



Education, Audiovisual and Culture Executive Agency

Erasmus+ : Higher Education - International Capacity Building



МОНГОЛ УЛСЫН ШИНЖЛЭХ УХААН
ТЕХНОЛОГИЙН ИХ СУРГУУЛЬ
MONGOLIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Evaluation Report

ERASMUS + Capacity-building in Higher Education

Call for proposals EAC/A05/2017

Proposal number:	598317-EPP-1-2018-1-BG-EPPKA2-CBHE-JP
Proposal title:	SMARTCITY: Innovative Approach Towards A Master Program On Smart Cities Technologies
Applicant organisation:	TECHNICAL UNIVERSITY OF SOFIA

Professor Narantsetseg.Ya
Ulaanbaatar, Mongolia
05 Dec 2019

Co-funded by the
Erasmus+ Programme
of the European Union



Partners (Mongolia)

National University of Mongolia (NUM)
Mongolian University of Science and Technology (MUST)
Intec LLC (INTEC)

Partners (Kazakhstan)

Al-Farabi Kazakh National University (KazNU)
L.N. Gumilyov Eurasian National University (ENU)
Kazakhstan Association for Engineering Education (KAZSEE)

Contractor / Coordinator

Technical University of Sofia (TUS), Bulgaria

EU Partners

Alexander Technological Educational Institute of Thessaloniki (ATEITH), Greece
Chemnitz University of Technology (TUC), Germany
Rigas Tehniska Universitate (RTU), Latvia
Asociatia Pentru Tehnologia Informatiei Si Comunicatii Din Rom (ATIC), Romania

Partners (Russia)

Yuri Gagarin State Technical University of Saratov (SSTU)
Novosibirsk State Technical University (NSTU)
The Russian Union of CIOs (RUCIO)

