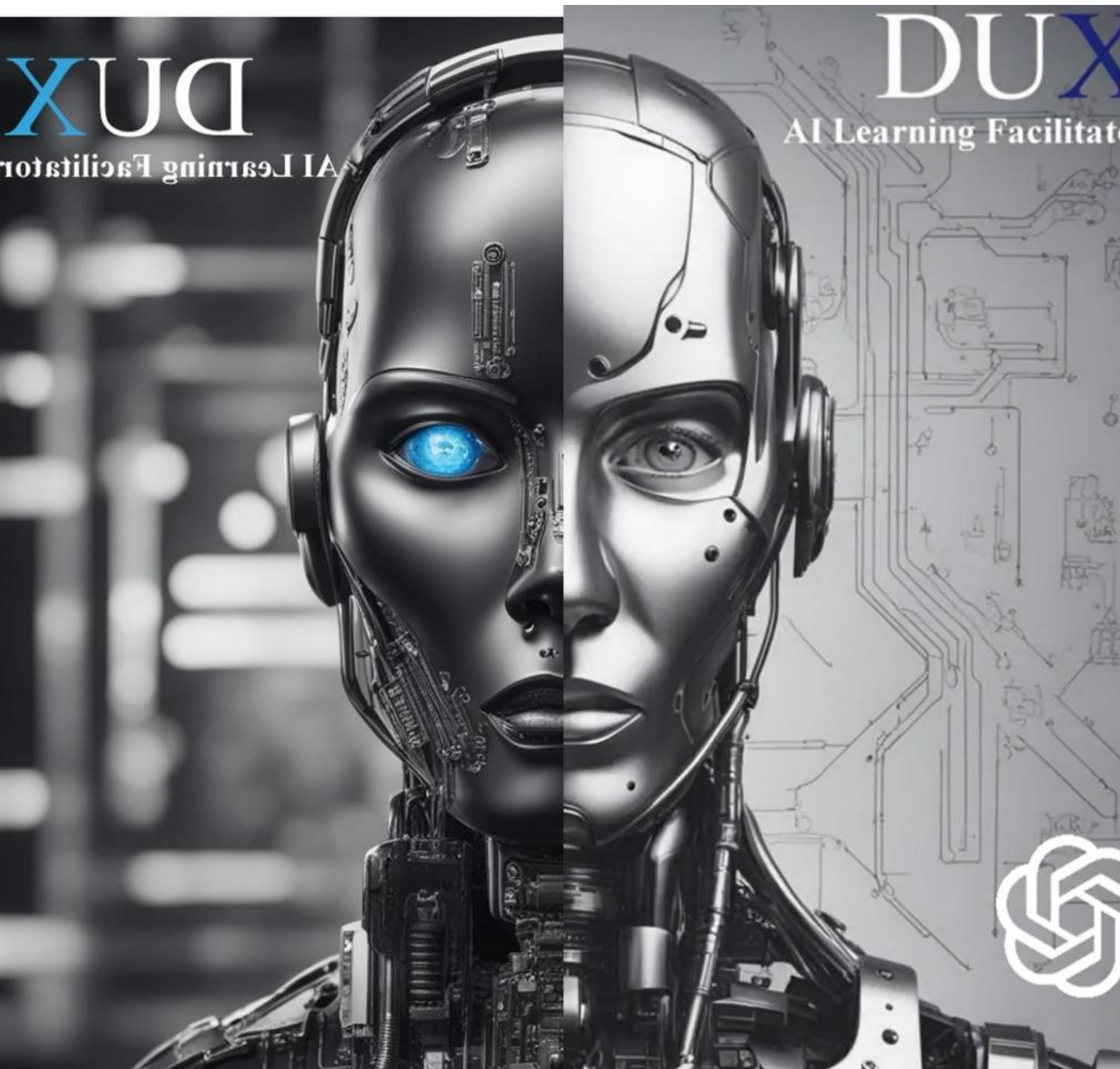


# AI Prof. DUX



## Instructor's Manual

# 1 Introduction

Welcome to the DUX Learning Management System.

This tutorial will guide you through the process of setting up your course to be delivered by DUX.

DUX only requires your course code and course title to propose a 14-week course outline for you, corresponding to 12 weeks of lectures, 1 week of a mid-term exam, and 1 week of a final exam.

