

Connexa

USER MANUAL



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Introduction

Online proctored examinations are gradually becoming a necessity to evaluate a student's performance in an online academic environment. With the emergence of Covid-19, it has now been proven a must for all educational institutes to provide facilities for students to sit for online examinations. However, Online frauds, power outages, and the inability to proctor a large number of students at once prevented the examinations from being conducted online. When conducting examinations where the student's skills should be evaluated in a limited timeframe, it's crucial to manage the external factors affecting the student's performance at a satisfactory level. Currently, multiple hardware devices and software tools are used to conduct online examinations to ensure the quality of the examinations. However, the existing methods can cause a lot of distractions and unnecessary burdens to students as well as the proctors.

Connexa is a Remote Proctoring System built to address the shortcomings of the currently available systems by providing a solution for proctoring examinations, combining hardware and software. It consists of a single device that integrates the hardware and software components needed by a student to join a Virtual Examination Room (VER) for a proctored, online examination, which is capable of capturing and sending the video/audio stream from the student to the proctor even in case of a power failure, providing a seamless process for the proctors and students involved in an examination. It also has a web-based application from which the proctor can monitor the video and audio streams captured from all the proctoring devices of the students joining the same VER. The web-based application also has a portal for the system administrators of a particular institution for managing the students, proctors, courses, and examinations of an institute.

System Overview

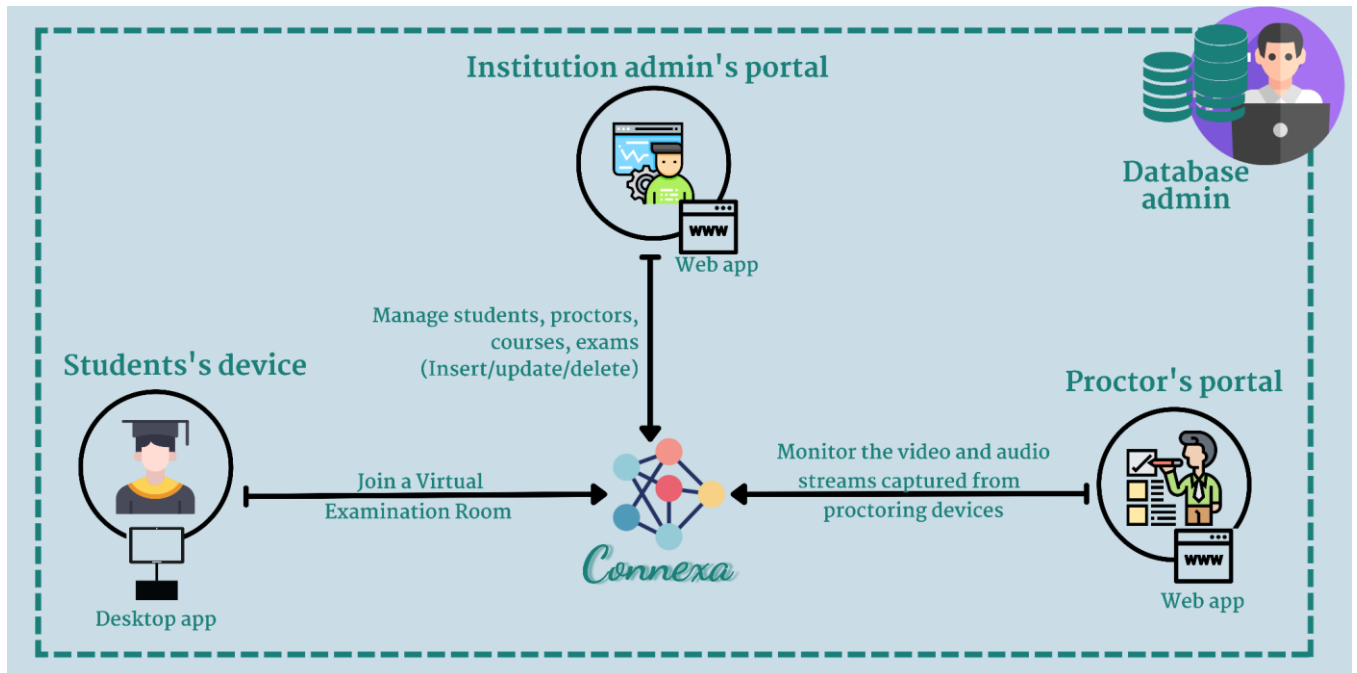


Figure 1: Overview of the remote proctoring system

The remote proctoring system introduced by Connexa has three main types of users:

1. Institution Administration
2. Proctors
3. Students

The database administrator of the institution is responsible for deploying the Connexa web application, API server, and database specific to their institute in a secure server accessible to their institute and giving access to the authorized administrators from the institute to manage students, proctors, courses, and exams in the institute. The students and proctors can access the system and view their exams once the institution administrator verifies their identity and add them to the system.

The following sections will describe how each of these users can access and utilize the platform from their respective portals.

Institution Administration

The Institution Administration role defines the official administration body responsible for initiating and coordinating the examination process of the particular institution. The administration is responsible for adding/removing students, proctors, courses, and examinations to the system and for overall coordination of the examination process.

A guided video on the features available for institution administration can be found [here](#).

Admin roles

According to the preference of the institution, administration roles can be assigned as super-admin or admin. The administrators authorized by the database administrator or super-admin can access their portal using a verified email address.

1. Super-admin: The database administrator is responsible for adding the super-admins to the system. Only super-admins have the privilege to add/delete/update the email addresses of other administrators of the institute.
2. Admin: A super-admin or database administrator is responsible for adding an admin to the system. An admin does not have privileges to add/delete/update the email addresses of other administrators of the institute.

All the admins can add/delete/update details of students and proctors (except their user passwords), and add/delete/update details of the courses and examinations conducted by the institute.

Registering to the system

Before registering, please contact your database admin or super-admin to authorize your email address.

Follow the below steps to register to the system.

1. Go to the link of the web application of Connexa hosted by your institute. For example, administrators of the University of Peradeniya can access the portal via the URL <https://connexauop.herokuapp.com/>
2. Choose the “Admin” option on the welcome page.
3. Click the “Register” button.
4. Register to the system by providing a valid email address (email address authorized by the database administrator or super-admin) and a strong password.
5. If your email address is authorized, you will be registered successfully to the system. However, if the registration fails, please contact the database administrator or super-admin of your institution to authorize your email address.

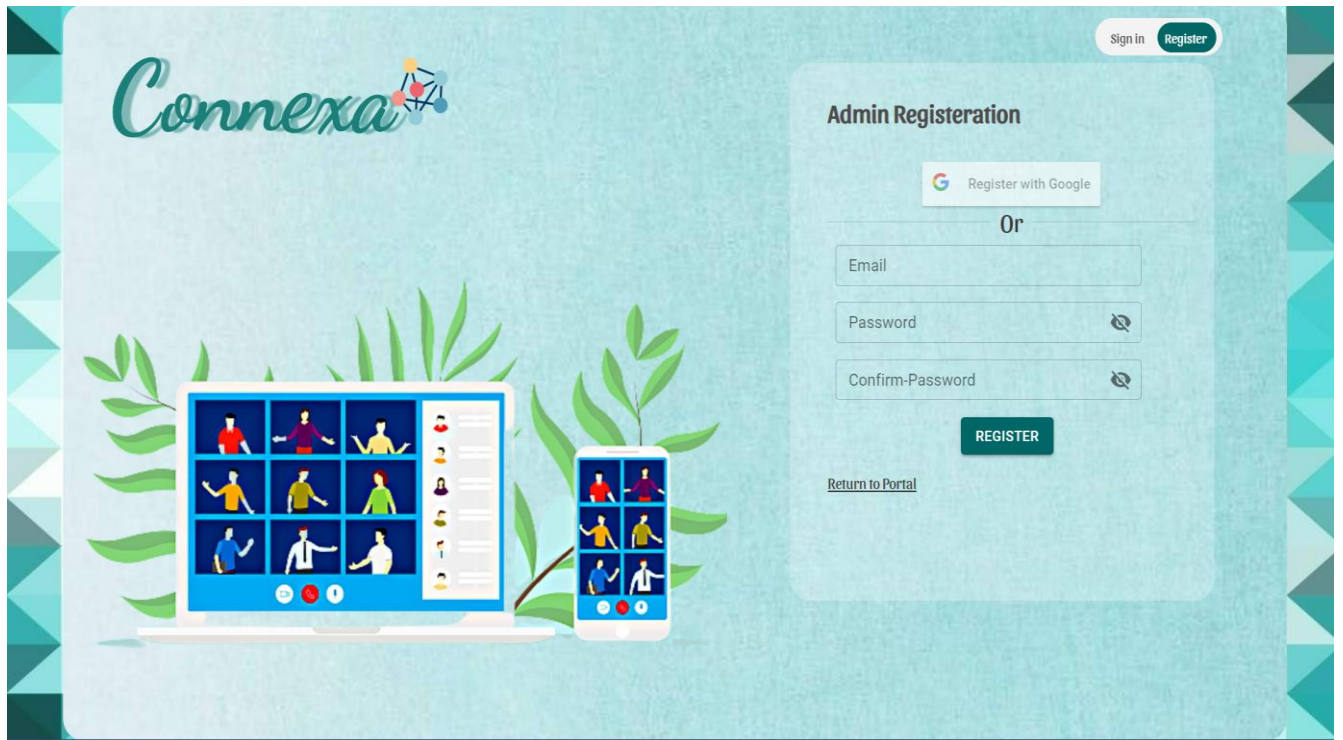


Figure 2: Registration page for institution administrator

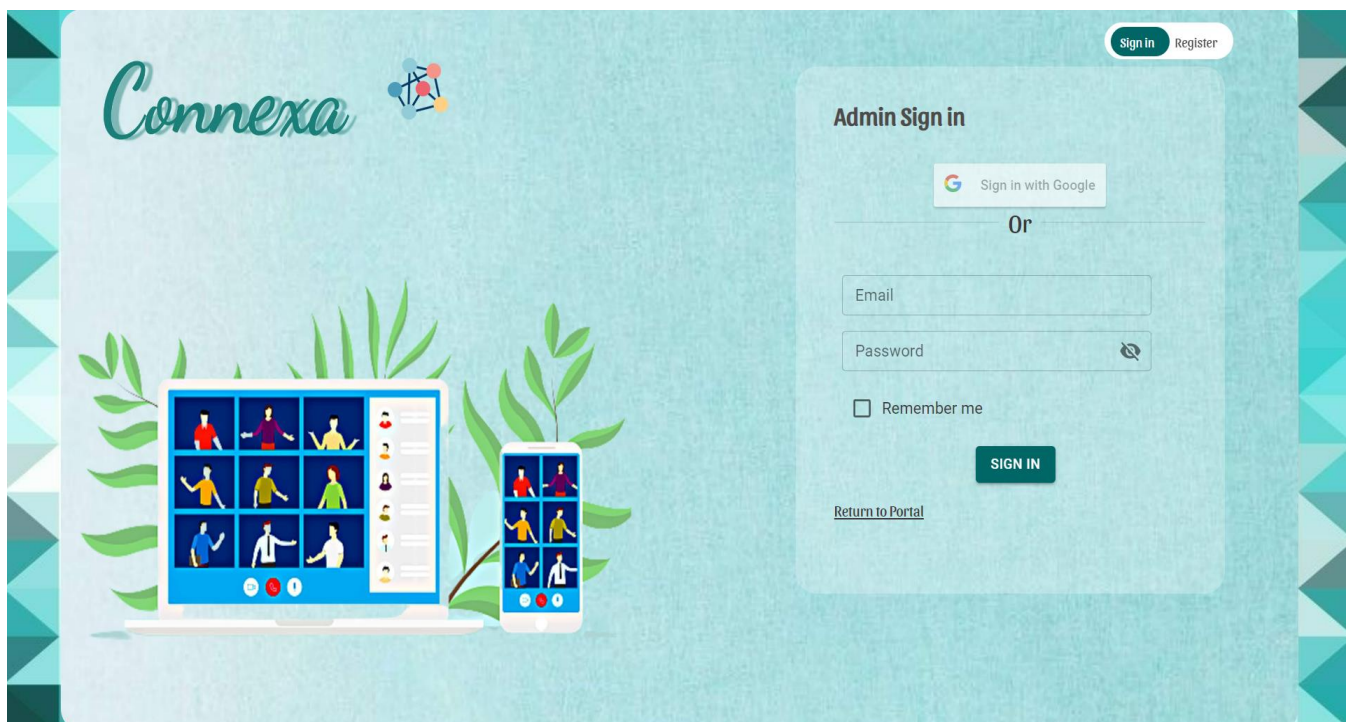


Figure 3: Sign-in page for institution administrator

Signing into the system

If you are not already registered, please follow the steps [here](#) to register.

