About the GTU Nuclear Engineering Center

The nuclear engineering center was established in 2009 at GTU.

The center conducts scientific-academic activities in the field of Information Technologies.

The center performs collaboration projects with European Organization of Nuclear Researches – CERN, Geneva, Switzerland. Within the framework of the agreement the center participates in elaborating work packages with American and European Universities. The Center implemented 15 projectsduring theperiod:

1. Small Wheel - NJD Disk - 2017წ. (Partners: University of Cambridge; SLAC)
2. Small Wheel - Aluminum Structure - 2017წ. (Partners: University of Cambridge; SLAC)
3. Small Wheel - SS Spacer Frame; SS Spacer Frame - 2017წ. (Partners: University of Cambridge; SLAC)
4. Heavy Truck - 2017წ. (Partners: Nikhef; CERN)
5. TGC 1-2-3 structures - 2017წ. (Partners: Nikhef; CERN)
6. MDT structures - 2015წ. (Partners: Nikhef; CERN)
7. Toroid magnet - 2016წ. (Partners: Nikhef; CERN)
8. Service descriptionfor ATLAS Cavern Background simulation - 2010-2012წ. (Partners: Stanford University; SLAC)
9. Event Visualization Display VP1 - 2010-2012წ. (Partners: University of Pittsburgh)
10. Restoration of scanned mines and infrastructure - 2016წ. (Partners: CERN)
11. COOL Tag Browser – 2010-2016წ. (Partners: University of Oxford)
12. Dynamic analysis of settinginstallations- 2007წ. (Partners: ATLAS Technical Coordination)
13. Check of setting integration on conflicts - 2005-2008წ. (Partners: ATLAS Technical Coordination)
14. Projecting ATLAS MOCK-UP -2007-2008წ. (Partners: ATLAS Technical Coordination)
15. Creationof Atla detector 3D database - 2007-2010წ. (Partners: ATLAS Technical Coordination)

Several projects are being drafted at the center within the framework of new agreement (#AA366/10AD4):

1) <u>Project #01:</u> Detector geometrical model processing Grant-4 simulation packages. Collaborative partners: Stanford University, Berkley National laboratory, Louisville University.
2) <u>Package #02:</u> Processing of geometrical modeling platformson the basis of CATIA. Collaborative partners: CERN, Fribourg University, Brand University.
3) <u>Package #03:</u> Processing of program visual-cognitive application for physical processes of ATLAS detector. Collaborative partners: Paris University, Dresden Technical University, Pittsburg University
4) <u>Package #04:</u> Processing of Athena programming codes on the basis of CI (Continuous Integration) Collaborative partners: Edinburgh University

Scientific Activity

- 2 PhD works were prepared at the center and the works were completed in CERN and the CERN invited professors attended the PhD works defense
- 3 Master works were prepared at the center
- 15 scientific articles were published in European journals
- Reports and publications were made in 6 European and 3 International conferences
- The personnel of the center participated in 177 workshops and weekly meetings organized by CERN
- 4 long-term scientific internships in CERN were performed funded by GTU and ShotaRustaveli National Science Foundation
- 17 reports of students were made in scientific workshops organized by CERN