DUX will automatically create each of the exams when the date is due. It will propose multiple-choice questions (MCQs) and free-response questions to ensure a reliable assessment of the learners' understanding of the subject matter. Grading is also done instantly and automatically.

Learners can access course material as often as they wish, take the same lecture multiple times, but only the first attempt at an exam is valid.

You can provide DUX with textbooks and website links and restrict it to base its knowledge on these resources when delivering the course content. It will do just that, and each time it uses information from a textbook, it specifies the page number from which the information is sourced.

DUX's engine works in the background, tracking the behavior of learners and determining their learning styles, such as visual, reading/writing, logical, and social. It progressively adapts itself to the learning styles of individual students. In the end, no two students are presented with the same exam, even though the same concepts are evaluated.

DUX comes in two versions: online (the fast, up-to-date one) and the desktop version, which doesn't require internet access and can be installed on a Personal Computer (PC) from a flash memory device.

You can switch DUX's language with a simple click of a button and use it in your preferred language.

You are warmly invited to provide feedback when you use DUX. Its social connectivity feature allows you to interact with it through WhatsApp, Facebook, LinkedIn, and X (formerly Twitter). To join people from around the world in discussions about DUX, please visit <https://dux.aiiot.website/forum.html>.

# 2 Course Management

## a) Create a course

The screenshot shows the 'Admin Panel' for the 'International Research Centre for AI and IoT'. The main section is 'Course Management', which has tabs for 'Create Course', 'Edit course', 'Course Textbooks', and 'Course Web Resources'. The 'Create Course' tab is active. Below the tabs, there is a blue box with instructions: 'A course is taught for 14 weeks in a semester. After specifying the course code and course title, click on create. Dux will generate a 14 week course outline for you. Week 9 is possibly 'Mid Term Exam' and week 14 is 'Final Exam'. If need be, edit the outline and save.' Below this, there are two input fields: 'Course Code' (with a circled '2') and 'Course Name' (with a circled '3'). A blue 'Create' button (with a circled '4') is located below the 'Course Name' field. To the right of the input fields is a 'Lectures' table with six rows, each labeled 'Week X Topic'. On the left side of the interface, there is a sidebar menu with options: Dashboard, Chatroom, Course Management, Create Lecture Phase, Edit Learning Objectives, Scheduling, Messaging, Process grades, and Settings. A blue arrow points to the 'Course Management' option in the sidebar.

To create a course, First go to the “Course Management” tab then follow the steps:

- 1 Go to “Create Course” tab
- 2 Enter the course code
- 3 Enter the course Title
- 4 Click on “Create” then wait for the outline to be generated.

**Note:** If not satisfied with the automatically generated outline, just click on create again to regenerate a new one or edit it manually to suit your purpose

# 2 Course Management

## b) Generate Course Objectives

**Admin Panel**  
International Research Centre for AI and IoT

### Course Management

Create Course Edit course Course Textbooks Course Web Resources

#### Edit Course

Natural Language Processing

Course Code: C003

Course Name: Natural Language Processing

Lectures	
Introduction to Natural Language Processing	<input checked="" type="checkbox"/>
Text Preprocessing and Tokenization	<input checked="" type="checkbox"/>
Language Modeling	<input checked="" type="checkbox"/>
Statistical Language Models	<input checked="" type="checkbox"/>
Neural Networks for NLP	<input checked="" type="checkbox"/>

- 1 Go to the “Edit Course” tab
- 2 Select your course from the dropdown menu
- 3 Click in the check box near each lecture title. This will ensure that a set of 18 learning objectives are automatically generated for that lecture. If you uncheck the box, the objectives are deleted. To see the objectives generated, go to the “**Edit Learning Objectives**” tab in the left panel of the page.

**Note:** Click on “**Save Updates**” once you are done

# 2 Course Management

## c) Upload text books

DUX uses the textbooks you provide to deliver content to the learners. It can cite the particular textbook and page number whenever it provides a response to learners from the text book.

