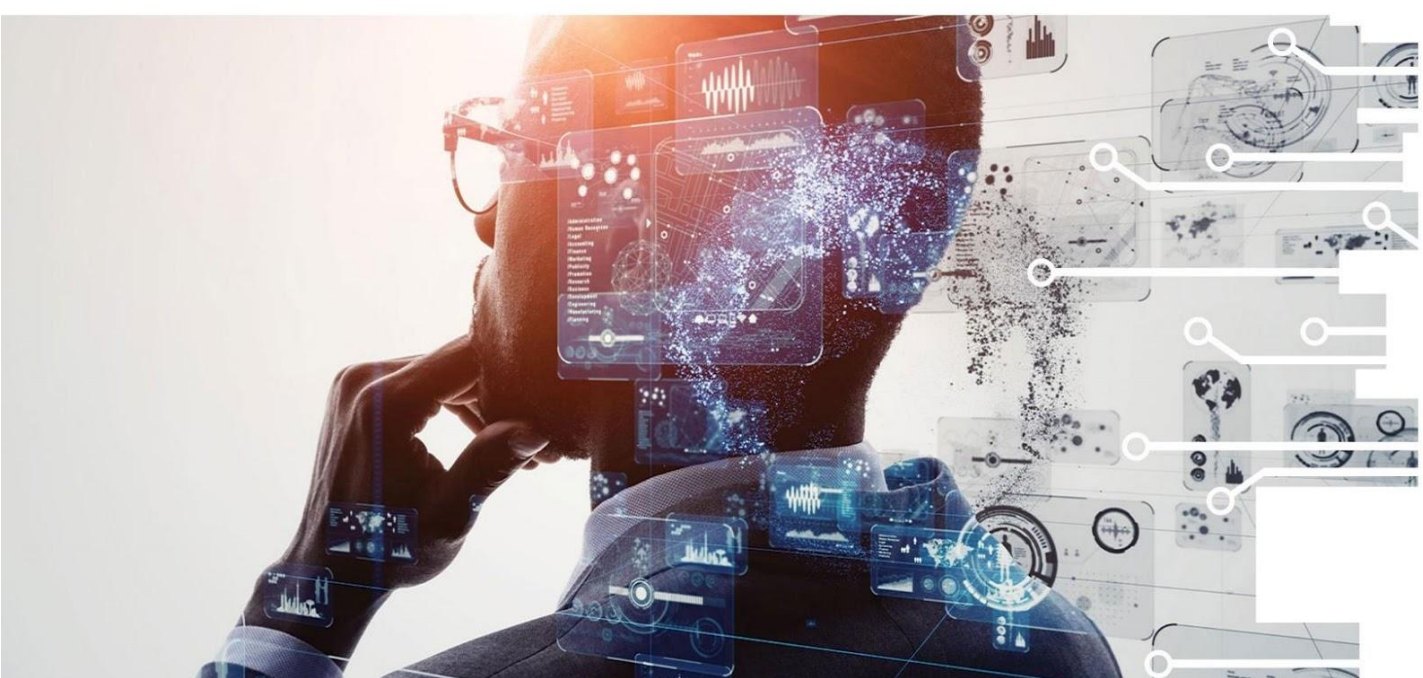




AI4VET4AI

AI-powered Next Generation of VET AI in Tourism - Using AI for Understanding Tourism Impact and Improving Sustainability

IVET Teacher Training Materials



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Purpose of the document

This document supports IVET teachers in integrating the MOOC on AI in Customer Service into their classroom teaching practice. It covers the three units that form the advanced module of the MOOC: Unit 8 - AI Performance Metrics in Customer Service; Unit 9 - Future Insights on How AI Will Shape Retail Customer Service; and Unit 10 - Case Studies: AI Applications that Customers Encounter While Shopping.

The document provides:

- Pedagogical guidance and classroom implementation strategies tailored to vocational education contexts
- AI use cases that are directly relevant to the vocational pathways of IVET students
- Ready-to-use classroom activities, group exercises, and project-based learning tasks
- Assessment tools, rubrics, and evaluation strategies aligned with IVET learning outcomes
- Guidance on integrating the MOOC into formal IVET curricula and subject areas

This document is designed to support both classroom delivery and teacher self-study. It is pedagogically oriented and classroom-friendly, making it accessible to teachers without a technical background in AI.

Format: Pedagogical, practical, classroom-oriented, and self-study friendly.

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1. Introduction to the MOOC and its relevance for IVET trainers

This chapter is designed as a quick-start guide for IVET teachers and trainers who are new to the MOOC *“Using AI for Understanding Tourism Impact and Improving Sustainability.”* It explains what the MOOC is about, why it matters for vocational students, and how it can support you, the trainer, in bringing AI and sustainability topics into your classroom, even if you do not have a technical background in artificial intelligence.

1.1 What Is This MOOC About?

This MOOC explores how **Artificial Intelligence (AI) is transforming the tourism and hospitality sector**, with a particular focus on understanding tourism’s impacts and improving sustainability. It is structured in three progressive modules, totalling nine units:

Table 1 Overview of the MOOC Structure

Module	Title	Core Focus
A	Introduction to AI in Tourism	How AI and related technologies are reshaping tourism trends, impact assessment, and cost optimisation.
B	AI for Enhancing Business Decision-Making	How data-driven AI supports forecasting, data analysis, and personalised visitor experiences.
C	Sustainable Tourism Strategies with AI	How AI helps protect communities and cultural heritage, reduce environmental footprints, and manage resources (energy, water, waste) more efficiently.

The course does not require prior programming knowledge or advanced technical skills. Instead, it uses accessible explanations, real-world case studies, videos, scenario-based questions, and hands-on activities to make AI concepts understandable and practically relevant. Learners explore examples from across Europe and beyond, Amsterdam’s crowd management, Venice’s visitor flow systems, Dubrovnik’s social impact monitoring, Hilton’s energy-saving platform, Google Arts & Culture’s digital heritage preservation, and more.

In essence, the MOOC answers three questions for tourism professionals:

- **What is changing?** (How AI and data are altering the tourism landscape.)
- **How can we use it?** (Practical tools and strategies for better decision-making, personalisation, and efficiency.)
- **How do we do it responsibly?** (Ethical considerations, sustainability principles, and community-centred approaches.)

1.2 Why This Topic Matters for IVET Students

AI Is Already in Tourism Workplaces

The perception that AI belongs only in tech companies is outdated. In today’s tourism and hospitality sector, AI tools are embedded in daily operations:

- **Hotel front desks** use AI-powered Property Management Systems that adjust room rates dynamically based on demand, competitor pricing, and local events.
- **Restaurants and kitchens** deploy AI food-waste tracking systems (like Winnow or Leanpath) that photograph discarded food and calculate costs, helping chefs adjust menus and portion sizes.
- **Travel agencies and tour operators** use AI-driven recommendation engines to suggest personalised packages based on customer preferences and past behaviour.
- **Destination management organisations** analyse social media sentiment and visitor flow data to manage overcrowding and plan infrastructure investments.
- **Airlines and transport providers** use AI for route optimisation, fuel efficiency, and predictive maintenance.

For IVET students preparing to enter these workplaces, familiarity with AI concepts is no longer a “nice-to-have”, it is becoming an expectation. A graduate who understands what AI can do, how to interpret its outputs, and what ethical questions to ask will be more confident, adaptable, and valuable to employers than one who does not.

Sustainability Is Reshaping the Sector

Tourism accounts for approximately 8% of global carbon emissions and places significant strain on water, energy, waste systems, and local communities. In response, the European Union’s *Transition Pathway for Tourism* (2022) identifies the twin green and digital transitions as the sector’s most urgent priorities. Destinations, hotel chains, and tour operators are under increasing regulatory and consumer pressure to demonstrate genuine sustainability credentials, not just marketing claims.

AI is emerging as a critical enabler of this transition: it helps businesses measure their impact, identify inefficiencies, and implement smarter resource management. Students who understand the intersection of AI and sustainability will be positioned for roles that simply did not exist a decade ago: sustainability coordinators in hotels, data-informed destination planners, and eco-tourism experience designers.

The Skills Gap Is Real

A recurring finding in tourism labour-market studies is the mismatch between the skills graduates possess and those employers need. Digital and data skills, sustainability awareness, and the ability to work with technology are consistently flagged as gaps. This MOOC directly addresses these gaps by building:

- Practical data literacy (working with spreadsheets, visualisation tools, and basic AI concepts).
- Sustainability thinking (understanding impacts and resource limits).
- Ethical awareness (privacy, bias, accessibility, community impacts).

These are precisely the competences that make a CV stand out.

1.3 How the MOOC Supports Vocational Competence Development

Vocational education is fundamentally about preparing learners for real professional environments. This MOOC is designed with that principle at its core. It supports competence development through several deliberate design features:

Real-World Case Studies

Every unit grounds abstract concepts in concrete examples drawn from actual tourism destinations and businesses. Students encounter:

- **Amsterdam’s AI-powered sentiment analysis** for understanding resident attitudes toward tourism.

- **Venice’s sensor-based crowd management system** for preventing overtourism.
- **Dubrovnik’s integration of NLP and image recognition** for monitoring social impacts.
- **Hilton’s LightStay platform** delivering over \$1 billion in energy savings.
- **Copenhagen’s CopenPay programme** rewarding tourists for sustainable behaviour.
- **Slovenia’s Planinstvo 4.0 trail management system** using sensors and AI forecasting to protect alpine ecosystems.

These are not hypothetical scenarios. They are real implementations that students can research further, discuss critically, and use as models for their own thinking.

Hands-On Activities

The MOOC contains practical exercises that simulate workplace tasks:

- Cleaning and analysing tourism datasets (Unit B1, B2).
- Building simple dashboards and visualisations (Unit B2).
- Designing personalised itineraries using AI concepts (Unit B3).
- Proposing AI-driven sustainability strategies for a tourism business (Units C2, C3).

These activities develop procedural knowledge, the “know-how” that vocational employers value alongside conceptual understanding.

Scenario-Based and Reflective Assessment

Rather than relying solely on multiple-choice tests, the MOOC uses scenario-based questions that require students to think like professionals. For example:

“You are the operations manager of a coastal resort. Recently, labour costs have soared, and inventory spoilage has increased during off-season months. How would you apply AI solutions to address these issues while maintaining service quality?”