Award Criteria

Relevance of the project

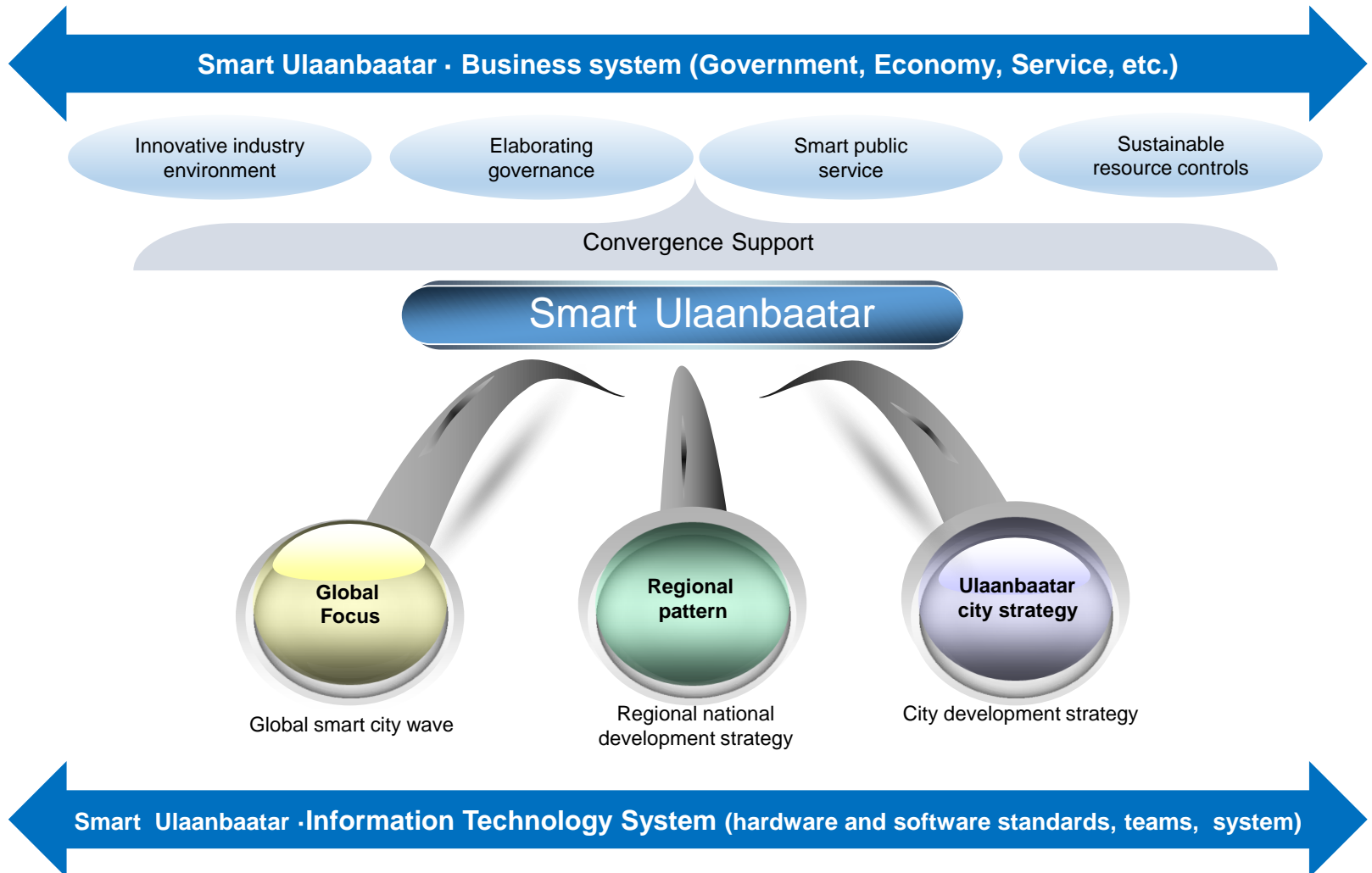


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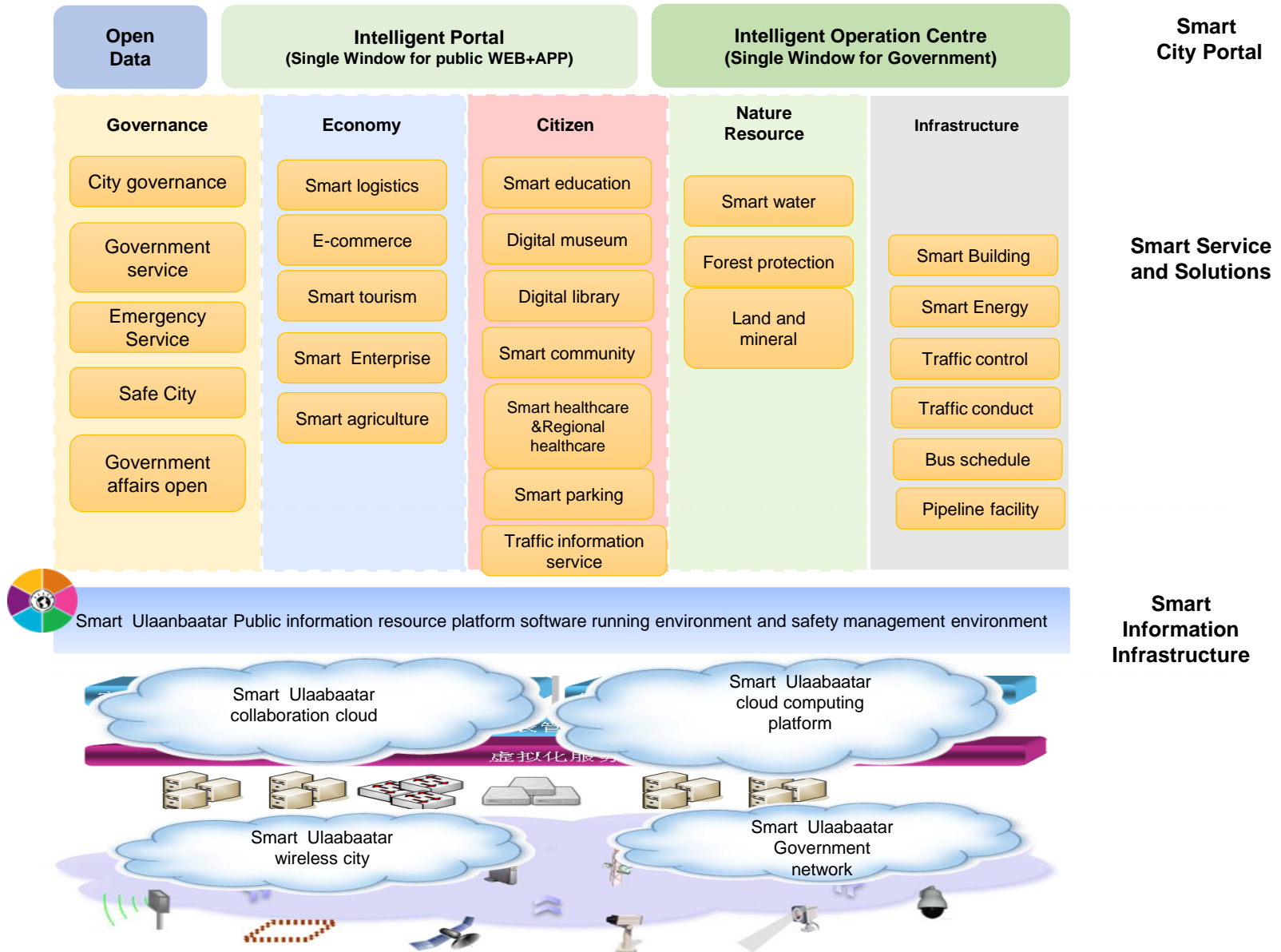
SMART ULAANBAATAR IT MASTER PLAN PROJECT

