DIGIWIND

D5.1
DigiWind Virtual Campus
(Launch Confirmation Report)

D5.1 – DIGIWIND VIRTUAL CAMPUS LAUNCH DELIVERABLE REPORT

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Authors	Darragh McShane
Reviewers	Elena Stroo-Moredo, Tuhfe Göçmen
Abstract	A report detailing confirmation of the successful launch of the DigiWind Virtual Campus and associated context around access and use of the available features.

DigiWind

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Project name: Digital Masters of Wind and Energy Systems
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Document Revision History			
Date	**Version**	**Author/Contributor/ Reviewer**	**Summary of Main Changes**
22/09/2025	0.1	Darragh McShane (IMR), Elena Stroo-Moredo (TUD)	Initial draft, review and updates
26/09/2025	0.2	Tuhfe Göçmen (DTU)	Final review, submission ready version

Contents

1 Executive Summary

This report presents the launch of the DigiWind Virtual Campus, a collaborative digital platform designed to provide a unified, accessible, and innovative learning environment for the Wind Energy industry across a range of European higher education institutions. The launch represents a significant milestone in advancing digital education infrastructure, promoting inter-institutional collaboration, and expanding access to high-quality learning experiences for students, faculty, staff and lifelong learning professionals.

This launch represents the first iteration of the DigiWind Virtual Campus and is intended to satisfy the project milestone **MS5.1 DigiWind virtual campus launched and accessible for users.** As such it represents the first iteration in a series of deployments intended to establish the core features of the Virtual Campus and use this platform to gather user feedback designed to highlight targeted improvements aimed at optimising the overall user experience and identifying the key value opportunities for immersive learning solutions.

This user feedback will be critical across the entire lifecycle of the DigiWind project and will continue to be gathered by way of support tickets, targeted surveys and event follow-up right up to the conclusion of the project in December 2027. It is anticipated that this approach will assist greatly in optimising the Virtual Campus experience to make it a high value proposition for sustainability and further commercialisation beyond the lifecycle of the project.

2 Introduction

2.1 Purpose

This document is intended to confirm the successful launch of the DigiWind Virtual Campus and describe the main functionality and features from both a user and technical perspective.

2.2 Intended audience and pertinent sections

	Stakeholder Group	Section
1	Academic partners	1,2,3,4,5
2	Project Officer/Project Manager	1,2,3,4,5
3	Developers	3,4,5
4	Users	4,5

2.3 Overview

The DigiWind project is committed to transforming education in the wind energy sector by leveraging the latest pedagogical and technological advancements. The project's approach involves integrating virtual reality, metaverses, gamification, digital twins, and simulations into the delivery of courses and Lifelong Learning (LLL) modules. This innovative approach is designed to engage learners more effectively, making education interactive, immersive and engaging.

Central to this ambition is the DigiWind virtual campus, enabling delivery of state-of-the-art Specialised Education Programmes (SEP's) in the Wind Energy sector to a diverse and globally distributed student body comprising MSc students, postgraduates and industry professionals seeking to specialise and upskill. Prospective learners will discover the learning experiences available to them via the DigiWind course catalogue, and by proceeding to enrol in their chosen course will gain access to a location agnostic digital learning environment designed with self-paced blended learning and diversity in mind.

Furthermore, the DigiWind virtual campus will provide access to state-of-the-art hybrid classrooms and collaborative virtual spaces to facilitate both in-person and remote participation, along with access to advanced digital twin and simulation tools to support delivery of high-quality, engaging learning experiences.

In tandem, the DigiWind virtual campus aims to empower educators with the tools and techniques necessary to deliver education that is not only effective but also engaging, regardless of the learning environment. This will lead to a new standard of educational excellence where both educators and learners thrive in a digitally enhanced, boundary-free setting.

2.4 Definitions, Acronyms and Abbreviations

Acronym/ Abbreviation	Title
AI	Artificial Intelligence
API	Application Programming Interface
CA	Consortium Agreement
CMS	Content Management System
DEP	Digital Europe Programme
DESI	Digital Economy and Society Index
DMP	Data Management Plan
DSAB	Digital Skills Advisory Board
EC	European Commission
EU	European Union
EWEM	European Wind Energy Master (programme)
EBSI	European Blockchain Services Infrastructure
GA	Grant Agreement
HEI	Higher Education Institution
HPC	High- Performance Computing
ICT	Information and Communications Technology
IP	Intellectual Property
LFM	Logical Framework Matrix
LLL	Lifelong Learning
LMS	Learning Management System
M.Sc.	Master of Science
MVP	Minimum Viable Prototype
PCDER	Plan for Communication, Dissemination, and Exploitation of Results
PO	Project Officer
RPL	Recognition of Prior Learning
SEP	Specialised Education Programmes
SIS	Student Information System
STEM	Science, Technology, Engineering and Math
WP	Work Package
XR	Extended Reality

3 Launch Details

3.1 Launch Highlights

- **Deployment:** The DigiWind Virtual Campus was deployed as of **23:00 CET** on the **25th September 2025**.
- **Participation**: 9 institutions including a range of faculty members students engaged during the launch phase.
- **Technology Infrastructure**: A cloud-based, secure, and interoperable platform integrating Learning Management Systems (LMS), Content Management System (CMS) and 3D immersive education support tools.
- **Training & Onboarding**: 2 x Teach the Teacher training modules completed ensuring smooth adoption, with further modules planned during launch phase.
- **Engagement Metrics**: Initial launch phase will record and report platform user activity and new course enrolments over a 4-week period.
- **Student Experience**: Feedback surveys will gauge user satisfaction, measuring ease of navigation, cross-institutional access, and flexibility as key metrics.

3.2 Challenges & Mitigation

- **Technical Integration**: Will continue to be addressed through phased rollouts and dedicated support teams.
- **Scalability**: Early infrastructure stress tests ensured readiness for increased enrolment and institutional expansion.

3.3 Next Steps

- **Phased updates:** New releases will be deployed on a recurring basis (every 2 weeks) with features prioritised from a backlog of core feature requirements, suggested improvements, support requests and bug fixes gathered by way of the DigiWind support portal.
- **User Feedback:** User feedback on the Virtual Campus MVP will be gathered from user groups comprising Students, staff and administrators by way of email surveys and regular bi-weekly Teams meetings. Further feedback will be gathered on an on-going basis across the lifecycle of the project by way of support tickets, targeted surveys and event follow-up.
- **Troubleshooting/Support:** IMR will provide ongoing technical support for users of the DigiWind Virtual Campus. Requests for support can be raised via DigiWind support ticketing system

  https://digwind.atlassian.net/servicedesk/customer/portal/1

4 Technical Description of Virtual Campus

4.1 Development Process

The DigiWind Virtual Campus development (Task 5.1) has followed an Agile development cycle broken into a number of distinct phases as follows:

1. Requirements Gathering
2. Design
3. Development
4. Testing
5. Deployment
6. Training/Support

Figure 1: DigiWind Virtual Campus Development Cycle

Each phase is detailed further in the following sections.

4.1.1 Requirements Gathering (Task 2.4)

The Requirements Gathering phase of the DigiWind Virtual Campus development cycle took place over a 9-month period commencing in January 2024 with good collaborative input received from consortium partners across the duration of this task. The collaborative work effort headed by IMR comprising of a series of surveys, interviews, workshops and competitor research activities culminating in a set of detailed requirements captured in the deliverable D2.3 DigiWind Virtual Campus User and Technical Requirements report. The report was released on schedule in September 2024.

4.1.2 Design & Development (Task 5.1)

The design and development phase of the DigiWind Virtual Campus was originally planned to take place from Sept '24 through to the end of April '24 before moving to the testing phase in the run up to the planned deployment in June '24. While the design and development phase commenced on target, the schedule experienced an unforeseen delay due to issues engaging external service providers. This resulted in a revised timeline for deployment of the initial version of the Virtual Campus to 25th September 2025.

4.1.3 Testing

The following test strategy has been adopted to verify performance of this initial deployment of the DigiWind Virtual Campus:

1. **Unit Testing:** Conducted by developers (already covered pre-QA).
2. **Integration Testing:** Authentication, analytics pipelines.
3. **System Testing:** Multi-tenant configuration, isolation, user flows.
4. **Regression Testing:** Core Open edX features across tenants.
5. **Performance & Load Testing:** Validate scaling with 8 concurrent tenants and peak user loads.
6. **Security Testing:** Penetration testing, OWASP validation, tenant data leakage checks.
7. **UAT (User Acceptance Testing):** Pilot tenants verify branding, flows, reports.

4.1.4 Deployment

Deployment of the DigiWind Virtual Campus was made publicly available on the www.digiwindcampus.org domain as of **23:00 CET on Thursday 25th September 2025.**

This launch of the first iteration of the DigiWind Virtual Campus is intended to satisfy the **WP5 milestone – "MS5.1 DigiWind virtual campus launched and accessible for users".**

4.1.5 Support

The support phase will focus both on day-to-day troubleshooting and assistance for registered staff and students of the DigiWind Virtual Campus as well as ongoing development of further core features to be released on a phased basis. These further core features will be determined based on a priority list of planned features (including payment gateways), with further enhancements gathered by way of feedback from users through the support portal. This user feedback will be continuously assessed and suggested improvements will be approved and

implemented across the full lifecycle of the DigiWind project up to 31st December 2027.

The DigiWind support portal can be reached at the following link:

https://digwind.atlassian.net/servicedesk/customer/portal/1

4.2 Development of Core Features

The design and development of the virtual campus have focused on 9 main components that make up the overall system, as follows:

1. Extended Reality (XR) Showcase
2. Learning Management System (LMS)
3. Content Management System (CMS)
4. Immersive Content
5. 3D Virtual Meeting Spaces
6. Campus Virtual Tours
7. Bespoke Immersive Experiences
8. Student Information System (SIS)
9. Support Desk

4.2.1 Extended Reality (XR) Showcase

The **Extended Reality (XR) Showcase page** represents the launching point for the Virtual Campus and can be accessed via the existing DigiWind website or linked directly from each of the institution websites or via DigiWind social media links. The initial version of the landing page contains a link to course listings, a booking engine for attendance at DigiWind promotional events held in the Virtual Meeting space as well as links to promotional teaser content, virtual experiences and testimonials intended to attract student signups.