Follow the below steps to sign into the system.

1. Go to the link of the web application of Connexa hosted by your institute. For example, administrators of the University of Peradeniya can access the portal via the URL <https://connexauop.herokuapp.com/>
2. Choose the “Admin” option on the welcome page.
3. Click the “Sign in” button.
4. Enter the email address and password used in the registration process and click the SIGN IN button at the bottom of the page. (If you want the browser to remember your email address, select the “Remember me” option before signing in)

Admin’s Home Page

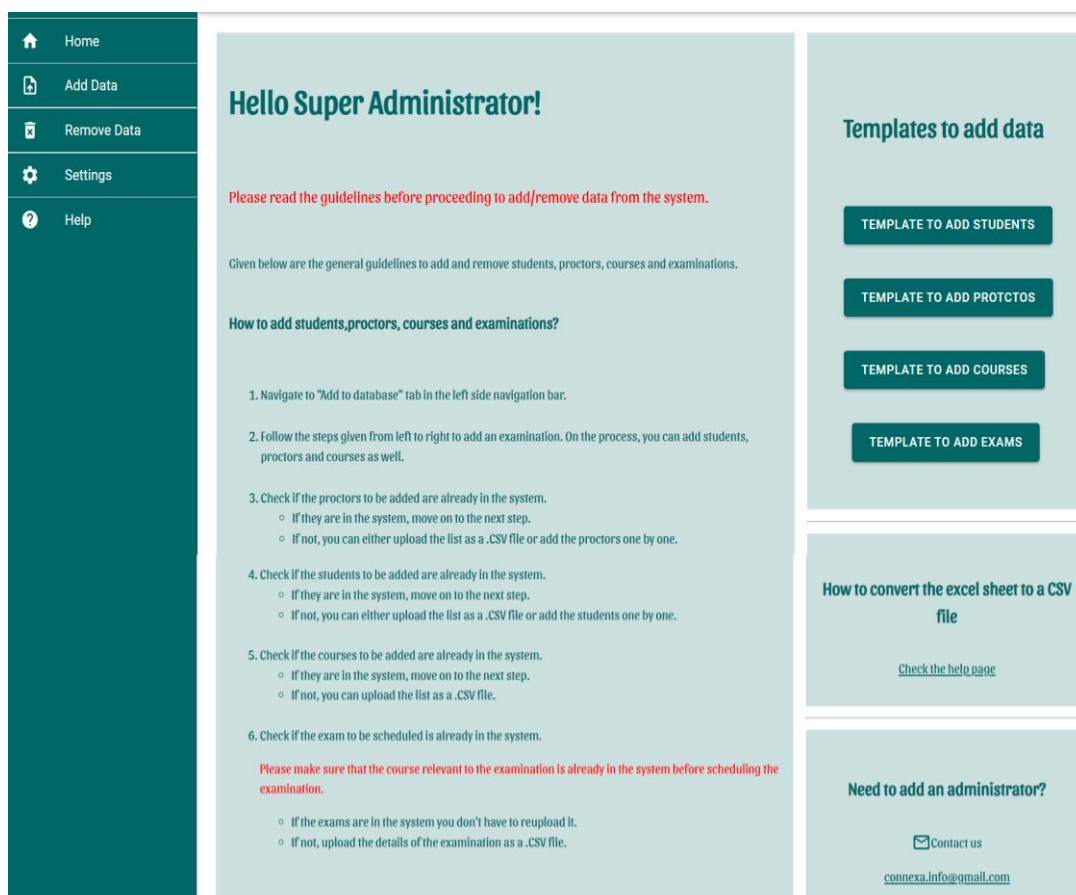


Figure 4: The home page for institution administrators

Administrators can see the guidelines on how to add/remove students, proctors, courses, and examinations as well as the needed templates to add data in bulk on their home page.

Add Proctors, Students, Courses, and Exams

You can add data to the system in two methods.

1. In bulk: Details of multiple proctors, students, courses, and examinations can be added to the system via .CSV (Comma Separated Values) files.
 - You can access the templates used to add these details on the home page of your portal.
 - Keep in mind to strictly follow the format provided in the templates.
 - If you need assistance in converting an Excel sheet to .CSV, follow the guidelines given on the “Help” page in the left-side navigation bar.
2. One at a time: Details of a single proctor or student can be added to the system by entering the required data in the correct tab in the portal.

Follow the below steps to add data from the database.

1. Navigate to the "Add data" tab in the left-side navigation bar.
2. Follow the steps given from left to right to add an examination. In the process, you can add students, proctors, and courses as well as exams (You can also skip steps).
3. Adding proctors:
 - Check in the list provided if the proctors to be added are already in the system.
 - i. If they are in the system, move on to the next step.
 - ii. If not, you can either upload the list as a . CSV file or add the proctors one by one by providing the email address and full name. Make sure that the email address is unique for the proctors.
4. Adding students:
 - Check in the list provided if the students to be added are already in the system.
 - i. If they are in the system, move on to the next step.
 - ii. If not, you can either upload the list as a . CSV file or add the students one by one by providing the email address, name, registration number, department, and the proctoring device id assigned to the student. Make sure that the email address is unique for the students.
5. Adding courses:
 - Check in the list provided if the courses to be added are already in the system.
 - i. If they are in the system, move on to the next step.
 - ii. If not, you can either upload the list as a . CSV file. Make sure that the Course Code is unique for the courses.

6. Scheduling examinations:

- *Please make sure that the course relevant to the examination is already in the system before scheduling the examination.*
- Check in the list provided if the exams to be scheduled are already in the system.
 - i. If they are in the system, you don't have to re-upload them.
 - ii. If not, upload the details of the examination as a .CSV file. Make sure that the Examination name is unique.

Remote Proctoring system

connexa.space/admin/adddata

Super Administrator

Add Data

Follow the steps to add exams

➤ Add Proctors ➤ Add Students ➤ Add Course ➤ Schedule Exam

Step 1

Proctors already added to the system : Total (15) ▾

If the proctors of the exam to be scheduled is not in the above list please add the proctors to the system here.

If the proctors are already in the list please proceed to the next step.

To add Proctors in bulk Please upload the CSV file in correct format.

ADD PROCTORS 📎

NO FILE SELECTED

To add a single proctors please fill the form below.

Email Full Name **ADD PROCTOR**

Figure 5: Add data page for institution administrator

Remote Proctoring system

connexa.space/admin/removedata

Super Administrator

Remove Data

Database

➤ Show/Delete Proctors ➤ Show/Delete Students ➤ Show/Delete Courses ➤ Show/Delete Exams

Confirmation

Are you sure you want to delete the exam with the following details?

Course code: EE401-2021

Exam name: EE401-2021 END SEMESTER EXAMINATION

Please re-confirm your decision by typing the exam name of the exam to be deleted.

Exam name

CANCEL CONFIRM

Course coordinator: DR ABC DEF

Start date: Thu, 16 Dec 2021 01:00:00 GMT

Duration: 3hrs

EE401-2021 END SEMESTER EXAMINATION

Figure 6: Remove data page for institution administrator

Remove Proctors, Students, Courses, and Exams

Follow the below steps to remove data from the database.

1. Navigate to the "Remove data" tab in the left-side navigation bar.
2. Follow the steps given from left to right to remove students, proctors, and courses as well as exams (You can also skip steps).
3. Removing proctors: Select the proctor you want to delete from the database and re-confirm your decision by typing the email address of the proctor to be deleted.
4. Removing students: Select the student you want to delete from the database and re-confirm your decision by typing the email address of the student to be deleted.
5. Removing courses: Select the course you want to delete from the database and re-confirm your decision by typing the course code of the course to be deleted. *Please note that you cannot delete a course with examinations scheduled for them.*
6. Removing examinations: Select the exam you want to delete from the database and re-confirm your decision by typing the examination name.

Changing profile settings

Follow the below steps to change profile details.

1. Navigate to the "Settings" tab in the left-side navigation bar.
2. Admin has privileges to upload profile pictures and/or change the full name.

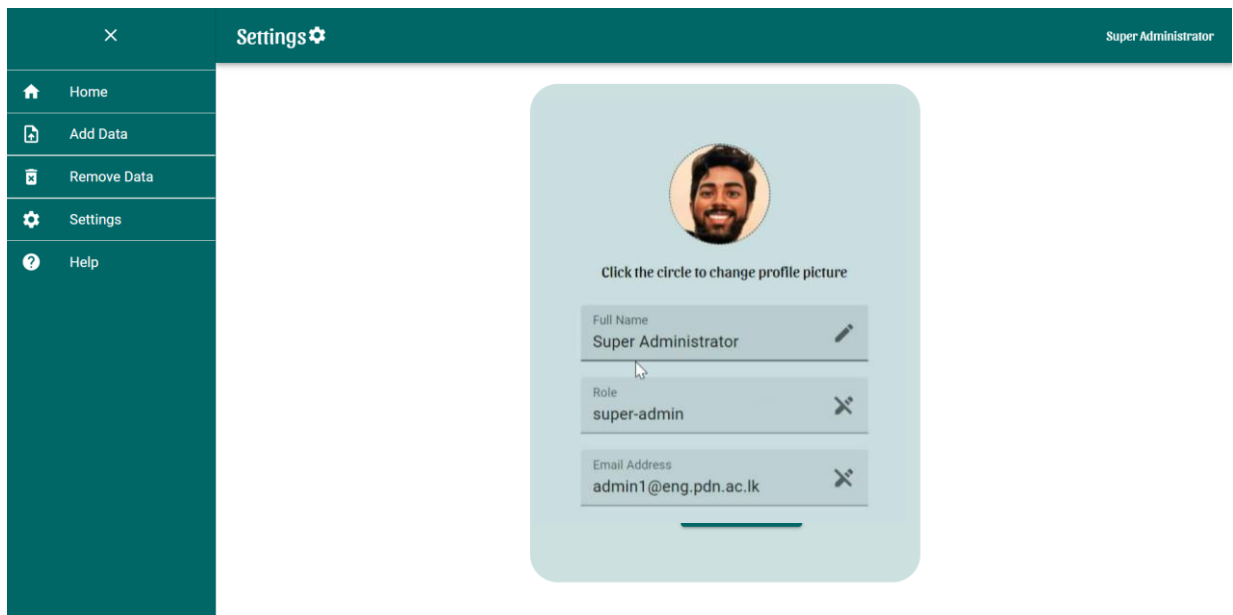


Figure 7: Settings page for institution administrator

Proctors

The role of proctors is to thoroughly monitor the VER for any unauthorized activity by the candidates during the entire exam duration and make notes of such observations. If interruptions occur due to technical issues during the exam for any candidate, the proctors will be able to see a log of such disconnections along with timestamps in their dashboard. Proctors must record the video grid of the VER from the start. Once the exam is over, proctors should upload their video recordings to shared storage for record keeping.

A guided video on the features available for proctors can be found [here](#).

Proctor roles

According to the preference of the institution, proctor roles can be assigned as chief invigilator and invigilator. The proctors authorized by the institution administrators can access their portal using a verified email address.

1. Chief Invigilator: The chief invigilator is the person in charge of a VER and must adhere to the responsibilities specified by the institution's examination protocol.
2. Invigilator: The main duties of the second invigilator are to join the VER with the provided link in the platform at the specified time and assist the chief invigilator in examination duties.

Both types of invigilators are responsible for recording the VER, verifying the presence of all candidates, and performing thorough invigilation for any unauthorized activity

All the proctors will have access to the link of the examination room 2hrs prior to the examination and can see details of a VER such as the number and details of students assigned to the room, the specific duty assigned to them, other proctors in the room, etc.