Such questions assess not just recall but application, analysis, and decision-making, the higher-order skills that distinguish competent practitioners.

Reflection prompts throughout the course encourage students to connect MOOC content to their own experiences, localities, and career aspirations, deepening personal investment in the material.

Ethical and Critical Perspective

A distinctive strength of this MOOC is its consistent attention to the ethical dimensions of AI. Students are repeatedly asked to consider:

- Whose voices are heard and whose are missing—when AI analyses community sentiment?
- What happens when an AI pricing system unintentionally discriminates against certain customer groups?
- How should tourism businesses balance the efficiency gains of AI-powered surveillance with guests’ right to privacy?
- What is the environmental cost of running the AI systems themselves?

This critical lens prepares students not just to *use* AI tools but to *question* them thoughtfully, which is an increasingly valuable professional capability.

2. Target learners and vocational relevance

This section helps teachers understand which groups of IVET learners the MOOC is designed for and how the course content connects to vocational pathways within tourism, hospitality, and related service industries.

2.1 Target Learners

The MOOC Using AI for Understanding Tourism Impact and Improving Sustainability is primarily intended for learners in Initial Vocational Education and Training (IVET) programmes. The course is designed for students preparing for employment in tourism, hospitality, and service-sector professions where digital technologies and sustainability practices are becoming increasingly important.

The course is especially suitable for students enrolled in vocational programmes related to:

- tourism and hospitality
- hotel and restaurant services
- travel and destination management
- business and entrepreneurship
- marketing and customer relations
- logistics and operations
- environmental sustainability

The interdisciplinary structure of the course also makes it suitable for project-based vocational learning and cross-curricular activities involving digitalisation and sustainable development themes.

2.2 Typical Learner Profiles

Examples of learners who may benefit from this MOOC include:

1. tourism students interested in smart tourism and sustainable destination management
2. hospitality students preparing for careers in hotels, resorts, restaurants, or visitor services
3. business students exploring digital transformation in service industries
4. marketing students interested in customer experience and tourism communication
5. logistics students examining operational efficiency and resource management in tourism
6. vocational learners interested in sustainability and green transition practices

The course is especially relevant for students preparing for practical workplace environments where AI-supported systems and digital tools are increasingly used in everyday operations.

2.3 Expected Prior Knowledge

The MOOC is designed as an introductory learning experience and does not require previous knowledge of Artificial Intelligence or programming.

Students are expected to have:

- basic digital literacy
- experience using online learning platforms and digital tools
- general awareness of tourism or hospitality services
- interest in innovation, technology, and sustainability topics

The course materials introduce AI concepts gradually through practical tourism examples and vocationally relevant case studies.

2.4 Vocational Relevance

The tourism and hospitality sector is undergoing rapid digital transformation. AI technologies are increasingly used to support customer service, tourism planning, sustainability monitoring, operational management, and communication with visitors.

This MOOC helps IVET learners understand how these technologies are applied in real workplace contexts and how digitalisation is influencing tourism professions. The course content connects directly to vocational pathways related to:

- smart tourism services
- sustainable hospitality practices
- destination management
- tourism operations and visitor management
- customer support and communication
- tourism marketing and promotion
- operational and resource coordination

Teachers can use the MOOC to support discussions about future-oriented tourism careers and the changing skills demands within the tourism and hospitality industry.

2.5 Related Professions and Job Roles

The MOOC is relevant for learners interested in vocational career pathways such as tourism assistant, travel consultant, hotel operations assistant, hospitality coordinator, visitor information officer, reservations and booking assistant, customer service representative, tourism marketing assistant, destination management support staff, tourism project assistant or operations and logistics assistant.

The course may also help learners better understand emerging employment opportunities connected to sustainable tourism, smart destinations, and digital tourism services.

3. Learning objectives and competence development

This section is designed to help IVET teachers clearly identify the educational value of the MOOC. By outlining the shift from theoretical knowledge to practical vocational application, teachers can better align their lesson plans with national qualification frameworks and industry requirements.

3.1 Learning Objectives (Bloom's Taxonomy)

The learning objectives for this course are designed to move students from foundational awareness to higher-order critical evaluation. After completing the MOOC, students will be able to:

- **Define** key concepts of Artificial Intelligence such as Machine Learning, Natural Language Processing (NLP), and Predictive Analytics within a tourism context. [*Bloom: Remember*]
- **Describe** current technological, socio-demographic, and sustainable trends shaping the global tourism industry. [*Bloom: Understand*]
- **Identify** specific AI tools used for hotel revenue management, destination crowd control, and environmental monitoring. [*Bloom: Remember/Identify*]
- **Explain** how AI-driven resource management (energy, water, and waste) contributes to the UN Sustainable Development Goals. [*Bloom: Understand*]
- **Apply** basic data analysis techniques using tools like spreadsheets or visual programming interfaces to interpret tourist arrivals. [*Bloom: Apply*]
- **Execute** a basic sentiment analysis project to gauge resident or visitor feelings toward a specific tourism event. [*Bloom: Apply*]
- **Analyse** the economic, social, and environmental impacts of tourism using data-driven scenarios. [*Bloom: Analyse*]
- **Evaluate** the ethical implications of AI use, specifically regarding data privacy, algorithmic bias, and cultural authenticity. [*Bloom: Evaluate*]
- **Propose** AI-based interventions to solve real-world tourism problems, such as seasonal overcrowding or high food waste in hospitality. [*Bloom: Create*]

3.2 Competence Development

The MOOC fosters a holistic set of skills that bridge the gap between traditional tourism expertise and the demands of the “Industry 4.0” labor market.

Vocational Competences (Sector-Specific)

- **Sustainable Destination Management:** Ability to use technology to balance tourist satisfaction with the carrying capacity of a destination.
- **Hospitality Revenue Management:** Understanding how dynamic pricing and demand forecasting optimize business profitability.
- **Resource Efficiency:** Capability to implement “green” innovations in hospitality operations to reduce the environmental footprint.

Digital Competences

- **Data Literacy:** Ability to browse, filter, and interpret tourism datasets to extract meaningful insights.
- **AI Literacy:** Understanding how AI systems work (“demystifying the black box”) and how to use them as decision-support tools.
- **Digital Content Interaction:** Navigating immersive technologies (AR/VR) and AI-powered multilingual communication tools.

Transversal Competences

- **Critical Thinking:** Questioning the “objectivity” of data and identifying potential biases in AI recommendations.
- **Problem-Solving:** Using a data-driven approach to address traditional tourism challenges like seasonality or waste.
- **Ethical Reasoning:** Balancing the drive for profit with the need to protect local community privacy and cultural heritage.

3.3 Supporting Employability

In a rapidly evolving job market, these competences provide students with a competitive edge in several key areas:

- **Future-Proofing Roles:** As traditional administrative tasks in tourism are automated (e.g., booking management, basic customer service), students who can manage and interpret the AI systems performing these tasks move into higher-value roles.
- **Entry into “Green” Jobs:** With the travel sector pivoting toward sustainability, graduates proficient in AI-enhanced environmental monitoring and resource management are highly sought after by eco-certified resorts and NGOs.
- **SME Competitiveness:** Graduates who can introduce low-cost, open-source AI tools (like Orange or Looker Studio) to Small and Medium Enterprises (SMEs) become invaluable assets to local businesses that lack large tech budgets.
- **Improved Decision-Making:** Employers value staff who don’t just “follow intuition” but can present data-backed arguments for pricing, marketing shifts, or operational changes.

3.4 Constructive Alignment Table

This table helps teachers ensure that their classroom activities and assessments are directly tied to the learning objectives, ensuring a cohesive educational experience.

Table 2 Overview of the MOOC Structure

Learning Objective	Classroom Activity	Assessment Method
Apply basic data analysis to tourism arrival trends.	Practical Workshop: Using a provided CSV file of arrivals, students use Google Sheets to calculate growth and create a line graph.	Short Lab Report: Submission of the spreadsheet with a 3-sentence summary of the detected trend.

Analyse social impacts of tourism using AI concepts.	Group Discussion: Review the “Dubrovnik Case Study.” Students map out the specific AI tools used to solve sentiment and crowd issues.	Peer Review: Students present their map to another group and receive feedback on their analysis of the tools’ effectiveness.
Evaluate the ethical risks of AI in a tourism business.	Role-Play Debate: Students take roles as a tech provider, a local resident, and a city mayor to discuss a proposed AI surveillance system for a historic site.	Reflective Essay: A 500-word piece arguing for or against the project, citing specific privacy and bias concerns from Module B.
Propose an AI-based solution for resource management.	Capstone Project: Students select a local hotel and design a “Smart Resource Plan” (Energy/Water/Waste) using MOOC case studies as a template.	Pitch Presentation: A 7-minute presentation graded on feasibility, sustainability impact, and use of AI technology.
Identify technological and socio-demographic trends.	Trend Hunt: Small groups search for recent news articles (last 6 months) and categorize them into the trends listed in Unit A1.	Online Quiz: Completion of the unit-level Knowledge Check with a score of 80% or higher.
Explain the concept of environmental carrying capacity.	Simulation Game: Using a virtual park management scenario, students adjust visitor caps to see the effect on environmental health indicators.	Exit Ticket: Students write down one way AI helps destination managers avoid “reaching the limit” of a site.

Teacher’s Note: When using this table, feel free to adapt the “Classroom Activity” to fit the specific local context. For example, if your region is known for hiking, replace the “hotel” scenario with an “alpine trail” scenario. This ensures the alignment remains relevant to the students’ immediate vocational reality.

4. Overview of the MOOC structure and content

This section provides IVET teachers with an overview of the MOOC structure, modules, units, workload, and content organisation. It supports lesson planning, classroom integration, blended learning implementation, and teacher self-study.

4.1 General MOOC Overview

The MOOC *Using AI for Understanding Tourism Impact and Improving Sustainability* is structured into three thematic modules covering the application of Artificial Intelligence (AI) in tourism, hospitality, business decision-making, and sustainable tourism management. The course combines introductory theoretical concepts with practical examples, case studies, and vocationally relevant applications.