The site has been fully developed by the IMR team and is deployed as part of initial version. Further minor iterations of the landing page are to be expected as new immersive content and testimonials are added over the lifecycle of the project.

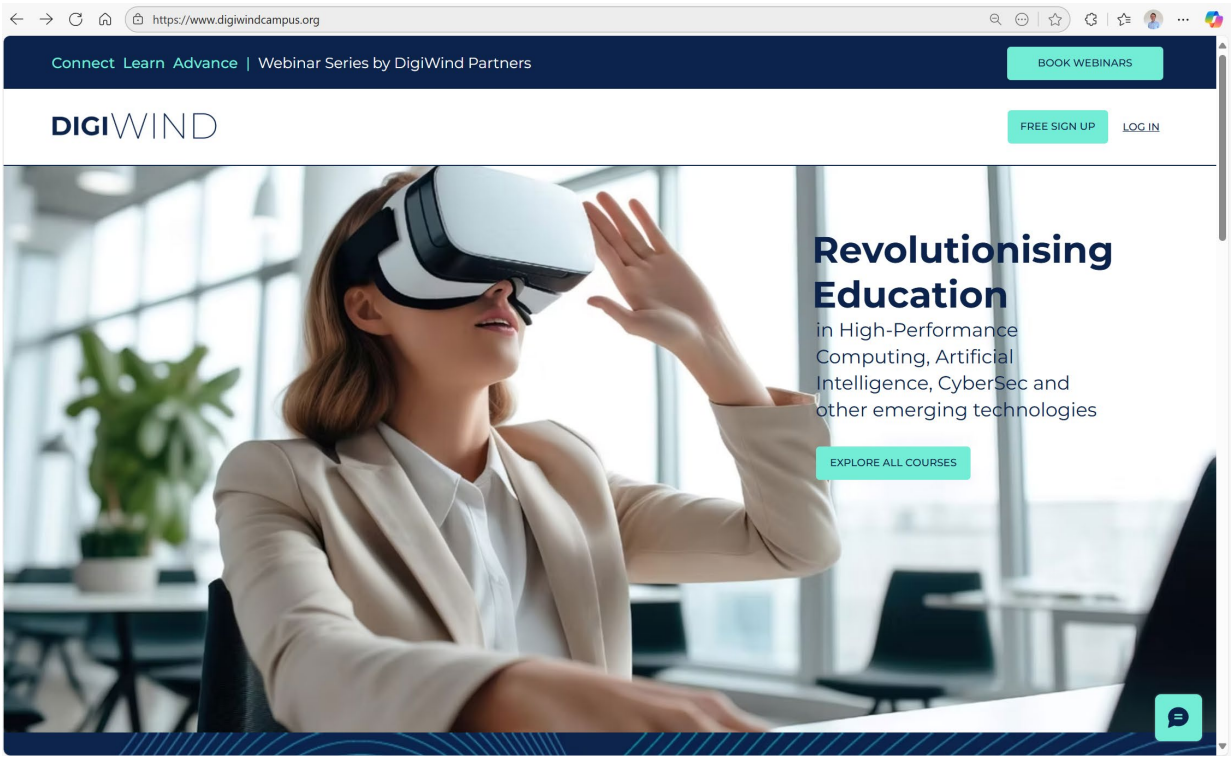


Figure 2: DigiWind Landing Page

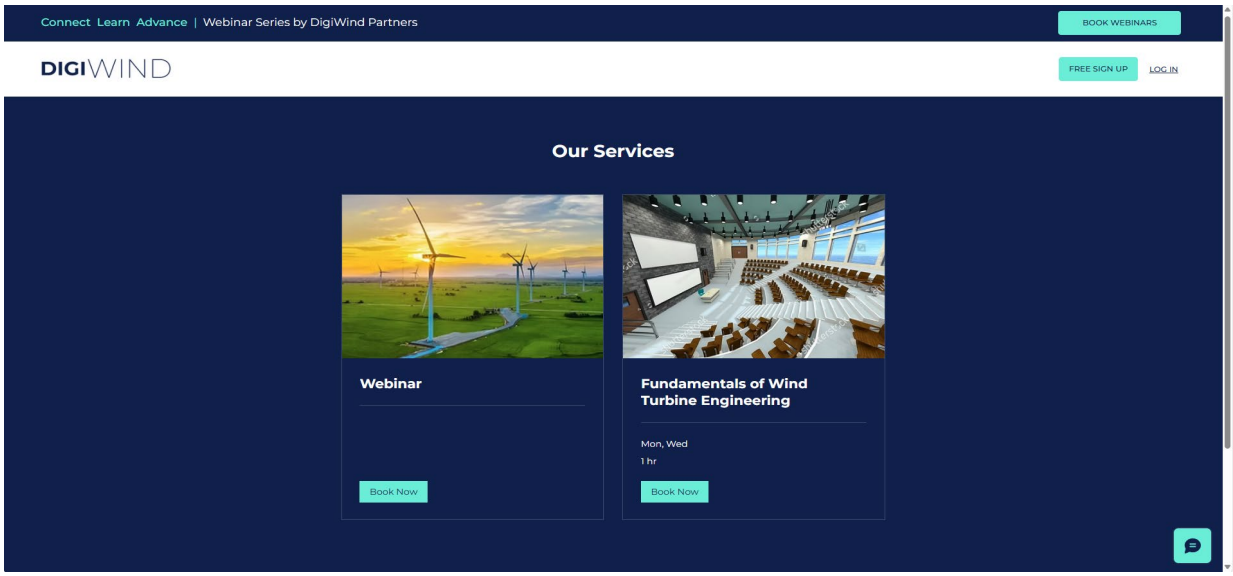


Figure 3: 3D Webinar Booking Engine accessed through Showcase Site

4.2.2 Learning Management System

The Learning Management System (LMS) serves as the core educational platform within the Virtual Campus, responsible for delivering course content, managing student data, and facilitating interactions between students and educators. The LMS seamlessly integrates with other components, ensuring that content is accessible, user interactions are recorded, and data is securely managed.

A multi-tenanted Open edX-based LMS was chosen as the basis for the DigiWind virtual campus LMS, as it provides a scalable, modular platform designed to support diverse educational institutions within a unified digital ecosystem. Leveraging Open edX's open-source architecture, the system enables each institution to maintain its own branded portal, course catalogue, and user management while sharing centralized infrastructure and core services such as authentication, analytics, and content repositories. This federated model allows institutions to collaborate on course development, offer cross-enrolment options, and integrate third-party tools via LTI and xAPI standards. The platform supports asynchronous and synchronous learning, customizable learning paths, multilingual content, and robust accessibility features—making it well-suited for diverse academic programs across multiple collaborative universities.

A collaborative approach was proposed by the IMR team to engage a supplier (RaccoonGang – https://raccoongang.com) to provide an Open edX focused development service to assist the team with development of the Learning Management System. This arrangement has resulted in a delay to deployment on account of contractual complexities of engaging a third party supplier but has since been resolved and RaccoonGang are expected to assist with future more complex feature releases (e.g. payment integration) in the coming weeks and months.

