



## Introduction

As the Coronavirus (COVID-19) outbreak disrupts a regular flow of life, colleges and universities in Pakistan are also largely impacted and have planned to go online, either for a few weeks or for the remainder of the spring semester. In this situation, structured course work which was already planned by the faculty requires to be shifted online and creates a need for readily accessible and contextualized guidelines.

This handbook provides guidance on designing and developing an e-learning course for instructors who are new to e-learning instructional design. It also provides basic concepts and information on the pedagogical processes and resources involved in an e-learning teaching intervention.

e-Learning is defined differently, as this document is specifically designed for the technical infrastructure, pedagogical requirements and course material that has been planned at the Forman Christian College (A Chartered University) therefore, a definition of e-learning has been contextualized.

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*The transfer of skills, knowledge and conceptual understanding achieved through formal teaching that is being carried out using digital resources such as, ubiquitous devices (computers, laptops, iPad, mobile phones etc.), the Internet, and online resources.*

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This handbook focuses on the planning and execution of formal learning, transforming conventional structured coursework into self-paced and instructor-led e-learning content which may be accessed through a range of digital devices.

The handbook proposes evaluative measures to determine end users' needs and accessibility rate to reap a maximum benefit from e-learning.

This handbook is articulated in three main sections:

Section I: Overview of e-learning

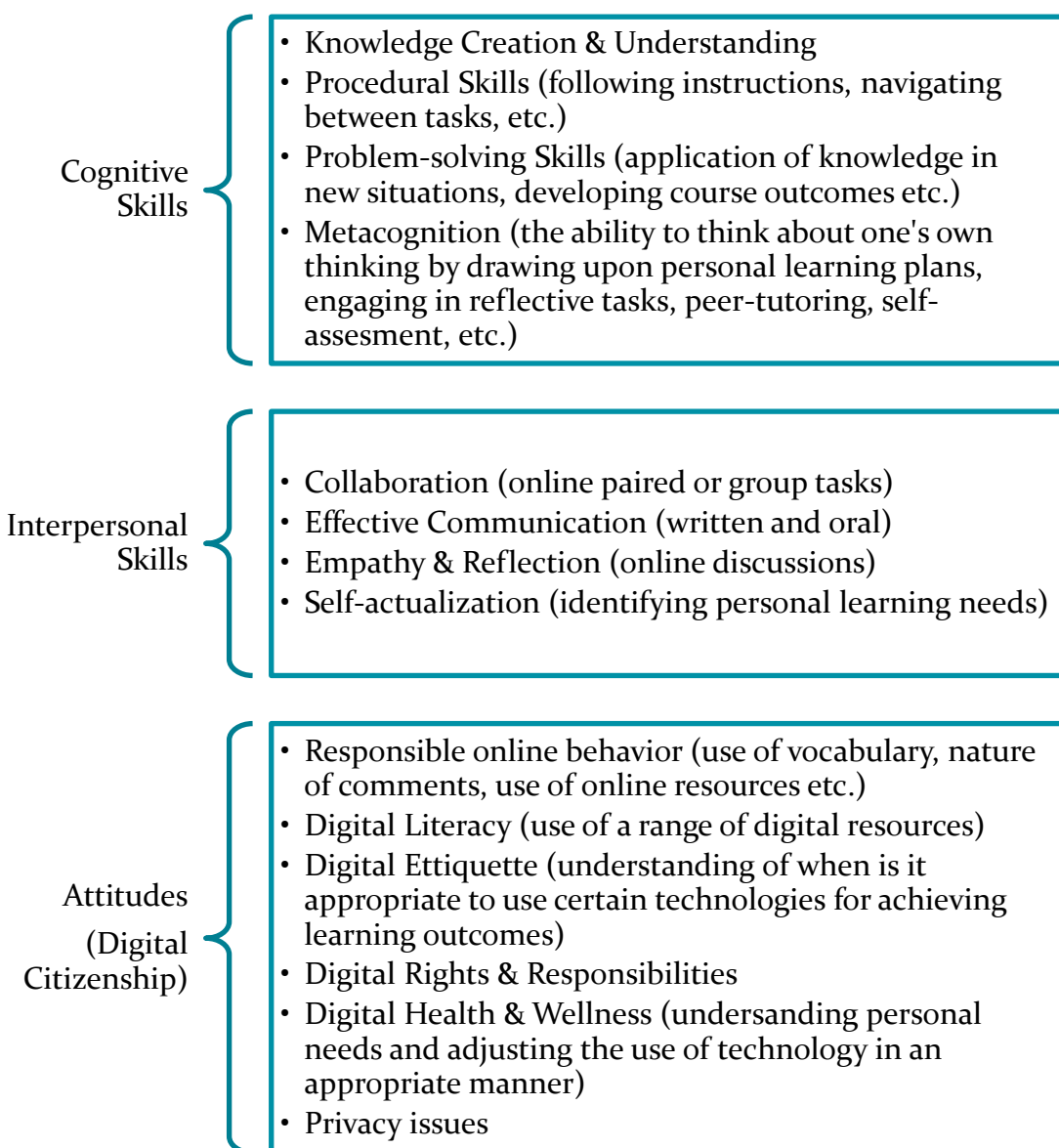
Section II: Designing an e-learning course

