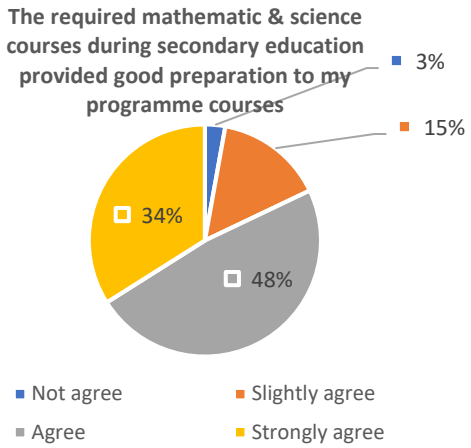
Following are the responses from 106 undergraduate students of Resource Biotechnology Programme towards education experience, curriculum structure, PEO achievement and overall student perception on the programme.

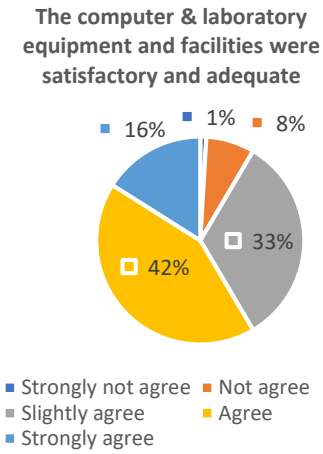
***Students background***

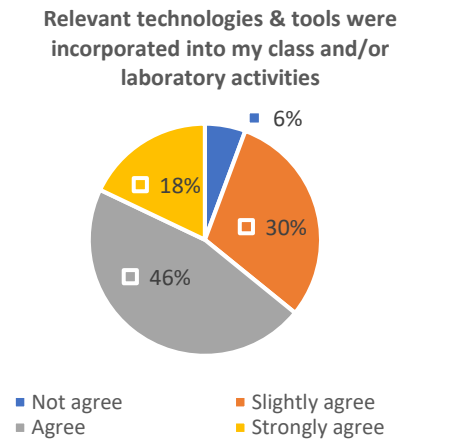


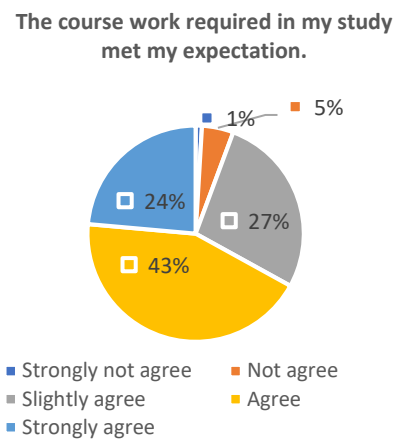



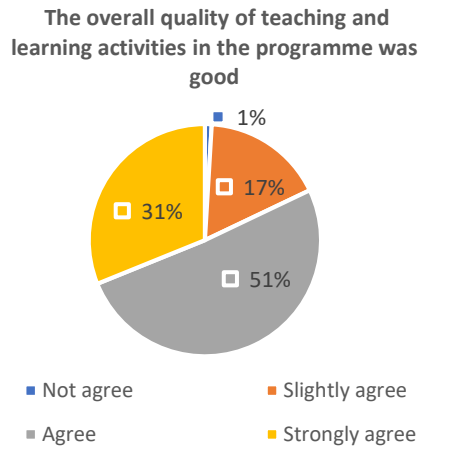

A total of 106 respondents have completed and returned the survey forms. The majority of the respondents were females (85 respondents or 80%) and 21 were males (20%). In terms of academic level for entering the programme majority of respondents were from foundation (65 respondents or 61%), followed by matriculation (25 respondents or 24%), and the rest are from STPM and others.

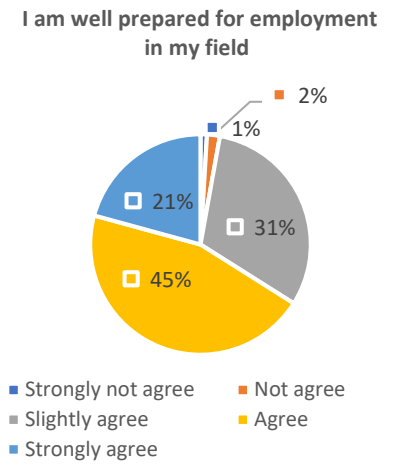

The required mathematic & science courses during secondary education provided good preparation to my programme courses
3%
15%
34%
48%
Not agree
Slightly agree
Agree
Strongly agree


The computer & laboratory equipment and facilities were satisfactory and adequate
16%
1%
8%
33%
42%
Strongly not agree
Not agree
Slightly agree
Agree
Strongly agree


Relevant technologies & tools were incorporated into my class and/or laboratory activities
6%
18%
30%
46%
Not agree
Slightly agree
Agree
Strongly agree

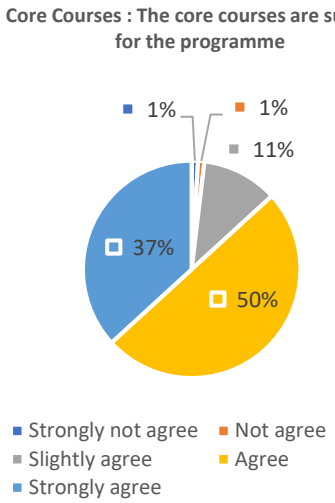

The course work required in my study met my expectation.
1%
5%
24%
27%
43%
Strongly not agree
Not agree
Slightly agree
Agree
Strongly agree

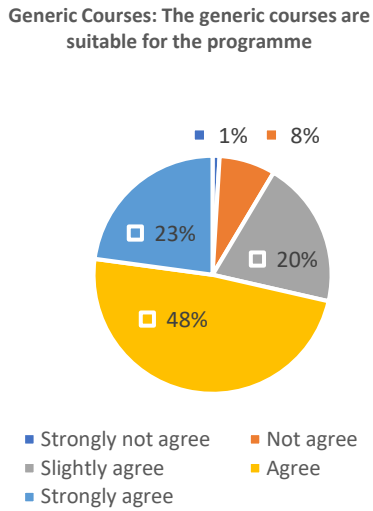

The overall quality of teaching and learning activities in the programme was good
1%
17%
31%
51%
Not agree
Slightly agree
Agree
Strongly agree

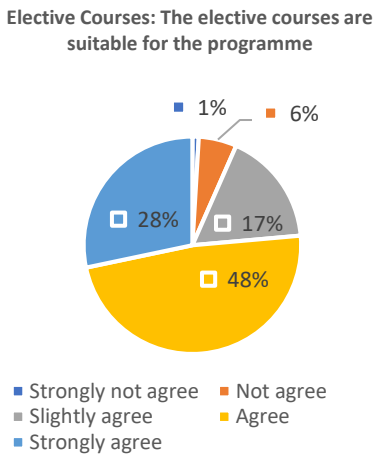

I am well prepared for employment in my field
2%
1%
21%
31%
45%
Strongly not agree
Not agree
Slightly agree
Agree
Strongly agree

Results indicate that most respondents agreed to all items under the category of education experience. However, for the item of - relevant technologies and tools were incorporated into my class/or laboratory activities – depicts 30% slightly agree. This shows that there are group of students were not totally satisfied with the activities related with laboratory. This might due to the limited resources (laboratory apparatus, space etc) and at the same time to cater with high numbers of students per lab session. The Resource Biotechnology Programme also received the similar feedback from external examiner (2017) as well as MQA auditor (2018), which indicates that students were lacking hands-on experience and skills. The programme is advised to integrate more practical session for selected core courses such as General Genetics, Cell Biology, Advances Genetic, Enzymology and Instrumentation and Laboratory Management. The CQI within the programme level also had been conducted in which course coordinators have revised selected CLOs in order to be relevant with the psychomotor domain.