**Admin Panel**  
International Research Centre for AI and IoT

### Course Management

Create Course Edit course **Course Textbooks** Course Web Resources

#### Course Textbooks

Textbooks for Selected Course

Introduction to Robotics

Intro\_to\_robotics1.pdf Delete

#### Upload New Textbook

Select a PDF file

Choose File No file chosen

Upload

- 1 Go to the “Course Textbooks” tab
- 2 Select your course from the dropdown menu
- 3 Chose the PDF file of the textbook you want to upload for the course
- 4 Click on upload

**Note:** You can delete a textbook using the delete button. You can upload multiple text books.

# 2 Course Management

## d) Specify useful websites

DUX can use the websites you specify as sources of information to prepare content delivered during a lesson. It will cite the website whenever it uses it to formulate an answer to a question.

The screenshot shows the Admin Panel interface for Course Management. The top navigation bar includes 'Create Course', 'Edit course', 'Course Textbooks', and 'Course Web Resources' (highlighted with a circled '1'). Below this is the 'Course Web Resources' section, which features a dropdown menu labeled 'Select a Course' (highlighted with a circled '2'). Underneath is a form titled 'Enter New Web Resource' with a text input field for 'Name a web resource' (highlighted with a circled '3') and a 'Save' button (highlighted with a circled '4'). A left sidebar contains various navigation options like 'Dashboard', 'Chatroom', and 'Course Management'.

- 1 Go to the “Course Web Resources” tab
- 2 Select your course from the dropdown menu
- 3 Enter the links of the websites you deem resourceful for the course, e.g., <https://wikipedia.org/pattern-recognition>
- 4 Click on “Save”

**Note:** You can enter as many weblinks as you wish. This should be done one at a time.

# 3 Edit Lesson Objectives

## a) Add multimedia content

Here, you can view and customize details of the learning objectives that were automatically generated.

The screenshot shows the 'Update Learning Objectives' page. On the left is a navigation sidebar with a user profile icon and menu items: Dashboard, Chatroom, Course Management, Create Lecture Phase, Edit Learning Objectives (circled 1), Scheduling, Messaging, Process grades, Settings, and Logout. The main content area has a title 'Update Learning Objectives' and a note: 'NOTE: A 3-hour lecture is divided into 6 30-minute phases'. Below the note is a blue button 'Fetch the information of the phase to be edited'. The form contains several dropdown menus: 'Course:' (Introduction to Robotics, circled 2), 'Lecture:' (Robot Motion and Kinematics, circled 3), and 'Phase:' (SEC141: Robot Motion and Kinem, circled 4). To the right are text input fields for 'Course ID:' (C004), 'Lecture Title:' (Robot Motion and Kinematics), 'Phase ID:' (Lecture 3), 'Instruction 1:' (Robot Joints and Linkages), and 'Instruction 2:' (Understanding the different types of robot joints an). Below these is an 'Add Objective' button, an 'Add Image or Video' section with a 'Choose File' button (No file chosen, circled 5) and a video thumbnail, and a 'Duration (in minutes):' field (1800). A green 'Update Lesson Objectives' button is at the bottom right.

- 1 Go to the “Edit Learning Objective” tab
- 2 Select the course from the dropdown menu
- 3 Select the lecture to edit
- 4 Select the phase to edit (Each lecture has six phases, and each phase has three objectives)
- 5 Chose the video or graphic to upload, then click on “Update Lesson Objectives”

**Note:** A video can be uploaded for each of the six phases of a lecture.



# 4 Scheduling

## a) Set Lecture dates

You have the possibility to choose a date when each of the 12 lectures of the semester will be active. To reschedule a lecture, just pick a new date and all students involved will receive a notification of the change.

The screenshot shows a user interface for scheduling a lecture. On the left is a blue sidebar with navigation options: Dashboard, Chatroom, Course Management, Create Lecture Phase, Edit Learning Objectives, Scheduling (1), Messaging, Process grades, Settings, and Logout. The main area is titled 'Chose a date of week when each lesson will be active'. It features a 'Course:' dropdown menu (2) set to 'Natural Language Processing'. Below this, 'Week 1: Lecture 1' is titled 'Introduction to Natural Language Processing'. A date bar (3) shows '2023-08-07 12:00'. A calendar for September 2023 is open (4), with the 9th of September selected. The time is set to 12:00 PM.

- 1 Go to the “Scheduling” tab
- 2 Select the course from the dropdown menu
- 3 Click on the date bar, A date/time calendar will open
- 4 Select the date and time for that lecture

In a similar manner, pick dates for the 12 lectures and 2 exams for the semester. These schedules automatically appear in Students’ timetables.

