



Online Teaching Guide

Version 1: June 2020



University of Sri Jayewardenepura

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Online and distant modes of teaching have transformed the educational landscape in recent years. Although e-Learning and various other ICT based tools for online education were in existence in our university system, those were not effectively used due to many reasons. It is the time of our academics to reconsider the way of delivery while providing the required practical exposures, in a world where knowledge is a mouse-click away. According to the present situation and direction of the government, the use of online platforms is inevitable and will continue to change the future of education. University of Sri Jayewardenepura has taken various measures to promote online learning in the recent past recognising its effectiveness. At the last ICT Committee meeting of the University held on 14th May 2020, it was highlighted the importance of having a manual to USJ with a set of instructions and other related technical information on online teaching as a need of the hour to maintain the uniformity, efficiency of education and to maximise the resource utilisation considering its high number of academics and students. A committee was appointed to accomplish the task. As members, Dr Nalaka Lankasena, Prof Hiran Amarasekara, Dr R.B. Marasingha, and Dr Randima Dinalankara took initiatives with the assistance of Mr Harsha Munasinghe Head, Centre for IT Services in preparing the manual.

1. What is online teaching?

Online teaching refers to the delivery of course contents entirely online. It is electronically supported and relies on the internet for teacher and students' interactions and the distribution of teaching materials. In online education, the most common platform for managing the content is the Learning Management System.

Online teaching can be grouped broadly into two categories, i.e. synchronous and asynchronous. Synchronous learning is happening in the form of real-time where the lecturer delivers the lesson through an online channel such as video conferencing, teleconferencing, live chatting, and live-streaming. In contrast, asynchronous teaching is conducted through online channels but without real-time interaction. Methods such as self-guided learning materials streaming video content, lecture notes, social media platforms can be used in asynchronous delivery. In a blended learning approach, it combines online educational materials, interactions and teaching with traditional classroom-based teaching.

2. The Learning Management System (LMS)

Learning Management System is a software-based platform which facilitates management, delivery, administration and assessment of online learning. In today's context, it is widely accepted that a well-managed LMS can enhance the productivity and learning effectiveness of traditional face-to-face learning environments in universities.

I. Benefits of LMS

- All learning material can be located in an organised way in a single location, allowing access to all users.
- Facilitate effective communication and collaboration between students and other supporting staff.
- Comprehensive and practical multimedia learning contents such as video, images, audio and text can be made available
- The lecturer and students can participate from any location, thus saves time and money
- Teaching material can be used repeatedly with new groups of students.
- Various reports to monitor and evaluate the progress of students can be generated

II. Factors to be considered when uploading content to LMS

- The content of uploading files/audios/videos should be clear, attractive and done with proper and straightforward language.
- The size of the uploading file (especially for videos) should be minimal while maintaining the quality/resolution satisfactory. Too big files make it difficult for students to access and download. Further, large files consume a considerable amount of the University's server storage and network bandwidth resources.
- It is advisable to limit video clips not exceeding 20 min, as to fit with the attention span of students. Due to the 20-minute time frame, the file size will be relatively small and easy to download. Lecturers can combine several of them to complete a lecture.
- The best quality is not recommended as it consumes a large amount of storage and data in downloading. At the same, the visibility and nature of the content should be considered as well in creating a video file.
- Maximum file size that can be uploaded at once is 200 Mb, and an unlimited number of files is possible to upload for a module.

3. Solutions for synchronous and asynchronous teaching

LMS that are used by our Faculties uses Moodle as the framework, which best suits the intended purpose of student and course management. However, with the wake of COVID 19 and lockdown situation, academics started exploring alternatives for conventional classroom teaching. The requirement of knowing the other options for synchronous and asynchronous mode of teaching are necessary for the academia to decide on the platform that best suits their student groups.

