MINISTRY OF EDUCATION MALAYSIA

e-Learning Guidelines
for Malaysian HEIs

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2014

Cetakan Pertama/*First Printing*, 2014

Diterbitkan di Malaysia oleh/*Published in Malaysia by*
Jabatan Pendidikan Tinggi
Aras 9, No.2, Menara 2, Jalan P5/6, Presint 5,
62200 W.P. Putrajaya.

Dicetak di Malaysia oleh/*Printed in Malaysia by*
Awal Hijrah Enterprise
No. 12, Jalan 3/69, Seksyen 3,
43650 Bandar Baru Bangi,
Selangor Darul Ehsan.

Perpustakaan Negara Malaysia

Data-Pengkatalogan-dalam-Penerbitan/
Cataloguing-in-Publication Data

e-Learning Guidelines for Malaysian HEIs.

ISBN 978-967-5878-98-5

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Foreword from the

Minister of Education

Y.A.B. Tan Sri Dato' Haji Muhyiddin Bin Haji Mohd. Yassin
Minister of Education

Over the past few years, we have seen the rapid growth of e-Learning at the global and national front. The Ministry's National Higher Education Strategic Plan (2011-2015) has successfully spurred the e-Learning agenda in the HEIs. I am glad the interest has moved to the primary and secondary education sphere as well.

We have invested in technology and strategized for the Higher Education Institutions (HEIs) to educate and train their academic staff and students with much consideration on the benefits that e-Learning would bring. As more educators and managers in the HEIs embrace the idea and the philosophy of technology supported ubiquitous learning, we need to place things in the right perspective and provide a good course of action to move forward in unison.

I applaud the initiative to produce the e-Learning guidelines for Malaysian Higher Education Institutions.

As new technologies supersede the traditional ways things are done in the learning environment, we need to ensure the HEIs tread with caution and are steered to maximize the returns on time, financial and human resource investments. The guidelines will undoubtedly provide a good grounding on the pertinent aspects of e–learning provision in a Malaysian context.

My heartiest congratulation to the panel of experts and the Higher Education Department for the publication of the e-Learning guidelines for Malaysian Higher Education .

Y.A.B. Tan Sri Dato' Haji Muhyiddin Bin Haji Mohd. Yassin

Foreword from the

Secretary General II

YBhg. Dato' Seri Ir. Dr. Zaini bin Ujang
Secretary General II
Ministry of Education

Assalamualaikum and Greetings!

Technology perpetuates learning. In the education realm, technology allows learning to go beyond the walls of the traditional classroom and to transcend the regular scheduled learning sessions.

I am extremely pleased with the latest effort by the Malaysian higher education institutions. Many have embarked on a move to leverage recent technologies to achieve the multifaceted cognitive, affective and psychomotor learning outcomes. Most HEIs now deploy blended learning which represents a mix of both face-to-face (onsite) and online delivery of content and activities. Instructors and learning facilitators seek to develop quality e-Learning materials, curate content and design e-Learning activities while learners are fast becoming digital producers.

The development of the e-Learning guidelines for Malaysian HEIs by the Higher Education Department in collaboration with the Malaysian Public Universities e-Learning Council (MEIPTA) is thus apt and timely. I take this opportunity to convey my utmost gratitude to the panel of experts for responding to present needs and completing such a remarkable task. A job well done indeed!

Dato' Seri Ir. Dr. Zaini Ujang

Foreword from the

Director General, Ministry of Education

Prof. Dato' Dr. Asma Ismail
Director General,
Ministry of Education

Assalamualaikum wbt & Salam Sejahtera,

The growth and usage of Internet has transformed the way the education is delivered and conducted. Now, not only there is a plethora of educational resources available as Open Educational Resources (OERs), the advancement of Internet and its applications also allows multiple ways of synchronous or asynchronous collaboration between teachers and students to take place. This expands the capacity of innovation for the teachers to conduct more customised e-Learning and creating more engaging e-Learning environment.

Malaysia has been recognised as the fastest growing country among other developing countries in recognising the potential of Internet in improving the quality of educational delivery. The National e-Learning Policy (*Dasar e-Pembelajaran Negara* - DePAN) was launched by the Ministry of Higher Education in 2011 as a guiding principles for e-Learning deployment among Malaysian higher education institutions (HEIs). The main focus of DePAN is for the Malaysian HEIs to use the ICT as an enabler to enhance the quality teaching and learning. In general, DePAN requires each HEI to i) deploy its own Learning Management System (LMS), ii) develop original e-content, iii) utilise the blended learning approach in course delivery, iv) establish an professional development programme with regards to e-Learning and v) execute effective activities to enculturate of the e-Learning usage within campus community. In order for these objectives to take effect and be achieved, a guideline for good practices in each of the areas identified in DePAN is greatly needed.

I would like to take this opportunity to thank the panel of experts for their effort and time preparing and producing such a comprehensive e-Learning guideline for the benefit of policy makers, administrators and practitioners involved in e-Learning. I am confident that the guideline will serve as a benchmark of good practices for the implantation of e-Learning in Malaysian institution of higher education.

Prof. Dato' Dr. Asma Ismail

Foreword from the

Chairman, CAPs e-Learning

Prof. Dr. Mohamed Amin Embi
Chairman, CAPs e-Learning,
Ministry of Education

Praise be to the Almighty for making it possible for me and the panel of experts to produce the e-Learning Guidelines for Malaysian Higher Education Institutions. I am especially grateful to the Ministry of Education for staunchly supporting the effort to publish a practical and informative set of guidelines that can be duly adopted by Malaysian Higher Education Institutions.

With technology paving the way and breathing new, exciting elements into our otherwise mundane traditional teaching sessions, we believe it is important to assist the educators in enhancing their delivery and to engage the learners. And in our capacity as experienced educators and proponents of e-learning, we take this opportunity to do so by putting our minds and hearts together to formulate the guidelines. The objective is to provide a detailed but by no means, prescriptive or restrictive set of standards and procedures. We believe in the freedom to deliver; yet educators should be guided by good practices and proven measures.

The guidelines are nested in six sections which have been thoroughly thought, reiterated and reviewed. These are:

- Organisational Structure and Governance
- Infostructure and infrastructure
- Online Pedagogy
- Development of e-content
- Training and professional development
- Acculturation

Our experience in the field suggests that these six areas are most pertinent to drive e-learning forward in Malaysian HEIs. Our ultimate aim is to make e-learning an effortless venture for educators and higher education administrators. We hope that in the near future we will reach a state where 'students learning via ubiquitous methods' is not merely a catch phrase.

As the Project Leader, I am indebted to the panel of experts for their time and help rendered. I am sure the working weekends and evening meetings will not go to waste. The e-Learning Guidelines for Malaysian Higher Education Institutions is evidence of shared vision and pure intention. May our good work be blessed.

Prof. Dr. Mohamed Amin Embi

1 Organisational Structure and Governance

1 Organisational Structure and Governance

1.0 Introduction

Managing the deployment of e-Learning among HEIs differ widely between institutions. The emphasis would be to establish a dedicated e-Learning Unit with the sole responsibility of deploying and managing the deployment of the e-Learning as well as putting in place its governance structure. Such unit would provide a suitable organisational structure and governance mechanism to provide quality e-Learning services to the university community. The emphasis must also be to ensure that the deployment, usage and services provided by the HEIs meet the requirement of the National e-Learning Policy (DePAN), Critical Agenda Project (CAP) e-Learning and Phase of the National Higher Education Strategic Plan (PSPTN).

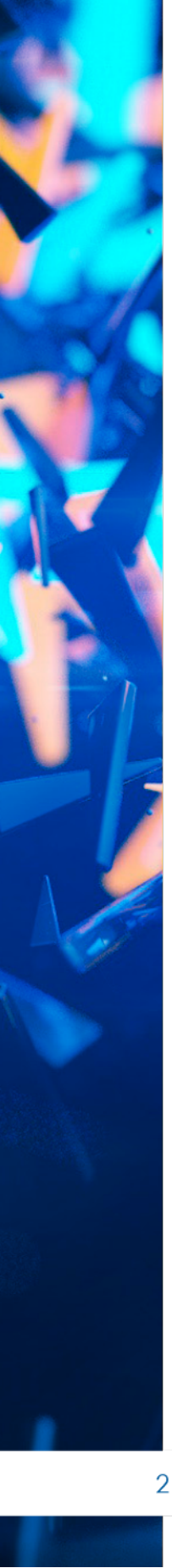
1.1 Organisational Structure

1.1.1 Establishment of the Unit

a) A dedicated e-Learning unit **MUST** be established at the HEI level to support the national agendas of e-Learning.

b) The senior management of the HEIs **MUST** be committed to provide the e-Learning unit with appropriate staff and funding.

c) This unit **COULD** be established as a stand-alone entity or can be part of any existing Teaching and Learning Unit/Centre.



1.1.2 Vision

a) The unit **MUST** have a clear vision and clear outcomes on the integration of e-Learning in the teaching and learning practices.

b) The vision **MUST** be integrated and aligned with the HEI's agendas for teaching and learning excellence.

c) The vision **MUST** incorporate the advancement of global knowledge and 21st century skills of teaching and learning practices.

1.1.3 Functions

a) The unit **SHOULD** be empowered to plan, manage, deploy and maintain the e-Learning activities.

b) The unit **SHOULD** be responsible to actively promote e-Learning activities campus-wide.

c) The unit **SHOULD** inculcate the e-Learning adoption and usage within the HEIs.

d) The unit **SHOULD** develop programmes towards the enculturation of e-Learning.

e) The unit **SHOULD** provide the mechanism for monitoring, evaluation and assessment of e-Learning initiative and outcome.

f) The unit **MUST** be accountable to the senior management of the university and subsequently to the ministry on the outcomes of the e-Learning activities.

1.1.4 Plan

a) The unit **MUST** develop comprehensive e-Learning plans to achieve the stated vision and outcomes that are in line with DePAN and CAP e-Learning.

b) The plan **MUST** be well coordinated with all units/departments/faculties within the organisation to ensure that all the academic staff and students are fully engaged in e-Learning practices on daily basis.

c) The HEI's strategic and operational plans **MUST** recognise and support the use of technologies to facilitate learning and teaching.

d) Specific plans relating to the use of e-Learning **SHOULD** be aligned with the HEIs' strategic and operational plans.

e) Planning for e-Learning **SHOULD** be aligned with the budgeting process and financial allocation disimbursed by the HEIs.

f) The planning of e-leaning **SHOULD** cover all aspects and stakeholder needs and requirements.

1.1.5 Security and Secrecy of Learning Management System (LMS)

a) All users of the LMS **MUST** authenticate with unique user credentials.

b) All users of the LMS **MUST** adhere to the Acceptable Use of Computing and Electronic Resources Policy of the HEIs.

c) All users of the LMS **MUST** not use the system for purposes other than those of University-affiliated activities.

d) The HEIs are not responsible for the accuracy, integrity, and/or legality of the content uploaded to LMS.

e) This policy of the HEIs **SHOULD** define the management of the database of the LMS.

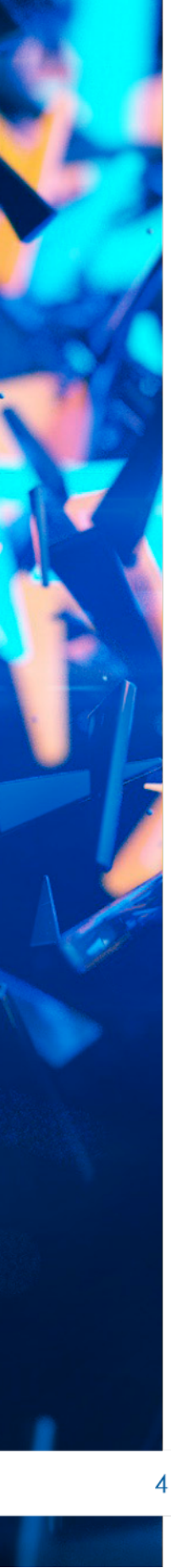
1.1.6 Quality

a) HEIs **SHOULD** ensure that the processes for quality assurance are in place and integrated within the administrative and operational system of e-Learning.

b) Where appropriate, HEIs **SHOULD** consider using resource mechanism in the process of planning and quality improvement.

c) Coordination for the integration of quality mechanism **SHOULD** occur across all key functional areas within the HEIs.

d) HEIs **SHOULD** measure the relevant key performance indicators (KPIs) and report to all key stakeholders.



1.1.7 Evaluation and Reporting

a) HEIs **SHOULD** report the outcomes and the KPIs to senior management of HEIs for appropriate intervention and further improvements.

b) Evaluation and feedback system **SHOULD** be fully integrated within the LMS for continuous improvement purposes.

1.1.8 Leadership

a) The appointed person to lead the e-Learning Unit **SHOULD** be an exemplary leader and preferably an academic practitioner of e-Learning.

b) The leader of the e-Learning Unit **SHOULD** keep abreast of local and global e-Learning trends and advancements.

1.1.9 Committee

a) The HEIs **SHOULD** establish clear management structures to identify the responsibilities and authorities within the management structure.

b) A central e-Learning committee **MUST** be established to oversee the operationalisation and direction of the overall e-Learning agenda of the HEIs.

c) The central e-Learning committee **MUST** provide regular report to the senior management of the university/ICT council of the university regarding the deployment of e-Learning within the HEIs.

d) The members of the central e-Learning committee **SHOULD** consist of representatives of the stakeholders. For example, Head of ICT, Dean of Computer Sciences School, Professor of Education, and Professor of e-Learning.

e) The committee **MUST** be sufficient in number, technically competent and appropriately trained to support the implementation and to ensure good governance and effective deployment of e-Learning.

f) The central committee **MAY** consist of several working committees that report to the central committee (for example, refer to Figure 1)

i) Technical committee

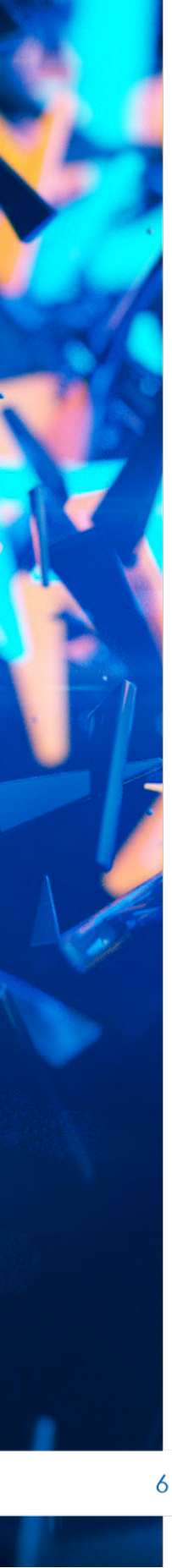
- This committee manages and maintains the e-Learning platform and databases and provides efficient infrastructure for e-Learning deployment.
- The technical committee **MUST** be competent in the technical aspect of e-Learning (LMS, databases, server, etc.).
- The committee **MUST** be appropriately trained and knowledgable with the current trends of e-Learning technologies.
- The committee reports to the central e-Learning committee and is responsible to provide sufficient support to the faculty members.

ii) Training committee

- This committee plans and delivers regular professional development trainings related to e-Learning.
- The committee members **MUST** be competent with the training skills and delivery.
- Trainers **MUST** undergo regular competency 'Training for Trainers' Programmes offered by the Higher Education Leadership Academy (AKEPT) as well as other governmental and private agencies.
- Trainers **SHOULD** be compensated for their effort and time.

iii) Content development committee

- This committee is responsible for overseeing, monitoring and providing recommendations to the senior university management on the progress of the e-Learning content development.



- The committee members **MUST** be highly competent and knowledgeable in content development authoring tools.
- The committee members **MUST** be knowledgeable in the current trends and capabilities of various authoring tools.
- The committee **MUST** be competent in Instructional Design and learning theories.

iv) Faculty/school/department representative committee

- The representative is empowered to execute the resolution of the central e-Learning committee at the faculty/school or department level.
- The representative is responsible for carrying out the e-Learning activities at the faculty/school or department level.
- The representative **SHOULD** function as the faculty/school/department based administrators of the e-Learning platform for the purpose of providing support to the faculty/school/department members and resolving issues on e-Learning.
- The representative is responsible for monitoring and reporting of the e-Learning activities of the faculty/school/department to the Central e-Learning committee.

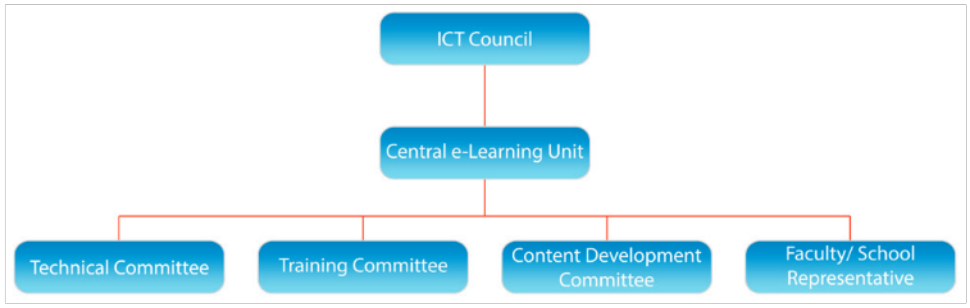


Figure 1: Example of Organisational Structure

1.1.10 Stakeholders

a) The stakeholders of the e-Learning Unit are the ministries, the university, the industries, the lecturers, the students and community.

b) The campus-wide integration and implementation of e-Learning activities **SHOULD** be aligned to the desired outcomes and vision of all the stakeholders involved.

c) The stakeholders **MUST** be selectively involved in relevant decision making pertaining to the e-Learning implementation of the university.