**Note:** Click on “Save Updates” once you are done



# 5 Exam weights

## a) Assign weights to different types of evaluation

A quiz is administered at the end of each lecture. At the end of a semester, the average mark of the quizzes is reported. You can decide to include this as a part of the final grade by entering a percentage for it or discard it by entering 0.

The screenshot shows the 'Assign Weights' interface. On the left is a sidebar with navigation options: Dashboard, Chatroom, Course Management, Create Lecture Phase, Edit Learning Objectives, Scheduling, Messaging, Process grades (marked with a circled 1), and Settings. The main content area is titled 'Assign Weights' and includes the instruction: 'Assign percentages to the various evaluations to process students' final grades'. Below this, there is a 'Course:' dropdown menu showing 'Natural Language Processing' (marked with a circled 2). There are three input fields: 'Weekly Evaluation (%)' (marked with a circled 3), 'Midterm Exam (%)' (marked with a circled 4), and 'Final Exam (%)' (marked with a circled 5). A blue 'Save Weights' button is located at the bottom of the form.

- 1 Go to the “Process Grades” tab
- 2 Select the course for which you want to assign the exam weights
- 3 Enter the percentage for the average of weekly evaluations
- 4 Enter the percentage for mid-term exam
- 5 Enter the percentage for the final exam

**Note:** The weights must sum up to 100%

Click on “**Save Weights**” once you are done

# 6 Settings

## a) Set API key

A paid chatGPT account gives you access to GPT4.0 which is more up-to-date and more accurate. If you have a paid account, you can enter your API key to give DUX access to GPT4.

The screenshot shows the Admin Panel interface. At the top, there's a dark header with 'Admin Panel' and 'International Research Centre for AI and IoT'. Below this is a navigation bar with three tabs: 'API Key Settings' (highlighted), 'Course Resources', and 'Other Settings'. The 'API Key Settings' page displays a confirmation message 'Your API key is Set' with a green checkmark, followed by a masked API key 'sk-is1xuZo ... sFtiKyY93Dz'. Below this is a text input field labeled 'Register/Update Your API Key:' and a 'Save' button.

- 1 Go to the “Settings” tab
- 2 Go to “API Key Settings”
- 3 Enter your API key in the text box
- 4 Save

# 6 Settings

## b) Decide if course is free or paid

The screenshot displays a user interface with a left-hand navigation menu and a main content area. The navigation menu includes 'Scheduling', 'Messaging', 'Process grades', 'Settings' (highlighted with a red circle and the number 1), and 'Logout'. The main content area is titled 'Select Free Courses' and contains a blue instruction box: 'By checking in a check box, the course in questions is selected as a free course. Students will use system API key to interact with GPT'. Below this is a table of courses with checkboxes:

Course Name	Checkbox
Introduction to Robotics	<input type="checkbox"/>
Natural Language Processing	<input type="checkbox"/>
Pattern Recognition	<input checked="" type="checkbox"/>
Data structures and algorithms	<input type="checkbox"/>
Introduction to Datastructures and Algorithms	<input type="checkbox"/>

At the bottom of the main content area is a blue 'Save' button, which is circled in red with the number 3. The 'Pattern Recognition' checkbox is circled in red with the number 2.

- 1 Go to the “Settings” tab
- 2 Check the course you want to be free-to-access
- 3 Save

# 6 Settings

## c) Specify DUX's knowledge bank

Previously, you uploaded textbooks and specified useful websites for the course, however, this is where to specify whether DUX should use them or not.

**Admin Panel**  
International Research Centre for AI and IoT

API Key Settings | Course Resources | Other Settings

Select a course then chose the resources you want Dux to use in this course.

Select a Course

Select a course 2

Select Resources 3

ChatGPT only	<input type="checkbox"/>
Textbooks	<input type="checkbox"/>
Web Resources	<input type="checkbox"/>
All	<input type="checkbox"/>

Save

- 1 Go to the “Settings” tab in the left panel
- 2 Select the course from the dropdown menu
- 3 Click in the check box near each type of resource. This will ensure that DUX will use that resource to deliver the course content.

# Voilà!

**Your course is ready to run for the semester**



# Extras 1

## See what is going on in students' chatroom

The instructor can see who is online during a lecture. He can monitor the evolution of chat between students as they share ideas and he can join the chat if he so desires.

