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Enhancing innovation
competences and entrepreneurial
skills in engineering education
(InnoCENS)

*Project kick-off meeting at National University of
Architecture and Construction of Armenia (NUACA)
Yerevan, December 18-22, 2016*

Presentation of Project's Partners:



Georgian Technical University (GTU)



NGO SMART Consulting

GTU at a Glance



Georgian Technical University (GTU) - one of the biggest educational and scientific institutions in Georgia.

Main focus - providing opportunities to learn excellent professional and academic skills maintaining internationally competitive education, research and innovation services significant for Georgia's sustained development.

- *1922 - was founded as a Polytechnical Faculty of Tbilisi State University*
- *1990 - Georgian Polytechnic Institute was granted the university status and was named the Georgian Technical University (GTU)*
- *2001 - GTU became a full member of the European University Association – EUA*
- *2005 – Georgia joined Bologna Process*

Educational Programs



211 educational curricula are accredited at GTU

- ✓ 44 Vocational programs currently active (total number - 184 Vocational programs) - 150 ECTS
- ✓ 69 Bachelor's degree programs - 240 ECTS
- ✓ 46 Master's degree programs - 120 ECTS
- ✓ 38 PhD programs - 180 ECTS

Languages of Study (4):

- ✓ Georgian
- ✓ Russian
- ✓ English
- ✓ German

Facts and Figures



- ✓ Faculties 12 (covering Engineering, Technology, Humanities, Law, Business, Social Sciences)
- ✓ Departments - 59
- ✓ Scientific and Educational Centers – 127
- ✓ Affiliated Scientific-Research Institutes – 17

- ✓ Vocational students – 993 (quota – 1340)
- ✓ Undergraduate students – 18719
- ✓ Masters – 1251
- ✓ Ph.D students – 640
- ✓ Foreign students – 475
- ✓ Academic Personnel–1228
- ✓ Full Professors-505
- ✓ Associate Professors–533
- ✓ Assistant Professors–190
- ✓ Invited Professors–279
- ✓ Teachers–369
- ✓ Support Personnel-2179

STEM Programs at GTU

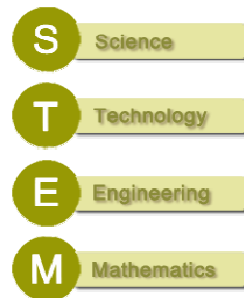


GTU has been offering Engineering Degrees for decades with special attention to the following STEM fields: Computer Sciences, Computer Engineering (50+ years), Energy and Electrical Engineering (90+ years), Civil Engineering (90+ years), Food Industry, and Forestry (60+ years) .

GTU participates in Millennium Challenge Corporation (MCC) project for STEM Higher Education Development in Georgia.

Project objectives:

Build up capacity in Georgian public universities and to offer international standard US degrees and ABET (Accreditation Board for Engineering and Technology) accreditation in STEM fields.



STEM Programs at GTU



The program is funded by MCC (\$29 million grant) and won by San Diego State University of California (SDSU) with Georgian partner universities: Georgian Technical University, Ilia State University and Tbilisi State University.

Indicative STEM programs include **Electrical (Power) Engineering**, **Computer Engineering**, **Computer Science**, **Chemical Engineering** and **Civil Engineering** fields at Georgian Technical University.



ISU/GTU partnership program



In line with the Memorandum of Understanding (MOU) between Iowa State University (ISU) and GTU, a new ISU/GTU partnership program was launched at GTU to align 5 undergraduate programs at a newly established Agrarian Faculty of GTU with ISU's relevant programs and enable program-to-program transfer of Georgian students to ISU after successfully completing two years of study at GTU.