- Target group: IVET learners
- ECTS value: 5 ECTS
- Total estimated workload: 140 hours
- Language: English
- Level of difficulty: Beginner to intermediate
- Prerequisites: No prerequisites are required.

Workload Structure

The course workload is organised as follows:

Lectures: 30 hours; Tutorials: 40 hours; Individual work: 70 hours; **Total: 140 hours.**

The detailed time plans for each module are provided in the course outline.

4.2 Module Overview

4.2.1 Module 1: Introduction to AI in Tourism

Module Description

This module introduces students to the fundamental concepts of Artificial Intelligence in tourism and hospitality. Students explore AI concepts, tourism trends, ethical considerations, sustainability issues, and the use of AI for tourism impact assessment and operational optimisation.

Units Overview

Unit 1: Understanding Tourism Trends

Students are introduced to basic AI concepts, classifications, and current applications of AI within the tourism industry. The unit also addresses ethical considerations, data privacy, and practical examples of AI use in tourism.

Unit 2: Introduction to AI in Impact Assessment

Students examine how AI can support economic, social, and environmental impact assessment in tourism. The unit introduces basic approaches to data gathering, evaluation, and AI-supported analysis in tourism contexts.

Unit 3: AI-Supported Cost Optimisation in Tourism

This unit introduces AI-supported approaches to operational efficiency, including pricing strategies, energy management, and resource optimisation within tourism organisations.

Pre-reading Materials

- *Artificial Intelligence and Tourism* (OECD, 2024)
- *AI In Travel & Tourism 2025: 15 Ideas, Use Cases, And More* (2024)

4.2.2 Module 2: AI for Enhancing Business Decision-Making

Module Description

This module explores how AI technologies support operational management and business decision-making within tourism and hospitality. Students examine data analysis methods, tourism operations management, personalization technologies, and AI-supported customer engagement strategies.

Units Overview

Unit 4: Data-driven AI solutions

Students explore AI-supported operational management strategies, including demand forecasting, tourist flow management, inventory management, and resource optimisation.

Unit 5: Approaches to Data Analysis

This unit introduces students to basic data analysis methods used in tourism, including descriptive, diagnostic, and predictive analytics, as well as tourism data collection and processing approaches.

Unit 6: AI-Based Personalisation of Tourism Experiences

This unit examines AI-driven personalization systems, recommendation tools, immersive technologies, and related privacy and security considerations.

Pre-reading Materials

- *AI in Destination Management – 5 Examples of Practical AI Applications* (2024)
- *New Report: Personalize the Travel Experience Using Data and AI* (2025)
- *Airbnb Rental Listings Dataset Mining*
- *AI in Hospitality: Use Cases, Applications, Solution and Implementation*

4.2.3 Module 3: Sustainable Tourism Strategies with AI

Module Description

This module focuses on the relationship between AI and sustainable tourism development. Students examine AI applications supporting cultural preservation, community engagement, environmental sustainability, and resource management within tourism destinations and organisations.

Units Overview

Unit 7: Social and Economic Sustainability in Tourism: AI for Community and Cultural Impact

Students explore AI applications related to cultural heritage preservation, community engagement, crowd management, and digital preservation initiatives.

Unit 8: AI-Enhanced Environmental Sustainability in Tourism

This unit focuses on environmental monitoring, overtourism management, carrying capacity analysis, and predictive modelling for environmental sustainability.

Unit 9: AI-Driven Resource Management Strategies for Sustainable Tourism

Students examine AI-supported solutions for energy management, water conservation, waste reduction, and sustainable resource optimisation in tourism organisations and SMEs.

Pre-reading Materials

- *Artificial Intelligence in the Context of Cultural Heritage and Museums: Complex Challenges and New Opportunities* (2023)
- *OECD Preparing the Tourism Workforce for the Digital Future* (2021)
- *Sustainable Tourism: A State-of-the-Art Review* (1999)

4.3 Estimated Completion Time and Difficulty Level

The full MOOC is designed to be completed over approximately 140 hours of lectures, tutorials, and individual work. The course is intended primarily for beginner-level IVET learners and progressively introduces more advanced applied topics related to tourism, sustainability, and AI-supported decision-making.

5. Key AI concepts explained for teachers

This section supports IVET teachers in understanding selected AI concepts presented throughout the MOOC. The explanations use simple, non-technical language and focus only on concepts that are especially relevant for tourism, hospitality, and sustainable tourism management.

The goal is not to explain all AI terminology, but to introduce concepts that teachers may realistically need in order to confidently discuss AI applications in vocational classrooms.

5.1 Module 1 – Introduction to AI in Tourism

This module focuses on how AI helps tourism organisations analyse data, forecast demand, improve operations, and support decision-making.

Machine Learning

Machine learning is a type of AI that learns from data and improves its predictions over time. It works similarly to learning from experience: the more examples the system analyses, the better it becomes at recognising patterns. In tourism, machine learning can help estimate visitor demand, identify tourism trends, or support forecasting and planning activities.

Natural Language Processing (NLP) and Sentiment Analysis

Natural Language Processing helps computers understand and analyse human language. One important application is sentiment analysis, which identifies whether opinions expressed online are positive, negative, or neutral. In tourism, these tools are often used to analyse online reviews, visitor feedback, or social media posts in order to better understand customer satisfaction and public attitudes toward tourism.

Demand Forecasting

Demand forecasting uses AI-supported systems to estimate future visitor numbers, bookings, or occupancy levels. It works similarly to a weather forecast, but instead of predicting weather, it predicts tourism demand. Hotels, airlines, and destinations use demand forecasting to prepare staffing, pricing, supplies, and services more efficiently.

Dynamic Pricing

Dynamic pricing means adjusting prices automatically according to demand, availability, timing, or market conditions. Airline tickets and hotel prices are common examples. AI systems help tourism businesses react quickly to changing demand and improve revenue management.

Generative AI

Generative AI refers to AI tools that can create new content such as text, itineraries, translations, marketing materials, or images. In tourism, generative AI can help prepare travel offers, multilingual guest communication, or promotional content. Human review remains important to ensure accuracy and appropriateness.

AI Bias and Data Privacy

AI bias refers to unfair or inaccurate results caused by incomplete or unbalanced data. Data privacy refers to protecting personal information collected from users. In tourism, AI systems often process booking data, travel preferences, or customer behaviour, making fairness, transparency, and responsible data handling especially important.

5.2 Module 2 – AI for Enhancing Business Decision-Making

This module focuses on how AI helps create personalised, interactive, and accessible tourism experiences for visitors.

Recommendation Engines

Recommendation engines are AI systems that suggest destinations, hotels, restaurants, or activities based on user preferences and behaviour. They work similarly to streaming platforms that recommend films or music. In tourism, recommendation systems help create more personalised visitor experiences.

Conversational AI

Conversational AI refers to systems such as chatbots and voice assistants that communicate with users in natural language. In tourism, these tools can answer questions, assist with bookings, and provide travel support at any time of day in multiple languages.

Dynamic Personalisation

Dynamic personalisation means AI continuously adapts recommendations and services in real time according to user behaviour, location, or changing conditions. For example, a travel app may suggest indoor activities when bad weather is expected or recommend less crowded attractions nearby.

Immersive Technologies

Immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) create interactive digital tourism experiences. AI can personalise these experiences according to visitor interests, language, or age. In tourism, immersive technologies are often used in virtual tours, digital museums, and interactive cultural storytelling.

Accessible and Inclusive AI

Accessible and inclusive AI refers to digital systems designed to support users with different languages, abilities, and accessibility needs. In tourism, examples include multilingual chatbots, voice-guided applications, or accessible digital guides for visually impaired travellers. These technologies help tourism organisations provide more inclusive and user-friendly services.

5.3 Module 3 – Sustainable Tourism Strategies with AI

This module focuses on how AI supports environmental sustainability, community well-being, and more efficient resource management in tourism.

AI-Based Crowd Management

AI-based crowd management uses data from sensors, cameras, ticketing systems, or mobile devices to monitor and manage visitor flows in busy destinations. In tourism, this can help reduce overcrowding, protect heritage sites, and improve visitor experience.

AI-Supported Carrying Capacity Analysis

AI-supported carrying capacity analysis helps estimate how many visitors a destination can handle without causing unacceptable environmental damage. AI systems combine information such as visitor numbers, environmental conditions, pollution levels, or resource use to support sustainable tourism management.

Environmental Monitoring with AI

Environmental monitoring with AI uses sensors, cameras, satellite data, or other digital tools to detect environmental changes such as pollution, biodiversity loss, water quality problems, or ecosystem stress. This supports conservation and faster environmental response.

AI-Driven Resource Optimisation

AI-driven resource optimisation uses AI to improve the management of energy, water, food, and waste. In tourism, this may include reducing hotel energy waste, detecting water leaks, improving irrigation systems, or optimising food purchasing and preparation.

Predictive Maintenance

Predictive maintenance uses AI to identify early signs of damage or equipment problems before major repairs are needed. In tourism, this can help protect hotels, infrastructure, historical buildings, and cultural sites through earlier intervention and more efficient maintenance planning.

AI-Enabled Waste and Food Waste Monitoring

AI-enabled waste monitoring uses cameras, sensors, or recognition systems to track waste production and improve recycling or waste reduction. In hospitality, AI-supported food waste monitoring can help kitchens understand what food is being wasted, when, and why, helping reduce overproduction and spoilage.

5.4 Recommended External Resources for Teachers New to AI Concepts

The following resources provide beginner-friendly introductions to Artificial Intelligence and its practical applications in education, tourism, and sustainability. They are suitable for teachers without technical backgrounds.

- [Elements of AI](#)
- [IBM SkillsBuild – AI Foundations](#)
- [Google AI for Anyone](#)

6. Pedagogical guidance for classroom implementation

This chapter supports IVET teachers in integrating the MOOC “*Using AI for Understanding Tourism Impact and Improving Sustainability*” into their classroom teaching. It offers practical implementation models, teaching recommendations, and examples of good practice drawn from vocational education contexts. Whether you plan to use the full MOOC, selected modules, or individual activities as springboards for student projects, this chapter provides the pedagogical scaffolding to do so effectively.