Section III: Assessment in online learning

## SECTION I: OVERVIEW OF E-LEARNING

Along with other benefits of e-learning, in the current situation, this is an effective way to reach to a wider student-body dispersed in different geographic locations and restricted in their mobility because of health security reasons.

E-learning facilitates instructors in practicing collaborated, student-centered teaching methods which are more likely to promote personalization of learning paths. E-Learning resources and pedagogy enable instructors to achieve a range of learning skills and inculcate a sense of Digital Citizenship.



Instructors are recommended to ask some questions when planning e- learning intervention:

- Do participants have access to needed computer and communication equipment?
- Do target participants' time schedules and technological accessibility facilitate synchronous learning?
- Is learning best delivered in one unit or spread out over time?
- Does it address a short-term or a long-term learning needs of students?
- Are participants sufficiently self-motivated for e-learning or self-study modes of learning?

Planning for e-learning is more extensive than preparing for conventional classroom teaching if multimedia or interactive methods are used. It is of a paramount importance for instructors to be aware of accessibility rate amongst end-users'. This handbook proposes an e-learning readiness survey attached as Appendix I.

### E-LEARNING APPROACHES

There are two general approaches to e-learning: self-paced and facilitated/instructor-led.

Self-paced learners are autonomous to define their personal learning paths based on their individual needs and interests. This type of learning is product oriented and learners determine their own pace, schedule of work and the process through which they achieve their learning targets.



The instructors develop an e-learning content according to a set of students' learning objectives (SLO) and deliver the content using different media elements, such as text, graphics, audio and video. The content must provide as much learning support as possible (through explanations, examples, interactivity, feedback, glossaries, etc.), in order to make learners self-reliant. Once a learning objective has been achieved, learners may continue to progress on the continuum of SLO until they reach to the point of saturation. Assessment is embedded within different segments of tasks.

Although the learners are independent in this approach, support such as e-mail-based communication may be expected from the instructor.

