



COMMONWEALTH *of* LEARNING



MINISTRY OF HIGHER EDUCATION

Report of the Benchmarking of Technology-Enabled Learning at Universiti Teknologi Malaysia



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The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources, and technologies.

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Introduction and Background

Benchmarking is an important tool to compare and make deliberate progress in any field of human endeavour. For integration of technology for teaching and learning, this is relatively a new field. The Commonwealth of Learning (COL) promotes the use of technology-enabled learning (TEL) for improving access to and quality of education and training in the Commonwealth. The approach has been to support policy development, improve institutional capacities to develop blended courses, and strengthen technological infrastructure to leverage the potentials of TEL. The process follows three-phases systematically – (i) Preparation, (ii) Development and (iii) Maturation. Benchmarking is part of phase three, which assumes that the educational institution has taken steps to implement TEL in a systematic manner and is ready to take the next leap to continue the cycle of development. As such, the process of TEL benchmarking focuses on self-study, where relevant stakeholders from the institution participate thereby having active involvement, and the self-study report is validated by external experts and provide guidance and advice, where needed. Therefore, it is as much an internal exercise as an external validation activity.

The Ministry of Higher Education (MoHE), Government of Malaysia recognises the importance of technology-enabled learning in its *Malaysia Education Blueprint 2015-2025 (Higher Education)*, which focuses on global online learning. There is also a national eLearning policy (DePAN 2.0) and a detailed eLearning guidelines for Malaysia Higher Education Institutions (HEIs). Most HEIs follow these policy and guidelines to provide increasing access to quality higher education in Malaysia. Malaysia, as a country has also taken steps in focusing on developing massive open online courses and promote future proof talents based on the needs of the 4th industrial revolution.

In 2021, the MOHE requested COL to support assessing the status of technology-enabled learning in select public universities of Malaysia by adopting COL’s TEL Benchmarking Toolkit. Universiti Teknologi Malaysia (UTM) is one of the six universities identified by the MOHE. The other universities are:

- Universiti Malaya
- Universiti Kebangsaan Malaysia
- Universiti Putra Malaysia
- Universiti Pendidikan Sultan Idris
- Universiti Teknologi PETRONAS.

Universiti Teknologi Malaysia (UTM) is a public university in Malaysia with a vision to be “A Premier University Providing World-Class Education and Research.” Its mission is stated as “To Develop Holistic Talents and Prosper Lives Through Knowledge and Innovative Technologies”. UTM has about 26,000 undergraduate and postgraduate students enrolled with 1628 academic staff.

This report presents the findings of the TEL benchmarking carried out at the UTM during November 2021 - March 2022. It provides an overview of the methodology, the validated self-study report and an action plan developed by the UTM team.

Process and Methods

Once UTM agreed to use COL's *TEL Benchmarking Toolkit*¹, COL engaged a Consultant to support UTM and validate the self-study report. A brief description of the process followed is given below. It may be noted that in contrast to the advice in the Toolkit to use two experts for the validation process, this report used only one expert engaged by COL. This was due to the travel restrictions during the period and there were no other peer institutions ready to support this process.

UTM nominated 10 staff members to work on the ten domains of the *Toolkit* with representation for both men and women (Annex-A).

The activities during the Benchmarking exercise had five distinct stages:

- A. **Setting-up processes and documentation:** The Consultant discussed and agreed with the staff of Centre for E-Learning regarding the protocols of sharing and copying mails. An online storage and collaboration space was created to share the data and reports coming from the 10 domain teams. The Consultant also introduced the benchmarking process to the members of the Benchmarking team at UTM, and MoHE representatives through video-conferencing facilitated by COL.
- B. **Self-review:** This was carried out by the team members and their reports with evidence shared via the online storage and collaboration space.
- C. **Validation of self-review:** This was carried out by the Consultant. In the process, several queries were made to provide additional information and the Consultant moderated the scores, where the evidence provided were not sufficiently justifying the scores or aligned with the rationale.
- D. **Action Plan Development:** A draft three-year action plan was prepared by the teams, and the Consultant interviewed five nominated key stakeholders (Annex-B) to discuss the Action Plan. Feedback was consolidated and provided to the University representative and back-up person by the Consultant. Annex-C presents key strategic actions that are needed to make UTM a strong institution implementing TEL.
- E. **Closing and Reporting:** The Consultant also presented the findings in a video-conferencing session with the senior management, key team members of the TEL Benchmarking at UTM, and MoHE. The present narrative report is also part of this stage, where the report has been reviewed by the university concerned before submitted to the MoHE.