List of HE Programmes in Foreign Languages:



- English-Language Bachelor's Programs (6)
- English-Language Master's Programs (6)
- English-Language PhD Programs (2)
- Georgian-Deutsch Language Bachelor's Program (1)
- Russian-Language Bachelor's Programs (23)
- Russian-Language Master's Program (1)
- Russian-Language PhD Program (1)

GTU educational-scientific activities are funded by the local and international scientific organizations and funds, including:



- Georgia National Science Foundation (GNSF);
- Shota Rustaveli National Science Foundation (SRNSF);
- Georgia Research and Development Foundation (GRDF);
- Euro Commission Foundation TEMPUS, ERASMUS MUNDUS, ERASMUS+, HORIZON 2020;
- US Civilian Research and Development Foundation (CRDF);
- International Science and Technology Center (ISTC);
- Science & Technology Center in Ukraine (STCU);
- US Agency of International Development (USAID)...

GTU is executing various projects and researches funded by the well known companies such as:

- British Petroleum
- Durapact GmbH
- Boeing-Rotorcraft
- INVENSYS
- Schneider Electric
- SIEMENS ...

GTU as a Coordinator/Partner of European Educational Projects (1996- till present)



- TEMPUS Projects (15)
- Erasmus Mundus Projects (5)
- ERASMUS+ Projects (17)
- FP7 Projects (6)

International Partnerships



GTU has advanced partnerships in the fields of education and research with the world's leading organizations, such as KEK - High Energy Accelerator Research Organisation (Japan), Forschungszentrum Jülich GmbH (Germany), CERN - European Organization for Nuclear Research (Switzerland), JINR - Joint Institute for Nuclear Research (Dubna).

Distinguished Professors from various countries are delivering the lectures at the International Design School established at GTU under the patronage of Prof. Dr. Giorgetto Giugiaro, well-known Italian automobile designer.

Institutional Membership in International Networks and Associations:



- EUA – European University Association (Brussels, Belgium)
- ITU - International Telecommunication Union (Geneva, Switzerland)
- Black Sea Universities Network (Romania, Constanta)
- Association of American Colleges and Universities (AAC&U) (USA)
- Association “ Rondine Cittadella della Pace” (Arezzo, Italy)
- European University Information Systems (EUNIS) (Paris, France)

GTU has beneficial partner relationships with various research and scientific-educational institutions and organizations, including up to 58 local and 75 international organizations.

GTU Central Scientific Library



GTU central scientific library was founded in 1922. It's one of the largest libraries in Georgia and consists of more than 1,727,958 units, including 4,200 library rarities, 1,025,721 textbooks, 645,560 scientific books, 56,677 fiction books, Georgian (702,864 units) and foreign language (1,025,094 units) books as well as 326,953 printed copies, 1,318 CD books (8,702 units) and 200 CD Periodicals (3,775 units). Some unique publications (IX-XX cc) are stored only here.



As a member of the Georgian Library Association has direct links to:

- * EBSCO Publishing
- * Cambridge University Press
- * Royal Society Publishing journals
- * Bioone
- * New England journal of Medicine
- * IMF eLibrary
- * Pediatric Neurology Briefs

Students' Life

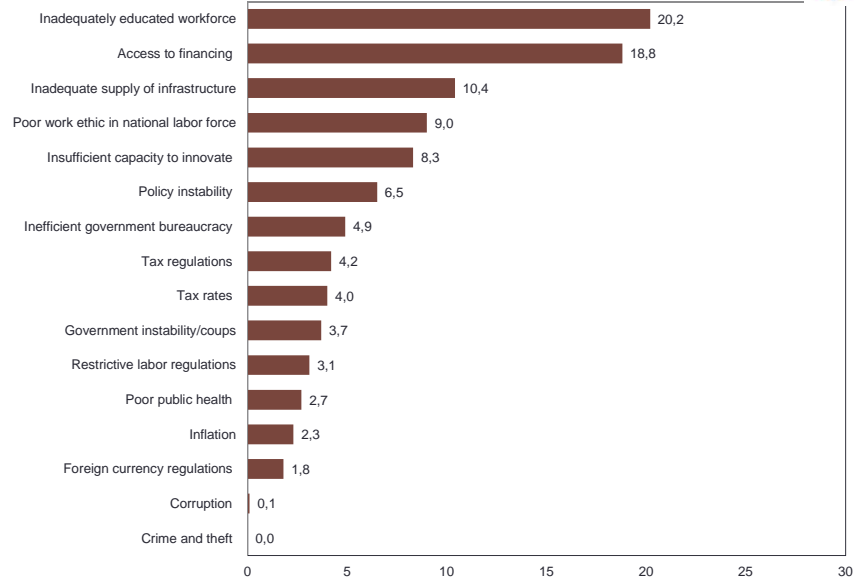


GTU Department of Students and Alumni Relations, Sport and Culture is responsible to maintain students' portfolio in cultural, scientific, charity and many other spheres.