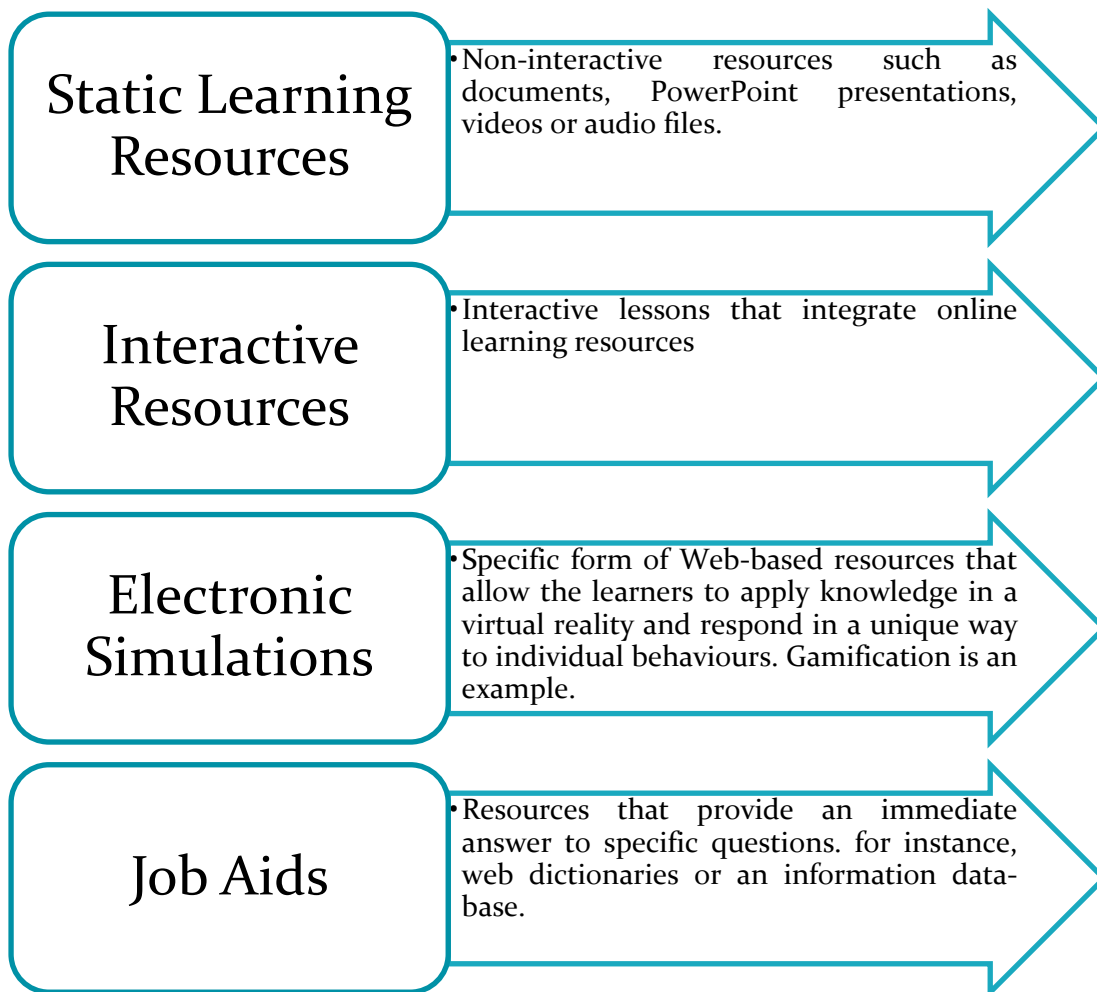
Facilitated and instructor-led e-learning courses provide different levels of support from instructors and collaboration among learners. This model promotes realizing SLO in a chronological order to accomplish a linear curriculum. The instructor schedules and lead the course through regular online intervention in the form of lectures, LMS resources, e-mails, discussion forums, polls, whiteboards, conferencing etc.



At the end, a final step typically includes an exercise or assessment to measure learning.

### TYPES OF E-LEARNING CONTENT

e-learning content can be classified into four broad types:



## SYNCHRONOUS & ASYNCHRONOUS E-LEARNING

Synchronous events take place in real time. The communication between two individuals in a synchronous setting require both to be online at the same time. Chat conversations, live video and audio conferencing is an example of synchronous communication.

Asynchronous events are time-independent. A self-paced course is an example of asynchronous e-learning because online learning takes place at any time. Webcasting, e-mail, discussion forums, comments feature are examples of asynchronous communication tools.

## CHARACTERISTICS OF AN E-LEARNING COURSEWORK

- *Learner-centered content:* e-Learning curricula should be relevant and specific to learners' academic needs, aligned with the SLO and should promote a range of cognitive skills.
- *Granularity:* e-Learning content should be segmented to facilitate assimilation of new knowledge and to allow flexible scheduling of time for learning.
- *Engaging:* Online tasks should promote attention and interest among learners.
- *Interactive:* The e-learning content should promote frequent interaction between the instructor and learner, among learners, or with learners' immediate environment to sustain engagement.
- *Personalized:* Self-paced courses should be customizable to reflect learners' interests and needs; in instructor-led courses, tutors and facilitators should be able to follow the learners' progress and performance individually.