6.1 Implementation Approaches

There is no single “correct” way to integrate the MOOC into classroom practice. The right approach depends on your curriculum, your learners’ profiles, your available contact hours, and your institutional context. Below are three tested models, each with a description, practical example, and guidance on when it works best.

6.1.1 Full MOOC Integration

Description. In this model, the MOOC forms a core component of a semester-long course or training programme. Students work through every unit in sequence, with classroom sessions used to deepen understanding, facilitate discussion, and contextualise the content to local vocational settings.

Example. A 14-week VET course on *Tourism Management and Innovation* dedicates one or two sessions per week to MOOC content. Students complete each unit’s readings and videos as homework, then participate in structured classroom discussions, group exercises, and scenario-based tasks during contact hours. The MOOC’s built-in knowledge checks serve as formative assessments, while the teacher designs a summative project, such as an AI-enhanced sustainability plan for a local destination, that draws on learning from all three modules.

When to use this approach:

- The course has sufficient hours (60+ contact hours recommended) to cover all nine units.
- AI in tourism is a central learning outcome, not a supplementary topic.
- Students have reliable access to devices and internet connectivity outside the classroom.
- The teacher is comfortable with all three modules and can act as a facilitator across the full breadth of content.

Practical tips:

- Create a course calendar mapping each MOOC unit to specific weeks, with clear deadlines for pre-class preparation.
- Use the MOOC’s reflection prompts and scenario-based questions as the basis for in-class activities rather than duplicating them.
- Build in “synthesis weeks” after each module where students connect ideas across units, for instance, linking economic impact assessment (Unit A2) to cost optimisation strategies (Unit A3).

6.1.2 Partial Integration

Description. Teachers select specific modules or individual units that align most closely with their existing curriculum and embed them into a broader course. The remaining MOOC content can be signposted to students as optional self-study or used as reference material.

Example. A VET programme on *Hospitality Operations* includes a four-week block on sustainability. The teacher selects Unit C1 (Sustainability in Tourism – AI for Community and Cultural Impact) and Unit C2 (AI-Enhanced Environmental Sustainability in Tourism) as required learning, because these units directly connect to the programme’s sustainability learning outcomes. Students work through these two units online, and classroom sessions focus on applying the concepts through local case studies: for instance, discussing how a nearby heritage site could use AI-powered crowd management, or how a regional hotel might implement smart energy monitoring. The remaining MOOC modules are listed in the course resource guide for interested students.

When to use this approach:

- Curriculum time is limited, only a few weeks or sessions can be devoted to AI and sustainability topics.
- The course has established learning outcomes, and only certain MOOC units map directly to them.
- The teacher wishes to pilot the MOOC before committing to full integration.
- Students have varying levels of prior knowledge, and a focused selection ensures all learners can engage meaningfully.

Practical tips:

- Begin by mapping your course learning outcomes against the MOOC unit objectives. Select units where there is clear alignment.
- Provide students with a brief orientation to the MOOC platform and structure, even if they will only access part of it, so they understand where their units sit within the bigger picture.
- Use the MOOC’s knowledge checks as entry or exit tickets for classroom sessions to gauge comprehension quickly.
- Consider pairing a more conceptual unit (e.g., Unit A1 on tourism trends) with a more applied one (e.g., Unit A3 on cost optimisation) to give students both theoretical grounding and practical relevance.

6.1.3 Project-Based Integration

Description. The MOOC serves as a resource library and inspiration source for student projects. Rather than following the MOOC unit by unit, students identify a real-world problem or opportunity in the tourism sector, explore relevant MOOC content to build their knowledge base, and produce a project output, such as a feasibility study, a prototype, a business proposal, or a presentation.

Example. In a final-year VET module on *Innovation in Tourism*, students work in groups of three or four. Each group selects a challenge facing a local tourism business or destination, for example, reducing food waste at a hotel buffet, personalising visitor experiences at a small museum, or managing seasonal overcrowding at a beach resort. Students are directed to relevant MOOC units as research sources: a group working on food waste would draw on Unit C3 (AI-Driven Resource Management), Unit A3 (Cost Optimisation), and the case studies on Winnow and Leanpath. Over six to eight weeks, groups develop a proposal that includes a problem analysis, an AI-informed solution, an implementation plan, and a reflection on ethical considerations. Projects are presented to a panel that may include local tourism professionals.

When to use this approach:

- The course emphasises applied learning, problem-solving, and student autonomy.
- Students have already developed foundational knowledge in tourism and are ready for higher-order tasks such as analysis, evaluation, and creation.
- The teacher wants to connect MOOC content directly to local industry contexts and stakeholders.
- Assessment is project- or portfolio-based rather than exam-based.

Practical tips:

- Provide a curated guide showing which MOOC units and case studies relate to common project themes (e.g., “If your project is about energy efficiency, start with Unit C2 Section 4 and Case Studies 1–2 in Unit C3”).
- Schedule milestone check-ins (topic approval, literature/MOOC review, draft proposal, final presentation) to keep groups on track.
- Encourage students to go beyond the MOOC by incorporating local data, interviews with tourism professionals, or site visits.
- Use the MOOC’s ethical consideration sections (found in every module) as a mandatory element of each project, ensuring students address data privacy, bias, and inclusivity.

6.1.4 Teaching Recommendations

Regardless of which integration model you choose, the following pedagogical strategies will help you maximise the MOOC’s impact in the classroom.

6.2 Combining MOOC Learning with Classroom Discussion

The MOOC is content-rich, featuring detailed explanations, videos, case studies, and self-assessment questions. Classroom time should not replicate this content but rather extend and deepen it. A productive pattern is the **flipped classroom** approach:

- **Before class:** Students complete the assigned MOOC unit (reading, videos, knowledge checks) at their own pace.
- **During class:** The teacher facilitates discussion, clarification, and application. Effective techniques include:
 - **Think-Pair-Share:** Pose one of the MOOC’s reflection prompts (e.g., “*How has technology changed the way you or your family plan and book travel?*”). Students reflect individually, discuss with a partner, and then share key points with the class.
 - **Case study deep-dives:** Take a MOOC case study, such as Dubrovnik’s AI-powered tourism management or Hilton’s LightStay platform, and ask students to evaluate it: What worked? What assumptions were made? Would this approach work in our local context? Why or why not?
 - **Scenario extension:** Build on the MOOC’s scenario-based questions by adding local complexity. For instance, after students answer the scenario about Maria’s travel agency (Unit A1), ask them to adapt the solution for a real agency in your region, considering local infrastructure, customer demographics, and budget constraints.
- **After class:** Students complete a brief written reflection or contribute to a shared discussion board.

6.2.1 Facilitating Reflection

Reflection is embedded throughout the MOOC in the form of reflection prompts, but these are most powerful when the teacher creates a culture of reflective practice in the classroom. Strategies include:

- **Reflective journals.** Ask students to maintain a learning journal throughout the course. After each MOOC unit, they write 150–300 words addressing: *What did I learn? How does this connect to my vocational experience or aspirations? What questions do I still have?* Journals can be reviewed periodically by the teacher and used as a basis for one-to-one feedback.

- **Structured debrief sessions.** After a block of MOOC content, hold a 15–20 minute debrief using a simple framework such as:
 - **What?** – What were the key ideas in this unit?
 - **So what?** – Why do these ideas matter for tourism professionals?
 - **Now what?** – How could I apply this in my work or studies?
- **Peer feedback.** When students complete scenario-based or open-ended tasks from the MOOC, have them exchange responses with a peer and provide structured feedback before submitting. This develops both critical thinking and communication skills.

6.2.2 Connecting Content to Vocational Practice

One of the MOOC’s greatest strengths is its use of real-world case studies from the tourism and hospitality sector. Teachers should build on this by systematically linking MOOC content to students’ own vocational contexts:

- **Workplace connections.** If students are on placement or have part-time jobs in tourism and hospitality, ask them to identify one concept from the MOOC that they can observe, or that is absent, in their workplace. For example: Does the hotel where you work use any form of dynamic pricing? How is energy managed? Is guest feedback analysed systematically?
- **Guest speakers and site visits.** Invite local tourism professionals to comment on the MOOC’s themes. A hotel manager could discuss their approach to energy management (linking to Unit C3), or a destination marketing officer could explain how they use data analytics (linking to Unit B1). Even a brief 20-minute Q&A adds vocational authenticity.
- **Localisation of case studies.** The MOOC features international cases (Dubrovnik, Amsterdam, Venice, Hilton, the Great Barrier Reef). Challenge students to find or develop a comparable local case. This makes the content more tangible and develops research skills.
- **Skill mapping.** Help students see how AI literacy connects to their employability. Discuss which roles in tourism increasingly require data skills, and how understanding AI tools, even at a conceptual level, positions them as more effective professionals.

6.3 Examples of Good Practice

The following examples illustrate how IVET institutions in different contexts have successfully integrated MOOC-style content on AI and sustainability into their tourism programmes. While these are composite scenarios informed by common vocational education practices across Europe, they reflect realistic conditions, challenges, and solutions.

Table 3 – Example 1: Full Integration in a Tourism and Hospitality Programme

Aspect	Detail
Institution/Context	A regional VET college offering a two-year diploma in Tourism and Hospitality Management, with approximately 25 students per cohort. The college is located in a coastal area with strong seasonal tourism.
Approach used	Full MOOC integration across one semester (16 weeks). The MOOC replaced a previous textbook-based module on “Technology and Sustainability in Tourism.” Students completed one unit per week as homework and attended a 90-minute classroom session for discussion and applied activities.

What worked well	The flipped classroom model freed up contact time for deeper discussion and local application. Students particularly engaged with the scenario-based questions and the case studies on crowd management (Venice, Amsterdam), which they could relate to their own tourist-heavy region. The knowledge checks provided instant feedback that both students and the teacher found useful for tracking progress. The final project, an AI-enhanced sustainability plan for a local beach destination, produced work of notably higher quality than in previous years, because students could draw on a structured body of knowledge from the MOOC.
Challenges and solutions	Challenge: Some students struggled with the more technical content in Unit B1 (data-driven AI solutions, LSTMs, N-HITS). Solution: The teacher marked the advanced sections as optional and focused classroom time on the practical tools and case studies (e.g., Hilton's forecasting, Slovenia's trail management), which all students could access. Challenge: Uneven completion of pre-class MOOC work. Solution: The teacher introduced brief entry quizzes at the start of each session (drawn from the MOOC's knowledge checks) and made pre-class preparation count toward the participation grade.