I. Synchronous teaching

A. Zoom for synchronous delivery

Zoom is a video-chatting tool which could be used to conduct online classes with a large number of participants as in-class teaching. It allows students to pass messages to the lecturer either with words or wordlessly when they have questions. Before the COVID-19 crisis, many people hadn't even heard of video conferencing app Zoom; now it has been one of the most popular tools in catering communication requirements of the educational as well as the corporate sector. It allows the lecturer to switch back and forth between different types of teaching methods (e.g., lecture, small group discussion, etc.) as many times as we need during a class session. One of the key advantages of the app is the recording feature of the lecture. The recorded session could be uploaded to the LMS for the benefit of absent students and future references.

Some of the advantages of using Zoom for lecturing are;

- Accounts for the academics in the University system are issued free of charge by the Lanka Education and Research Network (LEARN)
- Maximum number of participants is 300.
- Lecture or the discussion could get recorded into the cloud or to the computer automatically while delivering.
- No regular charges are applied on the data usage for the lecturer and to students when credentials provided by the University are used.

B. Other modes for synchronous teaching

Alternatives such as Microsoft Teams, Google Meet, Skype, Cisco Webex could also be used for online/synchronous teaching. One of the disadvantages over these alternatives is regular charges for data.

II. Asynchronous teaching

A. Audio embedded PowerPoint

PowerPoint is the most widely used office application in our University for teaching. As lecturers have experienced in using PowerPoint, most of them seem to prefer using PowerPoint with embedded audio and uploading it to LMS. The relatively small size of the file is the main advantage of using PowerPoint; however, some student groups don't prefer audio embedded files as the delivery is only one way and passive.

B. YouTube

Uploading video or audio files into YouTube is widely used for delivering course content. Once the file is created, only the link has to be shared with students either in LMS or students groups.

YouTube can also be used as an online mode of delivery/live streaming. The main disadvantage over this mode is academics, as well as students, will have to pay a substantial amount of money for usage of data.

C. Screen recorded files

Screen recording software that allows a user to take a digital recording of the contents of a computer screen. It is a practical approach for subjects which are required to create persuasive video tutorials of step by step procedures/calculations/methods etc. The main advantage of screen recording is, the session could be coupled with various other software tools which are essential for the demonstration.

D. Videography assistance by Japura media

Videography assistance for recording your lectures is one of the latest services started by Japura media as an optional solution under the current crisis. The staff will video on-campus or zoom lectures and will do the necessary editing before uploading to LMS. As the facility provides with limited resources, the videography service should be requested beforehand, especially for the subjects that this service is essential only. The service can be delivered under the following setups;

- Lectures/demonstrations with or without using a whiteboard (no slides)
- Lectures conducted using a whiteboard, and PowerPoint slides
- Zoom lecture presented online

Japura media staff will produce a video based on the record practical at laboratories.

Academics are required to make an online request using the form given in the following link for the service of Japura Media.

<https://www.sjp.ac.lk/video/>

4. Improving the effectiveness of online teaching

Although an online classroom makes an environment nearly comparable to in-person teaching, there are particular behaviour and interactions where academics should consider when conducting online sessions.

A. Video conferencing: Instructions for lecturers

- Use headphones (lecturers and students) for all Zoom sessions.
 - If you are having trouble hearing people or being heard, conduct a “test” of your speakers and microphone by clicking on the arrow beside the “mute” button and selecting “Test Microphone and Speakers.”