## SECTION II: DESIGNING AN E-LEARNING COURSE

An effective e-learning course should be strongly grounded into the context of students, learners, and the institution however, in the given circumstances it is wise enough to adapt to an existing instructional design model which is informed by systematic research. There are many different instructional design models that can be used to develop learning content suitable for an e-learning setting.

This handbook uses ADDIE Model (Figure 1) which is divided into five tiers: Analysis, Design, Development, Implementation, and Evaluation.

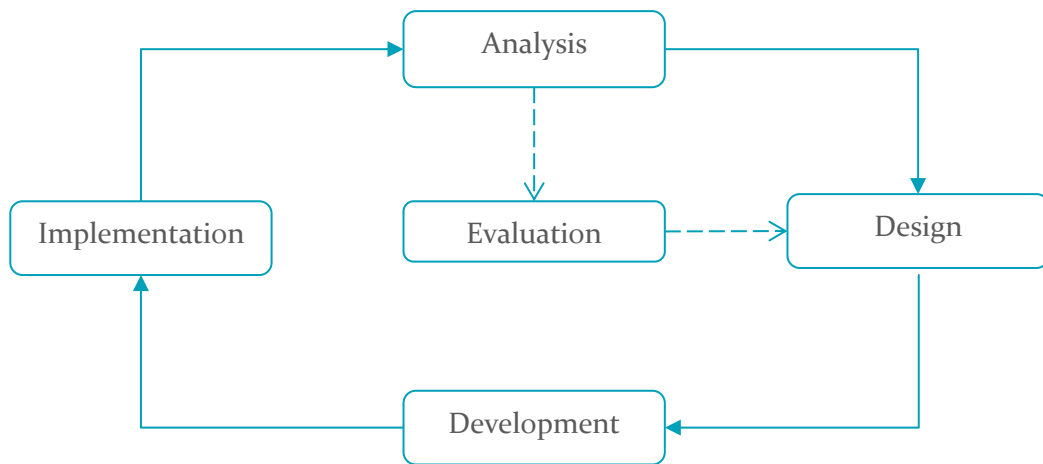


Figure 1 ADDIE Model

### OPERATIONS UNDER ADDIE MODEL

Operations which are informed by ADDIE Model have been contextualized for FCCU and listed in Figure 2.