**Curriculum Structure**

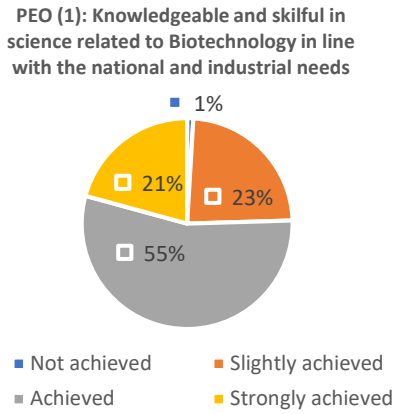


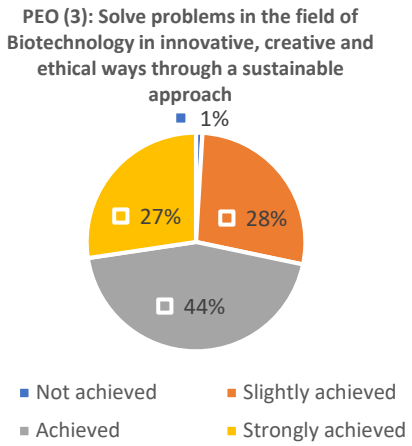




A similar pattern of feedback by respondents were found for the category of curriculum structure in which mostly agreed on the suitability of courses offered by the programme.

***PEO Achievements***









According to the PEO achievement, PEO 3 and 4 reveal comparable response by the respondents. About 27 - 28% respondents claim both PEO's were slightly achieved. This points to the need for the programme to integrate transformative learning and teaching delivery such as technology 4.0 for learning, adopting heutagogy and paragogy as well as implementing immersive experiential learning to enhance students' understanding and skills in biotechnology.

**Conclusions**

At this stage, only preliminary data based on students' perception were reported. In general, most respondents agreed with the education experience, curriculum structure and PEO provided by Resource Biotechnology Programme. The programme is referring to several indicators such as Programme Standard for Biotechnology, MQA audit report, MQF2.0 as well as CQI within courses and programme level to consolidate how the FRC can be embedded into current curriculum structure. Hence data from different groups of respondents such as academic staff, alumni and stakeholders will be included in the future study.

**Acknowledgement**

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSTS/2019(2)/010

# THE DEVELOPMENT AND IMPLEMENTATION OF FUTURE-READY CURRICULUM IN THE AQUATIC RESOURCE SCIENCE AND MANAGEMENT PROGRAMME

**by Farah Akmal Idrus, Fatimah A'tirah Mohamad, Jongkar Grinang, Fazimah Aziz, Siti Akmar Khadijah Ab Rahim, Khairul Adha A. Rahim, Aazani Mujahid**

Over the past 26 years, various changes in life have taken place, especially with the use of technology in solving problems. Therefore, it is desirable for the content, the teaching and learning deliveries, and the assessments in the curriculum to also change, in line with other changes. Future-ready curriculum (FRC) requires the content, teaching and learning approach and assessment to be aligned and redesigned to encourage students' engagement. It shall be personalised and involved technology for deeper learning. Curriculum and instruction for courses in the programme of Aquatic Resource Science and Management (WS49) are supposed to be standards-aligned, research-based and enriched through authentic and real-world problem solving.

**Methodology**

The method of this study will focus on two research questions (RQs) to achieve the future ready curriculum (FRC) readiness, understanding and implementation in the classroom. The research questions are:
RQ1: How to design/enhance an FRC with distinctive feature(s)?
RQ2: How can the curriculum content, transformative teaching and learning delivery (T&L) and alternative assessment practices be strategically aligned?

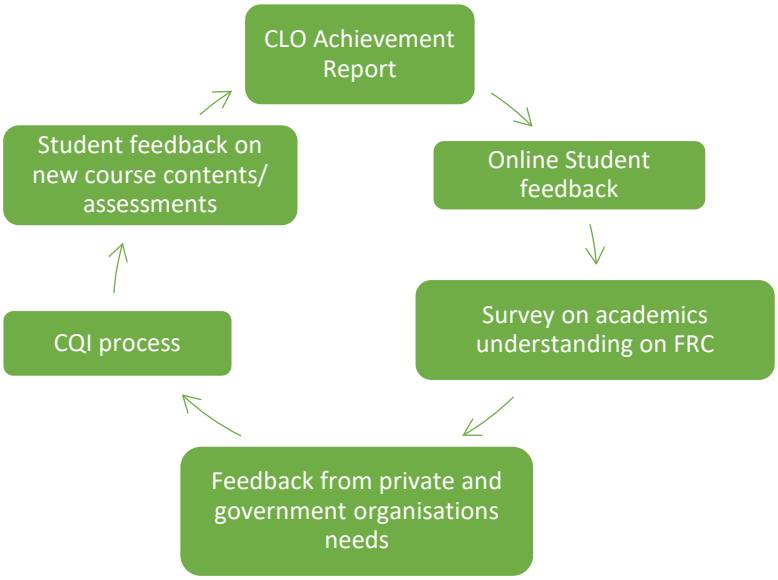



**Figure 1. Working process involving the readiness, understanding and implementation on the FRC**

We started our study by looking at the Course Learning Outcome (CLO) Achievement Reports (Semester 1, Session 2018/2019) to obtain an initial data and information about the performance of

certain courses. Surveys from students and alumni were also done to understand students' need in nourishing their understanding to the relevant courses. Several meetings and a short survey were also conducted with the academic staff to discuss about the necessary changes that can be done to suit the FRC, their understanding and readiness to implement FRC in T&L. Feedback from the industries about our programme was also gathered. From the feedback that we received, we then decided to do the continuous quality improvement (CQI) for 6 courses that had low performance on the CLO Achievement Reports on the semester 1, session 2018/2019. The courses are STA1043 Aquatic Chemistry, STA1223 Aquatic Instrumentation and Methodology I, STA1013 Physical Oceanography, STA2053 Marine and Freshwater Invertebrates, STA2193 Limnology and STA2023 Aquatic Vertebrates. After implementing FRC for half a semester, we interviewed selected students regarding the new course contents/assessments. By end of this semester, we will conduct another survey and generate the CLO Achievement Reports which then will be compared with the previous curriculum. Figure 1 describes the method in brief.

