



# CS 319 Term Project

Section 3

Group 3C

Bilkent Erasmus-Exchange System

## Design Report

### **Project Group Members**

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Mert Kara

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## **1. Introduction**

Thus far, we have implemented most of the functionalities we expected to provide with Bilkent Erasmus-Exchange System. The most appropriate way to present what we have achieved and could not achieve would be giving a few bullet points:

- Our project was divided into two main parts and teams, following a conventional approach: frontend and backend. We would not say that UI and frontend is our strongest departments since they are mostly handled and implemented by just one project member, unfortunately. Yet, we have invested a lot in our backend.
- Firstly, we have implemented a Knox authentication system to our website, which is one of the most reliable and customizable authentication systems for RESTful Django applications. This authentication system can be replaced with SRS authentication in production. We are supporting 6 different user types: Applying Student, Former Student, Department Coordinator, Exchange Coordinator, Instructor, Exchange Office User. Our authentication and permission system completely restricts certain users and guests from performing unauthorized actions even if they somehow get an access to the API. The system validates users by tokens that are generated after they login and expires these tokens after 1 hour or after logout (These details were not finalized in design report). In short, we trust our system's security and we can say that it is complete.
- Another one of the most important features needed in such a system is handling course data. We are recording every course data that is registered to the system by students. Since people should be informed about which courses were approved before, it is crucial to have this data. The system gets course data from students and have them approved or disapproved by department coordinators and instructors. If all the courses in a pre-approval form are approved, a pdf file is generated for further official work and

distribution. Except pre-approval form, files are handled as pdfs and data is not extracted from them. They are just stored as pdfs.

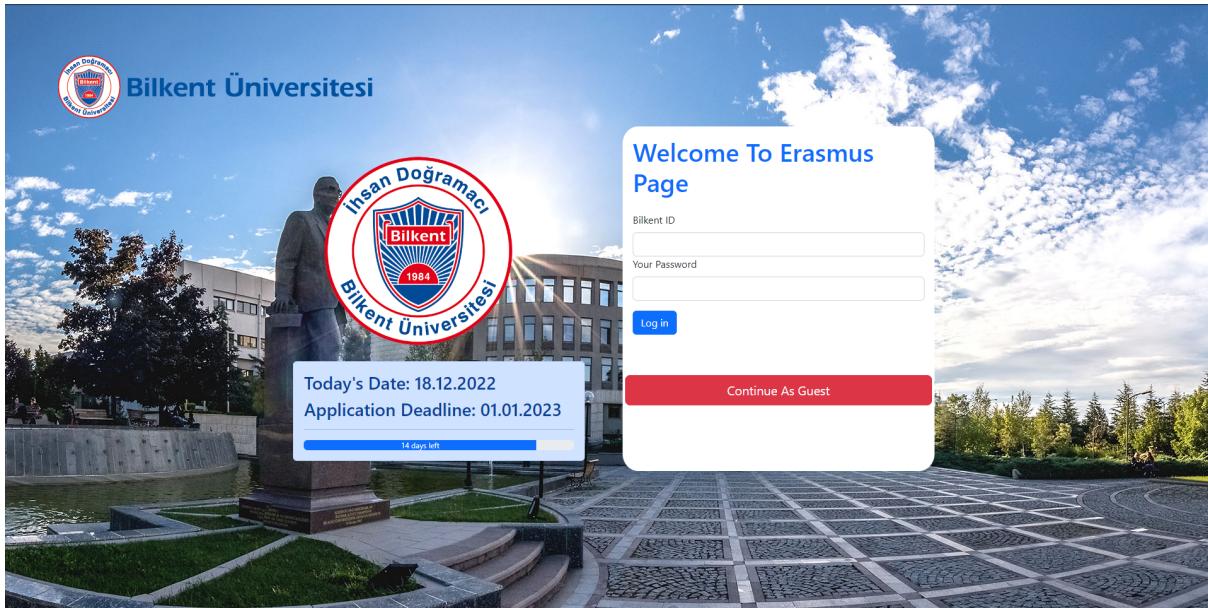
- We have implemented an automated nomination system. The system will get the raw data from exchange office and place students appropriately to the universities. After getting approval from the corresponding department coordinator, all placed students will get their accounts. After mobility, these applying student accounts will turn into former student accounts that are able to post reviews to their universities.
- Forum, announcements, university info pages are implemented and fully functional as expected.
- We could not achieve our performance goals. Unfortunately, performance was not our first concern since we have really limited time and limited human-resources. Backend API sends a lot of unnecessary data to frontend server. However, this may not be a huge problem if they run on the same machine.
- Chat (DM) system is not implemented. Although we have the database structure for a chat system, our frontend is not capable of having one right now.
- Search's functionality is narrowed down to just user profile searching.