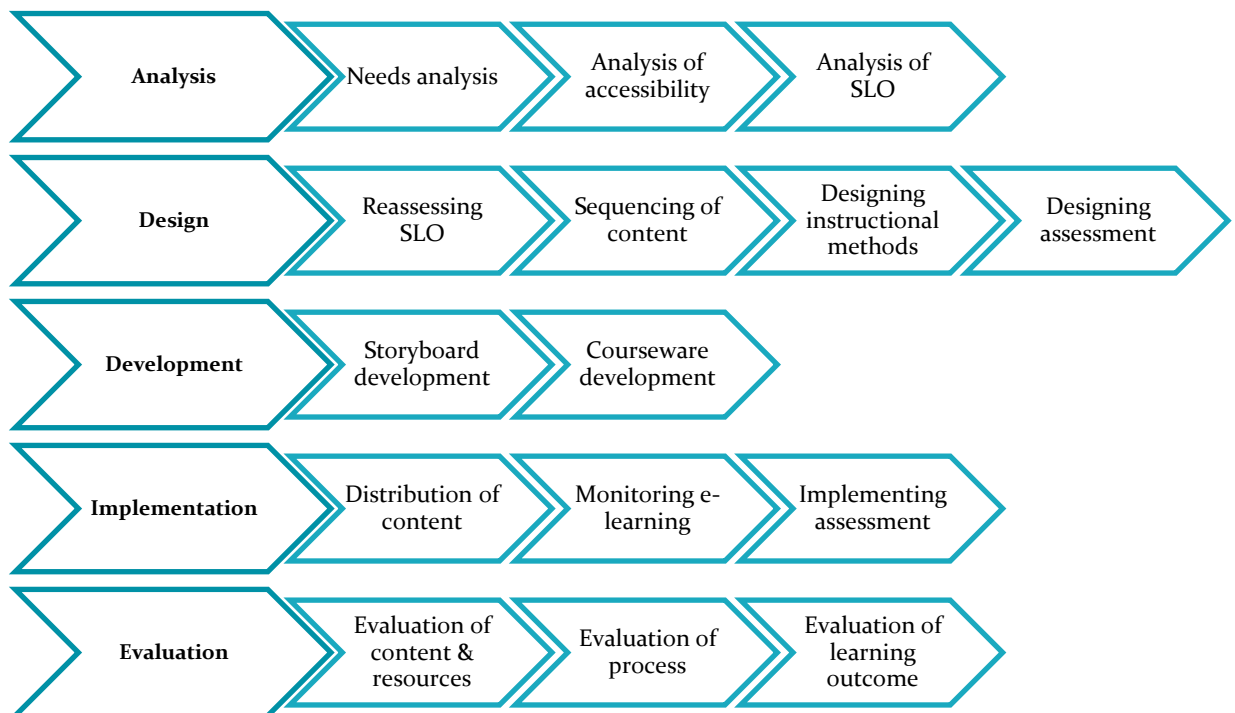


Figure 2 Operations within ADDIE Model

In the present situation, instructors at FCCU are required to review the already planned coursework and revise it to be delivered in an e-learning environment. A good starting point is to determine the context of learners by analyzing accessibility rate and to develop an anticipation for expected challenges. This information is likely to prepare instructors to offer best solutions to each student while adopting a preventive approach rather than a reactive approach.

Understanding of learners' digital literacy is another crucial step in the design and delivery of e-learning. Learners' ability level to work with technology is likely to determine their engagement level and this information will help instructors to plan level-appropriate tasks for students. Any digital disability (auditory, visual, or reading) which is reported during analysis stage can enable instructors to plan alternatives for such students.

Another important aspect of analysis is to revisit already planned SLO and reassess their significance to choose only the most relevant and key objectives. Some questions that may direct instructors' decisions about selecting SLO include:

- What is essentially required to develop a theoretical understanding of the course?
- What are the key learning objectives that you wish to accomplish through your course?
- How can you create possibilities for learners to practically demonstrate their learning?
- Can you integrate task-based learning within the set of SLO?

The next stage of Design will provide a blueprint to instructors and will enable them to develop a storyboard for their online instruction. At the end of this stage the instructors will have a tentative organization of instruction (week-wise, unit-wise, SLO-associated), possible delivery approaches (synchronous/asynchronous, self-paced/ instructor led), and delivery formats (audio/video resources, minilectures, Open Educational Resources etc.) The Design stage may include the following activities:

- Finalizing a set of SLO required essentially to achieve the general course objective.
- Defining the sequence in which the SLO should be achieved.
- Outlining appropriate resources for instructional delivery.



- Designing assessment that aligns well with the selected SLO.
- Designing the frequency and methodology for self-evaluation (instructors).

In the third stage of Development, courseware is produced. The instructors should ask themselves the following questions to add value to course content:

- Will the students understand what I want them to understand through this content?
- What else do I require from them to do in order to fully understand the concept?
- How will I know they have truly understood the concept?

Nature of the content will vary considerably from one course to another, depending on requirements of the course, instructors' teaching philosophy and choices, learners' academic needs, and learners' digital competence level. The courseware may include from a wide range of static to interactive learning resources. Once the instructors envision the courseware, they create a storyboard which lays out activities in a logical order.

A storyboard is a document that describes all the components of the final interactive products, including images, text, interactions, assessment tests. The storyboard is an integration of instructional methods (all the pedagogical elements needed to support the learning process) and courseware.

At this stage, instructors may also work in teams. In case multiple instructors are teaching the same course, they are strongly suggested to divide the tasks equally amongst them to accomplish a comprehensive planning for online teaching in a shorter period.

