

ASTONRail – REPORT – Output 8

ASTONRail Handbook

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Programme	Erasmus+
Key-Action	Strategic Partnerships for Higher Education, Key Action 203
Project Number	2020-1-UK01-KA203-079064
Project Acronym	ASTONRail
Output Identification	IO8
Output title	ASTONRail Handbook
Main Objective of the IO	To produce the ASTONRail Handbook on building a skilled workforce through next generation methods, policies and practice of effective rail higher education techniques and mechanisms.
Date (of the report)	25-08-2023
Report/Output Type	Learning / teaching / training material – Manual / handbook / guidance material
Language used to fill in the form	EN
Leading Organisation	TECHNISCHE HOCHSCHULE WILDAU (E10188671, DE)
Participating Organisations	<ul style="list-style-type: none"> • ASTON UNIVERSITY (E10209108, GB) • KUNGLIGA TEKNISKA HOEGSKOLAN (E10209479, SE) • UNIVERSITA DEGLI STUDI DI ROMA LA SAPIENZA (E10209458, IT) • SVEUCILISTE U ZAGREBU (E10209270, HR) • UNIVERSIDAD DE MALAGA (E10209121, ES) • ZILINSKA UNIVERZITA V ZILINE (E10209360, SK) • EURNEX e.V. (E10246848, DE)
Description of the intellectual output	<p>This Intellectual Output IO8 includes the ASTONRail handbook on building a skilled workforce through next generation methods, policies and practice of effective rail higher education techniques and mechanisms. The handbook will be a key reference in the field. The handbook has several parts (selection):</p> <ul style="list-style-type: none"> • It gives a comprehensive summary of the findings and outputs of WG 1 – WG 4 (and additionally about WG 6-WG 9) in a compact and clear structured way. • It describes approaches and methods for innovative and modern rail higher education in the ASTONRail methods catalogue, consisting of teaching and learning types, methods and assessment methods applicable in rail higher education in a way easy to read and to stimulate the reader to use them. The handbook includes information about the ASTONRail intensive study programme, organised in WG 6, at which teaching approaches and methods have been tested and verified. • It includes 65 best practice examples from the ASTONRail partnership to motivate all interested parties and target groups to use the developed methods in their ongoing rail-oriented programmes and for new developed

	<p>rail-related programmes. The best practice examples show how the teaching and learning methods are use/implemented in rail teaching.</p> <p>The ASTONRail handbook is a “living” platform that is dynamic and flexible to respond to changes in the railway sector. New material or new ideas and new information in the field of rail higher education can be integrated continually. With this approach the handbook advises on modern and efficient teaching and learning methods and innovative education techniques and mechanisms for rail skills development.</p>
Start Date (dd-mm-yyyy)	03-01-2023
End Date (dd-mm-yyyy)	25-08-2023
Available Languages	English
Available Medias	http://astonrail.eu/dokuwiki
Description and division of work	<p>The ASTONRail handbook is a product of the close teamwork of the ASTONRail project partners. The work was divided into two main tasks:</p> <p>Task 8.1 led by TH Wildau and supported by all partners (AU, KTH, DICEA, UNIZA, UMA, UNIZG, EURNEX) was focused on analysing all the content related findings and outputs produced within WG1, WG2, WG3, WG4, WG6 and additionally within WG7-WG9. All partners contributed in a standardised way. For the collection of input, a template was created by TH Wildau, which was presented to the partners and approved.</p> <p>Sub-tasks within task 8.1 included:</p> <p>8.1.1 for input from WG1 by DICEA 8.1.2 for input from WG2 by UNIZA 8.1.3 for input from WG3 by KTH 8.1.4 for input from WG4 by AU 8.1.5 for input from WG6 by UNIZG 8.1.6 compilation of input, reviews, formatting etc. TH Wildau supported by UMA and EURNEX</p> <p>In Task 8.2 TH Wildau and AU supported by all partners (KTH, DICEA, UNIZA, UMA, UNIZG, EURNEX) developed a proposal for the technical representation of the final results and the management of the input during the development phase of the handbook. TH Wildau with contribution by EURNEX selected an appropriate platform to implement the handbook as a “living” document. The handbook is hosted on EURNEX server. The handbook is adapted to the needs of the partnership and provides easy access to all involved parties. It ensures an easy use of the project results.</p>

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1 Introduction

Intellectual Output (IO) 8 is the ASTONRail handbook. This report describes what was done in Working Group (WG) 8 and gives an insight into the ASTONRail handbook. The ASTONRail handbook was developed by WG 8 leader TH Wildau with contribution of all ASTONRail partners. As the intellectual output format is an online handbook, the ASTONRail handbook itself is the proof of the work done.

The handbook is available at <http://astonrail.eu/dokuwiki>.

2 Description of the Work Done

The following was done in WG 8 to develop IO 8:

- Selection of an appropriate platform to implement the handbook as a living document after identifying the requirements for a modern and innovative handbook. Decision: creation of a wiki handbook using the software DokuWiki [1].
- Identification of user groups and their interest in the handbook: As user groups:
 - future students,
 - students and graduates as well as
 - Higher Education Institutions (HEI) and teacherswere identified.
- Development of the handbook structure, following the user groups.
- Pre-test of the DokuWiki-software on a test installation at TH Wildau servers
- Installation and setup of the DokuWiki software.
- Adaption of the DokuWiki to store different information in different databases (ASTONRail database on rail-related study courses and ASTONRail methods catalogue on teaching and learning methods)
- Analysis and collection of existing content from WG 1 – WG 4 and WG 6, transfer of some parts to a wiki database, adaption and integration into the requirements of the wiki platform and the designed handbook.
- Integration of Working Group pages for WG 7, WG 8, WG 9
- Development of additional content and integration into the wiki handbook.
- Review and formatting of the handbook.
- Dissemination during the ASTONRail final conference in Stockholm and in printed sector journal Eisenbahntechnische Rundschau [2].