**Results and Discussion**

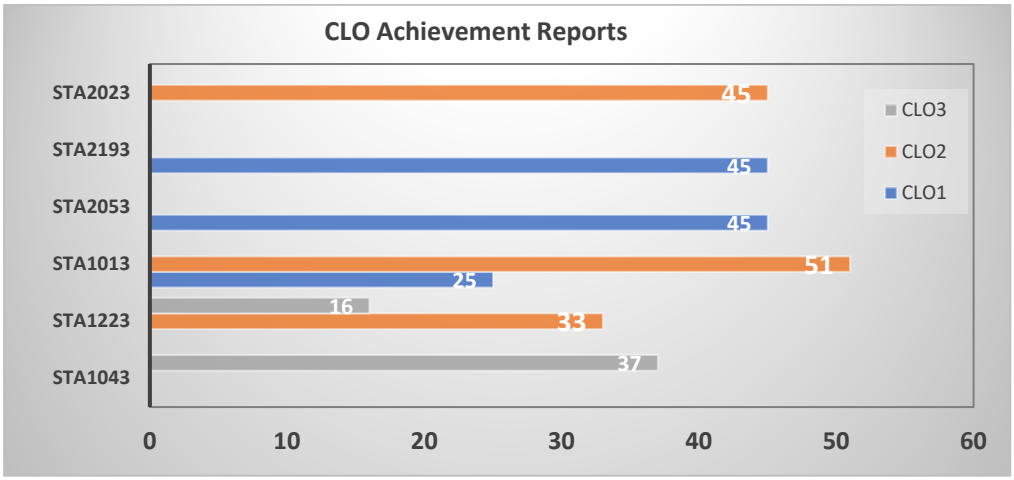



**Figure 2. CLO Achievement Reports for 6 courses that not achieved or fully not achieved the CLOs.** *Values are in percentage (%). CLO: Course Learning Outcome. These 6 courses were recorded to get ≤ 51% for 1-2 CLOs.*

Approximately 60% from the 66 students and alumni who answered our survey were satisfied with the course contents. The items for course contents cover learning objectives of every learning unit, well-organised contents, appropriate workload and activities for the course, flexibility, course that may relevant to industry needs and the use of technology in T&L. Figure 3 summarises the findings for all courses involved in this study.

In term of T&L delivery, 86% students and alumni think that the STA1013 course delivery was in combination of Student-Centred Learning and lecture (Figure 4). Meanwhile for STA1043 and STA1223, the percentages were ≥ 95%. Both STA2053 and STA2193 received 90% votes. The lowest percentage was given to STA2023 with only 85%. This result implies the students' engagement in the class activities.

Students and alumni also complained about the course assessment strategy (Figure 5). More than 70% students and alumni agreed that the assessment strategy for all courses in this study were outdated and not equivalent to the time spent on the class activities. All courses except for STA1223 still employed the exam-based assessment (70%) which comprised a mid-semester examination and a final examination. Examinations were the main factor that caused most students could not score better in these courses.

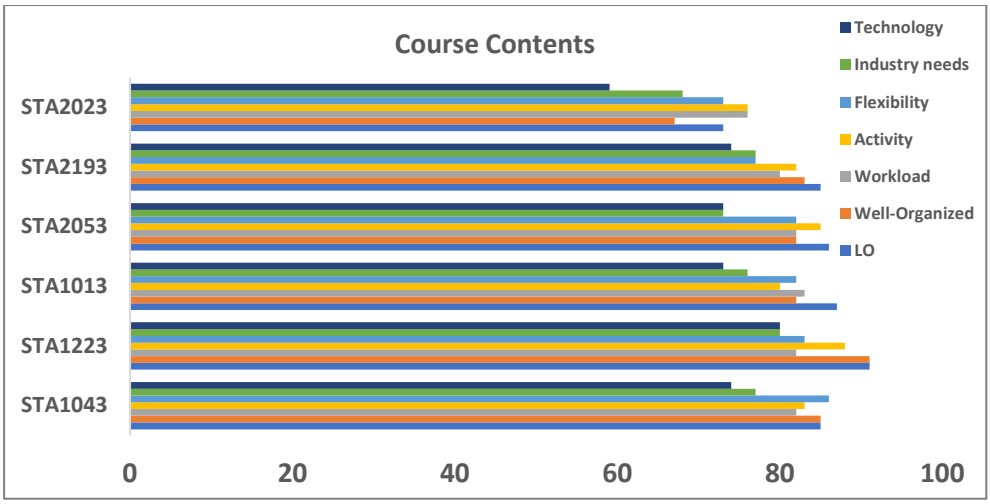



**Figure 3. Students feedback on the course contents for 7 elements.**
*LO: Learning Objectives. Values are in percentage (%).*

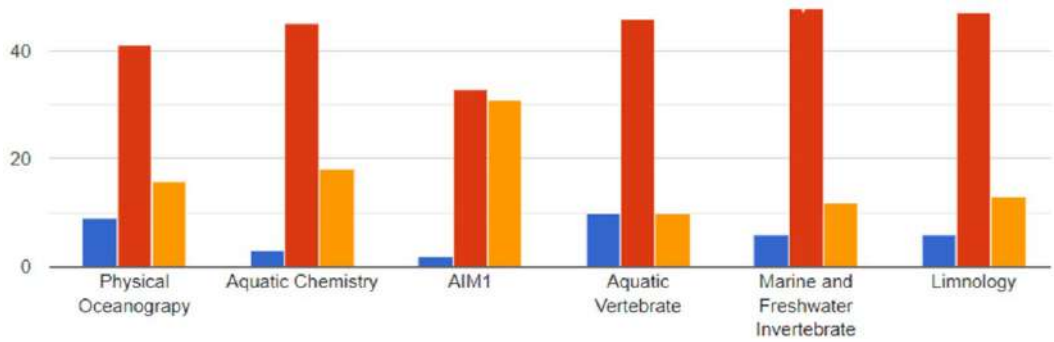



**Figure 4. Students feedback on the T&L Delivery in the classroom.**
*Blue: Conventional way (mostly lecture, less activity); Red: Student-Centred Learning (40%) with lecture (60%); Yellow: Advanced Student-Centred Learning (60%) with lecture (40%).*

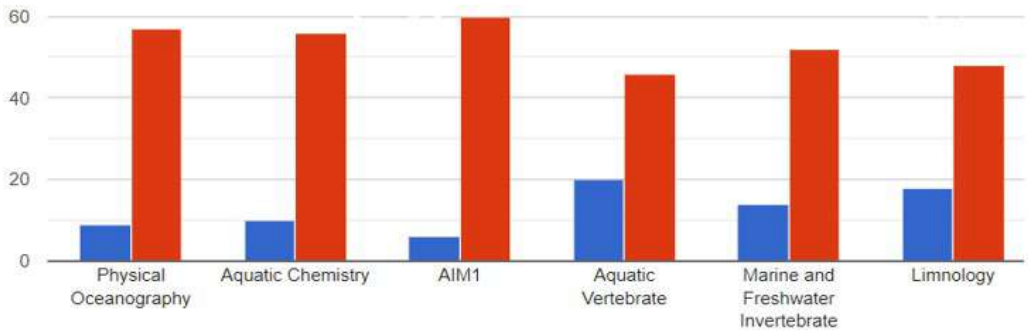



**Figure 5. Students feedback on the course assessment method.**
*Blue: Excellent and fair (with learning times) assessment; Red: Outdated and not equivalent to time spent by students on activities.*

Almost 90% from 104 industry respondents stated that the programme fulfills fully or partially the fundamental knowledge of aquatic disciplines within their respective industries (Figure 6). Respondents (93%) also agreed that these courses contribute to the strength of the Aquatic

Resource Science and Management programme. Some respondents however, also mentioned the need for courses to be taught more in-depth and employ hands-on activities to enable students to learn more to better prepare them for the working environment after graduating.

