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HORIZON 2020 RESEARCH & INNOVATION PROGRAMME

D4.1

ALLIANCE e-platform with digitalized material

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LIST OF ABBREVIATIONS

Abbreviation	Description
D	Deliverable
Fraunhofer IFF	Fraunhofer Institute for Factory Operation and Automation IFF
GNU	General Public License
LMS	Learning Management System
LTI	Learning Tools Interoperability
SCORM	Sharable Content Object Reference Model
STIP	Sustainable Transport Interchanges Program
STSE	Short-Term Staff Exchanges
TTI	Transport and Telecommunication Institute
UTH	University of Thessaly
WP	Work Package

ABSTRACT

The present deliverable is a report about the development of the e-platform of the ALLIANCE project. The e-platform is a supporting tool used by ALLIANCE consortium to spread the main results of the ALLIANCE activities. The main objective of the e-platform is to provide public access to the STIP course material developed in the framework of WP2 and digitized in frame of WP4. The e-platform technically bases on the learning management system (LMS) Moodle. The digitized content of the courses is technically developed by the help of Moodle standard tools. Thus, iSpring software was used for producing sharable content object reference model (SCORM) packages, which allows integrating the presentation and narration in one user-friendly environment. The current document gives a brief overview about the e-platform developed and its functionality with regard to the ALLIANCE e-learning activities as a major contribution towards sustainability of the project.

1 Introduction

1.1 Contents of the deliverable

The present deliverable is a report about the development of the e-platform of the ALLIANCE project. The e-platform is a supporting tool used by ALLIANCE consortium to spread the main results of the ALLIANCE activities. The main objective of the e-platform is to provide public access to the STIP course material developed in the framework of WP2 and digitized in frame of WP4. The e-platform technically bases on the learning management system (LMS) Moodle. The digitized content of the courses is technically developed by the help of Moodle standard tools. Thus, iSpring software was used for producing sharable content object reference model (SCORM) packages, which allows integrating the presentation and narration in one user-friendly environment. The developed courses can be considered as an initial core element, which could be further developed and adopted for anyone´s own purposes, by exporting Moodle courses. So, courses will be provided under GNU General Public License. The current document gives a brief overview of the developed e-platform and its functionality, showing examples of the developed digital courses.

The outcome of deliverable D4.1 is the ALLIANCE e-platform, which is publicly available in the domain: http://e-alliance.tsi.lv/. The platform is accessed by a direct link or as a section in official webpage of the ALLIANCE project (http://alliance-project.eu/). The e-platform will be supported by TTI at least 5 years after the end of the project.

1.2 Project overview

ALLIANCE aims at developing advanced research and higher education institution in the field of smart interconnecting sustainable transport networks in Latvia, by linking the Transport and Telecommunication Institute – TTI with two internationally recognized research entities – University of Thessaly – UTH, Greece and Fraunhofer Institute for Factory Operation and Automation – Fraunhofer, Germany. The close collaboration of TTI with UTH and Fraunhofer will enable the achievement of the goals through the following activities:

- Organization of young researchers' seminars.
- Organization of workshops.
- Organization of summer schools for trainers and young researchers.
- Development of an educational programme for graduate and post-graduate students.
- Development of a training programme for trainers and practitioners.
- Provision of grants for participation as authors of peer-reviewed publications in conferences.
- Facilitation of Short-Term Staff Exchanges (STSE's) with the aim of international collaboration, mainly publications.
- Establishment of a guidance strategy for preparing scientific publications.
- Creation of an educational forum as an online tool for distance learning and knowledge sharing.

The overall methodology of the project is built around the analysis of the needs of Latvia and the surrounding region of the Baltic sea (Lithuania, Estonia, Poland) on knowledge gain about intermodal transportation networks and the development of the tools to attain this knowledge,

providing at the same time excellence and innovation capacity. The analysis to be conducted during the first stages of the project, steps on the overarching relations among policymakers, industry and education/research.

Structured around three main pillars, organizational/governance, operational/services and service quality/customer satisfaction, ALLIANCE will deliver a coherent educational/training program, addressed to enhancing the knowledge of current and future researchers and professionals offering their services in Latvia and the wider region.

The expected impacts on the overall research and innovation potential of TTI and Latvian research community will be of high importance and TTI will benefit from ALLIANCE by:

- Improving its knowledge in methodologies for preparing, writing and publishing scientific papers.
- Strengthening its research capacity.
- Establishing international research teams in specific areas of interest.
- Generating new innovative ideas for future research work through the project's activities.
- Setting up the fundamentals for the young generation of researchers.
- Being integrated into a number of existing international transportation research networks.
- Being incorporated in the European research system of transport and logistics.

In addition, the cooperation of TTI with UTH and Fraunhofer will induce benefits into several domains of everyday life at regional, national and international scope. New bases will be established concerning knowledge transfer procedures, education and interdepartmental collaboration amongst research institutes. The innovative organizational framework, which will be structured for this purpose during the project, is expected to constitute a best practice application with tangible and well-estimated progress results, which will be disseminated and communicated through social events to the research community and to the respective business sector as well.

Lastly, an important benefit will be the configuration of an integrated framework pertaining to the knowledge transfer techniques and the generic upgrading of the educational system with use of networking, staff exchange, webinars and other knowledge transfer methods and techniques based on a well-structured and well-tried schedule.

2 E-platform general description

Current section of the deliverable provides the general overview of the e-platform, which was developed, launched and updated with STIP digitalised materials in the frame of the ALLIANCE project.

2.1 Moodle environment

The developed e-platform is organised as a website, based on the Moodle[1] environment (https://moodle.org). Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments. With over 10 years of development guided by social constructionist pedagogy, Moodle delivers a powerful set of learner-centric tools and collaborative learning environments that empower both teaching and learning. Moodle is provided freely as Open Source software, under the GNU General Public License. Anyone can adapt, extend or modify Moodle for both commercial and non-commercial projects without any licensing fees and benefit from the cost-efficiencies, flexibility and other advantages of using Moodle. Moodle provides the most flexible tool-set to support both blended learning and 100% online courses. Moodle has a complete range of built-in features, including external collaborative tools such as forums, wikis, chats and blogs. Because it is open-source, Moodle can be customised in any way and tailored to individual needs. Its modular setup and interoperable design allow developers to create plugins and integrate external applications to achieve specific functionalities. Moodle is web-based and can be accessed from anywhere in the world. With a default mobile-compatible interface and cross-browser compatibility, content on the Moodle platform is easily accessible and consistent across different web browsers and devices. Moodle has achieved and is compliant with the following international standards: An Open Source Initiative; IMS LTI™; SCORM-ADL; Open Badges.

2.2 E-platform management and administration

The website is hosted on TTI server and is maintained by the institution's professional team: IT administrator and tutor of distance learning department. Server software is regularly updated to up-to-date versions for security and stability reasons, the same is also regarding Moodle platform.

The e-ALLIANCE website content is managed via a standard Moodle administration console, available only for administrators of the system. A console is a comprehensive tool for creating and updating the content of pages, news, events, publications, and other materials. While the content of the courses could be managed by everyone with role "Teacher".

The detailed user guide is available at Moodle website[2]. The contact person for e-platform administration and support (including accounts management) is:

[1] https://moodle.com/about/
[2] https://docs.moodle.org/36/en/Main_page

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3 E-platform functionality

Developed e-platform provides all necessary functionality to access digitalised materials of the STIP and to use them in the learning process. Digitalised STIP materials are available free of charge and could be accessed by everyone after registration.

3.1 Login and registration

The developed e-platform allows to do registration using most popular social networks accounts: Facebook and Google+, if the potential user of the platform does not have mentioned social network accounts, the user could complete e-platform specific registration. The access to the materials will be granted after confirmation of the registration. Figure 1 demonstrates the registration options of e-platform.

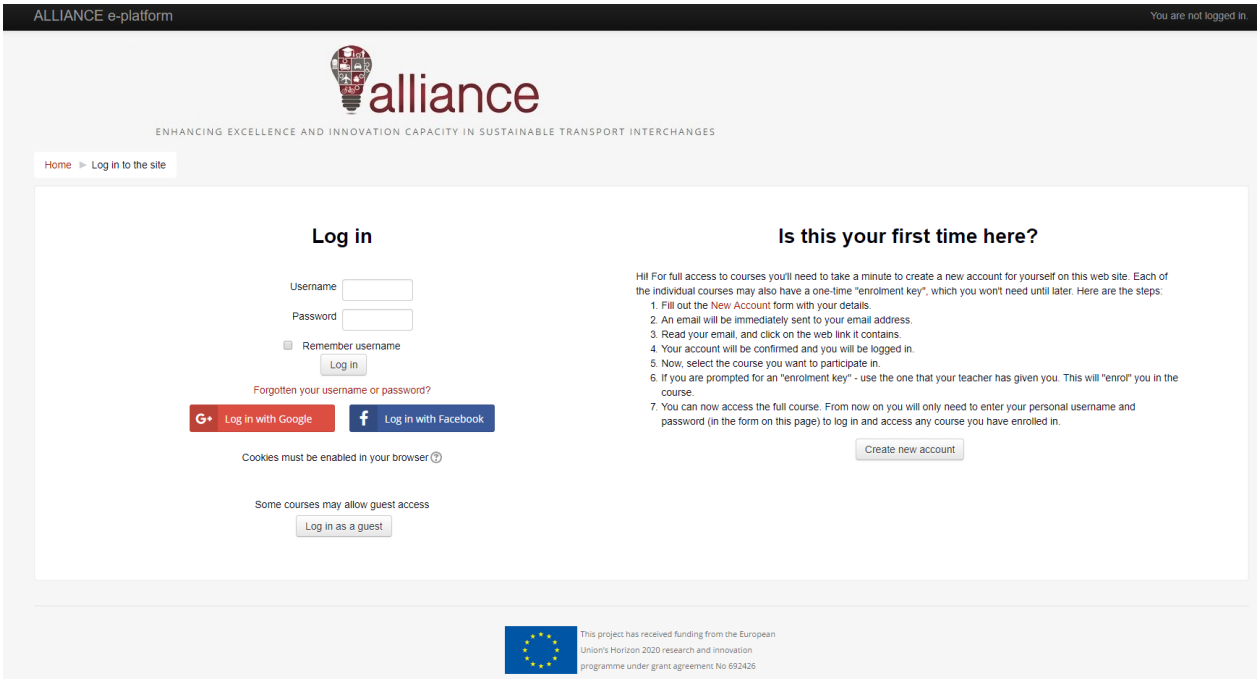


Figure 1. Log in and registration form

3.2 Enrolment

After getting access to the e-platform of ALLIANCE project, the user is able to enrol himself in any course available in STIP. The user could select the course from the list of available courses as presented in Figure 2. Next, he/she could continue the study process by himself.