3 ASTONRail Handbook

3.1 About the ASTONRail Handbook

The ASTONRail handbook is the key deliverable of the ASTONRail project. It presents the project results and makes them usable for the whole railway sector in an easy, innovative and sustainable way. The handbook provides the target group, among other things, with modern teaching and learning methods (ASTONRail methods catalogue) for rail skills development and with the ASTONRail database on rail-related study courses. The handbook should help to modernize rail higher education and to gain more skilled employees for the railway sector.

The ASTONRail handbook is a modern web-based and interactive wiki, ensuring the continuous update of new findings and a sustainable and living outcome after the end of the project.

Figure 1 shows the start page of the handbook (<http://astonrail.eu/dokuwiki>). An equally simple starting point for the handbook is the ASTONRail project start web page, on which the handbook was integrated at the end of the project (<http://astonrail.eu>).

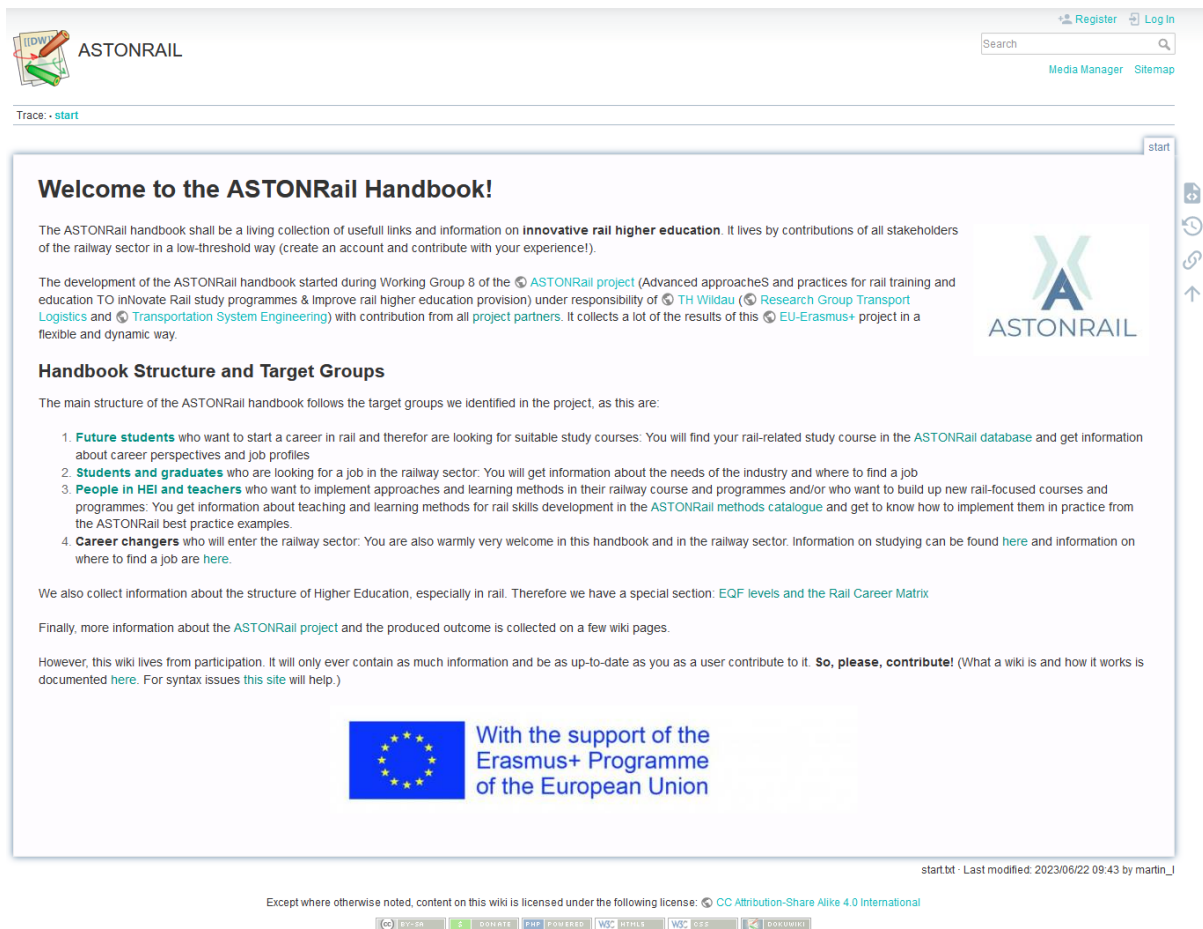


Figure 1: Start page of the ASTONRail handbook

3.2 Characteristics and Technical Representation of the ASTONRail Handbook

The ASTONRail handbook was created in an innovative and interactive format using the open source wiki software DokuWiki [1]. The ASTONRail handbook is embedded into the project website [3] and is hosted by the ASTONRail partner EURNEX. The handbook can be accessed easily by all users and is available public to ensure a high acceptance and usage. The handbook is dynamic and flexible. New content can be integrated and already available content can be updated by registered handbook users. This ensures that the information in the handbook can be kept up to date. The handbook has an open character; new topics can be integrated in the handbook structure with small effort to ensure an easy adoption of the

content to the railway sector needs. The technical representation of the handbook makes the handbook a sustainable and long-lasting outcome. Every handbook user can easily get a login and can contribute with his/her experience to the further refinement of the handbook and to keep it up to date even after the project lifetime. The handbook, like all other wikis, will live by the contribution of the users, in this case the railway sector stakeholders.

3.3 ASTONRail Handbook Structure and Content

The ASTONRail project results are of special interest for several target groups. To make the content available fast and easy for the handbook users, the following user groups were identified, forming three main pillars in the handbook structure:

- **Future students** who want to start a career in rail and therefor are looking for suitable study courses,
- **Students and graduates** who are looking for a job in the railway sector,
- **People in HEI and teachers** who want to implement approaches and learning methods in their railway course and programmes and/or who want to build up new rail-focused courses and programmes.

Additionally, the handbook includes two pillars about ASTONRail project information and information about higher education in rail in general (Figure 2).