Table 4 – Example 2 - Partial Integration in a Short Professional Development Course

Aspect	Detail
Institution/Context	A training centre offering a 40-hour continuing professional development (CPD) course for working tourism professionals (hotel staff, tour operators, destination managers) seeking to update their skills. Participants attend evening or weekend sessions.
Approach used	Partial integration: the trainer selected Units A2 (AI in Impact Assessment), C1 (AI for Community and Cultural Impact), and C3 (AI-Driven Resource Management) as the three most relevant units for this audience. Each unit was covered over two sessions: one for content review and discussion, one for a hands-on workshop.
What worked well	Working professionals brought rich experiential knowledge to discussions, creating a dynamic exchange between MOOC theory and real workplace practice. The case studies on energy management (Hilton LightStay, Sintra hotels) and waste reduction (Winnow, Leanpath) resonated strongly, as several participants recognised similar challenges in their own organisations. The trainer used the MOOC's reflection prompts as structured discussion starters, which participants appreciated as a way to articulate tacit knowledge. One participant subsequently initiated a pilot project to track food waste using a digital tool inspired by the MOOC content.
Challenges and solutions	<i>Challenge:</i> Participants had very different levels of digital literacy, from confident app users to those unfamiliar with online learning platforms. <i>Solution:</i> The trainer held a short introductory session on navigating the MOOC platform, provided printed summaries of key content for those who preferred paper-based learning, and paired digitally confident participants with less experienced ones during activities. <i>Challenge:</i> Limited time meant that only three of nine units could be covered in depth. <i>Solution:</i> The trainer created a "Further Learning Guide" with brief summaries of all remaining units and specific recommendations for each participant based on their professional role (e.g., "If you manage accommodation, explore Unit A3 on cost optimisation next").

Table 5 – Example 3 - Project-Based Integration in a Final-Year Capstone Module

Aspect	Detail
Institution/Context	An upper-secondary VET school with a specialisation in sustainable tourism, located in a mountainous region with growing eco-tourism. The capstone module requires students to complete a team-based applied project in their final semester.
Approach used	Project-based integration. Student teams (3–4 members) chose a local sustainability challenge and used the MOOC as their primary research resource. The teacher provided a “MOOC Navigation Map” showing which units and case studies were most relevant to common project themes (e.g., visitor flow management → Units A2 and C1; energy efficiency → Units A3 and C3; personalisation for small businesses → Unit B3). Teams also conducted field research, interviews, site observations, and data collection to ground their proposals in local reality.
What worked well	Student ownership and motivation were exceptionally high. Because teams chose their own topics, they engaged with MOOC content purposefully rather than passively. One team developed a proposal for AI-assisted trail monitoring inspired by Slovenia’s Planinstvo 4.0 case study (Unit B1) and presented it to the regional tourism board, which expressed interest in exploring the concept further. Another team created a mock-up of a personalised visitor app for a local heritage site, drawing on Unit B3’s content on recommendation engines and conversational AI. The ethical considerations sections of the MOOC proved especially valuable, as they gave students a vocabulary and framework for discussing data privacy and algorithmic bias-topics they might otherwise have overlooked.
Challenges and solutions	Challenge: Some teams initially struggled to narrow their project scope, wanting to address everything at once. Solution: The teacher introduced a structured project proposal template requiring teams to define one specific problem, one target user group, and no more than two AI tools or techniques. This constraint improved focus and feasibility. Challenge: Assessing individual contributions within team projects. Solution: Each student submitted an individual reflective essay (500 words) linking their personal learning from the MOOC to their contribution to the project, which was assessed separately from the group output. Challenge: Limited access to real operational data from local businesses. Solution: Teams were encouraged to use publicly available datasets, the MOOC’s own case study data, or to create plausible simulated data with transparent documentation of assumptions.

6.4 Summary

The MOOC “Using AI for Understanding Tourism Impact and Improving Sustainability” is a flexible and rich resource that can be adapted to many classroom contexts. The key to successful integration lies not in following a single formula but in making deliberate pedagogical choices:

- **Choose the integration model** (full, partial, or project-based) that fits your curriculum, your learners, and your available time.
- **Use classroom time for what only the classroom can offer:** discussion, debate, local application, peer learning, and reflective practice.
- **Connect every piece of MOOC content to the vocational world** your students are preparing to enter through workplace links, local cases, guest speakers, and skill mapping.

- **Address challenges proactively:** scaffold technical content, support varying digital literacy levels, and build in accountability structures for self-directed learning.

By thoughtfully embedding the MOOC into your teaching, you equip your students not only with knowledge of AI and sustainability in tourism but also with the critical thinking, adaptability, and digital literacy that will define their professional futures.

7. AI use cases for IVET classroom implementation

7.1 Use Case 1: AI-supported visitor flow and destination management

Background: Destinations with seasonal peaks or fragile environments may use sensors, booking data, mobile data, weather information, online feedback, and dashboards to understand visitor flows and anticipate congestion.

Workplace relevance: Destination managers, tourism offices, attractions, transport providers, guides, and local authorities can use AI-supported information to improve visitor distribution, safety, community wellbeing, and environmental protection.

- **Benefits:** better planning, reduced overcrowding, improved visitor experience, stronger evidence for destination decisions.
- **Risks:** privacy concerns, unequal access to recommendations, over-reliance on automated alerts, and possible exclusion of people without digital tools.
- **Trainer guidance:** Ask learners to map a local destination under pressure and identify what information would be needed to manage visitor flows responsibly.

Discussion questions

- Which visitor-flow problem in your region could benefit from better data?
- What data could be collected without violating privacy?
- Who should make the final decision when an AI system recommends redirecting visitors?

7.2 Use Case 2: AI-supported resource and waste management in hospitality

Background: Hotels, restaurants, resorts, and catering operations can use smart meters, sensors, forecasting tools, and food waste tracking systems to identify resource inefficiencies and reduce costs.

Workplace relevance: This use case is suitable for accommodation managers, kitchen teams, sustainability coordinators, facility staff, procurement teams, and SME owners.

- **Benefits:** reduced energy, water, and food waste; better purchasing; improved sustainability reporting; cost savings.
- **Risks:** inaccurate data, staff resistance, costs for SMEs, privacy concerns if monitoring is poorly explained, and dependence on vendors.
- **Trainer guidance:** Use a simple audit template. Learners identify one current practice, one AI opportunity, one barrier, and one human oversight measure.

Discussion questions

- Where does your workplace currently waste the most energy, water, food, or time?
- What evidence would convince managers to invest in a monitoring tool?
- How can staff be involved so the technology supports rather than blames them?

7.3 Use Case 3: AI-based personalisation and inclusive visitor experiences

Background: Recommendation systems, chatbots, translation tools, and generative AI can help design personalised itineraries, multilingual communication, accessible visitor information, and targeted offers.

Workplace relevance: This use case supports travel agencies, visitor information centres, cultural sites, hotels, tour operators, and customer service teams.

- **Benefits:** faster communication, personalised experiences, more accessible services, improved customer satisfaction.
- **Risks:** inaccurate information, over-personalisation, data privacy problems, bias against underrepresented visitor groups, and loss of human service quality.
- **Trainer guidance:** Ask learners to compare an AI-generated itinerary with a human-designed itinerary and evaluate accuracy, accessibility, sustainability, and cultural sensitivity.

Discussion questions

- What visitor needs are easy for AI to support, and which still require human judgement?
- How can AI support travellers with accessibility needs while protecting dignity and privacy?
- What should be checked before an AI-generated itinerary is shared with a customer?

8. Classroom activities and practical exercises

This section provides 6 ready-to-use activities covering all three modules. Each activity is designed to be hands-on, discussion-rich, and immediately applicable to VET classroom settings.

8.1 Activity 1 — "AI or Human?" Warm-Up Game

Objective: Introduce AI concepts in tourism without technical jargon.

Duration: 20 minutes | **Group size:** Full class or pairs

Give students a set of 10 short tourism scenarios on cards (e.g., *"A hotel automatically lowered the room temperature when the guest checked out"* or *"A travel agent suggested a quieter alternative route to avoid crowds"*). Students must decide: Was this done by AI or by a human?

After the reveal and discussion, ask: *"Does it matter who — or what — made the decision?"* This opens a natural conversation on AI's role in tourism operations and links directly to content from Module A (AI in Tourism, cost optimisation) and Module C (community impact).

Instructions for teachers: Prepare 10 laminated cards before class. Use the answers to introduce specific MOOC concepts. No digital tools required — this works even in low-tech settings.

Expected outcomes: Students can distinguish AI-assisted from manual processes and start to reflect on their implications.

Adaptation tip: For advanced students, add a third card category: *"AI with human oversight"* — this deepens critical thinking.

8.2 Activity 2 — Destination Under Pressure: Group Case Analysis

Objective: Apply AI impact assessment concepts to a real tourism destination.

Duration: 45–60 minutes | **Group size:** Groups of 3–4

Each group receives a one-page factsheet on a real destination facing overtourism (e.g., Dubrovnik, Venice, Santorini, or a locally relevant site). Groups must answer three questions: [Module-C_Unit-2_final_revised-version_by_AlterContacts.docx](#)

1. What are the main economic, social, and environmental pressures visible here?
2. Which AI tool (from the MOOC content) could help address one of these pressures?
3. What is one risk of applying that AI tool in this context?

Groups present their conclusions in 3 minutes. The class votes on the most realistic proposal.

Instructions for teachers: Factsheets can be news articles printed from online sources. The Dubrovnik case (sentiment analysis + crowd management) from Unit 2 is especially effective here, as it combines all three impact dimensions.

Expected outcomes: Students apply MOOC concepts to real-world scenarios, practice critical evaluation, and develop presentation skills.

8.3 Activity 3 — The Cost Optimizer Role-Play

Objective: Practise AI-supported decision-making in tourism business management.