The screenshot displays the Admin Panel interface. At the top, it says "Admin Panel" and "International Research Centre for AI and IoT". On the left is a navigation menu with options: Dashboard, Chatroom (highlighted with a red circle and the number 1), Course Management, Create Lecture Phase, Edit Learning Objectives, Scheduling, Messaging, Process grades, Settings, and Logout. The main area is titled "Chatroom" and shows a chat history with messages from "Vubangsi Mercel": "ok Vubangsi Mercel", "hi Vubangsi Mercel", "hi Vubangsi Mercel", and "Hello Vubangsi Mercel". Below the chat is a text input field with the placeholder "Type your message and press Enter". On the right, a "Logged in Users" list shows: John Doe, Jane Smith, David Johnson, Michael Wilson, Vubangsi Mercel, Vubangsi Darella, Fadi Al-Turjman, and Laura.

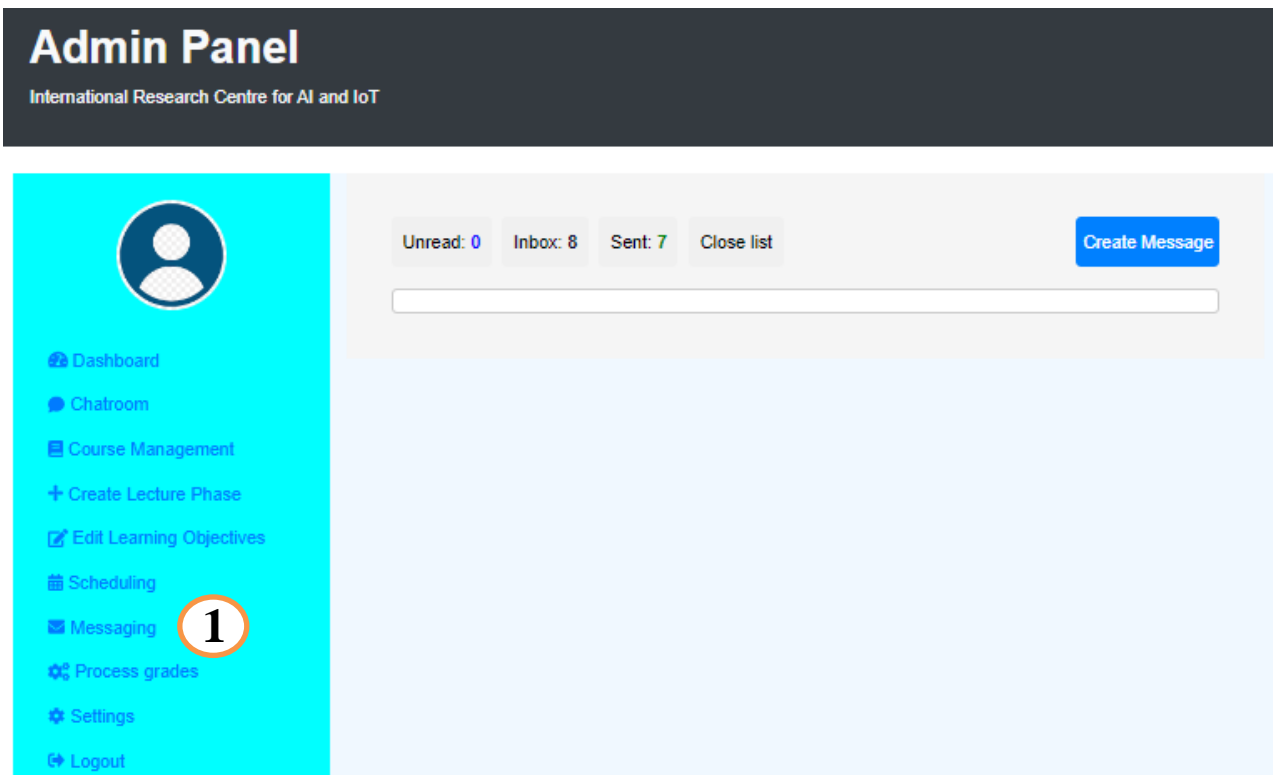
- 1 Go to the "Chatroom" tab

**Note:** The chatroom feature functions just like a WhatsApp group.

# Extras 2

## Receive and send emails

The messaging feature permits the lecturer to receive and reply to emails from students. This way, students can easily table complaints and have them resolved.