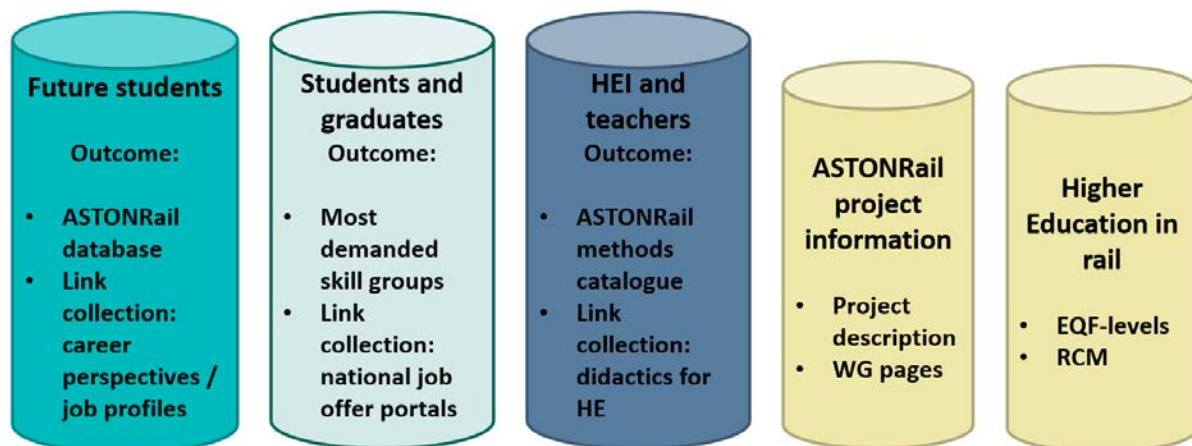


Figure 2: Handbook structure and pillars

Future students can find her/his future study course in the ASTONRail database on rail-related study courses (see Annex 1 – Screenshot ASTONRail Database on Rail-Related Study Courses) and get information about career perspectives and job profiles in a link collection.

The ASTONRail database on rail-related study courses is an extensive collection of information about rail-related study courses. The database as excel-file was developed in WG 1 and was implemented as an interactive database in the wiki handbook in WG 8. The database includes 54 course entries from 16 countries at the day of implementation. The database entries can be shown as a list and the course entries can be sorted and filtered. Users can as well search for keywords. For each study course a fact sheet is available with information to the study course, e.g. name of the university, website of the study course, EQF-level, language and course duration (see as well Annex 1 – Screenshot ASTONRail Database on Rail-Related Study Courses).

The intention behind the database is to make it easier for future students to find suitable study courses and thus attract more students to railway-related courses. For the future, the ASTONRail database in the handbook should help to build up more young and skilled professionals for the railway industry.

Handbook users can register and get an own login. Users, e.g. from universities or other higher education institutions can add new study courses to the database or revise existing courses. In addition, they can contribute to the link collection.

For students and graduates the handbook offers information about the needs of the railway industry. A link collection about national job offer portals in the partner countries was developed in WG 8 supporting students and graduates in finding a job in the railway industry. This should help to facilitate the transition from the time of studying to work. Relevant job offer portals and search platforms are compactly bundled in one place. Registered handbook users can update and expand the page by adding career portals from railway-related companies or platforms from other countries.

Higher education institutions and teachers get information in the handbook about how to innovate or improve rail teaching in theory and in practice. The handbook offers the ASTONRail methods catalogue (see Annex 2 – Screenshot ASTONRail Methods Catalogue) which was developed in the project. The method catalogue consists of teaching and learning types, teaching and learning methods and assessment methods applicable in railway teaching and learning. Each type or method is equipped with at least one best practice example from the ASTONRail partners showing how to use the type or method in railway teaching. The ASTONRail methods catalogue consists of 41 entries (types and methods) and provides 65 best practice examples (see Annex 3 – Best Practice Example) at the time of implementation. For each type or method a factsheet shows a short description about the type or method, possibilities how to use it, challenges and opportunities for the combination with other teaching, learning or assessment methods in a well-structured way (see as well Annex 2 – Screenshot ASTONRail Methods Catalogue). The methods catalogue is an interactive database offering the possibility to search for entries and to filter them. In addition, a collection of websites offering information about didactics in higher education in the partner countries in general is included in the handbook. Registered handbook users can update the method catalogue and the didactics link collection.

Another part of the handbook gives general ASTONRail project information, such as:

- Project description,
- Project partners,
- Working Group structure,
- Working Group pages (see an example in Annex 4 – Screenshot Working Group Page), showing a summary about the Working Group's content, achievements and providing documents for download. The responsible Working Group leaders delivered the content for these Working Group pages.

The last part of the handbook gives information for all users interested in higher education in rail, offering information about levels of the European Qualifications Framework (EQF) [4] and the Rail Career Matrix [5].

All initially developed wiki pages are listed in the sitemap in Annex 5 – Screenshot of Sitemap (at WG 8 end date).

4 Summary

The handbook was implemented as a wiki format that lives by the contribution of railway sector stakeholders. Every user can get a login and can contribute to the further refinement of the handbook. With this the whole railway community can take part and support the future higher education in the railway sector.

The ASTONRail handbook should support in detail:

- Future students in doing their first step towards a career in railways,
- Students and graduates in finding their job e.g. in the railway industry and
- Higher Education Institutions and teachers in getting ideas for modernizing rail teaching.

The ASTONRail handbook is innovative, flexible and individually adaptable to cover new findings and to stay up to date. It will support the railway sector beyond the ASTONRail project lifetime. It presents the results of the ASTONRail project and makes them usable for the public.

All handbook users are called to contribute with their knowledge to the handbook to keep it up to date and alive.

The ASTONRail handbook was presented by TH Wildau at the public ASTONRail final conference in Stockholm in June 2023. The industry representatives and other attendees agreed that the handbook will be valuable for the railway industry.

5 References

[1] Gohr, A.: DokuWiki. [Online]. Available at: <https://www.dokuwiki.org> [last access 15.08.2023 3:58 p.m].

[2] Osdoba, A.-K., Lehnert, M. (planned publication in 2023). ASTONRail-Handbook – eine interaktive Übersicht über Eisenbahnstudiengänge und Lehrmethoden. In: Eisenbahntechnische Rundschau (ETR)

[3] ASTONRail: Project website ASTONRail. [Online]. Available at: <http://astonrail.eu> [last access 23.08.2023 11:44 a.m].

