

# T E M P U S I V

## (Sixth Call for proposals EACEA no. 35/2012)

### Joint Project / Structural Measure

Project Title: Curriculum Development: Highway/Road Construction  
Engineering and Vehicle Engineering

Project Acronym: HIGHVEC  
(Project No. / Agreement No.) 2013 – 5074/001 – 001

### Final Report

#### Project Partners:

##### EU Academic Partners:

- University of Birmingham, UK (UoB) – lead Partner
- University Polytechnica of Bucharest, Romania (UPB)
- Polytechnic Institute of Castelo Branco, Portugal (IPCB)
- Carlos III University of Madrid, Spain (UC3M)

##### UZBEK Academic Partners:

- Tashkent Automobiles and Roads Institute (TARI)
- Jizzakh Polytechnic Institute (JPI)
- Andijan Machine Building Institute (AMI)
- Samarkand State Architecture-Construction Institute (SACI)
- Nukus State University (NSU)

##### UZBEK Non-Academic Partners:

- Europe-Asia Transcontinental Highway Consortium (EATSHC)
- Avtoyul Taraqqiyoty Uzbekistan (AYT)
- JV-Mann Auto Uzbekistan (JV MAN-UZ)
- General Motors Uzbekistan (GM-UZ)
- Ministry of Higher and Secondary Specialised Education (MHSSE)

#### Project outcomes and impact

- *Reforming curricula in engineering education, specifically the curricula of 2 Masters programmes in Highway/Road Engineering and Vehicle Engineering. This has been achieved by preparing 5 new MSc specialization courses for the Vehicle Engineering Masters programme, 4 new MSc specialisation courses in Highway/Road Engineering and 1 Masters level general engineering course. These courses have been prepared in collaboration with the EU partners based on the latest technological developments in the relevant fields. The developed courses are:*
  - *Automobile Diagnosis (Vehicle Engineering)*
  - *Advanced Vehicle Dynamics (Vehicle Engineering)*
  - *Advanced CAD/CAE Applications in Automobile Engineering (Vehicle Engineering)*
  - *Machine Testing (Vehicle Engineering)*
  - *Vehicle Noise, Vibration and Harshness (Vehicle Engineering)*
  - *Fundamentals of Road Construction (Highway/Road Engineering)*
  - *Road Asset Management (Highway/Road Engineering)*
  - *Road Safety (Highway/Road Engineering)*
  - *Geometrical Information Systems in Highways and Aerodromes (Highway/Road Engineering)*
  - *Numerical Analysis (General Engineering)*
- *In addition, the following courses are under development and will be added to the portfolio of courses for the 2 programmes in the next year:*

- *Electronic Control Unit of Automobiles (Vehicle Engineering)*
- *Road Design (Highway/Road Engineering)*
- *Risk Management (General Engineering)*
- *Project Management (General Engineering)*
- *Upgrading skills of university teaching staff, especially in the field of Engineering*
  - *Over 35 Uzbek academic staff upgraded their skills by attending intensive training courses at the 4 EU partner institutions involving a total of 43 mobilities. In addition, over 60 Uzbek academic staff, researchers and postgraduate students upgraded their skills by attending intensive training courses delivered by EU partner academic staff in Tashkent and Samarkand during 2 visits.*
- *Establishing university industry links*
  - *The project enabled university/industry links to be established. For example, there were 5 industrial partners in the project consortium. During the project, further industrial links were established for the training of engineering staff of industrial companies and collaborative research in the future.*
- *Wide applications of information communication technologies and tools in teaching and learning*
  - *The use of information communication and computer technologies is embedded in most of the newly developed courses so students will have to develop their skills in ICT and computer technologies. Likewise, the use of ICT technologies has been implemented for the delivery of the courses.*
- *Creating basis towards the Bologna process in Engineering in the example of two master programs: highway/road construction engineering and vehicle engineering in Uzbekistan.*
  - *The 2 new Masters' programmes are designed on the basis of satisfying the requirements for the Bologna process in Engineering programmes such that students will accumulate 120 ECTS credits during the programmes. The individual courses are designed on the basis of 12 ECTS credits.*
- *Enhancing networking among higher education institutions and research institutions across the partner countries and EU member states*
  - *The project has enabled the links between the partner institutions to be enhanced as well as facilitating the establishment of new partnerships. The following are examples of such partnerships:*
    - *Cooperation agreements signed between UPB and 2 Uzbek institutions – TARI and JPI*
    - *Memorandum of Understanding signed between UC3M and TARI*
    - *Bi-lateral Agreement on Collaboration and Joint Actions between Dynamics & Control Lab (TARI) and MECATLAN (UC3M)*
    - *Cooperation protocols were signed between IPCB and two Uzbek Institutions that participated in the project: SACI and NSU*
    - *Research collaboration between UoB and UC3M has expanded in the area of Tire Dynamics*
- *Enhancing mutual understanding between the peoples and cultures of the EU and of the partner countries.*
  - *The project has promoted mutual understanding between the participants through working together and visits to all the participating countries during which cultural visits and events were organised.*