November 2015

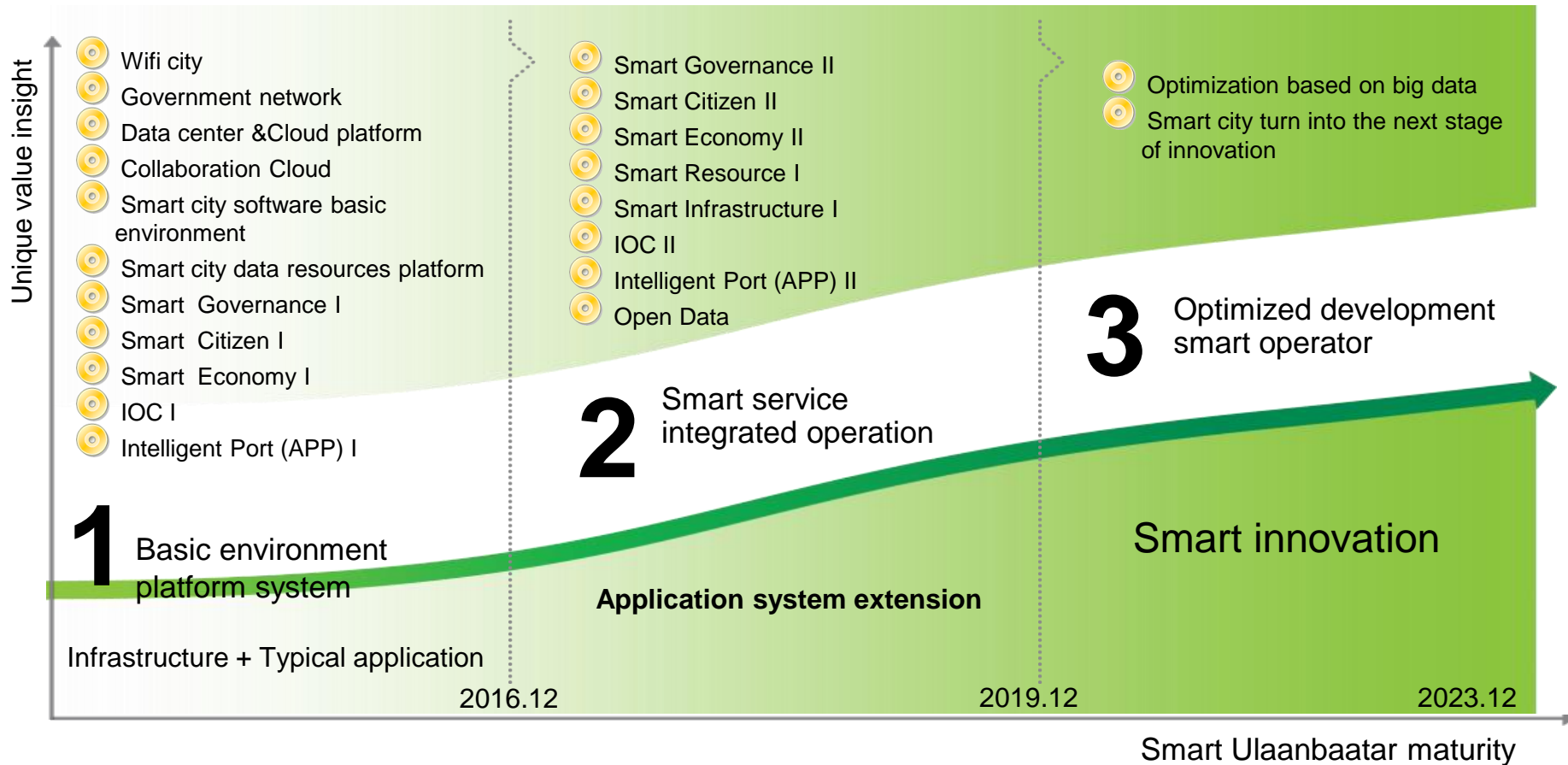
Smart Ulaanbaatar Conceptual Model



Supporting the overall architecture of Smart Ulaanbaatar



Smart Ulaanbaatar implementation route





**RIGA TECHNICAL
UNIVERSITY**

Double Degree Master Program, **/RTU1 + MUST1/**

[UNIVERSITY](#)[DEGREE STUDIES](#)[EXCHANGE STUDIES](#)[SHORT-TERM STUDIES](#)[PRACTICAL MATTERS](#)[CONTACT US](#)[ALUMNI](#)

MASTER STUDY PROGRAMMES IN ENGLISH



1-5 of April 2019 Top-managers of the Partner universities (15 deans, heads of the academic activities) took part in the project's seminar at Riga Technical University where the possibilities of the double- degree Master Program were discussed.

Riga, Latvia

[Read more](#)

ECTS- Student mobility, **GPA**



ERASMUS+ K2 SMARTCITY: Innovative Approach Towards a Master Program on Smart Cities Technologies /ICT/

Curriculum, materials and guide development (2019/20 Academic year)

PROGRAMME CONTENT

A COMPULSORY COURSES 43 CP/ 64.5 ECTS

EEP583

Code	Subject	Credit Points	ECTS	University	Semester
EEP584	Theory of Electronic Converters of Electrical Energy	4.0	6.0	RTU	I
EEP585	Simulation of Electrical Processes	5.0	7.5	RTU	I
EEP574	Commutated Converters	5.0	7.5	RTU	II
EEP572	The Control Systems of Power Electronics Equipment	5.0	7.5	RTU	I
EEP570	Elements of Automatics	9.0	13.5	RTU	II
EEP433	Automated Electrical Drive	3.0	4.5	RTU	I
EEP524	Design of Power Electronics Systems	3.0	4.5	RTU	II
EEP504	Microprocessors – based Automation Systems	3.0	4.5	MUST, NUM	III
EEP582	Control Technique with Microprocessor Controllers	3.0	4.5	MUST, NUM	III
EEP583	Industrial Frequency Converters and Inverters	2.0	3.0	RTU	I
IDA700	Basics of Occupational Safety	1.0	1.5	MUST, NUM	III

B LIMITED CHOICE 14.0 CP / 21.0 ECTS

B1 Specialized courses 10.0 CP/ 15.0 ECTS

Code	Subject	Credit Points	ECTS		
EEP408	Automated Electro Technological Processes	2.0	3.0		
EEP430	Industrial Programmable Control Systems	2.0	3.0		
EEP342	Application of Computers in Electrical Equipment Design	2.0	3.0		
EEP319	Methods of Analysis and Calculation of Electronic Circuits	2.0	3.0		
EEP458	Typical Electrical Drive	5.0	7.5		