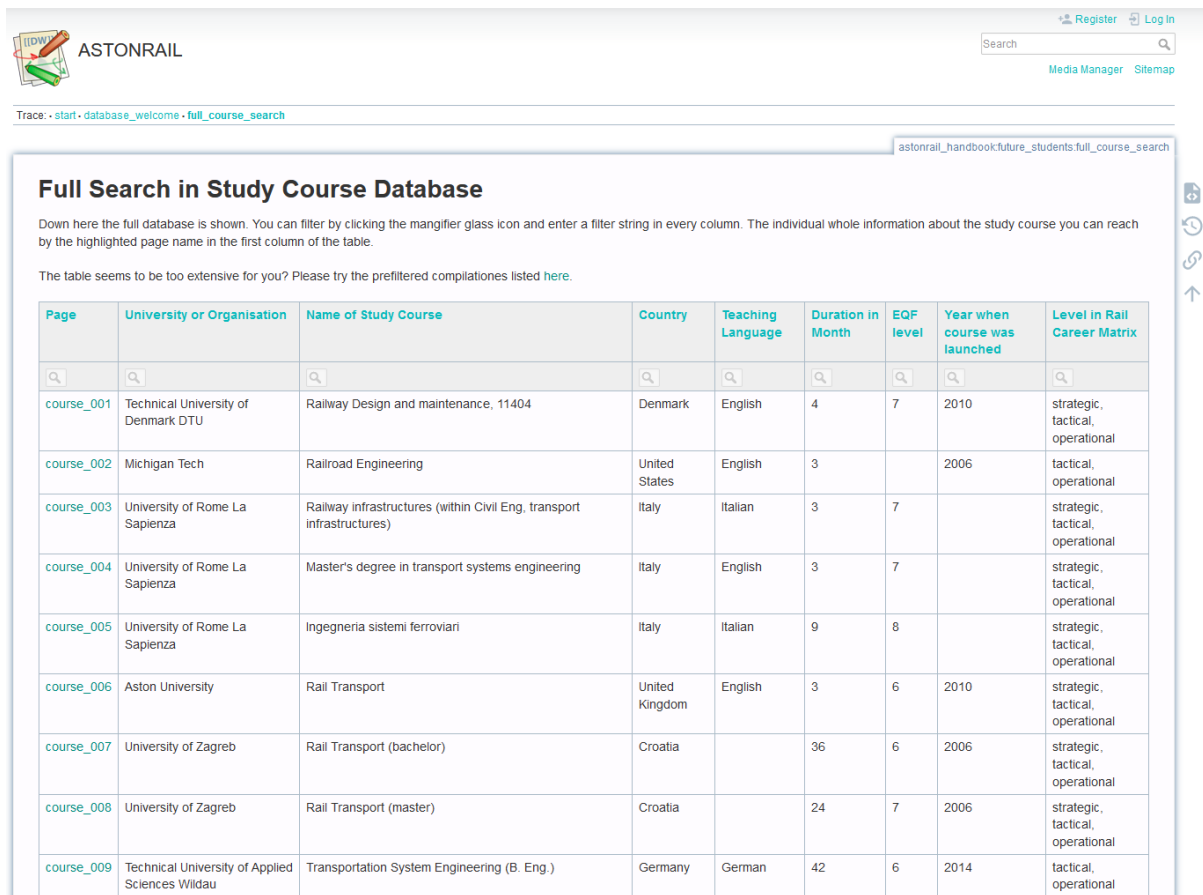
[4] europass. European Union: The European Qualifications Framework. [Online]. Available at: <https://europa.eu/europass/en/europass-tools/european-qualifications-framework> [last access 16.08.2023 2:01 p.m].

[5] RAILWAY TALENTS: CAREER PATHWAYS: Rail Career Matrix. [Online]. Available at: <https://railtalent.org/pathways/> [last access: 24.08.2023 2:23 p.m]

6 Annex

6.1 Annex 1 – Screenshot ASTONRail Database on Rail-Related Study Courses


ASTONRail Database as a list (only first entries displayed):



The screenshot shows the ASTONRail database search interface. At the top, there is a search bar and navigation links for 'Register' and 'Log In'. Below the search bar, there is a breadcrumb trail: 'Trace: - start - database_welcome - full_course_search'. The main content area is titled 'Full Search in Study Course Database' and contains a table of study courses. The table has columns for Page, University or Organisation, Name of Study Course, Country, Teaching Language, Duration in Month, EQF level, Year when course was launched, and Level in Rail Career Matrix. The first nine entries are displayed, showing courses from various universities including DTU, Michigan Tech, University of Rome La Sapienza, Aston University, and University of Zagreb.

Page	University or Organisation	Name of Study Course	Country	Teaching Language	Duration in Month	EQF level	Year when course was launched	Level in Rail Career Matrix
course_001	Technical University of Denmark DTU	Railway Design and maintenance, 11404	Denmark	English	4	7	2010	strategic, tactical, operational
course_002	Michigan Tech	Railroad Engineering	United States	English	3		2006	tactical, operational
course_003	University of Rome La Sapienza	Railway infrastructures (within Civil Eng. transport infrastructures)	Italy	Italian	3	7		strategic, tactical, operational
course_004	University of Rome La Sapienza	Master's degree in transport systems engineering	Italy	English	3	7		strategic, tactical, operational
course_005	University of Rome La Sapienza	Ingegneria sistemi ferroviari	Italy	Italian	9	8		strategic, tactical, operational
course_006	Aston University	Rail Transport	United Kingdom	English	3	6	2010	strategic, tactical, operational
course_007	University of Zagreb	Rail Transport (bachelor)	Croatia		36	6	2006	strategic, tactical, operational
course_008	University of Zagreb	Rail Transport (master)	Croatia		24	7	2006	strategic, tactical, operational
course_009	Technical University of Applied Sciences Wildau	Transportation System Engineering (B. Eng.)	Germany	German	42	6	2014	tactical, operational

Factsheet for a study course in the database, as an example the factsheet for Transportation System Engineering:



ASTONRAIL

[Register](#) [Log In](#)