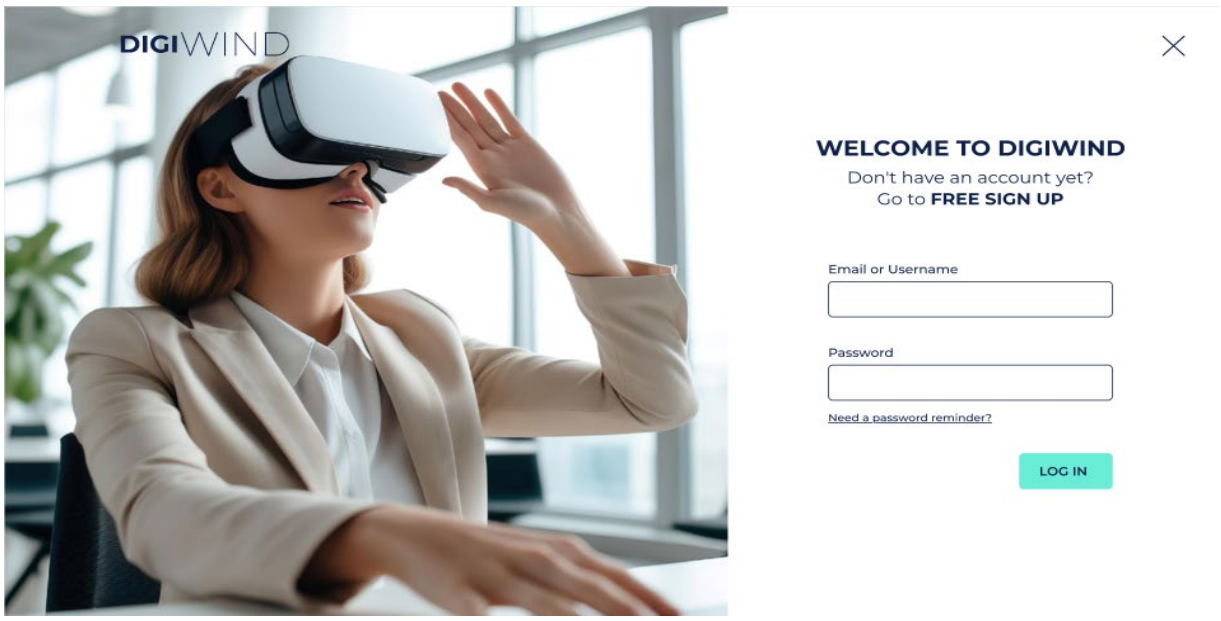


Figure 4: Learning Management System signup page

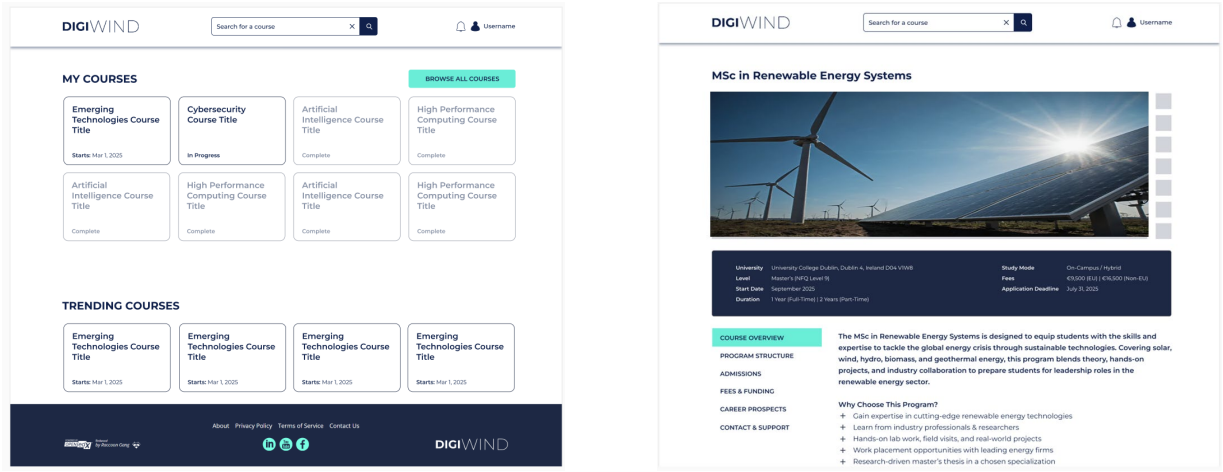


Figure 5: LMS Course Catalogue & Sample Course Descriptor page

4.2.3 Content Management System

The Content Management System (CMS) is based on the Open edX Studio application and is responsible for managing the creation, storage, and publishing of course materials. Instructors can upload and organize multimedia content, such as videos, documents, quizzes, and simulations, for their courses. It supports:

- Content Creation: Developing new course materials.
- Content Management: Editing, versioning, and organizing content.
- Content Delivery: Publishing course content to the LMS for student access.

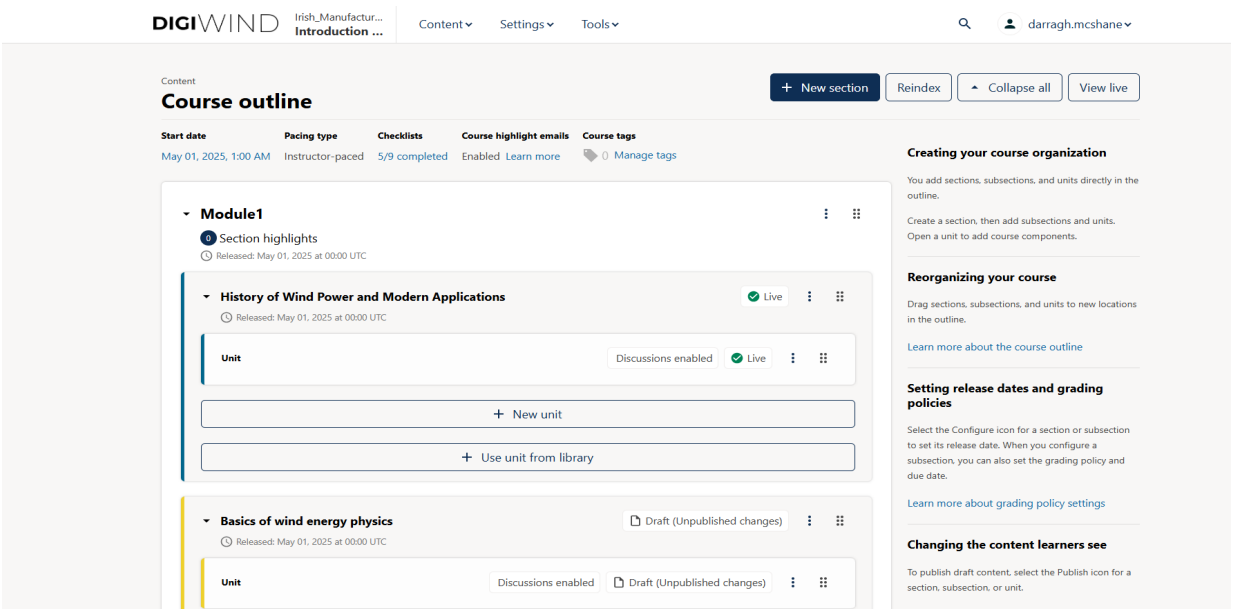


Figure 6: Content Management System Sample Course Outline Page

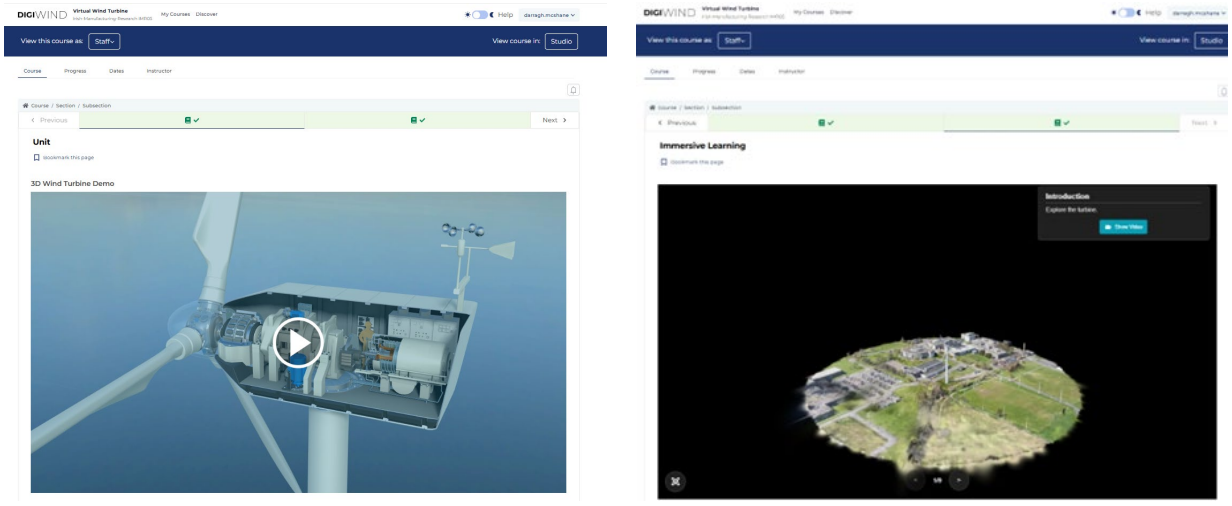


Figure 7: Sample Immersive Course Content embedded in CMS

4.2.4 Immersive Content

The IMR team have developed proprietary technology (EmbedXR) that significantly accelerates the process of generating interactive content for use in immersive learning scenarios. This technology can be easily embedded within course content to assist with student learning outcomes through highly visual and interactive scenarios intended to support key learning objectives.

The technology has met its DigiWind development milestones and objectives and is considered ready for deployment as part of consortium partner course development. The first training session in this technology was held on June 3rd and the second session was held on September 4th with further sessions to follow in October.

Figure 8: 3D Immersive content produced using IMR's 'EmbedXR' technology

4.2.5 3D Virtual Meeting Spaces

The 3D Virtual Meeting Space serves as a virtual venue for conferences, community events, and large-scale interactions. It is designed to facilitate open events and networking opportunities, allowing users to engage with a broader audience and learn more about DigiWind.

In contrast, the 3D Meeting Space also offers a dedicated, course-specific environment available at designated times. This space supports continuous, focused discussions and collaboration among enrolled students and educators, providing a tailored platform for course-related activities and interactions.

The Meeting Space has been developed and provisionally tested both in-house and with consortium partners and as such is considered complete and awaiting scheduling of the first public webinars in the coming weeks.