- Adjust the volume in the classroom so that your students can hear you, but you do not listen to yourself echoing backwards
- If you plan to use your video, ensure that the room you are in has decent lighting and background.
- If your video quality is poor, turn off your video and rely on your computer audio. You may also use your mobile phone (without video) to participate in a Zoom session.
- Explain Instruction and ground rules at the beginning of the class (ideally 5-10 minutes)
- Ask all students to unmute the mic and greet each other.
 - It is advisable to keep students' mic 'mute' as a default setting to avoid distracting background noises. Let the students 'unmute' themselves when they want to talk.
- Ensure the first contact
 - Ask students to "rename" themselves using their preferred name, so that everyone in the Zoom session knows how to refer to each other
 - Provide the number of the technical coordinator for students as the contact point for any technical issue during the class.
- Explain possible deviations/ alteration can happen on the screen (colour, shape, audio, video, etc.), which may not appear as in classroom sessions.
- Briefly describe activities and state what you expect students to do (i.e., do need to copy, record, do the assignment, needs to open a textbook, which page/s etc. , it would be ideal to provide PowerPoint slide beforehand and follow it in case of poor connectivity)
- Instruct clearly your questioning policy (e.g. I would like you to answer when I say your name only, then unmute the mic and provide your answer, if you don't know, please say so. Once done you need to mute the mic again)
- Allow students time to ask questions, whether by raising their hand or recording their items in the chat-box.
 - Students can send a question in the chat-box for everyone or send to a particular participant.
- Clarify any further questions before the final greeting
- If you want to record your Zoom session, please be sure that you click the "record" option at the start of your session. You can pause and resume the recording as desired.

Some important considerations to make the class live and to make it deliver as in with the use of zoom are available in the following links

- <https://cits.sjp.ac.lk/zoom.html>
- <https://www.cmu.edu/canvas/teachingonline/zoom/zoompedagogy.html>

- <https://www.common sense.org/education/articles/teachers-essential-guide-to-zoom>
- <https://support.zoom.us/hc/en-us> (Zoom help Centre)

A complete guide on how to access and use Zoom for online teaching is given in the **Annexure I**.

B. Video conferencing instructions for coordinators

Lecturers are advised to have the support of an IT competent person as the primary contact point for students on technical and other matters when the session is conducted online.

- Contact the lecturer well in advance to the session and get to know what the lecturer expects in the pre-planned video conference (What activities -i.e., do need to copy, record, assignment matters, needs to open a textbook, which page/s etc.)
- Host the session at least 15 minutes before the starting time of the meeting.
- Instruct students Dos and Don'ts (video/sound; mute & unmute; how to ask questions)
- Let students know what they have to do in case of loss of the connectivity during the session.

C. Video conferencing instructions for students

- Check email/LMS/other modes of instructions regularly
- Prepare for the lesson at least 15 minutes before the scheduled time.
- Check the quality of audibility and visibility of the connectivity with the coordinator before the session
- Complete the assignments/homework well in advance
- Provide an alternative mode of communication to the coordinator in case of breakdown of communication. In case of failure of the connectivity, contact the coordinator without disturbing the lecturer/class
- Do not disturb the class: mute the audio and disable the video unless asked by the lecturer or the coordinator
- Actively engage with the lecturer

5. Online evaluation procedure

A proper assessment criteria should be crafted considering the nature of the module. In accordance with the university bylaws, appropriate use of plagiarism prevention software is also recommended to streamline online evaluation procedure. The following are some of the suggestions which may be useful when crafting your criteria.

Continuous assessment

LMS and Zoom platforms can be used for managing and accessing continuous assessments.

1. Assignments/Projects

- The assignments could be made available to the students through LMS.
 - Prepare precise marking schemes for each assignment to comply with any quality assurance and accreditation requirements.
 - Assignment submissions can be managed/collected through the LMS.
2. Practical sessions
- Practical sessions that can be done on home computers could be conducted through live Zoom meetings, and the assistance of demonstrators should also be made available when possible.
 - Practical report submissions can be managed/collected and graded through LMS.
 - Remote communication and remote desktop access software can be additionally utilised to verify practical assessments.
3. Quizzes/Online exams
- In the case of quizzes, the facility in LMS to give randomised questions using question banks could be utilised.
 - Explore the possibility of utilising lockdown browsers to limit the ability of students to access online content during exams.
 - Where possible, consider having types of questions that are suitable for open book exams.
4. Viva
- Viva sessions can be conducted through online Zoom meetings.

Students with limited access to resources such as personal computers or internet connectivity should be given additional time and/or resources, or they should be provided with suitable alternative solutions such as CDs containing the lectures conducted via ZOOM or LMS.