Duration: 30–40 minutes | **Group size:** Groups of 4–5

Students role-play as the management team of a mid-sized coastal hotel facing high energy costs and unpredictable seasonal bookings. Each group member receives a role card: *Hotel Manager, Revenue Analyst, Sustainability Officer, IT Coordinator, Front Desk Supervisor*. The team must agree on which 3 AI-based solutions to prioritise from a list of options (dynamic pricing, smart energy system, chatbot, demand forecasting, food waste AI).

They must justify each choice using a cost–benefit argument and flag one ethical concern.

Instructions for teachers: Provide a simple one-page budget sheet showing approximate costs and savings for each AI option (use figures from the MOOC, e.g., Hilton's LightStay achieved \$1 billion in verified savings). The ethical concern requirement prevents the discussion from becoming purely technical.

Expected outcomes: Students practise collaborative decision-making, connect theory to operational practice, and develop awareness of AI ethics in business.

8.4 Activity 4 — AI Sustainability Audit (Field or Desk-Based)

Objective: Assess a real or hypothetical tourism business through an AI sustainability lens.

Duration: 60–90 minutes (can be set as homework + classroom debrief) | **Group size:** Pairs or individual

Students select a local tourism business (hotel, restaurant, attraction) — or use a provided case — and complete a simple 3-part AI Sustainability Audit Template:

Table 6 – Example 3 - AI Sustainability Audit Template

Area	Current Practice	AI Opportunity	Barrier to Adoption
Energy Management			
Water Use			
Waste Reduction			

Students research online or draw on MOOC content to populate each column, then present one key recommendation.

Instructions for teachers: Provide the audit template as a printed handout. Encourage students to look up real tools mentioned in the MOOC (Winnow for food waste, Hilton's LightStay, energyControl in Bonn) as concrete reference points.

Expected outcomes: Students connect sustainable tourism strategies to practical AI applications and develop analytical writing skills.

8.5 Activity 5 — Debate: "AI Is Good for Sustainable Tourism"

Objective: Develop critical thinking and argumentation on AI ethics and sustainability.

Duration: 30–40 minutes | **Group size:** Two teams of 3–5 + audience

One team argues in favour of the statement; the other argues against. Each team has 10 minutes to prepare arguments (drawing from MOOC content) and 5 minutes to present. The class — as "community stakeholders" — votes after hearing both sides.

Strong arguments arise naturally from the course material: AI supports real-time environmental monitoring and social impact assessment, but AI itself consumes significant energy and water, risks excluding marginalised voices through data bias, and may erode local trust if implemented without transparency.

Instructions for teachers: Assign roles before class. Provide both teams with a two-column cheat sheet: "Arguments FOR" and "Arguments AGAINST" drawn from the MOOC. Ensure the debrief focuses on *when and how* AI helps, not just whether it does.

Expected outcomes: Students develop argumentation skills, understand trade-offs in AI deployment, and connect content to real VET sector concerns.

8.6 Activity 6 — Design a Responsible AI Tool (Creative Mini-Project)

Objective: Apply course knowledge creatively to produce a simple AI concept for sustainable tourism.

Duration: 45–60 minutes (or as a take-home project) | **Group size:** Groups of 2–3

Students design a simple AI tool concept for a tourism destination. They must describe:

- **What problem it solves** (drawn from MOOC modules)
- **What data it uses** (e.g., booking data, sensor data, social media)
- **Who benefits** (tourists, residents, businesses, the environment)
- **One ethical safeguard** built into the tool

Groups present using a single-slide poster or hand-drawn infographic.

Instructions for teachers: Reference Module C's reflection exercises as inspiration prompts. This activity works very well as a culminating task at the end of the full MOOC. Encourage creativity — the tool does not need to be technically feasible, but it must be grounded in real AI principles covered in the course.

Expected outcomes: Students demonstrate synthesis-level thinking (Bloom's *Create*), integrate ethical reflection, and build communication skills.

9. Assessment and evaluation validation

Assessment in the MOOC “Using AI for Understanding Tourism Impact and Improving Sustainability” should focus on students’ ability to understand, interpret, apply, and critically evaluate AI-supported approaches in tourism, rather than on advanced technical or programming skills. The aim is to check whether IVET learners can connect AI concepts with real tourism contexts, such as visitor management, tourism impact assessment, data analysis, personalisation, resource efficiency, cultural sustainability, and environmental protection.

A balanced assessment approach is recommended, combining short quizzes, reflection tasks, practical assignments, group work, presentations, and project-based assessment. This allows teachers to evaluate both knowledge acquisition and vocational application.

9.1 Suggested assessment methods

9.1.1 Short quizzes and knowledge checks

Short quizzes can be used at the end of each unit to check students’ understanding of key concepts. These may include multiple-choice questions, true/false questions, matching activities, drag-and-drop tasks, and short-answer questions.

Examples of quiz topics are available in all modules and units of the MOOC and include:

- AI applications in tourism, such as chatbots, recommendation systems, sentiment analysis, forecasting, and smart resource management.
- Differences between quantitative and qualitative tourism data.
- AI use in economic, social, and environmental tourism impact assessment.
- Ethical issues such as privacy, bias, transparency, and human oversight.
- AI-supported sustainability strategies, including carrying capacity, visitor flow management, energy efficiency, water conservation, food waste reduction, and carbon footprint reduction.

Quizzes should be used mainly as formative assessment. They help teachers identify whether learners need further explanation before moving to more applied tasks.

9.1.2 Reflection tasks

Reflection tasks are useful for evaluating whether students can connect MOOC content with real tourism experiences. Students may be asked to reflect on a tourism destination they know and identify how AI could help address a specific economic, social, cultural, or environmental challenge. Examples of reflection tasks are available in the MOOC.

Example reflection task:

Choose a tourism destination you know. Identify one sustainability challenge, such as overcrowding, pressure on water resources, loss of cultural authenticity, waste generation, or uneven economic benefits. Explain how AI could be used to monitor, assess, or reduce this problem. Include one possible risk or ethical concern.

Assessment criteria:

- Clear identification of a real tourism challenge.
- Relevant explanation of an AI-supported solution.
- Awareness of sustainability impact.

- Consideration of ethical or social risks.
- Clear and structured communication.

9.1.3 Practical data analysis assignment

Students can complete a simple tourism data analysis task using tools such as Excel, Google Sheets, Google Forms, Looker Studio, Tableau Public, Orange, or another teacher-approved tool. The task should not require advanced statistical knowledge.

Example assignment:

Students receive or collect a small dataset, such as monthly visitor numbers, hotel occupancy rates, guest satisfaction scores, online reviews, or survey responses. They clean or organise the data, create one simple visualisation, identify one trend or issue, and propose one action for a tourism business or destination.

Assessment criteria:

- Correct distinction between data types
- Basic data organisation and processing
- Appropriate chart, table, or visualisation
- Relevant interpretation of findings
- Practical recommendation linked to tourism decision-making
- Awareness of data quality and privacy issues

9.1.4 Scenario-based assessment

Scenario-based tasks allow teachers to assess vocational decision-making. Students are presented with a realistic tourism situation and asked to recommend an AI-supported response. There are several proposed scenario-based assessments in the MOOC to be elaborated by IVET students.

Example scenario:

A coastal destination experiences overcrowding in summer, water shortages, and negative comments from residents. The tourism office has access to visitor flow data, online reviews, weather data, and accommodation occupancy data. Recommend how AI could support better planning and sustainability.

Students should explain:

- What data would be useful
- Which AI approach or tool could be applied
- What decision could be improved
- What risks must be managed
- What role humans should still play

9.1.5 Group project

A group project is recommended as a summative assessment because it allows students to apply several MOOC themes together.

Example group project:

Design an AI-supported sustainability plan for a hotel, destination, attraction, or tourism SME. The plan should address at least two of the following: visitor flow, customer experience, economic impact, social impact, cultural heritage, energy use, water use, waste reduction, accessibility, or personalised tourism services.

Suggested project outputs:

- Short written report.
- Presentation or poster.
- Simple dashboard, mock-up, infographic, AI prompt, chatbot script, itinerary, or implementation plan.
- Reflection on ethical risks and limitations.
- Assessment criteria:
- Relevance to a real tourism context.
- Clear explanation of the selected AI use case.
- Connection to sustainability goals.
- Practicality for IVET-level learners and tourism SMEs.
- Consideration of data, ethics, accessibility, and human oversight.
- Quality of teamwork and presentation.

9.1.6 Presentation or oral assessment

Students may present their findings individually or in groups. This helps assess communication skills, professional vocabulary, and the ability to justify decisions.

Example presentation task:

Present one AI use case that could improve tourism sustainability. Explain the problem, the AI-supported solution, expected benefits, risks, and how success could be measured.

Assessment criteria:

- Clear structure.
- Correct use of key terms.
- Strong link between AI and tourism practice.
- Realistic benefits and limitations.
- Ability to answer questions.

9.2 Example Assessment Plan

Table 7 Assessment plan

Assessment activity	Purpose	Suggested weighting
Unit quizzes and knowledge checks	Check understanding of key concepts	20%



Reflection tasks	Connect content to real tourism contexts	15%
Practical data or AI-tool assignment	Apply basic digital and data skills	25%
Group project	Develop an AI-supported tourism sustainability solution	30%
Presentation or oral discussion	Communicate and justify decisions	10%
Unit quizzes and knowledge checks	Check understanding of key concepts	20%

Teachers may adapt the weighting according to institutional rules and the number of MOOC units used.

9.3 Example rubric for project-based assessment

Table 8 Rubric for project-based assessment

Criteria	Excellent	Good	Satisfactory	Needs improvement
Understanding of AI concepts	Explains AI tools clearly and accurately in a tourism context.	Explains most AI concepts correctly.	Shows basic understanding but with some gaps.	Shows limited or unclear understanding.
Application to tourism practice	Solution is realistic, vocationally relevant, and well connected to tourism work.	Solution is relevant and mostly realistic.	Solution has some connection to tourism practice.	Solution is too general or not clearly linked to tourism.
Sustainability focus	Strongly addresses environmental, social, cultural, or economic sustainability.	Addresses sustainability clearly.	Mentions sustainability but lacks detail.	Sustainability link is weak or missing.
Data awareness	Identifies relevant data sources and considers data quality.	Identifies some relevant data sources.	Mentions data but with limited explanation.	Data use is unclear or unrealistic.
Ethics and responsibility	Addresses privacy, bias, transparency, inclusion, and human oversight.	Addresses some ethical issues.	Mentions ethics briefly.	Ethical issues are missing.