EEP581	Electro-Magnetic Compatibility in Industrial Electronic Equipment	2.0	3.0	RTU	II
EEP453	Industrial Electronic Equipment	4.0	6.0		
EEP345	Unconventional Systems of Energy Conversion and Accumulation	3.0	4.5		
EES162	High Voltage Engineering	3.0	4.5		
J.EE702	Semiconductor IC Technology	3.0	4.5	MUST	III
J.EE703	Digital Signal Processing	3.0	4.5	MUST	III
ICSI621	Artificial Intelligence and Machine Learning	2.0	3.0	NUM	III
ICSI612	Data mining	2.0	3.0	NUM	III
ICSI622	Advanced Topics in Information Security	2.0	3.0	NUM	III
ICSI600	Research Methodologies in Computer Science	1.0	1.5	NUM	III
	Internship	10.0	15.0	MUST, NUM	IV

B2 Humanities and social sciences 4.0 CP/ 6.0 ECTS

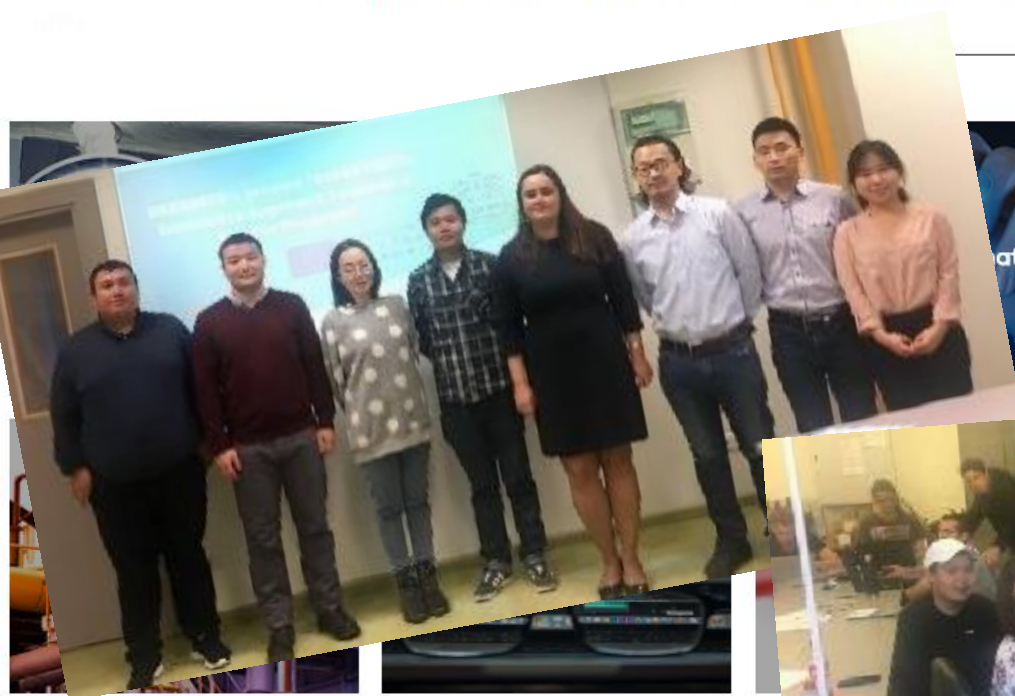
Code	Subject	Credit Points	ECTS		
HSP489	Organizational Psychology	2.0	3.0		
HSP446	Pedagogy	2.0	3.0		

C Free Choice Courses 4.0 CP/ 6.0 ECTS

E Final Examination 20.0 CP/ 30.0 ECTS

Code	Subject	Credit Points	ECTS		
EEI002	Master Thesis	20.0	30.0	RIGA, MUST, NUM	IV
EEL002	Master Thesis	20.0	30.0		
EEP002	Master Thesis	20.0	30.0		

MASTER STUDY PROGRAMMES IN ENGLISH



International Hybrid Learning Space

Quality of the project design and implementation



E-LEARNING MANAGEMENT SYSTEM

INTER UNIVERSITIES E-LEARNING MANAGEMENT SYSTEM

For 2007 we started e-learning in Mongolian University of Science and Technology. Based on this system we are ready to serve e-learning in other Mongolian universities. It will be benefit to share best e-contents of best teachers.



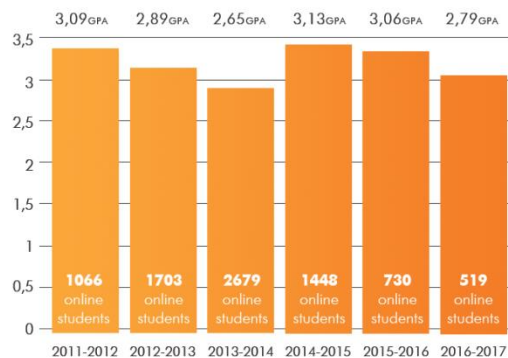
500+ E-Content

29 degree programs

13145 Online students

994 Teachers using online learning system

We established cooperation with foreign online and open universities. And become member of International Online Education Organizations.



Partner Universities:



11-24
November
2019



TECHNISCHE UNIVERSITÄT
CHEMNITZ



RIGA TECHNICAL
UNIVERSITY

Desk and field studies of the EU experience – International Hybrid Learning Space and distant technologies

Riga, Latvia,
Chemnitz, Germany

Russian and Kazakhstan universities' staff will visit
and Chemnitz University of Technology (1 week) for
learning and distant learning technologies



18-22
November
2019



Cascade training REPORT

On September 16th, 2019 (Monday) we have had cascade training for 10 teachers and staff of Mongolian University of Science and Technology. In this meeting, we have talked about new students to Riga Technical University and development of teaching materials in English with our teachers and administration staff.