[Media Manager](#) [Sitemap](#)

Trace: [start](#) · [database_welcome](#) · [full_course_search](#) · [course_009](#)

astonrail_handbook:future_students:studycourses:course_009

course_009

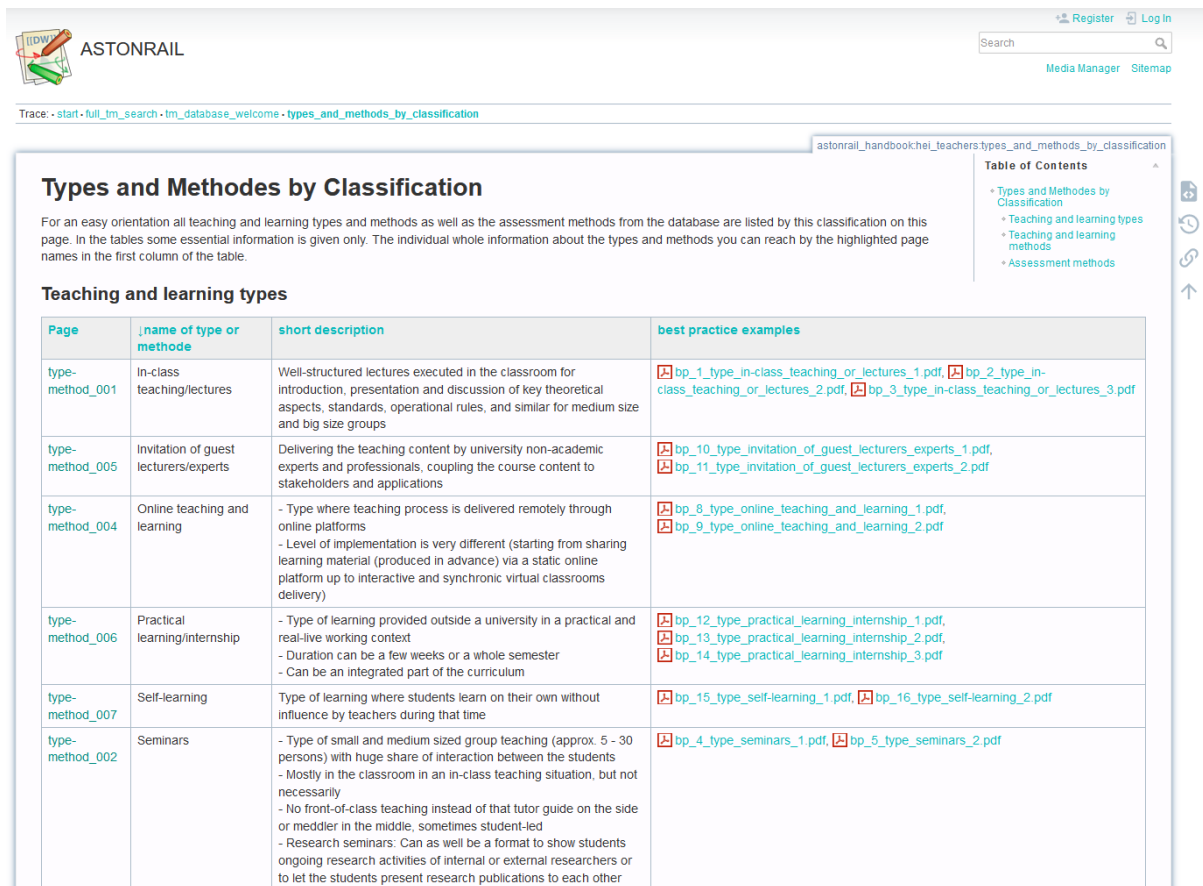
StudyCourseData	
University or Organisation:	Technical University of Applied Sciences Wildau
Institute or Department:	Engineering and Natural Sciences
Name of Study Course:	Transportation System Engineering (B. Eng.)
Country:	Germany
City or Region:	Wildau
EQF level:	6
Teaching Language:	German
ECTS in Rail:	25
Website:	th-wildau.de/...
Duration in Month:	42
Year when course was launched:	2014
Internship Comments:	Three obligatory internships (8 weeks plus 20 weeks) in (transportation) companies and/or administrations, depending on the individual interest & competences of the student, no fixed assignments – plus 12 weeks Bachelor thesis occasionally in company
Level in Rail Career Matrix:	tactical, operational
Notes:	The course is offered full-time, part-time and dual. Course duration (in months): full-time 42, part-time 72, dual 48.
Last Data Update:	2023/04/04 23:33

astonrail_handbook/future_students/studycourses/course_009.txt · Last modified: 2023/08/16 12:51 by martin_l

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6.2 Annex 2 – Screenshot ASTONRail Methods Catalogue


ASTONRail methods catalogue sorted by classification (only first entries displayed):



The screenshot shows the ASTONRail website interface. At the top, there is a navigation bar with 'ASTONRAIL' and 'ERASMUS+' logos, a search bar, and links for 'Register', 'Log In', 'Media Manager', and 'Sitemap'. Below the navigation bar, the breadcrumb trail reads: 'Trace: - start - full_fm_search - fm_database_welcome - types_and_methods_by_classification'. The main content area is titled 'Types and Methodes by Classification'. It includes a 'Table of Contents' sidebar with links to 'Types and Methodes by Classification', 'Teaching and learning types', 'Teaching and learning methods', and 'Assessment methods'. The main text explains that the database lists teaching and learning types and methods, with essential information provided in the first column of the table. Below this, the section 'Teaching and learning types' contains a table with the following data:

Page	name of type or methode	short description	best practice examples
type-method_001	In-class teaching/lectures	Well-structured lectures executed in the classroom for introduction, presentation and discussion of key theoretical aspects, standards, operational rules, and similar for medium size and big size groups	bp_1_type_in-class_teaching_or_lectures_1.pdf , bp_2_type_in-class_teaching_or_lectures_2.pdf , bp_3_type_in-class_teaching_or_lectures_3.pdf
type-method_005	Invitation of guest lecturers/experts	Delivering the teaching content by university non-academic experts and professionals, coupling the course content to stakeholders and applications	bp_10_type_invitation_of_guest_lecturers_experts_1.pdf , bp_11_type_invitation_of_guest_lecturers_experts_2.pdf
type-method_004	Online teaching and learning	- Type where teaching process is delivered remotely through online platforms - Level of implementation is very different (starting from sharing learning material (produced in advance) via a static online platform up to interactive and synchronic virtual classrooms delivery)	bp_8_type_online_teaching_and_learning_1.pdf , bp_9_type_online_teaching_and_learning_2.pdf
type-method_006	Practical learning/internship	- Type of learning provided outside a university in a practical and real-live working context - Duration can be a few weeks or a whole semester - Can be an integrated part of the curriculum	bp_12_type_practical_learning_internship_1.pdf , bp_13_type_practical_learning_internship_2.pdf , bp_14_type_practical_learning_internship_3.pdf
type-method_007	Self-learning	Type of learning where students learn on their own without influence by teachers during that time	bp_15_type_self-learning_1.pdf , bp_16_type_self-learning_2.pdf
type-method_002	Seminars	- Type of small and medium sized group teaching (approx. 5 - 30 persons) with huge share of interaction between the students - Mostly in the classroom in an in-class teaching situation, but not necessarily - No front-of-class teaching instead of that tutor guide on the side or meddler in the middle, sometimes student-led - Research seminars: Can as well be a format to show students ongoing research activities of internal or external researchers or to let the students present research publications to each other	bp_4_type_seminars_1.pdf , bp_5_type_seminars_2.pdf

Factsheet for a method, as an example the factsheet for laboratory exercise:



[Register](#) [Log In](#)

[Media Manager](#)
[Sitemap](#)

Trace: [start](#) • [full_tm_search](#) • [tm_database_welcome](#) • [types_and_methods_by_classification](#) • [type-method_016](#)

astonrail_handbook:hei_teachers:types_and_methods:type-method_016

type-method_016

types_and_methods_list

classification:	teaching and learning method
name of type or methode:	Laboratory exercise
short description:	Practical exercises in individual (or in small groups) done in a laboratory to deepen and to apply theoretical aspects
is applicable or could be used for:	<ul style="list-style-type: none"> - Gaining first practical experience related to the theory in an simplified, academic context - Practical verification/testing of theoretical knowledge
be aware of (challenges):	<ul style="list-style-type: none"> - Preparation is very time-consuming - In most cases, simplifications have to be made to the laboratory setup or test implementation so that implementation in the laboratory is possible - Very support-intensive - Previous work of the student about the topic covered in the lab - Generally, a high initial budget is required to acquire the resources for the laboratory
to be complemented by:	<ul style="list-style-type: none"> - Practice report, practical test - Teaching theory and showing and classifying it in larger contexts - Transfer methods to other framework conditions
short description of examples:	TH Wildau (27): use of railway operation laboratory UMA (28): Pracical exercise in laboratory
best practice examples:	bp_27_method_laboratory_exercise_1.pdf , bp_28_method_laboratory_exercise_2.pdf

astonrail_handbook/hei_teachers/types_and_methods/type-method_016.txt · Last modified: 2023/05/28 18:25 by martin_

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6.3 Annex 3 – Best Practice Example

Example for a best practice example description, related to the method laboratory exercise:



Best Practice Example – Laboratory Exercise

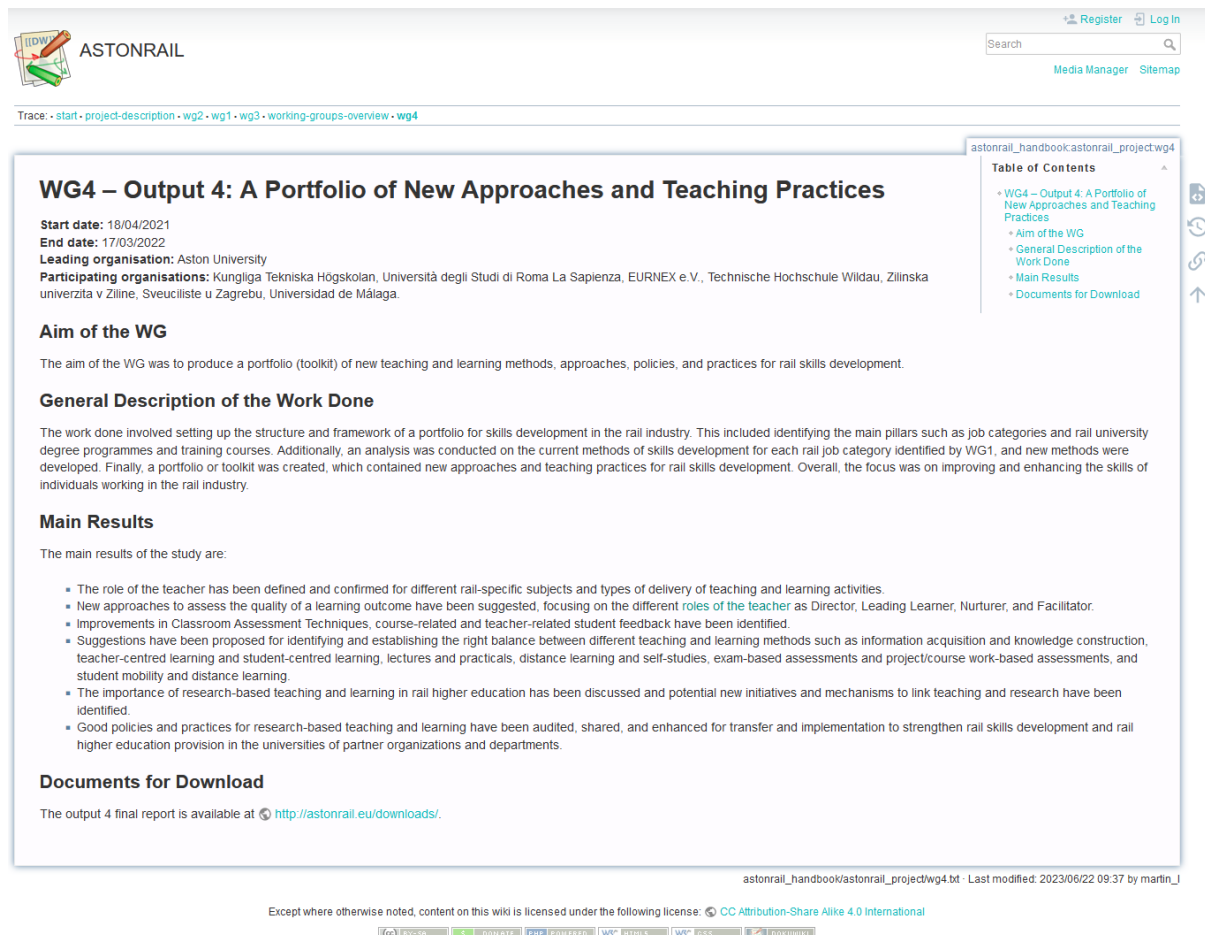
General description	
Project partner:	TH Wildau
Type / method name:	laboratory exercise
Short description of type / method:	practical exercises in individual (or in small groups) done in a laboratory to deepen and to apply theoretical aspects
Applicable for / could be used for:	<ul style="list-style-type: none"> gaining first practical experience related to the theory in an simplified, academic context applying the theoretical knowledge in a well-structured, practical surrounding
Be aware of (challenges):	<ul style="list-style-type: none"> preparation is very time-consuming in most cases, simplifications have to be made to the laboratory setup or test implementation so that implementation in the laboratory is possible very support-intensive the nature of the results can depend very much on the environmental conditions and thus vary greatly. An evaluation of performance must therefore allow flexibility
To be complemented by:	<ul style="list-style-type: none"> teaching theory and showing and classifying it in larger contexts transfer methods to other framework conditions
Application (figures and requirements)	
Used in university:	TH Wildau
- in study course:	Transportation System Engineering
- in course level:	Bachelor in 3 rd year
- in module:	IT in Transportation
Recommended group size:	5 to 20 students
Required time:	depending on the task from 0.5 hours to several hours
Required material:	laboratory equipment and components for every workplace
Organisational and other requirements:	a suitable laboratory must be available; sufficient supervisors must be available
Preparation effort for the teacher:	depends on the task the laboratory exercise is about
Detailed description	
Context in which the type / method is used	Simulation lab with Arduino microcontroller and GPS device to collect real-time rail or bus vehicle positions (preparation of equipment and software in lab, used for data collection in real vehicles)
Goal/aim (by using that specific method):	<ul style="list-style-type: none"> Demonstrate concept of vehicle position data acquisition with easy methods and equipment to understand the whole process chain. Gaining practical experience with software and IT.
Description of the best practice:	In the learning unit, the students have to set up a simple electrical circuit (LED, series resistor, switch/button) based on written instructions and the explanations given by the teacher, further control it using a microcontroller board (Arduino) and the