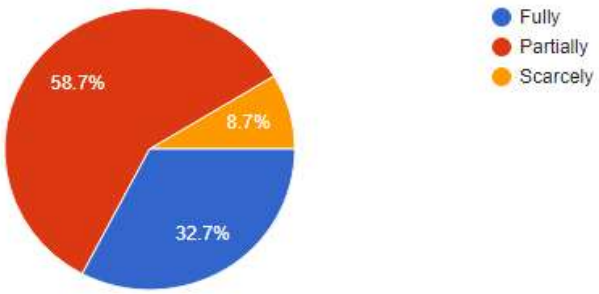



**Figure 6. Respondents (104) from relevant industries in aquatic science stated that the programme fully and partially fulfil the fundamental knowledge of aquatic disciplines within their respective industries.**

Academic staff are the important stakeholder in making the implementation of FRC successful in the university. However, some lecturers may not receive appropriate exposure on the importance of adopting the FRC. From our survey on the lecturers from our own programme, 87% believed that students will have engaging and empowering learning experiences that prepare them to be active, creative, knowledgeable and ethical in class activities, if FRC are implemented. Approximately 19% lecturers are not ready for FRC, possibly due to their constraints in using the technology in T&L and to create more student-centred learning activities. Around 87% lecturers agreed that FRC can help students in developing leadership skill. Surprisingly, 25% lecturers did not agree with the flexibility of the alternative assessments and believe examination is the ultimate way to assess students' performance and understanding in their courses. Although majority of our lecturers wanted to move forward for FRC, 75% agreed that there is a lack of facilities in the faculty/university such as the availability of futuristic learning spaces and technologies.

The CQI process was carried out in August 2019. Changes made were mostly on the assessment strategies by including more alternative assessments such as reflection, case studies, gamified activities and video presentations. The percentage for examinations was reduced to a range between 30% to 40%. Learning Units in STA1043, STA2053, STA2193 were also modified to fit the industry needs and the current issues of the respective fields.

**Conclusion**

Feedback from 25% of the current students who are taking these courses are positive so far. However, their feedback may not represent the whole class and performance. We still need to do a proper survey at the end of the semester and then compare with their grading marks in order to evaluate their overall performance.

**Acknowledgement**

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FSTS/2019(2)/012

# STRATEGIC DEVELOPMENT, IMPLEMENTATION AND ASSESSMENT OF QUANTITY SURVEYING UNDERGRADUATE PROGRAMME TOWARDS FUTURE-READY CURRICULUM

**by Afzan Ahmad Zaini, Abdul Wafi Razali, Nadia Zaini, Sitti Diana Tamjehi and Gui Hun Chuen**

**Abstract**

The future-ready curriculum (FRC) is an overarching framework that covers every aspect of curriculum structure, learning and teaching delivery and assessment that constructively aligned to prepare graduates in meeting the challenges of the 21st Century. The curriculum needs to be fluid and organic, and not rigid and fixed. Therefore, this research aims at incorporating the FRC elements in Quantity Surveying (QS) curriculum development to improve the method of teaching and learning delivery and hence, improve the student's performance and lecturer's skills in teaching. QS programme in UNIMAS has been established in September 2018. Thus, this paper only focuses on the second-year Quantity Surveying students because only these students had completed the first-year courses. The objective of this paper is to (1) investigate a future-ready QS curriculum based on student's perspective (s), (2) investigate the effectiveness of teaching and learning delivery and assessment based on student's evaluation and examination results and (3) to identify the industry feedback and recommendation to improve the QS curriculum. This paper employed a questionnaire survey, review the student's feedback and examination results, and review of a report from the appointed panels from the industry. The finding from this paper shows that students need changes in teaching and learning delivery such as group activities and more presentations while for assessment students need real-time and challenge-based assessments. The overall findings will facilitate academics to strategically align the curriculum content with transformative teaching and learning delivery and alternative assessment practices to improve the overall curriculum and student performance.

**Introduction**

Higher education in the fourth industrial revolution (IR 4.0) is a complex, dialectical and exciting opportunity which can potentially transform society for the better. The fourth industrial revolution is powered by artificial intelligence and it will transform the environment of educational technology which is currently one of the most frequently discussed topics among practitioners and academics. FRC promotes transformative learning and teaching delivery and alternative method of assessment. Learning and teaching delivery can be done through redesigning of learning spaces, leveraging the latest 4th Industrial Revolution technologies and promoting immersive learning towards the achievement of learning goals. The alternative methods of assessments, on the other hand, promote a holistic assessment of the outcomes as well as the learning process, focusing on what the student can do, rather than merely focusing on mastery of knowledge.

**Literature Review**

Understanding of education concept in teaching and learning often differs in the public but it is the same meaning as 'Americans' who tend to use the word 'evaluate' to describe test students and 'English' who often use the word 'assess' (Prozesky, 2000). Esquire (2012) stated that teaching means the reflection on what 'teachers' do and to set them apart from others, they have their qualities or activities that they are joining. However, there is a problem in teaching where a variety of things or tasks are combined with responsibilities in teaching that are sometimes less relevant to be a good educator (Smith, 2016).

The relationship between teaching and learning is a situation where there is a clear

focus on both the content that will be taught and the learning experience. The "theoretical" aspect of the "knowledge" of teaching is contained in the teaching and learning about teaching, content or matter (Laughran, 2016). To generate greater enhancement and learning fun, "Active Learning Classrooms" are needed to promote deep engagement activities, reinforcing interactions, enhanced group activity efficiencies and nurturing the development of creative ideas. It creates a synergistic effect on student learning and is very closely related (Xiaoshan et al, 2018).

Technology that plays an important role in education has been used to support regular classes. One of the types of technology-based teaching and learning is e-learning. This e-learning concept is learning using electronic technology in co-curriculum outside of the classroom or referring to courses, programmes or degrees that are sent online (Eleraningnc, 2018). Another type of technology-based teaching and learning that are commonly used is blended learning that is widely recognised as a solution to discover the weaknesses in both conventional learning and e-learning (Hassana & Woodcock, 2014). With blended learning, it can help teachers to gain more confidence and understanding about the technology-based education concept to meet their students' needs.

The strategy in the implementation of technology-based education should be spearheaded by the educators in which they need to explore the innovative ways and to use educational technology in redesign future learning. The educators should rethink their old conceptions of teaching and learning and redesign their students' learning experiences to meeting the requirements of Education 4.0 (Mustapha, 2017).

**Methodology**

To fulfil the criteria of FRC in this QS programme, three elements namely Fluid and Organic Curriculum, Transformative Learning and Teaching Delivery and Alternative Assessment need to be implemented. However, since QS curriculum is not fluid and organic, only two elements are examined as indicated in Table 1.