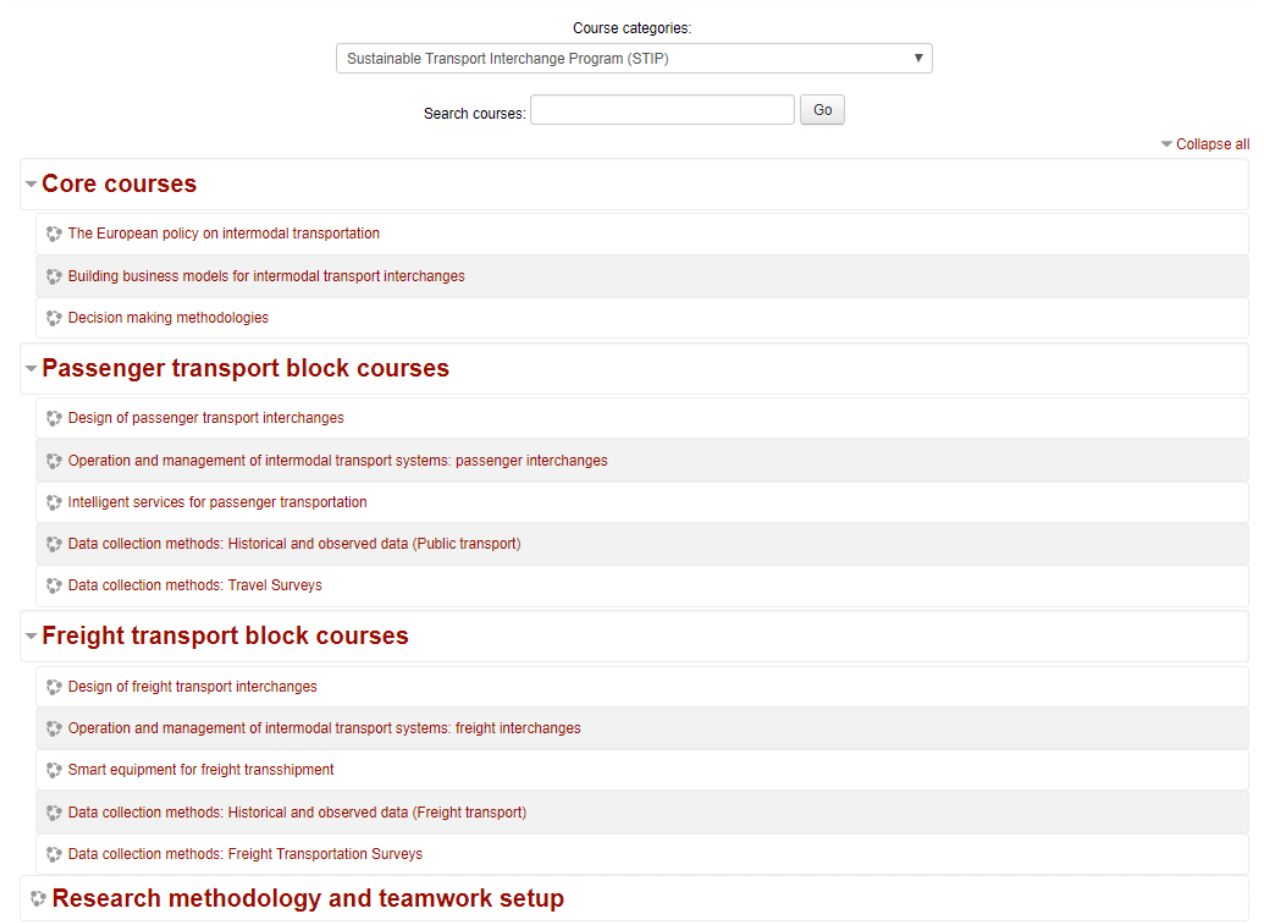


Figure 2. Enrolment options

3.3 Digitalised courses structure and content

Each course that initially has been selected for digitalisation is represented in the e-ALLIANCE platform as a specific course with its individual content and elements. But the general structure of the course is the same for all courses, it is the following:

- General information about the course
  - Course title
  - Course id
  - Course aim and scope
  - Course learning outcomes
  - Recommended information sources
  - Collaboration forum
  - News forum
- Sections per each theme
  - Title of the theme
  - Learning outcomes of the specific theme

- Theme SCORM[3] package: narrated presentation
- Theme handouts
- Specific references to additional materials regarding topic
- Self-assessment tests

- Final-assessment
- Feedback about course
- Certificate

The above-presented structure is common for all digitalised courses, but deviations are possible depending on the specific course and author.

Figure 3 demonstrates the example of the digitalised course "Design of freight transport interchanges" in e-platform.

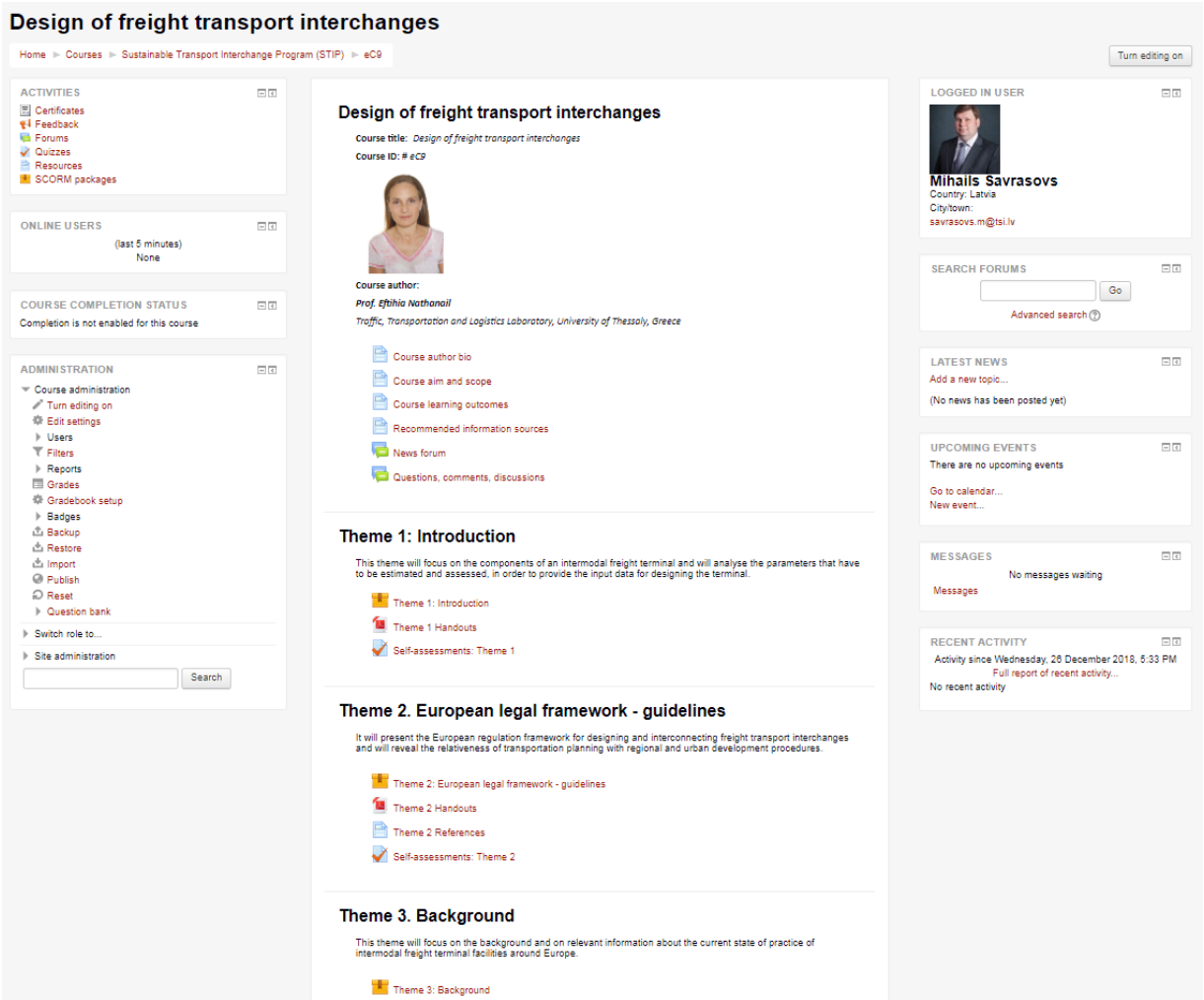


Figure 3. Example of course internal structure

As was stated above, each theme consists of several elements, the most important are: theme SCORM package, handouts, self-assessment tests.

[3] https://scorm.com/scorm-explained/

The SCORM package was produced by specific software for the creation of online content – iSpring (https://www.ispringsolutions.com). Each SCORM package is a narrated presentation in specific user-friendly environment. SCORM packages are also device-friendly, it means, that the SCORM package could be opened even in mobile device and the graphical user interface will be automatically adopted to the device type. Figure 4 demonstrates example of the SCORM package.

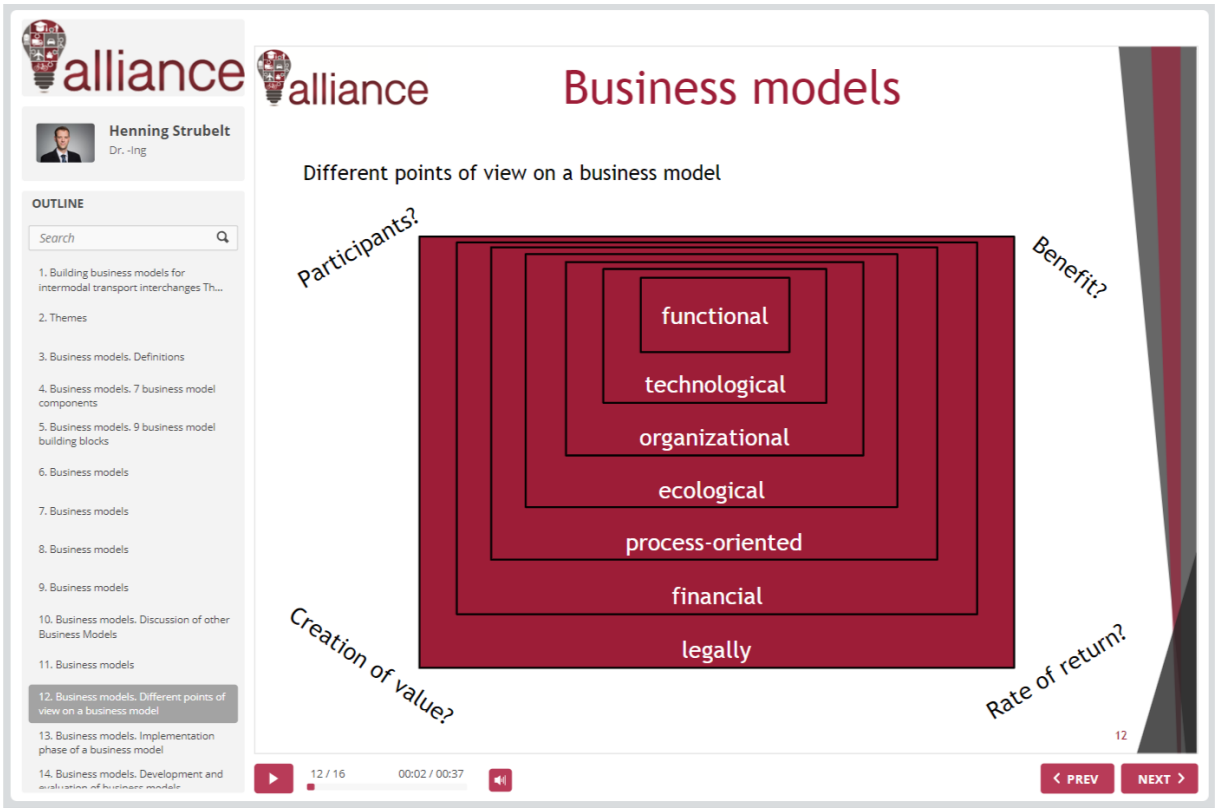


Figure 4. Example of SCORM package for the specific theme

iSpring creates the specific environment around standard PowerPoint presentation and adds a narration. The user of the course could use the outline of the presentation to navigate or use a search tool to find the specific slides using the search tool. Use could regulate the volume and do navigation in narration in the frame of one slide.