Validated Self-Study Report

COL's TEL Benchmarking Toolkit has ten domains to ensure that a base level of quality practices is present. Each of the benchmarking domains contains four to six performance indicators (PIs). Inherent within the PIs is the understanding that an institution may score well in some domains but score low in other domains. This information is then used as a stimulus to improve where needed promoting a cycle of continuous improvements.

¹ <http://oasis.col.org/handle/11599/3217>

The benchmarking domains are:

1. Policy
2. Strategic Plan
3. IT Support
4. Technology Applications
5. Content Development
6. Documentation
7. Organisational Culture
8. Leadership
9. Human Resource Training
10. Technology-Enabled Learning Champions



Figure 1: Ten dimensions of TEL Benchmarking at UTM

Policy

Score: 4

Description: The existence of a TEL policy provides direction for the use of technology in learning and teaching. It can be known by other names, such as an eLearning Policy, but its focus is to integrate technology in teaching and learning.

The *Teaching and Learning Policy* for both undergraduate and postgraduate level at UTM has a few dedicated chapters or codes of practice on Technology Enhanced Learning - KAPP04 (Teaching and Learning Resources), KAPP05 (Infrastructure, Tools, and Environment for Teaching and Learning), KAPP08 (e-Learning) and KAPP09 (e-Portfolio Development). UTM also has a specific policy on e-Learning, policy and guidelines on MOOCs, and guidelines such as the Guidelines on Online Learning, and Guidelines on Online Final Exam.

The mission of UTM is “To develop holistic talents and prosper lives through knowledge and innovative technologies” while one of UTM’s core values is to promote a data driven culture with a high level of trust in technology (S7). These two statements show that technology has been recognised as one of the essential factors in increasing the quality of learning and the development of students' talents.

All new academic staff are introduced to the relevant policies, as well as their respective roles and responsibilities, during the mandatory training (Baseline Competencies for Differentiated Career Path - BC4DCP) that they must complete prior to being confirmed in service. All other staff members are to be informed on the relevant policies, as well as their respective roles and responsibilities through a series of workshops and courses related to teaching with technology organized by UTMLead (in 2022 known as UTM CDex).

Several university policies, guidelines, and the university's mission and core values statement addressing the use of technology in teaching and learning, demonstrate UTM leaders' commitment to use technology to achieve strategic academic goals. It also clarifies to all stakeholders from an institutional perspective how technology will be used to improve teaching and learning. The transformation of the Teaching and Learning Unit to become the Centre for Advancement in Digital and Flexible Learning (UTM CDex) also shows the commitment of institutional leaders to the role of technology to achieve strategic academic goals.

Strategic Plan

Score: 4

***Description:** The strategic plan ensures the commitment to TEL is implemented in a time-bound manner.*

In UTM Global Plan 2012-2020, there are 7 Key Focus Area (KFA), and the first KFA is on Excellence in Teaching and Learning. The use of technology in enhanced learning, 4IR, 21st century curriculum, new academia learning innovation, empowering knowledge and technology assets, etc. are among initiatives and strategic objectives to ensure that the objectives can be met. In enVision UTM 2025 (UTM Strategic Plan 2021-2025), there are 5 interrelated Strategic Thrusts, and Strategic Thrust 1 focus on World-class Holistic Talents to extend the Frontier of Education and Research. The Implementation of TEL is highlighted under this Strategic Thrust 1.