## 2. Lessons Learned

One of the most concerning problems we have encountered was communication. Some of the team members were not really committed to the project and thus, often they missed some deadlines that the team set. We had a hard time reaching them. Yet we have realized that we should have made a stricter schedule and we should have disturbed/contacted team members more. Another problem was sloppy work. We noticed that as the deadlines of the project get closer, team members tend to not care about the quality of their

work as necessary. We should have started learning about the frameworks we will use as early as possible, like at the start of the semester. Also, we should have made sure that every team member makes progress on their learning simultaneously to prevent lagging.

### 3. User's Guide



**Main Page:** The main page is shown first when the user enters the website. The time until the deadline for ERASMUS applications will be shown on the left part of the main page. On the right side, since users can log in through SRS, the SRS login is there. Also, users can use the website without logging in by pressing Continue as Guest.

Erasmus Bilkent University Information Forum Announcements Login

Department CS Calculate Your Point ENG101 A- ENG102 A+ Your CGPA 3.5 Your Points 81.33

**ESIEE Paris**  
Entreprises, collaborer avec les élèves ingénieurs est l'opportunité de les former aux méthodes de travail, aux spécificités et à la culture de votre entreprise.

Location: Paris, France Quota: 2 Coordinator: Can Alkan 

Taught In English: Yes See All Reviews Go to University Page

Languages: English B2

**Vrije Universiteit**  
VU Amsterdam is a unique university with faculties in the humanities, STEM, social sciences and medical sciences. Our education and research are closely linked. We combine our top position in research with a strong social orientation, which has resulted in an excellent international reputation. Our education and research are distinctly multidisciplinary. This is reinforced by the fact that our faculties are all located on one campus. We are a true campus university in the heart of the Zuidas K

Location: Vrije, The Netherlands Quota: 2 Coordinator: Can Alkan 

Taught In English: Yes See All Reviews Go to University Page

Languages: English B2

**University Info Page:** When the user continues as a guest, the university information page will be opened. On this page, users can see all the possible ERASMUS universities of the departments. Users can see reviews, the points of former students, location, university ratings and users can go to university's webpage by button. Moreover, at the top of the website, there will be an ERASMUS point calculation area. When the calculation is done, the circles that are shown in each university information will be:

- 2.1 Red: It means that the user is not likely to be selected for that university.
- 2.2 Yellow: The user may enter that university.
- 2.3 Green: The user might be easily selected for that university.

Erasmus Bilkent University Information Forum Announcements Login



Yüksel Berkay Erdem

★★★★★



Ali Yavuz

★★★☆☆

I started studying in the zuid of Amsterdam in 2017 and it was an amazing experience. I moved from Rio to Amsterdam when I was only 18 and fitted in perfectly! Everybody was super helpful with assisting me settling into my new life. I easily found a new job and managed to juggle between school work and work. The campus looks slightly outdated but inside the facilities are top-grade, as well as the professors.

Vrije Universiteit approaches many studies with innovative approach. Specifically, my course (Law in Society) is seen as a way of preparing a 'modern lawyer', concentrating on the understanding of the principles and development of the law, with introduction to a myriad of disciplines within legal profession. Undeniably, it provides a plethora of skills, and does it with efficiency.

## Reviews of University Page: Reviews of a university.

Erasmus Bilkent University Information Forum Announcements Login

Department CS

**What is the student exchange program?**

What is the student exchange program?

SOLVED

Can Alkan

An important component of university education is to develop a better understanding of the world, not just academically but also socially. Student exchange is a means to achieve this goal by enabling students to study at an environment different from their home country and institution.

Eray Tütün

This depends on the particular host institution and their availability of on-campus housing. Most universities provide some sort of housing (mostly on-campus dormitories) for a certain fee.

Can Alkan

An exchange visit involves several other costs as well, such as travel, accommodation, and living expenses. These expenses can be expected roughly to be in the order of 1000 USD/month, although this figure may vary significantly depending on the place as well as the person.

[Go to Thread](#)

**Most Viewed Questions**

What is the student exchange program?	3
Financial issues	2

**Financial issues**

What are the financial issues involved for an exchange student?