**Table 1: FRC Elements**

| No | Element 2: Transformative Learning & Teaching Delivery | Element 3: Alternative Assessment |
|---|---|---|
| 1 | Students determine their individual learning path | Authentic Assessment (Personal E-Portfolio – contains documents related to students' assignments, tests and evaluations by teachers and peers which showcases students' highest level of achievements) |
| 2 | Students design their own learning map | Performance Based Assessment (Presentations, Dramatic performances, Projects, Exhibits and fairs, Debates) |
| 3 | Students are guided to define self-directed questions (i.e: site visit) | Personalised Assessment (Measures the students' readiness to be assessed - flexibly and adaptively – assessment time and questions structure) |
| 4 | Students reflect upon course content to support metacognitive skills | Integrated Assessment (An interdisciplinary approach – combined assessments for a few related courses) |
| 5 | Students interact with peers to accomplish the educational goal (i.e: group activities and presentation) | Contemporary Assessment (Digital natives – apprenticeship model, presentation, project-based, case-based, take-home and oral examination. Learner-centred, Integrated skills, Emphasis on Process, Open-ended multiple solutions) |
| 6 | Students discover and share the learning contents among themselves through the co-creation of communities of learning. | Real-time Assessment (In-class quiz (Kahoot), discussion and reflection using Chat tools, students generated test questions, one-minute paper) |
| 7 | Students create engagement and connect with each other through digital media to co-construct knowledge and to co-learn (i.e: Massive Open Online Course) | Challenge-based Assessment (Emphasis on collaboration, cooperation and group competition, encourage students to collaborate with each other and solve a common problem) |

| | | |
|---|---|---|
| **8** | Students are introduced to technology 4.0 in learning process (i.e: smart campus, artificial intelligence, augmented reality, virtual reality) | Profiling Assessment (Assists the students in appreciating and interpreting their competencies as well as helping them to uplift their employability skills. The outcome is the students' holistic profile including their academic motivations) |
| **9** | Students are provided with futuristic learning spaces | - |

This paper employs there (3) methods to achieve three (3) objectives:

1. Questionnaire to 16 second-year students based on element 2 and 3 of the FRC curriculum
2. Review of student evaluation and examination results
3. Review of industry feedback and recommendation

**Results and Discussion**

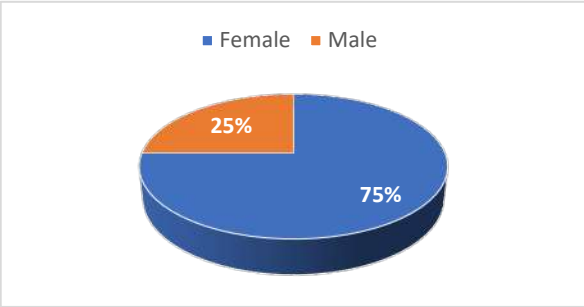



**Figure 1: Demographic profile of the respondents**

Figure 1 shows a total of 16 students from the second year of the Quantity Surveying programme who were asked to take part in this study. Out of the 16 respondents, 25% or 4 respondents are Male while 75% or 12 respondents are Female.

**Future-Ready QS Curriculum Based on Student's Perspective**

Table 2 shows the mapping of QS courses with future-ready curriculum elements. Students were asked to map nine (9) core QS courses which they have studied in their first year to a total of 17 Future Ready Curriculum (FRC) components, nine (9) under transformative teaching and learning delivery, and eight (8) under alternative assessment.

**Table 2: Mapping Quantity Surveying Courses Vs Future Ready Curriculum Element**

| Quantity Surveying Courses | Element 2: Transformative Learning & Teaching Delivery | | | | | | | | | Element 3: Alternative Assessment | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| BEQ1013 – Introduction to Construction Measurement | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1023 – Construction Technology for Building Works | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1032 – Principle of Construction Economics | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1042 – Digital Technology in Construction | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1054 – Construction Measurement of Architectural Works | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1063 – Construction Technology for Structural Works | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1073 – Construction Economics for Quantity Surveyors I | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1083 – Building Science | | | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BEQ1092 – Pre-Contract Administration | | | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |

**Mapping Analysis**

**i) Transformative Teaching and Learning Delivery**

From the mapping results, it is found that four (4) out of nine (9) courses can potentially have all the nine (9) FRC components, while the courses with the least potential are BEQ1042 – Digital Technology in Construction and BEQ1092- Pre-contract administration. For these 2 courses, only three (3) out of nine (9) components are deemed suitable for FRC application. Generally, students still prefer a more traditional way of learning and teaching delivery for these two (2) courses.

**ii) Alternative Assessment**

From the mapping results, it is found that eight (8) out of nine (9) courses can potentially have all the eight (8) FRC components. Only one course which is BEQ1092- Pre-contract administration scores seven (7) out of eight (8) FRC components, meaning this course has a high potential for FRC.

Table 3 and Table 4 show the 17 Future Ready Curriculum (FRC) components, nine (9) under transformative teaching and learning delivery, and eight (8) under alternative assessment, based on how they perceive whether the FRC components are suitable to be implemented in courses which they have studied during their first year.

**Table 3: Mean score for Element 2**

| Element 2: Transformative Learning & Teaching Delivery | Mean Score (Likert scale 1-10) | Rank |
|---|---|---|
| Item 5 | 8.1875 | 1 |
| Item 6 | 8.0625 | 2 |
| Item 9 | 7.8750 | 3 |
| Item 8 | 7.5625 | 4 |
| Item 7 | 6.9375 | 5 |
| Item 3 | 5.4375 | 6 |
| Item 4 | 5.0625 | 7 |
| Item 2 | 5.0000 | 8 |
| Item 1 | 4.3125 | 9 |

**Table 4: Mean Score for Element 3**

| Element 3: Alternative Assessment | Mean Score (Likert scale 1-10) | Rank |
|---|---|---|
| Item 6 | 8.8125 | 1 |
| Item 7 | 8.8125 | 1 |
| Item 8 | 8.7500 | 2 |
| Item 1 | 8.3125 | 3 |
| Item 5 | 7.9375 | 4 |
| Item 2 | 7.6875 | 5 |
| Item 3 | 7.4375 | 6 |
| Item 4 | 7.1250 | 7 |

**Mean Analysis**

i) **Transformative Teaching and Learning Delivery**
From the survey results, the component with the highest mean score is item 5 - Student interacts with peers to accomplish the educational goal (i.e: group activities and presentation), with a mean score of 8.1875. This shows that students enjoy interactive ways of teaching and learning method, especially among their peers. The component with the lowest mean score is item 1 - Student determines individual learning path, with a mean score of only 4.3125.

ii) **Alternative Assessment**
From the survey results, the components with the highest mean score are items 6 and 7 - Real-time Assessment (In-class quiz (Kahoot), discussion and reflection using Chat tools, students generated test questions, one-minute paper) and Challenge-based Assessment (emphasise on collaboration, cooperation and group competition, encourage students to collaborate with each other and solve a common problem), both with a mean score of 8.8125. This shows that the students have high level of ICT literacy, and also enjoy group tasks assigned to them. The component with the lowest mean score is item 4 - Integrated Assessment (An interdisciplinary approach – combined assessment for a few related courses), with a mean score of 7.125.

**The Effectiveness of Teaching and Learning Delivery and Assessment Based on Students Evaluation and Examination Results**

Table 5 shows the students' evaluation of their lecturers based on the first-year courses. It can be observed that the students need a variety of effective teaching and learning strategies and want the instructor to stimulate their interest. Some of the students need clear examples and want the instructor to encourage them to think. From the observation, BEQ1032 needs more attention because six (6) categories are below than 90% based on the student's evaluation followed by BEQ1063 with three (3) categories below 90%.