Some proctors may be assigned the role of the course coordinator and represent an evaluation panel for a particular course in which an exam is conducted. They are responsible for preparing the exam papers as in a regular examination, which is not done inside the Connexa platform. The role is assigned and displayed for the ease of the proctor.

Registering to the system

Before registering, please contact your institution administrators to authorize your email address.

Follow the below steps to register to the system.

1. Go to the link of the web application of Connexa hosted by your institute. For example, proctors of the University of Peradeniya can access the portal via the URL <https://connexauop.herokuapp.com/>
2. Choose the “Proctor” option on the welcome page.
3. Click the “Register” button.
4. Register to the system by providing a valid email address (email address authorized by the institution administrators) and a strong password.
5. If your email address is authorized, you will be registered successfully to the system. However, if the registration fails, please contact the institution administrators to authorize your email address.

Signing into the system

If you are not already registered, please follow the steps [here](#) to register.

Follow the below steps to sign into the system.

1. Go to the link of the web application of Connexa hosted by your institute. For example, proctors of the University of Peradeniya can access the portal via the URL <https://connexauop.herokuapp.com/>
2. Choose the “Proctor” option on the welcome page.
3. Click the “Sign in” button.
4. Enter the email address and password used in the registration process and click the SIGN IN button at the bottom of the page. (If you want the browser to remember your email address, select the “Remember me” option before signing in)

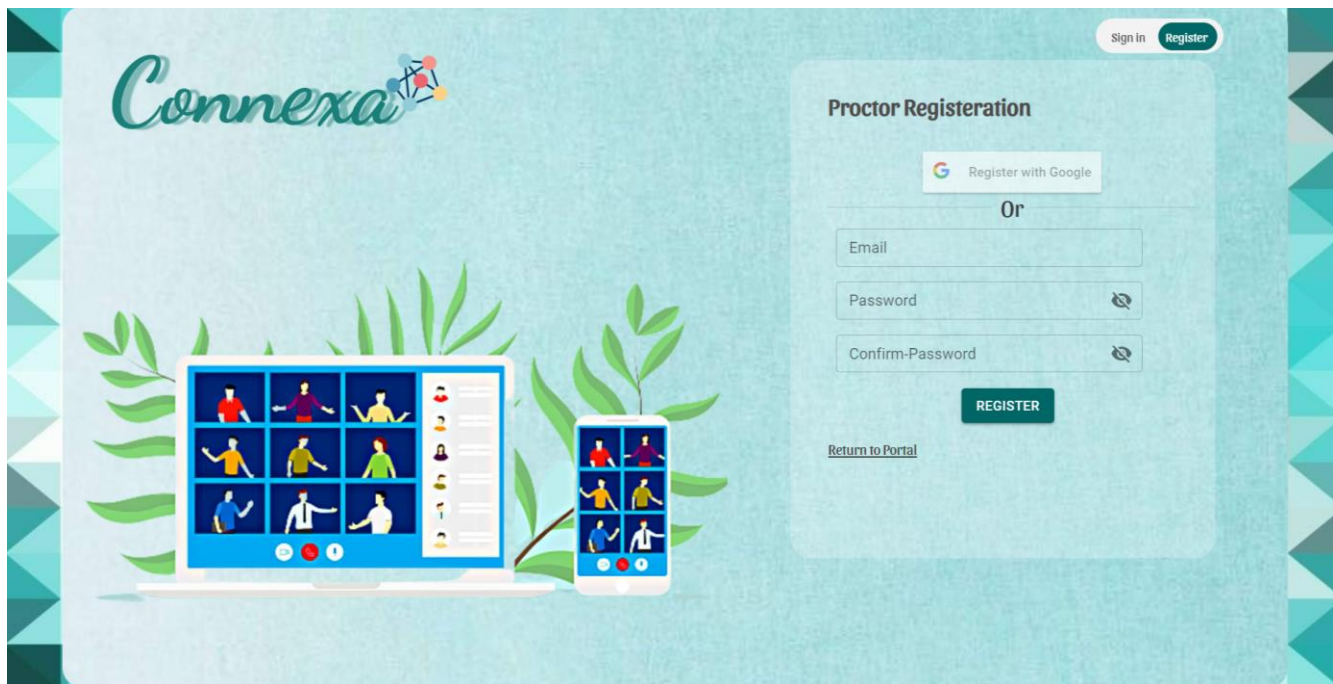


Figure 8: Registration page for proctor

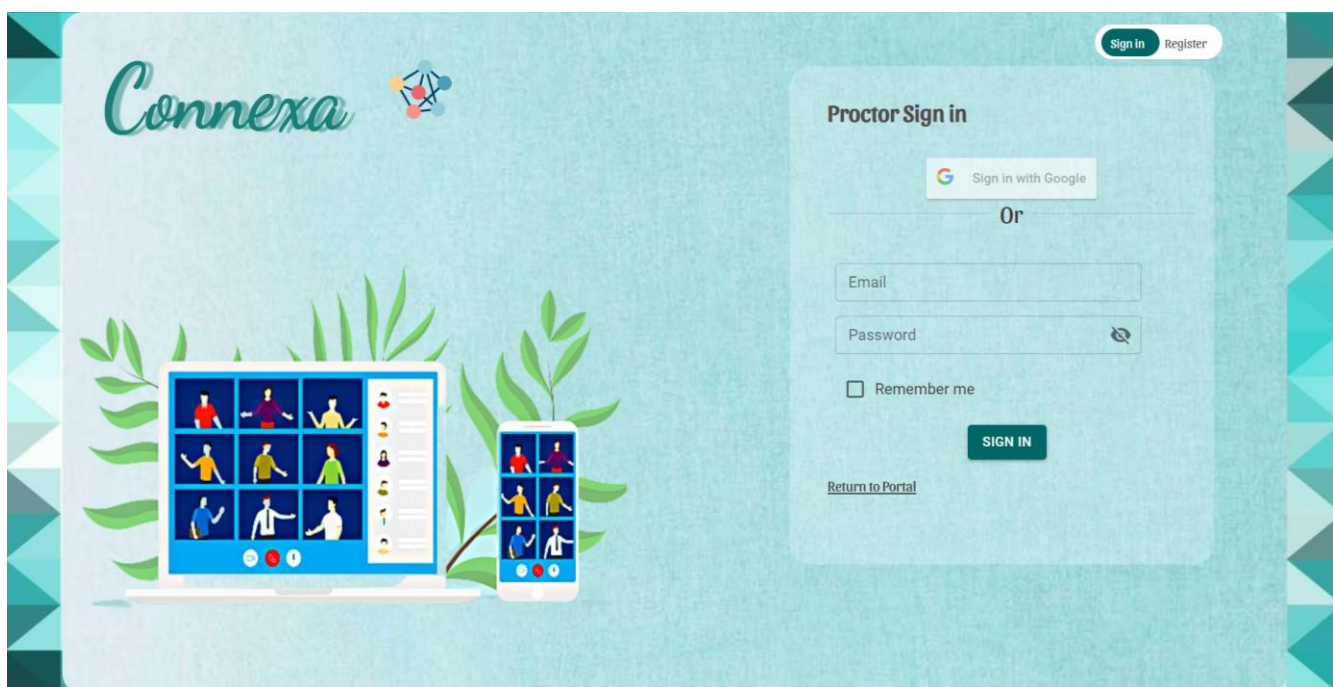


Figure 9: Sign-in page for proctor

Proctor's Home Page

Proctors can see details of upcoming examinations on their home page. Below are the details you can see for a particular examination.

1. Examination title
2. Course code
3. The duty assigned to you
4. Start date and time of the examination
5. Duration of the examination
6. VER assigned to you
7. Link to join the VER (Will be displayed 2 hrs before the start of the examination)