MOODLE, the LMS used at FCCU, allows instructors to develop and disseminate an interactive as well as static courseware. It provides the possibility of timed/untimed quizzes, synchronous chat feature, online grading and feedback for students, presentations paired with video feature and several options that can be used for developing and showcasing courseware. Instructors are suggested to explore MOODLE before they begin to plan courseware. A detailed tutorial arranged by the IT Department at FCCU can be accessed here: <https://www.fccollege.edu.pk/training-for-faculty-use-of-moodle-for-online-teaching/>

The stage at which the course content is delivered to learners is called as the Implementation stage. The courseware can be announced using a range of platforms

depending on instructors' choice and preferences. Some platforms could be MOODLE, direct e-mails sent to students, Edmodo, Google Classroom, and similar online learning management systems (LMS). Some directive questions for instructors for making a well-thought-out choice may include:

- Is the system easy to navigate through?
- Is the interface user-friendly?
- Are there any restrictions to the size of content which maybe uploaded to the system?
- What are the possibilities offered by the system?
- Does the system offer you a possibility of tracking students' activities?
- How can you ensure transparency for students' activities?
- Does the system allow you to cater o a rage of learning styles?

This stage also includes managing and facilitating learners' activities, troubleshooting for any unforeseen glitches, and extending learning through the provision of extension tasks.

The final stage of Evaluation takes in consideration learners' reactions, the achievement of learning objectives, the range of skills, knowledge and attitudes delivered and received through e-learning intervention, status of data privacy, manifestation of digital citizenship throughout the online learning, and the impact of e-learning on students' motivation and achievement level.

A Quality Assurance Checklist is attached as Appendix II which may facilitate instructors in evaluating the course content before presenting it to the students.

### SECTION III: ASSESSMENT IN ONLINE LEARNING

Assessment refers to any of a variety of procedures used to obtain information about the extent to which students have been able to achieve the intended learning outcomes. It includes numerous types of measures of knowledge, skills, and attitudes. Assessment may have an evaluative component—a summative assessment, such as a final exam—that places a value or judgment on performance.

In the context of e-learning, as discussed in Section II, instructors should think about ways in which they can determine if the students have understood concepts delivered by them through a range of learning content.

Such design process is “backward” because it is a reverse flow of actions, instructors decide upon essential SLO, think ways in which they can determine if students have understood the concepts (assessment planning) and then design course work and its sequence.

It is important to collate an evidence of understating of concepts, instructors may consider thinking about what would students be saying and doing if they truly understood what they were learning? Wiggins and McTighe (1998) presented The Six Facets of Understanding (Table 1) which can be utilized to plan assessment in the context of e-learning.

*Table 1 Six Facets of Understanding*

| <b>Facet</b>          | <b>Summary</b>   |
|-----------------------|--|
| <b>Explanation</b>    | To ensure students understand why an answer or approach is the right one. Students explain or justify their responses or justify their course of action.   |
| <b>Interpretation</b> | To ensure students’ answers are principled, they can encompass as many salient facts and points of view as possible  |
| <b>Application</b>    | To ensure students’ key performances are conscious and explicit reflection, self-assessment, and self-adjustment, with reasoning made evident.   |
| <b>Perspective</b>    | To ensure students know the importance or significance of an idea and to grasp its importance or unimportance. They should be able to analyze and defend why is an idea worthwhile?                                    |
| <b>Empathy</b>        | To ensure students manifest the ability to see the world from different viewpoints and respect diversity of thought, feelings and emotion.   |
| <b>Self-Knowledge</b> | To ensure students are deeply aware of the boundaries of their own and others’ understanding; able to recognize their own prejudices and projections; has integrity – able and willing to act on what one understands. |

Source: Wiggins, G., & McTighe, J. (1998). *Understanding by Design*. p. 85-97. Alexandria, VA: Association for Supervision and Curriculum Development.

Once the instructors identify which facet of understanding they wish to assess, following a GRASPS Model they can better plan an assessment task that is not only authentic but also engaging and meaningful for students.

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### **GRASPS (Goal, Role, Audience, Situation, Performance and Standards) Model**

*Goal: What do I wish to assess?*

*Role: What will students do/ perform to demonstrate their understanding?*

*Audience: Can the students demonstrate their understanding to an audience, if yes, who might they be?*

*Situation: How will I distinguish between different levels of quality, proficiency, or understanding? Are the students aware of standards?*

*Performance: Where and what should I look for to judge students' success?*

*Standard: What are the criteria of success? Are the students aware of the success criteria?*

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Instructors may plan summative projects either at the end of a topic or a unit. Research asserts that in an online setting, tasks of a reflective nature are more likely to provide a reliable assessment. Students can engage in reflection and metacognition through several activities such as, journals with guiding questions; traditional objective answers with an explanation of investigative approach; debates over an instructor's lecture; oral vivas; personal audio channels to reflect on ideas (Audacity<sup>1</sup>, Wetoku<sup>2</sup>, Vokle<sup>3</sup>); and individual blogs; online presentations (Prezi); analysis of reading material and critique exercises post reading exercises; digital storytelling etc.