Communication and presentation	Clear, professional, well structured, and visually effective.	Mostly clear and organised.	Understandable but needs stronger structure.	Difficult to follow.
Teamwork or individual responsibility	Roles and contributions are clear and balanced.	Most roles are clear.	Some uneven contribution.	Collaboration is unclear or weak.

9.4 Validation of assessment

To validate assessment, teachers should ensure that each task is aligned with the learning objectives of the MOOC. Assessment should test whether learners can explain, apply, analyse, and evaluate AI-supported tourism solutions, not whether they can build complex AI systems.

Recommended validation steps:

- Check that each assessment task is linked to at least one learning objective.
- Use both knowledge-based and practical assessment methods.
- Provide clear instructions and assessment criteria before students begin.
- Use rubrics for projects, presentations, and group work.
- Include self-assessment or peer feedback after group activities.
- Review student performance after each unit and adapt classroom support where needed.
- Ensure that assessment tasks are accessible to learners with different digital skill levels.
- Check that AI tool use follows institutional policy and privacy rules.
- Encourage students to explain and justify AI outputs rather than accepting them automatically.
- Include ethical reflection in all major assignments.

10. Integrating the MOOC into IVET curricula

The MOOC Using AI for Understanding Tourism Impact and Improving Sustainability can be integrated into IVET curricula as a complete learning unit, as supplementary material, or as a project-based learning resource. It is especially suitable for tourism and hospitality programmes, but selected units can also support business, IT, environmental studies, and health or wellness tourism training.

The MOOC is vocationally relevant because it introduces AI through practical tourism examples: tourism trends, data analysis, impact assessment, forecasting, personalisation, smart destination management, cultural sustainability, environmental monitoring, and resource management. It supports learners who may not have advanced technical knowledge but need to understand how AI is changing tourism work and decision-making.

10.1 Integration into tourism and hospitality training

This MOOC integrates seamlessly into core tourism and hospitality IVET modules, including sustainable tourism, destination management, marketing, and hospitality operations. Educators can utilize specific units to enrich curricula: tourism trends introduce technological, socio-demographic, and sustainability shifts, while data analysis units build foundational data literacy using real-world datasets and visitor feedback. Additionally, the AI impact assessment unit explores multifaceted economic, social, and environmental consequences. Students can analyze AI-driven customer service, personalization, and chatbots, alongside sustainable tourism strategies that leverage AI for community engagement, cultural preservation, carrying capacity management, energy efficiency, and waste reduction.

10.2 Integration into business courses

In business-related IVET courses, the MOOC can be used to show how AI supports decision-making in customer service, marketing, demand forecasting, resource planning, and sustainability reporting.

Relevant topics include:

- Data-driven decision-making.
- Customer segmentation and personalisation.
- Digital marketing in tourism.
- Business planning for tourism SMEs.
- Cost reduction through energy, water, and waste management.
- Ethical use of customer data.
- Sustainable business models.

Example classroom link:

Students can analyse a tourism SME, such as a small hotel, travel agency, restaurant, or tour operator, and propose one AI-supported improvement to increase customer satisfaction, reduce costs, or support sustainability.

10.3 Integration into IT and digital skills courses

In IT or digital competence courses, the MOOC can be used to introduce AI applications without requiring advanced programming. Learners can explore how AI tools process data, support predictions, generate recommendations, analyse text, and visualise information.

Relevant topics include:

- Data collection and processing.
- Quantitative and qualitative data.
- Time series forecasting.
- Sentiment analysis.
- AI tool evaluation.
- Chatbots and recommendation systems.
- Data privacy, bias, and cybersecurity.
- Dashboards and visual communication.

Example classroom link:

Students can compare two AI tools used in tourism, such as a chatbot, itinerary generator, sentiment analysis tool, or forecasting platform. They can evaluate usefulness, accuracy, accessibility, risks, and possible application in a tourism workplace.

10.4 Integration into healthcare, wellness, and care-related training

Although the MOOC is tourism-focused, selected units can support healthcare, wellness tourism, spa management, accessible tourism, and care-related IVET programmes. This is especially relevant where learners study services for elderly travellers, tourists with disabilities, medical tourists, or wellness visitors.

Relevant topics include:

- Accessible and personalised tourism services.
- Ethical handling of sensitive personal data.
- AI-supported communication and translation.
- Visitor safety and wellbeing.
- Sustainable management of wellness facilities.
- Inclusive service design.

Example classroom link:

Students can design an AI-supported accessible travel or wellness itinerary for a visitor with specific needs, while also considering privacy, dignity, inclusion, and sustainability.

10.5 Steps for institutional integration

- Review institutional rules and policies. Check institutional policy on external learning platforms, AI tools, student data, online accounts, privacy, and assessment.
- Map MOOC content to curriculum outcomes. Identify where the MOOC aligns with existing learning outcomes in tourism, hospitality, business, IT, sustainability, digital skills, or customer service modules.
- Select the appropriate implementation model. Decide whether the MOOC will be used as full integration, supplementary material, or project-based learning.

- Define teacher and student workload. Estimate how much time students will spend on independent MOOC study, classroom discussion, practical activities, and assessment.
- Plan classroom support. Use classroom time to explain difficult concepts, discuss case studies, support low digital-skill learners, and connect AI examples to real workplace situations.
- Clarify assessment and grading. Explain to students how MOOC participation, quizzes, assignments, practical work, and projects contribute to their grade.
- Prepare tools and access. Ensure that students can access required digital tools. Provide alternatives for learners who cannot create accounts or use specific online platforms.
- Include ethical and responsible AI guidance. Before students use AI tools, discuss consent, privacy, bias, transparency, accessibility, and the need for human judgement.
- Coordinate with employers or local tourism stakeholders where possible. Teachers may invite local hotels, tourism offices, cultural sites, or SMEs to provide real examples or challenges for student projects.
- Evaluate and improve integration. After delivery, collect feedback from students and teachers. Review assessment results and adapt the selected units, activities, or tools for future use.

10.6 Curriculum alignment

Table 9 Curriculum alignment

IVET curriculum area	Relevant MOOC content	Example classroom use	Assessment option
Tourism and hospitality	Tourism trends, impact assessment, personalisation, sustainability strategies	Analyse how AI changes tourism services and destination management	Case study, quiz, project
Sustainable tourism	Carrying capacity, environmental monitoring, resource management, carbon footprint	Design an AI-supported sustainability plan for a destination or hotel	Group project, presentation
Business and entrepreneurship	Forecasting, customer personalisation, resource efficiency, SME adoption	Propose an AI-supported improvement for a tourism SME	Business proposal
IT and digital skills	Data analysis, forecasting, sentiment analysis, AI tools	Use a simple dataset or AI tool to produce insights	Practical assignment
Cultural tourism	AI for heritage preservation, translation, community sentiment, social value	Design an inclusive digital heritage experience	Presentation or infographic

Customer service	Chatbots, recommendation systems, adaptive itineraries, multilingual support	Create a personalised AI-assisted visitor itinerary	Role play or portfolio
Healthcare/wellness tourism	Accessibility, personalisation, privacy, wellbeing, inclusive service design	Design a responsible AI-supported itinerary for a visitor with specific needs	Scenario-based task

11. Supporting students with different backgrounds and needs

VET classrooms bring together learners with diverse digital skills, learning speeds, language backgrounds, and levels of confidence with technology. The strategies below are grounded in Erasmus+ inclusive education principles and the Universal Design for Learning (UDL) framework.

11.1 Students with Low Digital Skills or No Prior AI Knowledge

Many VET students may feel intimidated by the word "AI." The key is to anchor every new concept in something they already know from their vocational daily life.

Practical approach: Before introducing any AI concept, ask: *"Have you ever received a hotel recommendation online? Or seen prices change when you were about to book a flight?"* These are AI at work — and students already have experience with them.

- Always start with the analogy before the definition (e.g., *"AI learns from data the way a receptionist learns from years of experience at a front desk"*)
- Provide a **one-page visual glossary** of key AI terms (machine learning, NLP, predictive analytics, sentiment analysis) with tourism-specific examples
- Allow students to use the MOOC content as a reference during activities, this is not an exam setting

11.2 Students with Fear or Anxiety About AI

Some learners — particularly those with concerns about job displacement — may resist or disengage from AI content. This is a legitimate and important concern in vocational education.

Address it directly and early. Use the framing the MOOC itself provides:

"AI is not a replacement for human staff — it is a tool that assists and optimises human work."

- Dedicate 10 minutes in the first session to a structured discussion: *"What worries you about AI in your sector? What excites you?"* Collect responses on a shared board (physical or digital)
- Return to these concerns at the end of the course to see which have been addressed by the content
- Use the Dubrovnik and CopenPay case studies to show that AI works *alongside* communities and tourism professionals, not instead of them

11.3 Students with Different Learning Speeds

Table 10 Students with Different Learning Speeds

Strategy	For Learners Needing More Support	For Advanced Learners	Strategy
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Activities	Provide pre-filled activity templates with sentence starters	Add an optional "ethical challenge" extension to each activity	Activities
Reading	Offer highlighted key-passage summaries of MOOC units	Assign original case studies for independent research	Reading
Assessment	Allow oral presentation as an alternative to written tasks	Invite peer-teaching: students explain a concept to the group	Assessment
Group work	Mix levels intentionally — peer learning is highly effective in VET	Give advanced students a facilitation role within their group	Group work

11.4 Students with Disabilities

Follow the Erasmus+ accessibility guidance and consider the following practical adjustments:

- **Visual impairments:** Ensure all printed materials use minimum 14pt font; describe diagrams and charts verbally during class
- **Hearing impairments:** Provide written activity instructions in addition to verbal ones; use captioned video content where available
- **Reading/writing difficulties (e.g., dyslexia):** Offer audio or video summaries of MOOC units; allow voice-recorded responses instead of written work
- **Attention or concentration difficulties:** Break the 45–60 minute activities into two shorter segments with a 5-minute pause; use physical card-sorting tasks (like Activity 1) rather than extended screen-based work

11.5 Students from Different Cultural or National Backgrounds

The MOOC's international case studies (Dubrovnik, Amsterdam, Venice, Goa, Sintra, Scotland) are a natural asset here. Invite students to draw on their own national or regional tourism contexts.+3

Example prompt: *"We saw how AI helps manage overtourism in Venice. Can you think of a similar challenge in a destination you know from home? How might AI help there?"*

This validates diverse backgrounds as a classroom strength rather than a difficulty, and is fully aligned with Erasmus+ intercultural learning values.