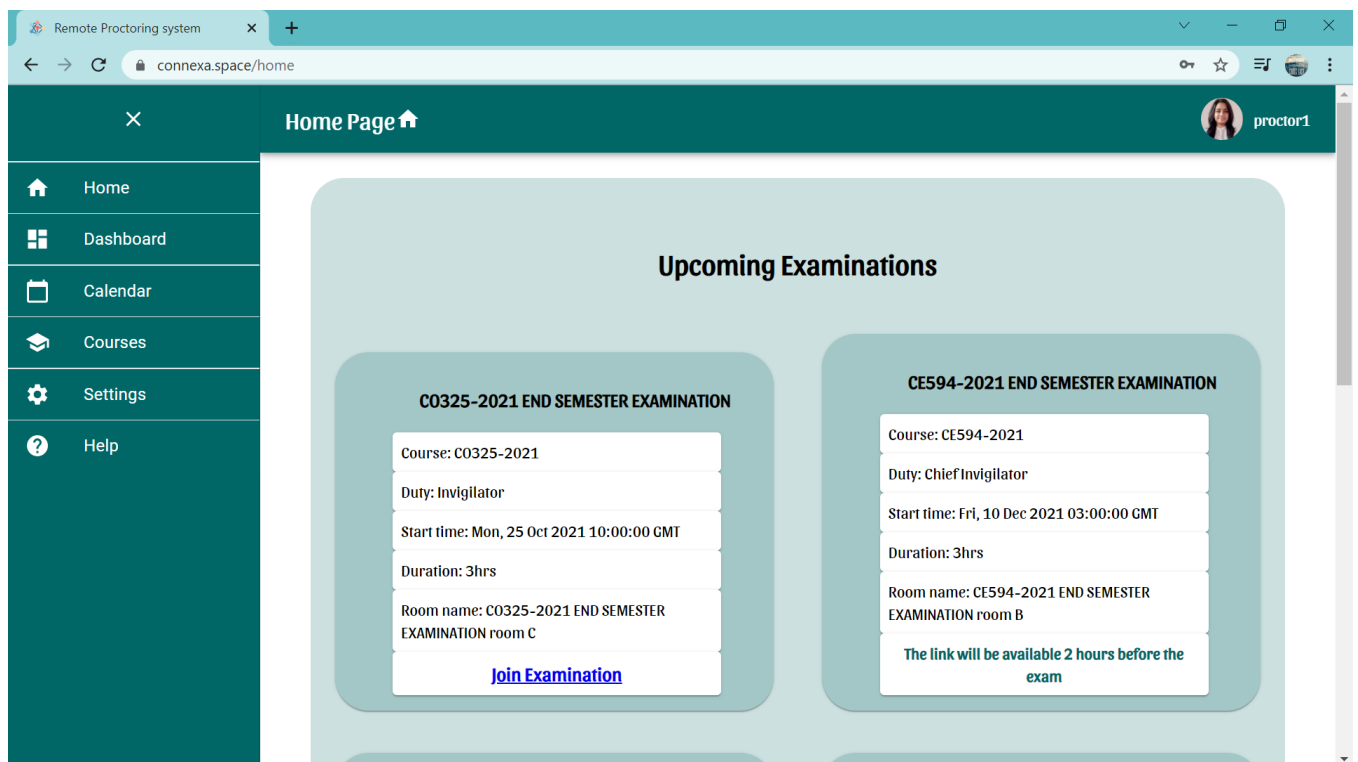


Figure 10: Home page for proctor

Proctor's Dashboard

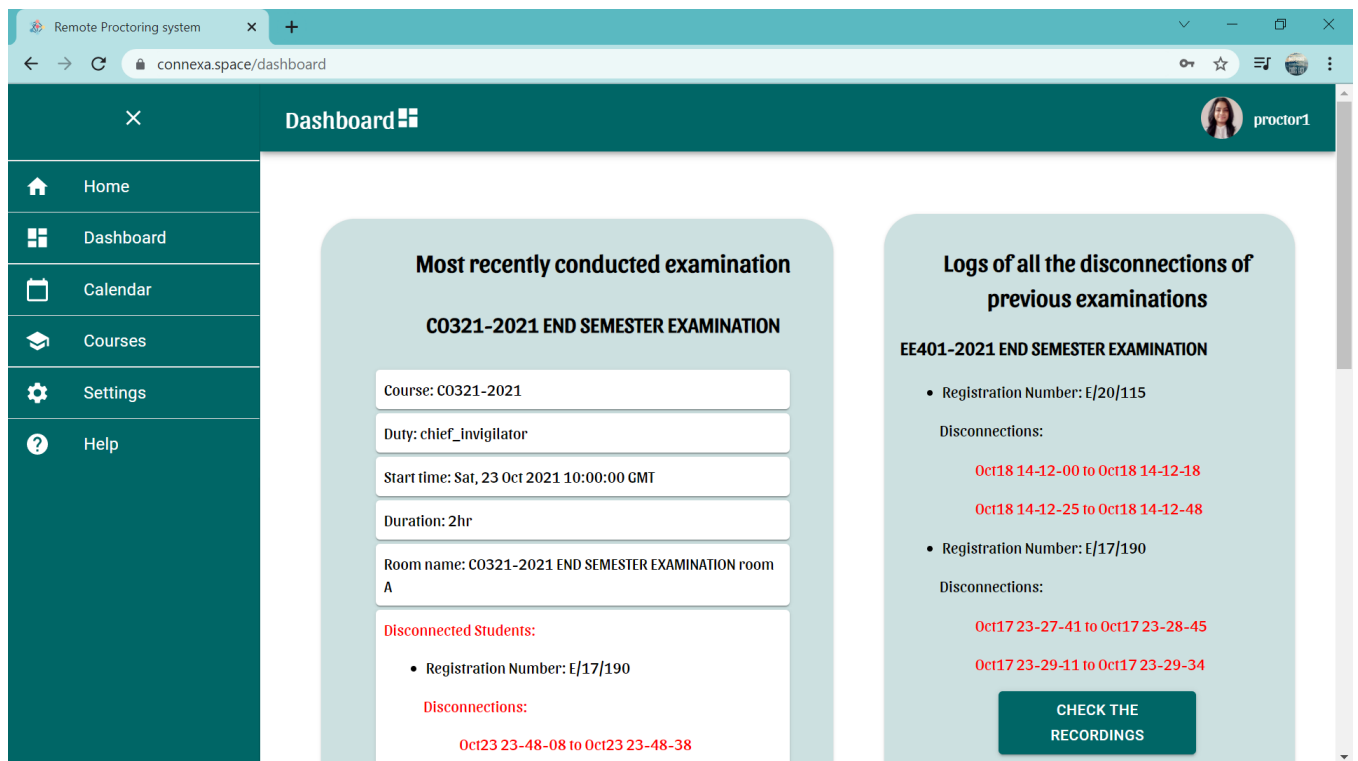


Figure 11: Proctor's Dashboard

Details of all the previous examinations and most recently conducted examinations can be found here.

Proctor can see the students who got disconnected from the VER, along with the timestamps, and the link to where the recordings of the disconnected students are automatically uploaded.

Proctor's Calendar

All the examinations scheduled can be viewed in the calendar. The proctor can view examinations by month, week, or day by clicking the tabs at the top right corner of the calendar.

Details of an examination can be viewed by clicking an event in the calendar as shown in figure 12.

The link to the VER will be displayed in the pop-up card 2 hrs prior to the examination and you can join the VER by clicking the link.

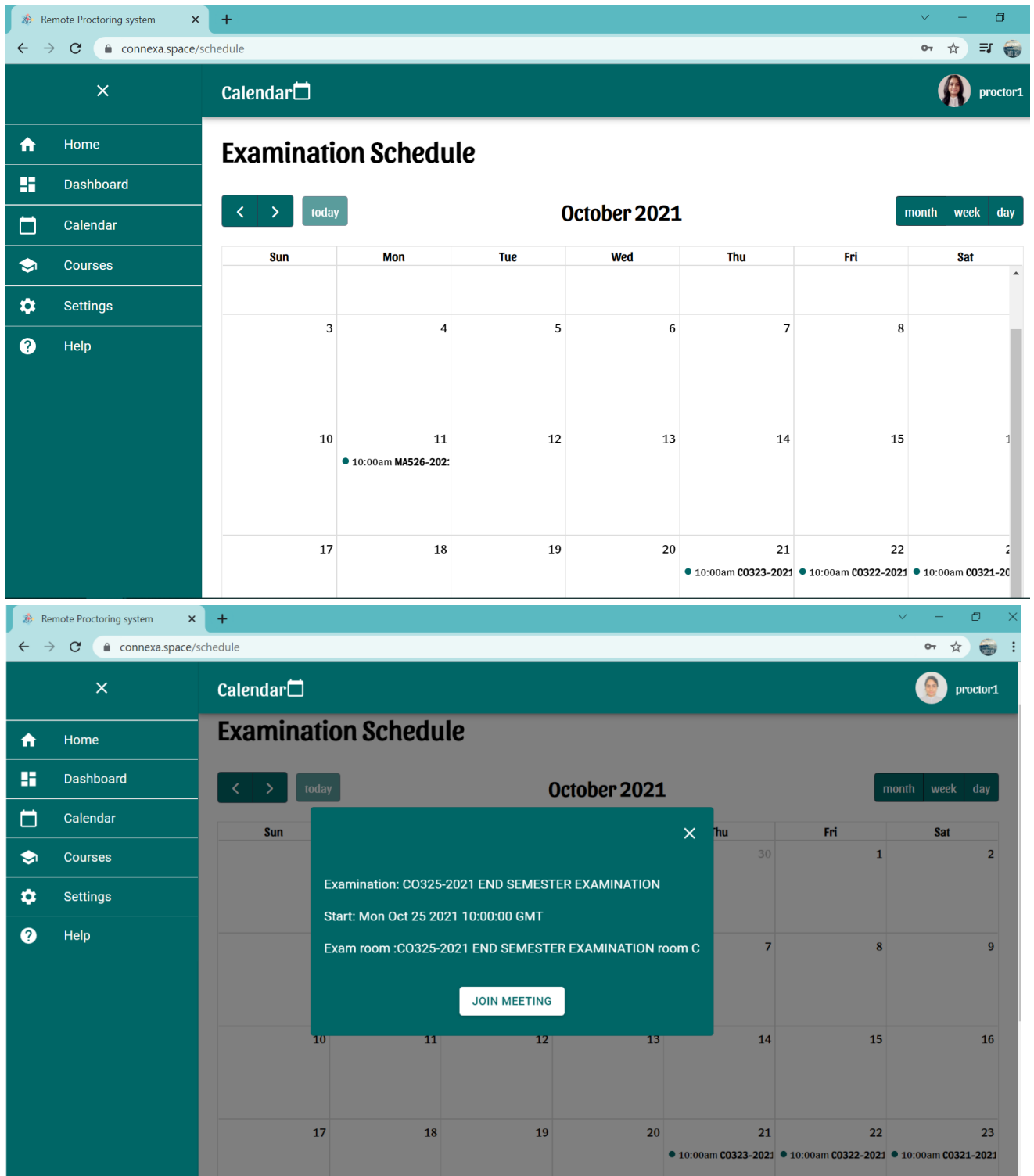


Figure 12: Proctor's Calendar

Features Available to the Proctor in the Virtual Meeting Room

The proctor can join the VER for an examination by clicking the link on the home page or calendar event.

The term “Invigilator” will be appended to the name of all proctors when joining the meeting as shown in figure 13 so that the students can easily identify the invigilators of an examination.

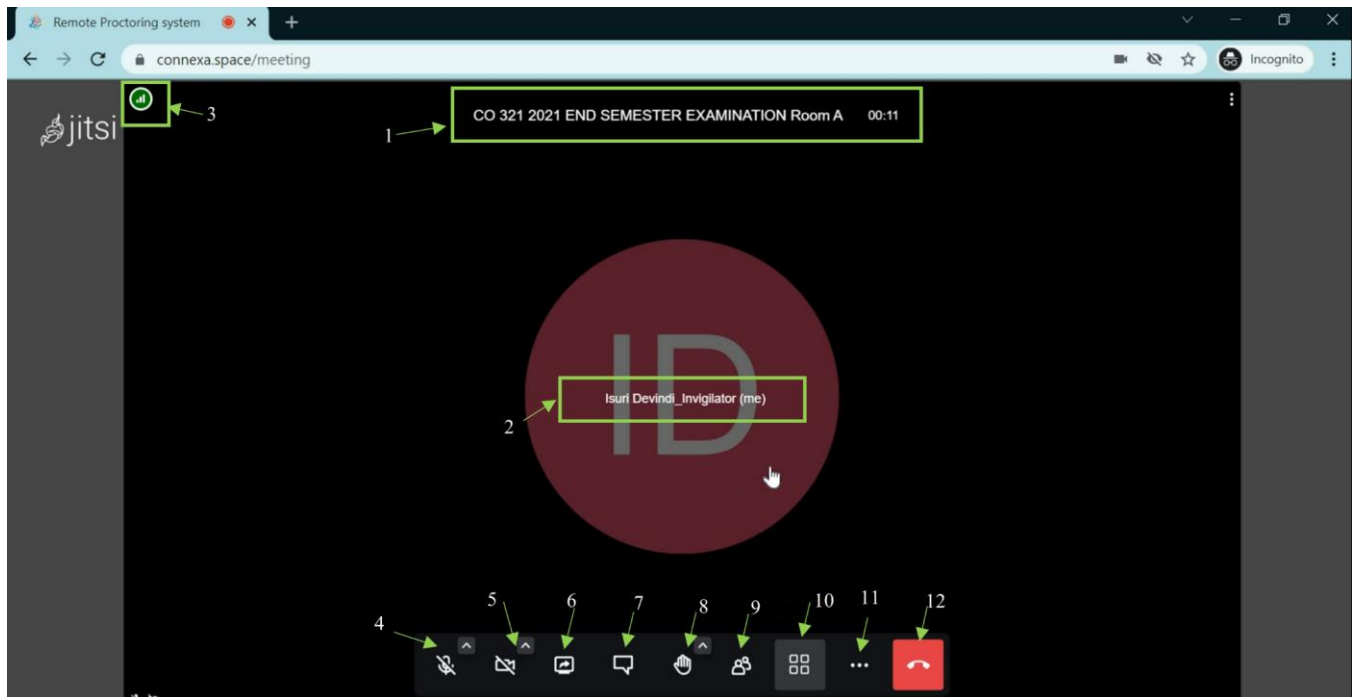


Figure 13: Proctor’s VER interface

Given below is a detailed description of the elements shown in figure 13:

1. Title of the examination and the name of the VER.
2. Name of the proctor with “Invigilator” appended to the end.
3. Network quality indicator. When the network connectivity is satisfactory, the icon will be green and when connectivity is lost, the icon will turn ash.
4. Mute/Unmute button.
5. Start/Stop the camera.
6. Start/Stop sharing screen.
7. Open the chat.
8. Reaction indicator.
9. Show meeting participants.
10. Toggle tile view. By default, the participants will be displayed in Gallery/ Tile view.
11. More actions such as start recording, noise suppression, speaker stats, and settings can be accessed from here.
12. Leave the meeting.