The amateur theatre, chorus, sport teams and clubs are functioning in the University.



The most problematic factors for doing business (according to 2014-2015 report)



GTU key challenges



- To create appropriate educational framework
- To enhance cooperation with industry
- To provide the labor market with competitive workforce



Issues to be considered

- Subjects selected by the best entrants (where do they go?)
- What is the level of their IQ ?
- How their personal profiles correspond to the subjects selected?



Survey provided with assistance of NGO SMART Consulting

Objective:

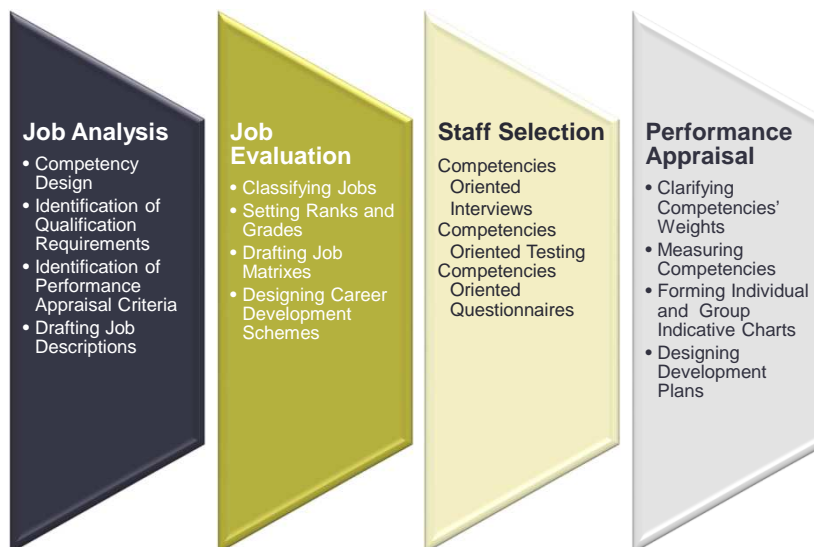
Professional orientation of Youth and Entrants in particular and their assistance in the selection of educational programs considering the individual's IQ level and personal characteristics.

Summary of SMART Consulting's history, goal/mission, activities and target clients or beneficiaries:



- NGO SMART Consulting as the independent company was founded in 2007, however the founders and members of the NGO have long history of cooperation since 1995 and significant experience in different fields of management.
- The mission of NGO is enhancing effectiveness of organizations through delivering qualified expertise and training in the field of management.
- "SMART Consulting" intends to achieve its long term objectives by supporting both, public as well as private sector restructuring activities, Human Resources development and delivering of Now How and the training in the relevant fields.
- The founders and the expert pool of "SMART Consulting" consist of managers, economists, lawyers, psychologists, IT specialists. They have both, high qualifications, western training in management and experience of working in the international programs.