To take notes about presentation all themes in all courses have presentations handouts in pdf format, which could be printed and used for making notes. Figure 5 demonstrates the handouts example.

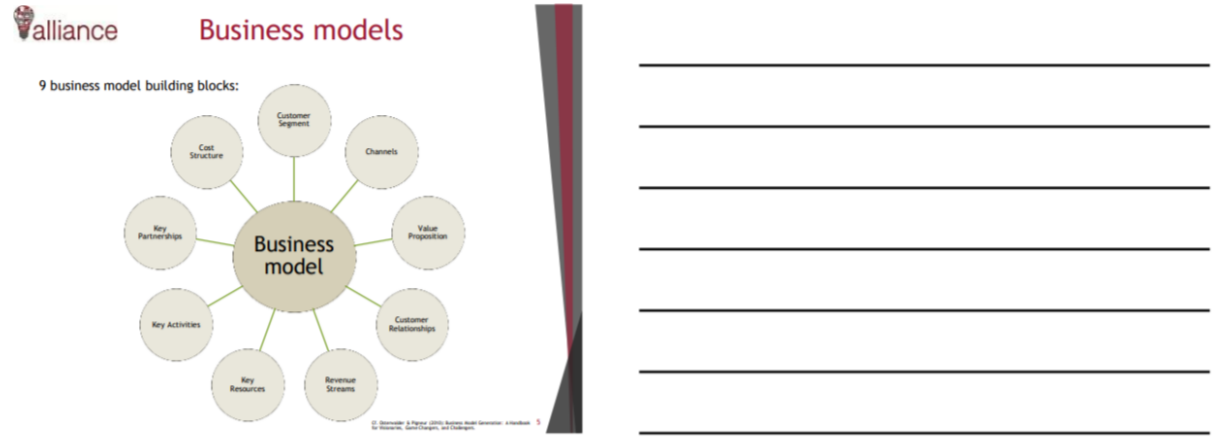


Figure 5. Example of handouts

As was stated above, each theme concludes with a self-assessment test. The tests give the opportunity to the user to check his/her understanding of the specific theme. The self-assessments are not time-limited and the user can use any material for help. The type of test depends on the course author. According to specification, the answer will be checked automatically by Moodle. Figure 6 – Figure 8 demonstrate the examples of different self-assessment tests developed in the frame of STIP digitization.

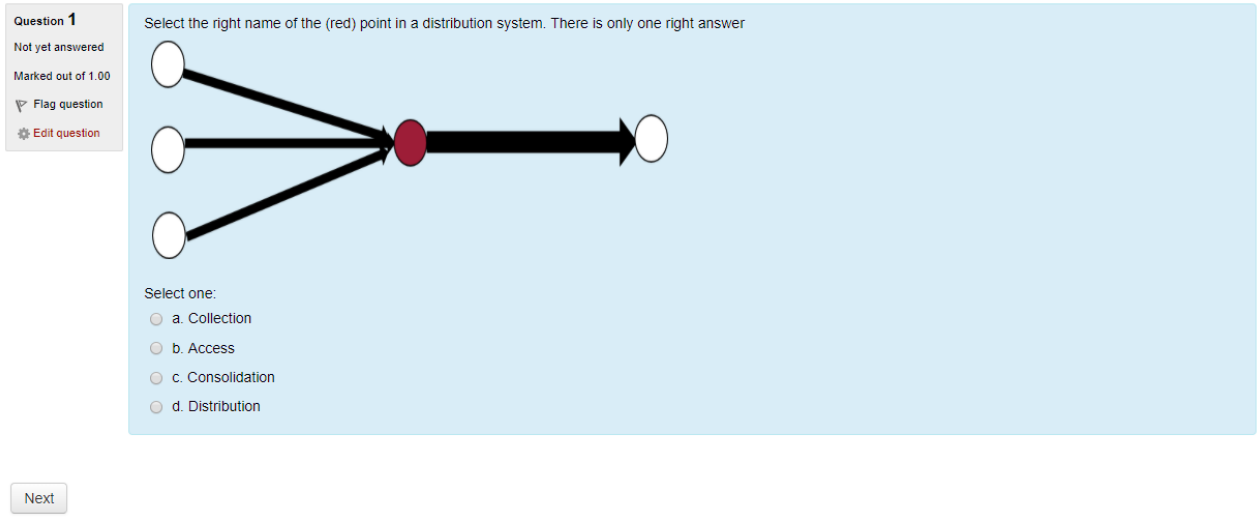


Figure 6. Example of self-assessment tests (single answer)

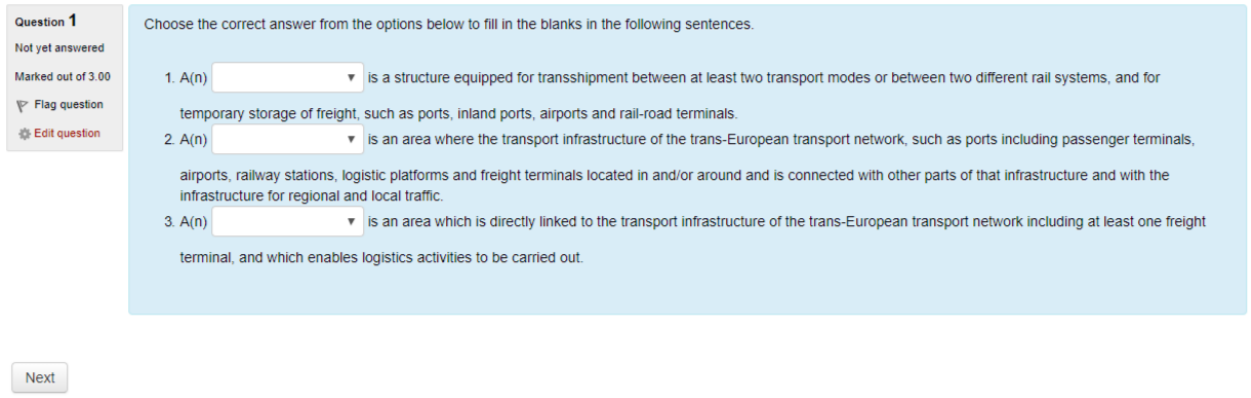


Figure 7. Example of self-assessment tests (right word selection)

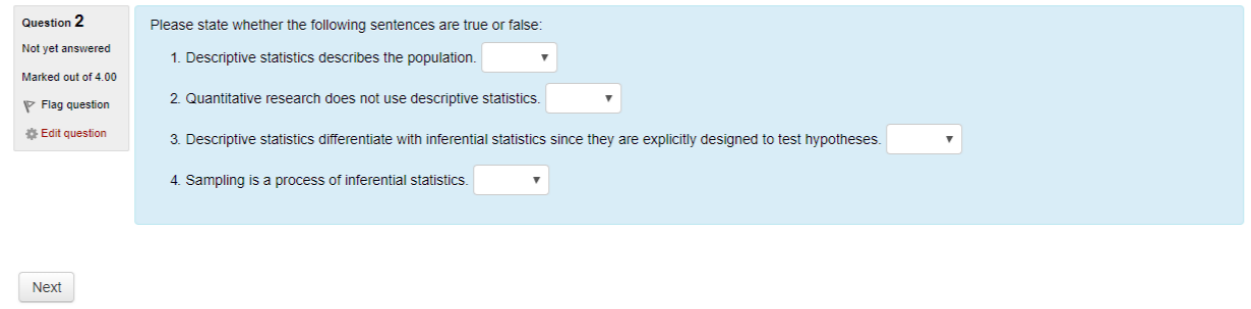


Figure 8. Example of self-assessment tests (true/false)

Every STIP course concludes with a final-assessment. It is organised in test form and to be checked automatically in Moodle. The difference between self-assessment and final assessment is related with the following issues:

- Final-assessment contains questions regarding the whole content of the course;
- Final-assessment is time-limited (execution time is set by authors);
- Final-assessment has only one try for the user;
- Final-assessment is graded;

In Figure 9 an example of a final-assessment is shown.

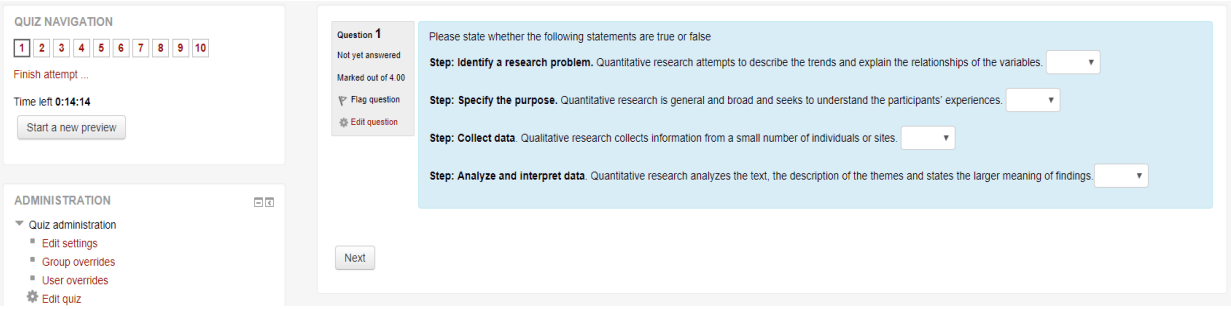


Figure 9. Example of final-assessment tests

Final-assessment can contain a number of questions (amount is up to course authors). The user has the possibility to navigate in frame of the final-assessment, to observe all questions first and to answer them in self-paced order. After submission, user is reported about the results of final-assessment. The example of the report is demonstrated in Figure 10.