	<p>appropriate software. Each student works independently or small groups of 2-3 students are formed to work on the task together. At the beginning, the students are given the test description and the required components and corresponding explanations from the supervisor. The students set up the experiment independently and carry out the experiment. They can ask the supervisors for advice and help at any time.</p> <p>The students document their work in an experiment protocol. The students present the functionality they have achieved to the supervisor, who accepts it and uses question and answer to test the knowledge gained by the students.</p> <p>The module begins with small, simple practical experiments lasting approx. 0.5 - 1 hour. Later, the experiment task increases to work phases lasting several weeks to implement a student project (e.g. localization of public transport vehicles as part of an intelligent transportation control system)</p>
Teaching approach (sage on the stage; guide on the side; meddler in the middle):	Guide on the side and meddler in the middle, depending on special content
Role of the teacher (Director; Leading Learner, Nurturer; Facilitator):	a mixture of all roles - mostly Teacher as Leading Learner (Meddler) and Teacher as Facilitator (Guide)
Teaching perspective – pros:	<ul style="list-style-type: none"> • practical and “touchable” application of theory in a protected laboratory environment • possibility for students to interact with the teacher if they have questions or if something is not understood (possibility to ask questions and to discuss) can have a motivating effect on the students
Teaching perspective – cons:	<ul style="list-style-type: none"> • consuming in terms of time and manpower and resources
Learning perspective – pros:	<ul style="list-style-type: none"> • opportunity to try and experiment • opportunity to make the theory understandable
Learning perspective – cons:	<ul style="list-style-type: none"> • practical skills required • time-consuming, as the tests usually require special preparation
Special remarks:	---

6.4 Annex 4 – Screenshot Working Group Page

Working Group page – as an example the page for Working Group 4:



WG4 – Output 4: A Portfolio of New Approaches and Teaching Practices

Start date: 18/04/2021
End date: 17/03/2022
Leading organisation: Aston University
Participating organisations: Kungliga Tekniska Högskolan, Università degli Studi di Roma La Sapienza, EURNEX e.V., Technische Hochschule Wildau, Zilinska univerzita v Ziline, Sveuciliste u Zagrebu, Universidad de Málaga.

Aim of the WG

The aim of the WG was to produce a portfolio (toolkit) of new teaching and learning methods, approaches, policies, and practices for rail skills development.

General Description of the Work Done

The work done involved setting up the structure and framework of a portfolio for skills development in the rail industry. This included identifying the main pillars such as job categories and rail university degree programmes and training courses. Additionally, an analysis was conducted on the current methods of skills development for each rail job category identified by WG1, and new methods were developed. Finally, a portfolio or toolkit was created, which contained new approaches and teaching practices for rail skills development. Overall, the focus was on improving and enhancing the skills of individuals working in the rail industry.

Main Results

The main results of the study are:

- The role of the teacher has been defined and confirmed for different rail-specific subjects and types of delivery of teaching and learning activities.
- New approaches to assess the quality of a learning outcome have been suggested, focusing on the different roles of the teacher as Director, Leading Learner, Nurturer, and Facilitator.
- Improvements in Classroom Assessment Techniques, course-related and teacher-related student feedback have been identified.
- Suggestions have been proposed for identifying and establishing the right balance between different teaching and learning methods such as information acquisition and knowledge construction, teacher-centred learning and student-centred learning, lectures and practicals, distance learning and self-studies, exam-based assessments and project/course work-based assessments, and student mobility and distance learning.
- The importance of research-based teaching and learning in rail higher education has been discussed and potential new initiatives and mechanisms to link teaching and research have been identified.
- Good policies and practices for research-based teaching and learning have been audited, shared, and enhanced for transfer and implementation to strengthen rail skills development and rail higher education provision in the universities of partner organizations and departments.