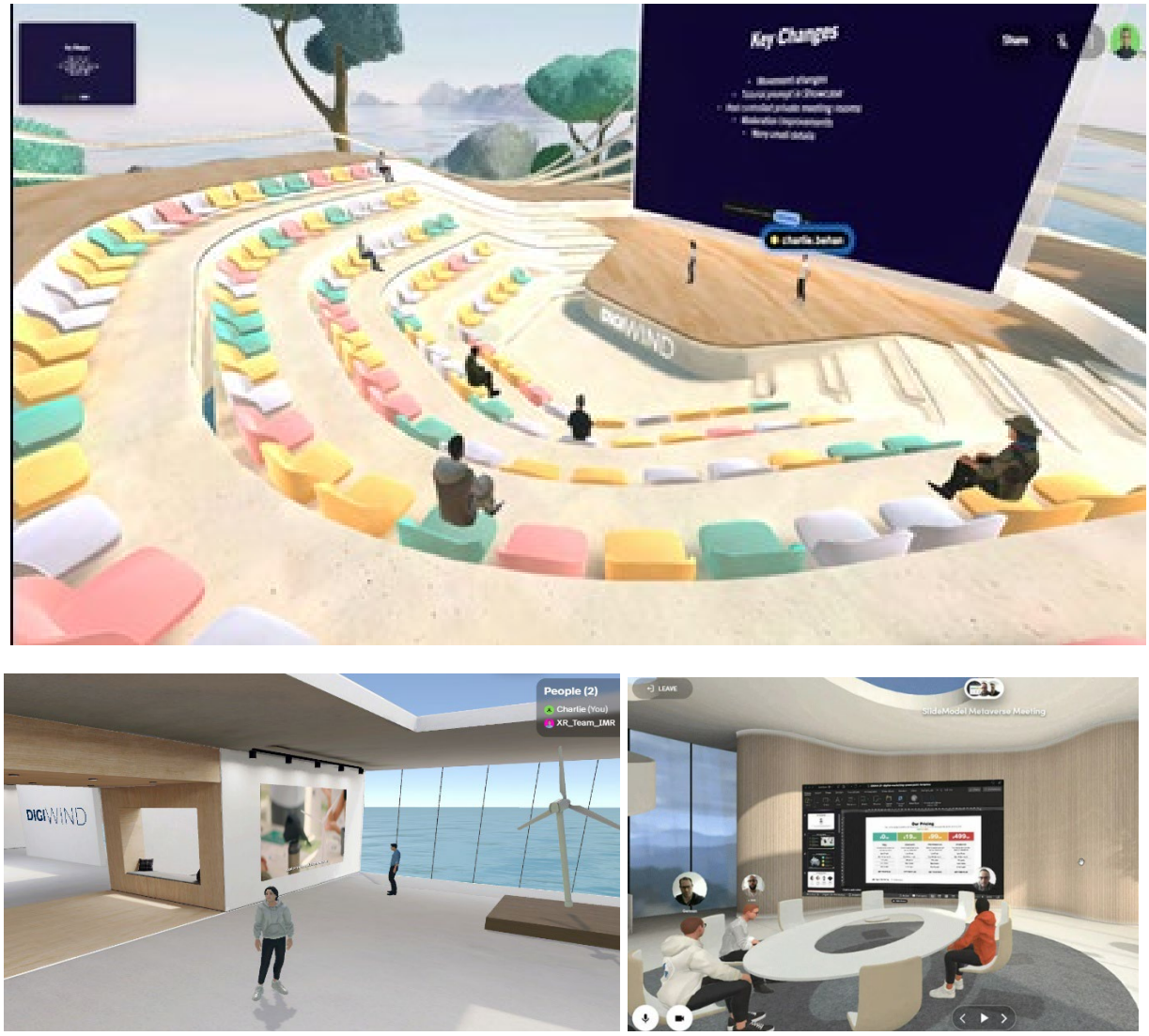


Figure 9: Images from 3D Meeting Webinar and Networking Spaces

4.2.6 Campus Virtual Tours

The DigiWind Campus Virtual Tours are intended to be embedded within the Virtual campus and allow prospective students to acclimatise themselves with the layout of each consortium partner institution and designated facilities by virtual means.

The technology is provided primarily by IMR's NavIT application and has been successfully trialled across a number of partner facilities. Alternatively, some partners have provided links to existing virtual tours where available. The tours can be embedded with the Virtual Campus landing page or the Learning Management System as needed. This section is considered complete and ready for deployment.

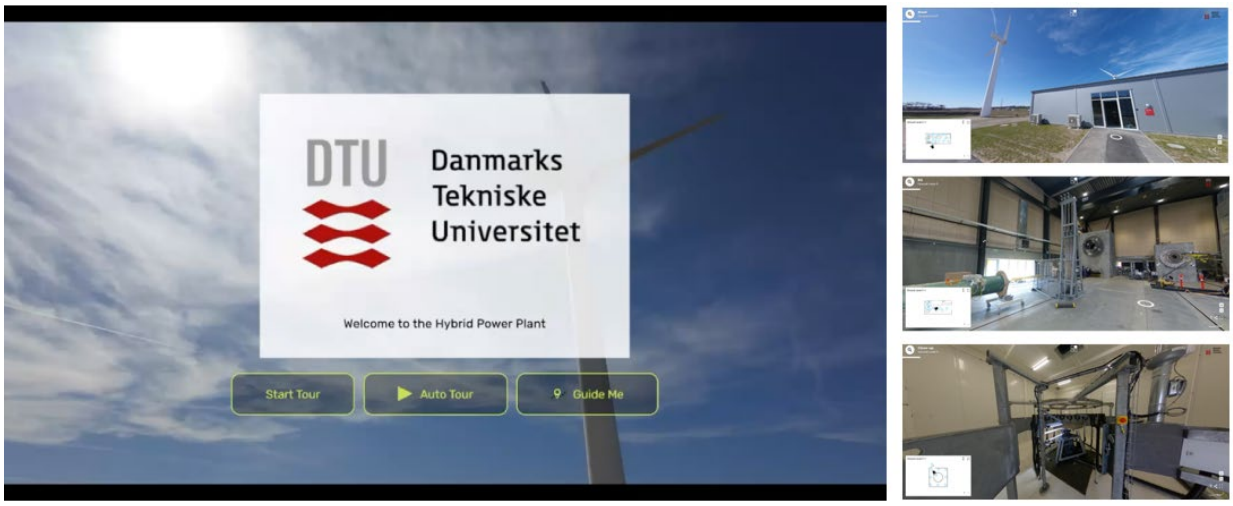


Figure 10: DigiWind Virtual Campus Tours

4.2.7 Bespoke Immersive Experience

IMR are developing a bespoke virtual immersive experience for use in promotional settings such as the Virtual Campus landing page, within the Virtual Meeting Space or at promotional trade events.

The concept revolves around introducing the user to wind flow concepts through interactions with objects placed in a visible wind stream and observing the effects of pressure, drag and turbulence.

The development of this component is at a relatively advanced stage in that the early concept has been validated by the consortium partners and a full end-to-end prototype development has been completed. The artwork for each stage is currently in development and as such the experience will not be ready in time for the initial deployment of the virtual campus. However this is not considered a core requirement for the initial deployment and so will be phased in at a later date in mid to late October.

Figure 11: Key scenes from the early concept of the DigiWind Bespoke experience

4.2.8 Support Desk

The Support Desk handles support tickets, helping users resolve technical issues or inquiries about course content and platform functionality. This component integrates with a ticketing system (based on Atlassian Jira) to track and manage user requests efficiently.

- Ticket Submission and Tracking: Allowing users to submit support requests.
- Ticket Resolution: Handling escalations and resolving user issues.
- Knowledge Base: Providing FAQs and documentation to users for self-service support.

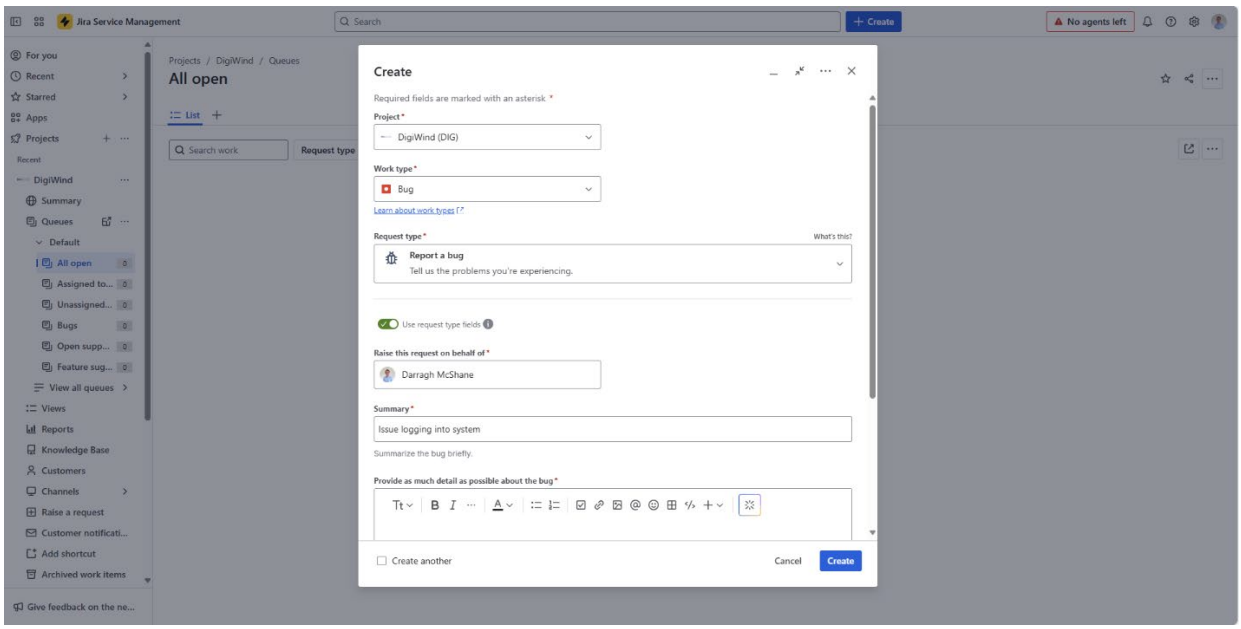


Figure 12: Sample Atlassian Jira based support ticketing desk

4.2.9 Student Information System

The Student Information System (SIS) serves as the backbone of the Virtual Campus, managing all critical student and course data. It handles the registration, tracking, and management of student information, including personal details, course enrolments, academic records, and performance metrics. Key components within the SIS include the Admin Portal, the Analytics Portal, and various Communication Tools:

- The Admin Portal enables administrators to manage users, control access permissions, and oversee various system operations, ensuring that students, educators, and staff have the appropriate roles and permissions.
- The Analytics Portal provides data-driven insights into student engagement, course performance, and overall platform usage, helping administrators and educators make informed decisions to improve learning outcomes and system efficiency.
- Communication Tools can include built-in or integrated email marketing tools, allowing institutions to send targeted communication to prospective students, current students, and alumni.