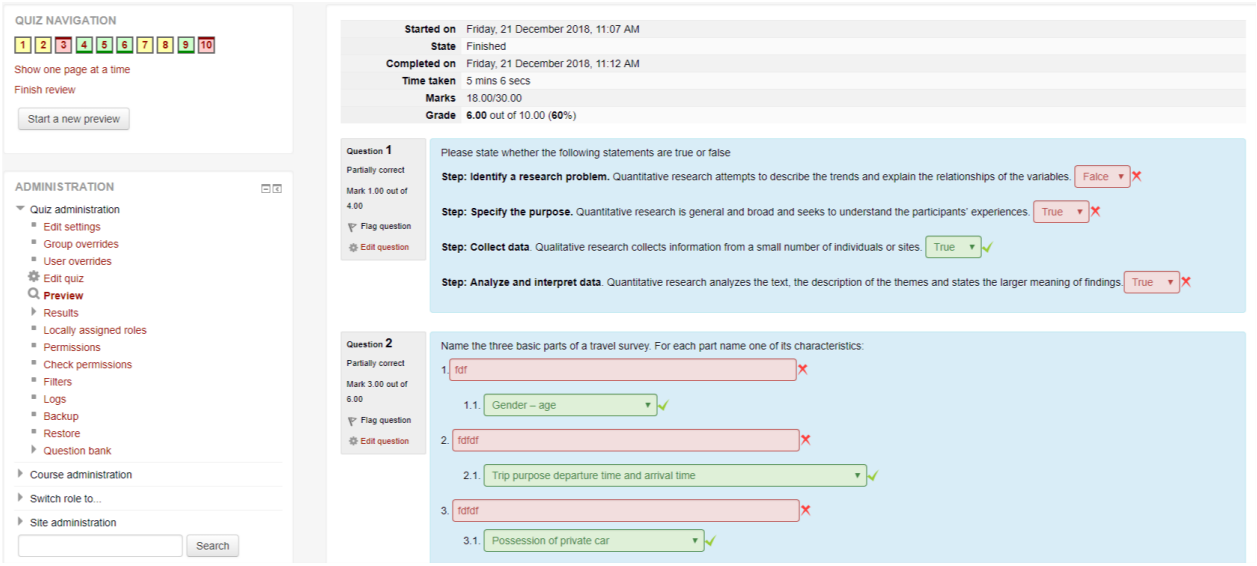


Figure 10. Example of the report about final assessment

After course completion, the user has the opportunity to assess the course with regard to the content and structure of the course, the quality and comprehensibility of the themes as well as the assessments and the study process as a whole, using the feedback form provided.

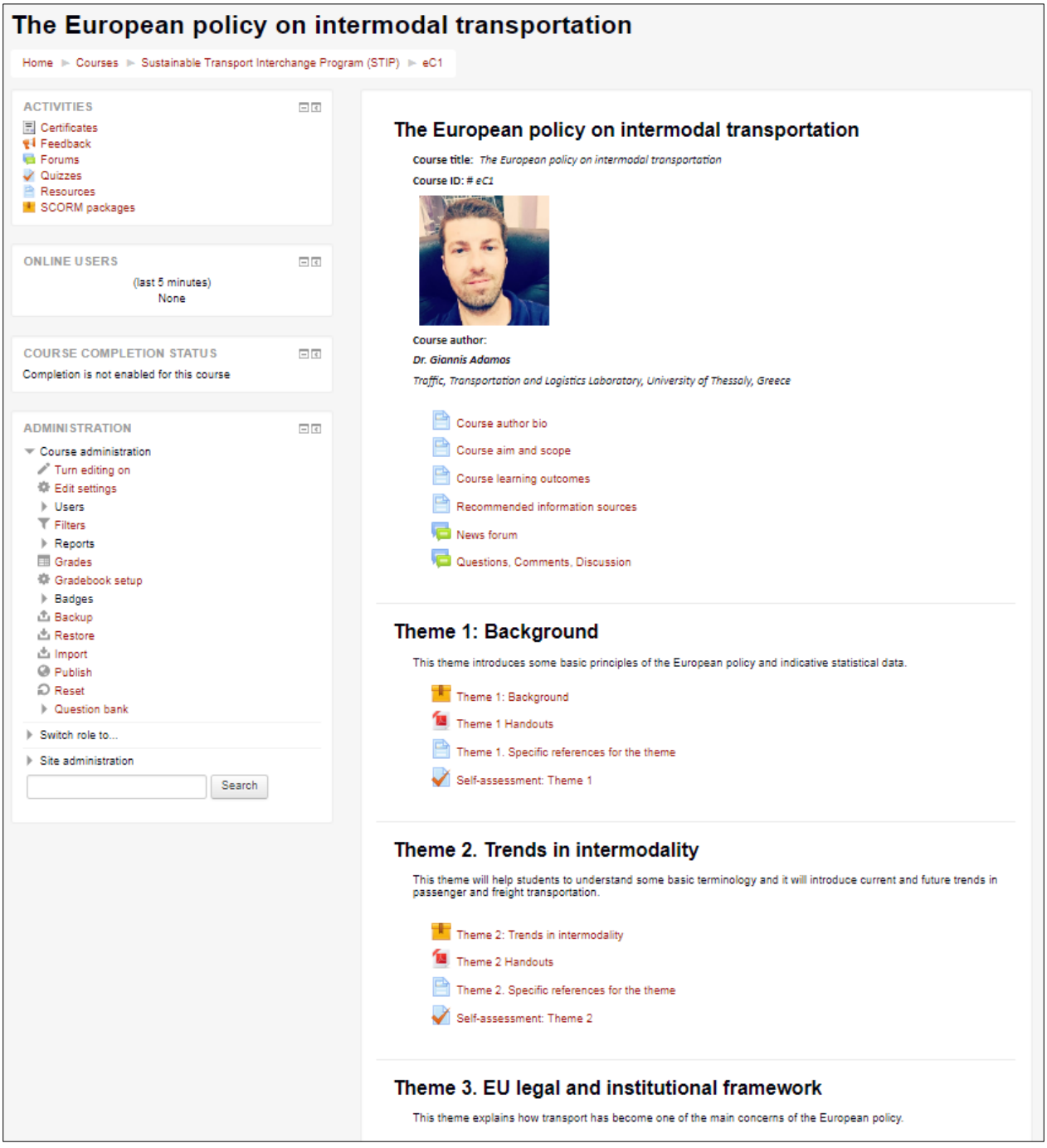
If the user has passed the final-assessment, the user is offered an automatically generated certificate, which could be downloaded and marked by the unique combination of digits and letters. The example of the certificate is presented in Figure 11.

Figure 11. Certificate example

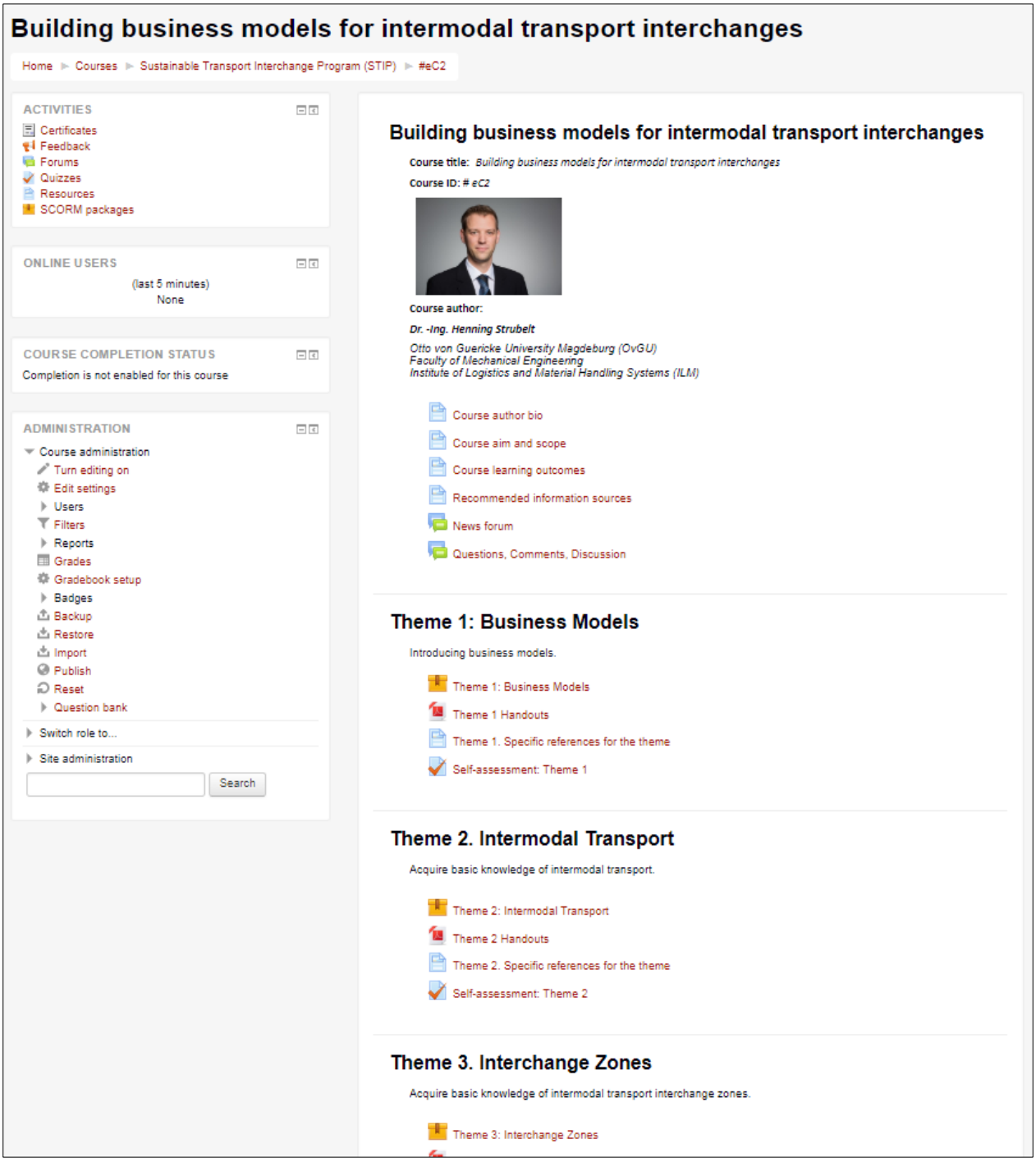
4 Annexes

Annex A: Screenshot of the course “The European policy on intermodal transportation”
Annex B: Screenshot of the course “Building business models for intermodal transport interchanges”
Annex C: Screenshot of the course “Operation and management of intermodal transport systems: freight interchanges”
Annex D: Screenshot of the course “Operation and management of intermodal transport systems: passenger interchanges”
Annex E: Screenshot of the course “Intelligent services for passenger transportation”
Annex F: Screenshot of the course “Design of passenger transport interchanges”
Annex G: Screenshot of the course “Design of freight transport interchanges”
Annex H: Screenshot of the course “Smart equipment for freight transshipment”
Annex I: Screenshot of the course “Decision making methodologies”
Annex J: Screenshot of the course “Data collection methods: Freight Transportation Surveys”
Annex K: Screenshot of the course “Data collection methods: Travel Surveys”
Annex L: Screenshot of the course “Data collection methods: Historical and observed data (Freight transport)”
Annex M: Screenshot of the course “Data collection methods: Historical and observed data (Public transport)”
Annex N: Screenshot of the course “Research methodology and teamwork setup”