Depending upon the nature of course and SLO, the instructors may choose from the assessment strategies listed above.

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<sup>1</sup> Audacity <http://audacity.sourceforge.net/download/>

Audacity is a free audio software platform that is ideal for recording and editing voice comments. A good source for tutorials on how to use Audacity can be found at

<http://www.how-to-podcast-tutorial.com/17-audacity-tutorial.htm>.

<sup>2</sup> Wetoku <http://wetoku.com/> Record a video interview with someone else. The two speakers are put side by side on the same screen.

<sup>3</sup> Vokle <http://www.vokle.com/> A fun system that allows users to host a video radio show.

## **References**

*Olcott, D. (1996). Strategies for Managing Successful Distance Education Programs. Journal of Distance Education/ Revue de l'enseignement à distance. Retrieved March 18, 2020 from <http://cade.athabascau.ca/vol11.2/olcott.html>*

*Orlando, J. (2011). How to Effectively Assess Online Learning. WI: Magna Publications*

*Wiggins, G., & McTighe, J. (1998). Understanding by Design. p. 85-97. Alexandria, VA: Association for Supervision and Curriculum Development.*

## Appendix I

### e-Learning Readiness Questionnaire

**1= Strongly Agree, 2 = Agree 3 = Unsure, 5 = Disagree, 6 = Strongly Disagree**

|     | <i>Items</i>   | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> |
|-----|--|----------|----------|----------|----------|----------|
| 1.  | I have a personal machine which I can use to access course material.   |          |          |          |          |          |
| 2.  | I can dedicate approximately 20 hours per week (any time during the day or night) to online academic engagement. |          |          |          |          |          |
| 3.  | I am proficient at creating, saving, locating, and opening different types of files on a computer.               |          |          |          |          |          |
| 4.  | I have access to a webcam and microphone for simple multimedia participation.                                    |          |          |          |          |          |
| 5.  | I am fairly comfortable with typing.   |          |          |          |          |          |
| 6.  | I can download additional online resources on my computer if required.   |          |          |          |          |          |
| 7.  | I have reliable access to a high-speed Internet connection at all times of the day.                              |          |          |          |          |          |
| 8.  | I am proficient in online navigation.  |          |          |          |          |          |
| 9.  | I can access multimedia resources available online such as, videos and audio files.                              |          |          |          |          |          |
| 10. | I can access my university email account regularly to check for new messages.                                    |          |          |          |          |          |
| 11. | I can log-on and navigate through different options of MOODLE.   |          |          |          |          |          |
| 12. | I have no problem with online digitalized reading.   |          |          |          |          |          |
| 13. | I have no problem with self-paced learning.  |          |          |          |          |          |
| 14. | I prefer learning through reading texts.   |          |          |          |          |          |
| 15. | I prefer learning through digital simulations.   |          |          |          |          |          |
| 16. | I prefer learning through collaborative online tasks.  |          |          |          |          |          |
| 17. | I am usually able to stay on task and avoid distractions while I am working online.                              |          |          |          |          |          |
| 18. | I am good at setting goals and deadlines for myself.   |          |          |          |          |          |

|     |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|
| 19. | I can express my ideas clearly in online discussion forums.  |  |  |  |  |  |
| 20. | I have little or no trouble expressing myself using formal grammar and spelling.                                       |  |  |  |  |  |
| 21. | I am comfortable asking for help from my classmates or the instructor via email, discussion board, or chat.            |  |  |  |  |  |
| 22. | I can share my personal cellphone number with my peers and instructor for participating in class communication groups. |  |  |  |  |  |
| 23. | In case of difficulty in accessing the Internet and online learning resources, I would prefer:                         |  |  |  |  |  |
|     | a) coming to the university only to access the online learning material  |  |  |  |  |  |
|     | b) receiving the courseware through an external storage device (CD, USB)   |  |  |  |  |  |
| 24. | Any other suggestion (please write a short answer)   |  |  |  |  |  |