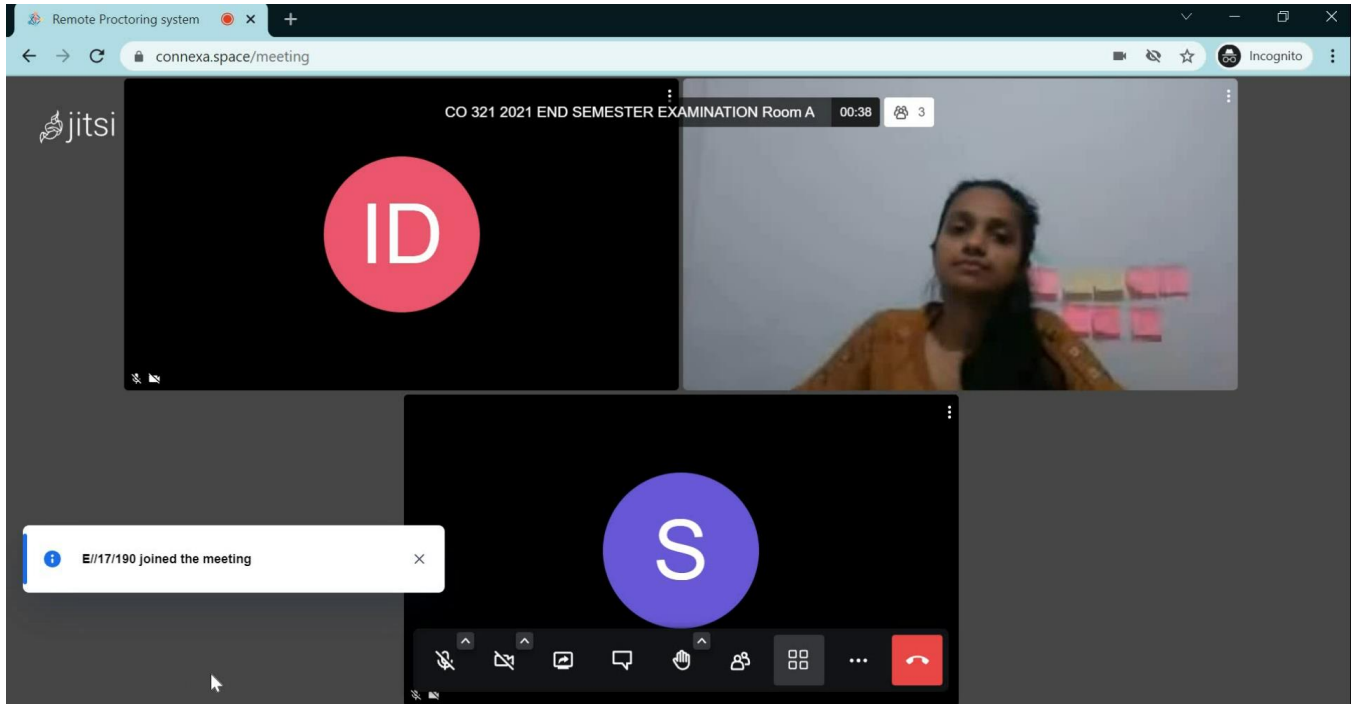


Figure 14: Notifications received when students join the room

When students join the VER, the proctor will receive notifications as shown in figure 14 and will be able to view all the students in gallery view.

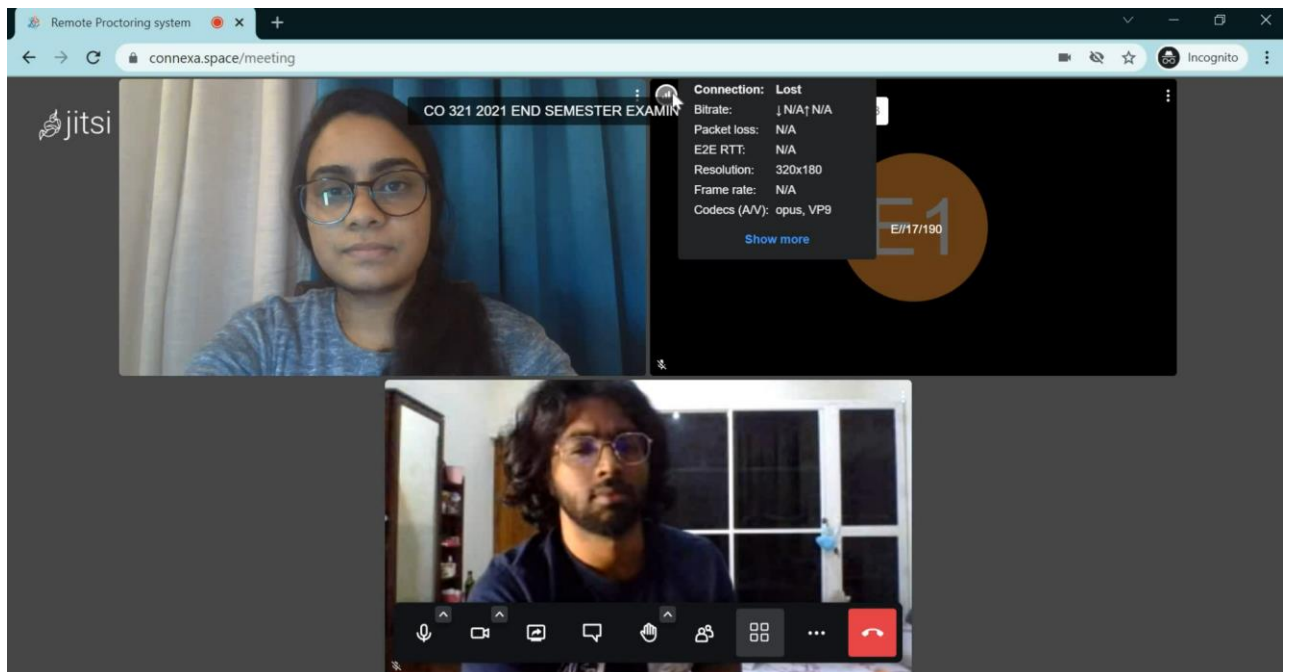


Figure 15: Indication of disconnected students

When a student drops out of the VER due to a technical issue, proctor will receive an audio notification as well as a visual indication of the connectivity status of the student as shown in figure 15.

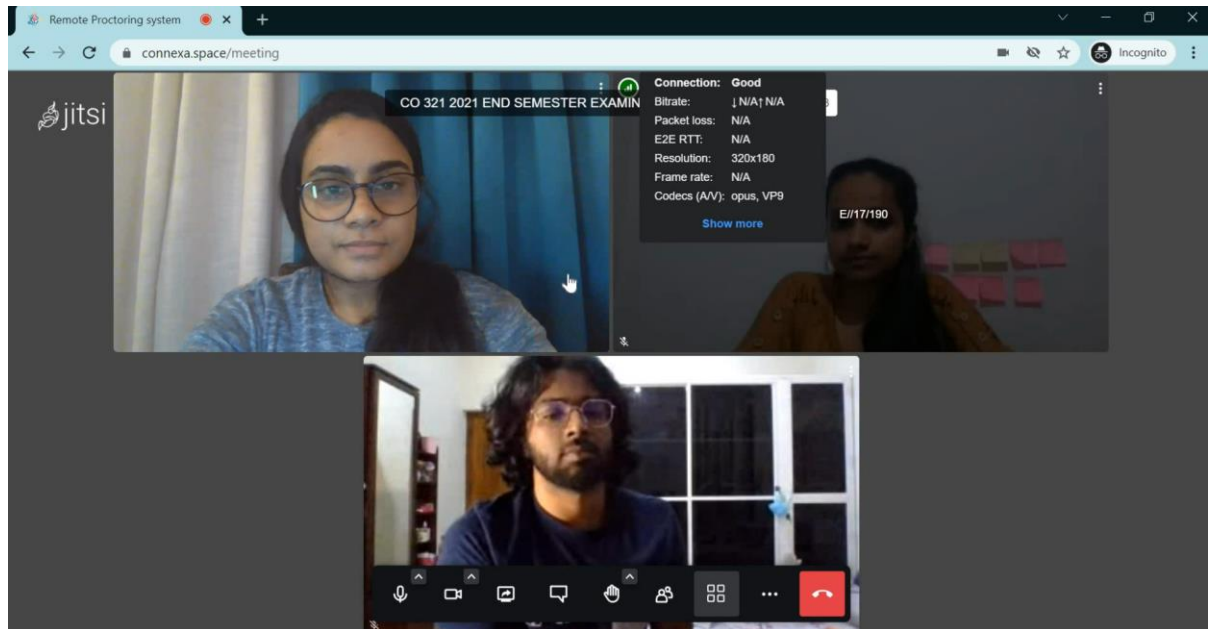


Figure 16: Indication of connected students

The connection status of the student will turn green when the student rejoins the meeting room as shown in figure 16.

Leaving the meeting will direct you to the dashboard where you can see the logs of all the disconnections that occurred during the examination and check the recordings automatically uploaded from students' devices recorded during the disconnections to check and verify the behavior of students during the disconnection as shown in the figure 11.

Proctor's Courses Page

The proctor can see all the courses where they are the invigilator and chief invigilator separately as shown in figure 17.

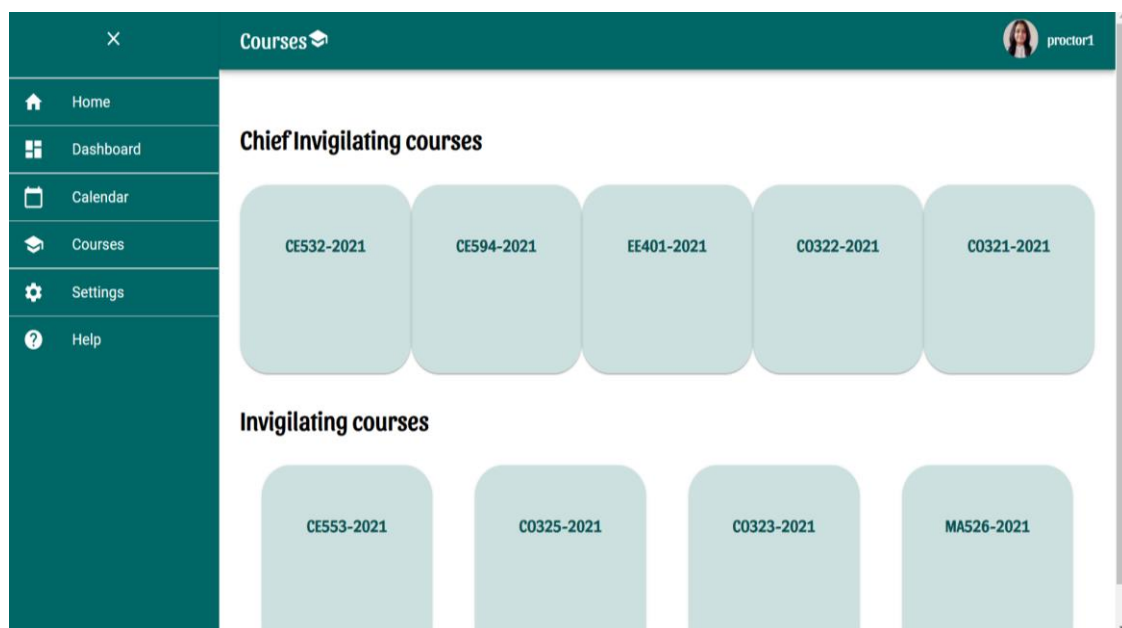


Figure 17: Proctor's courses page

When you click on a course on the course page, you will be directed to a page containing more details on the examinations assigned to you under each course as shown in figure 18. If the examination has already been conducted, clicking on the student list will show you the technical issues encountered by each student in more detail as shown in figure 19.