The date of the cascade training: 2019.09.16
The speakers: Narantsetseg Yadmaa

The target group: MUST level administration staff and teachers.
The number of the participants: 10
The list of the participants:

No	Name	Position
1	D. Batdorj	Head of Department of Curriculum development
2	G. Zorig	Professor
3	Ts. Tuvshintugs	System Engineer
4	A. Munkhbat	Director of Printing House
5	D. Gantulga	Head of IT center
6	J. Alimaa	Professor
7	D. Dulmaa	Senior specialist
8	G. Khishigjargal	Professor
9	Byambatsoogt	System engineer
10	D. Munkuntuuz	Office worker

E-learning training at Hemnitz Technical University

Chemnitz, Germany

Three On-Line teaching materials are under development:

1. Fundamental of Smart City
2. Basics of Occupational Safety
3. Control Technique with Microprocessors Controllers

Hybrid Learning Space of
Novosibirsk State Technical University (NSTU)

Human Resource Development



Teachers from Kazakhstan, Mongolia and Russia has visited ATEI, Thessaloniki and TUS, Bulgaria for intensive training in double-degree master program development, content & methodology

Thessaloniki, Greece
Sofia, Bulgaria



International Teachers Training Event Within the Frames of ERASMUS+ Project

Riga, Latvia

Partner universities' staff took part in training seminars on e-learning systems and online assessment tools. Twelve Representatives - professors and teaching staff - from the universities of Russia, Kazakhstan, Mongolia participated in the 5 days teacher training activities from November 11 to November 15 this year within the frames of ERASMUS + project "SMARTCITY: Innovative Approach Towards a Master Program."



Summer School "Smart City Today and Tomorrow" at Novosibirsk State Technical University

Novosibirsk, Russia

The Novosibirsk International Summer School 'Smart Cities: Today and Tomorrow' was held at Novosibirsk State Technical University (NSTU) on July 01-05, 2019. This Summer School was carried out in full compliance with the Project, aimed at developing and implementing new joint educational programs in the direction of 'Smart City Technology and the Internet of Things'.

The summer school was attended by lecturers and responsible leaders from universities in Greece, Germany, Latvia, Mongolia, Bulgaria, Kazakhstan, Russia and Italy. In this case, the lecturer from Italy was a guest in connection with the cooperation between NSTU and the University of Bari (Italy). Also, within the framework of this event, a coordination meeting of responsible persons was held with discussion of the most important issues and taking decisions on all the issues discussed.

[Read more](#)

Environment Establishment / Smart City Open Laboratory /

Equipment purchasing, installation and support

TRANSNATIONAL RESEARCH ECOSYSTEM

TRANSNATIONAL RESEARCH ECOSYSTEM

Our idea behind the open research ecosystem is - **Build better relationships in research, life in business.**

In our open research ecosystem we try to build research teams from different professionals, with different experience and from different countries.



SHARING

Best Equipment, **Open Labs**

Innovation Ideas and HR
Funding and Financing

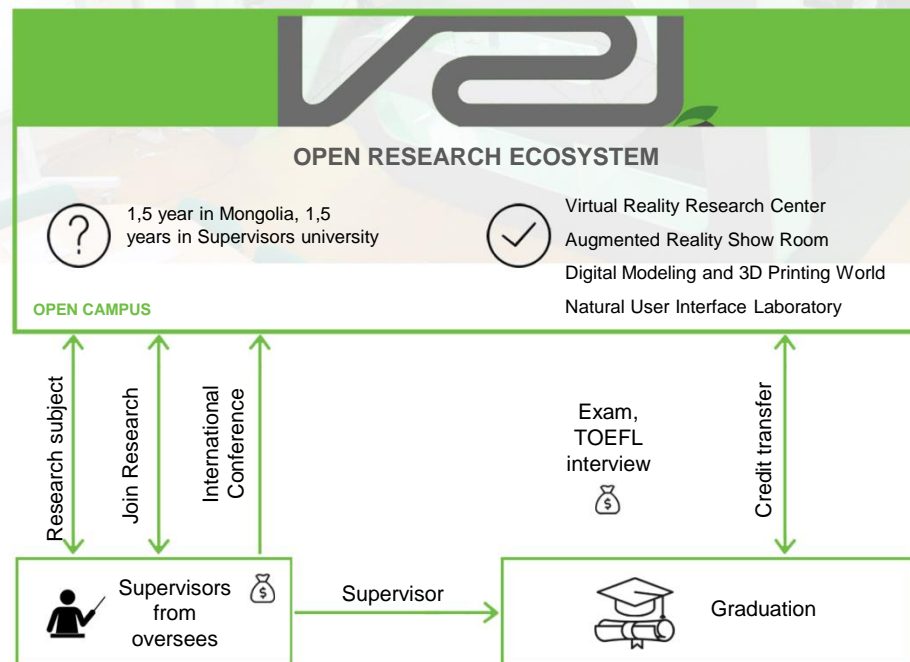
COLLABORATION

Entrepreneur and Researchers
Researchers

Students and Entrepreneur etc.

