AUST Guideline for Online Teaching and Learning

Preamble

With the advent of better technologies the way we work, think and live are changing, but the rate of change has been quite varied depending on the region, time, age group and society. But the world has not seen any intensive pressure in recent days for changing very fast and this is due to pandemic COVID 19. Together with otherU domains, the teaching and learning domain is also being influenced heavily by the unfolding events due to worldwide and country wise restrictions imposed by serious health issues. The Universities are facing a daunting task of catering the need of disseminating knowledge to the students despite the lockdown and social distancing restrictions. As some venues are available using the internet system, people are exploiting the related facilities to attain the goals of Teaching and Learning. The Universities, Colleges and Schools are falling back on the available technologies for online teaching, and Ahsanullah University of Science and Technology (AUST) is no exception to that. For proper utilization of the facilities to attain the goals in an optimum way, the users should have the capability of understanding and handling the procedure. To make the users aware of the available facilities for proper teaching, the AUST Institutional Quality Assurance Cell (IQAC) is preparing the guideline which will be very useful for the people who are not very much conversant with this facilities and systems. It is hoped that the present document will be very useful for those who are new or have little knowledge about the technologies available, and help them in teaching and learning online in an effective way.

A. Theory Courses

Course Site

(A.1) All the AUST faculties are requested to launch Online Course Sites using their preferred platform (e.g. Google Classroom, Moodle, Piazza) for all the courses they are currently teaching.

(A.2) For each section of the theory courses, there should a Course Site.

(A.3) For Senior Faculties, Head of the Departments should depute junior lecturers to launch and maintain their Course Sites if they need assistance.

Online Teaching and Learning Resources

(A.4) All the AUST faculties will upload Course Outlines in PDF format to their online Course Sites.

(A.5) Existing lecture slides and/or handouts should also be uploaded in the Course Sites, preferably in PDF format.

(A.6) Faculties are requested NOT to upload any copyright materials.

(A.7) Faculties are encouraged to extensively use Open Educational Resources (OER) discussed in Section 4.1 of Appendix-1.

Online LIVE Class Sessions

(A.8) Initially, the AUST Faculties will conduct online review class sessions using on of their preferred platform (e.g. Google Hangout Meet, Zoom).

(A.9) After the initial review sessions, the AUST Faculties will start to conduct online LIVE class. sessions for unfinished topics as per the class routines of the current semester as per the UGC guideline¹.

(A.10) The medium of instruction for all the online LIVE sessions should be in English.

(A.11) All online class sessions should be recorded and shared with the students through an well-established platform, preferably through YouTube.

(A.12) The total classes or hours (previous face-to-face class sessions before the closure due to Covid-19 plus online LIVE class sessions) should not be less than prescribed minimum of the approved course structure. e.g. for a 3 credit hour course, the total number of class sessions (both face-to-face and online) should be 42.

(A.13) All the AUST faculties, who are conducting online LIVE sessions, should keep records of:

- the no. of classes/sessions,
- the topics being covered, and
- the participation statistics (60% to be attained).

Online Teaching and Learning Activities

(A.14) The AUST faculties will enforce Outcome-based Education (OBE) in their online courses through Constructive Alignment as discussed in Appendix-2.

(A.15) Teaching and Learning (T&L) activities and assessment methods/strategies should be aligned to the course outcomes with the help of appropriate domains and levels of Bloom's Taxonomies.

(A.16) Apart from LIVE class sessions, diversified online T&L activities (e.g. Discussions in Online Forums like Google Group, explanation of critical concepts through videos uploaded on YouTube) should be facilitated.

(A.17) All the AUST faculties are encouraged to design their online T&L activities <u>for each</u> <u>course outcome</u> considering established instructional models and best practices as demonstrated in a framework in Section 6 of Appendix-2.

¹ Available at http://www.ugc.gov.bd/sites/default/files/files/ugc.portal.gov.bd/notices/ 96bd986f_e63e_406d_a08a_a2435955172b/2020-05-07-14-16-797bf0b9e3e8fd863e200f783ebe08c1.pdf

Online Teaching and Learning Assessments

(A.18) As per the UGC guideline, all the <u>graded summative assessments</u> (like Class Performances, Quizzes, Assignments, Final Exam) will be done in the face-to-face environment after reopening of the university.