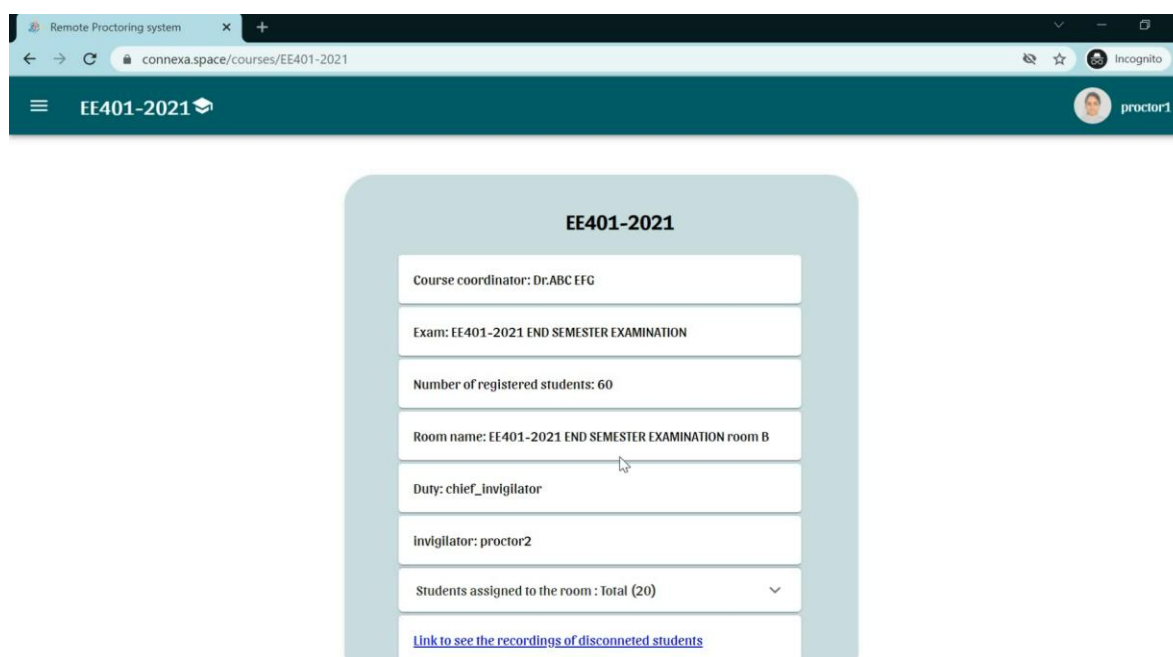


Figure 18: Details on each course

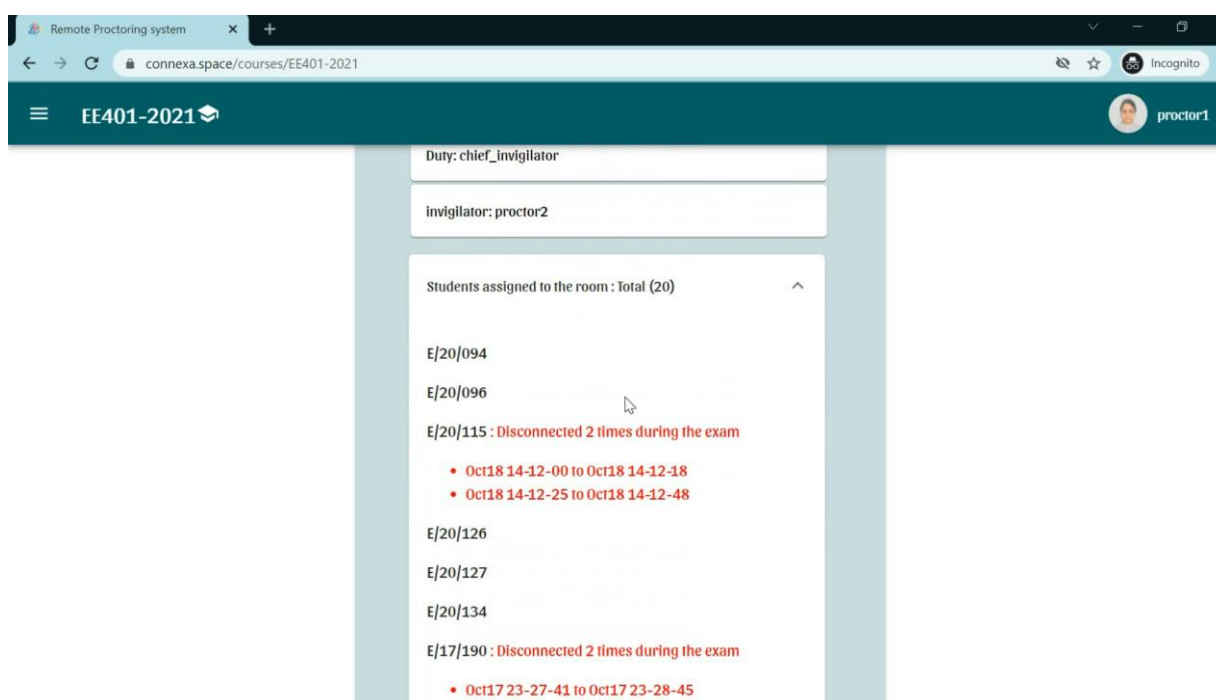


Figure 19: Details on technical issues encountered by each student

Changing profile settings

Follow the below steps to change profile details.

1. Navigate to the "Settings" tab in the left-side navigation bar.
2. Proctor has privileges to upload profile pictures and/or change the full name.

However, the proctor cannot change the email address freely. Contact an institution administrator if you want to change your email address.

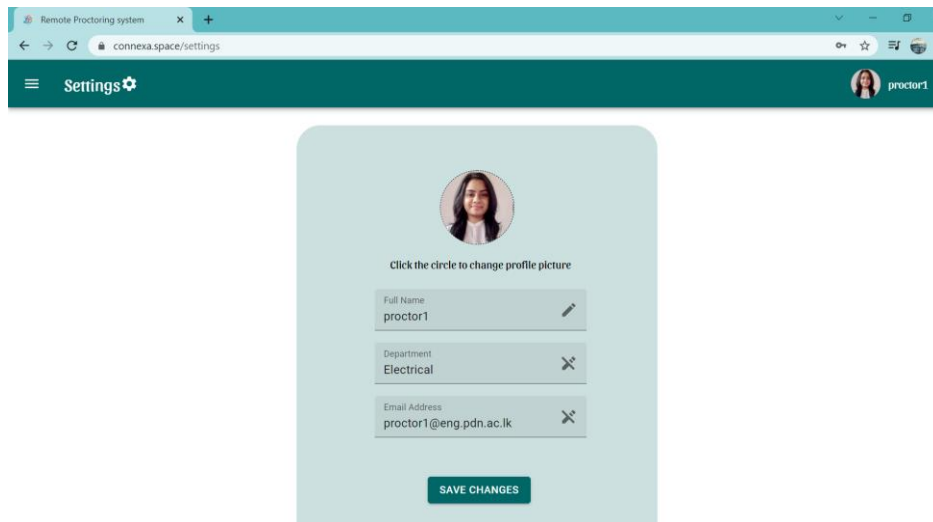


Figure 20: Settings page for proctor

Frequently Asked Questions by Proctors

- 1. How can we register to the system?**
The administrator of your institution is responsible for authorizing the students and proctors for the institution. Therefore, to register to the system, please ask your administrator to authorize your email address.
- 2. Can we change the email address we use to sign in as we wish?**
You don't have permission to update your email address. If you want to change your email address, please contact your administrator.
- 3. I cannot see an examination I'm assigned to invigilate.**
The administrator is responsible for scheduling all upcoming examinations. Please contact the administrator.
- 4. I cannot see the link to the examination room.**
The link to the examination room will be available 2 hours prior to the scheduled time.
If you are unable to see the link at that time, please contact us at connexa.info@gmail.com

Answers to these questions can also be found on your Help page accessible via the left-side navigation bar.

Students

The role of students is assigned to candidates facing online examinations. The key hardware requirement to properly invigilate students in the Connexa platform, similar to the device shown in figure 21 must be provided to all students by the institute. The device comes with a built-in desktop application that facilitates students to see examination schedules and join VERs for online proctored examinations.

An admission card and a set of guidelines will be issued to the candidates for the online examination. The admission contains relevant details for the list of exams such as the schedule and assigned VERs. Examination details provided in these admission cards will be updated in the Connexa platform by the institution administrators and the candidates should make sure to check their admission card against the details displayed on the Connexa application on their device.

A guided video on the features available for students can be found [here](#).

Components of the Hardware Device

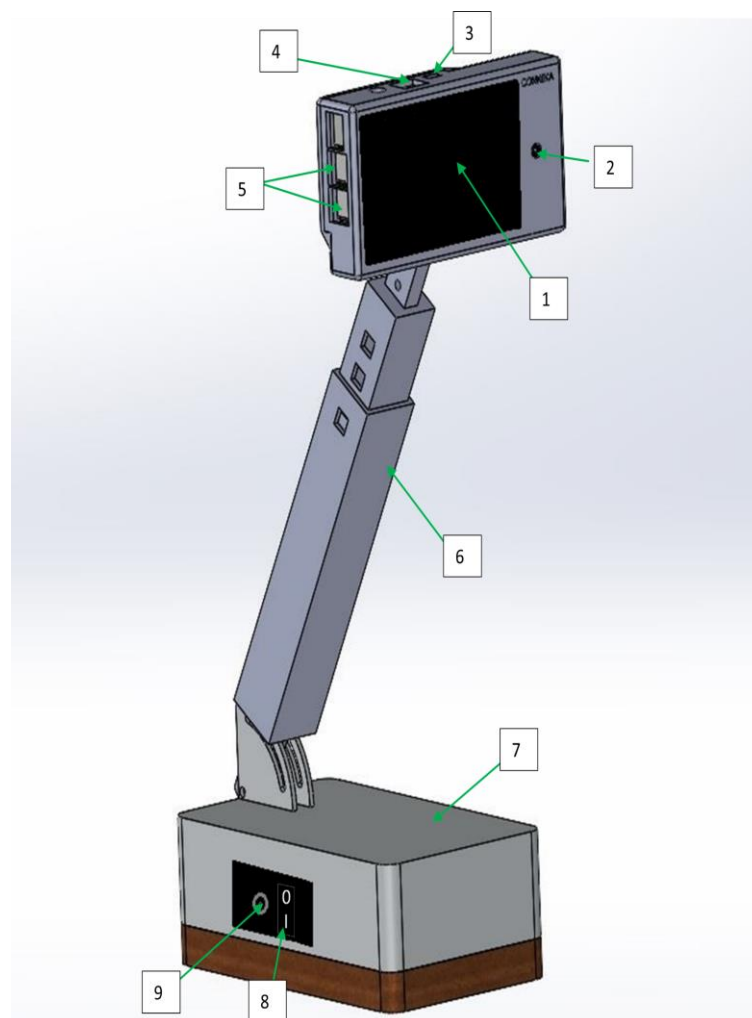


Figure 21: Components of the proctoring device

1. Touch screen display: When the device is powered up, you will see your desktop application and can freely navigate through the application with a stylus.
2. Camera: 5-megapixel camera with a wide-angle view.
3. Charging port: A micro USB socket that can supply 5V to the touch screen.
4. HDMI port: HDMI port that helps to display the UI on the touch screen.
5. USB ports: Can be used to connect external peripherals such as keyboard and mouse.
6. Extensible arm: Can be adjusted freely up and down as well as to the front and back to properly place your view in front of the camera.
7. UPS housing: Contains the backup battery unit which will uninterruptibly supply power to the device even in case of power failure.
8. On/Off button: Turns the device on and off
9. 12V DC jack: Connect a 12V adapter to this slot to charge the UPS unit.

Accessing the Connexa Application in the Device

Follow the steps below to turn on the device safely.

1. Charge the device for at least 3hrs using the 12V adapter before turning on the device for the first time.
2. Once the device is fully charged, switch on the device using the switch marked as 8 in figure 21.
3. When the device is turned on, you will see the Connexa application icon in the Desktop.
4. Double-click on the icon to start the application.
5. To access the Connexa platform of your institute, follow the steps in the section “[Choose the institute's server](#)”.

When the device is fully charged, you can remove the 12V adapter from the charging port and work using the battery unit for more than 4 hrs.


Choose the Institute's Server

To successfully register and sign in to the Connexa platform, the student must first select the server of their institute correctly. Follow the instructions below to add the server corresponding to your institute.

1. Open the desktop application by following the instructions provided in “[Accessing the Connexa Application in the Device](#)” section.
2. Click on the line stating “click here to change the server” to add your server to the system as shown in figure 22.

3. Fill out the form appearing on the right-hand side by providing an appropriate name for your server and the URL of your server. You can find out the URL of your server by contacting your institute administrator. (Figure 23)

As an example, for the University of Peradeniya, you may add the following details:

- Name of the server: University of Peradeniya
 - IP of the server: <https://connexauop.herokuapp.com> (*Please make sure not to add an additional '/' at the end of the URL*)
4. After filling out the details, click the  button on the screen to add the new server to the list of servers on the device.
 5. Finally, select the name of the server you want to access as shown in figure 24.