SKILL DEVELOPMENT

Start-Up companies
International Projects
Outsourcing



Transnational Programs:



岩手大学
IWATE UNIVERSITY



TAMPERE UNIVERSITY
OF APPLIED SCIENCES



FACHHOCHSCHULE
TECHNIKUM WIEN



St. Poelten University of
Applied Science

Development of QAS and its guide is on the process



Partner universities' staff have visited Technical University of Sofia (Bulgaria) for study of existing systems of quality assurance in Master training

Sofia, Bulgaria

Representatives of Kazakhstan, Mongolian and Russian universities had training sessions in quality assurance at Technical University of Sofia during May 6-12, 2019. Prof. Milka Vicheva presented the systems of quality assurance in EU higher education in regards of SMARTCITY project and the workshop targets. The participants led by Prof. Dukendjiev of TUS had discussed the quality standards in Master training, quality



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ТЕХНОЛОГИЙН ИД СУРГУУЛЬ
MONGOLIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Cascade training REPORT

On May 30th, 2019 (Tuesday) we had cascade training for 54 staff, lecturers and students of Mongolian University of Science and Technology. Alsoour vice-president Kh.Enkhjargal and prof Batdori, head of curriculum development attended on our training.

The date of the cascade training: 2019.05.30
The speakers: NARANTSETSEG Yadmaa, ZORIG Gunjee
Chair and Speaker: DULMAA Dagvadas

The target group: MUST level training. /Administration staff, Graduate and Undergraduate Schools/
The number of the participants: 54
The list of the participants:

Participants	Position
1. Kh.Enkhjargal	Vice-President for Academic and Students Affairs
2. B.Batdori	Head of Curriculum Development
3. Ya.Narantsetseg	Director of Grad School of Engineering
4. D.Dulmaa	Senior officer of Grad.School of Engineering
5. G.Zorig	Professor
6. D.Gantugs	ITC director
7. Lh.Doripagma	Programmer
8. G.Erdenechimeg	lecturer
9. G.Baasansuren	lecturer
10. E.Bayarmaa	officer

Development of QAS and its guide is on the process



**MONGOLIAN UNIVERSITY OF
SCIENCE AND TECHNOLOGY**
МОНГОЛ УЛСЫН ШИНЖЛЭХ УХААН ТЕХНОЛОГИЙН ИХ СУРГУУЛЬ

QUALITY MANAGEMENT SYSTEM at the MUST

CLOUD UNIVERSITY
GO TO INNOVATION

Management Information System of MUST

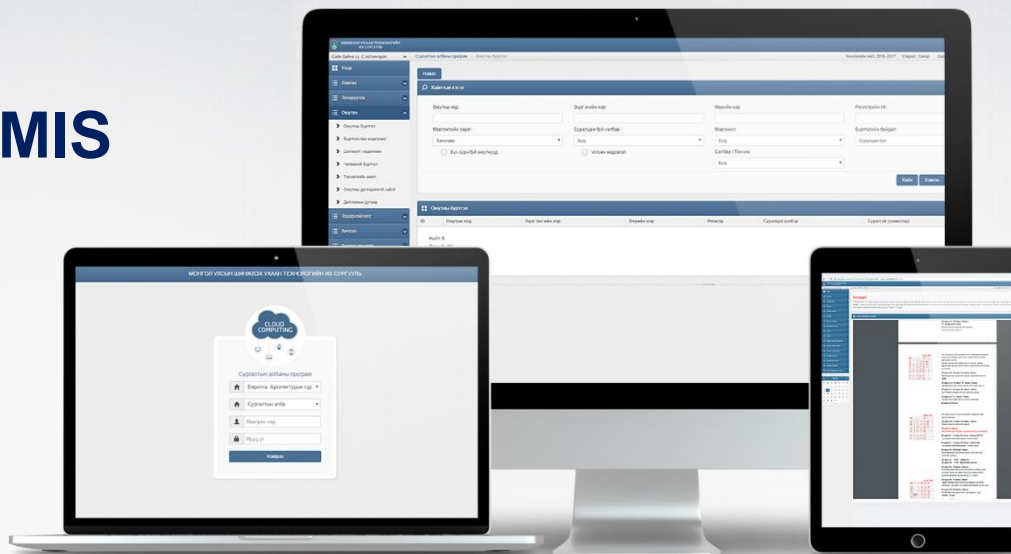
Cloud UNiMIS



Professor's Web



Student's



Banks



UNILMS



Transnational Research Ecosystem



Self evaluation system



E-Test System



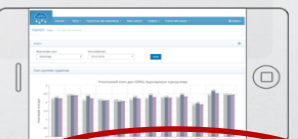
Human Recourses System



Education evaluation center



General authority for state registration



QMSystem



U-OFFICE



Alumni Web

Quality Management System of MUST

/Quality Assurance System of Technical University of Sofia/



UNiMIS
2003



Transnational
Research Ecosystem
/2015/



U-FINANCE
/2005/



E-Library
2004/12



HRD /2008/

GOVERNMENT POLICY ON ICT IN HIGHER EDUCATION

Rapid economic expansion has led to increased demand for higher education (HE) in Mongolia. The Government of Mongolia has emphasized the value of economic competitiveness. Education leaders and decision makers at all levels still complain that much of the data and information that they need is not available; not available when needed.

SOME MINISTRIAL ORDERS:

MINISTRIAL ORDER №183

2007

"... To establish inter-universities E-Open School..."

MINISTRIAL ORDER № A/299

2014

"... All higher educational institutions have to use academic credit system..."
"... No less 20% of all courses must be transferred to online courses..."