12. Additional resources for teachers

This section provides a curated set of practical resources to support your teaching preparation and ongoing professional development. All resources are freely accessible online.

12.1 Key AI Concepts — Accessible Reading & Watching

Table 11 Key AI Concepts

Resource	Type	Relevance
Elements of AI (elementsofai.com)	Free online course	Excellent non-technical introduction to AI for teachers with no prior background
AI for Everyone – Andrew Ng (https://www.coursera.org/learn/ai-for-everyone)	Video course	Explains AI business applications in plain language
Google's "How Search Works" (google.com/search/howsearchworks)	Interactive site	Approachable entry point to machine learning concepts
CNBC AI in Travel video (youtube.com/watch?v=JJjCghYTWtQ)	Short video (MOOC)	Real-world AI use cases in tourism cost management
Dubrovnik "Respect the City" project (https://justdubrovnik.com/respect-the-city-for-a-sustainable-future-of-dubrovnik/)	Case study (Unit 2)	Social impact + AI governance example for classroom discussion

12.2 Teacher Reflection & Self-Study Prompts

Before delivering this content, spend 30–45 minutes with the following questions:

1. Which AI concept in this MOOC is most relevant to the vocational sector your students will work in?
2. Which classroom activity would best suit your group's current digital confidence level?
3. Are there local tourism examples (from your region or country) that could replace or complement the MOOC's international case studies?
4. How comfortable are you discussing AI ethics and job displacement with students? Would you benefit from reading the EU AI Act summary first?

12.3 Ready-to-Use Classroom Templates

At the end of this document you will find the following templates:

- **AI Sustainability Audit Template** (for Activity 4)
- **Debate Preparation Sheet** (for Activity 5)

- **AI Tool Design Brief (for Activity 6)**

These templates can be printed as handouts. They require no technology to use and are suitable for mixed-ability groups across all three modules of the course.

13. Self-study guidance for CVET trainers

This section is designed to help you use this document independently, without institutional support or formal training. Whether you are preparing to deliver the MOOC for the first time or returning to it for a new group, the guidance below will help you prepare efficiently and confidently.

13.1 Recommended Reading Order

- For an efficient self-study path, follow this sequence:
- Start with the Executive Summary (Section 1) — get the big picture in under 10 minutes.
- Read the Module-by-Module Summary (Section 4) — understand the three-module structure and key learning outcomes.
- Skim the Curriculum Integration Map (Section 5) — see how the MOOC aligns with VET standards and competence frameworks.
- Review the Classroom Activities (Section 8) — select 1–2 activities you feel comfortable facilitating.
- Study the Teacher Reflection Prompts (Section 12) — prepare your own understanding before stepping into the classroom.
- Read the Glossary and FAQs (Sections 10–11) — fill any remaining knowledge gaps.
- Finally, revisit the templates at the end of this document — print or adapt them for your learners.

Table 12 Key AI Concepts

First read-through of this guide	45–60 minutes	One uninterrupted sitting
Completing the MOOC yourself	4–6 hours	Spread across 2–3 sessions
Selecting and adapting classroom activities	60–90 minutes	Per group you will teach
Practising with the AI tools referenced	60–90 minutes	Hands-on exploration
Preparing handouts and templates	30–45 minutes	Printing, customising examples
Total estimated preparation (first-time trainer)	8–11 hours	Sustainable over 1–2 weeks
Refresher preparation (returning trainer)	2–3 hours	Review + new local examples

13.2 Reflection Questions for Trainers

Take 10–15 minutes to consider the following before your first session:

1. What is my own current understanding of AI in tourism — and where do I need to build confidence?

2. Which of the three MOOC modules (AI Fundamentals, AI Tools & Applications, Ethics & Sustainability) will resonate most with my learners, and why?
3. What misconceptions about AI might my learners bring into the classroom? How can I address them constructively?
4. Am I prepared to handle sensitive discussions around job displacement and automation? What support or resources do I need?
5. How will I measure whether this MOOC has made a difference for my learners — beyond a completion certificate?
6. What local partnerships (tourism businesses, DMOs, tech providers) could I involve to make the content more concrete?

14. Appendices - Ready-to-Use Workplace Templates

14.1 Appendix A

Table 13 Bloom's Taxonomy

Level	Key question answered	Example action verbs	Typical Assessment
1 — Remember	Can students recall information?	define, identify, list, name, recall, recognise	Quiz, matching exercise, flashcards
2 — Understand	Can students explain ideas?	describe, explain, summarise, classify, paraphrase	Short answer, concept map, oral check
3 — Apply	Can students use knowledge?	use, demonstrate, implement, solve, illustrate	Worksheet, scenario task, chatbot audit
4 — Analyse	Can students break down concepts?	compare, differentiate, examine, organise, deconstruct	Case study analysis, comparison table
5 — Evaluate	Can students judge or critique?	assess, justify, critique, defend, recommend	Debate, presentation, benefit-risk matrix
6 — Create	Can students produce something new?	design, develop, construct, compose, produce	Project proposal, portfolio, strategy document

14.2 Appendix B

Table 14 Example of a Constructive Alignment Table

Learning Objective	Classroom Activity	Assessment Method	Learning Objective
Explain key AI concepts in the sector	Discussion / Q&A	Quiz / oral check	Explain key AI concepts in the sector
Identify relevant AI tools	Use-case analysis	Assignment / report	Identify relevant AI tools
Analyse an AI-supported scenario	Group exercise	Group project / rubric	Analyse an AI-supported scenario
Evaluate ethical implications	Role-play / debate	Presentation / peer review	Evaluate ethical implications

Design a simple AI-assisted workflow	Project work	Portfolio / demonstration	Design a simple AI-assisted workflow
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14.3 Appendix C – Ready-to-Use Classroom Templates

Using AI for Understanding Tourism Impact and Improving Sustainability

Pedagogical support materials for IVET teachers. CC BY-NC 4.0

How to use these templates

All four templates can be printed as single A4 handouts. They are designed for mixed-ability VET groups and require no digital tools to complete. Each template is referenced in Section 8 (Classroom Activities and Practical Exercises) of the Teacher Training Materials.

14.4 Template 1 — AI Sustainability Audit

Activity 4 | Pairs or individual | 60–90 minutes

Student name(s): _____

Tourism business or destination chosen: _____

Source of information used (*tick one*):

☐ Personal knowledge / visit ☐ Online research ☐ MOOC case study provided by teacher

Complete the table below. For each resource area, describe what the business currently does, identify an AI-based opportunity from the MOOC, and note one realistic barrier to adopting it.

Resource Area	Current Practice	AI Opportunity (from MOOC)	Barrier to Adoption
Energy Management			
Water Use			
Waste Reduction			
Bonus: Marketing or Guest Services (optional)			

Your key recommendation (*1–3 sentences: which AI tool would make the biggest difference and why?*)

Reflection question: What is one risk of introducing AI in this business? How could it be managed responsibly?

14.5 Template 2 — Debate Preparation Sheet

Activity 5 | Two teams of 3–5 students | 30–40 minutes

Motion: *"AI is good for sustainable tourism."*

Your team position (circle one): **FOR** / **AGAINST**

Team members: _____

Step 1 — Build your arguments (10 minutes)

Use the MOOC content to find evidence for your position. Write at least **3 arguments** in the box below. Try to include a real example or case study for each one.

#	Your Argument	Supporting Example from the MOOC
1		
2		
3		
4 (optional)		

Step 2 — Anticipate the other side (5 minutes)

What is the strongest argument the opposing team is likely to make? How will you respond?

Their strongest argument: _____

Your response: _____

Step 3 — Presentation notes (5 minutes)

Who speaks first? _____ Who gives the closing statement? _____

Key message in one sentence (your "headline" argument):

Hint — useful topics from the MOOC to draw on:

- AI for energy savings (Hilton LightStay, energyControl Bonn)
- AI for social impact and community (Dubrovnik "Respect the City", Amsterdam)
- AI for environmental monitoring (carbon footprint, carrying capacity)
- Risks: AI energy/water consumption, data bias, job displacement, privacy

14.6 Template 3 — AI Tool Design Brief

Activity 6 | Groups of 2–3 | 45–60 minutes

Team members: _____

Name of your AI tool (be creative!): _____

Part A — The Problem

Which tourism destination or business does your tool target?

What specific problem does it solve? (Choose one and describe it in 2–3 sentences)

- ☐ Overtourism / crowd management
- ☐ Energy or water waste
- ☐ Food waste / supply chain
- ☐ Social impact on local communities
- ☐ Cultural heritage preservation
- ☐ Carbon footprint / transport emissions
- ☐ Other: _____

Description: _____

Part B — How It Works

What data does your tool use? (tick all that apply)

- ☐ Booking / occupancy data ☐ Social media posts ☐ Sensor / IoT data
- ☐ Satellite / drone imagery ☐ Weather forecasts ☐ Guest feedback / reviews
- ☐ Energy / utility meters ☐ Other: _____

How does the AI process this data? (e.g., predicts, monitors, recommends, detects)

Part C — Who Benefits?

Stakeholder	How they benefit
Tourists	
Local residents / community	
Tourism businesses	

The environment	
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Part D — Ethical Safeguard

Every AI tool needs at least one built-in protection. Describe **one ethical safeguard** in your tool:

(e.g., data anonymisation, human oversight required before action, opt-in consent, bias testing)

Presentation format (*circle one*):

Single slide / Hand-drawn poster / Short verbal pitch (2 min)