UNRESOLVED

Mehmet Hasat Serinkan

The university tuition/scholarship situation remains unchanged for the exchange student. The student continues to receive his scholarship or pay his tuition to his home institution (Bilkent University) as he would do otherwise, of the same amount.

Eray Tütün

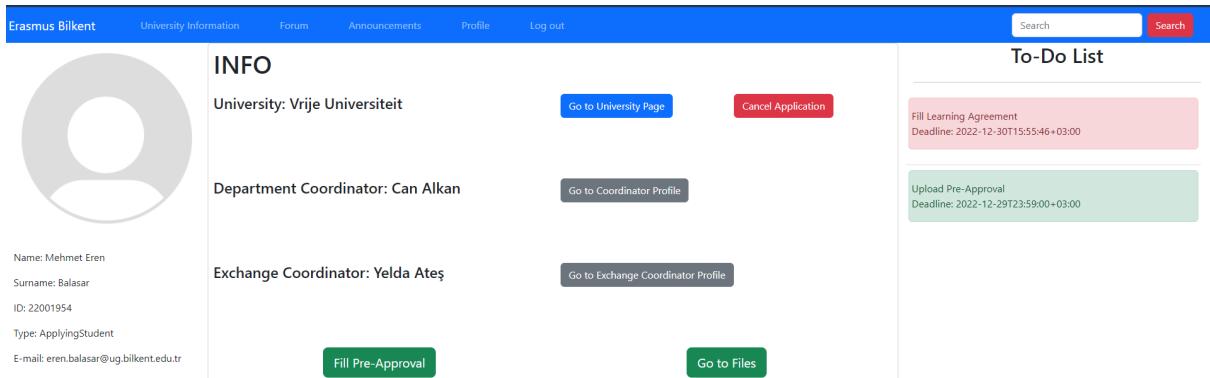
Erasmus students receive an EU support of 400 Euro/month to cover part of their expenses.

[Go to Thread](#)

**Forum Page:** In the forum, users can see the questions. They are separated by departments. On each question, whether it is solved or not will be shown. Users can see the thread of the question by using Go to Thread button. On the right part of the forum, the questions asked today and that are most viewed will be shown. Users can easily jump to that question's thread.

Erasmus Bilkent	University Information	Forum	Announcements	Login	Stated By	Date
<b>Announcements</b>						
 <b>Pre-Approvals</b>					 Can Alkan	15.12.2022 15:08
Effective from 1 August 2022 until 15 September 2022 the Tourism Ring Bus Stop will not be available because of asphalting .The students / staffs who use these bus stop could get on bus from bus stop where in front of Primary School. – Effective from 3 August 2022 [...]						
 <b>Erasmus dates</b>					 Eray Tüzün	15.12.2022 15:09
Dear Members of the Bilkent Community, Bilkent Energy Policy Research Center publishes a weekly newsletter named Synergy to inform its readers about the recent Energy and climate issues. You can access the November 29, digital issue of Synergy at the following link: <a href="https://www.bilkenteprc.com/synergypdf">https://www.bilkenteprc.com/synergypdf</a>						
 <b>Smoke Free Campus Rules</b>					 Can Alkan	18.12.2022 22:50
Smoke Free Campus Rules On 25 April 2018, the University Senate and the University Executive Board jointly decided that Bilkent University campus would be completely smoke-free by September 2022. In the ensuing years, this plan was communicated widely to all constituents and smoking areas on campus were incrementally restricted. We thank all members of Bilkent University for their interest and cooperation in making this transition such a success.						

**Announcement Page:** This page shows the announcements, the person who stated them, and the announcement date.



The screenshot shows a user profile page for a student applying for a program. The top navigation bar includes links for Erasmus Bilkent, University Information, Forum, Announcements, Profile, and Log out. A search bar is also present. The main content area is divided into several sections:

- INFO**: Shows the University as "Vrije Universiteit" with a "Go to University Page" button and a "Cancel Application" button.
- Department Coordinator**: Shows "Can Alkan" as the Department Coordinator with a "Go to Coordinator Profile" button.
- Exchange Coordinator**: Shows "Yelda Ateş" as the Exchange Coordinator with a "Go to Exchange Coordinator Profile" button.
- To-Do List**: Contains two items:
  - A pink box: "Fill Learning Agreement" (Deadline: 2022-12-30T15:55:46+03:00)
  - A green box: "Upload Pre-Approval" (Deadline: 2022-12-29T23:59:00+03:00)
- At the bottom, there are buttons for "Fill Pre-Approval" and "Go to Files".