(A.19) The AUST faculties will conduct <u>non-graded formative assessment activities</u> (e.g. nongraded Self-Assessment Quizzes, Interactive Video Quizzes using freely available EdPuzzle or H5P) to help the students evaluable their learning.

(A.20) All the AUST Faculties are encouraged to encouraged to design their non-graded formative online T&L assessments <u>for each course outcome</u> in accordance to a framework presented in Section 8 of Appendix-3.

Consultation Hours

(A.21) AUST faculties will allocate online LIVE consultation hours (1 hour per week for each 3 Credit Hour Teaching Load) using a suitable online platform (e.g. WhatsApp, Skype, Google Meet, Zoom) and notify the students ahead of time.

B. Final Year Project/Thesis

(B.1) All the final year Thesis/Project Supervisors will conduct weekly meetings with their students using an online platform.

(B.2) A logbook should be maintained to record minutes of the weekly meetings.

Appendix 1: Online Teaching & Learning Resources

To conduct online T&L, diversified resources are required. The main four types of resources are:

- 1. Hardware resources
- 2. Software resources
- 3. Network resources
- 4. Media resources

These four different types of resources are briefly discussed in the subsequent headings below.

1. Hardware Resources

Different types of hardware resources are required for the facilitators and the learners. The common hardware resources are:

- Servers (mainly to host a learning management system)
- Personal computers (mainly required by the facilitators)
- Laptops (widely used by the facilitators & the learners for flexibility)
- Smart phones (mostly used by today's learners)
- Tablets (used by many learners)
- Scanners (to prepare media resources)
- Storage devices

The online course facilitators usually need a personal computer (PC), laptop, tablets or a smart phone to:

- Prepare & share media resources
- Facilitate online T&L activities through synchronous & asynchronous communications

The online learners also need a personal computer (PC), laptop, tablet or a smart phone to:

- Download and use media resources
- participate in online T&L activities

2. Software Resources

Different types of software resources are required to conduct online courses for:

- Preparing media resources
- Sharing media resources

Communications

Type of Software	Popular Choices
Software for Preparing media resources	 Operating System: Ubuntu Internet Browser: Mozilla Firefox, Google Chrome Word Processor: LibreOffice Writer, Google Docs Spreadsheet: LibreOffice Calc, Google Sheets Presentation: LibreOffice Impress, Google Slides Drawings: LibreOffice , Google Drawings Forms: Google Forms Graphic Editor: GIMP, Inkscape Screen Recorder: OBS Studio, Screencast-O-Matic Audio managers: Audacity Video Editor: OpenShot
Software for Sharing media resources	 Learning Management System (LMS) : Google Classroom, Moodle, D2L, Piazza File sharing platform: Google Drive, Dropbox, OneDrive
Software for Communications	 Email clients: Gmail, Yahoo Call managers: WhatsApp, Viber, IMO Discussion Forums: Google Groups Live sessions: Zoom, Google Hangout Meets

Table 1: Freely Available Software Resources for Online Courses

3. Network Resources

The type of a network resource is extremely import for smoothly facilitate an online course. The main types of network resources relevant for online courses are:

- Public Switched Telephone Network (PSTN) for voice calls
- Digital Subscriber Line (DSL) for internet related services
- Local Area Network (LAN) for internet related services
- Wide Area Network (WAN) for internet related services
- WiFi for internet related services
- 2G/3G/4G/5G Mobile phone network for voice calls, SMS, internet related services

The software and media resources should be judiciously chosen based on available network resources in terms of bandwidth for smooth data transfer over the internet for facilitating online course effectively.

4. Media Resources

Different types of media resources can be shared with the learners. Some of the common types of media resources are their preferred formats are shown in the table below.