- 1 Go to the “Messaging” tab

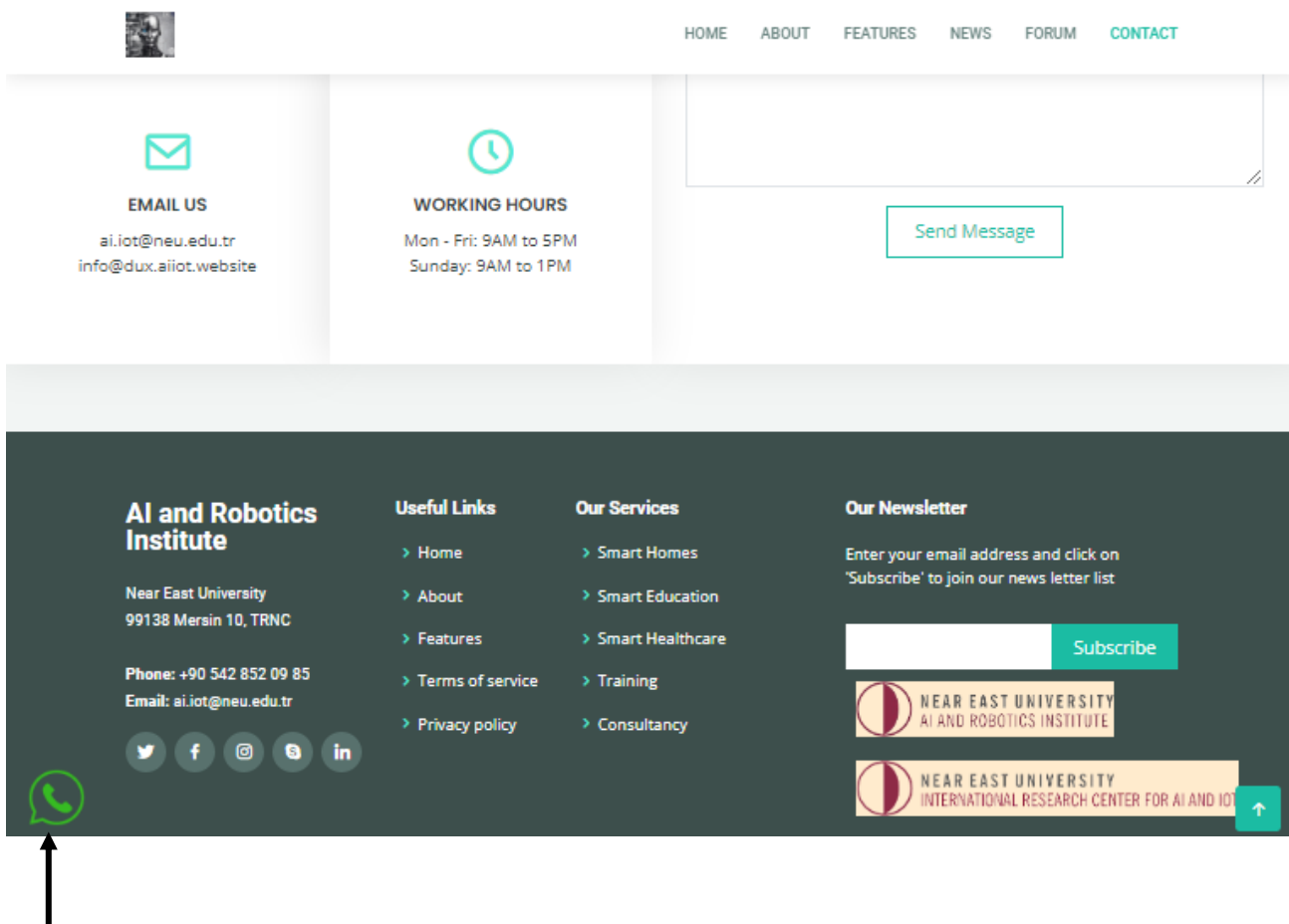
**Note:** The lecturer can send an email to the whole class by clicking on the “**Create Message**” button, then typing “**all**” in the email address box.



# Extras 3

## Social Connectivity

Please visit <https://dux.aiiot.website>, scroll to the bottom, and click on any social media icon. You will be redirected to the platform where you can engage with DUX.



For example, to chat with DUX live on WhatsApp, just click on the icon