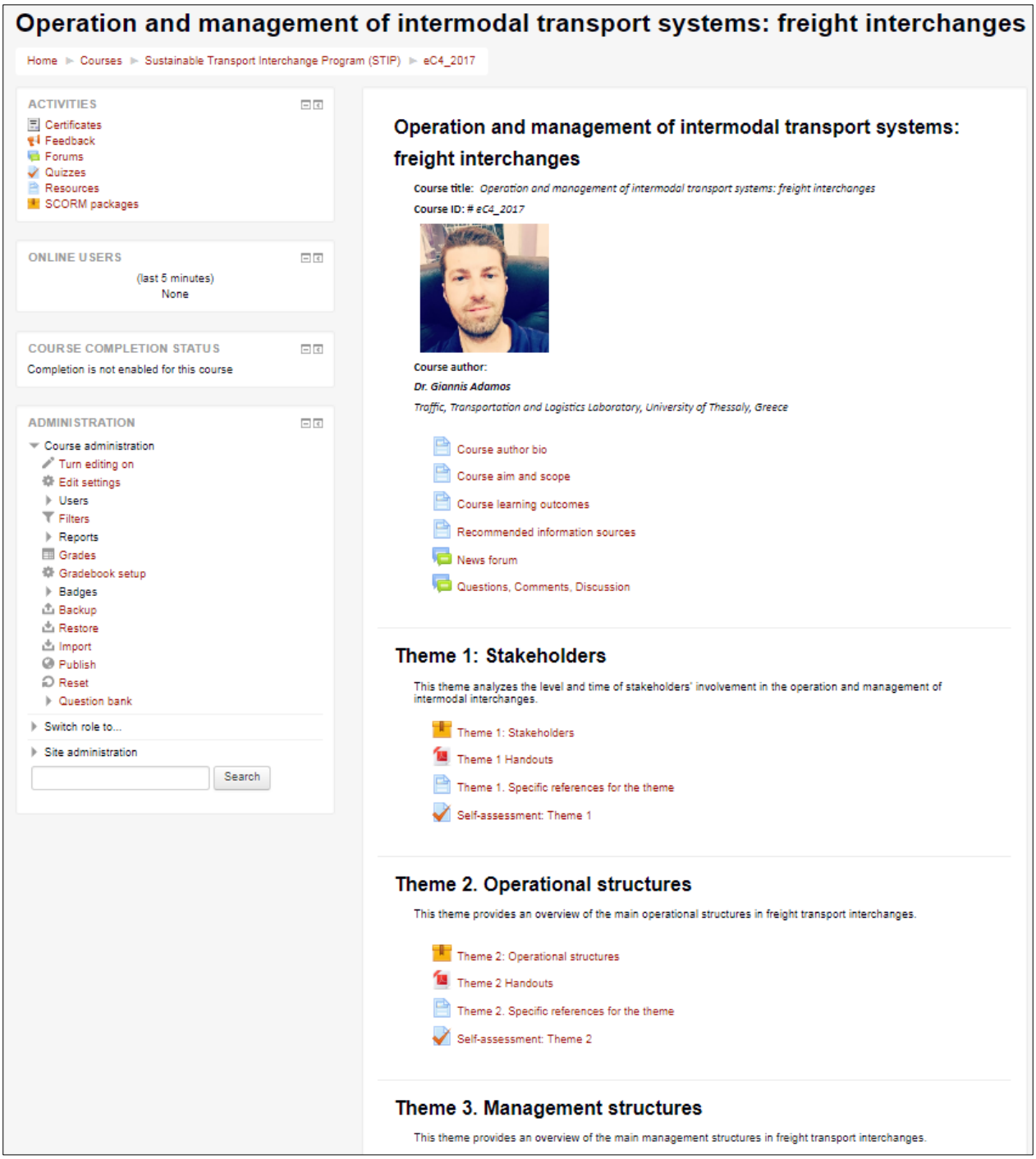
4.1 Annex A: Screenshot of the course "The European policy on intermodal transportation"



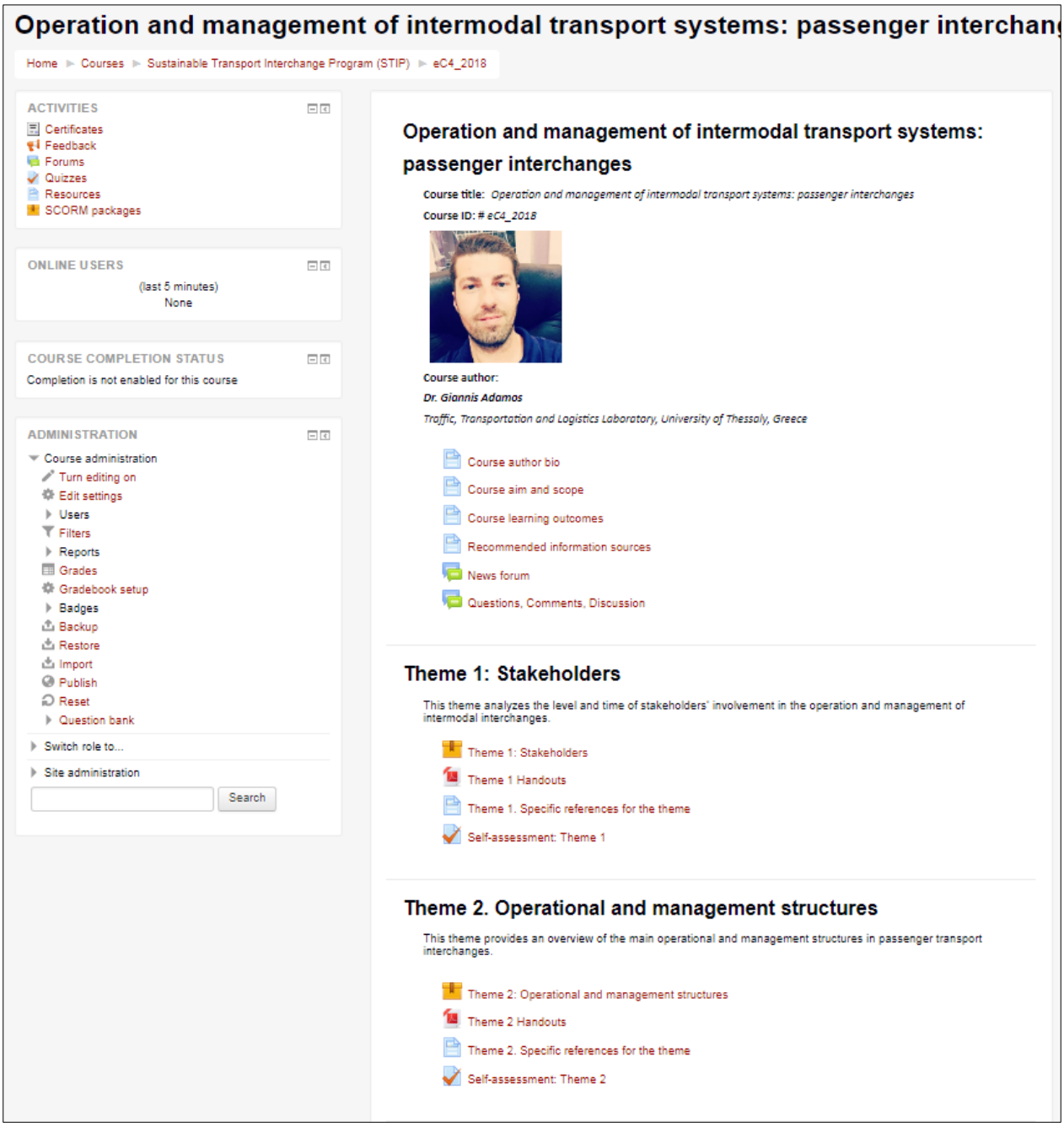
4.2 Annex B: Screenshot of the course "Building business models for intermodal transport interchanges"



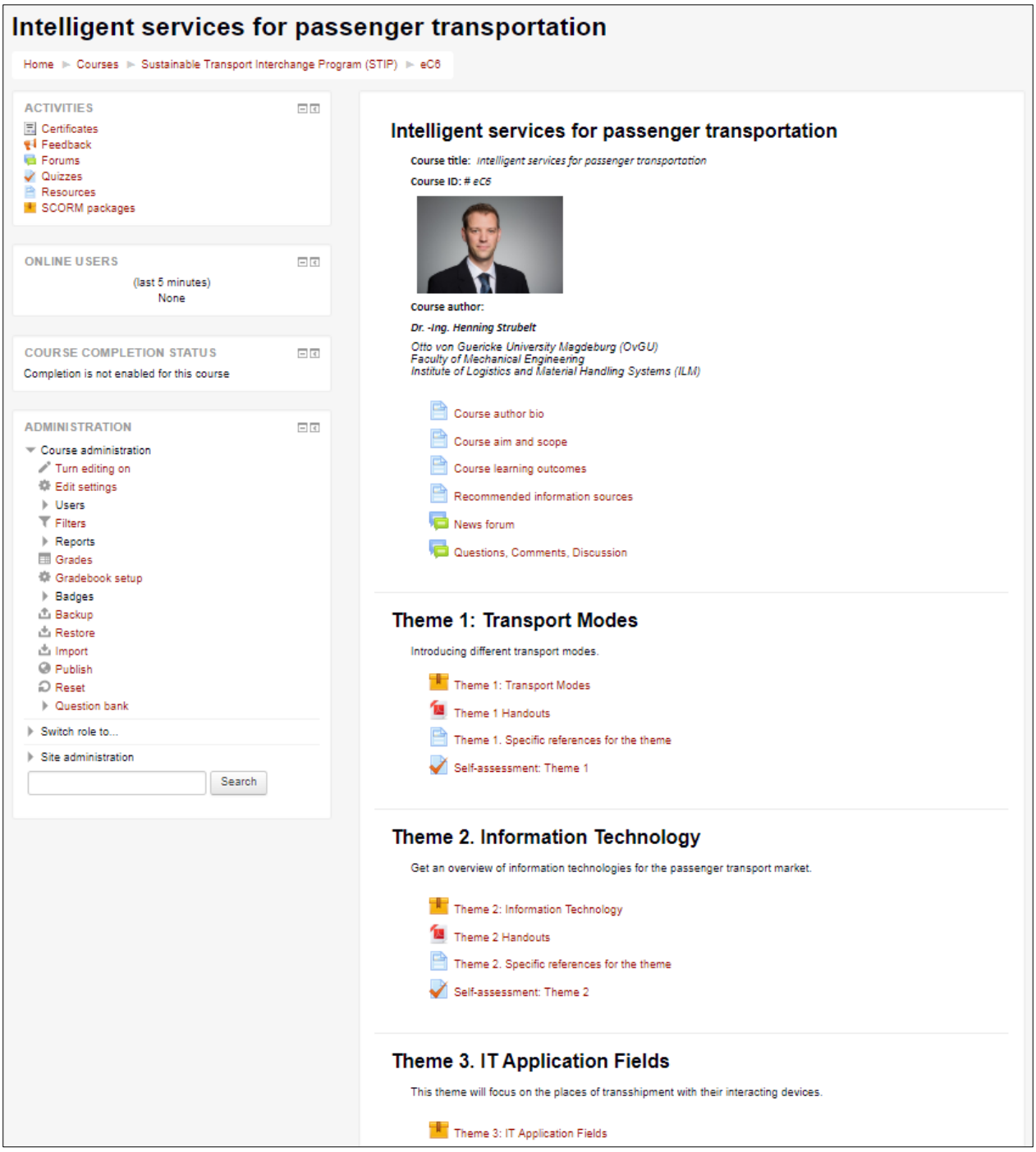
4.3 Annex C: Screenshot of the course "Operation and management of intermodal transport systems: freight interchanges"