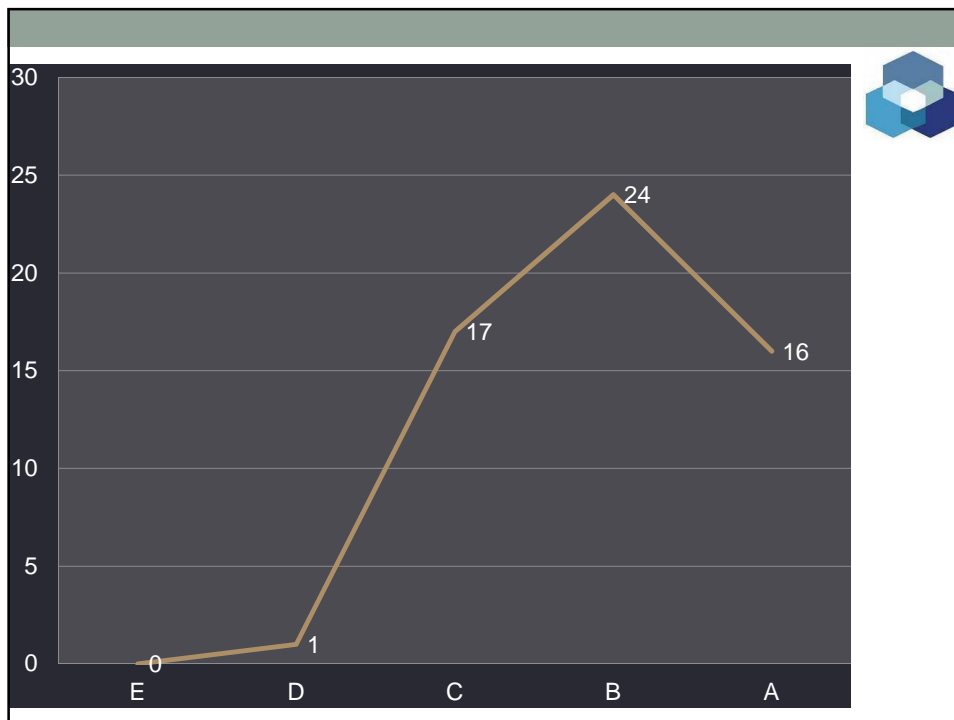
SMART Consulting's profile



Experience with public organizations



- Ministry of Social Development of KR;
- State Registration Service under the Government of KR,
- Courts and High Council of Justice of Georgia,
- State Procurement Agency of Georgia;
- Ministry of Environment Protection and Natural Resources of Georgia; Apparatus of Georgian Parliament;
- Ministry of Education and Science of Georgia;
- National Bank of Georgia; Public Service Bureau;
- Georgian Public Broadcasting;
- Constitutional Court of Georgia;
- Central Election Commission;
- Ministry of Foreign Affairs of Georgia;
- Embassy and Consulate General of Georgia in Turkey;
- several public organizations in Adjara Autonomous Republic.



Group A	
1. Business Administration	Persuasive; Controlling; Outspoken;
2. Public Administration	Independent Minded; Outgoing;
3. International Relations	Affiliative; Socially Confident; Data
4. Diplomacy	Rational; Evaluative; Innovative;
5. Journalism	Adaptable
Group B	
1. Economy	Independent Minded; Data Rational;
2. Finance	Evaluative; Conventional; Conceptual;
3. Medicine	Innovative; Detail Conscious;
4. Physics	Conscientious.
5. Maritime	
6. Chemistry	
7. Construction	
8. Biology	
Group C	
1. Law	Independent Minded; Evaluative;
2. Psychology	Conventional; Conceptual; Detail
3. Sociology	Conscious; Conscientious.
4. History	
5. Philology	



Findings



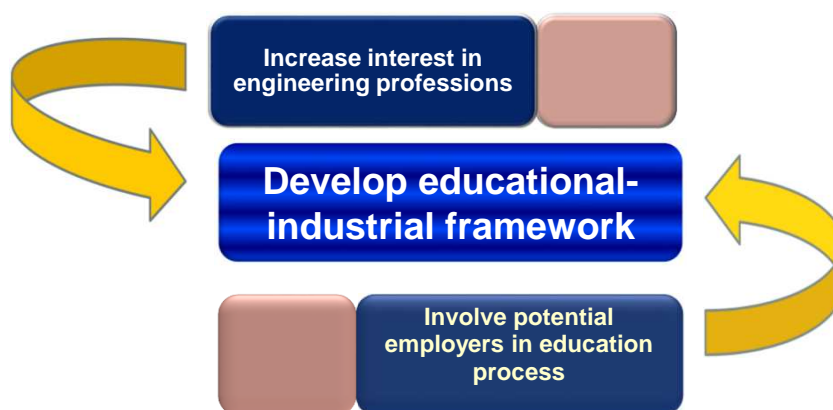
- In 30 cases of total 48 (62% of tested population) personal profiles correspond to the professions selected
- In 18 cases (38% of tested population) decisions need corrections
- 14 of 48 respondents (29% of tested population) are clearly consistent with the engineering-technical specialties.