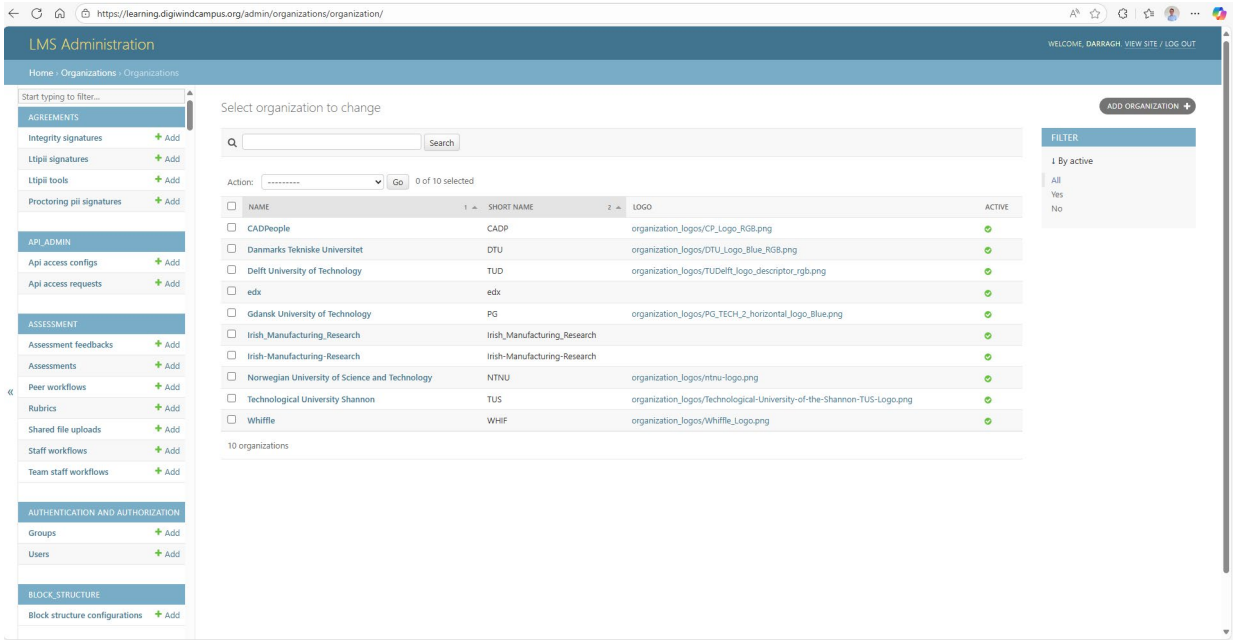


Figure 13: DigiWind platform administration portal

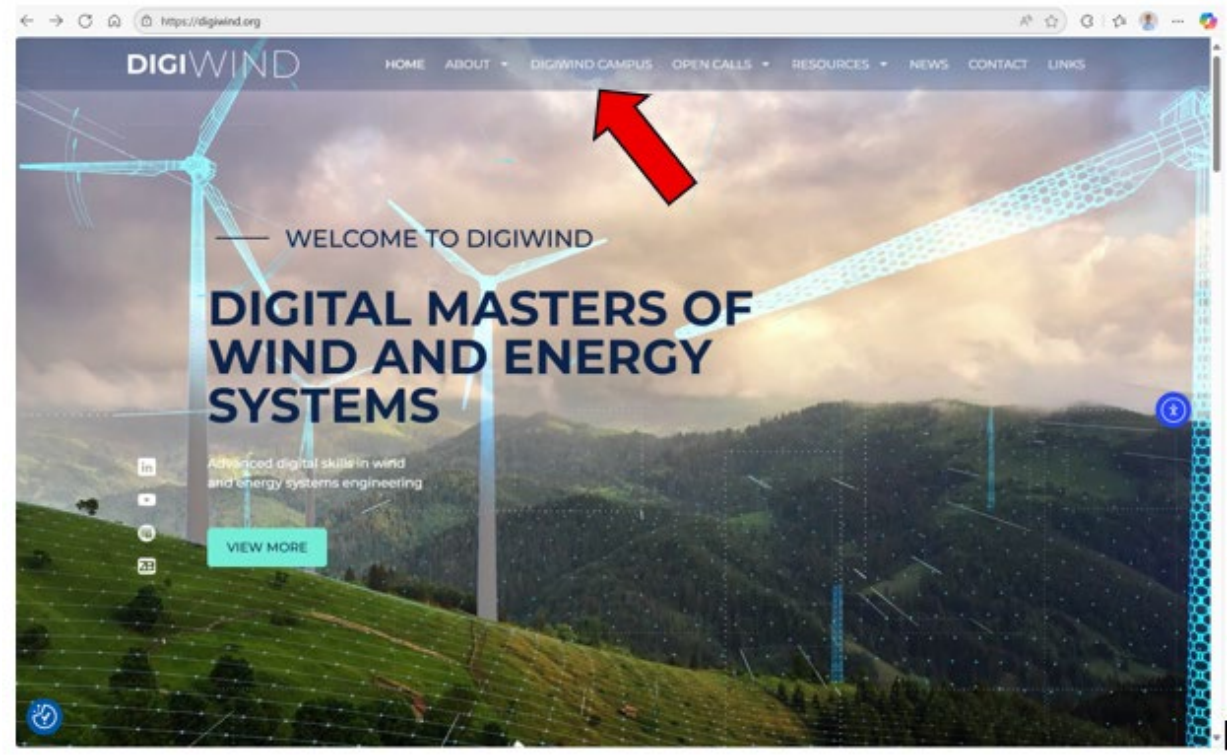
5 User journey flowchart

5.1 Access to Virtual campus

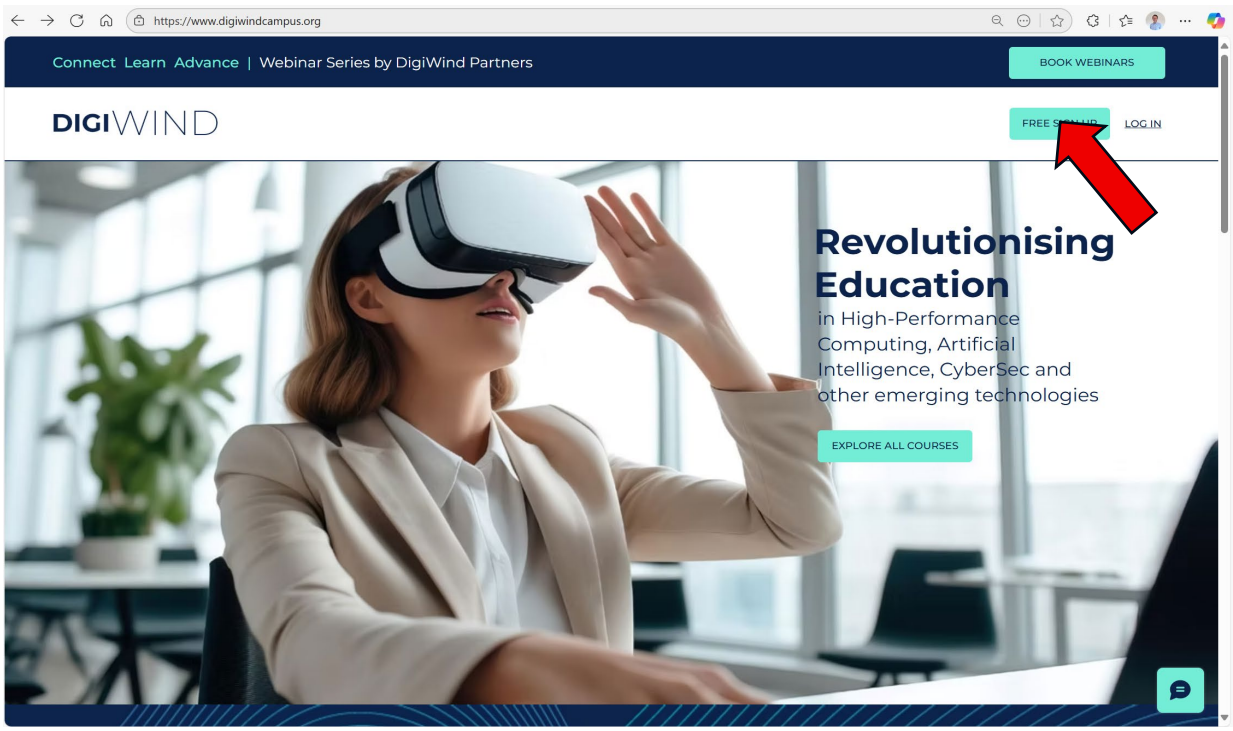
Option 1: Access link to www.digiwindcampus.org from social media channels.

Option 2. Type https://www.digiwindcampus.org into any internet browser

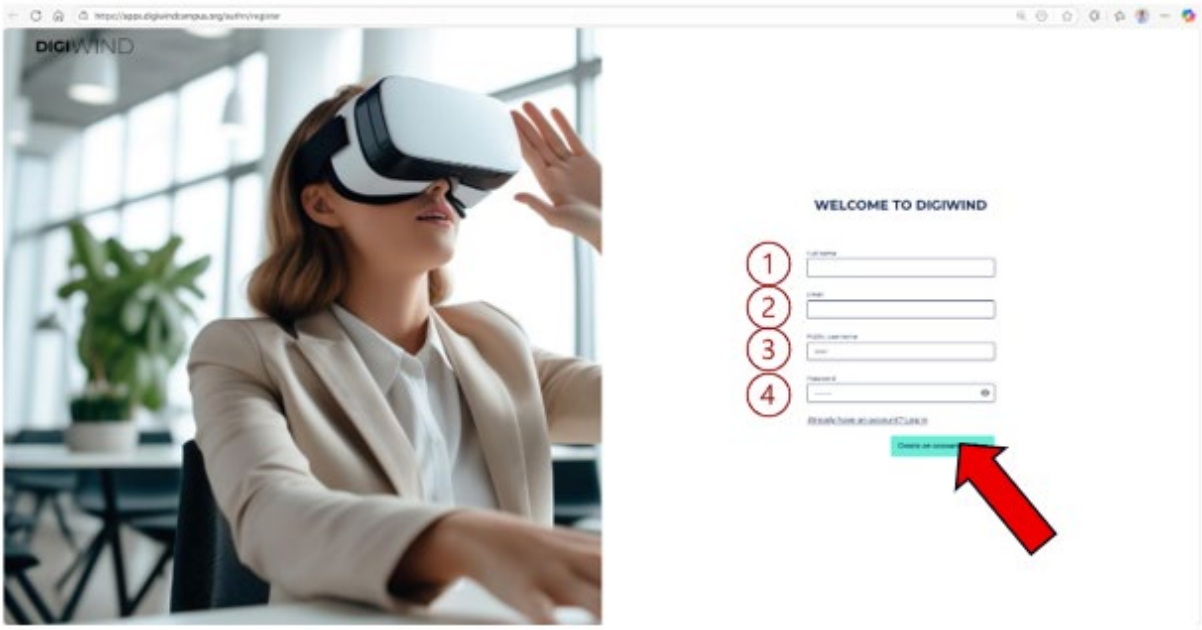
Option 3: Access DigiWind Virtual Campus from link on DigiWind website.