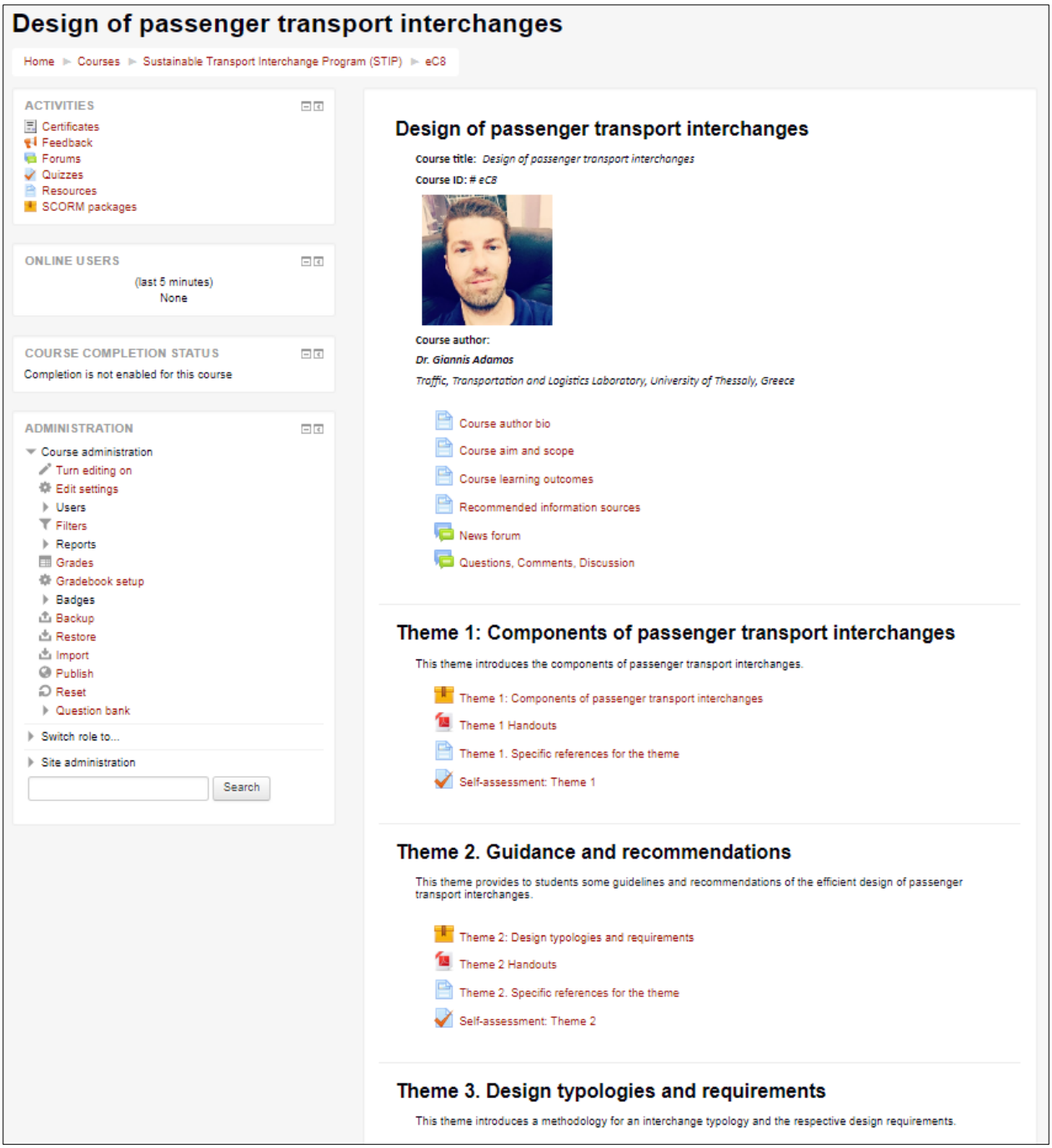
4.4 Annex D: Screenshot of the course "Operation and management of intermodal transport systems: passenger interchanges"



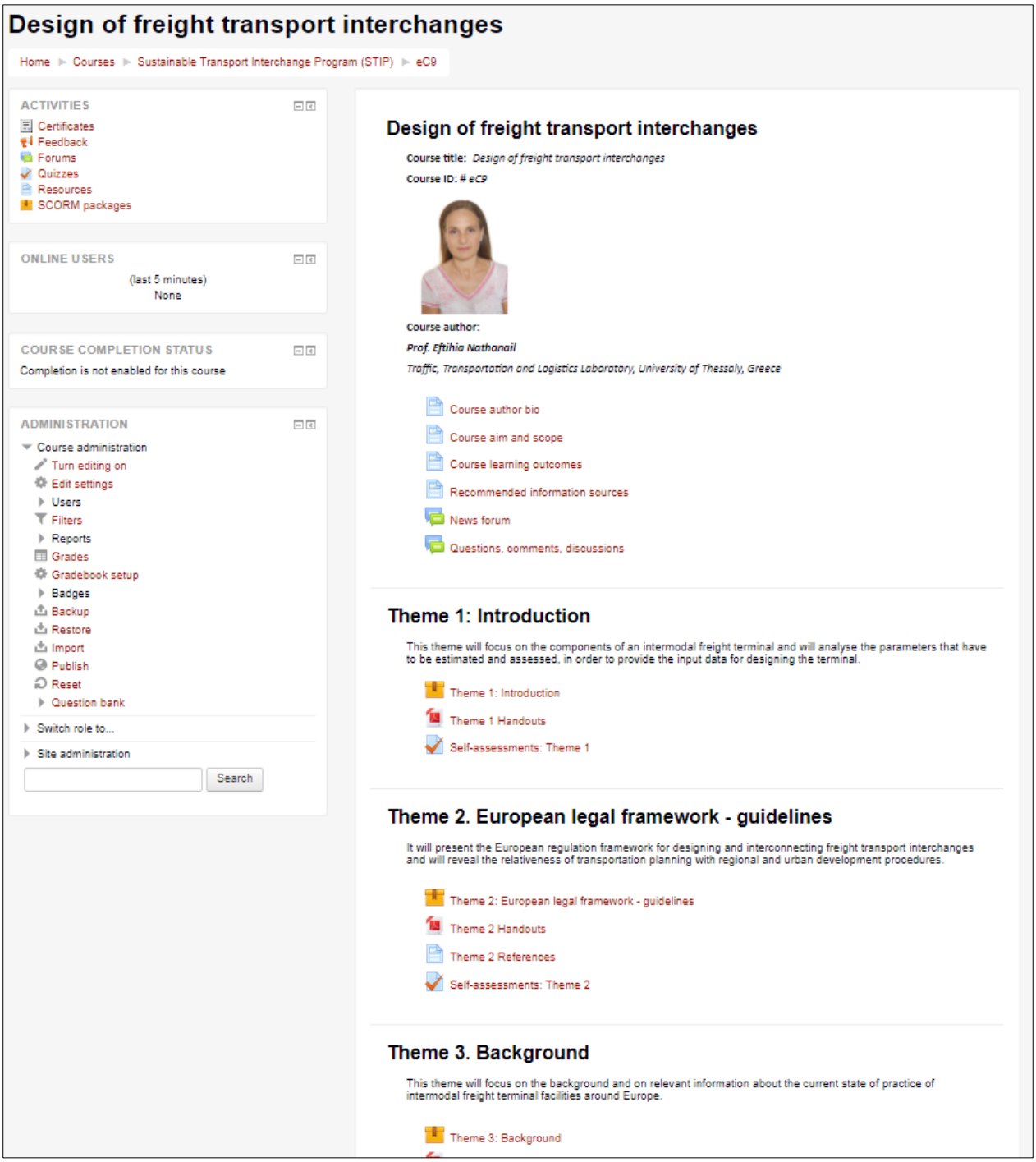
4.5 Annex E: Screenshot of the course "Intelligent services for passenger transportation