**Table 5: Student's Evaluation**

| COURSE | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BEQ1013** | 93.75 | 92.97 | 92.97 | 92.19 | 91.41 | 92.97 | 93.75 | 92.19 | 95.31 | 93.75 | 92.19 | 92.19 | 92.19 | 92.19 | 92.97 |
| **BEQ1023** | 91.67 | 92.19 | 92.19 | 91.67 | 93.23 | 91.67 | 90.63 | 91.15 | 92.71 | 92.19 | 92.71 | 92.19 | 91.15 | 92.19 | 93.75 |
| **BEQ1032** | 90.63 | 91.41 | 87.5 | 89.06 | 89.85 | 90.63 | 90.63 | 89.06 | 89.85 | 91.41 | 92.97 | 92.19 | 91.41 | 92.97 | 86.72 |
| **BEQ1042** | 93.75 | 92.97 | 91.41 | 92.97 | 92.97 | 92.97 | 91.41 | 90.63 | 92.19 | 93.75 | 92.19 | 90.63 | 90.63 | 93.75 | 90.63 |
| **BEQ1054** | 92.19 | 92.97 | 93.75 | 92.97 | 93.75 | 92.97 | 92.19 | 93.75 | 92.19 | 94.53 | 94.53 | 94.53 | 92.97 | 92.97 | 91.41 |
| **BEQ1063** | 96.35 | 95.84 | 95.83 | 95.83 | 95.84 | 94.79 | 95.31 | 96.36 | 94.79 | 96.36 | 95.31 | 95.83 | 96.36 | 94.79 | 95.31 |
| **BEQ1073** | 92.97 | 93.75 | 92.19 | 89.84 | 92.97 | 92.19 | 92.19 | 95.31 | 96.01 | 95.31 | 94.53 | 94.53 | 92.97 | 94.53 | 93.75 |
| **BEQ1083** | 92.97 | 94.54 | 95.32 | 92.19 | 96.10 | 95.31 | 96.88 | 95.31 | 95.31 | 96.10 | 95.32 | 94.53 | 95.32 | 95.31 | 95.32 |
| **BEQ1092** | 94.53 | 94.53 | 95.32 | 93.76 | 96.10 | 97.66 | 94.53 | 94.54 | 95.32 | 96.10 | 94.53 | 95.32 | 95.31 | 96.10 | 93.76 |

| Question | Description |
|---|---|
| 1 | My course instructor provides clear explanations of the course objectives. |
| 2 | My course instructor speaks clearly. |
| 3 | My course instructor communicates at a level appropriate to my understanding. |
| 4 | My course instructor uses a variety of effective teaching-learning strategies to deliver the course. |
| 5 | My course instructor uses clear examples to help me understand the course topics. |
| 6 | My course instructor provides sufficient feedback that helps me improve my performance in the course |
| 7 | My course instructor assigns manageable workload for the course. |
| 8 | My course instructor encourages us to think |
| 9 | My course instructor creates a positive learning environment. |
| 10 | My course instructor uses class time effectively throughout the semester. |
| 11 | My course instructor is approachable. |
| 12 | My course instructor is fair when interacting with students. |
| 13 | My course instructor is available for consultation. |
| 14 | My course instructor always projects a positive role-model image |
| 15 | My course instructor stimulates my interest in the course |

Table 6 shows the academic result of first-year students. Overall. The students passed all courses in their first year. It can be observed that the results of students are in line with the student's evaluation because none of the students' scores A for BEQ1032 and the highest number of students score B- and C+. Therefore, from the observation, this course needs special attention in terms of delivery and assessment.

| COURSE | A | A- | B+ | B | B- | C+ | C | C- |
|---|---|---|---|---|---|---|---|---|
| **BEQ1013** | 5 | 1 | 3 | 4 | 1 | 2 | - | - |
| **BEQ1023** | 6 | 4 | 2 | 4 | - | - | - | - |
| **BEQ1032** | 0 | 2 | 6 | 1 | 6 | 1 | - | - |
| **BEQ1042** | 16 | - | - | - | - | - | - | - |
| **BEQ1054** | 3 | 5 | 2 | 4 | 1 | 1 | - | - |
| **BEQ1063** | 5 | 3 | 4 | 1 | 2 | 1 | - | - |
| **BEQ1073** | 2 | 4 | 3 | 3 | 3 | 1 | - | - |
| **BEQ1083** | 2 | 2 | 4 | 6 | 2 | - | - | - |
| **BEQ1092** | 9 | 4 | 3 | - | - | - | - | - |

**Table 6: Examination Results**

**Industry Feedback and Recommendations to Improve the QS Curriculum**

For programme monitoring, Department of Quantity Surveying, UNIMAS looks at each academic programme including constituent modules, the curriculum, teaching and learning, assessment methods, learning environment, physical and educational resources, staff, students and industry advisory board input. Department of Quantity Surveying using External Examiner, Board of Studies and Industrial Advisory Academic Panel feedbacks and comments to monitor the programme to review, reflect and helps to enhance the quality of student experience in the programme.

***External Examiner Feedbacks***

The practice of getting feedback from External Examiners is compulsory in the Malaysian Qualifications Framework (MQF) qualification as stated in COPPA. It is an essential element of the Department of Quantity Surveying for programme quality assurance and enhancement. The role of the external examiner is to assure the quality of student's learning experiences and ensure that students are assessed fairly. Four (4) examiners had been appointed and several crucial elements had been highlighted as follows:

a. To align the syllabus with current and future needs of the industry
b. To incorporate technology in the syllabus such as MRT, Mass, Rapid and Light Transportation, Building Information Modeling, 3D Printing and Drone
c. To incorporate more prevailing software in the market into the syllabus to enable the student to understand and familiar with the software for meeting the demand for such expertise in the industry
d. To improve the coordination and communication skills of students through Integrated Disciplinary Project
e. To ensure the syllabus covers the present and future niche areas of QS graduates
f. Sustainability and Green Project Management need to be taught to the students
g. Existing staff to pursue their PhD to improve the level of expertise and qualification
h. More activities for lecturers and students such as site visits and collaboration with the industries
i. Invite more qualified practising QS academician into the department
j. Examination question and assessment need to be more on scenario and problem–solving
k. To encourage more game-based learning
l. To encourage more test, quizzes, assignments for better understanding

All the constructive comments by the External Examiner had been taken into account by the members of Quantity Surveying programme. The member of the department had conducted a thorough review which involved the restructuring of the syllabus. The changes related to the curriculum had been done accordingly and will be brought into the Full Accreditation meeting that will be held in June 2021. The Department had also initiated Memorandum of Understanding with two (2) professional bodies namely Board of QS Malaysia and Royal Institution of Surveyors Malaysia. The Memorandum had been signed and exchanged on the 25th of August 2019. Besides, the department also involved in several activities organised by professional bodies such as the International Quantity Surveying Academic Forum and Pacific Association of Quantity Surveyors Congress held in Pullman Kuching from 23-29 August 2019.

***Industry Advisory Panel (IAP) Evaluation Report***

Three (3) Industrial Advisory Panels (IAP) had been appointed in 2019. There are some constructive comments received from them. The IAPs suggested that the department should improve and aligned the Quantity Surveying curriculum with the industry requirements. Below are some points highlighted by the panels:

a. The programme can explore more IT related and Alternative Dispute Resolution (ADR) to meet current/ future industry needs
b. The programme must tie-up with industry so ensure continuous collaborations and make sure that students have regular interaction with industry for example through site visits and involvement in activities related to the construction industry
c. Obtain industry professionals as guest lecturers to give lecture and professional talk
d. More critical-thinking type of question needed

From the IAP's report, all panels satisfied with the programme educational objective (PEO) and programme learning outcome (PLO). The content and curriculum are also adequate to meet the industry need. However, a more detail review is required to determine the actual course content and the prevailing market condition. Collectively, the panel is satisfied with the excellent academic and support staff compared to other universities. However, the QS programme needs more lecturers with industry experience.