Type of Media Resource	Preferred Format for Online T&L
Lecture slides	PDF
Handouts	PDF
Audios	mp3
Videos	mp4 for YouTube or other online platforms
Images / Infographics	png
Email messages	Texts in Unicode
SMS messages	Texts in Unicode
Discussion forum posts	Texts in Unicode

Table 2: Format for the Common Media Resources

Size of the media resources should be as small as possible to reduce the time for downloading them. Also, appropriate format should be chosen to share these resources with the learners.

4.1. Open Educational Resources (OER)

In recent times, a revolutionary concept known as **Open Educational Resources** or **OER** (https://wiki.creativecommons.org/wiki/What_is_OER%3F) has emerged. All the educators should extensively incorporate freely available and legally managed OER resources in their learning portfolios. OER resources are usually associated with **Creative Common (CC) Licenses**. So, educators should have a solid understanding regarding the six types of CC licenses (https://creativecommons.org/licenses/) before sharing OER with their learners.

Appendix 2: Online Teaching & Learning Activities in OBE Perspective

Before selecting different online T&L activities, a teacher (who should discharge the duties of a **facilitator**) should critically focus on the course learning outcomes and associated Bloom's Taxonomy levels. Then, appropriate T&L activities should be judiciously selected considering Constructive Alignment [1-3] between the course learning outcomes and the associated T&L activities by maintaining same Bloom's Taxonomy levels, which is known as alignment. This constructive alignment activity is mandatory in OBE. Apart from constructive-alignment, it will be better to consider available resources, established best practices and other instructional models which are well-established for online courses.

Under this backdrop, an innovative framework has been proposed here for designing online T&L activities. This framework has been developed considering constructive alignment [1-3], required resources, required workload for facilitation, best practices [5] and Community of Inquiry framework [6] used for online courses. These main considerations [1-6] for the proposed framework are briefly highlighted in the subsequent sections.

1. Constructive Alignment for Online Courses

Like the face-to-face (f2f) courses, online courses should also include teaching and learning activities which are aligned with the learning outcomes and the assessments to meet the main condition of constructive alignment as shown in Figure-1. Some of the key points related to constructive alignment [1-3] are presented below.

- "In constructive alignment, we start with the outcomes we intend students to learn, and align teaching and assessment to those outcomes" (Biggs, 2019)
- "an example of outcome-based education" (Biggs, 2019)
- "If you write learning objectives and use them appropriately, your course will be in constructive alignment (Biggs, 1999) with lessons, class activities, assignments, and tests all pointing toward the same knowledge and skills" [8]
- "constructively aligned teaching seems to produce high quality learning outcomes and student satisfaction" Biggs (2014)

4 Major Steps According to John Biggs (Biggs, 2003)

- **1.** "Defining the intended learning outcomes (ILOs);"
- 2. "Choosing teaching/learning activities likely to lead to the ILOs;"
- **3.** "Assessing students' actual learning outcomes to see how well they match what was intended;"
- 4. "Arriving at a final grade"



Figure 1: Constructive Alignment

2. Required Resources for Online T&L Activities

As mentioned in Appendix-1, there are mainly four technology-related resources for online/blended courses, which are:

- 1. Hardware
- 2. Software
- 3. Network
- 4. Media

3. Workload for Facilitation

Each online T&L will require certain amount of workload, the amount of work required, from the facilitator (aka Teacher or Instructor). The workload can vary significantly among different types of online T&L activities. At the time of designing the online T&L activities, special attention should be given on the required workload in terms of hours for managing the course effectively. The T&L activities which will require significant amount of time for facilitation should generally be avoided.

4. Best Practices for Online Teaching & Learning Activities

Boettcher and Conrad [4] identified the following best practices:

"Best Practice 1	Be present at the course site
Best Practice 2	Create a supportive online course community
Best Practice 3	Develop a set of explicit expectations for your learners and yourself as to how you will communicate and how much time students should be working on the course each week
Best Practice 4	Use a variety of large group, small group, and individual work experiences
Best Practice 5	Use synchronous and asynchronous activities
Best Practice 6	Ask for informal feedback early in the term
Best Practice 7	Prepare discussion posts that invite responses, questions, discussions, and reflections
Best Practice 8	Search out and use content resources that are available in digital format if possible
Best Practice 9	Combine core concept learning with customized and personalized learning
Best Practice 10	Plan a good closing and wrap activity for the course"

Now, in their second edition of their book, Boettcher and Conrad [6] identified additional four best practices (Best practices 11 to 14), which are:

"Best Practice 11 Assess as you go by gathering evidences of learning. Best practice 12 Rigorously connect content to core concepts and learning outcomes. Best practice 13 Develop and use a content frame for your course. Best practice 14 Design experiences to help learners make progress on their novice-to-expert journey"

5. Community of Inquiry (Col) Framework

This framework has three basic elements, which are briefly illustrated below.