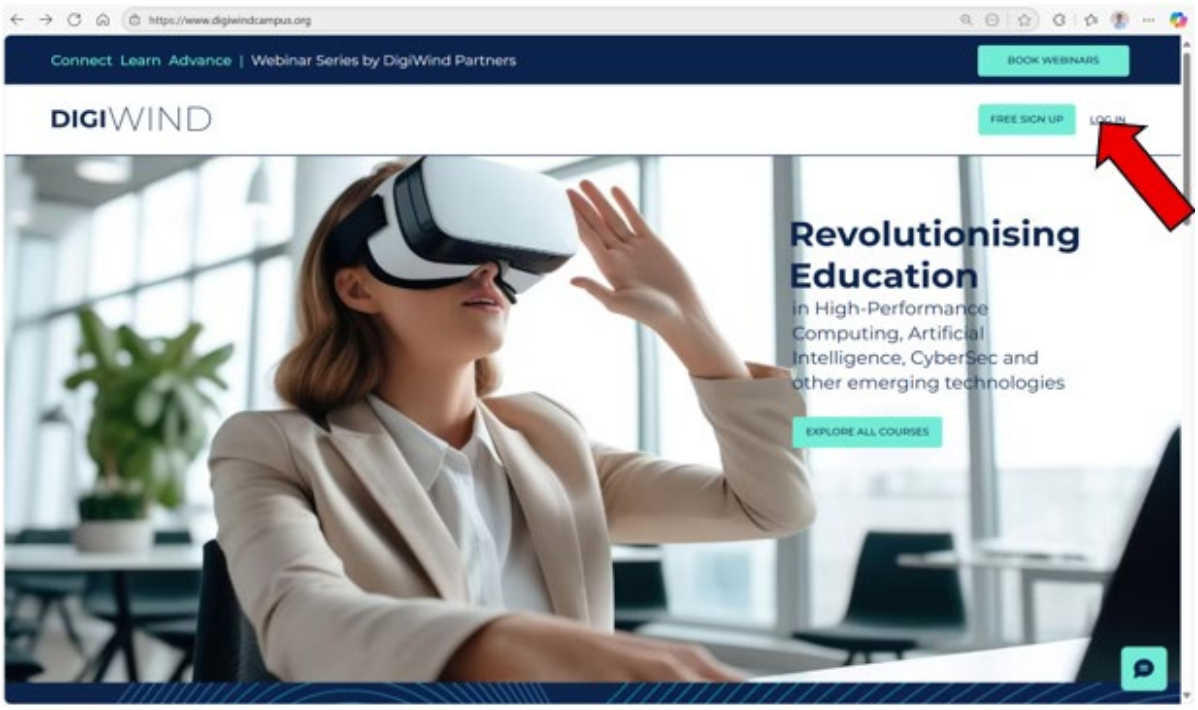
5.2 Register on DigiWind platform



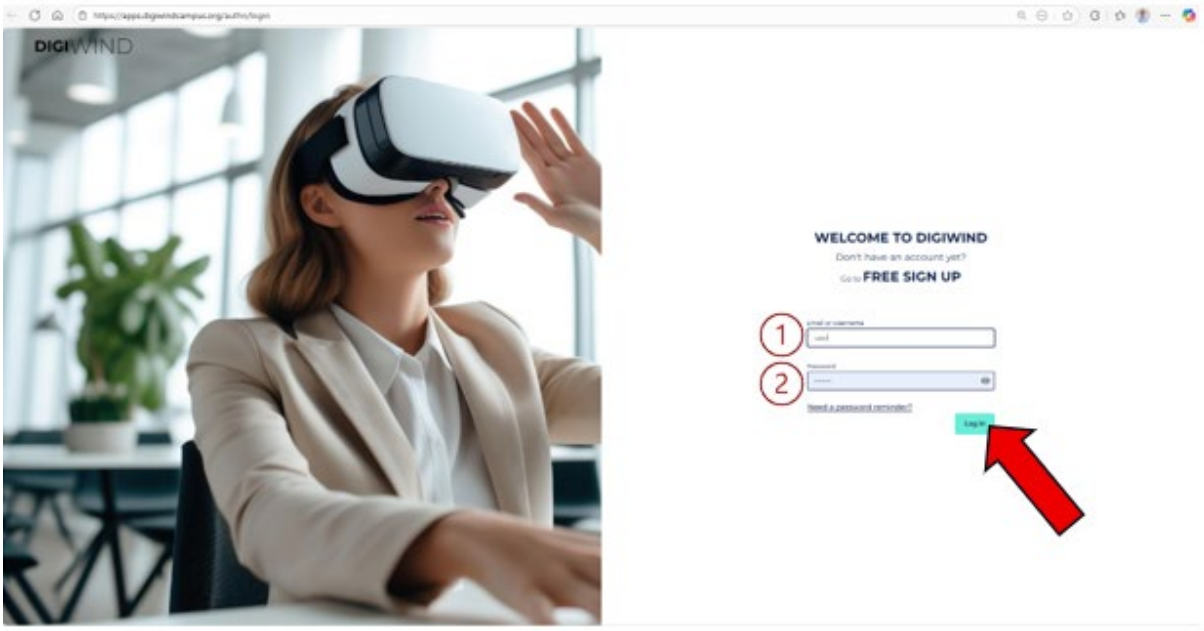
Enter 1. Name, 2. Email, 3. Username, 4. Password and click '**Create an account for free**'



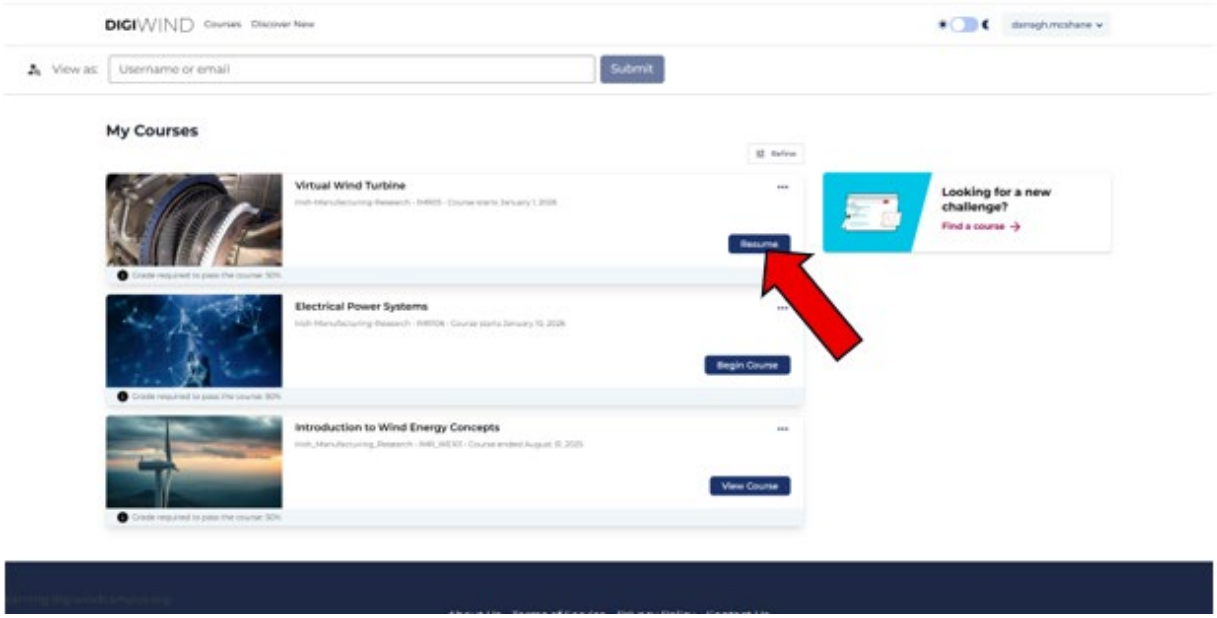
5.3 Login as registered user on DigiWind platform



