QUEECA
QUALITY OF ENGINEERING EDUCATION IN CENTRAL ASIA

"The QUEECA Experience Developing and Implementing a Central Asia Accreditation of Engineering Education Consistent with European Standards"

Co-funded by the
Tempus Programme
of the European Union

edited by:
Claudio Borri
Sergey Gerasimov
Elisa Guberti
Jose Carlos Quadrado
Onola Umankulova
Ulf Winkelmann

FIRENZE UNIVERSITY PRESS

The QUEECA Experience

Developing and Implementing a Central Asia Accreditation of Engineering Education Consistent with European Standards

edited by
Claudio Borri, Sergey Gerasimov, Elisa Guberti,
Jose Carlos Quadrado, Onola Umankulova, Ulf Winkelmann

firenze university press
2016

The QUEECA Experience : developing and Implementing a Central Asia Accreditation of Engineering Education Consistent with European Standards / edited by Claudio Borri, Sergey Gerasimov, Elisa Guberti, Jose Carlos Quadrado, Onola Umankulova, Ulf Winkelmann. – Firenze : Firenze University Press, 2016.
(Proceedings e report ; 109)

http://digital.casalini.it/9788866559597

ISBN 978-88-6655-958-0 (print)
ISBN 978-88-6655-959-7 (online)

Co-funded by the Tempus Programme of the European Union.

This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

La presente opera è rilasciata nei termini della licenza Creative Commons Attribution 4.0 Unported (CC BY 4.0: https://creativecommons.org/licenses/by/4.0/legalcode)

Peer Review Process
All publications are submitted to an external refereeing process under the responsibility of the FUP Editorial Board and the Scientific Committees of the individual series. The works published in the FUP catalogue are evaluated and approved by the Editorial Board of the publishing house. For a more detailed description of the refereeing process we refer to the official documents published on the website and in the online catalogue of the FUP (www.fupress.com).

Firenze University Press Editorial Board
G. Nigro (Co-ordinator), M.T. Bartoli, M. Boddi, R. Casalbuoni, C. Ciappei, R. Del Punta, A. Dolfi, V. Fargion, S. Ferrone, M. Garzaniti, P. Guarnieri, A. Mariani, M. Marini, A. Novelli, M.C. Torricelli, M. Verga, A. Zorzi.

CC 2016 Firenze University Press
Università degli Studi di Firenze
Firenze University Press
via Cittadella 7, 50144 Firenze, Italy
www.fupress.com
Printed in Italy

This volume is gratefully dedicated to the memory of Professor Valeriy Antonov (1937-2012)
East Kazakhstan State Technical University (EKSTU)

Prof. Dr. Ing. Claudio Borri – Project Coordinator
Dr. Elisa Guberti – Project Manager

Full Members of the Management Board

Name	**Affiliation**
Borri, Claudio	UNIFI, ENG – IT Contact person at the coordinating institution
Augusti, Giuliano	QUACING, IT
Squarzoni, Alfredo	UNIGENOVA, IT
Quadrado, Jose' Carlos	ISEL, PT
Pokolkov, Yuri	ENAEE, BE
Karamanoglu, Mehmet	MDX, UK
Rakhmetullina, Saule	EKSTU - East Kazakhstan State Technical University, KZ
Magrupov, Talat	TSTU, UZ Representative person for all UZ partners
Akhorova, Alphia	TTU, TJ Representative person for all TG partners
Umankulova, Onola	EdNet, KG Representative person for all KG partners and coordinator for all CA partners

Permanently invited to the meetings of the MB

Name	**Affiliation**
Mc. Grath, Denis	ENAEE, BE
Wasser, Iring	ENAEE, BE and ASIIN, DE
Mutanov, Galym	KazNU, KZ
Nikitenko, Natalia	Member of the Committee for education culture, sport and science under the parliament of KG Republic
Karimov, Madjit	Vice Rector of TSTU, UZ
Saidov, F.	Chair of the attestation committee of the Ministry of education of TJ
Sangov, M.	Vice Rector of TTU, TJ

Editors

Name	**Affiliation**
Claudio Borri	UNIFI
Sergey Gerasimov	Siberian Transport University
Elisa Guberti	UNIFI
Jose Carlos Quadrado	ISEL
Onola Umankulova	EdNet
Ulf Winkelmann	RUB