1.1.11 Manpower for the unit

a) The running of the unit **MUST** be supported by sufficient number of supporting staff who are technically competent and appropriately trained to support the implementation and to ensure good management and deployment.

b) The team **SHOULD** comprise of a good mixture of instructional designers, system administrator, planner, administrator, e-Learning experts and research officers.

c) The Instructional Design qualified staff **MUST** be appointed to support the content development process.

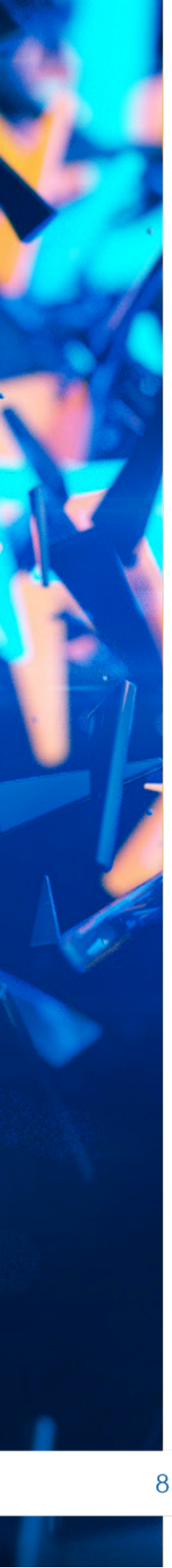
d) Suitable career path and promotional opportunities for the staff **MUST** be considered in their appointment.

1.1.12 Funding for the unit

a) Sufficient and continuous funding **MUST** be allocated by the HEIs to ensure the smooth and sustainable operation of the e-Learning Unit.

b) The unit **MUST** be accountable to the senior management of the university on the outcomes of the e-Learning activities.

c) The purpose of the funding **SHOULD** cover content development, professional development, training, software



procurement, incentives and other e-Learning acculturation activities.

d) HEIs **COULD** consider creating 'Tabung amanah' - a small percentage from student allocated solely for content development purpose to enhance and increase the ability of e-content for teaching and learning.

1.1.13 R&D

a) Sufficient and continuous funding **SHOULD** be allocated to the unit to undertake the R&D activities related to e-Learning practices of the HEI.

b) The unit **SHOULD** be responsible for establishing baseline data on the usage and enculturation of e-Learning of the HEIs and it **SHOULD** be carried out periodically for the purpose of providing the progress report for CAP e-Learning and DePAN KPI, PSPTN phase II.

c) The unit **SHOULD** provide avenues or opportunities for academicians to carry out their research (Action Research) for innovative e-Learning practices.

d) The data collected **MUST** be analysed and benchmarked against the global trend and the outcomes are proactively planned and proposed in order to shape and leap the future of e-Learning practices of the HEIs.

e) The R&D **MUST** initiate understanding of the local culture and needs in promoting e-Learning at the HEI's.

f) The HEIs **SHOULD** consider a small percentage (1%) from the HEIs overall funding for R&D related to T&L.

g) The survey on the effectiveness of e-Learning (student satisfaction) **SHOULD** be done on a regular basis (at least once every academic year).

1.2 Governance

1.2.1 Policy and Practices

Each HEI **MUST** have a clear policy and the policy document **SHOULD** envisage the future trend of e-Learning.

a) Policy and practices development

i) The e-Learning policy and practices at the university level **MUST** be consistent and in support of DePAN, CAP e-Learning and Phase II PSPTN.

ii) The development of the policy and practices **MUST** involve all stakeholders of the university.

iii) The evidence of continuous policy development **SHOULD** be documented to reflect the dynamism and comprehensiveness of the process.

b) Policy and practices approval

i) The approval of the e-Learning policy **MUST** involve the academic bodies of the universities.

c) Policy and practices implementation

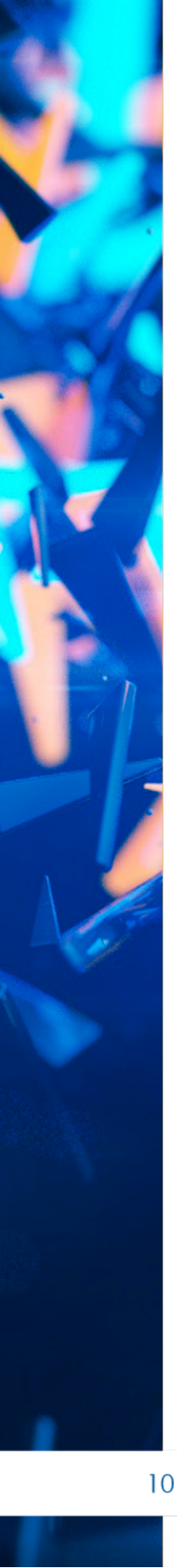
i) The policy **MUST** be communicated to all stakeholders based on the principle of transparency, accountability and authority.

ii) Support for content development **SHOULD** be given whenever necessary.

d) Policy and practices revision

i) The policy **MUST** be regularly reviewed (at least once every 3 years) to conform with the current development of e-Learning practices in the use of ICT in teaching and learning.

ii) The rapid growth of ICT **SHOULD** be considered so that the policy conforms with the current trend of technologies.



1.2.2 Governance structure

HEIs **MUST** clarify its governance structure and the relationships within the structure and their impact on the e-Learning policy and practices.

1.2.3 Functional integration between faculty/department

There **MUST** exist a functional integration between the e-Learning Unit with the Faculty/Department to ensure the smooth running of the e-Learning activities at faculty and departmental levels.

1.2.4 Data collection

a) The additional database system **MUST** be in place for the purpose of capturing data on the e-Learning usage at the HEI level.

b) The system **SHOULD** be comprehensive to capture the usage of e-Learning down to the micro level that includes the activities carried out by individual lecturers.

c) Apart from system-based data collection, instrument-based data collection **SHOULD** also be carried out periodically.

d) Data collected **MUST** conform to DePAN's KPI, PSPTN and CAP's e-Learning requirements.

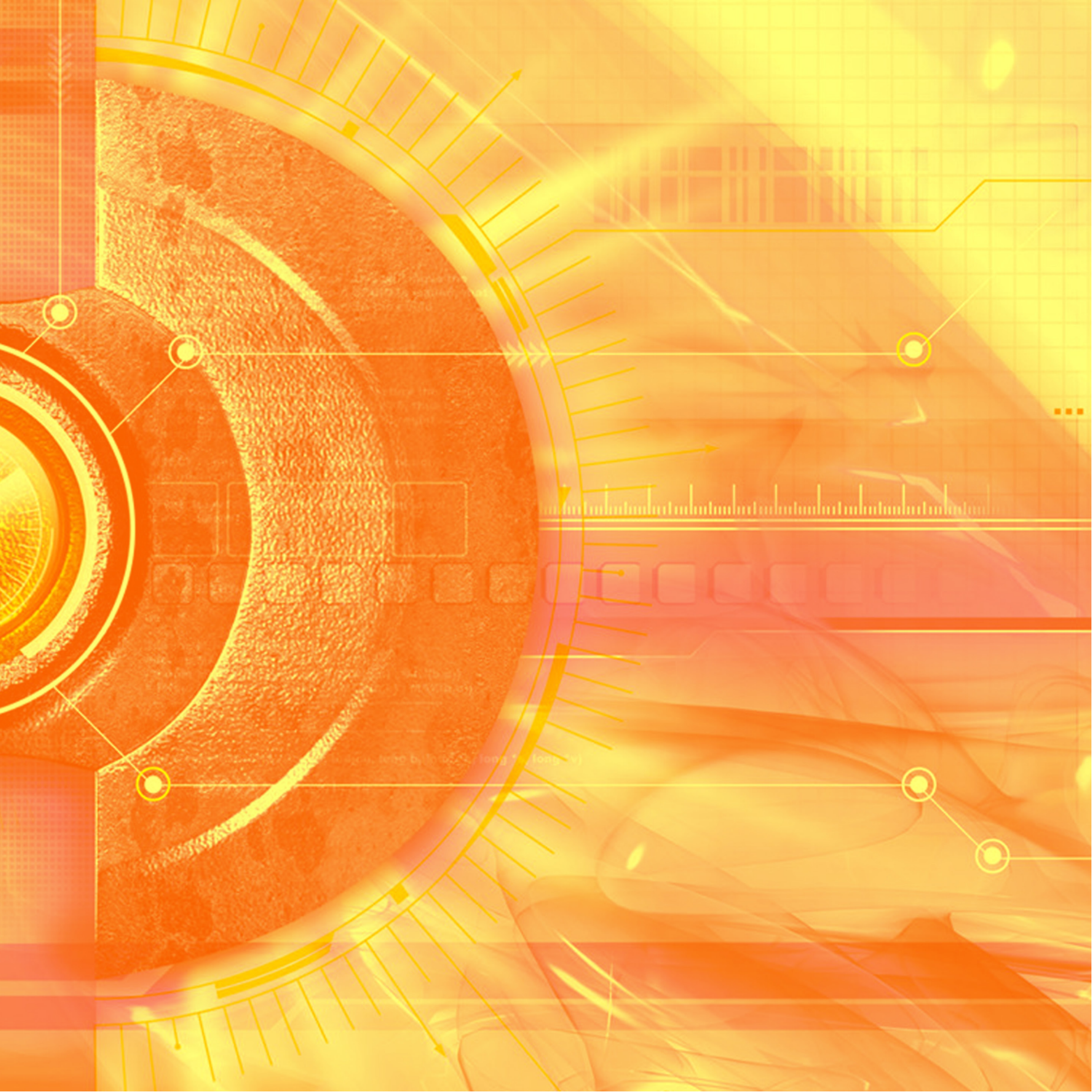
1.2.5 Reporting of statistics

The data must be regularly reported to the Central e-Learning commitee so that the commitee could carry out the intervention programme to further improve the e-Learning deployment.

CAP e-Learning, PSPTN and DePAN Compliance

The planning and implementation of e-Learning **MUST** comply and meet the CAP e-Learning, PSPTN Phase II and DePAN Key Performance Indicators.

2 Infostructure and Infrastructure



2 Infostructure and Infrastructure

2.0 Introduction

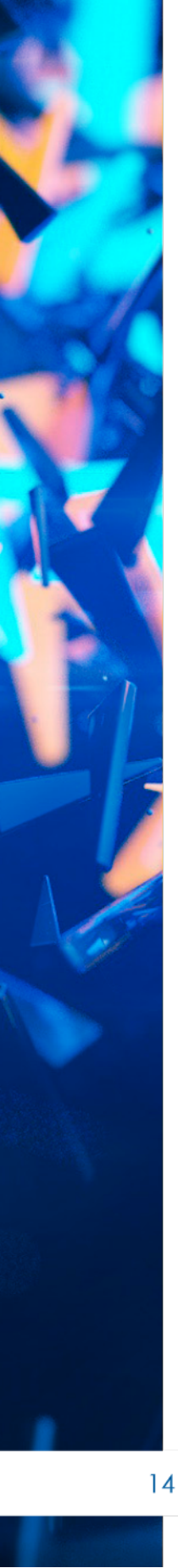
ICT infrastructure and infostructure refers to information and communications technologies such as computers and the Internet, as well as fixed-line telecommunications, mobile phones, other wireless communications devices, networks, broadband and various specialised digital devices. ICT infrastructure and infostructure is a basic need of every institution to deploy the e-Learning services. The proposed ICT infrastructure and infostructure should serve as the basis to the guidelines and procedures for HEIs. The proposed ICT infrastructure and infostructure must be aligned with the requirements of DePAN, CAP e-Learning and Phase II PSPTN.

2.1 ICT Strategic Planning

a. HEIs **MUST** have ICT Strategic Planning which is to be reviewed regularly (at least every three years) to take into account the advancement of technology (including mobile) and the needs of the stakeholders.

b. The implementation of e-Learning with regard to infrastructure and infostructure **MUST** be included in the ICT Strategic Planning of the HEI's.

c. The ICT Strategic Planning for the e-Learning **MUST** be aligned with the requirement of DePAN, CAP e-Learning and Phase II PSPTN.



2.2 ICT Infrastructure

2.2.1 Budgeting

a) Sufficient funding **MUST** be made available for the procurement of any equipment and software to support e-Learning.

b) HEIs **SHOULD** make sure that evaluation processes are in place to justify the required annual budget on the ICT infrastructure and infostructure with regard to e-Learning requirement.

2.2.2 Maintainance

a) HEIs **MUST** make sure responsibilities and processes for maintenance and administration of the ICT infrastructure and infostructure in supporting the e-Learning services are effective and efficient.

b) Comprehensive project management processes **SHOULD** be in place with clearly defined responsibility and processes applied systematically with priority given to the ICT infrastructure and infostructure of the e-Learning facilities.

c) HEIs **MUST** allocate resources comprehensively for maintenance and upgrading of existing equipment.

2.2.3 Facilities

a) HEIs **SHOULD** provide facilities for video conferencing and web meeting for teaching and learning purposes.

b) HEIs **SHOULD** provide auto lecture capture system for selected lecture halls.

c) e-Learning facilities for students **MAY** involve the use of some, or all, of the following technologies:

i) Desktop and laptop computers
ii) Software, including assistive software
iii) Interactive whiteboards
iv) A high definition webcam
v) Headphone with built-in microphone

vi) Electronic communication tools, including email, discussion boards, chat facilities and video conferencing
vii) Virtual Learning Environments (VLEs)
viii) Learning activity management systems

d) HEIs **SHOULD** set up an e-content development studio for lecturers equipped with the necessary equipment and software such as (but not limited to):
   i) Workstation and laptop computers to support full multimedia development and video editing services
   ii) A high definition webcam, digital video cameras complete with the green room facilities
   iii) Headphone with built-in microphone
   iv) Software to develop e-content
   v) Interactive whiteboards
   vi) Digital display
   vii) Sufficient digital storage to support multimedia production and back-up
   viii) Mobile and wireless tools, including tablet and smartphones

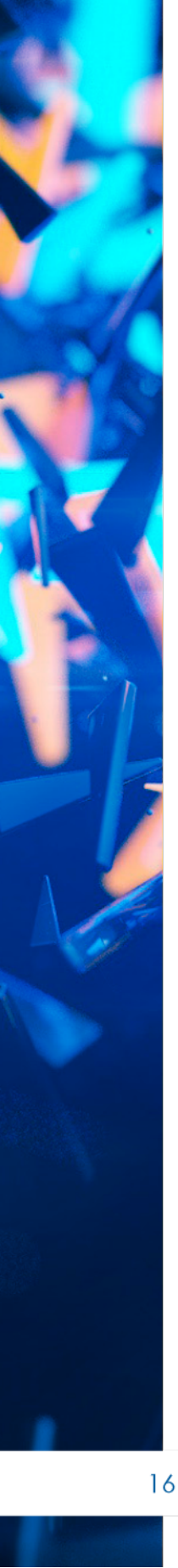
e) Lecturers and e-Learning support staff **MUST** be equipped with computers or notebooks or any other equipment (including mobile) needed to deploy e-Learning.

f) HEIs **MUST** provide sufficient ICT infrastructures for the students and staff with special needs.

g) HEIs **SHOULD** provide internet bandwidth connectivity with a MINIMUM of 512KB per student.

h) Internet connectivity **SHOULD** cover all the premises allocated for the learning and teaching activities and the WiFi coverage **SHOULD** cover a minimum of 80% of the campus buildings including the hostels.

i) WiFi facility in lecture hall/ lab/ tutorial room **SHOULD** cater for the needs of BYOD for teaching and learning.



j) HEIs **SHOULD** provide facilities such as WiFi, power socket etc. in the lecture hall/ lab/ tutorial room to cater for the needs of BYOD for teaching and learning.

k) For the implementation of blended/ flipped learning, access to social media (eg. facebook) and video streaming (youtube) related to teaching and learning **SHOULD** not be restricted.

2.3 ICT Infostructure

2.3.1 LMS

a) The LMS **SHOULD** be grounded in the context of the institution's learning and teaching strategy.

b) The LMS **MUST** be part of the HEI's primary Integrated Management System.

c) HEIs **SHOULD** allow the use of other cloud based e-Learning platform (edmodo, schoology, CN etc.) to be used; however, provision of reporting of data of usage must be made available.

d) The LMS **SHOULD** at least support Web 2.0 based teaching and learning methodologies and good practice.

e) Guidelines (including compliance with legal requirements, accessibility and learning designs) of the LMS **SHOULD** be readily available to all teaching and learning staff and in use.

f) Monitoring/tracking tools for the usage of the LMS **MUST** be made available and in use.

g) The LMS monitoring/tracking tools **SHOULD** be able to track the individual activities.

h) Deployment of the LMS **SHOULD** be systematically evaluated at the unit of study level including students' learning outcomes.

i) HEIs **MUST** provide online library services including online journals, online database, e-books, audio and video materials to accessed from and integrated to the LMS.

j) The LMS services **SHOULD** be highly accessible, scalable, flexible and sustainable. HEIs **MUST** provide a 24/7 LMS uptime with proper back-up all the time.