End semester examination

- Utilisation of lockdown browsers and/or lockdown servers can be explored as an option for holding online end semester examinations. However, students can still access online and/or other content through other media, making the online end semester examination process ineffective. It is nearly impossible to fully recreate the conditions of a conventional examination through online means.

6. Technical assistance and support

ICT committee is your first contact for technical issues. Each faculty is recommended to have a special ICT Committee consisting of a group of skilled academics and non-academics who provides help-desk services on technical matters relevant to the use of LMS and online teaching as members. The proposed organisation for the committee is;

- ICT lecturers/or lecturers who are knowledgeable about LMS and use of software applications on online teaching (At least one academic representative from each department is recommended)
- Technical Officers (ICT)

As mentioned in a previous section, lecturers are advised to have the support of an IT competent person as the primary contact point for students on technical and other matters when the session is conducted online.

7. Costs incurred in using LMS and Zoom for online teaching

The University Grants Commission (UGC) and Telecommunication Regulatory Commission of Sri Lanka (TRCSL) has agreed with network providers in Sri Lanka to provide data access at a minimum cost to University LMS and Zoom for the academic community during this period.

However, academics should be aware of the following situations where regular data charges are applied by the Internet Service Providers (ISP) for students, and the lecturer, i.e. both parties, will have to bear the cost of data usage.

- Zoom lectures initiated by our lecturers using www.zoom.us site instead of learn.zoom.us
- Google Classroom, MS Meet, Cisco Webex and other modes of communications
- YouTube videos and other online resources embedded in LMS
- Data transfer via Google Drive though it provides unlimited space.

It is also to be noted that all staff and students can access the digital library of the University without any data cost.

<http://dr.lib.sjp.ac.lk/>

8. Facilities required for online teaching

- Desktop or laptop computer (with a minimum of 4 GB of RAM is suitable)
- Webcam or built-in HD camera
- High-quality headset or even the built-in facilities of the computer is sufficient.
- An uninterrupted internet connection
- A zoom session can be conducted with a smartphone as well but not very convenient as a desktop/laptop computer.

9. Recommendations for students who don't have computers/internet facilities

At the Departmental level, a proper study is required to identify students with limited access to resources such as personal computers or internet connectivity. Alternative solutions should be explored and made available for those students.

At the moment, university students can also access the 'Nenasala' facility, which is intended to serve the school children, without charges.

10. Important tools

I. Messaging and File Sharing Tools

- Telegram (Free) - Telegram is a free messaging app with a focus on speed and security. You can use Telegram on all your devices at the same time - phones, tablets or computers.

With Telegram, you can send an unlimited number of messages, photos, videos and files of any type (doc, zip, mp3, etc.) of up to 1.5 GB each, which can be stored locally or in the cloud. You can create groups for up to 200,000 people or channels for broadcasting to unlimited audiences.

More information about Telegram is available through the following link: <https://telegram.org/faq>

Software link: <https://telegram.org/>

Similar software: Facebook (free), WhatsApp (free)

II. Video Converter Tools

- HandBrake (Free) - HandBrake is a tool for **converting video** from nearly any format to a selection of modern, widely supported codecs. This tool can be used to lower the file size of the recorded file by file conversion. When converting the file, most of the settings need not be changed; however, the following are some of the vital parameters to consider to get the desired outcome.
 - Preset: Select the presets under the ‘General’ menu in ‘Presets’. In the menu, the quality and the size of the output file can be ranked from low to high in the following order: [Very Fast < Fast < HQ < Super HQ] and [480p < 576p < 720p < 1080p]. We recommend you to select the presets with a combination of: [**Very Fast, Fast**] and [**720p, 576p, 480p**] according to your requirement.
 - Framerate (FPS): We recommend you to set the framerate of the output file to **25**. It could be found under the ‘Video’ tab.