Claudio Borri, Sergey Gerasimov, Elisa Guberti, Jose Carlos Quadrado, Onola Umankulova, Ulf Winkelmann (edited by), *The QUEECA Experience: developing and Implementing a Central Asia Accreditation of Engineering Education Consistent with European Standards*, ISBN 978-88-6655-958-0 (print), ISBN 978-88-6655-959-7 (online), CC BY 4.0, 2016 Firenze University Press

List of QUEECA Project board members

Partner	Name	Institution	Country
Partner 1	Borri, Claudio	UNIFI, ENG	IT
Partner 2	Wasser, Iring	ASIIN	DE
Partner 3	Pokholkov, Yurj	ENAEE	BE
Partner 4	Quadrado, José Carlos	ISEL	PT
Partner 5	Karamanoglu, Mehmet	MDX	UK
Partner 6	Augusti, Giuliano	QUACING	IT
Partner 7	Hoffer, Rudiger	RUB	DE
Partner 8	Come, Françoise	SEFI	BE
Partner 9	Podestà, Luca	UNIROMA – La Sapienza	IT
Partner 10	Squarzoni, Alfredo	USGIT - UniGenova	IT
Partner 11	Tastanova, Lyazzat	ASU – Aktobe State University	KZ
Partner 12	Rakhmetullina, Saule	EKSTU - East Kazakhstan State Technical University	KZ
Partner 13	Mutanov, Galym	KaZNU – Al-Farabi Kazakh National University	KZ
Partner 14	Zholdybekova, Bazarkul	KazSEE – Kazakhstan Society for Engineering Education	KZ
Partner 15	Smirnova, Galina	KSTU -Karaganda State Technical University KZ	KZ
Partner 16	Maulenovich, Omirbaev Serik	MESKR KZ - Ministry of Education and Science of KZ Republic	*KZ*
Partner 17	Abdizhapparova, Bakhytkul	M. Auezov SKSU – South Kazakhstan State University	KZ
Partner 18	Umankulova, Onolkan	EdNet	KG
Partner 19	Checheibaev, Marat	KSTU KG Kyrgyz State Technical Univ.	KG
Partner 20	Abylov, Saidulla Abdil	KSUCTA KG - Kyrgyz State Univ. of Construction, Transport and Architecture	KG
Partner 21	Marchenko, Larisa	MESKR KG - Ministry of Education and Science of Kyrgyz Republic	KG
Partner 22	Mamyrkanova, Gulmira	SILAEIMESKR State Inspection on Licensing and Attestation (Accreditation) of Educational Institutions	KG
Partner 23	Rakhmonov, Abdujabbor Azizovich	ME of the RT - Ministry of Education of Republic of TJ	TJ
Partner 24	Razykov, Zafar	MMIT – Mining Metallurgical Institute of Tajikistan	TJ
Partner 25	Akhrorova, Alphia	TTU – Tajik Technical University named after M.S. Osimi	TJ
Partner 26	Kurbanbay Abulniyozov	MHSSE - Ministry of Higher Education Republic of UZ	*UZ*
Partner 27	Magrupov, Talat	TSTU - Tashkent Sate Technical University	UZ
Partner 28	Sabirjan, Yusupov	TUIT – Tashkent University of Information Technologies	UZ