- Cognitive Presence: "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" [6]. Please visit <u>https://coi.athabascau.ca/publications/cognitivepresence/</u> for articles related to cognitive presence.
- Social Presence: "the ability of participants in the Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as "real people" [6]. Please visit

<u>https://coi.athabascau.ca/publications/social-presence/</u> for articles related to social presence.

- 3. **Teaching Presence**: It has two general functions.
 - First Function "the design of the educational experience. This includes the selection, organization, and primary presentation of course content, as well as the design and development of learning activities and assessment" [6]
 - Second Function "facilitation, is a responsibility that may be shared among the teacher and some or all of the other participants or students." [6]

Please visit <u>https://coi.athabascau.ca/publications/teaching-presence-papers/</u> for article related to teaching presence. To know more about the three elements, interested reader can study the following resources.

- Cognitive Presence:
 <u>http://cde.athabascau.ca/coi_site/documents/Garrison_Anderson_Archer_CogPres_Fina</u>
 <u>l.pdf</u>
- Social Presence: <u>http://auspace.athabascau.ca/bitstream/2149/732/1/Assessing</u> %20Social%20Presence%20In%20Asynchronous%20Text-based%20Computer %20Conferencing.pdf
- Teaching Presence: http://auspace.athabascau.ca/bitstream/2149/725/1/assessing_teaching_presence.pdf

6. A Framework for Designing T&L Activities for Online Courses

An innovative framework is proposed here to design online T&L activities in OBE perspective. According to this framework, T&L activities for an online course should try to consider:

- 1. Bloom's Taxonomy Level to ensure constructive alignment
- 2. Required Resources as highlighted in Appendix 1
- 3. Workload for Facilitation
- 4. Related Best Practice suggested by Boettcher and Conrad [4]
- 5. Community of Inquiry (Col) Framework [6]

To apply this framework, an online course designer can use Table 1 which has different columns to address the above five considerations.

T&L Activity	Bloom's Taxonomy Level		n's omy el	Required Resources	Workload for Facilitation (Hours per Week)	Related Best Practice [5]	Col Framework		vork
	C	P	A			#	Cognitive	Social	Teaching
				Hardware: Software: Network (bandwidth) : Media:					

Table 1: A Framework for Designing Online Teaching & Learning Activities

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Appendix 3: Online Teaching & Learning Assessments in OBE Perspective

One of the best practices for online and blended learning identified by Boettcher and Conrad [4] is - "**Best Practice 11: Assess as You Go by Gathering Evidences of Learning**". This signifies the critical role of assessment and this the focus of this appendix to present a framework for designing online T&L assessment methods in a holistic fashion considering some of the associated important issues.

1. Constructive Alignment for Online Courses

Like the face-to-face (f2f) courses, online courses should also include assessments which are aligned with the learning outcomes and the T&L activities to meet the main condition of constructive alignment [1-3] as shown in the figure below.



Figure: Constructive Alignment

2. Assessment Methods/Strategies

There are numerous assessment methods or strategies that are routinely used in online or blended courses. Some of the commonly used methods in online or blended courses are:

Quiz/Test/Final Exam

- MCQ
- True/False questions
- Fill in the blanks questions
- Short questions
- Essay-type questions
- Assignment
- Project report
- Score for Discussion Board/Forum participation
- Peer Feedback
- ePortfolios