***Board of Studies (BoS) Report***

Five (5) Board of Studies (BoS) had been appointed to comment on the curriculum and syllabus of Quantity Surveying programme. Below are several elements that had been highlighted:

a. Some contents of a few courses are overlapping, hence; the members of the department need to amend and embed the content accordingly
b. Weekly coverage is too heavy and student learning time needs to be increased or rearrange the content
c. The subject before industrial training needs to be reviewed so that students have sufficient coverage on important QS knowledge before practical training
d. Coverage of courses are sufficient but need to highlight the new requirement by the industry (Green Building, Qlassic and Shassic)
e. To improve the method of assessment, teaching delivery more relevant to the industry (more site visit), provide basic office application, and entrepreneurial skills

From the BoS report, faculty members had complied with the suggestions and amendment had been done accordingly. Overall, the BoS panel is satisfied with the current approach in Digital Technology that offered six (6) months practical training where students can have more time to explore and can gain more experience and knowledge in the construction industry.

**Conclusion**

Future-ready curriculum (FRC) creates meaningful, collaborative, individualise and engaging learning environment. This paper found that FRC is of a paramount importance towards the 21st century learning environment. It can be concluded that students need changes in teaching and learning delivery based on their feedback such as group activities and more presentation while for assessment students need real-time and challenge-based assessments. The review from the student evaluation clearly shows that they need various teaching and learning approaches from the lecturers to deliver the course. The students also require lecturers to communicate at the student's level of understanding and stimulate their interest in the course. In terms of examination, all students passed all the nine (9) courses. However, the course with no student obtained an A need to give extra attention in terms of the teaching and learning delivery and assessment. The industry feedback is also important for continuous improvement especially to give inputs on the content and the quality of QS curriculum. The overall findings could facilitate academics to strategically align the curriculum content with a transformative teaching and learning delivery and alternative assessment practices to improve the overall curriculum and student performance, and finally aligned the existing curriculum towards FRC.

**Acknowledgement**

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# CHANGES In Civil Engineering Undergraduate Programme

Prepared by: Jetro Henry Adam
Faculty of Engineering
SoTL Grant: SoTL(A)/FK/2019(2)/015

| | before 2019/2020 | 2019/2020 onwards |
|---|---|---|
| Name | Bachelor of Engineering with Honours (Civil Engineering) | Bachelor of Civil Engineering with Honours |
| Credit Hours | 135 | 140 |

## PROGRAMME EDUCATIONAL OBJECTIVES

1. Professionalism, Ethics & Responsibility
2. Engineering Practice & Employability
3. Lifelong Learning & Technology Advancement
4. Professional Training, Research & Development
5. Multicultural Harmony & Unity
6. Government & Industry Engagement

## PROGRAMME LEARNING OUTCOMES

1. Engineering Knowledge
2. Problem Analysis
3. Design/Development of Solutions
4. Critical Thinking
5. Modern Tool Usage
6. Engineer & Society
7. Environment & Sustainability
8. Ethics & Professionalism
9. Communication Skills
10. Individual & Team Work
11. Life-long Learning
12. Entrepreneurship Skill

# Bespoke Curriculum: Social Work for the Future
# Enhancing and Synthesizing the Quality of WA 23

By Zamri Hassan, Dolly Paul Carlo, Adam Andani Mohammed, Faizah Mas'ud, & Kamsiah Ali

**Research Participants**
64 Year 3 Students
**Period of Study**
June – September 2019
**Grant Number:**
SoTL(A)/FSSK/2019(2)/006

## Background of The Study

**25 Years**

This SoTL grant is proposed to discover what are the key problems with the current curriculum and what are things that need to be changed. This thinking derived from the fact that current Social Work curriculum although sufficient to satisfy the industry, changes in the landscape of academic curriculum cannot be ignored. Technology related to teaching and learning is vastly changing its mozaic, and students learning in the conventional classroom is proved less attractive and engaging to students.

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## Current Program Structure

**3 years in University**
**6 semesters**
Year 1: Basic Social Sciences
Year 2 : Basic Social Work
Year 3 : Social Work intervention, practice, practicum and integration theory and practice
Year 3 Intersession: Industrial placement

## Objectives

- to design a future ready curriculum with distinctive features
- to determine how the curriculum content transformative teaching and learning delivery and alternative assessment practice can be strategically aligned
- and to assess the significance of the redesigned curriculum practice in social work areas / discipline.

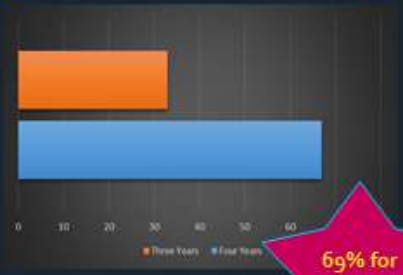
## Research Questions

- How to design a future ready curriculum with distinctive features?
- How can the curriculum content transformative teaching and learning delivery and alternative assessment practice be strategically aligned?
- How to assess the significance of the redesigned curriculum practice in social work areas / discipline?

## METHODS OF DATA COLLECTION

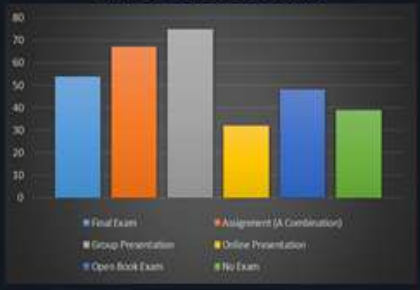
POLL
Exit Survey
Focus Group Discussion
Academicians
Entrance Survey
Face to Face
Document Inspection
Alumni / Graduating

## Period of Study

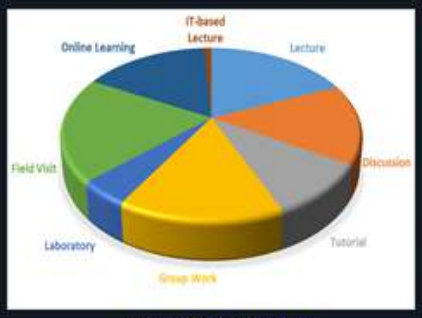



**69% for 3U1i**

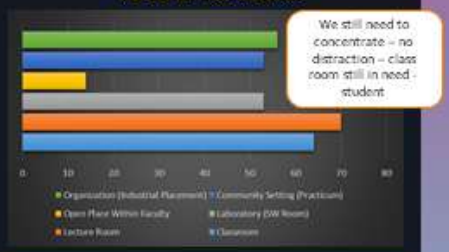
## Mode of Assessment



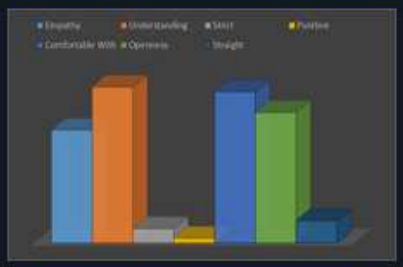

## Mode of Teaching and Learning Delivery




## Venue for T&L Activities




## Teachers Traits




## Way Forwards – Future Curriculum

Inline and Competitive Nationally and Internationally in terms of period of the study, innovative courses, mode of T&L delivery, mode of assessment, changes on lecturer skills and traits

# Preliminary Findings

Both the survey and focus-group discussions (FDG) revealed that most of participants, prefer to spend three years in university and one year in industry (3u1I). Students were asked about their preference of mode of assessment and mode of teaching and learning. Field visit 34%, lecture 35%, discussion 26% and group work 26% constitute the order of preference. The least preferred modes include teleconference-based lecture, online or virtual learning, modular approach, laboratory and tutorial.