Appendix II  
**Quality Assurance Checklist<sup>4</sup>**

a- Quality of Content

| <i>Indicator</i>  | <i>Fully</i> | <i>To a great extent</i> | <i>To some extent</i> | <i>Not at all</i> | <i>Comments</i> |
|---|--------------|--------------------------|-----------------------|-------------------|-----------------|
| Content and learning activities are clearly aligned with learning outcomes.               |              |                          |                       |                   |                 |
| Content promotes higher order thinking skills.  |              |                          |                       |                   |                 |
| Content is sequenced logically and effectively.   |              |                          |                       |                   |                 |
| Learning experiences are sufficient in number and scope to support the targeted outcomes. |              |                          |                       |                   |                 |
| Content is suitable for e-learning  |              |                          |                       |                   |                 |
| Content is suitable for students' digital competence.                                     |              |                          |                       |                   |                 |
| Content engages and involves learners.  |              |                          |                       |                   |                 |
| Content is presented in clear and easy language.  |              |                          |                       |                   |                 |

b- Interface & Navigation

| <i>Indicator</i>   | <i>Fully</i> | <i>To a great extent</i> | <i>To some extent</i> | <i>Not at all</i> | <i>Comments</i> |
|--|--------------|--------------------------|-----------------------|-------------------|-----------------|
| Users are familiar with the system interface.  |              |                          |                       |                   |                 |
| The system interface allows users to navigate between pages.   |              |                          |                       |                   |                 |
| Hyperlinks to external resources such as, video links, web pages etc. are provided where applicable. |              |                          |                       |                   |                 |
| Interface provides appropriate instructions for navigation and interaction.                          |              |                          |                       |                   |                 |
| Interface allows user control (font size, expand/contract options)                                   |              |                          |                       |                   |                 |

<sup>4</sup> Adapted from NHS (2009) Quality assurance checklist for evaluating online learning courses. NHS. Scotland.



c- Privacy & Copywrite

| <i>Indicator</i>  | <i>Fully</i> | <i>To a great extent</i> | <i>To some extent</i> | <i>Not at all</i> | <i>Comments</i> |
|---|--------------|--------------------------|-----------------------|-------------------|-----------------|
| Users have the autonomy to hide their personal information from a specific person.            |              |                          |                       |                   |                 |
| All quoted materials are cited correctly by adhering to one of the standard citation formats. |              |                          |                       |                   |                 |

d- Instructional Design

| <i>Indicator</i>  | <i>Fully</i> | <i>To a great extent</i> | <i>To some extent</i> | <i>Not at all</i> | <i>Comments</i> |
|---|--------------|--------------------------|-----------------------|-------------------|-----------------|
| Course design reflects a clear understanding of learners' needs and incorporates multiple levels of mastery (novice to expert). |              |                          |                       |                   |                 |
| The course is logically organized into units or weekly lessons.   |              |                          |                       |                   |                 |
| The course engages learners in activities that address a variety of learning styles and preferences.                            |              |                          |                       |                   |                 |
| Course instruction includes activities that engage learners in active learning.   |              |                          |                       |                   |                 |
| Course design provides alternative learning pathways to master the content, based on learners' needs.                           |              |                          |                       |                   |                 |
| Course design provides appropriate opportunities for instructor-learner interaction.  |              |                          |                       |                   |                 |
| Course design provides appropriate opportunities for providing timely feedback about students' progress.                        |              |                          |                       |                   |                 |

e- Assessment

| <i>Indicator</i>  | <i>Fully</i> | <i>To a great extent</i> | <i>To some extent</i> | <i>Not at all</i> | <i>Comments</i> |
|---|--------------|--------------------------|-----------------------|-------------------|-----------------|
| Assessment strategies are consistent with course objectives and are clearly stated. |              |                          |                       |                   |                 |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| Assessment strategies enable learners of his/her progress. |  |  |  |  |  |
| Assessment promotes reflective thinking.                   |  |  |  |  |  |
| Each SLO is assessed.                                      |  |  |  |  |  |
| Assessment reinforces learning.                            |  |  |  |  |  |