Based on the Bloom's Taxonomy levels specified in the Course Outline, the facilitator should select appropriate assessment methods aligned with course learning outcomes and T&L activities for ensuring constructive alignment. Furthermore, to design quality assessment method/strategy, facilitators should consult assessment principles available in the literature from a reputed source. I would request the reader to study the followings useful resources critically before designing the assessment methods/strategies for their online or blended courses:

- "*EM Tip 10*: **Designing Assessment Plans for Online and Blended Courses**" [4, pp. 202-205]
- "EM Tip 11: Three Best Assessment Practices" [4, pp. 205-210]
- "*EM Tip 12*: Assignments for the Evaluating and Creating Levels of Bloom's Taxonomy" [4, pp. 210-213]
- "Guiding Principles for Assessment of Students' Learning" [5]
- "Online Assessment in Higher Education" [6]
- "Assessment 2020: Seven Propositions for Assessment Reform in Higher Education" [7]

3. Required Resources for Online Assessments

Like the online T&L activities, the following four types of resources should be considered while designing online assessment methods:

- 1. Hardware
- 2. Software
- 3. Network
- 4. Media

4. Academic Rubrics

For certain assignment methods/strategies (like short question, essay type question, project reports), academic rubrics should be used to transform a subjective assessment in to an objective assessment based on certain clear-cut indicators or criteria. To obtain a comprehensive understanding regarding Rubric, please study *"Rubric Guide"* [8]. Furthermore, you should also investigate the following useful resources for knowing more about rubrics that are related to online courses.

- "Table 7.1: Three-Point Rubric for Evaluating Weekly Postings" [4, p. 182]
- "Table 7.2: Rubric for Participation and Levels of Thinking" [4, p. 182]

5. Types of Assessments

Assessments are generally two types [9] – Formative & Summative. They are briefly discussed below.

- 1. **Formative Assessment**: "the type of assessment that provides feedback so that people can understand their strengths and growth areas, and can be done at any point in the learning process" [9]
- 2. **Summative Assessment**: "the measurement we use to give students a grade, and is typically done at the end of a unit of instruction" [9]

To explain the Best Practice 11, Boettcher and Conrad [4] wrote the following sentences:

"Rather than pushing all assessment toward papers, exams, and/or a final project, this practice recommends distributing assessment throughout a course. One of the key elements of course design is an assessment plan, showing the relative value and importance of assignments, project milestones, and other course contributions and participation." [4, p. 58]

To address this, the online or blended courses should have appropriate mix of formative and summative assessment methods. So, special attention should be made while designing online assessment methods. The readers are highly encouraged to study an excellent handout from Yale Center for Teaching and Learning [10].

6. Academic Integrity in Online Assessments

Like f2f delivery mode, assessment methods in online & blended delivery modes involve issues (mainly related to **plagiarism** and **cheating during graded quiz/test/exams**) related to academic integrity. Please visit <u>https://sites.psu.edu/onlineassessment/analyze-evidence/</u> for getting practical tips related to academic integrity.

7. Workload for Assessment

Each online assessment method or strategy will require certain amount of workload, the amount of work required, from the facilitator (aka Teacher or Instructor). At the time of designing the online assessment methods for a particular learning outcome, special attention should be given on the required workload in terms of hours to avoid unwanted consequences in time management. The assessment methods which will require significant amount of time to implement should generally be avoided.

8. A Framework for Designing Assessments for Online Courses

A comprehensive innovative framework is proposed here to design online T&L activities in OBE perspective. According to this framework, T&L activities for an online course should try to consider:

- 1. Bloom's Taxonomy
- 2. Assessment Method/Strategy
- 3. Required Resources as highlighted in Appendix 1
- 4. Requirement for Rubrics
- 5. Type of Assessment
- 6. Concerns about Academic Integrity and Possible Mitigation measures
- 7. Workload for Facilitation in terms of hours per week

T&L Activities designed as	B Ta	loom xono	's my	Assessment								
per the framework presented in Appendix-2	С	Ρ	A	Method	Required Resources	Requirement for Rubrics (Yes/No)	Type (Formative/ Summative)	Concerns about Academic Integrity and Possible Mitigation measures (if any)	Workload for Facilitation (Hours per Week)			

Table 1: A Framework for Designing Online Assessments

References

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A Framework for Designing Online T&L Activities for Different Course Outcomes

Select a Course Outcome (CO) from one of your courses and design T&L activities for this CO using the following table. Use tick mark ($\sqrt{}$) or X in the appropriate columns.