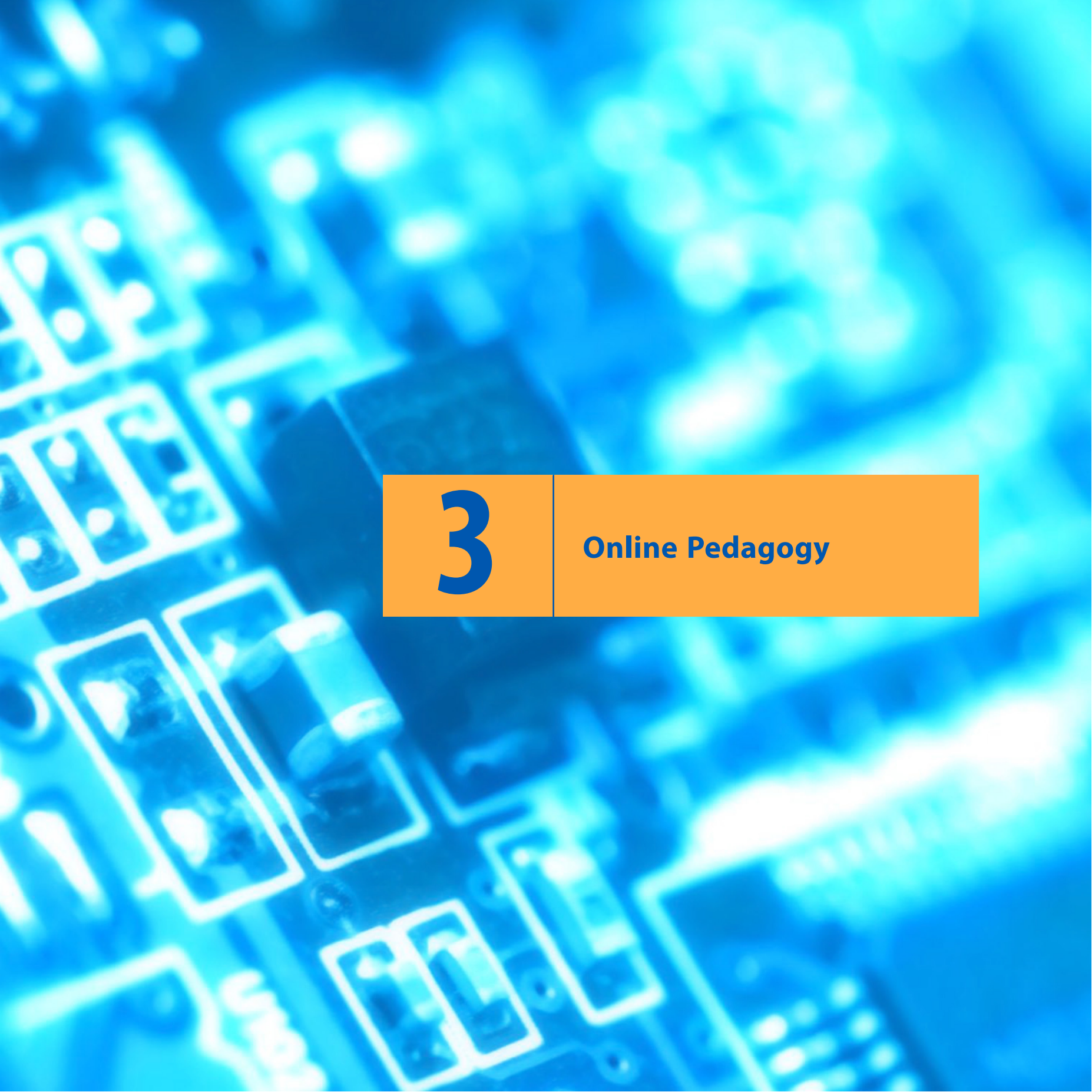
k) The e-Learning content in the LMS **MUST** be available in the PRIMARY ARCHIVE for at least THREE SEMESTERS and THREE YEARS in the secondary archive.

l) Teaching and learning public domain resources like OER or MOOC **SHOULD** be made available and in use as part of the LMS.

m) HEIs **MUST** develop rubrics to measure the LMS effectiveness.

n) The LMS **SHOULD** support cross-platform to cater for the needs of BYOD.

o) HEIs **MUST** provide facilities for the e-Learning content in the LMS such as server and data storage.



3 Online Pedagogy

3 Online Pedagogy

3.0 Introduction

Online pedagogy is essential for the success of any e-Learning implementation. This section provides some guidelines on effective e-Learning pedagogy and delivery as well as the implementation of Blended Learning (including SLT).

3.1 Principles for Effective e-Learning Pedagogy

3.1.1 Curriculum alignment

The e-Learning pedagogy **SHOULD** be matched with and aligned to

a) The appropriate curriculum through clear objectives;

b) The learner's diversity and learning styles;

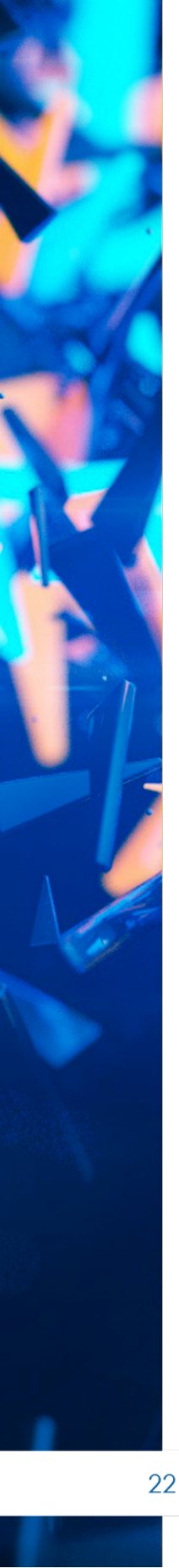
c) The relevance of content covered;

d) The appropriateness of student activities; and,

e) The nature of the assessment.

3.1.2 Contextualised content

Learning materials **SHOULD** be based around meaningful goals and work related tasks which are expressed in practical language. Contextualised content **SHOULD** be directly relevant to the learner and **SHOULD** be practically situated.



3.1.3 Innovative approaches

It **SHOULD** be evident why learning technologies are being used, rather than a non-technological approach which achieves the same end as effectively.

3.1.4 Learner engagement

For the learner to learn, the e-Learning pedagogy **SHOULD** engage the learner. This means that it must gain and hold their attention, and direct attention to the most important parts, while at the same time not compromising instructional quality.

3.1.5 Learner motivation

Learner motivation is very important in e-Learning pedagogy. Motivation **SHOULD** be centred on the learner seeing one concrete benefit or interest in the materials. Motivation also supports the process of directing the learner's attention and helps recall.

3.1.6 Effective learning

The e-Learning pedagogy **SHOULD** use a range of different approaches that will allow the student to choose one that suits his/her learning preferences or that can be personalised to his/ her needs.

3.1.7 Meaningful interaction

Students **SHOULD** be required to interact with one another, with the instruction, with the content, with the entire class, in small groups or teams, one-on-one with a peer, etc. Good instructional interactivity **SHOULD** have the following components:

a) It offers genuine challenge and opportunities for practice to the learner and is based on application of learning rather than rote regurgitation.

b) It is strongly aligned with the work-related context.

c) The activity is easy to perform functionally and strongly associated with the learning task.

d) The feedback **should** be specific to the learner's response and consequences of interaction **SHOULD** be context related and reinforce the underlying learning points.

3.1.8 Strive for presence

The following are three forms of presence that **SHOULD** be strived for in e-Learning environments:

a) Social presence

Social presence can at least be in the following three forms:

i) Affective -The expression of emotion, feelings, and mood.

ii) Interactive -Evidence of reading, attending, understanding, thinking about others' responses.

iii) Cohesive - Responses that build and sustain a sense of belongingness, group commitment, or common goals and objectives.

b) Cognitive presence

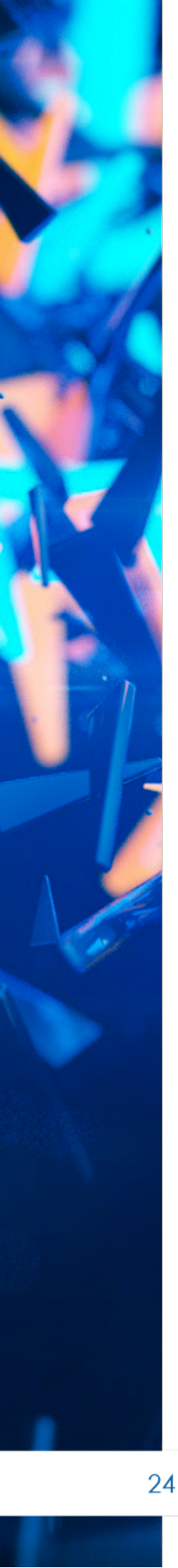
The extent to which the instructor and the students are able to construct and confirm meaning through sustained discussion in a community of inquiry. It can be demonstrated by introducing factual, conceptual, and theoretical knowledge into the discussion.

c) Teaching presence

Teaching presence is the facilitation and direction of cognitive and social process for the realization of personally meaningful and educationally worthwhile learning outcomes.

3.1.9 Coherence, consistency and transparency

The e-Learning pedagogy **MUST** be internally coherent and consistent in the way the objectives, content, student activities and assessment match each other. It **MUST** be open and accessible in its design.



3.1.10 Inclusion

The e-Learning pedagogy **SHOULD** support inclusive practice seen in terms of different types and range of achievement; physical disabilities that can be supported by e-Learning; different social and ethnic groups; and gender. This means that files, such as Word docs, PowerPoint slides, PDFs, etc. **SHOULD** be created with suitable styles and headings and whenever possible, be available in alternative formats such as large print, audio, Braille and if possible, DAISY, sometimes known as digital talking book format.

3.2 Effective Online Course Architecture

3.2.1 The 'access to learning' and 'course introduction' **SHOULD** be made available throughout the course.

3.2.2 Learning **SHOULD** be constructed in modular elements centred on clearly stated learning objectives.

3.2.3 Adaptive learning **SHOULD** consider the following:

a) The learner controls content sequencing,

b) The learner controls content presentation speed,

c) Access to learning support is not constrained, and

d) The learner may repeat sections as required prior to undertaking summative assessments.

3.2.4 Instructional units **SHOULD** be organised such that the learner can bookmark and return to the last previously visited unit.

3.2.5 Learning events **SHOULD** be clearly and closely coupled to the learning objectives and **SHOULD** be sufficient to allow the learner to achieve the learning objective.

3.2.6 Learning materials **SHOULD** be designed around learning sessions of **10-30 minutes** delivery duration (shorter is generally better).

3.2.7 The learner **SHOULD** have the amount of time for an instructional unit indicated (normally before they start the unit).

3.2.8 Learning sessions **SHOULD** be designed to be as self-contained as possible.

3.2.9 The general events of instruction **SHOULD** be contained within a single learning session including at least the following:

a) Clear statement of objective(s),

b) Overview of instructional materials,

c) Recall of prerequisites/context setting,

d) Optional (pre-tests, recall and refresher questions from previous sessions, other forms of reinforcement of prior learning),

e) Delivery of instructional materials (instructional content and instructional interactions/activities),

f) Provision for learning practice or formative assessment,

g) Session summary.

3.2.10 Within the course, there **SHOULD** be congruence between learning objectives, instructional materials and formative as well as summative assessment.

3.2.11 Summative assessment **SHOULD** be sufficiently detailed to ensure the learner has achieved the learning objectives.

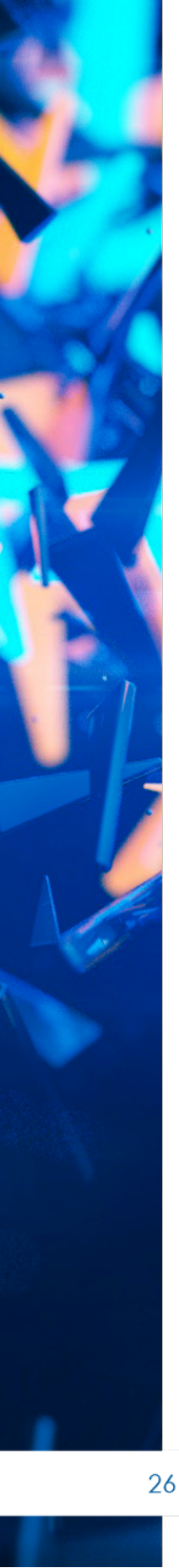
3.3 Effective Online Course Delivery

3.3.1 Course objectives

a) The learning objectives of the course **MUST** be clearly stated and understandable to the student.

b) A complete and clear course syllabus **SHOULD** be available for review.

c) The course **SHOULD** be organized in coherent and sequential manner.



d) Assignments are aligned with stated objectives/learning outcomes.

e) Meaningful assessments **SHOULD** be created and provided as follows:

i) The type and quality of student assessments included are appropriate for the course and tied to course objectives.

ii) Students are provided opportunities for formative assessment and feedback.

iii) Instructor feedback is more than a grade.

iv) Clear grading criteria are defined.

v) Consistent feedback is given.

vi) Student assessments are external to the online learning environment where appropriate.

3.3.2 Pedagogical: Learning and teaching theory

a) Instructor **SHOULD** facilitate the learner's efforts in constructing and interpreting new knowledge (Active Learning) through:

i) Student engagement

- Students are requested to introduce themselves to the group.
- Discussions are learner focused.
- Students have opportunities to make choices about course content or activities.
- Cooperation and collaboration between students is encouraged.

ii) Course facilitation

- Moderate discussions.
- Present content in a logical progression.
- Make content available to students in manageable segments.
- Scaffold important information
  - Provide a statement introducing students to the course and to the structure of the student learning.

- Create course assignments and projects that require students to make appropriate and effective use of external resources, including print, library, web-based, and other electronic resources.
- Provide students with mental models (schemas) to help organize materials.

b) Instructor **SHOULD** integrate the diversity of students' needs and experiences into the learning process (Constructive Learning, Prior Knowledge) by considering:

   i) Diverse learning styles.

   ii) Prior experience and knowledge.

   iii) Cultural diversity.

c) Instructor **SHOULD** encourage and develop higher-level critical thinking (Intentional Learning) by

   i) Providing opportunities for students to work at the higher levels of Bloom's taxonomy: knowledge, comprehension, application, analysis, synthesis, and evaluation.

   ii) Giving students opportunities to engage in abstract thinking and critical reasoning.

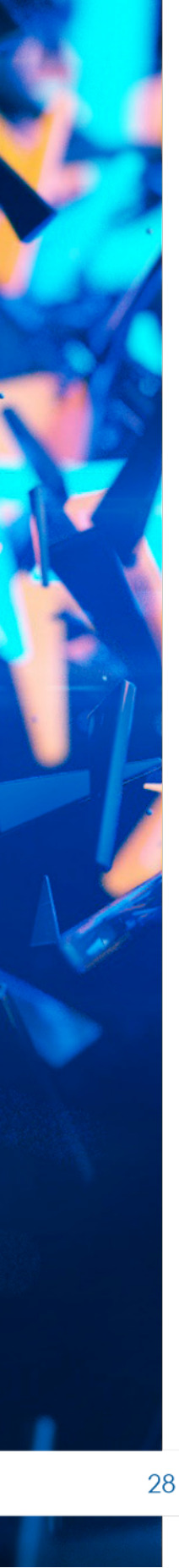
d) Instructor **SHOULD** promote self-directed learning, guided discovery and reflection (Reflective Learning) by

   i) Encouraging personal autonomy.

   ii) Providing opportunities for reflection (meta cognition).

   iii) Encouraging self-assessment.

   iv) Providing opportunities to identify topics, problems, cases and make informed judgments.



e) Instructor **SHOULD** facilitate learning through interactive, collaborative activities (Collaborative Learning).

   i) Encouraging learner cooperation.

   ii) Developing varied collaborative activities: research and group projects; peer assessments.

f) Instructor **SHOULD** anchor instruction with authentic tasks situated in real-world contexts (Contextual Learning) by creating:

   i) Activities relevant to learners that allow learners to attach personal meaning to content.

   ii) Authentic activities that involved problem-based or case-based activities.

   iii) Simulations (e.g. role-play) that apply to real-world issues.

g) Instructor **SHOULD** promote a conversational, social and dialogical process (Conversational Learning) by

   i) Incorporating social aspects to improve satisfaction, provide a realistic environment, present multiple viewpoints, and overcome anonymity.

   ii) Developing varied opportunities for interaction: student-student; student-instructor; student-content.

   iii) Ensuring a sense of community by

   - Creating a safe environment;
   - Participating in discussions (and/or chats) and post a self-introduction;
   - Acknowledging learner contributions;
   - Moderating disagreements and group problems;
   - Providing separate communication opportunities for sharing non-course information.