The Strategic Thrusts of enVision UTM 2025 are actively promoted by Strategic Management Unit, under the Office of Vice-Chancellor. The strategic priorities and key annual indicators (KAIs) related to TEL is located under the office of Deputy Vice-Chancellor (Academic & International) and UTM CDex. UTM CDex is responsible for promoting, implementing, managing and monitoring the KAIs.

The implementation of TEL is highlighted under Strategic Thrust 1, which includes two Strategic Priorities and three KAI with measurable outcomes. Besides this, the Strategic Plan and Action Plan 2022 - 2025 from the Department of the Deputy Vice Chancellor (Academic & International), also has listed 5 strategic objectives and their respective programmes and action plans to measure the two strategic priorities.

Even though in general, there is an issue with a sufficient operational budget, UTM is always

ready to provide appropriate allocation as needed for TEL. This can be seen in various ways, including the upgrade of smart, flexible learning spaces and student-centred learning, the increase in the speed of Internet, the addition of Wi-Fi access points across campus, and the financial assistance for the bring your own device programme.

IT Support

Score: 4.67

Description: The IT support department or a similar department is responsible for a centralised or decentralised approach to providing infrastructure support in UTM.

All procurement of software and hardware regarding teaching goes through the IT Centre known as UTM Digital. All maintenance activities are also done in this Centre.

All activities regarding training or purchasing go through several committees in IT Centre as well as UTM Digital – the IT support department.

The Head of UTM Digital reports to University Management. This is illustrated in the University Organisational Structure where the Head of UTM Digital is part of the University Executive Committee team and called the “Director of the Department of Digital Services”.

All activities regarding the infrastructure of the Internet, hardware such as servers and software needed for teaching and learning are procured by UTM Digital.

The university has a special committee called University Policy & Entity Committee to oversee all structure, policy and procedure changes in the organisation.

The head of UTM Digital is well-qualified on the domain of IT applications.

Technology Applications

Score: 4

Description: Appropriate technologies are deployed for teaching, learning and assessment as per standard academic practices.

In UTM, the hardware infrastructure for teaching and learning is appropriate. Every UTM class has at least one multimedia computer with a fixed projector for instructional purposes. Each school/faculty, as well as the Library and UTM Digital, have computer labs available for class and self-learning. UTM is Malaysia’ first public university to start a flexible and hybrid learning environment with IoT integration.

UTM has adequate software and applications to facilitate teaching, learning, and assessment. UTM's Learning Management System is Moodle 3.11, which is connected with the university's academic management system. If students are working remotely, they can use the Virtual Private Network to access UTM software and applications. UTM also offers a Data Centre service with over 350 physical servers.

UTM provides 100 percent access coverage throughout the university, including the students’ residential areas, with speeds ranging from 1 to 5 megabits per second. During the COVID-19 lock-down, UTM also offered free Internet connection to students with an annual income of less

than RM40,000, allowing them to use the UTM network and learning infrastructure.

UTM follows the Ministry of Higher Education's rules and processes for protecting private and organisational data, as well as its own policies and procedures to ensure that good services are continuously provided.

Content Development

Score: 3.75

Description: Availability of both infrastructure and human resource support for digital content development is crucial for effective TEL implementation.

UTM has video recording studio and multimedia staff in the CDex that has the credibility to produce eCourses, audio and video materials as well animations. All of the MOOCs, Micro-Credential courses were produced by the multimedia staff. The Unit also produces high quality digital learning materials based on courses offered in UTM whether it has to be produced in full or they need to re-build the materials.

UTM currently has no fixed instructional designer, but they hired a contract instructional designer. However, the CDex also provides periodic training for the lecturers to design, develop and organise their learning content. During the Pandemic, a special task force was formed to train and assist the academic staff. The training included tutorials on using online learning software, asynchronous teaching, synchronous teaching, task-based online learning and sharing of best practices.

The OpenCourseWare@UTM provides free access to UTM course materials for almost all undergraduate and postgraduate subjects taught at UTM. However, there is no policy regarding usage of open educational resources (OER).