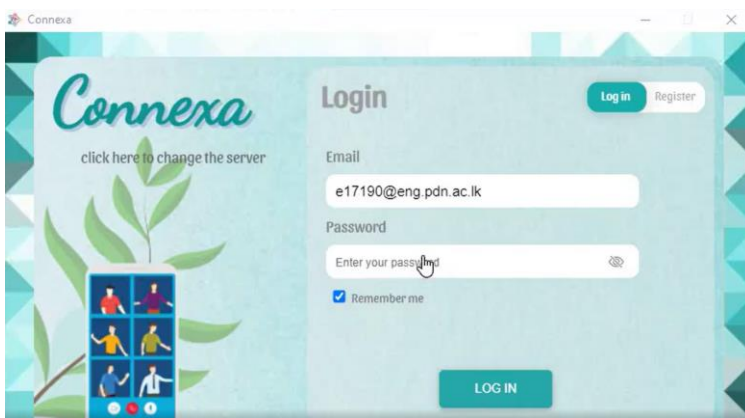


Figure 22

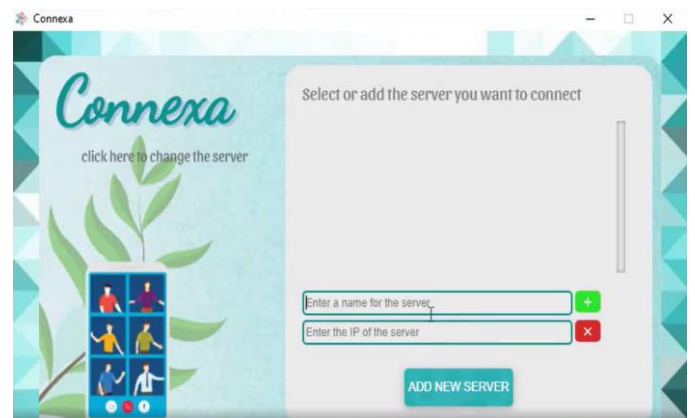


Figure 23

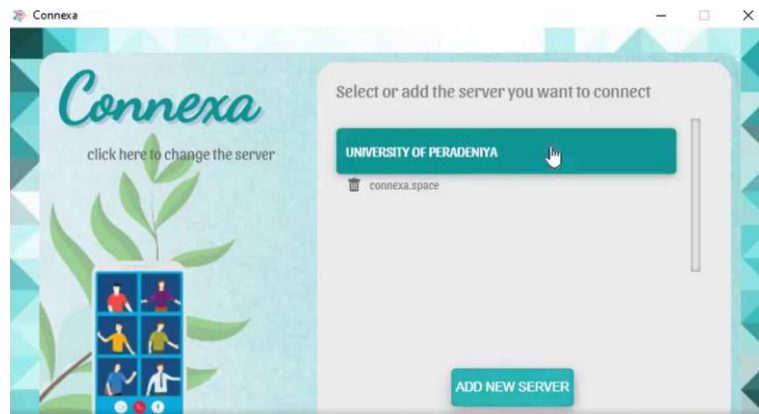


Figure 24

Registering to the system

Before registering, please contact your institution administrators to authorize your email address.

Follow the below steps to register to the system.

1. Open the Connexa application on the desktop of your device by following the steps given in [“Accessing the Connexa Application in the Device”](#) section.
2. Then, add the URL of your institute’s server by following the instructions in [“Choose the Institute’s Server”](#) section.
3. Click the “Register” button.
4. Register to the system by providing a valid email address (email address authorized by the institution administrators) and a strong password.
5. If your email address is authorized, you will be registered successfully to the system. However, if the registration fails, please contact the institution administrators to authorize your email address.

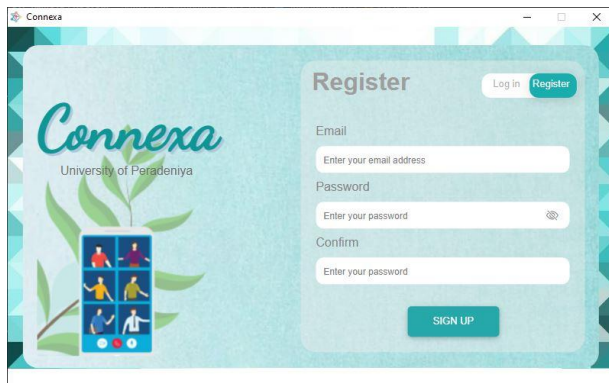


Figure 25: Registration page for student

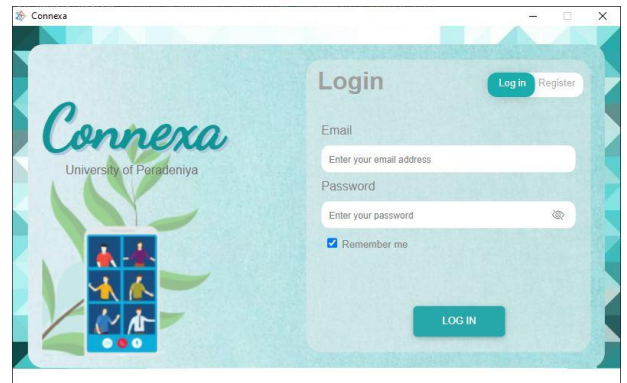


Figure 26: Login page for student

Signing into the system

If you are not already registered, please follow the steps [here](#) to register.

Follow the below steps to sign in to the system.

1. Open the Connexa application on the desktop of your device by following the steps given in [“Accessing the Connexa Application in the Device”](#) section.
2. Then, add the URL of your institute’s server by following the instructions in [“Choose the Institute’s Server”](#) section.
3. Click the “Log in” button.
4. Enter the email address and password used in the registration process and click the LOG IN button at the bottom of the page. (If you want the application to remember your email address, select the “Remember me” option before logging in)

Student's Home Page

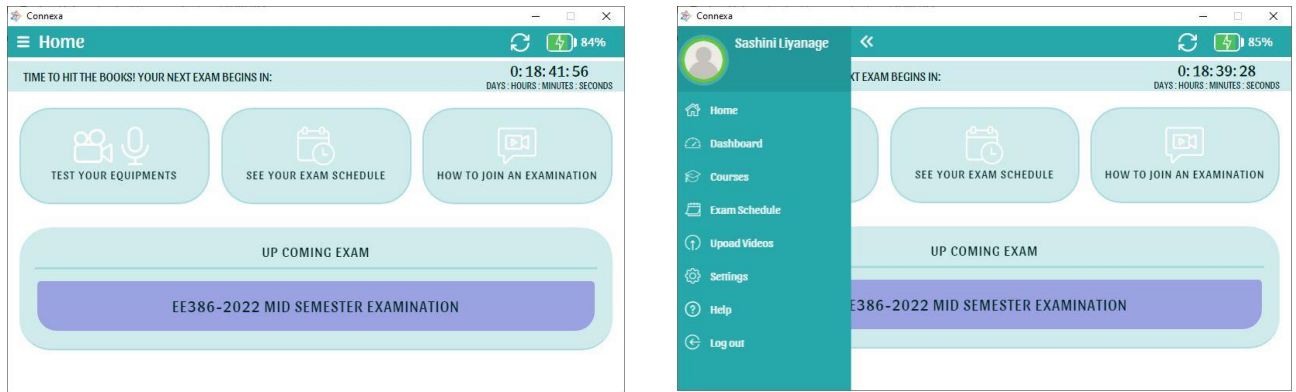


Figure 27: Student's home page

Following are the actions that can be done on the home page.

1. Test your camera and microphone.
2. See your examination schedule in a calendar.
3. Navigation to the guidelines to join an examination.
4. Countdown to the next examination and the name of the next examination.

Student's Dashboard



Figure 28: Student's dashboard

Details of all the previous examinations and most recently conducted examinations can be found here.

Students can see the disconnection from the VER, along with the timestamps, and the saved video recorded during the disconnection in each examination.

Student's Courses Page

Students can see all the courses with scheduled examinations. Furthermore, students can sort courses by the course code and search for a specific course by name. Course details can be viewed by clicking the card of a specific course.

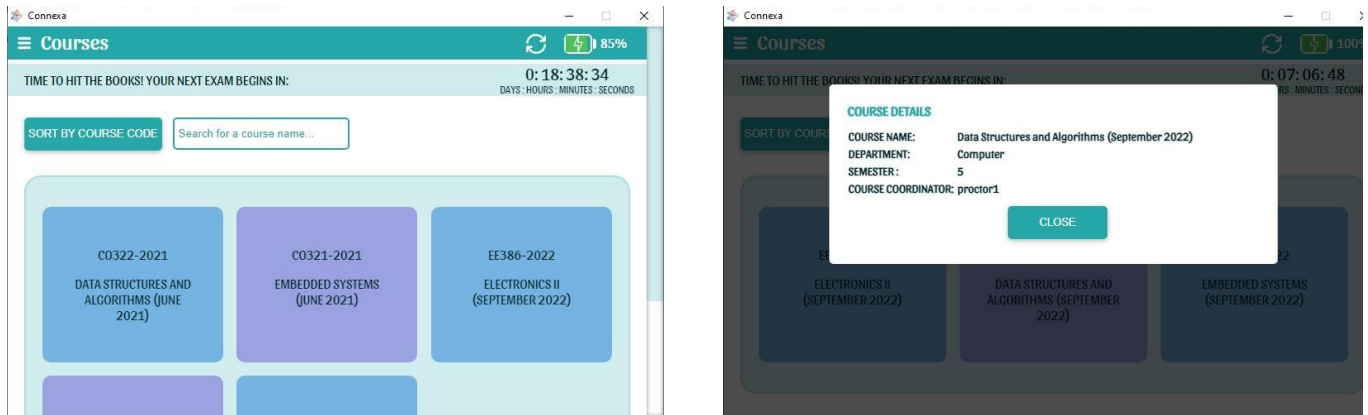


Figure 29: Student's course page

Examination Schedule Page

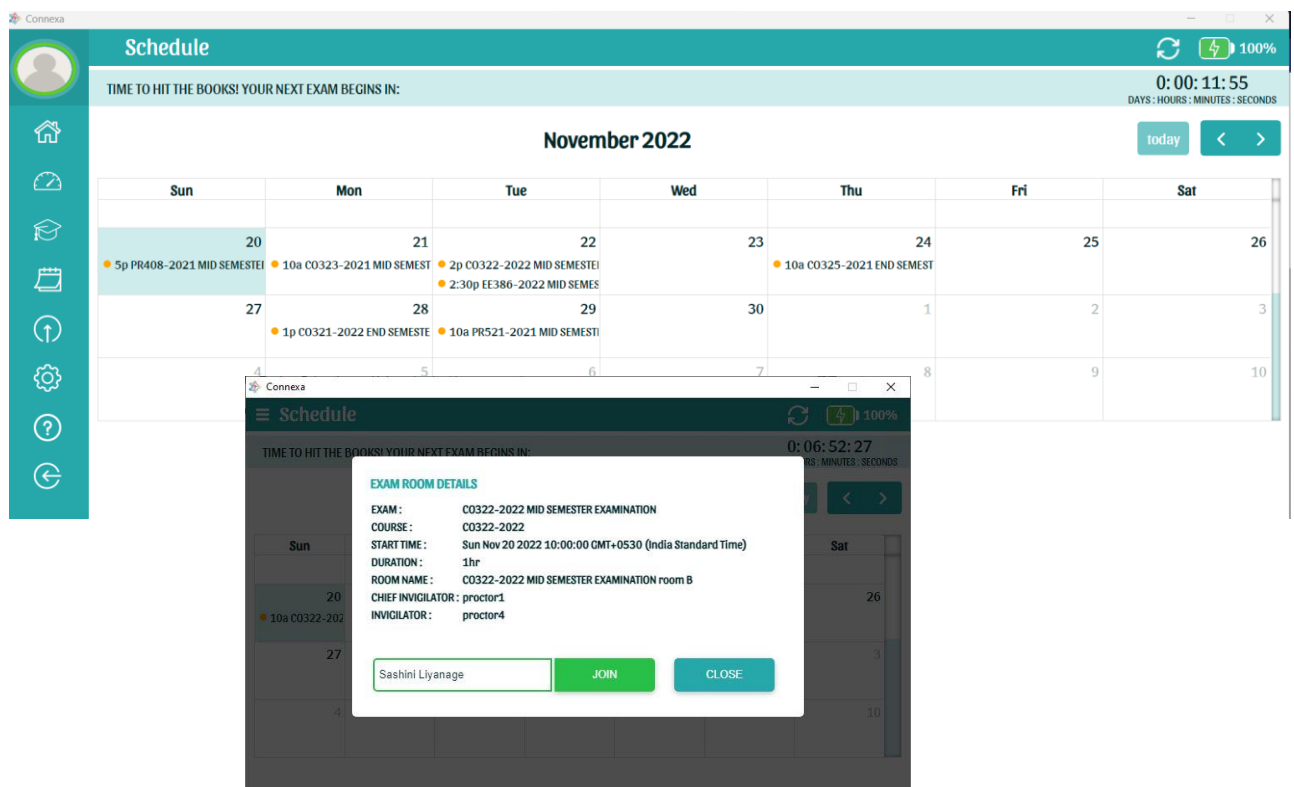


Figure 30: Examination Schedule Page

Students can see all the scheduled examinations in a calendar. Examination details can be viewed by clicking the card of a specific course and the link to the VER will be displayed to the student 30 mins before the start of the examination. Once the link is available, students can join the VER by clicking the JOIN button.