On the left side, there is a large placeholder for a user profile picture, and below it, the user's personal information is listed:

- Name: Mehmet Eren
- Surname: Balasar
- ID: 22001954
- Type: ApplyingStudent
- E-mail: eren.balasar@ug.bilkent.edu.tr

**Student Applying Profile Page:** When a student (applying) login, the profile is opened. On the left part, the personal information is shown including name, surname, ID, type, and email. On the middle part of the profile page, the general info and related users are shown. User can also cancel the ERASMUS application, and he/she can go to fill the pre-approval form page or go to file page by buttons. On the right, there is To-Do List. Items are shown one under the other.

Erasmus Bilkent University Information Forum Announcements Profile Log out

Search



Name: Can  
 Surname: Alkan  
 Bilkent ID: calkan  
 Title: DepartmentCoordinator  
 E-mail: calkan@bilkent.edu.tr

## Profile Page of Other Users

Erasmus Bilkent University Information Forum Announcements Profile Log out

Search

<input type="text" value="Name of the host institution"/>	<input type="text" value="Academic Year"/>					
	<input type="text" value="Semester"/>					
<input type="text" value="Course Code"/>	<input type="text" value="Course Name"/>	<input type="text" value="Credits"/>	<input type="text" value="Course Code and Name for a Required Course, Elective Group Name for an Elective Requirement"/>	<input type="text" value="Credits"/>	<input type="text" value="Elective Requirement Exemptions only: Course code(s) of directly equivalent course(s), if any **"/>	<input type="button" value="Delete"/>
<input type="text" value="Course Code"/>	<input type="text" value="Course Name"/>	<input type="text" value="Credits"/>	<input type="text" value="Course Code and Name for a Required Course, Elective Group Name for an Elective Requirement"/>	<input type="text" value="Credits"/>	<input type="text" value="Elective Requirement Exemptions only: Course code(s) of directly equivalent course(s), if any **"/>	<input type="button" value="Delete"/>
<input type="text" value="Course Code"/>	<input type="text" value="Course Name"/>	<input type="text" value="Credits"/>	<input type="text" value="Course Code and Name for a Required Course, Elective Group Name for an Elective Requirement"/>	<input type="text" value="Credits"/>	<input type="text" value="Elective Requirement Exemptions only: Course code(s) of directly equivalent course(s), if any **"/>	<input type="button" value="Delete"/>
<input type="button" value="New Course"/>						
<input type="button" value="Submit"/>						

**Fill Pre-Approval Page:** User can fill and submit pre-approval.

**UPLOAD**

Euro Bank Account IBAN

Your euro bank account IBAN

## Acceptance Letter

Dosya Seç Dosya seçilmedi

## **Health and Travel Insurances**

Dosya Seç Dosya seçilmedi

Erasmus Grant Agreement

Dosya Seç Dosya

## Learning Agreement

Dosya Seç Dosya

[DOWNLOAD](#)

[Download Acceptance Letter](#)

[Download Learning Agreement](#)

[Download Health and Travel Insurances](#)

[Download Pre-Approval](#)

[Download Erasmus Grant Agreement](#)

**Files Page:** User can upload or download files from this page.

	<p>sort of housing (mostly on-campus dormitories) for a certain fee.</p>
Can Alkan	<p>An exchange visit involves several other costs as well, such as the travel, accommodation, and living expenses. These expenses can be expected roughly to be in the order of 1000 USD/month, although this figure may vary significantly depending on the place as well as the person.</p>

## Financial issues

What are the financial issues involved for an exchange student?

Mehmet Eren Balasar

UNRESOLVED	
	<p><b>Mehmet Hasat Serinkan</b> The university tuition/scholarship situation remains unchanged for the exchange student. The student continues to receive his scholarship or pay his tuition to his home institution (Bilkent University) as he would do otherwise, of the same amount.</p>
	<p><b>Eray Tüzün</b> Erasmus students receive an EU support of 400 Euro/month to cover part of their expenses.</p>

## Ask Question

Header

Header

## Question

100

When User is logged in, he/she is able to ask question in forum

## What is the student exchange program?

What is the student exchange program?