Main problems



- Low interest in engineering professions from entrants' side
- Shortage of the engineering competencies, frequently declared by potential employers

Goal of GTU Strategy



EANET Project Objective



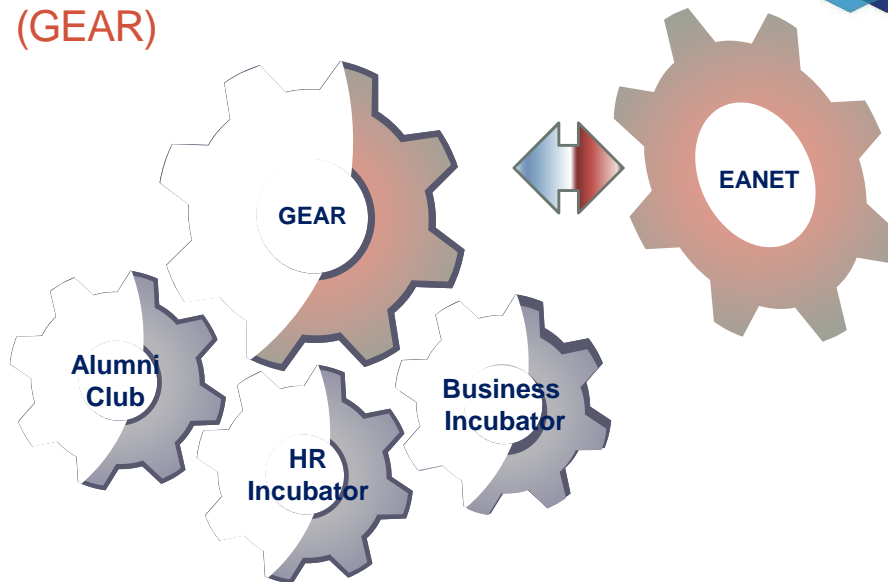
- “Establish an Entrepreneur Alumni Network (EAN) at 11 HEIs in Ukraine, Moldova and Georgia which supports the entrepreneurial spirit among students, scientists and alumni and raise an entrepreneurial ecosystem in Georgia, Moldova and Ukraine

Main directions of activities



- Direction 1. Establishment of Georgian Entrepreneur Alumni Reunion (GEAR) in cooperation with EANET Georgian partner universities.
- Direction 2. Launching Business Incubator.
- Direction 3. Launching HR Incubator.

GTU Entrepreneur Alumni Reunion (GEAR)



HR Incubator



- Establishment partnerships with potential employers (enterprises, public institutions, services);
- Providing study on labour market demands;
- Defining most demanded professions and specializations and designing general competencies for them;
- Designing/modifying curricula in line with required specific competencies in close cooperation with potential employers;
- Selecting students and providing professional orientation;
- Matching students with vacant positions, providing competency oriented training and their trial in different partner institutions.
- Maintain relevant database.

Benefits of Memberships



- **Associated membership** gives partner institutions opportunity to fully benefit from GTU Alumni Club and Business Incubator and partly - from HR Incubator providing free study to design general competencies for most demanded positions.
- **Associated Members** will have a priority to select trained students through their free trial at the organization; In case of hiring selected candidate organization will have to pay per candidate **X** amount to GEAR.
- In addition to the all abovementioned benefits **Full Members** of GEAR will have an opportunity of hiring any number of candidates for free.
- For **full membership** organization has to pay the same **X** amount as annual fee.

Thank you!