3.3.3 Class Management

a) Post course materials online in advance so learners can plan.

b) Ensure that all learners are 'on board' at the beginning of the course.

c) Provide clear and concise directions on how to navigate through the course.

d) Convey changes and updates.

e) Return learner calls/emails quickly to allow learners to progress.

f) Refer problems to appropriate sources and follow up to ensure resolution.

g) Have an alternate plan in case the LMS is unavailable.

h) Make a course backup at the beginning and the end of the semester.

3.4 Implementation of Blended Learning

3.4.1 Blended learning implementation options

a) The online component of a blended learning course **MAY** be implemented according to one of the following ways:

i) By hours in week

- For example , the traditional course of 3 hours F2F instruction per week for a three credit course is reduced to 2 hours F2F + 1 hour guided online learning.

ii) By weeks

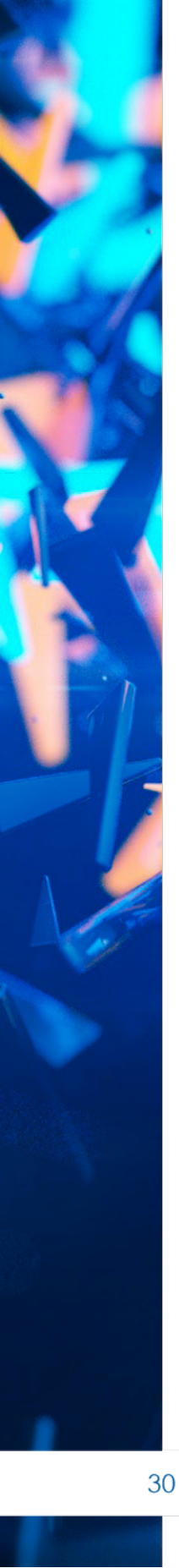
- Online learning is designed according to the weeks in the semester.
- Example: 10 weeks of fully F2F is followed by 4 weeks of totally online learning.

iii) By alternate weeks

- Online learning is designed into alternate weeks.
- Example: 1 week of F2F is followed by a week of total online learning and so on.

iv) By topics

- Topics are chosen to be taught online and the hours are estimated based on the length and depth of the topics.



v) By tasks

- Tasks are chosen to be completed online rather than in-class. The estimated time to complete is calculated equivalent to student learning time in class.

vi) Case by case

- Technology is integrated into the classroom. Students are assigned technology related tasks (the present F2F hours are maintained).
- Utilizing other models of blended learning such as Flipped Learning or wrapping a MOOC is encouraged as long as the instruction and learning tasks are carefully designed and student learning time calculated to meet the credit hour requirement.

3.4.2 Credit hours and student learning time (SLT) for blended learning

a) Blended learning **MUST** be implemented in accordance with the credit hours specified for each course:

i) Course coordinators and e-Learning instructors **MUST** plan for the online component to fulfil the student learning time (SLT) necessary for the credit requirement of the course.

- A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement.
- MQA : A credit is the total student learning time (SLT) required to achieve the identified learning outcomes for a particular module at the micro level and for the programme at the macro level.
- One credit equals 40 notional hours of SLT.

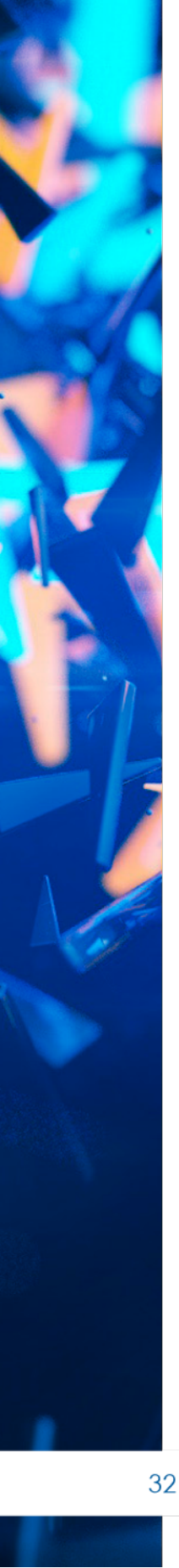
ii) The online component of a blended learning course comprises activities such as lectures, projects, problem based tasks and discussion in general. These can be in the form of watching and comprehending instructional videos, playing

a learning game, watching and comprehending animations, completing a simulation, readings, forum discussion, MOOC participation, responding and posting one's work with peer evaluation, self assessment, quizzes etc.

iii) Calculation of online student learning time **SHOULD** be based on the following activities:

- The time spent in synchronous live instruction. This is equivalent to F2F on location instruction.
- The average time spent on a screen and the number of screens viewed in the course of online instruction. The average time spent on a "screen" is generally calculated as being between 3-5 minutes per screen.
- The run-time for required media based assignments. This must take into account the actual length and the expected multiple viewings of the media (video, audio, animation, simulation) for review and re-inforcement of the material.
- The time required to consume content such as by reading an article, watching a self-paced instructional video, playing an instructional game etc.
- The instructor expectation of time spent in online instructional tasks and activities such as:

  i) Postings to group discussion sites/bulletin board.
  ii) Online group project work
  iii) Use of class social media sites for group discussion/ participation
  iv) Student-teacher interaction



iv) The suggested allocation of SLT for a Blended Learning course with **30% -50%** online component is given below (This is based on a 14 week course in one semester).

Credit hours	SLT	Face to Face F2F	Guided Non F2F (online)	Unguided Non F2F
4	160	40	40	80
3	120	30	30	60
2	80	20	20	40
1	40	10	10	20

v) Attendance in the blended mode teaching need not be measured solely on physical presence. It **SHOULD** include learner's engagement (e.g. forum participation) in completing the online task which may or may not be traced by the system. Student engagement in the online task **SHOULD** be seen as equal or more important than mere physical presence.

3.4.3 Role of the instructor and teaching hours

a) The role of the e-Learning instructor shifts towards a facilitator and a collaborator as percentage of online learning increases.

b) Delivery and teaching hours:

i) The traditional teaching hours or instructional time spent in a specific location (class, lab etc.) need not necessarily apply to online instruction where learning takes places anytime, anyplace and anyhow.

ii) Extra hours should be factored in to account for the hours spent on instruction and facilitating student online learning.

iii) A minimum of **2 hours online** is equivalent to **1 hour F2F** on location.

3.5 Online Instructional Interactions

3.5.1 The learner **SHOULD** be actively and mentally engaged with the instructional content through instructional activities.

3.5.2 Instructional materials **SHOULD** contain meaningful interactions (this may be interaction with the materials, interaction with the facilitator or interaction with other students).

3.5.3 Interaction **SHOULD** be focussed on learning content, and **SHOULD** cause the learner to reflect on the learning content. Interaction (wherever practical) **SHOULD** directly involve the learning content rather than being mediated through standard interface elements.

3.5.4 Interaction **SHOULD** be focussed to allow users to gain confidence that they are learning and reinforce content presentation through active manipulation.

3.5.5 Formal student interaction, required by learning objectives **SHOULD** be focussed on the learning objective and **SHOULD** be moderated as appropriate.

3.5.6 Asynchronous student interaction with learning facilitator **SHOULD** occur within predefined time windows and latency periods.

3.5.7 Interactions that support learner practice **SHOULD**:

a) Accurately reflect the context of real world skill application,

b) Explain what the reason for the interaction is,

c) Where complex or extended, be broken into sub-components,

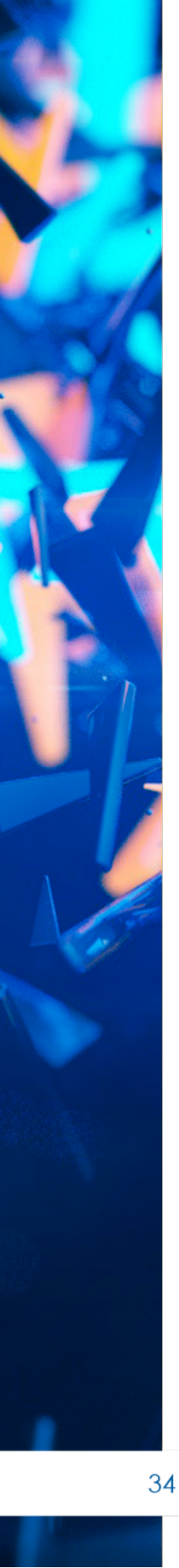
d) Be interspersed through the instructional session as opposed to being concentrated in one particular section of a session,

e) Follow a designed elaboration strategy - **should** build from simple to complex, or **should** support skill practice with worked examples prior to scenario based learning,

f) Feature reinforcement, or multiple examples,

g) Include examples as to where the learning might be applied,

h) Be paced to allow learner reflection and consolidation.



3.5.8 Assessment questions **SHOULD**:

a) Be constructed in such that the mechanism for answering questions is straight forward,

b) Be focussed on testing knowledge through application to a job relevant task (and avoid the student simply 'parroting' the information back in a rote fashion),

c) Cover areas and learning objectives that have been previously taught,

d) Be pitched at a suitable level of difficulty for the audience,

e) Be clearly worded (i.e. avoid negative constructions),

f) Have clear instructions as to how to answer the question, constructions should be varied, and suitable for the type of question being asked,

g) Be programmed to prevent invalid questions or answers,

h) Give the learner the opportunity to change their mind,

i) Where questions or assessments are timed this is to be clearly stated at thebeginning, and an indication of elapsed or remaining time to be displayed.

3.5.9 In formative assessment questions, feedback **SHOULD** be:

a) Specific to the user's answer,

b) Focussed on the learning goal,

c) Containing information relating to the question and the answer to stimulate user recall,

d) Comprehensive and suggest a further cause of action to the user.

3.6 Features of Good Online Instructors

3.6.1 Besides experience with and knowledge of course content, the following **COULD** be used as a checklist for selecting a good online instructor.

a) A basic understanding of the Internet, word processing, and e-mail.

b) Some background or experience in teaching or training.

c) Reliable Internet access at work or home.

d) Prior experience teaching the course in a face-to-face setting or experience with the content.

e) Significant time to devote to course development and ability to complete initial drafts of course content prior to the course open date.

f) The ability to devote 6-9 hours per week to teach the course (for a 3-credit hour or equivalent), depending on the level of interaction and volume/length of assignments.

g) The ability to express ideas, concerns, suggestions, and answers to students succinctly and clearly, in writing.

h) A willingness to modify and adapt teaching methods and strategies based on student or participant feedback.

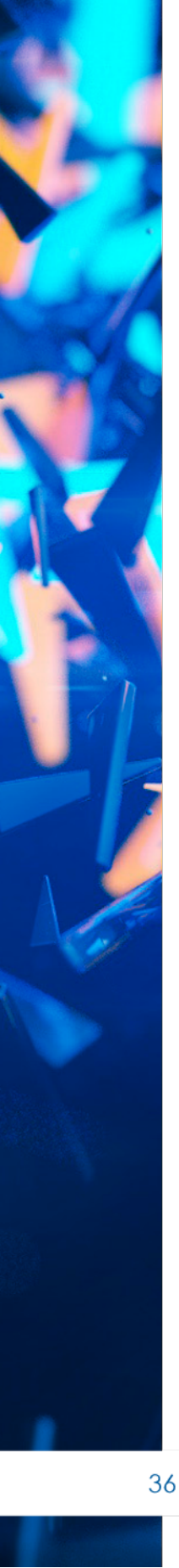
i) Able to integrate technology into teaching creatively.

3.7 Facilitating Online Discussions

The following guidelines in facilitating online discussion **COULD** be adopted:

3.7.1 Give students clear expectations about online discussion requirements, deadlines, and grading procedures.

3.7.2 Assess the quality as well as the quantity of the students' online posts. Using rubrics will allow students to have a clear guideline of your expectations for quality of their posts.



3.7.3 Provide a schedule for students of upcoming discussion board deadlines. Give as much notice as possible.

3.7.4 Provide structure for students to post to threads. A good structure lessens the frustration of what to write.

3.7.5 Do not allow domination of the discussion. If students are dominating the discussion, privately ask them to slow down a little

3.8 Assessing Discussion Board Activities

Assessing discussion board activities **COULD** take many forms. Regardless of the type of assessment strategy or tool used, the following guidelines **COULD** be adopted:

1. Assessment **MUST** match learning outcomes
2. Assessment **MUST** be aligned with instruction.
3. Students **MUST** be given clear guidelines regarding how their work will be assessed.

Assessment **COULD** be done in the following ways:

Teacher Assessment
Teacher assessment is probably the most commonly used assessment. Any of the tools listed on this page can be used by teachers to assess their students.

Self-Assessment
Encourages students to think about their own learning and to reflect upon areas of strengths and weaknesses.

Peer Assessment
Actively involves students in the assessment process and encourages critical thinking skills. Students often respond more positively to feedback from their peers.

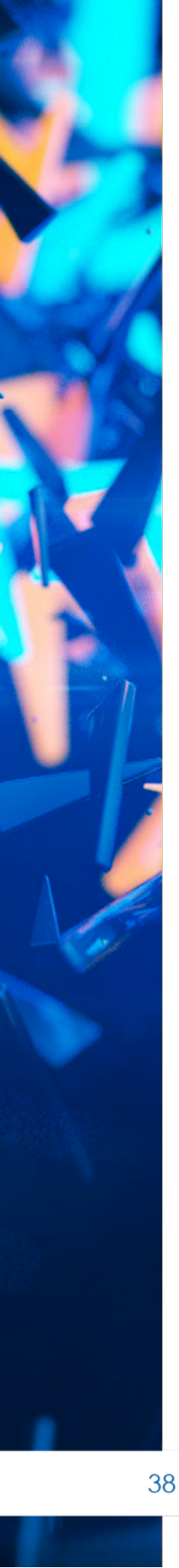
3.9 Guideline for Fair Use

Under Fair Use guidelines, instructors **MAY** use a portion of a copyrighted work once in their classroom teaching during a course. Fair Use **MUST** stand the tests of brevity, spontaneity for teaching effectiveness, and avoid cumulative effect that impacts a single work or author. Current copyright law gives educators the ability to use certain copyrighted works for educational purposes without securing permission or license.

3.10 Dealing with Cheating/ Plagiarism

There will always be students attempting to cheat in exams regardless of the delivery methods. The following are some guidelines on how instructors **COULD** initiate to make cheating more difficult:

1. Use question pools and randomize the question selection. This will allow instructors to make each student's test at least slightly different from the next. The greater the number of questions in the pool, the more the randomisation that can occur.
2. Make the test available for a short time-period. There are two ways instructors can achieve this effect. They can place a time limit on how long students will have to complete the test. They may also control the amount of time students have to access the test by limiting the dates of availability.
3. Present one question at a time. Any item presented on a computer screen can be copied and printed including your tests. One way to deter this from occurring is to present one question at a time and prohibit backtracking. This allows a student to see only one question on the screen at a time and they are not allowed to navigate back to a previous question once it is answered.
4. Use a lock-down browser software to secure online tests. This software is administered at an enterprise level and will keep students from copying and/or printing tests, switching windows, accessing other URLs and block other applications from running. This option will require that students go to a testing centre in order to take their tests.



5. Require a proctor. Instructors can require students to take the tests in a proctored environment. This can usually be set up with another school, library or testing centre. Proctors are provided with password access to your test and specific instruction regarding what a student may do or use during the assessment.

3.11 Encouraging Academic Honesty

Academic honesty and plagiarism have become more complicated issues with the explosion in access and use of the Internet. The following are some ways that **COULD** be adopted by instructors on how to encourage academic honesty and discourage plagiarism.

1. Include information in the syllabus about intellectual property and academic honesty. Go over that information with the class.
2. Provide online resources that further explain the details (and examples) of plagiarism and adhering to copyright law. This is sometimes more meaningful at the time of the assignment.
3. Be a role model.
4. Explain where and how online resources are obtained.
5. Exemplify and discuss ways to cite resources.
6. Discuss the libraries' role in helping access to electronic reference materials.
7. Discuss the negative impact of online "paper mills" that allow students to purchase work instead of creating their own.
8. Indicate the utilisation of search engines or software to detect plagiarism.

4 Development of e-Contents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4 Development of e-Contents

4.0 Introduction

Development of the e-contents is one of the most important aspects in the implementation of e-Learning programmes. This section will discuss five important aspects of e-content development: approaches of content development, software and tools, process of content development, quality of content development and finally the contemporary and future approaches.