Mehmet Hasat Serinkan

SOLVED

Can Alkan	An important component of university education is to develop a better understanding of the world, not just academically but also socially. Student exchange is a means to achieve this goal by enabling students study at an environment different from their home country and institution.
Eray Tüzün	This depends on the particular host institution and their availability of on-campus housing. Most universities provide some sort of housing (mostly on-campus dormitories) for a certain fee.
Can Alkan	An exchange visit involves several other costs as well, such as the travel, accommodation, and living expenses. These expenses can be expected roughly to be in the order of 1000 USD/month, although this figure may vary significantly depending on the place as well as the person.

## Answer Question

Answer

Your Answer

Add Answer

Also, he/she can answer questions in forum.

The screenshot shows the 'INFO' section of the website. On the left, there is a profile picture of a man with glasses and a dark shirt. Below the picture, personal information is listed: Name: Can, Surname: Alkan, ID: calkan, Type: DepartmentCoordinator, E-mail: calkan@bilken.edu.tr. In the middle, under 'Your Universities', three institutions are listed: 1. ESIEE Paris, 2. Roskilde University, 3. Vrije Universiteit. A notification bar at the bottom of this section says 'Some students added files!' with a file icon. Below this are two buttons: 'See Students List' and 'Approve Students'. On the right, there is a 'To-Do List' section with two items: 'Approve Students' (Deadline: 2022-12-18T18:34:38+03:00) and 'Sign Learning Agreements' (Deadline: 2022-12-18T18:34:55+03:00). At the top of the page, there is a navigation bar with links for 'University Information', 'Forum', 'Announcements', 'Profile', and 'Log out'. A search bar is also present at the top right.

**Department Coordinator Profile:** There is personal information on the left part of the website. The universities that department coordinator is responsible is shown in the middle position. Also, the notifications of some students added new files will be shown. By using the go to students list button, the department coordinator can go to the students list page, and he can approve the students. On the right part, there is To-Do list.

Erasmus Bilkent		University Information	Forum	Announcements	Profile	Log out	Search	Search
Student Name		ID	New or Edited Files					
Kaan Burak		219000	3				<a href="#">View Profile</a>	
Ali Ahmet		222400	0				<a href="#">View Profile</a>	
Mustafa Ak		23000	0				<a href="#">View Profile</a>	
Eren Ali		219000	2				<a href="#">View Profile</a>	
Eren Dur		219000	0				<a href="#">View Profile</a>	
Hasan Ali		219000	0				<a href="#">View Profile</a>	
Ege Can		219000	0				<a href="#">View Profile</a>	
Ayşe Su		219000	1				<a href="#">View Profile</a>	

**Student List:** This is the student list.

Erasmus Bilkent		University Information	Forum	Announcements	Profile	Log out	Search	Search
Student Name	ID	Student Point	University	Approve				
Kaan Burak	219000	90	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Ali Ahmet	222400	77	Bamberg University	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Mustafa Ak	23000	60	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Eren Ali	219000	50	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Eren Dur	219000	50	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Hasan Ali	219000	49	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Ege Can	219000	49	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			
Ayşe Su	219000	32	Esiee Paris	<a href="#">Approve Student</a>	<a href="#">Delete Student</a>			

**Approve Students List:** Department Coordinator can approve the students that applied Erasmus program.

Erasmus Bilkent University Information Forum Announcements Profile Log out Search Search

### Announcements

	Stated By	Date
<b>Pre-Approvals</b> Effective from 1 August 2022 until 15 September 2022 the Tourism Ring Bus Stop will not be available because of asphalting .The students / staffs who use these bus stop could get on bus from bus stop where in front of Primary School. – Effective from 3 August 2022 [...]	 Can Aikan	15.12.2022 15:08
<b>Erasmus dates</b> Dear Members of the Bilkent Community, Bilkent Energy Policy Research Center publishes a weekly newsletter named Synergy to inform its readers about the recent Energy and climate issues. You can access the November 29, digital issue of Synergy at the following link: <a href="https://www.bilkenteprc.com/synergypdf">https://www.bilkenteprc.com/synergypdf</a>	 Eray Tuzun	15.12.2022 15:09
<b>Smoke Free Campus Rules</b> Smoke Free Campus Rules On 25 April 2018, the University Senate and the University Executive Board jointly decided that Bilkent University campus would be completely smoke-free by September 2022. In the ensuing years, this plan was communicated widely to all constituents and smoking areas on campus were incrementally restricted. We thank all members of Bilkent University for their interest and cooperation in making this transition such a success.	 Can Aikan	18.12.2022 22:50