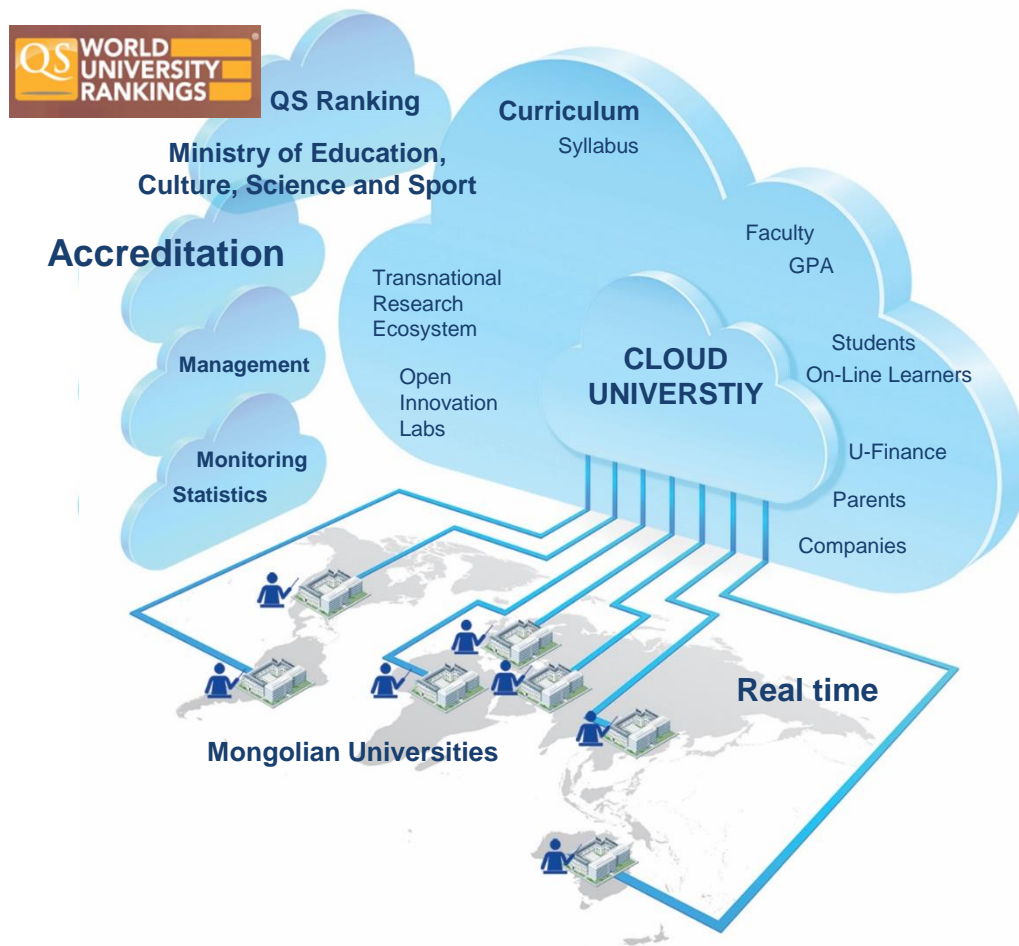
MINISTRIAL ORDER № A/359

2014

"...To establish higher education information system based on Cloud UNIMIS system..."

Quality Assurance System

Previous Accreditation of Master degree program on SCT



Impact and sustainability



SMARTCITY

Innovative Approach Towards a Master Program on Smart Cities Technologies



[Home](#)

[Partners](#)

[Personalities](#)

[Events](#)

[Documents](#)

[Contact](#)



SMARTCITY

Innovative Approach Towards a Master
Program on Smart Cities Technologies

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Erasmus+ Programme
of the European Union



EVENTS



**18-22 of
November
2019
Germany**

Partner universities' staff took part in the training on e-learning systems and online a



**11-15 of
November
2019
Latvia**

Partner universities' staff took part in the training on e-learning systems and online a



**28-29 of
January
2019
Brussel**

Dr. Milka Vicheva, coordinator of the project and Dr. Olga Dolinna, coordinator of the partners activities took part on the coordination meeting for ERASMUS +Capacity Building projects in Brussels. The aim was to get the latest information concerning the project's management and financial reporting. The project's activities were discussed also with Mrs. Olga Oleynikova, NEO Russia.



**17-18
December
2018
Saratov**

Kick-off meeting and the project's conference was held at Saratov, SSTU 17-18 December 2018. Representatives of all partners took part at the meeting. All partners presented their institutions and discussed all project's activities. The plan for the first year activities was developed. Project's management committee (for the aim of project's management) was organized

Sustainability and Cooperation



Project's Coordination Meeting

Novosibirsk, Russia

Project's Coordination Meeting took place 2 of July 2019 at NSTU (Russia). All activities which should be done for the first project's year were discussed, participants developed the plan of the activities for the period July 2019-January 2020, shared the



Training session for the senior academic administrators

Salzburg, Austria

At the University of Applied Science of Salzburg (Austria) was held the training session for the senior academic administrators. 17 representatives (vice-rectors, deans, vice-deans) of Russian, Mongolian, Kazakhstan universities

[Read more](#)



Coordination meeting for ERASMUS +

Brussel, Belgium

28-29 of January 2019 Erasmus+ Capacity Building in Higher Education Grantholders' Meeting was held at Brussels

28-29 of January 2019 Dr. Milka Vicheva, coordinator of the project and Dr. Olga



Kick-off meeting

Saratov, Russia

Kick-off meeting and the project's conference was held at Saratov. SSTU 17-18 December 2018

Representatives of all partners took part at the meeting. All partners presented their institutions and discussed all project's activities. The plan for the first year activities was developed.

Project's management committee (for the aim of project's management) was organized.