Course Title:		
	Course Code:	

Statement of the Course Outcome 1: "					
Domain & Level of Bloom's Taxonomy in the	Course Outline:	Cognitive () Psychomotor () Affective ()

Table 1: Design of T&L Activities for a Course Outcome 1

T&L Activity	E Ta	Bloom's Taxonomy		Bloom's Taxonomy		Bloom's Taxonomy		Resources	Workload for Facilitation (Hours per Week)	Related Best Practice [1] #	CoI Frame	ework [2] Presence
	С	Р	A				Cognitive	Social	Teaching				
				Hardware:									
				Software:									
				Network (bandwidth):									
				Media:									
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Statement of the Course Outcome 2: "					
Domain & Level of Bloom's Taxonomy	in the Course Outline:	Cognitive () Psychomotor () Affective ()

Table 2: Design of T&L Activities for a Course Outcome 2

T&L Activity	Blo		n's omy	Resources	Workload for Facilitation (Hours per Week)	Related Best Practice [1] #	CoI Frame	ework [2] Presence
	С	Р	A				Cognitive	Social	Teaching
				Hardware:					
				Software:					
				Network (bandwidth):					
				Media:					
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				Software:					
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Statement of the Course Outcome 3: "					
Domain & Level of Bloom's Taxonomy in the	Course Outline:	Cognitive () Psychomotor () Affective ()

Table 3: Design of T&L Activities for a Course Outcome 3

T&L Activity	Bloom's Taxonomy		Bloom's Taxonomy		n's omy	Resources	Workload for Facilitation (Hours per Week)	Related Best Practice [1] #	CoI Frame	ework [2] Presence
	С	Р	A				Cognitive	Social	Teaching		
				Hardware:							
				Software:							
				Network (bandwidth):							
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[2] Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education. *The Internet* and Higher Education, 2(2-3), 87–105. url: http://cde.athabascau.ca/coi_site/documents/Garrison_Anderson_Archer_Critical_Inquiry_model.pdf)

A Framework for Designing Online Assessments for different Course Outcomes

Course Title: Course Code:

Statement of the Course Outcome 1: "					
Domain & Level of Bloom's Taxonomy in	the Course Outline:	Cognitive () Psychomotor () Affective ()

Table 1: Design of Assessments for Selected T&L Activities Selected for a Course Outcome 1

T&L Activities designed in your Assignment		Bloom's Taxonomy		Assessment							
# 4	С	Р	A	Method	Required Resources	Requirement for Rubrics (Yes/No)	Type (Formative/ Summative)	Concerns about Academic Integrity and Possible Mitigation Measures (if any)	Workload for Facilitation (Hours per Week)		

Statement of the Course Outcome 2: "					
Domain & Level of Bloom's Taxonom	y in the Course Outline:	Cognitive () Psychomotor () Affective ()

Table 2: Design of Assessments for Selected T&L Activities Selected for a Course Outcome 2

T&L Activities designed in your Assignment	Bloom's Taxonomy		n's omy	Assessment							
# 4	С	Р	A	Method	Required Resources	Requirement for Rubrics (Yes/No)	Type (Formative/ Summative)	Concerns about Academic Integrity and Possible Mitigation Measures (if any)	Workload for Facilitation (Hours per Week)		

Statement of the Course Outcome 3: "					
omain & Level of Bloom's Taxonom	y in the Course Outline:	Cognitive () Psychomotor () Affective ()

Table 3: Design of Assessments for Selected T&L Activities Selected for a Course Outcome 3

T&L Activities designed in your Assignment	Bloom's Taxonomy		n's omy	Assessment							
# 4	С	Р	A	Method	Required Resources	Requirement for Rubrics (Yes/No)	Type (Formative/ Summative)	Concerns about Academic Integrity and Possible Mitigation Measures (if any)	Workload for Facilitation (Hours per Week)		