### Make announcement

Context

Text

[Add Announcement](#)

**Make Announcement:** The authorized users can make announcements.

Erasmus Bilkent University Information Forum Announcements Profile Log out Search Search



### Your University: Vrije Universiteit

### Review Your University

Review

Your Answer

★★★☆☆

[Add Review](#)

Name: Yüksel Berkay  
Surname: Erdem  
ID: berkay  
Type: FormerStudent  
E-mail: berkay.erdem@ug.bilkent.edu.tr

**Former Student Profile:** Former students can review their universities.

Erasmus Bilkent University Information Forum Announcements Profile Log out Search Search

To-Do List

 See Students List

Contact with students  
Deadline: 2022-12-18T20:34:44+03:00

Contact With ESIEE Paris  
Deadline: 2022-12-18T20:34:52+03:00

Name: Yelda  
Surname: Ateş  
ID: yelda  
Type: ExchangeCoordinator  
E-mail: yelda.ates@bilkent.edu.tr

**Exchange Coordinator Profile:** There is user profile on the left, student list see button on the middle and to-do list on the right.

Erasmus Bilkent University Information Forum Announcements Profile Log out Search Search

Excel File  
 Dosya seçilmedi

**Exchange Office Page:** Since the only assignment of the Erasmus Exchange Office is uploading the Erasmus Applicants Sheets, there will be only an upload file part.

The screenshot shows the user interface of the Erasmus Bilkent university management system. At the top, there is a blue header bar with links for "Erasmus Bilkent", "University Information", "Forum", "Announcements", "Profile", and "Log out". On the right side of the header is a search bar with a red "Search" button. Below the header, on the left, is a profile picture of a man (Eray Tuzun) and some personal information: Name: Eray, Surname: TÜZÜN, ID: eray, Type: Instructor, E-mail: eray.tuzun@bilkent.edu.tr. In the center, there is a large white box titled "INFO" containing a section for "Your Courses" which lists "1. CS 319" and "2. CS 322". Below this, a pink box contains the message "Some students added files! 5". At the bottom of this central box is a green "Course Approval" button. To the right of the central box is a "To-Do List" section with a green header bar containing the text "Approve Courses" and "Deadline: 2022-12-18T21:33:38+03:00".

**Instructor Profile:** On the left part, personal information is shown. In the middle of the page, the courses of the instructor and the notifications of coursers waiting for to be approved or not will be shown. The instructor can go to the course approval page by using the button. Lastly, there will be a to-do list of the instructor.

The screenshot shows the "Course Approval" page. The top navigation bar is identical to the previous one, with links for "Erasmus Bilkent", "University Information", "Forum", "Announcements", "Profile", and "Log out", along with a search bar and a red "Search" button. Below the header is a table with four columns: "University Name", "Course Name", "Your Course", and "Approve". The "Approve" column contains two buttons: "Approve" (green) and "Disapprove" (red). To the right of the table is a column labeled "Approve Situation" with three rows: "Approved" (green), "Approved" (green), and "Disapproved" (pink).

University Name	Course Name	Your Course	Approve	Approve Situation
ESIEE Paris	AEC-422	CS-319	Approve Disapprove	Approved
Bamberg University	AEC-433	CS-319	Approve Disapprove	Approved
Bamberg University	AEC-411	CS-319	Approve Disapprove	Disapproved
Bamberg University	AEC-41	CS-319	Approve Disapprove	Approved

**Course Approval Page:** Instructors and department coordinators can approve the courses in this page.

## 4. Build Instructions

First, you should make sure that you have 'pip' installed. Then in your terminal, navigate to src/backend and run the following command:

```
$ pip install -r requirements.txt
```

Run this command to run the Django API server: (python3 for macOS)

```
$ python manage.py runserver
```

Then navigate src/frontend and run this to install packages needed for frontend:

```
$ npm install
```

Go to this link to download node.js: <https://nodejs.org/en/download/>

Run the frontend server:

```
$ npm run dev
```

Go to the link (something like localhost:3000) and you will see the main page.

## 5. Work Allocation

Hasat Serinkan was responsible from the whole frontend system, literally.

Mehmet Eren Balasar – API's, Authentication, general Django server structure, database structure.

Yüksel Berkay Erdem – Student placement algorithm, pdf generation, notification system, pdf uploads, database structure.

Tuna Okçu – Student list page, pre-approval courses page.