

WP4 – Development of teaching and training resources with the use of remote teaching methodology

IO.13 - Development of road surface management resources

The task will be carried out under Work Package 4 (WP4. Development of teaching and training resources with the use of the developed techniques).

The task will deal with the management of road surface maintenance at different levels, general (road network) and specific (road sections). Based on IO.4 – IO.9, the methods of remote education will be applied in the following:

- lectures (the road surface management system, types and characteristics of input data to the system, diagnostics, assessment and classification of the road network condition, measures of road surface condition, methods of testing, measuring and diagnosing the road network, taking actions to maintain and improve the road surface condition, etc.);
- fieldwork (collecting film and photographic documentation in specific locations, diagnosis and assessment of the surface condition, identification of damage (building a database), collecting input data in the form of section characteristics, geometry, etc.);
- practical classes (collecting additional, historical input data – from construction and maintenance, on traffic and accidents, transport policy, environmental data, construction and maintenance costs, assessment of the technical condition, determination of critical sections, causes of damage, etc.);
- design classes (forecast of condition changes over time and their development, condition deterioration and evolution of operational hazards, planning of maintenance and repair operations at various levels, taking into account costs, execution time, etc.);
- laboratory classes (evaluation of core samples, sample tests).

The planned outcome of the task will be the development of modern and innovative digital teaching and training content for remote education in the field of road surface maintenance management. As part of the syllabus of the civil and transportation engineering courses in partner universities, there will be provision for 30 hours of lectures, 10 hours of fieldwork, 5 hours of practicals, 15 hours of design and 15 hours of labs. The potential extension of the programme will be possible when universities adapt their syllabuses.

Target groups:

1. Research and teaching staff from institutions involved in the project and ultimately other European institutions.
2. Students of civil and transportation engineering.
3. Road authority staff at a national, local and regional level.

Innovative elements:

1. Building a database of surface defects with their classification and recommendations for remedial actions.

2. Building a database with the assessment criteria for surface condition and prioritising remedial actions, depending on the adopted methodology for assessing this condition.
3. The application of advanced, modern tools in training and teaching processes with the use of methods for remote education.

Expected impact:

The developed resources can be applied in the teaching (for students) and training (for road infrastructure management) throughout Europe. An innovative approach to distance learning in the field of road surface maintenance management, using support methods and tools, which will significantly increase the quality of teaching and training when it is necessary to employ remote education.

Transferability potential:

Tools to support education process in the road surface maintenance management will be made available on an online platform for the use of research centres and road administrations across Europe.

The division of work:

The work will be divided among all consortium participants (apart from AAU) and will include adaptation of teaching resources to the needs of the updated distance learning methodology (within IO.4 - IO.9).

The tasks leading to the production of the intellectual output:

The leading institution (GUT) will be responsible for supervising the development of teaching and training materials for road surface maintenance management. Other consortium participants (apart from AAU) will cooperate in the development of these resources, exchanging their knowledge and experience. Under the IO.13 the necessary scope and detailed division of work will be defined.

Applied methodology:

Within the framework of this task:

1. instructional materials will be prepared (presentations, audio-visual materials in the form of videos, tutorials), practical documents (guidelines, tables and recommendations);
2. databases will be built, with the possibility of their expansion and adaption to the needs of individual users.

To support distance learning in road surface maintenance management, methods dedicated to academic staff, students and road infrastructure management will be used (with the capacity for continuing development and increase of effectiveness).