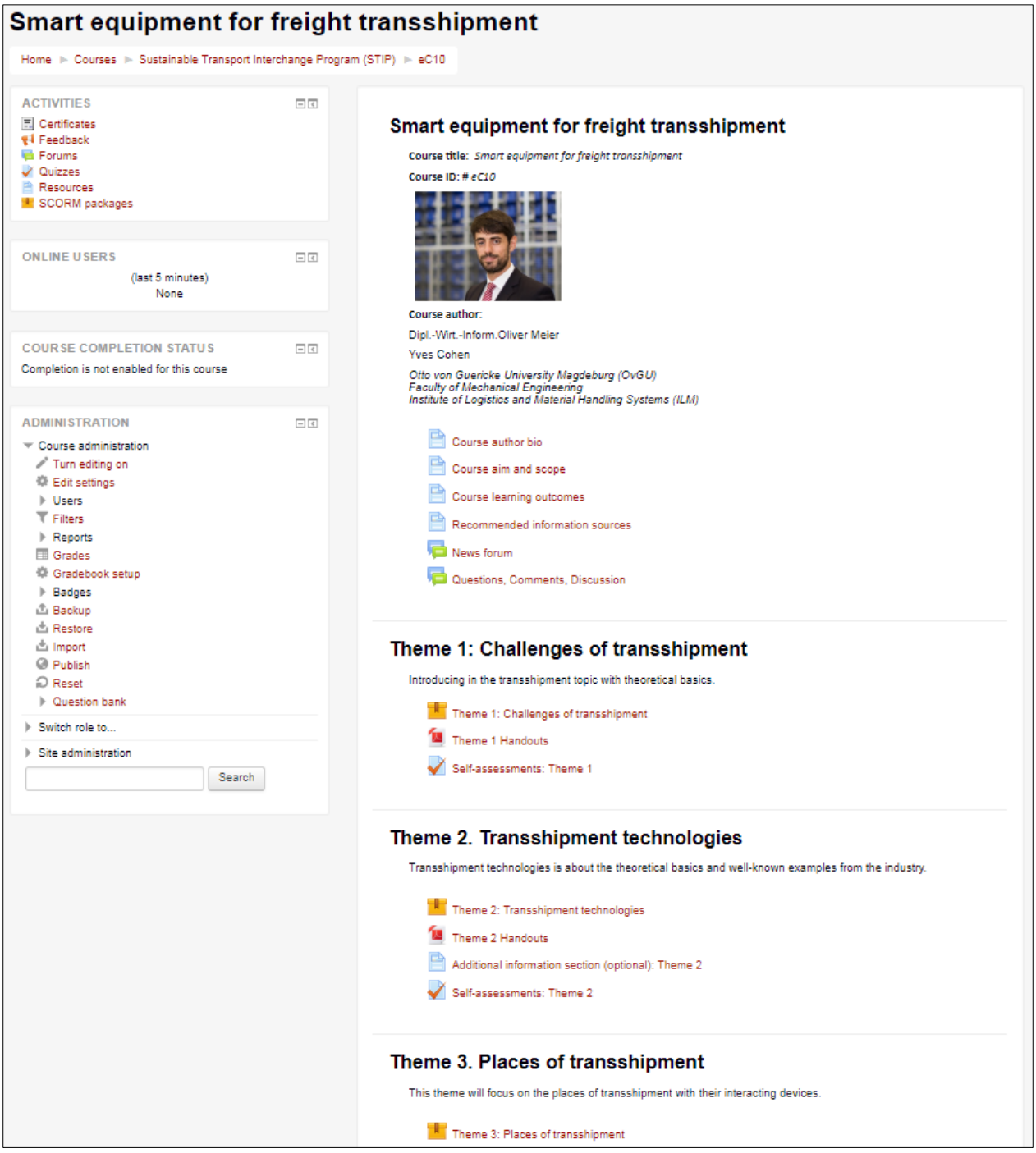
4.6 Annex F: Screenshot of the course "Design of passenger transport interchanges



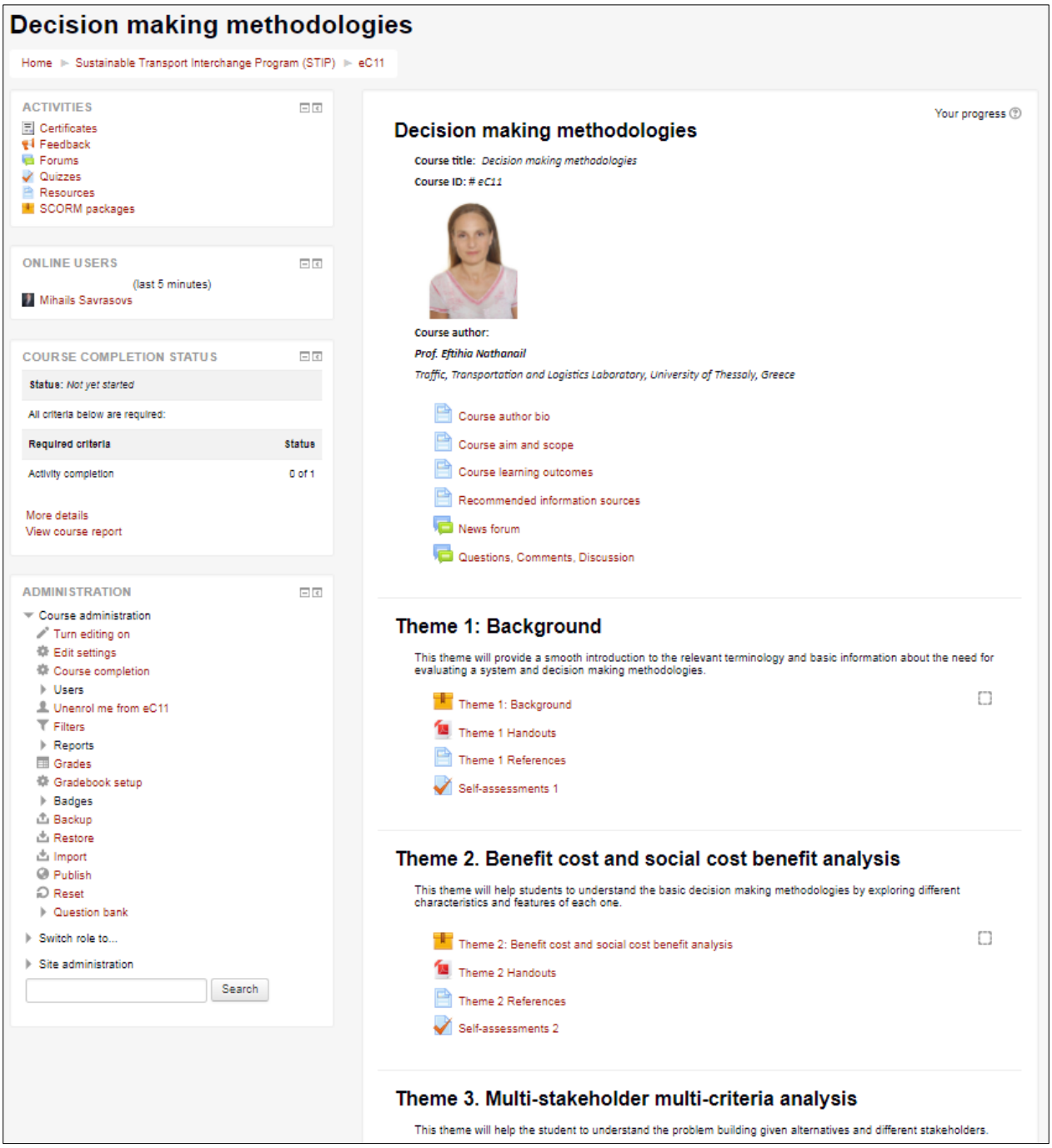
4.7 Annex G: Screenshot of the course "Design of freight transport interchanges



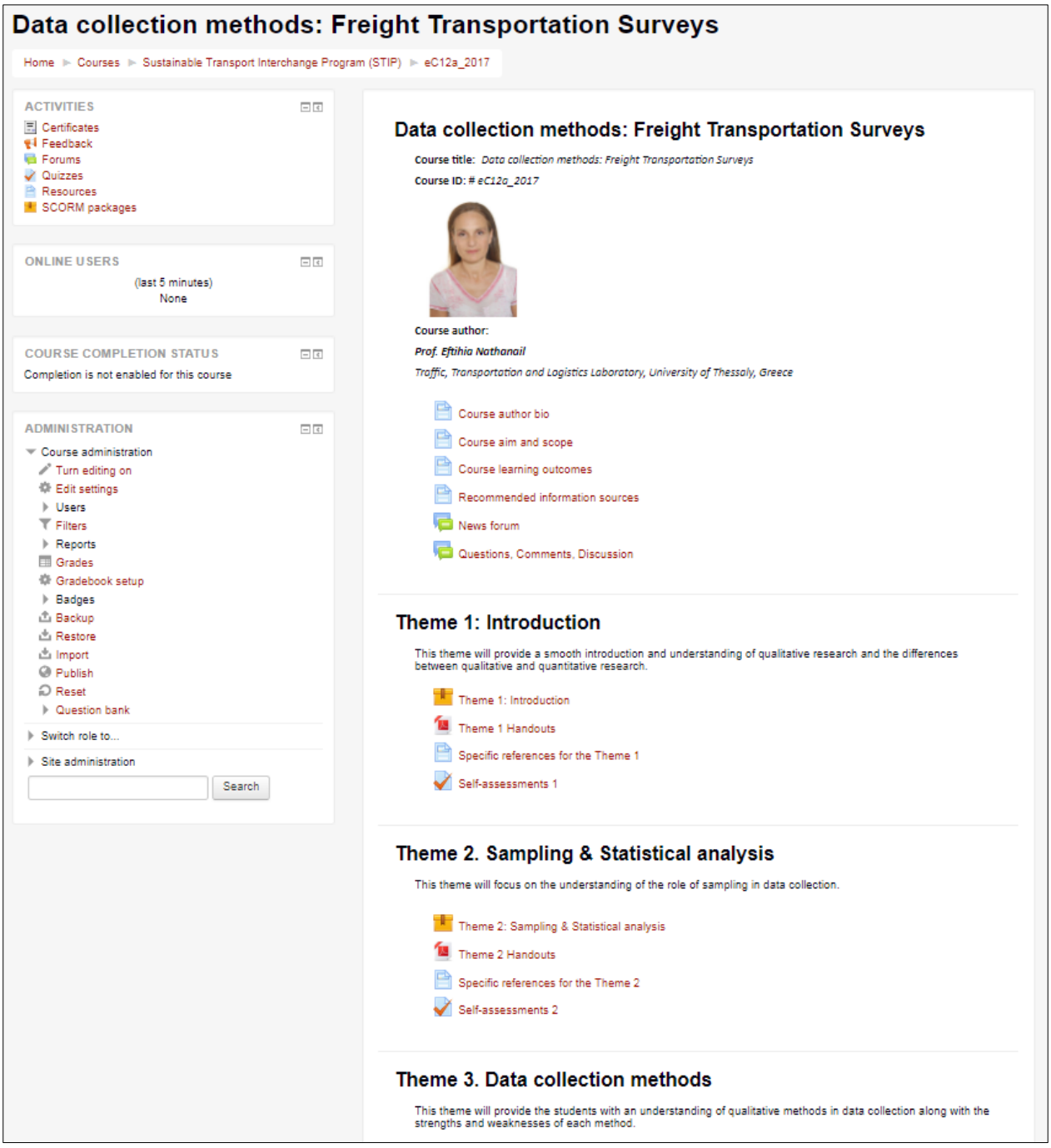
4.8 Annex H: Screenshot of the course "Smart equipment for freight transshipment"