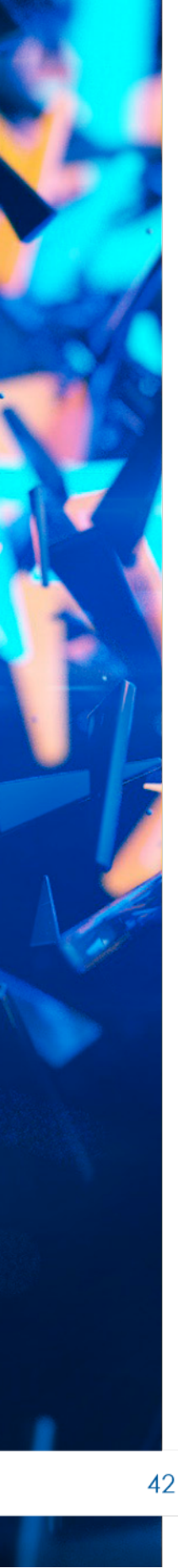
4.1 Approaches of Content Development

There are various approaches to content development and which approach is best for each HEI will be very much dependent on the time constraint, availability of expertise, budget and the e-Learning culture in the institution. Each HEI **MAY** consider adopting one or more of the following:

4.1.1 Self-Development (Rambo or Lone Ranger) Approach

This is the simplest approach to develop contents for e-Learning whereby the lecturer involved will create contents to be used in his/her own online class. To adopt this approach, the instructor **SHOULD** acquire some skills to use certain tools to create contents which are both interactive and engaging.

Currently, there are a number of tools which can be considered as rapid e-Learning software, such as screen casting software and



PowerPoint to Flash conversion software. The full list of software available is listed in Appendix 1.

4.1.2 Outsource

The second approach is by outsourcing the content development process to a commercial content developer. This approach has the advantage of quick turnaround time and, if properly managed, will produce the best results.

a) The HEI **MUST** form a team of knowledgeable persons who can represent the institution in all discussions with the vendor.

b) The team **MUST** be able to set clear requirements and **MUST** communicate them clearly to the vendor.

c) A proper quality assurance process **MUST** also be in place. It **SHOULD** be done not only at the beginning or the end of the project but also throughout the development process.

d) In selecting the vendor, the e-Learning team **SHOULD** first evaluate the capability of the people who will be working on the project, and then the capacity of the vendor in terms of human resources, as well as the vendor's financial stability.

e) The HEI **MUST** be prepared for any potential risks. The specifications and guidelines are the first important documents that define acceptable quality, and they are also the documents that **MUST** be referred to in the event of disputes.

4.1.3 In House Development

In house content development requires the work of a group of professionals who will form a team to develop contents for the HEI.

a) The team **SHOULD** include a project manager, instructional designers (IDs), subject matter experts (SMEs), web developers, graphics artists, multimedia developers, programmers and technical support staff.

b) The project manager **SHOULD** conduct needs and audience analyses before starting the content development project.

He / she **SHOULD** also coordinate all activities and roles in the different stages of the process.

c) Instructional designers (IDs*)* **SHOULD** work with managers to understand the curriculum requirements, collaborate with SMEs to define which learning outcomes are to be covered in the course and choose the appropriate instructional strategy. IDs also **SHOULD** be responsible for designing specific e-Learning activities and materials that will be part of the course.

d) The subject matter experts (SMEs) are the lecturers who contribute the knowledge and information required for a particular course. They **SHOULD** collaborate with IDs to design a course and define assessment strategies. In the full online learning mode, SMEs **SHOULD** be involved in writing the text of e-Learning lessons, while in the blended mode SMEs **SHOULD** act as online as well as classroom instructors.

e) Web developers **SHOULD** be responsible for developing the course websites, assemble the course elements, create the courseware, adapt the interface of a learning platform (LMS) and install the courseware on a server.

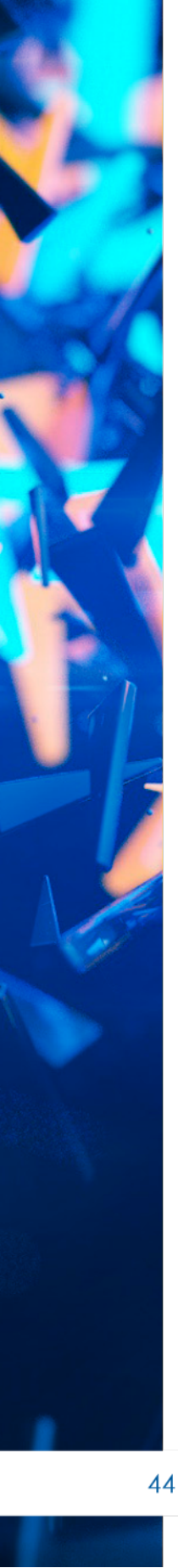
f) The Graphics artists **SHOULD** create graphics including navigation buttons and icons.

g) Multimedia developers are personnel who **SHOULD** be doing the audio and video editing, animation, and develop media and interactive components of the courseware.

h) Sometimes programmers are needed to develop complex interactions within the courseware. The technical support staff **SHOULD** assist both producers and users of e-Learning courses at every stage of the process.

i) Some of the roles described in this section **COULD** be combined into a single job profile.

j) The actual composition of the team depends on factors such as the size of the project, the amount of work outsourced, the capacity of team members to cover different roles and the specific media and technologies required.



4.1.4 Lecture Capture System

Lecture capture is a general term describing any technology that allows instructors to record what happens in their classrooms and make it available digitally.

a) The technology **SHOULD** record the instructor's audio and video, as well as the presentation conducted using PC, laptop or tablet, synchronize them and webcast them as streaming videos or archives for video on demand mode.

b) Lecture capture systems for the HEI **SHOULD** be managed by the technology support unit.

c) The system **SHOULD** be automated in ways that allow the lecturer to use a touch screen interface to start and stop the recording of a lecture. The recording **SHOULD** be processed and uploaded to a server that can be accessed by students.

d) If a class is conducted in a location where an automated recording system is not available, a portable recording system **COULD** be used. Some editing is required to synchronize lecture slides for viewing alongside the relevant sections of audio and/or video recordings of the instructor.

e) If the two options above are not available, the lecturers **COULD** use some commercially available software applications to capture their own video, the computer screen, PowerPoint, and audio (See Appendix 1).

4.1.5 Open Educational Resources (OER)

Another approach for content development is to make use of open educational resources (OER) which are freely available from the internet.

The OER are usually released under creative commons license that permits access, use, repurposing, reuse and redistribution by others with no or limited restrictions.

OER materials can be downloaded, shared, reused and remixed for various educational purposes.

a) Locating OER

To locate suitable OER we **COULD** use some specialized search engines that search specifically for OER. Some examples:

i) Creative Commons Search: http://search.creativecommons.org.

ii) Open Courseware Consortium: http://www.ocwconsortium.org/courses/search.

Another approach is by searching major OER repositories such Massachusetts Institute of Technology Open Courseware Repository (MIT OCW).

b) Development of OER

i) The process of developing OER contents is very similar to the process of developing learning materials to be used in the classroom. The main difference is the requirement that everything included in the contents **MUST** be free of any copyrighted materials.

ii) If it is necessary to include copyrighted materials in the developed resource, written permission of the copyright owner **SHOULD** be obtained.

iii) In order for the OER to be useful to others, the file type, size and formatting **MUST** be fully accessible and adaptable. For example, for the common file types, the following file formats **SHOULD** be used:

File type	Format
Text files	Open document format (.odt); rich text format (.rtf); portable document format (.pdf)
Images	PNG or JPEG
Audio	MP3
Video	MPEG4

iv) Before publication, the owner **SHOULD** decide how open the resource will be and then select the corresponding license to give access while preserving the author's rights.

c) Copyright of OER

Creative Commons (CC) licenses are a specific type of open license, used commonly with OER, which allow sharing resources for free (See **Appendix 2**). For more information and the generation of CC licenses, HEIs **SHOULD** refer to Creative Commons website (http://creativecommons.org).

4.2 Software and Tools

Effective online contents will usually involve the use of the following elements: text, image, graphics, audio, video, animation, and or simulation. Choosing the correct software or tools for e-content development is also important.

Factors that developers **SHOULD** consider when choosing the software or tool are usability, maintenance, accessibility, compatibility and affordability.

4.2.1 Usability

In order to develop e-content, it is wise to choose the development tool that the developer is familiar with. Also, the tool **SHOULD** have a user-friendly interface that can be familiarized easily.

4.2.2 Maintenance

If a developer chose to use a downloadable software or tool from the internet, it is advised that the developer look for any online tutorials related to the software or tool. This can be helpful in times when help is needed to solve immediate problems related to the software or tool while developing e-content.

4.2.3 Accessibility

a) The developed e-content lessons **SHOULD** be usable on various devices including smart phones and other mobile devices.

b) If the developed e-content lesson is available online, it **SHOULD** be accessible with several web browsers (e.g. Internet Explorer, Safari, and Google Chrome).

c) The e-content lessons that support various devices usually are using HTML5 or SCORM formats. Recommended standards for various forms of e-contents are listed in **Appendix 3**.

4.2.4 Compatibility

a) If the chosen software has to be downloaded first before lessons can be developed, **SHOULD** be choose software that is compatible with various operating systems such as Windows, Linux and Macintosh.

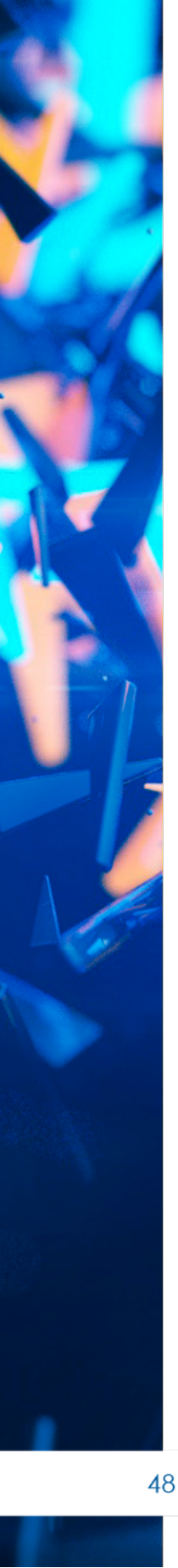
b) The best e-content software **MUST** be flexible in terms of file formats and can easily incorporate documents, audio, video and interactive components.

4.2.5 Affordability

Basically the tools that can be used to develop such contents can be divided into three types. They are commercial, free and online software.

a) The commercial software usually requires license which **COULD** be purchased either yearly or perpetually.

b) The free software **COULD** be downloaded from the Internet and some of them are as good as the commercial ones.



c) The online version is usually hosted on a server and users **MUST** have Internet connection to use them. The choice of software is very much dependent upon the budget of the institution, ease of use and user requirements.

Some examples of software and tools commonly used for content development are listed in **Appendix 1**.

4.3 Process of Content Development

The development of e-content materials is a complex one, involving multiple steps or phases. For educational or training materials, instructional design model (ID Model) is a process framework that **SHOULD** be used. These models **SHOULD** be used to guide your approach to the art or science (your choice) of instructional design. Prescriptive models provide guidelines or frameworks to organize and structure the process of creating instructional activities.

There are numerous instructional design models available such as ADDIE Model, ASSURE Model, Dick & Carey Model, Hannafin & Peck Model, Waterfall Model, Rapid Prototyping Model, Hypermedia Design Model, Multimedia Design Model and the list is continually growing(refer to **Appendix 4**).

The detailed procedures involved in the ADDIE model is discussed in **Appendix 5.**

4.4 Quality of Content Development

The development of quality e-contents **SHOULD** consist of content, design and delivery. Content includes the research and organisation of materials. Design is the architecture of the e-content and the graphical enhancements. Delivery is how the idea and messages are being presented.

The followings are some key points for planning, creating and delivering quality e-Content for learning and teaching:

4.4.1 Design and layout of the contents **SHOULD** be consistent.
4.4.2 Organisation and presentation of information **SHOULD** be clear.
4.4.3 Navigation within the content **SHOULD** be consistent and easy-to-use.
4.4.4 Design of materials and graphics used **MUST** be presentable.

4.5 Intellectual Property Rights and Copyright Issue

Intellectual property rights is important as it gives protection to the owner or developer of the e-Learning resources, provides rules and regulations to the users that have access to the materials and guidelines on how the e-contents can be distributed. In order to encourage continual development of e-content, the protection of copyright is very important. In Malaysia, the protection of IPR is managed by Intellectual Property Corporation of Malaysia (MyIPO).

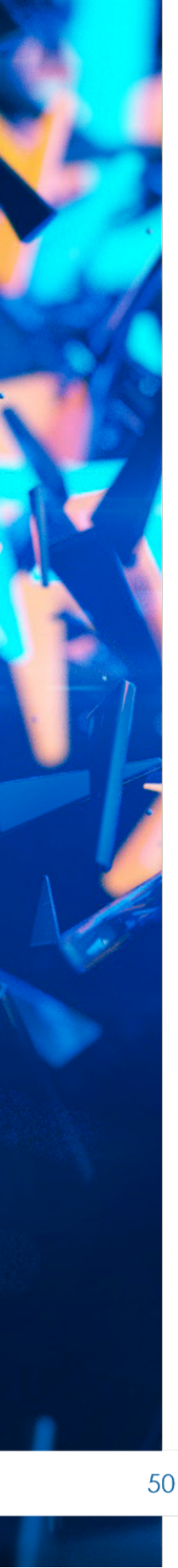
E-Content developers, authors and users **SHOULD** have a clear understanding on the basic principle of intellectual property rights protection and copyright law. These include what is protected under the law, what constitutes copyright infringements and the exceptions under fair use policy. These are explained in detail in **Appendix 6.**

4.6 Contemporary Approaches in e-Content Development

Currently, mobile and personal technology is increasingly being viewed as a delivery platform. Sooner or later this emerging trend will affect the way e-contents are being developed.

4.6.1 Mobile First

This is the approach when the e-content developers **SHOULD** prioritize the mobile platform first and the other platforms become secondary. In other words, the developer starts the entire design process by designing for the smallest screen.



4.6.2 Mobile Ready

In this approach, the content developer **SHOULD** develop e-contents that are flexible enough to be viewed by using either the desktops or mobile appliances, depending on the user preferences. Mobile ready concept can be associated with the responsive approach to give satisfactory e-content user experiences when they view it.

4.6.3 Responsive

The basic idea of this approach is that the e-content **SHOULD** detect and deduce what type of device is currently being used to view it and adapt its content appropriately to fit the screen of the device.

Responsive design approach aims to improve user experiences when browsing the e-content by repaginating text, resizing photos, provide optimized useful navigational features for smart phones, tablets, e-readers, laptops, game consoles and other internet-enabled devices.

On top of that, it can also adjust the file size of the e-content depending on the bandwidth and speed of the receiving device. Development of e-content in HTML5 supports responsive design features so that the content developed has the same impact across the myriad of devices that the learners use.

4.6.4 Assistive @ Adaptive

Assistive or Adaptive Technology commonly refers to products, devices or equipment, whether acquired commercially, modified or customized, that are used to maintain, increase or improve the functional capabilities of individuals with disabilities. Assistive (or Adaptive) technology enables people with physical disabilities to have more accessibility when navigating web pages and access e-content materials; such technologies include navigati screen reader and speech recognition.

4.6.5 Gamification

Gamification is the use of game thinking and game mechanics in a non-game context to engage users/audiences and solve problems. Knowledge retention for game or simulation is generally higher than traditional instruction.

5 Training and Professional Development


ANALYSIS
SEARCH
SCANNING

5 Training and Professional Development

5.0 Introduction

e-Learning instructors, trainers and content developers require quality professional development to ensure the successful delivery of e-Learning. e-Learning instructors must be well trained in online course design and/or online facilitation; trainers and content developers must be equipped with the latest knowledge and skills of using technology tools to create materials to support e-Learning. These guidelines for professional development place focus on the HEI lecturers who are the e-Learning instructors and most often, the content developers.

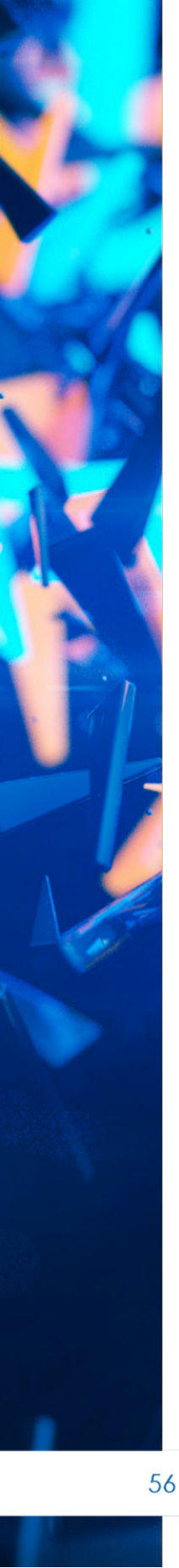
5.1 HEI's Plans for e-Learning Training

HEIs **MUST** strategically plan for e-Learning training.

5.1.1 A clear and structured annual strategic training plan based on HEI's needs and current developments **MUST** be formulated and documented.

a) Training plan **MUST** include components to enhance (1) awareness, (2) adoption of e-Learning and (3) instilling culture of e-Learning in HEIs.

b) A clear process that includes all the above three components **MUST** be in place.



5.1.2 Planning of training on e-Learning **MUST** include both staff and students.

5.2 Training Facility

e-Learning instructors and content developers **MUST** have access to training facility.