List of QUEECA Project Partners

Partner	Name of the partner organisation	Short name of the organisation	Country
1	University of Florence	UNIFI	IT
2	ASIIN Consult GmbH	ASIIN	DE
3	European Network for Accreditation of Engineering Education	ENAEE	BE
4	Instituto Superior de Engenharia de Lisboa	ISEL	PT
5	Middlesex University	MDX	UK
6	Ag. Certif. Qualita' e Accreditam. Eur-Ace Corsi Di Studi Ing.	QUACING	IT
7	Ruhr University Bochum	RUB	DE
8	Société Européenne pour la Formation des Ingénieurs	SEFI	BE
9	Sapienza University of Rome	UNIROMA1	IT
10	Università degli Studi di Genova	USGIT	IT
11	Aktobe State University after K. Zhubanov	ASU	KZ
12	D.Serikbayev East-Kazakhstan State Technical University	EKSTU	KZ
13	Al-Farabi Kazakh National University	KAZNU	KZ
14	Kazakhstan Society for Engineering Education	KazSEE	KZ
15	Karaganda State Technical University	KSTU/KZ	KZ
16	Ministry of education and science of Kazakhstan Republic	MESKR/KZ	KZ
17	M. Azuezov South Kazakhstan State University	SKSU	KZ
18	CA Network for Quality Assurance at Education Network Association	CANQA-EdNet	KG
19	Kyrgyz State Technical University named after I. Razzakov	KSTU	KG
20	Kyrgyz State University of Construction, Transport and Architecture named after N. Isanov	KSUCTA	KG
21	Ministry of Education and Science of Kyrgyz Republic	MESKR/KG	KG
22	State Inspection on Licensing and Attestation of Educational Institutes	SILAEIMESKR	KG
23	Ministry of Education of the Republic of Tajikistan	MERT	TJ
24	Mining Metallurgical Institute of Tajikistan	MMIT	TJ
25	Tajik Technical University named after academician M.S. Osimi	TTU	TJ
26	Ministry of Higher Education of the Republic of Uzbekistan	MHSSE	UZ
27	Tashkent Sate Technical University named after A. R. Beruni	TSTU	UZ
28	Tashkent University of Information Technologies	TUIT	UZ

Table of Contents

Foreword - *Giuliano Augusti* ..... **I**

Introduction* – *Claudio Borri* ..... **III**

Part I. Contributions by partners **1**

Expected Outcomes of the QUEECA Project – *Mehmet Karamanoglu* 1

The achieved objectives of the QUEECA project - *Claudio Borri* 5

Revision of the EUR-ACE® Framework Standards and Guidelines – *Bernard Remaud* 20

Adaption of EAFS:Central Asia Engineering Accreditation Standards & Guidelines (CAEAS&G) - Alfredo Squarzoni 24

Gathering the Engineering Education Stakeholders in Central Asia - *Jose Carlos Quadrado* 30

Creation of the Engineering Education Societies as a step to create accreditation agencies – *Alphia Akhrorova* 46

Creation of accreditation centers – *Yerken Turbanbayev* 52

Independent accreditation as the most important tool on the way to high quality national education - *Onola Urmankulova* 58

Strategic aspects of the development of engineering education in Tajikistan – *Alphia Akhrorova* 64

About carrying out the tasks of the project QUEECA: the partner TSTU from Uzbekistan - *Talat Magrupov* 70

Series of Trial Accreditations - *Shynngys Yergobek* 98

How to implement an accreditation system: The QUEECA experience - Sergey Gerasimov 118

Part II. Contributions by academic, governmental and industrial stakeholders **158**

Defining Qualification Framework for Engineering Education: in line with QUEECA experience - *Nargiza Usmanova* 159

The main directions of engineering graduates training - *Samarov Khusnutdin* 167

Role of the system of training of young engineering graduates in providing qualities of educational process - *Talatov Yokubjon* 173

Student involvement in the independent accreditation process as one of the key aspects to achieve the quality education in Kyrgyzstan - *G. Iskandarova* 176

The quality of educational services and social and professional accreditation - *Abulniyozov Kurbanbay* 181

Development of High Professional Education in the frame of National Education: Development Strategy of the Republic of Tajikistan by 2020 - *Ismonov Fattidin* 183

Adaptation of graduates – the main component educational process - *Raxmatov Axmad* 185

Appendices **188**

Appendix 1: CAEAS&G Standards, Quality Requirements and Required Documentation 189

Appendix 2: The Khujand accord 194

Appendix 3: STANDARD INTERVIEW QUESTIONS WITHIN EP AUDIT FRAMES 202

Claudio Borri, Sergey Gerasimov, Elisa Guberti, Jose Carlos Quadrado, Onola Umankulova, Ulf Winkelmann (edited by), *The QUEECA Experience: developing and Implementing a Central Asia Accreditation of Engineering Education Consistent with European Standards*, ISBN 978-88-6655-958-0 (print), ISBN 978-88-6655-959-7 (online), CC BY 4.0, 2016 Firenze University Press