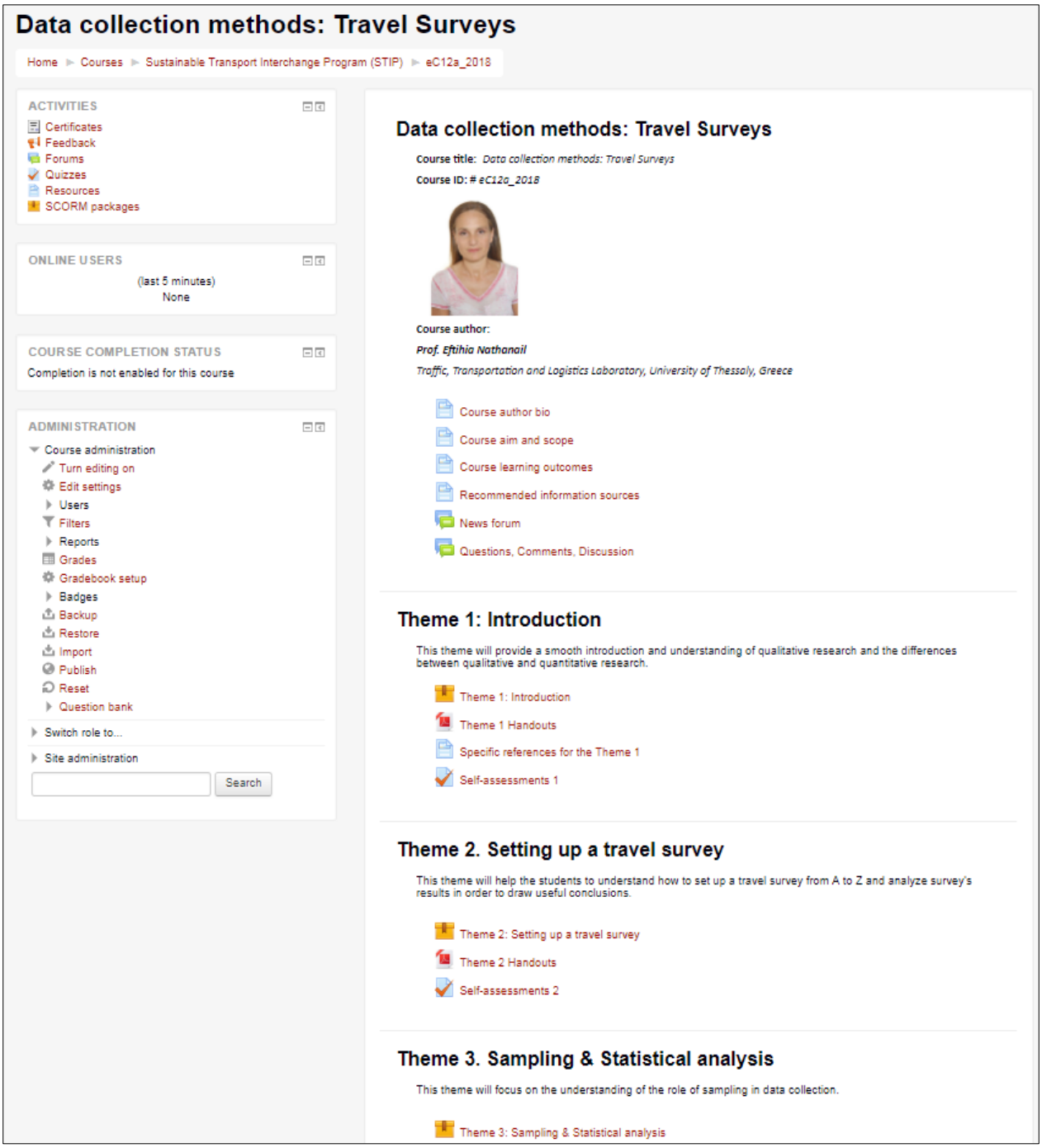
4.9 Annex I: Screenshot of the course "Decision making methodologies"



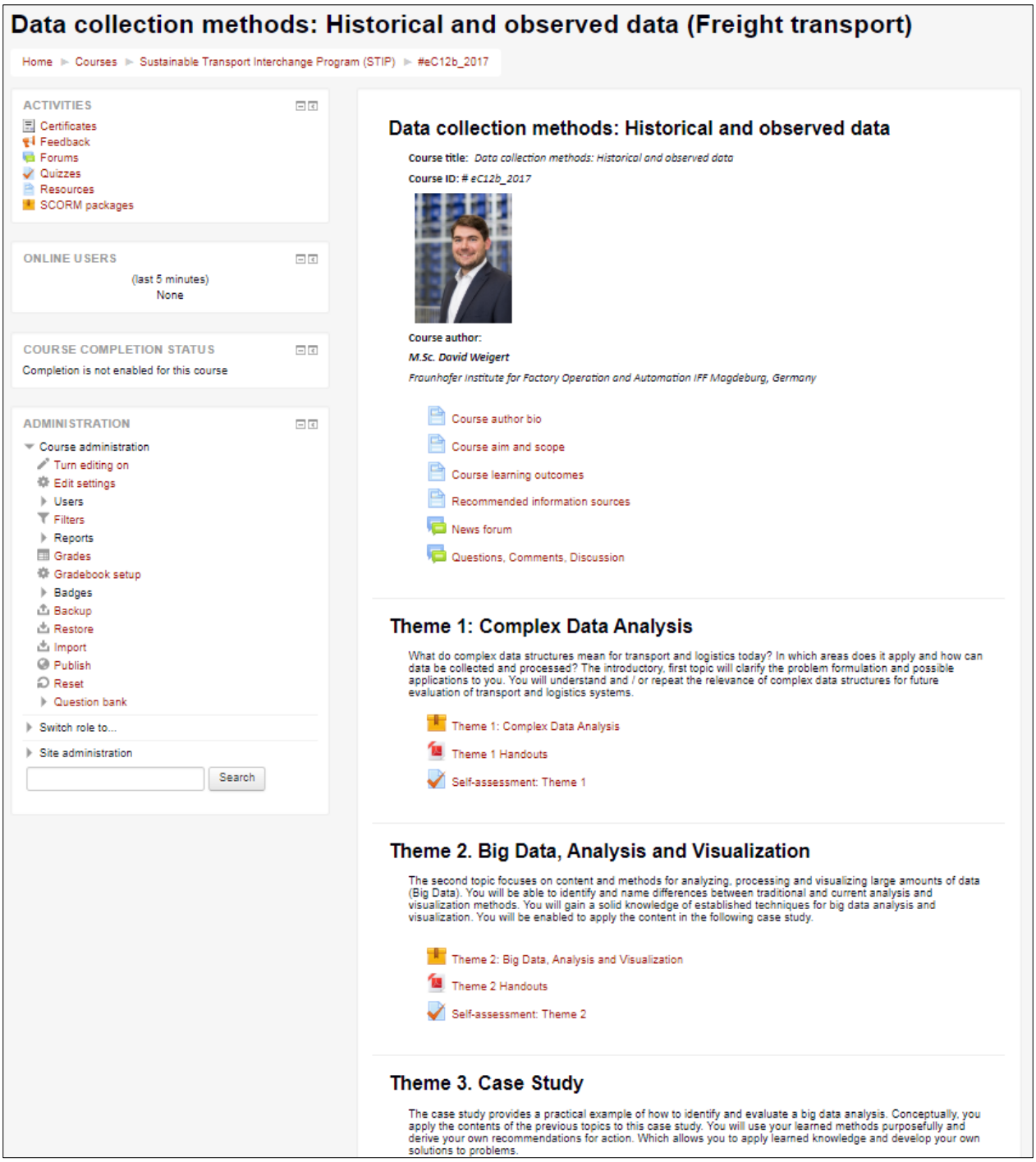
4.10 Annex J: Screenshot of the course "Data collection methods: Freight Transportation Surveys"



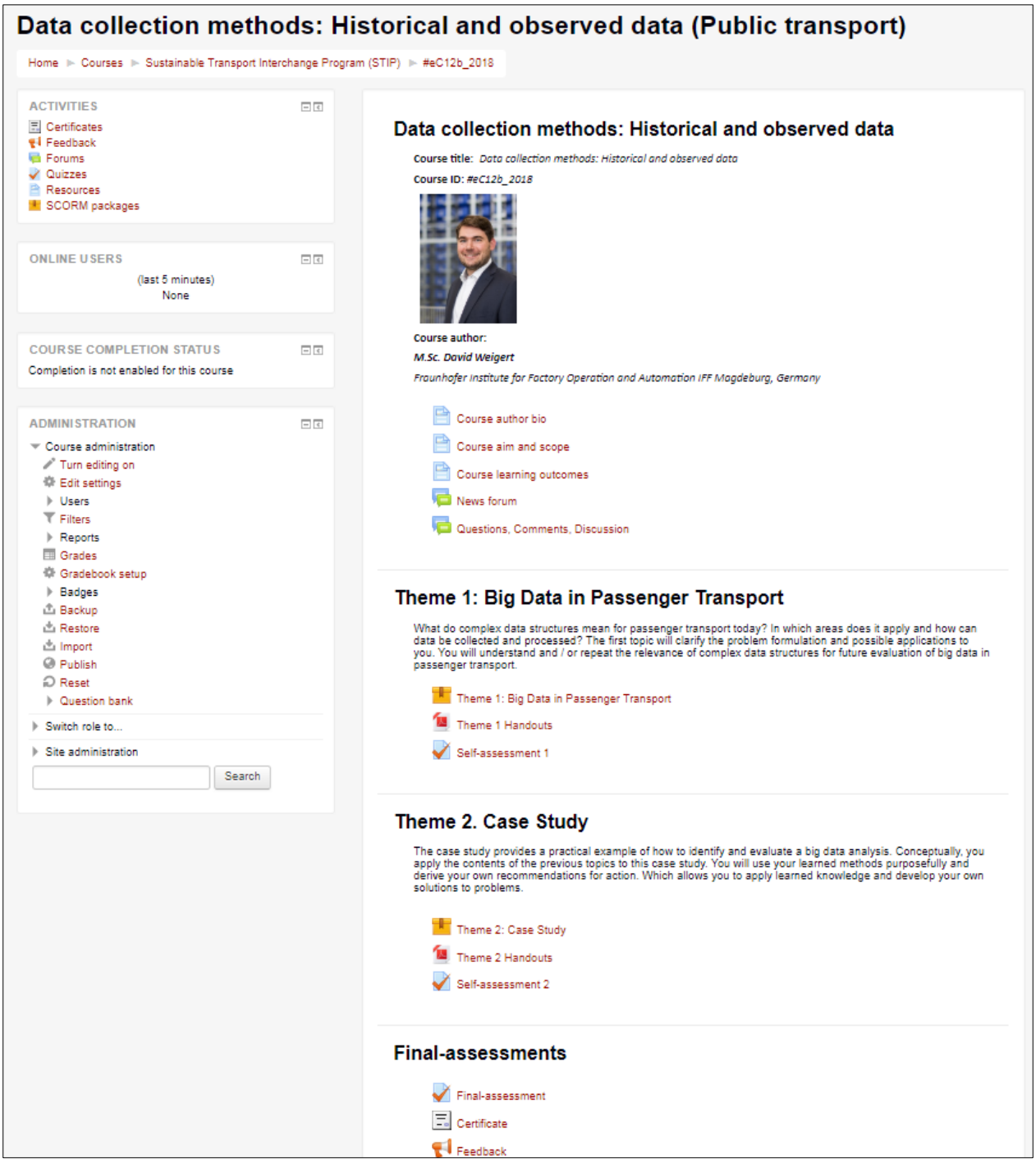
4.11 Annex K: Screenshot of the course "Data collection methods: Travel Surveys"



4.12 Annex L: Screenshot of the course "Data collection methods: Historical and observed data (Freight transport)"



4.13 Annex M: Screenshot of the course "Data collection methods: Historical and observed data (Public transport)"



4.14 Annex N: Screenshot of the course "Research methodology and teamwork setup"