5.2.1 A centre or unit **MUST** be established in HEIs to manage training for the e-Learning instructor.

5.2.2 A dedicated e-Learning training lab **MUST** be provided for e-Learning training.

5.2.3 A dedicated content development lab /studio **MUST** be provided for e-content development training.

5.2.4 Relevant tools and software **MUST** be made available to content developers (refer 4.2).

5.3 Training Programme for e-Learning Instructors

5.3.1 HEIs **MUST** provide initial briefing and awareness programme for prospective e-Learning instructors.

a) The relevant centre or unit **MUST** conduct briefings and road shows to enhance awareness on e-Learning among HEI's lecturers and students.

b) The relevant centre or unit **SHOULD** provide information on e-Learning through emails and web pages.

5.3.2 HEIs **MUST** provide training for the e-Learning instructors.

a) The relevant centre or unit **MUST** schedule training sessions and develop relevant e-Learning training module,

b) Training **MUST** be provided in pedagogical, technical and networking dimensions.

i) A pedagogical dimension, which implies an understanding and application of the opportunities to use e-Learning in a local curriculum context.

ii) Principles of teaching **SHOULD** emphasize the underlying theory of learning process (Cognitive, Psychomotor, Affective).

iii) Comprehensive training **MUST** be provided by AKEPT or other similar institutions on online pedagogy - learning activities, the know-how to replace f2f with online teaching and tips on strategies for successful online facilitation.

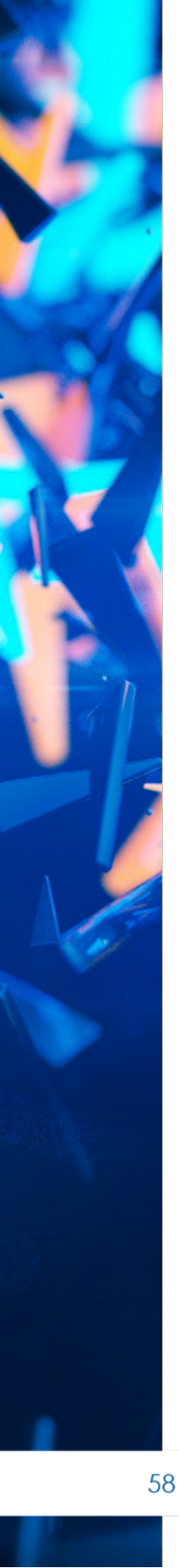
iv) A technical dimension, which implies an ability to select, use and support a range of technology and ICT resources as appropriate to enhance teaching effectiveness; also to update skills and knowledge in the light of new developments.

v) A collaboration and networking dimension, which includes an understanding of learning networks and collaboration within and between partners; and the ability to create and participate in communities of practice.

c) Training **MUST** be provided at the minimum of two stages:

i) Basic Training for the e-Learning instructor Training in online pedagogy and the basic use of a Learning Management System - online facilitation, online discussion, online assessment and content uploads must be provided to all e-Learning instructors. These include models of blended learning such as the flipped classroom and mobile learning.

ii) Intermediate Training for the e-Learning instructor Training in instructional design, resource and content development, sharing and collaboration, research and new online technologies must be made available to e-Learning instructors/online educators. These include:



- At least one full-fledge authoring tool for e-content development
- Latest web and social media tools
- Utilisation and development of open resources

d) Training of Trainers /Master Trainers

- Qualified instructors **MAY** be awarded the HEIs master trainer status upon completion of relevant training modules set by the HEIs including AKEPT ToT level 1 and 2 or equivalent.
- The HEIs **MAY** employ trainers who are not e-Learning instructors to train on the use of technology tools and they may be awarded the university master trainer status upon completion of relevant training modules set by the university including AKEPT ToT level 1 and 2 or equivalent.

5.3.3 e-Learning instructors **MUST** be kept abreast of the latest e-Learning technologies.

a) The ministry and HEIs **MUST** organize seminars or webinars on recent e-Learning technologies.

b) Selected online educators **MUST** be given the opportunity to be trained internationally; HEIs **SHOULD** allocate travel grants for e-Learning instructors to participate in training programmes abroad.

5.4 e-Learning Instructor's Academic Load

The university **MUST** recognize online teaching or online instruction as similar or more in terms of load and instructor's teaching time as that of the face to face in person instruction.

5.4.1 Teaching hours: Hours spent teaching in an online environment **MUST** be calculated and credited into the e-Learning instructor's official teaching hours.

5.4.2 Teaching Evidence: Educators **MUST** be able to show evidence that the online learning has taken place based on the platforms they

use. These may be a tracking system in the LMS or links to the conversational URL.

5.5 Provision of Training

5.5.1 HEIs **MAY** enlist e-Learning training providers that include:

a) AKEPT- a centralized national training center.

b) HEIs own e-Learning training center.

c) Vendors who are enlisted for specific e-Learning tools.

d) Experts may be enlisted to conduct seminars on recent e-Learning tools and techniques.

5.6 Training Budget

5.6.1 A minimum of 2/7 (28.5%) of HEIs yearly training budget **SHOULD** be allocated for e-Learning training.

5.6.2 e-Learning trainers **SHOULD** be given honorarium for the hours of training conducted.

5.7 Mode of Training

5.7.1 Training **MAY** take place on an individual basis, group workshops or seminars.

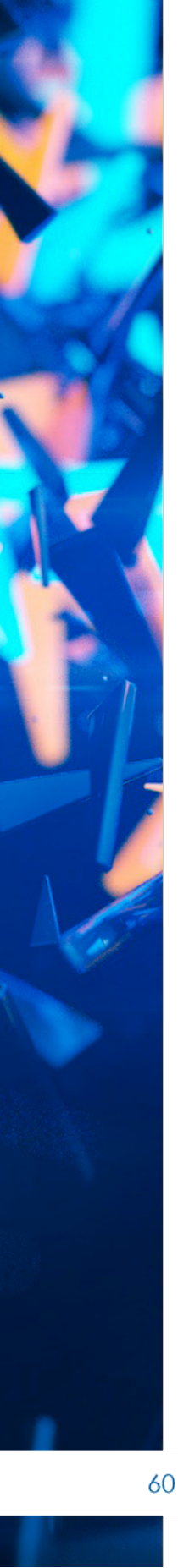
5.7.2 e-Learning training **MAY** be conducted via several modes:

a) Face-to-face on location or face-to-face onsite

b) Blended learning

c) Flipped training

d) Web seminars



5.7.3 It **MAY** also be conducted as

a) Training on demand

b) Clinic basis

c) Ad-hoc training

5.8 Training Hours and Certification

5.8.1 HEIs **MUST** provide sufficient number of e-Learning trainers.

a) HEI's e-Learning trainers **MUST** attend AKEPT Training of Trainers level 1 and 2 or equivalent training.

b) HEI's e-Learning trainers **MUST** be trained on the latest and future technologies such as gamification and learning analytics.

5.8.2 Hours spent being trained **MUST** be recognized by the university.

a) Training hours **MUST** be credited into the e-Learning instructor's official training record.

b) A minimum of 30% of HEI instructor's continuous professional development (CPD) allocation **SHOULD** be dedicated to e-Learning training.

c) The recognition of CPD hours **MAY** include the non-face to face training.

5.8.3 e-Learning instructors and trainers **MUST** be given the acknowledgment by the HEIs upon completion of various levels of training.

5.8.4 e-Learning instructors **MUST** be given opportunity to be trained as e-Learning trainers and be given *trainer certificate* upon completion of both basic and selected e-Learning modules.

5.8.5 HEIs **SHOULD** acknowledge the skills of an e-Learning trainer; HEIs **SHOULD** set to give annual award or recognition to the best training facilitator or e-Learning trainer.

5.9 Evaluation of Training

5.9.1 The effectiveness of each level of training **MUST** be evaluated.

HEIs **MAY** assess according to:

a) Reaction - increase in awareness and what participants thought and felt about e-Learning (End of training session).

b) Learning - the resulting increase in knowledge and/or skills, and change in attitudes (End of training session).

c) Behaviour - transfer of knowledge, skills, and/or attitudes to the trainee's classrooms (3-6 months after training session).

d) Results - the final results that occurred because of participation in a training program (more flipped classroom, e content developed etc.).

5.9.2 The relevant e-Learning unit or centre **SHOULD** be responsible in assessing and evaluating the effectiveness of training.

5.9.3 Both quantitative and qualitative evaluation **MAY** be used.

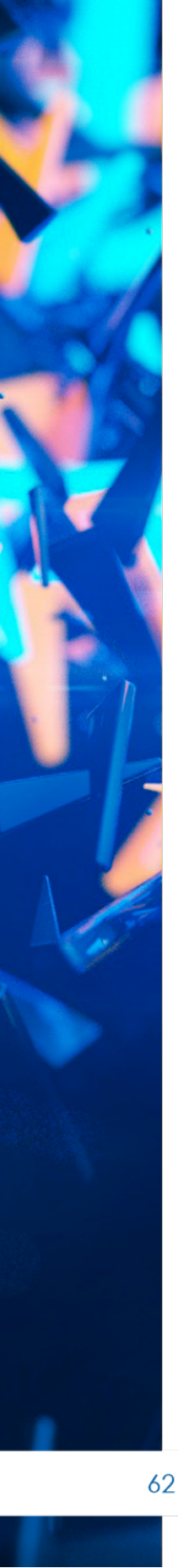
5.9.4 The evaluation **MUST** be properly reported and documented.

5.10 Learning Communities

5.10.1 Sharing of expertise among HEIs **SHOULD** be practiced.

5.10.2 The ministry **SHOULD** provide opportunities for educators to build online learning communities and to work together in pairs or teams, with access to follow-up discussions to share information.

5.10.3 e-Learning instructors **SHOULD** be encouraged to be members of existing global e-Learning communities.



5.11 Research, Development and Innovation

5.11.1 e-Learning Content Development

HEIs **SHOULD** support the e-Learning instructor's initiative to produce e-content/e-Learning resources.

a) Facility, software and training are provided to support e-content development.

b) Completed and reviewed e-content is recognized as an indicator of the online educator's scholarship.

c) e-content that prescribes to criteria set by the university is recognized as equivalent to academic publication.

d) A national repository is made available for the online educator to share his/her e-content and access those developed by others.

5.11.2 e-Learning Research and Development

a) HEIs **SHOULD** support the online educator's use of research to determine academic needs of students and successful e-Learning strategies.

i) A percentage of the HEI's Research grants are given to support e-Learning research.

ii) Successful e-Learning research is recognized as an indicator of the online educator's scholarship.

iii) Reviewed articles and publications related to e-Learning are recognized as indicators of the online educator's scholarship.

iv) The ministry supports the online educator's innovation in e-Learning.

v) A national platform for exhibition and awards is made available for the online educator to display and be recognized for his/her e-Learning innovation.

6 Acculturation


STRATEGY

6 Acculturation

6.0 Introduction

e-Learning acculturation among communities in HEIs is a long and challenging process. Acculturation of e-Learning is a very important process in order to sustain effective teaching and learning practices within HEI communities. It requires the enterprise wide commitment among the HEI communities. The proposed e-Learning Acculturation must be aligned with the requirement of DePAN, CAP e-Learning and Phase II PSPTN.

6.1 Strategic Planning

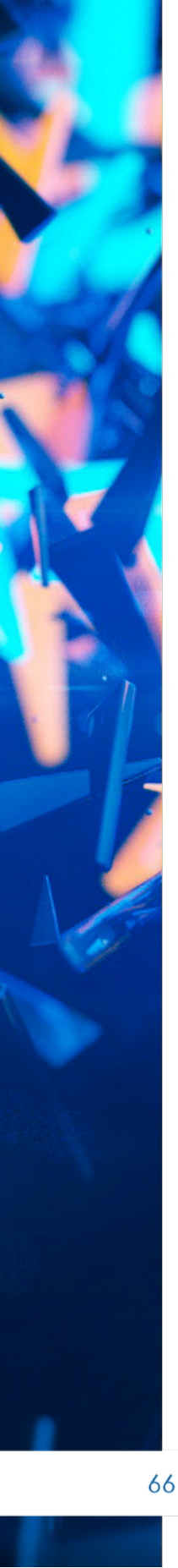
Strategic planning for e-Learning Acculturation **MUST** be in place in all HEIs where all proposed strategies in e-Learning Acculturation **MUST** comply with the following characteristics:

6.1.1 Aligned - The strategic plan of e-Learning acculturation **MUST** comform with the organisational goals.

6.1.2 Enterprisewide - Everyone in the organisation **MUST** be included in the strategic plan of e-Learning acculturation.

6.1.3 Continuous - The strategic plan of e-Learning acculturation programme **MUST** be operational all the time.

6.1.4 Proactive - The strategic plan of e-Learning acculturation **MUST** use innovative, preventive, and protective measures.



6.1.5 Validated - The strategic plan of e-Learning acculturation program **MUST** be reviewed and audited to ensure it achieves the stipulated objectives.

6.1.6 Formalised - The strategic plan of e-Learning acculturation **MUST** include authority, responsibility and accountability.

6.2 Operationalisation

6.2.1 The e-Learning acculturation related activities **MUST** be included as part of the Key Performance Indicator (KPI) in the annual performance appraisal.

6.2.2 Lecturers **MUST** be proactive in developing and using e-Learning resources effectively such as using appropriate and current teaching and learning technologies.

6.2.3 HEIs **MUST** provide regular training programmes for academic staff, supporting staff and students.

6.2.4 HEIs **MUST** disseminate the policies, enterprisewide effectively with clear defined operational concept of e-Learning from time to time.

6.2.5 HEIs **MUST** allocate a specific budget from tuition fees for e-Learning acculturation program.

6.2.6 Each HEI is encouraged to establish a dedicated e-Learning unit/ centre/representative at the faculty level with qualified e-Learning staff to strengthen the implementation of e-Learning Acculturation.

6.3 Awareness Raising and Implementation

6.3.1 The e-Learning acculturation activities aim to increase the awareness among HEI communities.

6.3.2 All e-Learning Acculturation activities **SHOULD** be coordinated by the relevant centre or unit at every HEI.

6.3.3 HEIs **SHOULD** establish the special interest group on e-Learning Acculturation to serve as a focus group and act as a catalyst to influence the HEI communities on e-Learning.

6.3.4 The annual e-Learning Acculturation activity which comprises of carnival, seminars, workshops, exhibition, competitions etc. **SHOULD** be organized in order to share some best practices and experiences of e-Learning Acculturation activities in teaching and learning.

6.3.5 The unit/centre related with e-Learning **MUST** create websites or any online medium (email, facebook, twitter, blog) to disseminate the latest information on e-Learning.

6.3.6 The unit / centre **MUST** use social media tools to share activities and resources.

6.3.7 HEIs **SHOULD** organize awareness programmes by creating promotional items such as tagline, slogan, banner, bunting, logo, short film, booklet, etc.

6.3.8 The e-Learning Acculturation committee **COULD** organize road shows to enlighten the HEI communities.

6.3.9 The e-Learning Acculturation week/month dedicated to e-Learning Acculturation activities **SHOULD** be organized in all HEIs.

6.3.10 The responsible unit in each HEI **SHOULD** showcase e-Learning product, best practices and innovation through various platforms i.e. LMS, website etc.

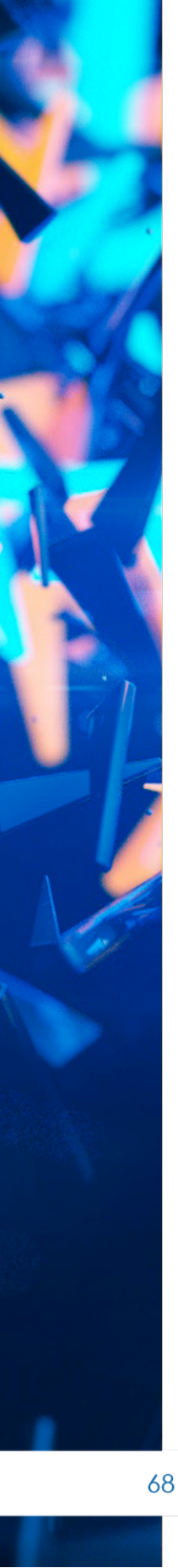
6.3.11 HEIs **SHOULD** produce and disseminate publications on best practices on e-Learning, pedagogy and current technology which have to be shared by all academicians widely.

6.3.12 HEIs **SHOULD** encourage knowledge sharing on the awareness and practice related to creative commons, pedagogy and current technology.

6.4 Monitoring and Evaluation

6.4.1 Appropriate mechanism for monitoring of e-Learning activities and improvements by the users/Heads of Department/Deans **MUST** be in place.

6.4.2 HEIs **SHOULD** conduct self assessment and evaluation of e-Learning practices using the following instruments:



a) Quantitative and qualitative survey
b) Case study
c) Comparative study
d) Netnography (Social behavior of net citizens)
e) Indicator index and benchmarking

6.4.3 Inventory adequacy check (IAC) for e-Learning Acculturation activities at all levels in HEIs **SHOULD** be established.

6.4.4 Each HEI **MUST** provide a sustainable reviewing system (SRS) in order to enhance the quality of e-Learning and this can be conducted by internal and external assessors.