Documentation

Score: 4

Description: There is adequate documentation in the form of guidelines, handouts, and manuals available (online/offline) for use by the stakeholders.

Help mechanisms are available to support teachers in using technology effectively. UTM provide tutorials on how to use screencast software, how to teach asynchronously and synchronously using specific software. Sharing best practices in online learning are also provided periodically to assist teachers in using TEL in their class. In addition, UTM provides tutorials on how to use their learning management system (LMS). UTM's Flexible learning space (smart classroom) is one of the initiatives of the institution to support lecturers to teach blended/hybrid classes. The space includes a smart whiteboard, video conferencing system, and smart collaboration panels.

Guidelines to sit for the online final exam and online learning tips for students are provided. UTM provides online learning services for students to access learning software. The access includes on-campus students and software for off-campus students.

UTM uses a portal to access all the sharing sessions related to technology enhanced learning called *olc.utm.my* It contains the schedule of the training and the recorded sharing sessions.

The workflow processes and responsibilities to implement TEL are publicly shared and available from websites. The helpdesk role has been formalised and a specific person should be recruited soon.

Organisation Culture

Score: 4.5

Description: The organisational culture supports and fosters innovation, teamwork, learning and sharing to strengthen TEL.

Faculty and staff members are willing to learn about new teaching and learning technology as seen from the number of participants (staff members) who are willing to participate in the online learning training provided by the institution. The institution also receives requests from staff to provide training regarding specific teaching and learning technologies to assist them in conducting online classes.

Faculty and general staff members support each other in using technology in teaching and learning whenever there is an online training/workshop/recording on teaching and learning, general staff will help in terms of producing media content, online broadcasting, attendance, distributing evaluation form, managing data and assist with participants inquiries.

UTM is moving towards knowledge creation and sharing across the organisation. Frequent sharing sessions occur throughout the year based on systematic planning and scheduling. Training on technology in teaching and learning is based on a high demand and requests from the academic staff.

UTM has established an annual knowledge sharing event which is known as New Academia Learning Innovation (NALI). It is a framework to promote innovative teaching and learning practices in education. It includes keynotes and plenaries from experts in teaching and learning, a symposium, exhibition and competition. Participants from all institutions are welcome to submit and showcase their TEL innovations and are evaluated by expert judges. In addition, UTM also encourages staff to produce MOOC, Micro-Credential and online learning courses.

Leadership

Score: 4.5

Description: Leaders in the organisation are enthusiastic about TEL and support an evidence-based approach to decision making in relation to technology adoption.

All decisions to implement TEL are presented to the e-Learning committee, Executive Committee of Deputy Vice Chancellor Academic and Internationalization and finally to the Senate meeting. Hence leaders at all levels are aware about TEL implementation.

All activities related to teaching and learning are reported by the Manager of Creative Multimedia and Learning Technologies and IT Manager to the UTM CDex management meeting then to the Deputy Vice Chancellor Academic & Internationalisation. The reporting happens quarterly.

The Senate Meeting consists of University Senior Management, and they approve policies and guidelines on TEL such as the Online Learning Guidelines during the COVID-19 pandemic and

Online Final Examination Guidelines during the COVID 19 pandemic.

Senior management has also established mechanisms to annually recognise staff who develop e-content in their teaching and learning through additional bonus marks based on the quality of their e-content.

Human Resources Training

Score: 4.5

Description: Human resources are treated as key in delivering quality teaching and learning using technology. Staff training to strengthen the adoption of TEL is a regular feature in UTM's professional development programmes.

Academic staff in UTM are trained to use technology in their teaching and learning process. The training is coordinated by the Centre for Academic Leadership (UTMLead) until the year 2021. The speakers/ instructors/ facilitators are academic staff who are experts in the technology that they share/teach. Some of them comes from School of Education.

UTMLead has the Creative Multimedia and Learning Technology Unit to help support TEL in UTM. Currently their focus is the development of MOOC and Micro-Credential courses.