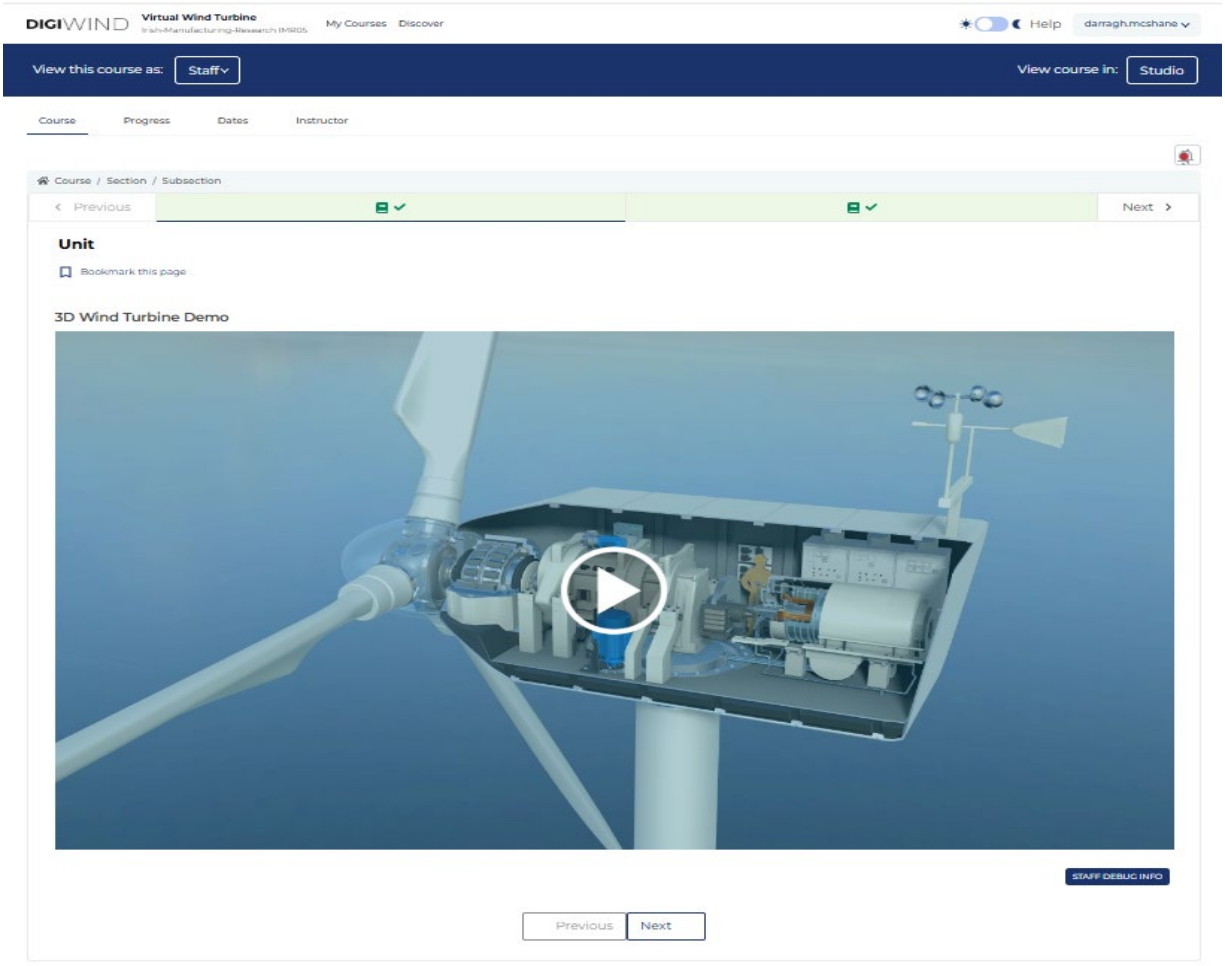
Enter 1. Name, 2. Password and click '**Login**'



Browse Course Listings or navigate to specific course enrolments. Press '**Resume**' to pick up a course where you left off.

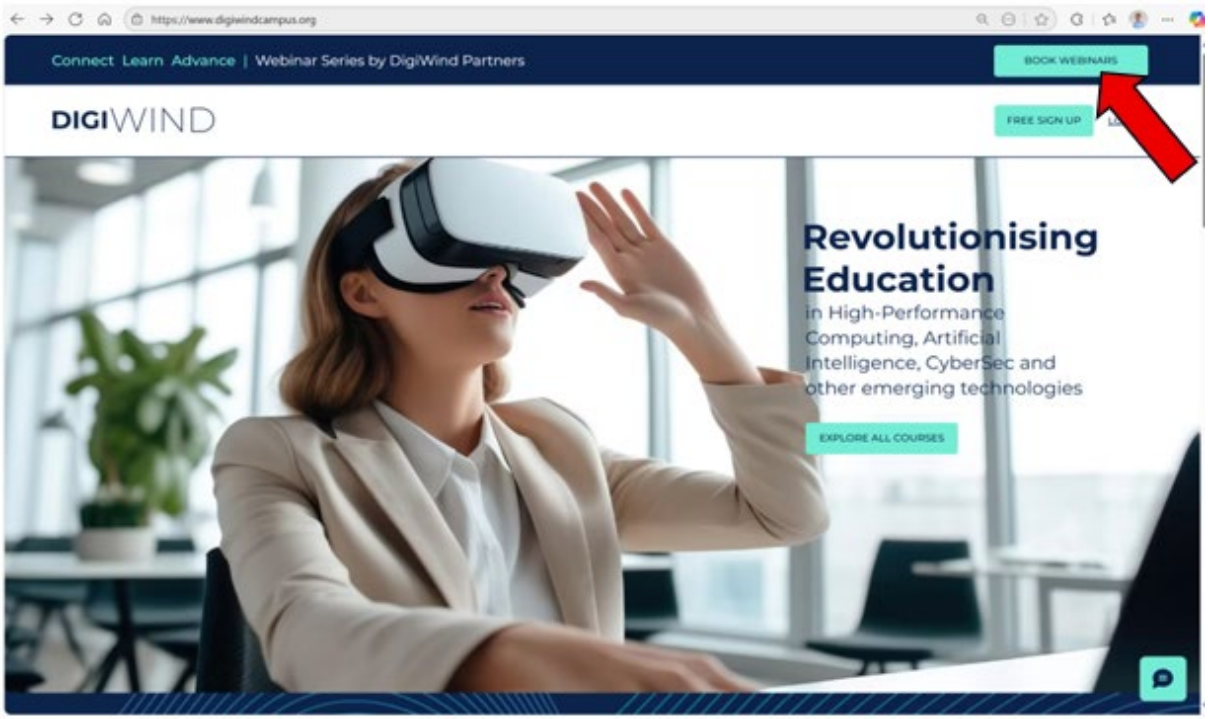


Continue with course material...

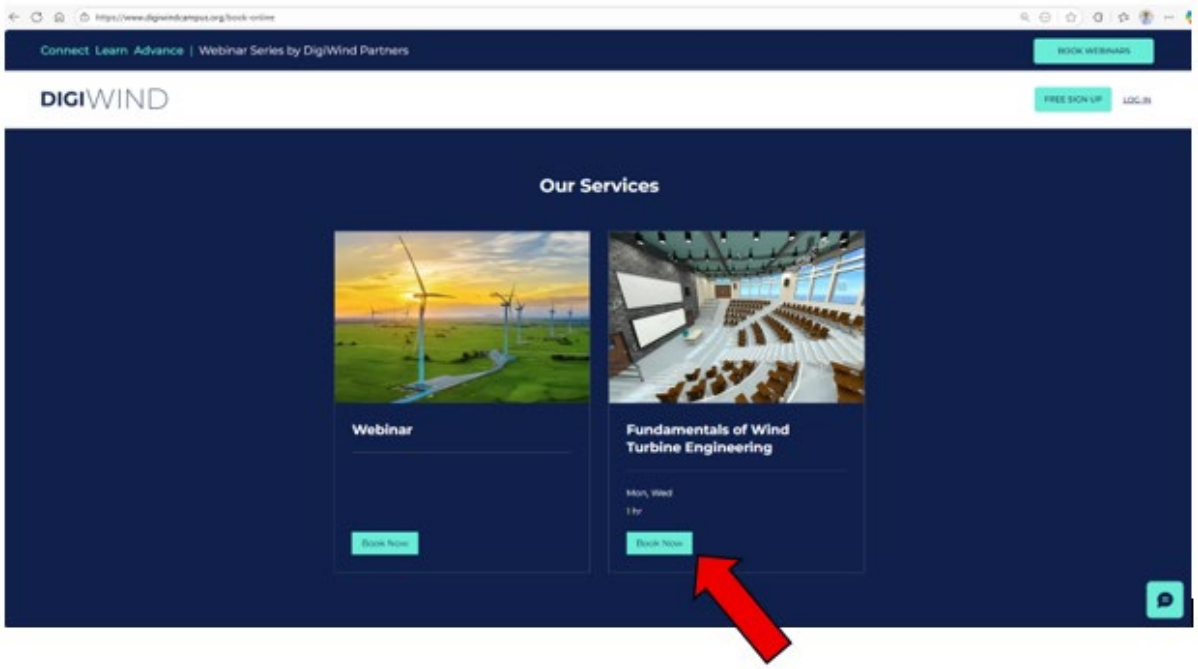


5.4 Access Virtual Events and Webinars as a registered/unregistered user

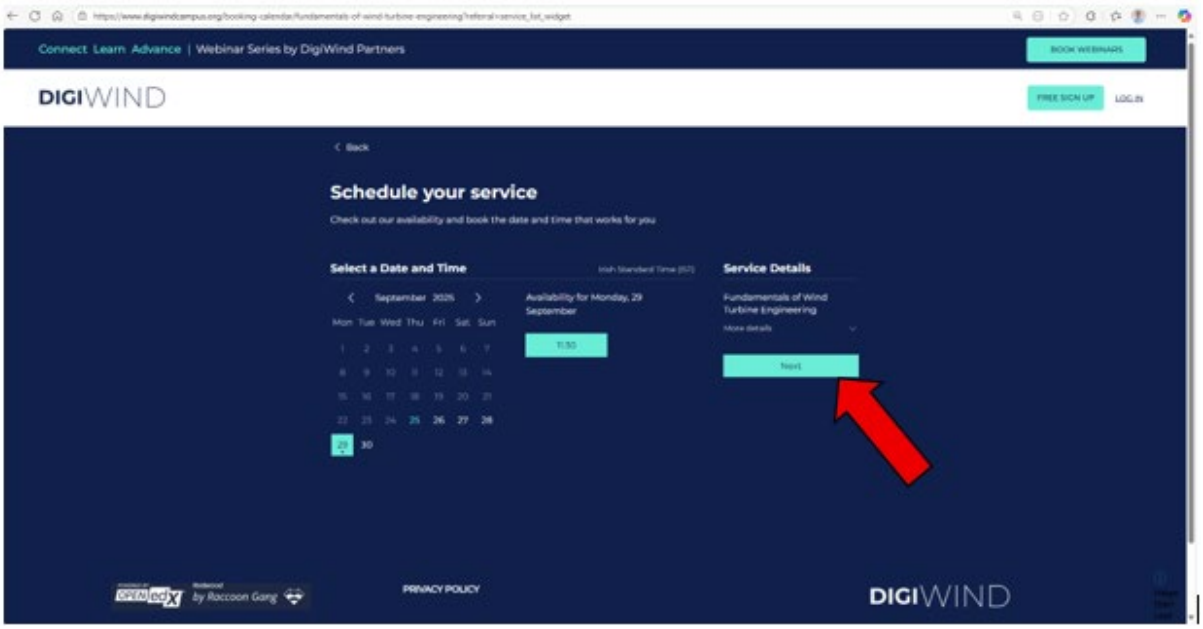
Click on 'Book Webinars' button on top right of the page.