6.5 Recognition

6.5.1 All e-Learning activities **SHOULD** be recognized and used for career path advancement and promotion in HEIs.

6.5.2 HEIs **MUST** recognize e-content published to be equivalent to publication based on the standard set by the Ministry.

6.5.3 All e-Learning activities **SHOULD** be included in the Student Center Learning initiatives.

6.5.4 HEIs are encouraged to retain the excitement and motivation of e-Learning culture through the recognition of e-Learning Champion (eLC).

6.5.5 HEIs **MUST** acknowledge e-Learning outstanding participation (students and lecturers) in the form of certificates of merit, awards, letters of appreciation etc.

6.6 Awards

6.6.1 HEIs **SHOULD** provide a number of monetary award for e-Learning Champion (eLC) for their outstanding involvement/ activities/ innovation of e-Learning activities such as:

i) e-content development
ii) e-Learning innovation
iii) open courseware (OCW)
iv) e-Learning movers

6.6.2 All eLCs at HEIs **COULD** be nominated for the national or international level award in e-Learning.

Glossary of Terms


cmd
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Glossary of Terms

A

Acculturation
The adoption of the behaviour pattern of the surrounding e-Learning culture.

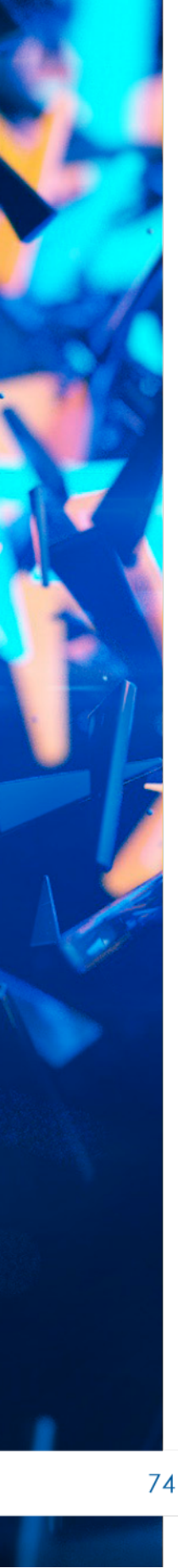
Active learning
In active learning, students are much more actively engaged in their own learning while instructors take a more guiding role.

Advanced training
Training for designing online instruction and advanced use of recent tools for e-Learning.

Asynchronous
Any time, any place. Courses can be online, print based, video or CD/DVD delivery. The student does not need to be in the same location as the instructor or fellow classmates or be available for instruction at the same time.

B

Basic training
Training for awareness and basic knowledge on e-Learning and basic use of e-Learning tool and management system.



Blended Learning
The combination of face-to-face and online delivery where 30-60% of the course content is electronically delivered. The electronic delivery can be either asynchronous or synchronous. Also sometimes termed as Hybrid Learning.

C

Content developer
HEI personnel who works on developing content for the e-Learning course.

Copyright
The exclusive right given to the owner of a creation for a specific period. An author's original work is automatically protected once it is fixed in any tangible medium, such as on a paper, video, audio, disk, computer memory, CD ROMs, etc.

Creative Commons (CC) license
Licensing system that allows the creators of e-content the ability to fine-tune their copyright , spelling out the ways in which others may use their works.

Culture
The adoption of shared and informed best practices, beliefs and attitudes that shape and influence the perceptions and behaviors of the university community towards e-Learning.

E

e-Learning
Learning facilitated and supported through the use of information and communications technology. It may involve the use of some, or all, of the following technologies; namely, desktop and laptop computers, software (including assistive software), interactive whiteboards, digital cameras, mobile and wireless

tools (including mobile phones), electronic communication tools (including email, discussion boards, chat facilities & video conferencing), Virtual Learning Environments and learning activity management systems.

e-Learning instructor
HEI lecturer teaching a specified e-Learning course.

e-Learning trainer
Personnel who conducts e-Learning training in the HEI. The person may or may not be an academic staff.

Enculturation
The gradual acquisition of the characteristics and norm of e-Learning culture of the university community.

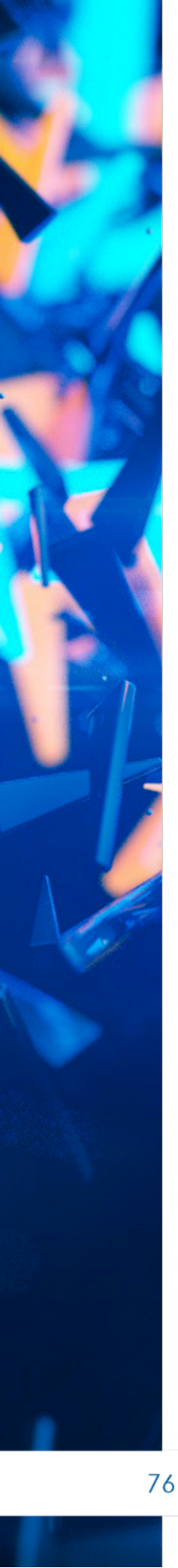
F

Face to Face onsite learning
Learning interaction that occurs when the instructor and the students are in the same location and time.

Flipped Learning
A situation where teaching content is provided/ exposed to the learner on an online basis prior to the class/ lecture so that class/ lecture time is used for higher order thinking activities (instead of the traditional direct instruction).

G

Gamification
Gamification is the use of game thinking and game mechanics in non-game contexts to engage users in solving problems.



Governance
The process of governing undertaken by an organisation which relates to the mechanism, relationship and process between sub-units within the organisation through which the collective interest is articulated, roles and responsibilities are defined and established and the differences are mediated. In e-Learning, this include policy to which the practices need to be adhered to and the functional integration between sub-unit so that efficient e-Learning deployment is achieved and capable of meeting all the key performance indicators.

H

HEI
(Higher Education Institution) refers to all public and private universities including polytechnics and community colleges.

HTML 5
A markup language used for structuring and presenting content for the World Wide Web. It is the fifth revision of the HTML standard. HTML is the acronym of Hypertext Markup Language.

I

ID model
The model that provides guidelines on how to organize appropriate pedagogical scenarios to achieve instructional goals. Examples of instructional design model are ADDIE, Hannafin and Peck and many others.

In-house development
An approach in e-content development where the HEI develops the e-Learning contents used by its institution. In this approach the HEI must form its own team of professionals to develop the contents.

Instruction
The intended facilitation of learning toward the identified learning goals. The principal components of instruction includes learning objectives, instructional materials which include the opportunity for student practice through interaction, and assessment which confirms that student learning has taken place.

Instructional design
The systematic process of translating general principles of learning and instruction into plans for instructional materials and activities.

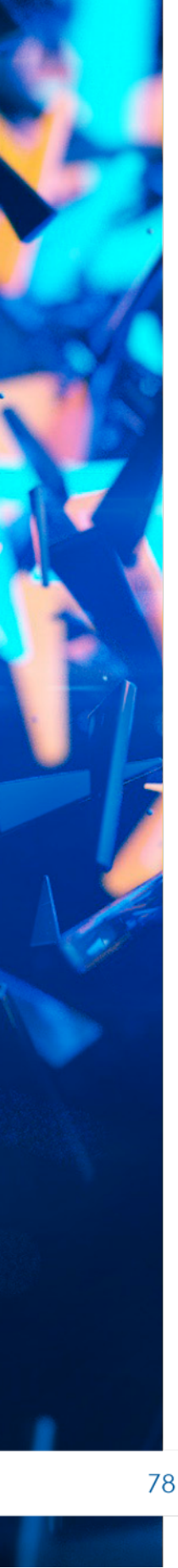
Instructional designer
The individual in the e-content development team who is responsible for understanding the curriculum requirements and collaborates with subject matter experts to define suitable learning outcomes to be covered in the e-content.

Interaction
Structured opportunities for the learner to engage with the content by responding to a question or taking an action to solve a problem.

IPR
The rights given to persons over the creations of their minds (e-Learning resources).

L

Leadership
A process of social influence whereby a person is able to guides, direct and obtain support within a group of people to undertake specific tasks to accomplish common goals. In e-Learning, leadership is the ability to bring the e-Learning unit to execute the plan in order to accomplish the stated mission and vision and meeting the DePAN and PSPTN performance indices.



Learning analytics
The field associated with deciphering trends and patterns from educational big data, or huge sets of student-related data, to further the advancement of a personalized, supportive system of higher education.

Learning Management System (LMS)
A software application or Web-based technology used to plan, implement, and assess a specific learning process. Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance.

O

Online Learning
A situation where 90-100% of the course content is online either through synchronous or asynchronous delivery.

Open educational resources (OER)
Teaching and learning materials that are openly available for use by educators and students, without the requirement to pay royalties or licence fees.

P

Pedagogy
Related to the teaching skills and strategies used by the instructors to facilitate learning; it is the tools, activities, strategies, and decisions for a more interactive, engaging, collaborative and motivational learning environment.

Policy
A guide, procedural processes or protocol developed by senior management which is operational in nature to assist the administrative personnel in undertaking

the necessary tasks in order to achieve the stipulated outcomes set forth. In e-Learning, this policy is the DePAN and the e-Learning policy at the HEI level. These two policies are intended to assist the HEIs in the effective implementation of e-Learning.

Q

Quality

It is a perceptual, conditional and subjective attribute, which provides the degree or measure of customer satisfaction. In e-Learning, quality means the degree to which the inherent characteristics of the system and the teaching and learning services being rendered using the system fulfills the stated and implied requirement/standard/need/expectation of the students in producing more engaging learning experience.

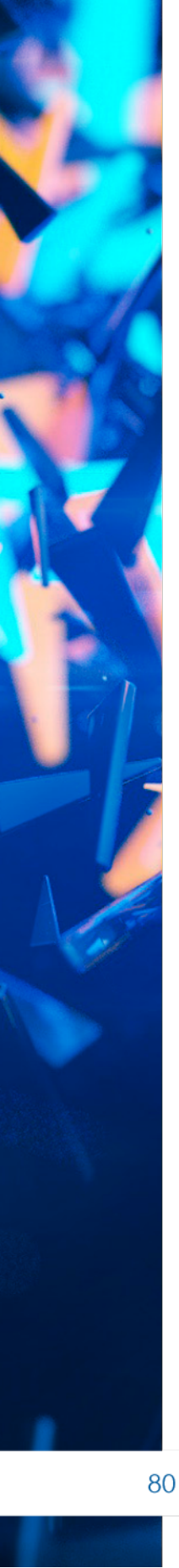
S

Self-directed learning

A process in which individuals take the initiative, with or without the help of others to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate outcomes.

Stakeholder

The stakeholders in an organisation are the individuals or group of individuals that have significant contributions and are affected by policies and activities, undertaken by the organisation and that they are therefore potential beneficiaries and/or risk bearers to such activities. In e-Learning, the stakeholders are the top Board of directors of the university, senior management, senate members, lecturers, students and employers.



Synchronous
Same time, any place. Courses are delivered at one scheduled time, but students and instructors may be in different locations.

V

Vision
It is an inspirational statement of an organisation which describes what the organisation would like to achieve in the short and long term with respect to its overall goals. The vision is in the form of statement that would provide the framework within which the organisational policies and strategies are formulated. In e-Learning, the vision statement should clearly state the overall goals for which the framework for e-Learning deployment can be formulated and strategised.

W

Web 2.0
Web applications that support user generated content and promote greater interaction and collaboration among Internet users and other users, content providers, and enterprises.

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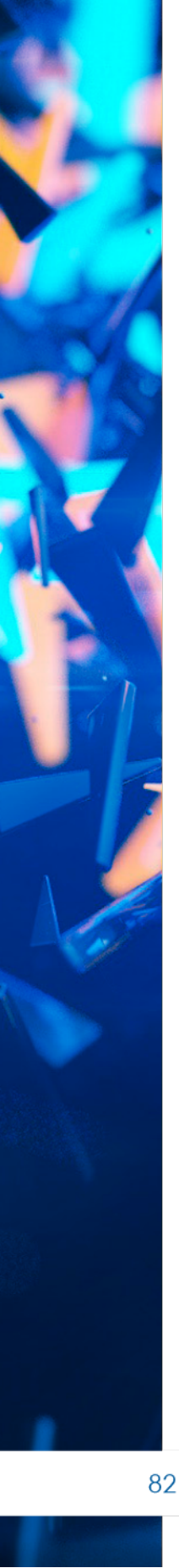

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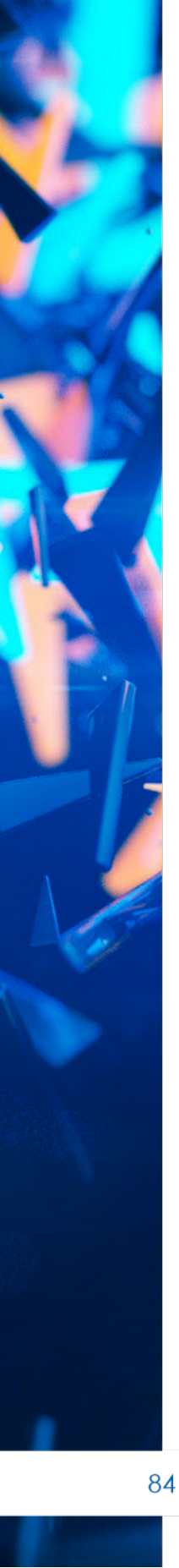

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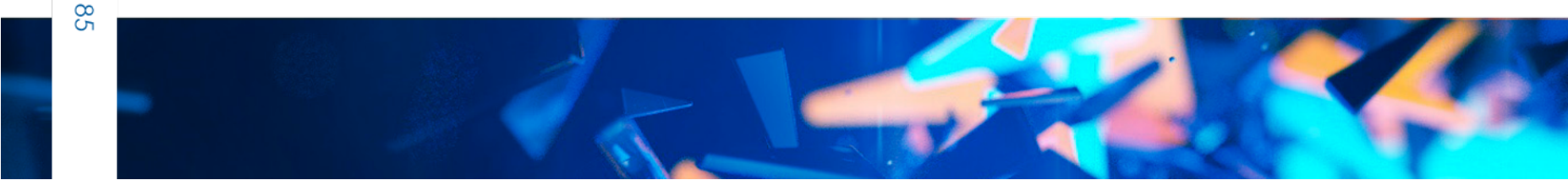
Appendix 1: Software And Tools For e-Learning Content Development

	TASK	COMMERCIAL	FREE	ONLINE WEB 2.0
1.	Lesson Development	• Adobe Captivate • Camtasia Studio • LectureMaker Studio • Raptivity • Articulate • Lectora • Adobe Authoware	• Course Lab (www.courselab.com) • eXe (sourceforge.net/apps/trac/exe/wiki) • Xerta (www.nottingham.ac.uk/~cczjrt/Editor/) • CamStudio (camstudio.org) • RELOAD (www.reload.ac.uk) • AuthorPoint (www.authorgen.com/authorpoint)	• EduCreations (www.educreations.com) • Elearning247 (elearning247.com/online-builder) • MyBrainshark (www.brainshark.com/mybrainshark) • Multimedia Learning Object Authoring Tool (www.learningtools.arts.ubc.ca/mloat.htm)
2.	Image Editing	• Adobe PhotoShop, • Microsoft Paint, • Apple iPhoto • Corel Draw	• GIMP (www.gimp.org), • Picasa (picasa.google.com). • Fotor Photo Editor (www.fotor.com) dan • Photoscape (www.photoscape.org) • Photo! Editor (pho.to/editor)	• SumoPaint (www.sumopaint.com) • Pixlr (pixlr.com) • FotoFlexer (fotoplexer.com) • Fotor (www.fotor.com) • LunaPic (www.lunapic.com)
3.	Audio Editing	• Adobe Audition • Acoustica Premium • SONY SoundForge	• Audacity (audacity.sourceforge.net) • Wavosaur (www.wavosaur.com) • Apple GarageBand (www.apple.com/mac/garageband) • Acoustica Basic Edition (acondigital.com/downloads) • Waveshop (sourceforge.net/projects/waveshop)	• Audio Expert (www.audioexpert.com) • AudioTool (www.audiotool.com) • Soundation (www.soundation.com) • FileLab (www.filelab.com/audio-editor)



4.	Video Editing	• Adobe Premiere Elements • Apple Final Cut Pro • Corel Video Studio • Apple iMovie	• Blender (www.blender.org) • Adobe Premiere Express (www.adobe.com/products/premiereexpress) • Windows Movie Maker (windows.microsoft.com/en-us/windows-live/movie-maker) • Avidemux (avidemux.berlios.de)	• YouTube Video Editor (www.youtube.com/editor) • WeVideo (www.wevideo.com) • Clipcanvas (www.clipcanvas.com/videoeditor) • FileLab Video Editor (www.filelab.com/video-editor)
5	Animation	• Adobe Director • Autodesk 3D Studio Max • Autodesk Maya • Anime Studio • Adobe Flash • Corel MotionStudio 3D	• Blender (www.blender.org) • Microsoft GIF Animator (ms-gif-animator.en.softonic.com) • Pencil (www.pencil-animation.org) • Muvizu (www.muvizu.com)	• Go!ANIMATE (goanimate.com) • PowToon (www.powtoon.com) • Dvolver (dvolver.com/moviemaker) • Animasher (www.animasher.com) • Picasion (picasion.com)

Appendix 2 : The Creative Commons License

1

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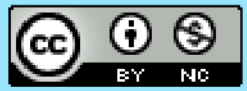
4		**Attribution-NonCommercial CC BY-NC** You are free: • to Share — to copy, distribute and transmit the work • to Remix — to adapt the work Under the following conditions : **Attribution** — You **MUST** attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work). **Noncommercial** — You may not use this work for commercial purposes.