At UTM, the teachers or academic staff are themselves the instructional designer of their own course. Only for development of MOOC and Micro-Credential, there is an instructional designer to support the academic staff.

TEL Champions

Score: 4.5

Description: The existence of a group of teachers to champion TEL initiatives helps create a supportive environment for the adoption and scaling up of different technologies.

There are early adopters of TEL from the School of Education and from the School of Computing. There are also TEL champions from the Science and Mathematics Education and Creative Multimedia Department, School of Education UTM. In addition, the annual conference called New Academia Learning Innovation (NALI) provides opportunities to champions to share and showcase their innovations.

The Online Learning Special Task Force and the Future Ready Educators (FREE) Groups at School/ Faculty level promote ICT integration in teaching and learning.

Key Observations from the Report

An outstanding area at UTM to celebrate is IT support. Other areas are very similarly scored, while the key growth area at UTM is content development.

The overall score of 4.24 on a scale of 5 shows UTM is very well placed to increase the quality of TEL. The balanced radar chart indicates that most areas at UTM are aligned for optimising TEL. The TEL benchmarking team at UTM still has identified several recommendations in the action plan to make further progress with TEL implementation.

There is also strong buy-in from the senior management to implement the action plan developed. Annex-C presents the Action Plan (Annex-C), which highlights the proposed items where time-bound steps will be taken of by UTM. However, it is important to highlight that UTM at its current strength has been using TEL effectively and may require clear action in some areas, such as:

- Develop guidelines to prepare digital content.
- Strengthen the content development process by using appropriate tool and software.
- Adopt an open licensing policy to promote the use and integration of OER in teaching and learning.

Annex-A: The UTM Benchmarking Team

| | |
|--|---|
| Assoc. Prof. Dr Nurbiha A Shukor | Deputy Director: UTM Academic Leadership (in 2022 known as UTM Center for Advancement in Digital & Flexible Learning, CDex) |
| Assoc. Prof. Dr. Sharifah Hafizah Syed Ariffin | Senior Lecturer, School of Electrical Engineering |
| Dr Azizul Azri Mustaffa | Creative Multimedia & Learning Technologies, UTM Center for Advancement in Digital & Flexible Learning |
| Assoc. Prof. Dr Jamalludin Harun | Senior Lecturer, School of Education |
| Dr Norah Md Noor | Deputy Director, UTM School of Graduate Studies |
| Prof. Nor Haniza Sarmin | Deputy Director, UTM International |
| Assoc. Prof. Dr Naziha Azli | Senior Lecturer, School of Electrical Engineering |
| Assoc. Prof. Dr Mohd Nihra Haruzuan Mohd Said | IT Manager, UTM Center for Advancement in Digital & Flexible Learning |
| Ms. Nurliyana Md Nor | Instructional Designer, UTM Center for Advancement in Digital & Flexible Learning |
| Dr Noraini Ibrahim | Senior Lecturer, School of Computing |

Annex-B: Interviews conducted by the Consultant

1. Prof Hishamuddin Ali, Deputy Vice Chancellor Academic & International UTM -.
2. Assoc Prof Hayati Abdullah, UTM Center for Advancement in Digital and Flexible Learning, UTM CDex (formerly known as UTMLead).
3. Prof Mohd Shafry, Director Institute of Life Ready Graduate.

Annex-C: Action Plan

(These are some of the key actions identified by the UTM staff).