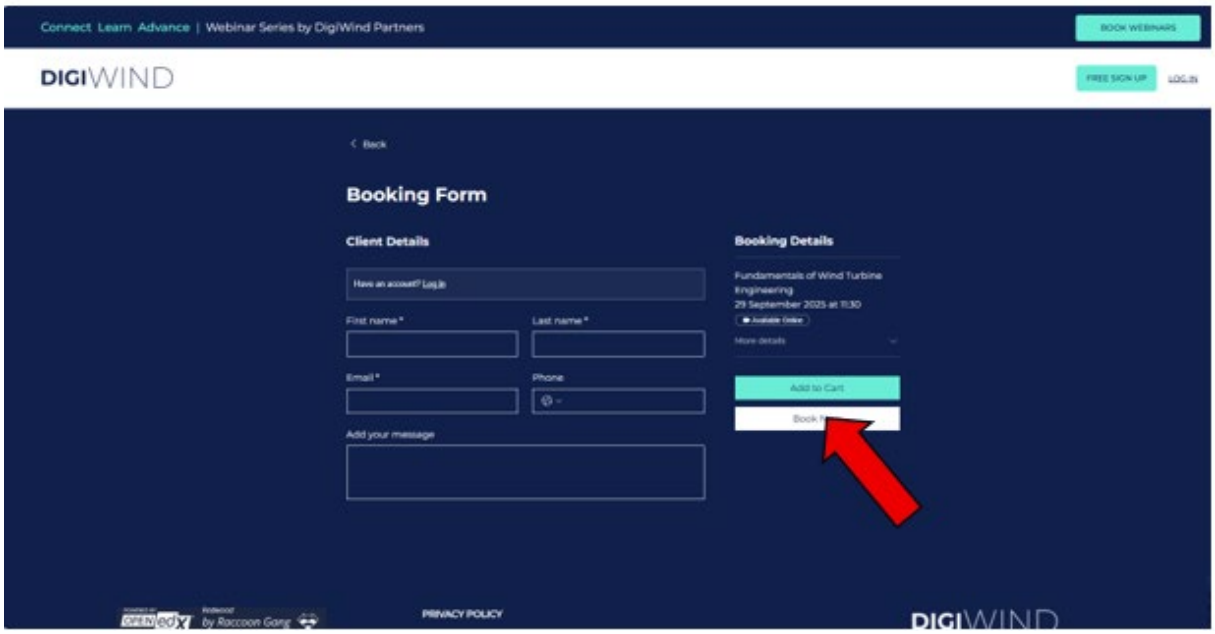
Select the desired event from the event listings page (e.g. **Fundamentals of Turbine Engineering'**)



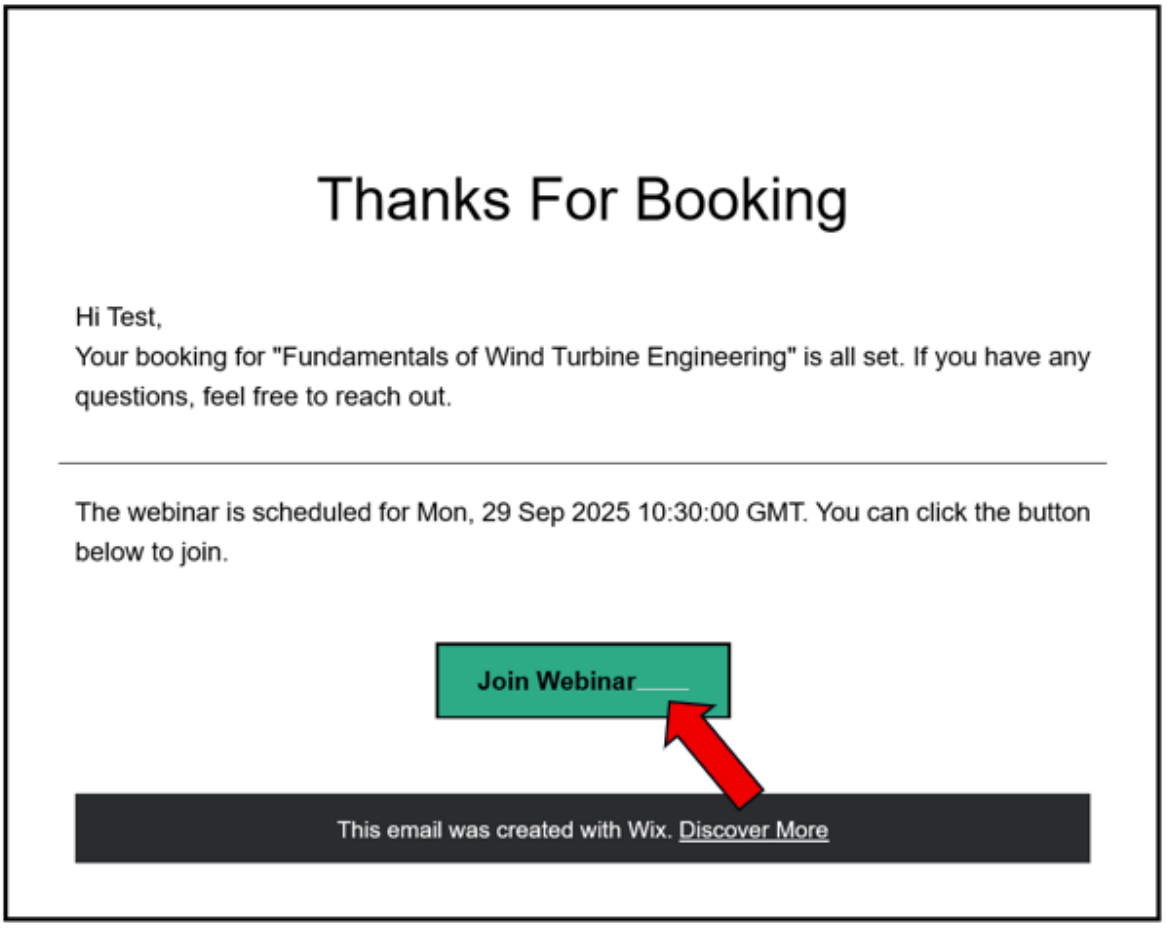
Select next available slot and click **'Next'**



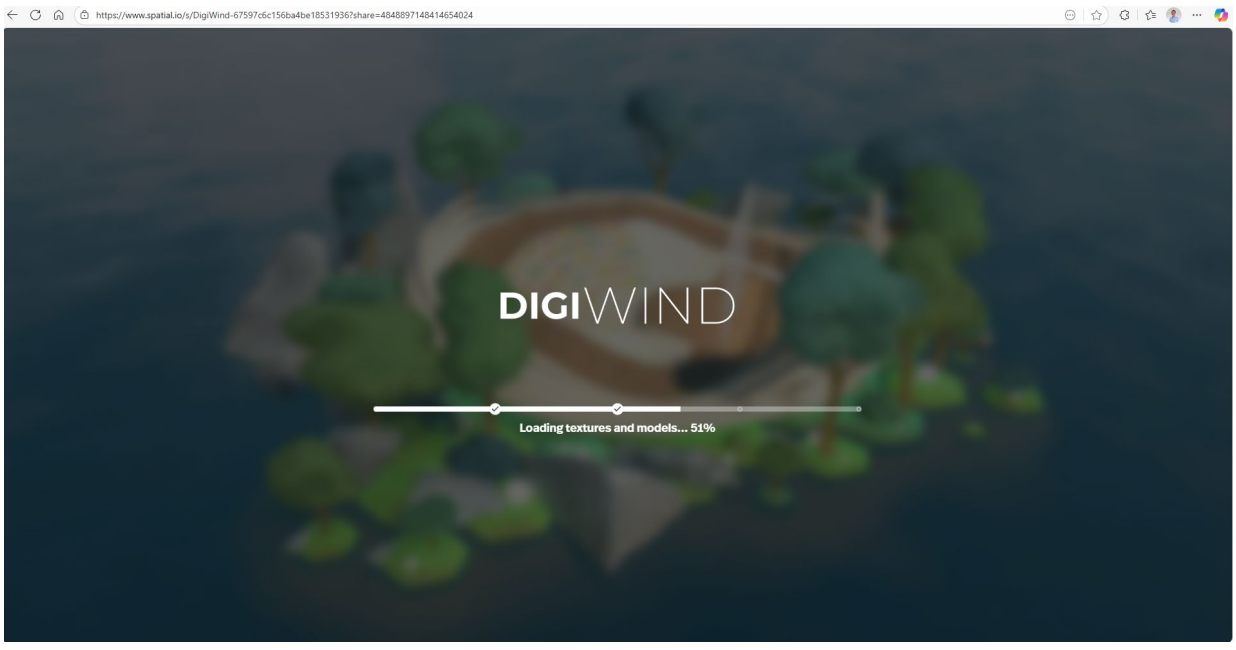
Enter details 1. First Name, 2. Last Name, 3. Email, 4. Telephone and 5. Optional Message. Click '**Book now**' once all entries are complete.



Check your email inbox for a link to the event. The event can be accessed by clicking the '**Join Webinar**' link.



Wait for 3D Virtual space to load.



The webinar will begin when the Moderator activates the 3D space.