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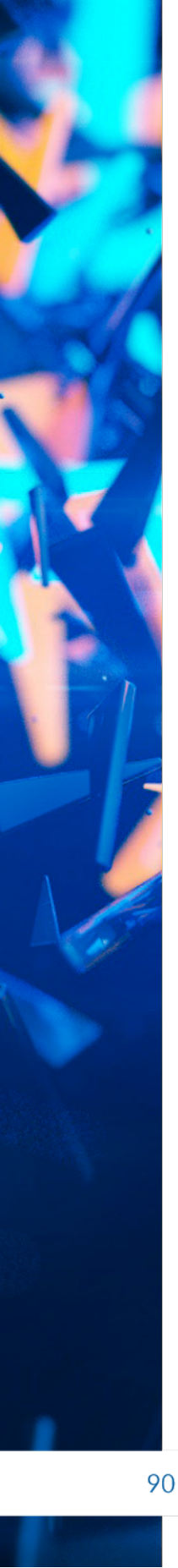

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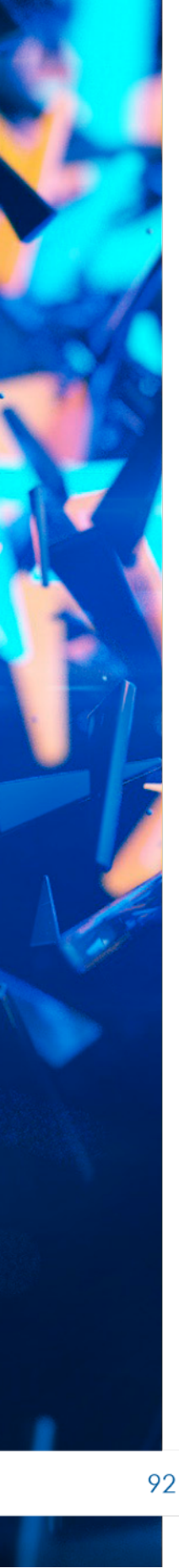
Appendix 3: Recommended Standards for e-Contents

- Recommended Standard
  - When designing e-content, delivery environment or device such display size, available screen area or resolution **MUST** be considered. Some user may choose to use content in a learning management system (LMS) which may have a fixed or reduced amount of available screen area due to the inclusion of the LMS interface. Sometimes user might select a content package player with similar but different constraints or might be a smartphone with a smaller resolution.
  - Therefore web content **SHOULD** be scalable and designed to resize proportionally to fit the available area or resolution. This may be accomplished through a responsive or liquid layout that through the allocation of a percentage of space to each element results in images, text and spaces proportional to the display size.

- Web content (style and formatting)
  - Recommended Standard: Cascading Style Sheet
  - For examples CSS 2.1, is the recommended standard for content developed for cross-platform delivery.

- Text documents (fixed display)
  - Recommended Standard: PDF or method of conveying information to meet WCAG 2.0
  - For examples PDF, documents **SHOULD** be readable for instances Adobe Reader 9.0 and above. PDFs are not automatically accessible, but their accessibility can be improved if they arecorrectly tagged by the author. When used, PDFs **SHOULD** be made as accessible as possible.

- Text documents (editable)
  - Recommended Standard: Compatibility pack that allows document editing, which are supported in other word processing packages.
  - For examples RTF, DOCX or TXT file.



- eBooks
  - Recommended Standard: EPUB (short for electronic publication) is a free and open e-book standard by the International Digital Publishing Forum (IDPF). Files have the extension.epub.

- Spreadsheet formats
  - Recommended Standard: Features that are supported in other spreadsheet packages.
  - For Examples XLSX, which compatible with Microsoft Office & allows document editing in older Office versions.

- Presentation formats
  - Recommended Standard: Features that are supported in other presentation packages.
  - For Examples PowerPoint is a cross-platform compatible presentation application. Keynote and OpenOffice presentations may also be converted to a PowerPoint format to extend their interoperability.

- Web Graphics (non-animated)
  - Recommended Standard: Graphic file that support more than 256 colours, and supports an alpha channel.
  - For Examples GIF, JPEG and PNG. GIF is recommended for images comprising flat or solid areas of colour. JPEG is recommended for photographs and other images with smooth variations of colour (gradients). PNG is recommended for images with up to 256 colours, not requiring an alpha (transparent) channel.

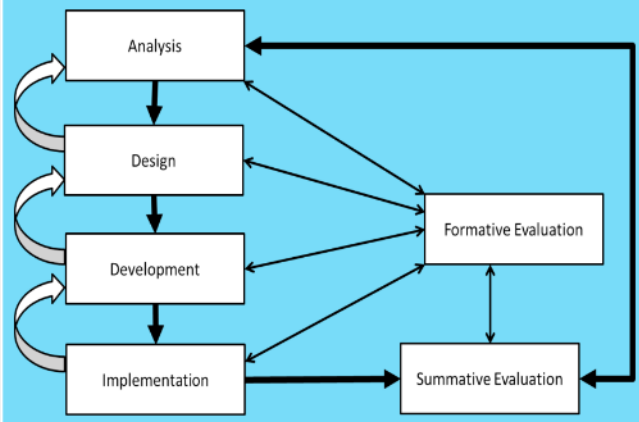
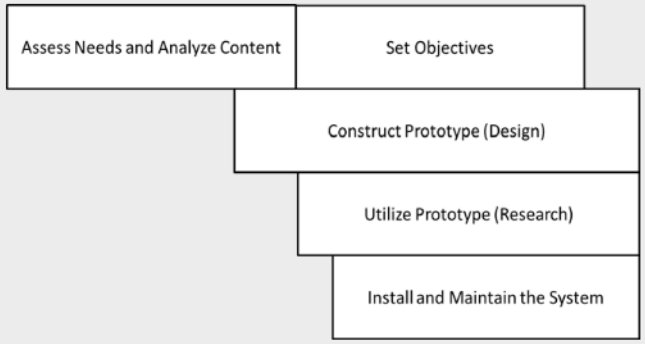
- Audio formats
  - Recommended Standard: Common audio format for consumer audio streaming or storage, as well as a factor standard of digital audio compression for the transfer and playback of music on most digital audio players.

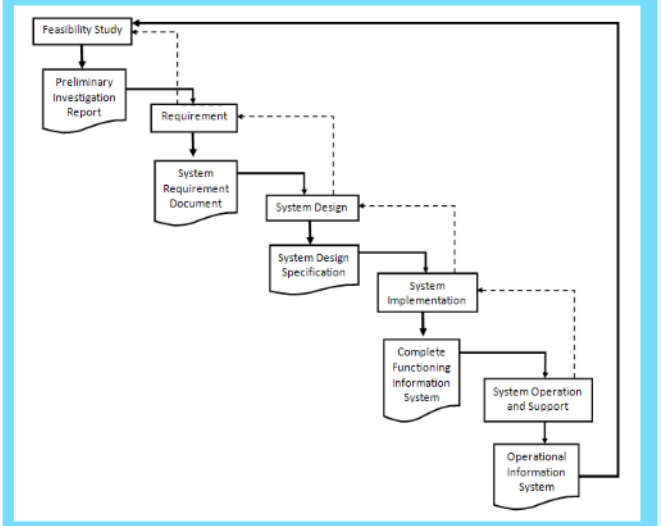
  - For Examples MP3. Content developers **SHOULD** maintain a balance between sound quality and the size of the MP3 file. Minimise the bit rate and sampling frequency where possible to ensure the MP3 file is not unnecessarily large.

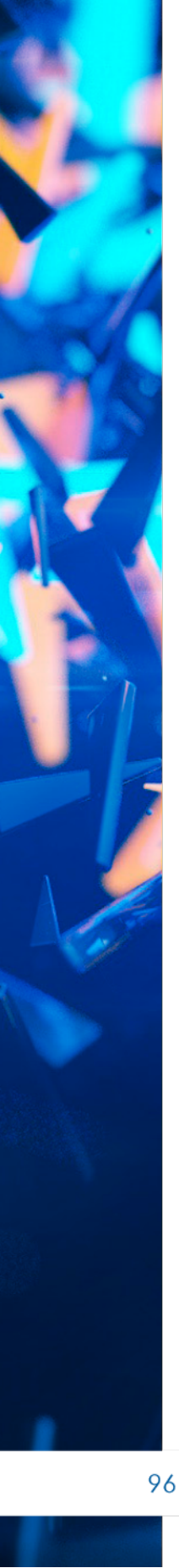
- Video file formats
  - Recommended Standard: Codec is recommended for broadest forward compatibility.
  - For Examples MP4 which the delivery platform is the primary consideration in deciding the format of video content;

- Legacy mobile-specific formats
  - Recommended Standard: to support developers of content whose audience utilises feature phone devices.

Appendix 4: Examples of Instructional Design Model

ID Model	Description
ADDIE 	• **Analysis** - **MUST** identifies the learning problem, the goals and objectives, audience's needs and any other relevant characteristics. • **Design** - a systematic process deals with learning objectives, instructional sequence and media selection. • **Develop** - the actual production of the content and learning materials. • **Implement** - implementandtry out the product • **Evaluate** - assessment **SHOULD** conducted to specify the effectiveness
RAPID PROTOTYPING 	• **Assess Needs and analyse content** – **MUST** analysis on the target group • **Set Objectives** - **MUST** set learning objectives • **Construct Prototype (Design)** - design prototype based on the objectives • **Utilize Prototype (Research)** - **SHOULD** test and utilize prototype • **Install and Maintain the system** – **SHOULD** install in the system to see the effectiveness of the product

ID Model	Description
WATERFALL 	• **System requirements** – **MUST** setup the components to build the system, including hardware requirements, software tools, and other necessary components. • **Software requirements** - The analysis **MUST** be performed to determine the interaction with other applications and databases, performance requirements, user interface requirements, and so on. • **Architectural design** – **SHOULD** determine the software framework of a system to meet the specific requirements. • **Detailed design** - **SHOULD** examines the software components that defined in the architectural design stage and **MUST** produces a specification for how each component is implemented • **Coding** - **MUST** implements the detailed design specification • **Testing** – **MUST** determine whether the software meets the specified requirements and finds any errors present in the code. • **Maintenance** – **MUST** addresses problems and enhancement requests after the software releases.



Appendix 5: Detailed Procedure Involved In ADDIE Model

i. Analysis Phase

(a) Needs Assessment - to identify the goals for an instructional project. In doing so, we are trying to identify the gap between the desired goals and the current status.
(b) Audience analysis - helps us tailor the instruction to specific types learners.
(c) Content Analysis – defining the critical attributes of the given subject matter and also to identify whether any content exists that can be used whole, in part, or with modifications.
(d) Technical Analysis (course delivery and authoring tools) - to define upfront what the minimum requirements will be to participate in the course or training.

ii. Design Phase

(a) Identify Goals - goals assist in the creation of objectives and tell instructors what learners need to know, understand, or apply.
(b) Write learning objectives - objectives **SHOULD** describe the learner's expected level of performance by the end of the course.
(c) Identify entry behaviors- it is crucial to assess entry behaviours and to set appropriate pre-requisites.
(d) Devise an instructional strategy - it is necessary to devise an appropriate instructional strategy to maximize the learning effectiveness.
(e) Create flowchart& storyboard - the flowchart and storyboard **SHOULD** include major course components such as main menu, modules, lessons, quizzes/tests, and any other elements used in the course.

iii. Development Phase

(a) Authoring - start authoring the content.
(b) Media creation / integration / production - create the variety of media content that will support the objectives of each lesson.
(c) Prototyping - while all the previous phases **SHOULD** contribute to the effectiveness of the instruction, it is wise to test a prototype before full development.

iv. Implementation Phase

(a) The processes for this phase **SHOULD** vary based on the size of the user, the complexity of the e-content and the distribution of the materials.

v. Evaluation Phase

(a) First phase of evaluation (formative) – **SHOULD** look for ways to maximize development of future projects, or to enhance the current one.
(b) Second phase of evaluation (summative) - feedback from the user is analyzed to determine how well the implementation phase went.

Appendix 6: Copyright

i. Copyright

Copyright is the exclusive right given to the owner for a specific period. An author's original work is automatically protected once it is fixed in any tangible medium, such as on a paper, video, audio, disk, computer memory, CD ROMs, etc. When an author/developer creates works under the conditions of the copyright, they will be exclusively entitled and eligible to do anything with regards to the work, for example, its reproduction, adaptation, dissemination to the public and the granting license to other persons to use the works.

ii. Protection of Copyright

The owner of a copyright has certain exclusive rights:

- Reproduction is any mode of copying, emulation, duplication, block-making, sound recording, computer program, video recording or sound and video recording, from the original, a duplicate or a publication in its material part, and not being in the nature of making a new work, whether wholly or in part.
- "Adaptation" is a reproduction by conversion, improvement, amendment or copying of the original in its material part, and not being in the nature of making a new work, whether wholly or in part.
- Performing, showing or playing to the public.
- Communication to the public.
- Distribution of copies to the public by sale or other transfer of ownership.
- Commercial rental to the public.

iii. Fair Use of Copyright in Online Education

Copyright law allows portions of a copyrighted work to be used without the author's permission. This is referred to as "fair use". Normally, the fair use guidelines **SHOULD** provide the exceptions from infringement of copyright, if done as follows:

- research or study of the work, which is not done for making profit;
- report of current events through the mass media, accompanied by an acknowledgement of the copyright ownership in such work;
- reproduction, adaptation, exhibition or making available for judicial or administrative proceedings under the law, or for a report of the said proceedings;
- reproduction, adaptation, exhibition or making available by a teacher for teaching, which is not done for making profit;
- reproduction or adaptation of a part of such work, or abridging or making a summary by a teacher or educational institution for distributing or selling to students in the class or in an educational institution, provided that is not done for making profit;
- utilization of the work as a part of the examination questions and answers.

Basically, content on the Internet including the World Wide Web is copyrighted. It is a common misconception that everything on the Web is free. It is obvious that electronic documents on the Web and in other digital formats are easier to reproduce and distribute than other media. However, the ease of reproduction and distribution does not change the copyright status. For these reasons, the fair use limitations on digital media **SHOULD** be more stringent than fair use guidelines for other media.

iv. What Constitutes Copyright Infringement

The copyright in a work infringed when a person who, not being owner of the copyright, and without license from the owner, does or authorizes any of the following acts:

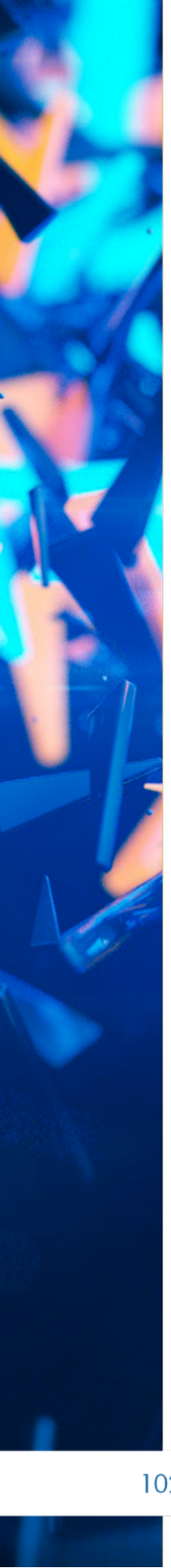
- reproduces in any material form, performs, shows or plays or distributes to the public.
- communicates by cable or broadcast of the whole work or a substantial part thereof either in its original or derivative form.
- imports any article into Malaysia for the purpose of trade or financial gains.
- makes for sale or hire any infringing copy.
- sells, lets for hire or by way of trade, exposes or offers for sale or hire any infringing copy.
- distributes infringing copies.
- possesses, otherwise than for his private and domestic use, any infringing copy;
- by way of trade, exhibits in public any infringing copy;
- imports into Malaysia, otherwise than for his private and domestic use, an infringing copy;
- makes or has in his possession any contrivance used or intended to be used for the purpose of making infringing copies; or
- causes the work to be performed in public.

v. Employment, Copyright and Confidential Information

Under the Act, the author is the first owner of any copyright, subject to the classic exception for employees. However, if the work is created during the course of employment, the employer owns the copyright.

The question of copyright in universities, including teaching materials delivered over the internet it may make sense for the employer to assert ownership of the e-Learning materials produced by teachers and lecturers but to grant them back a non-exclusive license to use the material in their teaching elsewhere. This way the employer gets to be able to adapt and reuse the materials they have paid for and the author is able to use their own materials elsewhere.

All copyright issues arising from e-Learning contents developed by the lecturer **SHOULD** be referred to the Intellectual property Office of the university.



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