On types of assessment, the majority of third-year students prefer final exam 54%, mid-semester exam 55% and open book exam 40% modes. The least preferred modes among third years include take home exam and no exam at all. In the case of assignment, most third years prefer combination of individual and group assignment/project 67% followed by group assignment 31.7% and 25% for individual assignment. Third year students opt for group oral presentation 75%, online or virtual presentation 35% and individual oral presentation 26.7%. This shows that group oral presentation is the most opted for as a preferred mode.

In terms of venue, 3rd year students preferred lecture room types (70%) for their lecture activities, 64% preferred class type lectures, almost 53% suggested lectures to be conducted at community setting (during practicum) and 50% suggested lectures to be held in the organisation inclusion of staff members. Students also suggested lecturers to embed certain traits to create bonding such as comfortable with (95%), understanding (98%) and openness (82%).

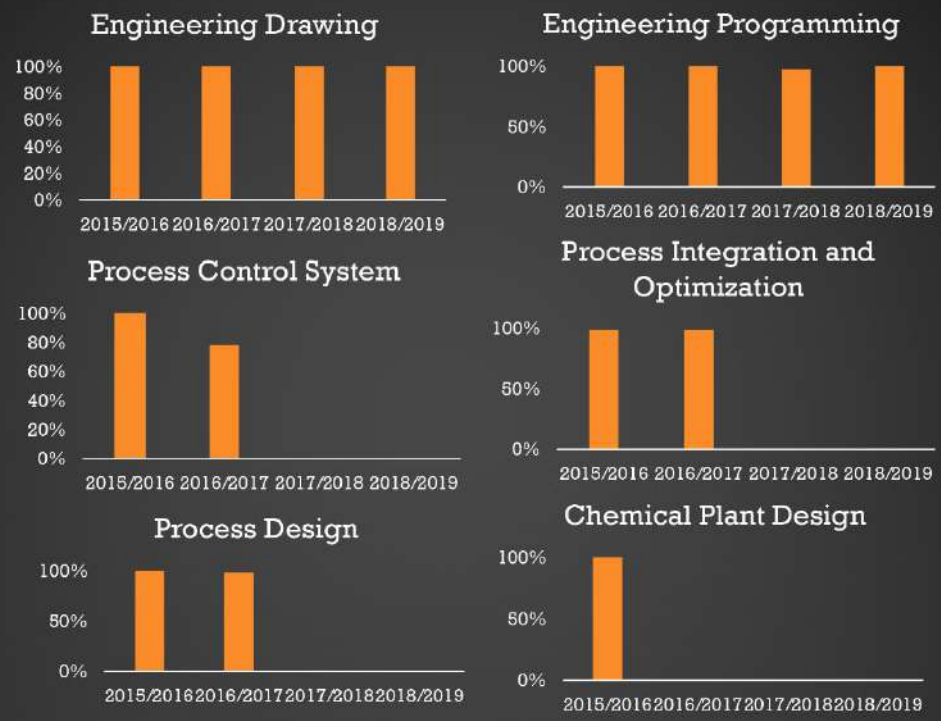
The concerns raised by students in the survey and FGD necessitated the point in implementing the curriculum for social work that is professional in content and practical in outlook. Several strategic approaches should be employed to assiduously address the practical concerns of students in the long term and also to allow time for enforcement of medium to long term recommendations base on empirical evidence.

Finally, the outcome may be useful for students, teachers, parents, government agents, universities and employers. For effectiveness and efficiency, appropriate assessment models are designed to match with the aims and purposes of the social work programme. This may cater for the diverse needs, interest and abilities of students in line with best practices of the social work profession. It may also promote better understanding of the major and contemporary ethical issues to enhance professional development. And cognizant with the one-size-fits all mantra, the designed assessment in English language with clear outcome to match with high quality and subject specific assessment in the bespoke curriculum may enhance the existing qualifications by providing alternative solutions as well as towards an internationally recognized qualification.

# SOFTWARE TOOLS UTILISATION READINESS AMONG CHEMICAL ENGINEERING STUDENTS

Introduction:
Utilization of software is important for engineering field to fulfill the needs of the market or industry. Software utilisation improves the quality of the process as well as increase the efficiency of managing a process. Knowledge of softwares such as AutoCAD and MatLab would be beneficial to the students in order to be more marketable.

Passing Rates in Courses using Software




## Factors that contribute to Students' Performance

### Teaching method


### Assessment Practices

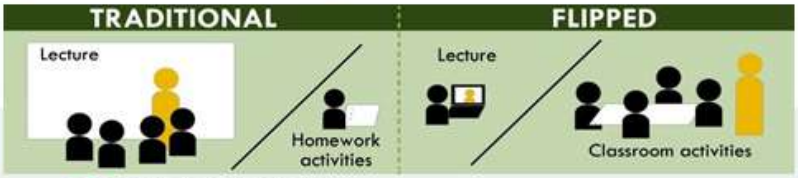

### Learning Delivery

Conclusion:
Based on the statistics, it is clearly shown that students in Chemical Engineering are well prepared with the software tools which are used in the industry.

This work is supported by UNIMAS Scholarship of Teaching and Learning (SoTL) Grant through SoTL(A)/FK/2019(2)/016.

# Transformative Learning & Teaching Delivery Through Flipped Learning

By Mohd Ridhuan bin Mohd Sharip




**Higher Education's Mandate 2018**
Teaching and Learning without Lecture

**UNIMAS Vice Chancellor Mandate 2018**
Enhancing Student Experience

## RATIONALE

Higher education has come to shift towards more **flexible, effective, active** and **student-centered teaching strategies** that soften the limitation of conventional teaching delivery. Flipped classroom approach is one of the student-centered learning approaches to create effective teaching and learning. This initiative leads students to employ higher-order thinking skills (HOTs) in their learning activities and as a motivation for them to fulfil their own learning goals.

## APPROACH

**What? When?** Students are required to watch online video, recorded audio, read textbooks and utilize online resources on the internet before coming to class.

**How** to encourage students? Assess student's knowledge on the topics involve Pre-test

Sharing/ Clarification session **Where?** Class session will be utilized for discussion and sharing session by Students and the lecturer

**How** to access students understanding? Assess student's knowledge after activities session -Post-test

Lecturer will Conclude the main outcome of the topics and students giving their reflection once the topic is completed.


## MOVING FORWARD

Readiness of the **STUDENT** ?

Readiness of the **LECTURER** ?

The effective flipped learning **METHOD** or **IMPLEMENTATION** ?

**ASSESSMENT** ?
Cognitive or Affective

Curriculum that emphasizes on the opportunities for the students to develop self-directed learning behaviours and promotes lifelong learning

## IMPACT

Increase flexibility students learning

Proper supervision by lecturer

Active engage in class

Promote self-directed Learning

Promote HOTs & lifelong learning

## ACKNOWLEDGMENT

Special thankts to Universiti Malaysia Sarawak (UNIMAS) for the financial support under Grant No. Sotl (A)/FK/2019(2)/018.

**Co-researcher: Shafrida Sahrani, Kudnie Sahari, Kho Lee Chin, Dyg Norkhairunnisa Abang Zaidel.**

## Snapshots from the

# 2nd SoTL Symposium 2019

**6-7 November 2019**


# 2nd SoTL Symposium