More information about HandBrake software is available through the following link: <https://handbrake.fr/docs/en/>

Software download link: <https://handbrake.fr/>

- It is important to note that the file conversion process in video converter tools may take a considerable amount of time and consume many computer resources. If the video duration is significant, it would be better to use a ‘Video Splitter Tool’.
- Similar Software: Any Video Converter (free), Format Factory (free)

III. Screen Recording Tools

- a. OBS Studio (Free) - OBS Studio is a free and open-source software for **video recording (screen recording)**, live streaming and video editing. This software can be used to record your computer screen, record audio and record video through a webcam. You can also add in existing videos and still images, capture a window or portion of your screen, and much more.

More information about OBS Studio is available through the following link:
<https://obsproject.com/wiki/>

Software download link: <https://obsproject.com/download>

- b. Screencast-O-Matic (Free & Paid) - Screencast-O-Matic is an online screen recorder and video editor that supports webcam video, microphone audio and screen recordings. The video editor is only available in the paid version.

More information about Screencast-O-Matic is available through the following link:
<https://screencast-o-matic.com/tutorials>

Software link: <https://screencast-o-matic.com/screen-recorder>

- c. Bandicam (Free & Paid) - Bandicam is a lightweight screen recorder software that can capture anything on your PC screen, record audio from microphone and record video from a webcam. The free version will add a watermark to the recorded videos.

More information about Bandicam is available through the following link:
<https://www.bandicam.com/how-to/>

Software download link: <https://www.bandicam.com/downloads/>

- d. Camstasia (Free Trial & Paid) - Camstasia is a feature-packed screen recorder and a video editor. Apart from the usual screen recording, audio recording (microphone) and video recording (webcam) capabilities, the software also comes bundled with a fully-fledged video editor that provides a lot of features and functionalities especially suitable for creating educational content.

More information about Camstasia is available through the following link:
<https://www.techsmith.com/tutorial-camtasia.html>

Software download link: <https://www.techsmith.com/video-editor.html>

Similar Software: ShareX (free), FlashBack Express (free & paid)

IV. Video Editor Tools - These can be used to edit a recorded video file.

- a. **Video Splitter Tool: Avidemux** - Avidemux is a free video editor designed for simple cutting, filtering and encoding tasks. It can be used to split a large video into multiple videos. If the settings of the output file(s) are similar to the input file (if you don't change encoding settings in the software), the output process takes significantly less time and computer resources compared to using a video converter tool like HandBrake.

More information about Avidemux is available through the following link:
<http://www.avidemux.org/admWiki/doku.php?id=build:doctop>

Software download link: <http://avidemux.sourceforge.net/download.html>

Similar software: MKVToolNix (free)

b. Basic Video Editor Tools

- i. LosslessCut (Free) - LosslessCut is a free tool for trimming/cutting of videos. It can be used to remove and/or rearrange different parts of a video.

Software download link: <https://www.videohelp.com/software/LosslessCut>

- ii. QuickTime Pro (Paid) - QuickTime Player offers several options for editing your movie, including trim, split, cut/copy/paste/delete, remove audio/video, and flip/rotate.

More information about QuickTime Pro is available through the following link:
<https://support.apple.com/en-us/HT201066>

Software download link: <https://support.apple.com/downloads/quicktime>

The output process of the mentioned video editor tools takes significantly less time and computer resources compared to using a video converter tool like HandBrake.

Similar Software: Bandicut Video Cutter (free & paid)

- c. **Intermediate/Advanced Video Editor Tools:** iMovie (free, macOS only), Adobe Premiere Pro (free trial & paid), Lightworks (free), Hitfilm Express (free), Shotcut (free) - These tools can be used if the video needs to be further edited. However, it should be noted that the learning curve of some of these software tools can be steep. The output process of this software may take a considerable amount of time and consume many computer resources.

11. Glossary of e-learning

Glossary of online learning terms can be found in the following link.

<https://www.nacs.org/LinkClick.aspx?fileticket=7iMc3z5DqE%3D&tabid=1517&mid=1970>

12. Annexure 1: Basic guide for Zoom