Features Available to the Student in the Virtual Meeting Room

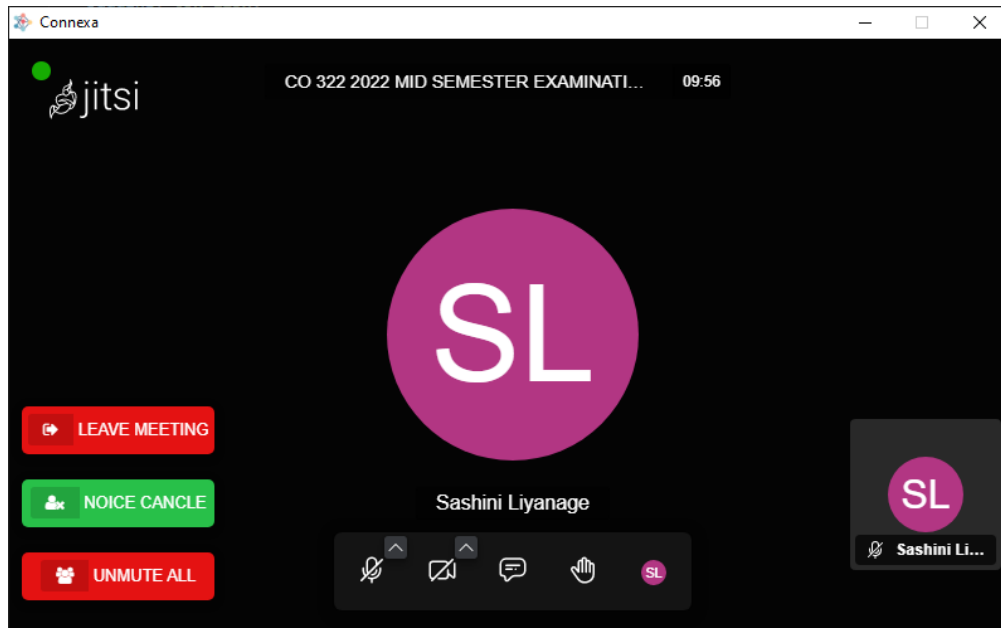


Figure 31: VER visible to the student

Students will be directed to the VER of an examination when they click the JOIN button in the relevant event in the calendar. Figure 31 shows the features available to the student in the VER, such as noise canceling, unmuting all except the invigilator, turning on/off the camera and microphone, and raise hand option.

- Leave meeting button disposes of the meeting and directs to the dashboard.
- Noise Cancel button mutes all the students except the invigilator.
- Unmute All button unmutes all the students in the virtual room except the invigilator.
- The indicator of online/offline status is displayed in the top left corner of the screen. The button turns red when the internet is disconnected.
- When the internet connection is disconnected, the video of the student is recorded and saved locally with the timestamps of the disconnections. The videos saved locally can be viewed from the Upload page, from where you can upload the video when you have a good internet connection.

The videos recorded during the disconnections are stored locally in the Documents/Connexa folder in your device. Please make sure not to delete this folder.

Upload Videos Page

Videos stored locally during a disconnection can be seen on this page. Click on the description of a video to upload the video to the location specified by your institute. A pop-up window will appear as shown in figure 32, and clicking the UPLOAD button will automatically upload the video to the location storing all the videos of the students joined to a specific VER.

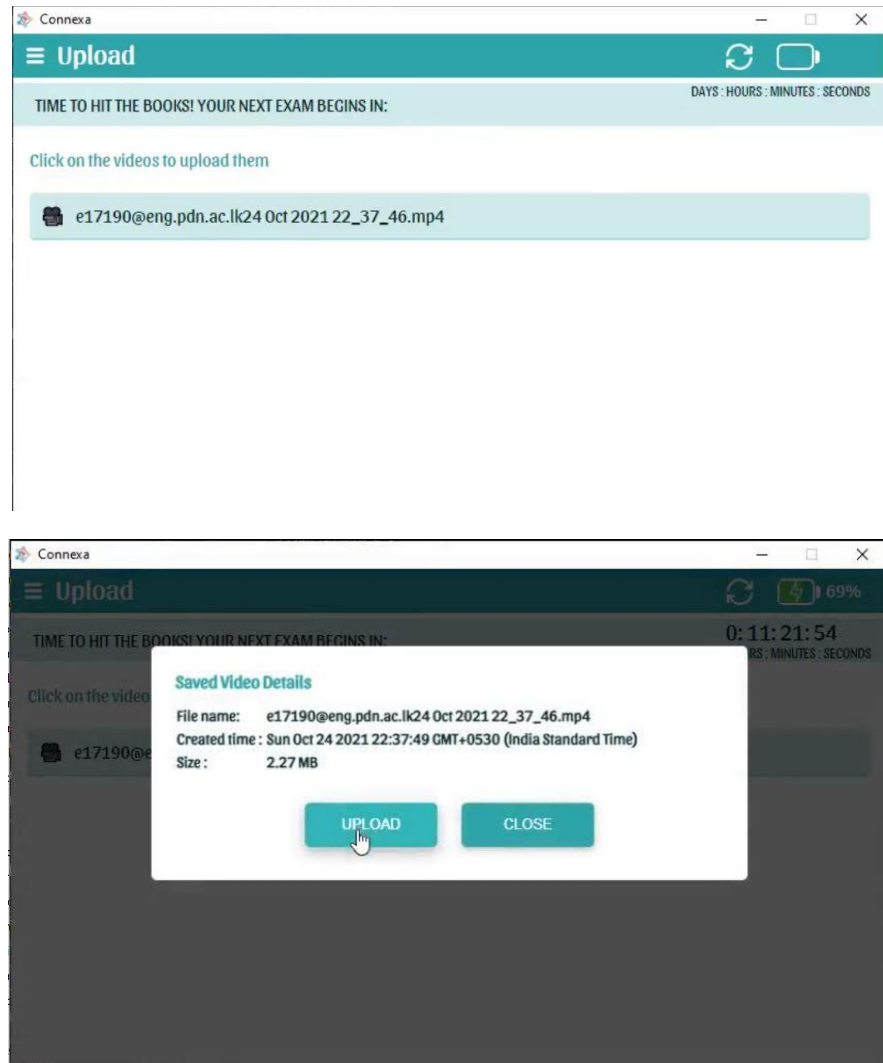


Figure 32: Upload Videos Page

Settings Page

The settings page provides options to change the user name and the profile picture. The Student can check the video and audio using the “Test your camera” option. It should pop up a window as shown below to record a video and check the audio and video quality.

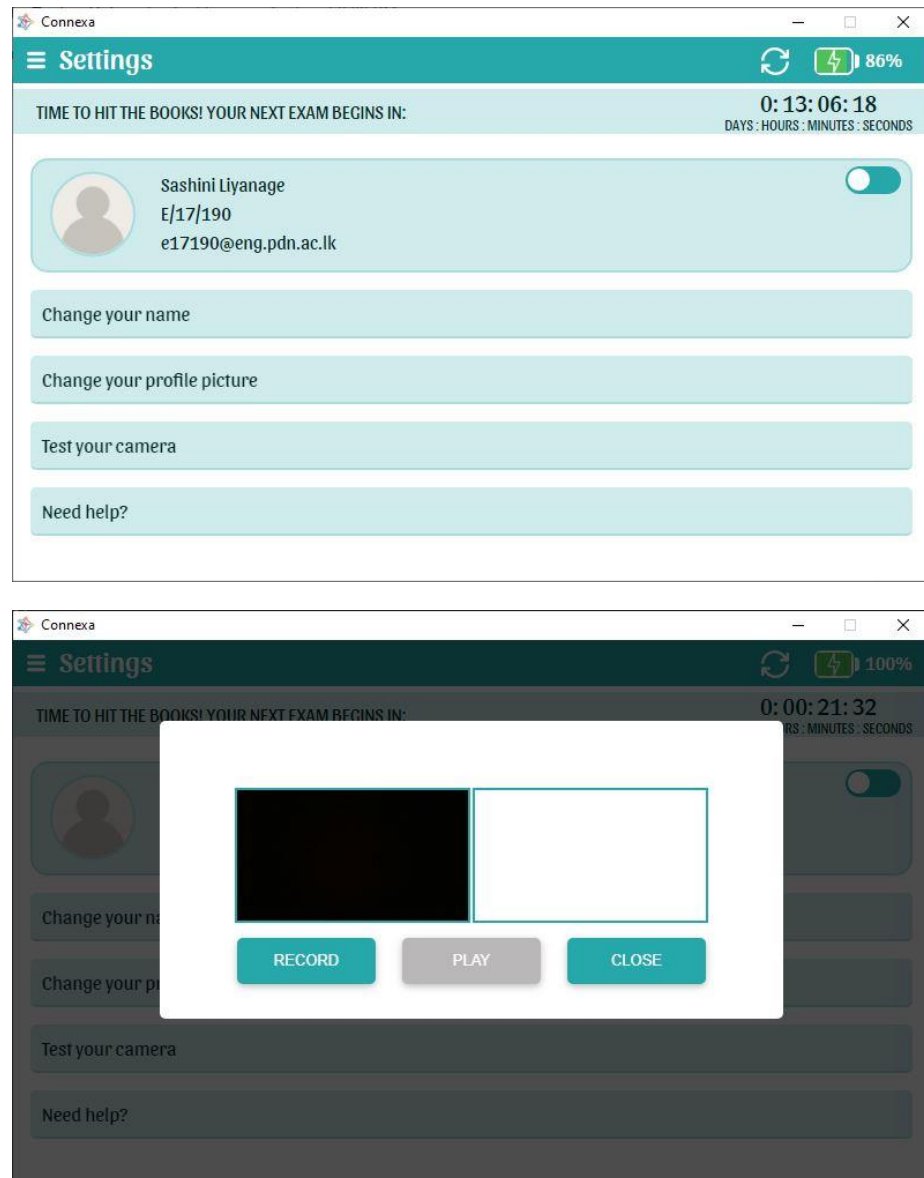


Figure 33: Settings Page

Frequently Asked Questions by Students

1. **How to join an examination room?**
 - a. Go to 'Exam Schedule' tab on the menu.
 - b. Find the exam on the calendar you want to join.
 - c. Change your name to join the exam (optional).
 - d. Click on the JOIN button. (Button is displayed one hour before the start of the exam.)
2. **How to upload saved videos?**
 - a. Go to 'Upload videos' tab on the menu.
 - b. Click on the video you want to upload.
 - c. The video will be uploaded automatically. This may take some time.
The video upload path is specified by the database administrator and may change from one examination to another. If you have any doubts or issues, please contact the administrator of your connected server.
 - d. Video will be deleted from your device after uploading completes.
3. **How to test audio and video?**
 - a. Go to 'Settings' tab on the menu.
 - b. Click on the 'Test your camera' tab.
 - c. Click on the RECORD button and record a video with audio.
 - d. Click on the PLAY button and check your audio level.
4. **How to adjust sound and brightness?**

This application doesn't support this feature. Please change the system sound and brightness manually.
5. **Low battery power?**

In case of an emergency, you can replace the backup battery with a power bank.

Answers to these questions can also be found on your Help page accessible via the left-side navigation bar.

If you are unable to find answers to your questions, please contact us at connexa.info@gmail.com