| | From When (month and year) | By when (month and year) | By who | With what resources (technical and monetary) | Indicators of success (quantify where possible) |
|---|-----------------------------------|---------------------------------|---|---|--|
| 1. Policy | | | | | |
| a. Roadshow at Schools and Faculties to explain Hybrid Learning Guidelines | March 2022 | Dec 2025 | Deputy Director & Manager of Creative Multimedia & Learning Technologies Center of Advancement in Digital and Flexible Learning | None | 100% of academic staffs participate in the roadshows |
| b. Roadshow for Students to explain Hybrid Learning Guidelines | March 2022 | Dec 2025 | Deputy Director & Manager of Creative Multimedia & Learning Technologies Center of Advancement in Digital and Flexible Learning | None | 30% of students participate in the roadshows |
| 2. Strategic Plan | | | | | |
| c. Hybrid learning implementation in teaching and learning university wide | March 2022 | Dec 2025 | Deputy Director, Center of Advancement in Digital and Flexible Learning | University Funding | 30% of courses implement hybrid learning |
| d. Development of learning spaces for hybrid learning | March 2022 | Dec 2025 | Deputy Director, Center of Advancement in Digital and Flexible Learning & Department of Asset | University Funding | 12 learning spaces for hybrid learning |
| 3. IT Support | | | | | |
| e. Smart partnership between Teaching and Learning Center with ICT unit to support hybrid learning implementation | March 2022 | Dec 2022 | IT Manager Center of Advancement in Digital and Flexible Learning & UTM Digital | None | 3 partnerships between UTM Digital and UTM CDex for hybrid learning implementation |
| 4. Technology Applications | | | | | |
| f. Identification of technologies for hybrid learning implementation that can support virtual lab and experimentation | March 2022 | Dec 2025 | Manager of Creative Multimedia & Learning Technologies, Center of Advancement in Digital and Flexible Learning & UTM Digital | University Funding & Industry | 1 Virtual Lab development |
| 5. Content Development | | | | | |
| g. Quick tool for digital content development | March 2022 | Dec 2025 | Manager of Creative Multimedia & Learning Technologies, Center of Advancement in | University Funding | 50 License Subscriptions to Authoring Software |

| | From When (month and year) | By when (month and year) | By who | With what resources (technical and monetary) | Indicators of success (quantify where possible) |
|--|-----------------------------------|---------------------------------|--|---|---|
| | | | Digital and Flexible Learning & UTM Digital & UTM Digital | | |
| h. Guidelines to develop digital content | March 2022 | Dec 2022 | Manager of Creative Multimedia & Learning Technologies, Center of Advancement in Digital and Flexible Learning & UTM Digital | University Funding | 1 Self-instructional Material Handbook |
| 6. Documentation | | | | | |
| i. Indexing of technology-enhance learning related guidelines in one portal | March 2022 | Dec 2025 | IT Manager, Center of Advancement in Digital and Flexible Learning | None | Establishment of TEL portal that hosted repository of guidelines |
| 7. Organisational Culture | | | | | |
| j. Sharing of best practices on technology enhanced-learning through training and workshops | March 2022 | Dec 2025 | Talent Development Section, Human Resources Department | University Allocation for Training | 100% of academic staffs trained with technology enhanced-learning courses |
| 8. Leadership | | | | | |
| k. Establishment of research funds to support innovation in TEL. | March 2022 | Dec 2025 | Deputy Director, Center of Advancement in Digital and Flexible Learning | University Funding | 1% of University Research Funds for Teaching Research Fund |
| 9. Human Resource Training | | | | | |
| l. Empowering content creation through Instructional Designers expertise | March 2022 | May 2022 | Talent Development Section, Human Resources Department | University Funding | 2 Instructional Designers hired for digital content creation |
| m. Training academic staff on hybrid learning pedagogy | March 2022 | Dec 2025 | Talent Development Section, Human Resources Department | University Funding | 100% of academic staffs trained with hybrid learning pedagogy |
| 10. TEL Champions | | | | | |
| n. Develop more TEL champions based on dedicated training programs | March 2022 | Dec 2025 | Deputy Director, Center of Advancement in Digital and Flexible Learning | University Funding | 30 TEL Champions in UTM Teaching Champion Program, UTM TorCh |
| o. Sharing of best practices on technology enhanced-learning through FREE (Future Ready Educators Program) | March 2022 | Dec 2025 | Manager for Curriculum & Innovation in TnL Unit, Center of Advancement in Digital and Flexible Learning | University Funding | 100% of academic staffs shared practices in FREE groups |



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