Documents for Download

The output 4 final report is available at <http://astonrail.eu/downloads/>.

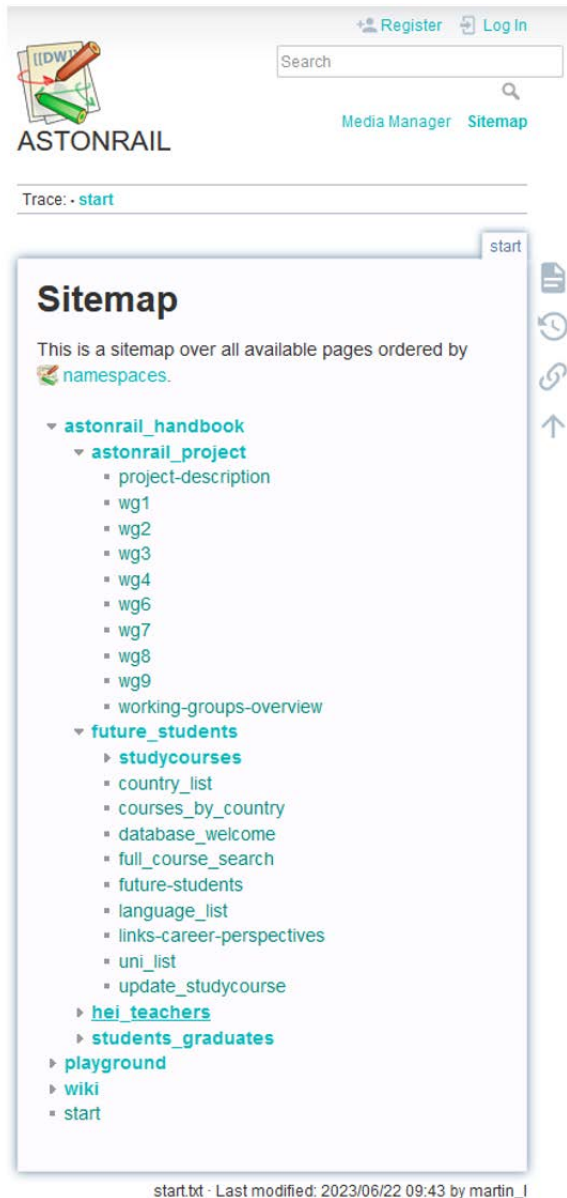
astonrail_handbookastonrail_projectwg4

astonrail_handbookastonrail_projectwg4.txt · Last modified: 2023/06/22 09:37 by martin_j

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6.5 Annex 5 – Screenshot of Sitemap

Sitemap:



Register Log In

Search

Media Manager Sitemap

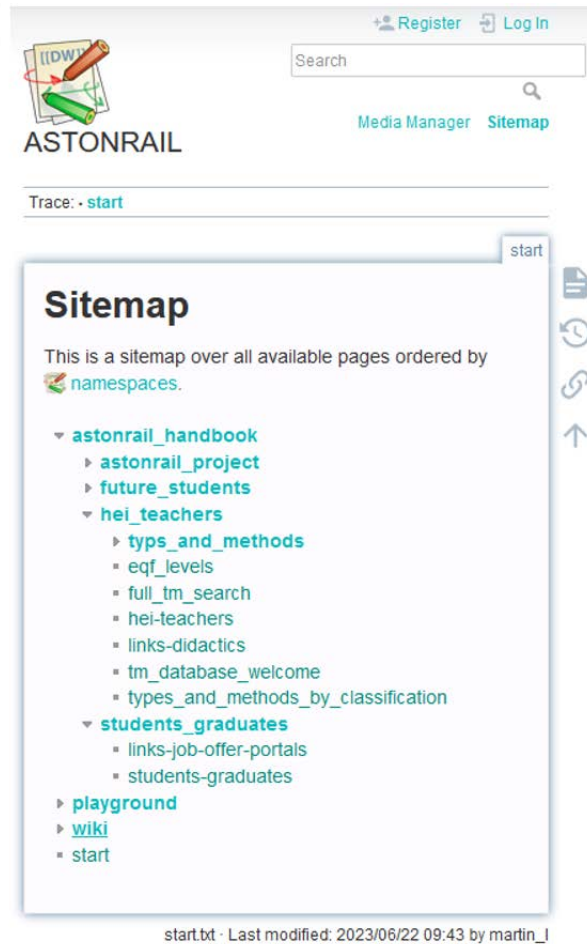
Trace: - start

Sitemap

This is a sitemap over all available pages ordered by namespaces.

- ▼ **astonrail_handbook**
 - ▼ **astonrail_project**
 - project-description
 - wg1
 - wg2
 - wg3
 - wg4
 - wg6
 - wg7
 - wg8
 - wg9
 - working-groups-overview
 - ▼ **future_students**
 - ▶ **studycourses**
 - country_list
 - courses_by_country
 - database_welcome
 - full_course_search
 - future-students
 - language_list
 - links-career-perspectives
 - uni_list
 - update_studycourse
 - ▶ **hei_teachers**
 - ▶ **students_graduates**
 - ▶ **playground**
 - ▶ **wiki**
 - **start**

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Sitemap

This is a sitemap over all available pages ordered by namespaces.

- ▼ **astonrail_handbook**
 - ▶ **astonrail_project**
 - ▶ **future_students**
 - ▼ **hei_teachers**
 - ▶ **types_and_methods**
 - eqf_levels
 - full_tm_search
 - hei-teachers
 - links-didactics
 - tm_database_welcome
 - types_and_methods_by_classification
 - ▼ **students_graduates**
 - links-job-offer-portals
 - students-graduates
 - ▶ **playground**
 - ▶ **wiki**
 - **start**

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