[Download AGENDA](#)

**GENERAL AGREEMENT FOR ACADEMIC COOPERATION
BETWEEN
RIGA TECHNICAL UNIVERSITY, Riga, Latvia
AND
MONGOLIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY**

Riga Technical University, 1. Kalku Street, Riga LV 1658, Latvia, represented by Prof. dr. habil. Leonīds Ribickis, Rector of Riga Technical University, and **Mongolian University of Science and Technology**,⁸⁶ khoroo, Baga Toiruu 34, Sukhbaatar district, Ulaanbaatar, Mongolia, represented by Ochirbat Baatar, Rector of Mongolian University of Science and Technology, hereinafter jointly referred to as Parties, and individually – Party, establish this General Agreement (hereinafter termed as the Agreement) to foster international cooperation in education and research.

1. Both parties agree to encourage the following activities, in particular to promote international academic cooperation:
 - (a) Exchange of educational and research materials, publications, and academic information;
 - (b) Exchange of faculty and research scholars;
 - (c) Exchange of students;
 - (d) Joint research and meetings for education and research.

Sustainability and Cooperation

**GENERAL AGREEMENT FOR ACADEMIC COOPERATION
BETWEEN
RIGA TECHNICAL UNIVERSITY, Riga, Latvia
AND
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Riga Technical University, 1. Kalku Street, Riga LV 1658, Latvia, represented by Prof. dr. habil. Leonīds Ribickis, Rector of Riga Technical University, and **Mongolian University of Science and Technology**,⁸⁶ khoroo, Baga Toiruu 34, Sukhbaatar district, Ulaanbaatar, Mongolia, represented by Ochirbat Baatar, Rector of Mongolian University of Science and Technology, hereinafter jointly referred to as Parties, and individually – Party, establish this General Agreement (hereinafter termed as the Agreement) to foster international cooperation in education and research.

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 - (d) Joint research and meetings for education and research.

Sustainability and Cooperation



AGREEMENT ON COOPERATION

between

Yuri Gagarin State Technical University of Saratov

Russian Federation, 410054, Saratov, Politekhnicheskaya str., 77

and

Mongolian University of Science and Technology

Mongolia, 14191, Ulaanbaatar, 8th khoroo, Baga toiruu 34, Sukhbaatar district

Preamble. According to their mutual desire to develop international cooperation, **Yuri State Technical University of Saratov** (Russian Federation) and the **Mongolian of Science and Technology** (Mongolia), further the Parties, conclude the present on cooperation in the field of higher education and research.

The present Agreement is considered to be not an obliging legal and financial contract



AGREEMENT ON COOPERATION

between

Mongolian University of Science and Technology

Mongolia, 14191, Ulaanbaatar, 8th khoroo, Baga toiruu 34, Sukhbaatar district

and

Yuri Gagarin State Technical University of Saratov

Russian Federation, 410054, Saratov, Politekhnicheskaya str., 77

Preamble. According to their mutual desire to develop international cooperation, **Mongolian University of Science and Technology** (Mongolia) and the **Yuri Gagarin State Technical University of Saratov** (Russian Federation), further the Parties, conclude the present agreement on cooperation in the field of higher education and research.

Article 1. The present Agreement is considered to be not an obliging legal and financial contract between the parties, but an instrument for development of mutually beneficial activity.

Article 2. The Parties will develop cooperation between scientists (teachers, scientific academics, postgraduate students, undergraduate students, and other scientific ranks and degrees) and structural divisions in any sphere of science and education according to mutual agreement.

Article 3. Cooperation may have the following forms:

Sustainability and Cooperation



Технически университет - София
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Университетът Обучение Кандидатстване Студенти Научна дейност Международна дейност Кариера и възпитаници

Тържествено връчване

на нови документи за придобити научни степени
и заети академични длъжности

Тържествено връчване на нови документи за придобити
научни степени и заети академични длъжности...

Тържественото връчване на новите дипломи за придобитите научни степени и заети а... Още...



Тържествено връчване на
нови документи за
придобит...



Седмо издание на конкурса
за иновации на България...



Младите инженери почват с
над 2000 лв....



Информационен ден по
програма "Еразъм +"...



Благотворителен Коледен
Базар под надслов "Ако си..."

Кандидатстване



Бакалавър - Прием 2019

Магистър

Доктор

Вие искате да кандидатствате в най-успешното висше техническо училище в България?

[Прочети още...](#)

Студенти



Български студенти

Седмичен разпис

Общежития

Чуждестранни студенти

Какво е да си студент в Технически университет-София? Старт от бързата пътека на успеха.

[Прочети още...](#)

Новини

Събития

Младите инженери почват с над 2000 лв.

Проф. Иван Кралов е новият ректор на Техническ...

2019-11-22

Ежегодна научна конференция на ФаГИОПМ
"CHALLENGES IN THE DIGITAL WORLD", 28-29.11.2019

На конференцията ще бъдат изнесени доклади по теми, свързани с научно-изслед...

2019-11-25

Класиране за стипендии за зимния семестър на учебната 2019-2020

Бързи връзки

Обучение

Sections of the Project (49)/ Work Plan

Dissemination & Exploitation (11 activities)

- Double Degree Master Program on SCT
- International Hybrid Learning Space
- Smart City Open Lab
- Program Accreditation
- Quality Assurance System
- Partners Network

Development (29 activities)

Quality Plan (11 activities)

Preparation (2 Activities)

Management (3 activities)



According to Work Plan, we need to implement 28 activities including everyday project administration within first project year.



**MONGOLIAN UNIVERSITY OF
SCIENCE AND TECHNOLOGY**

МОНГОЛ УЛСЫН ШИНЖЛЭХ УХААН ТЕХНОЛОГИЙН ИХ СУРГУУЛЬ



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CLOUD UNIVERSITY
GO TO INNOVATION