# Outlining the implementation of interdisciplinary curricula reform at master’s and bachelor’s levels, as well as continuing education modules in GiT, Cultural Heritage and Tourism Economics planned within the framework of the HERiTAG project in Georgia, including Terms of Reference and Activity Schedule for assigned responsible personnel and teachers.

# HERiTAG WP 2 and WP 5 Tasks:

# 2.1 Interdisciplinary curricula reform at master level in GiT and Tourism Economics

# 2.2 Develop new course contents at master level

# 2.3 Develop new teaching materials

# 5.1 Design 2 modules for continuing education

# 5.2 Create online teaching materials for continuing education

Teaching curricula at HERiTAG Georgian partner universities (GTU, ISU and BSU) is undergoing important upgrade within the framework of Erasmus+ HERiTAG project. Particular attention is paid to interdisciplinary integration of Geospatial Information Technologies (GiT) with Cultural Heritage and Tourism Management fields. The underlying reason for substantial modification of the programs lies in the importance of the tourism industry which has strongest effect on the Georgian economy hence advancing various sectors through multiplier effect, taking into account the significant potential of exploiting the cultural heritage of the country, and enhancing the application of modern GiT instruments to underpin developments in both tourism and cultural heritage sectors.

While discussing the possible ways of future enhancement of respective programs, it was suggested to enrich the tourism and cultural heritage teaching content by ensuring technological shift which is a necessary precondition for successful integration of the ISU and GTU graduates into the tourism industry and vice versa, enhancing application of GiT state of the art tools. The implementation of the HERiTAG project is expected to enable to adapt tourism management and cultural heritage programs in particular to the new curricular framework with renewed content of GiT courses and restructured teaching and learning capabilities. This transformation is believed to bring new opportunities to adjust the students’ skills sufficiently to their future professional needs in the tourism sector, while safeguarding cultural preservations, and advancing modern technology content in the curricula. Individual (intradisciplinary) and joint (interdisciplinary) reformation and adjustment of curricula in all three sectors/fields would have been the best outcome of HERiTAG effort in Georgia.

From the evidence provided by the survey and also curricular analysis of the tourism business and cultural heritage sector needs, it has become clear that it is needed to enrich programs with GiT education and knowledge.[[1]](#footnote-1) For that reason, the new courses will be elaborated and introduced through HERiTAG framework, thus helping students acquiring subject area skills of spatial analysis, data storage and display, application of modern tools and instruments, including those to be procured under project (such as computer classes and 3D laser scanning), etc.

From this perspective, the following curricular reform strategies and action schedules are being outlined for the respective universities:

**Ilia State University** will make its Master and Bachelor’s curricula in Tourism compatible with the current industrial requirements by introducing new elective courses in:

* Economics and Entrepreneurship of Tourism
* GIS in Cultural Heritage and Tourism
* Introduction into open source GIS (advanced level)
* Introduction to web GIS (advanced level)
* Web Mapping and Applications (advanced level)
* 3D and Virtual Reality (advanced level)

**Developments so far:** Two bachelors level courses are already available at ISU ready for delivery in Spring Semester 2017 as elective courses, integrated in tourism management curriculum.

1. Tourism Economics (available in English, author and delivery by D. Japaridze)
2. GIS Basics (available in Georgian, author and delivery by I. Ugulava)
3. Basic Entrepreneurship in Tourism (under development by D. Japaridze)
4. GIS in CH and Tourism, Master’s level (under development by M. Elashvili)

Classroom will be equipped by devices purchased within the HERiTAG project framework and it will be available for the GIS classes.

Materials: at FTP and <https://www.dropbox.com/sh/t8i7d8fszjh5ayk/AABi_Ril19l3y_ejw3p8Fejva>

**Batumi State University**

BSU together with partner universities is setting out on the road to curricular reform in tourism programs, by introducing new courses developed through the HERITAG project. Integration of GIS contents in tourism programs would serve as a clear manifestation of innovative character of our new programs. These curricular rearrangement would assist the BSU students in meeting their future employers’ requirements, acquiring skills enabling them to contribute into Tourism sector.

**Georgian Technical University**

**WP 2, Tasks 2.1-3.** GTU will make its Bachelor’s curricula in various GiT fields compatible with current technological and methodological requirements, adjusting its overall geoinformatics, geodesy and in general GiT curricula (see attached existing set of existing syllabuses), introducing lecture series/heading and teaching materials in the fields acquired in the course of the HERiTAG projects, with emphasis on open source solutions in addition to proprietary solutions, such as:

* 1. Advanced level GIS combining proprietary and open source solutions and methodologies (advanced level)
	2. Complementing existing web-GIS syllabus with HERiTAG Web Mapping and Applications package (basic level, upgrade with new items and in the syllabus, with new teaching materials)
	3. Mobile Mapping and Applications (basic level, upgrading existing GiT syllabus, utilising HERiTAG headings and teaching materials)
	4. 3D Visualisation and Photogrammetry (basic level, upgrading existing GiT syllabus, utilising HERiTAG headings, teaching materials and software available to GTU)
	5. Introduction into new instrumentation such as (i) terrestrial laser scanning (detailed level, upgrade of existing Geodesy syllabus) (ii) Other tools such as Ground Penetrating Radar (GPR), vehicle mounted mobile mapping, micro laser scanner (general introduction).

GTU will also strive to develop its first Master’s course in GiT in an interdisciplinary manner, exploiting advancement of syllabus spectrum achieved with HERiTAG support, and introducing novel interdisciplinary grade, hopefully jointly with partner universities and government agencies, specialised in tourism economics, cultural and natural heritage, including archaeology, by introducing syllabus and teaching materials at the masters levels, jointly with ISU and BSU, contributing in cooperation with both universities, as well as the NACHPG with GiT input into following jointly run master’s program under the aegis of GTTC:[[2]](#footnote-2)

* 1. GiT in Cultural Heritage and Tourism

Another important developed under the aegis of GTTC would be the brand new concise but advanced Master’s level course, preferably interdisciplinary and jointly with partner universities and government agencies such as ISU (3D LS survey in Archaeology) and NACHPG (3D LS in above ground survey of Cultural Heritage):

* 1. 3D Laser Scanning in Cultural Heritage and Archaeology – Hardware and Software

**WP 5, Tasks 5.1-2.**  Materials of joint GTU-ISU master courses would again be used to develop continuing education professional modules for delivery under the aegis of GTTC:

* 1. GiT in Cultural Heritage and Tourism
	2. 3D Laser Scanning in Cultural Heritage and Archaeology – Hardware and Software

**Task implementation terms of reference and activity schedule (titles are indicative, TBD):**

* 1. **Bachelor’s Course:** Advanced level GIS combining proprietary and open source solutions and methodologies (advanced level)

**Responsible assigned:** **Catherine Khokhiashvili (GTU)**

**QA review and support:** Giorgi Chiaureli (GTU) and Mamuka Gvilava (GeoG)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **Bachelor’s Course:** Complementing existing web-GIS syllabus with HERiTAG Web Mapping and Applications packages (basic level, upgrade with new items and in the syllabus, with new teaching materials)

**Responsible assigned:** **Catherine Khokhiashvili (GTU)** and Irina Kazariani (GTU)

**QA review and support:** Giorgi Chiaureli (GTU) and Mamuka Gvilava (GeoG)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **Bachelor’s Course:** Mobile Mapping and Applications (basic level, upgrading existing GiT syllabus, utilising HERiTAG headings and teaching materials)

**Responsible assigned:** **Irina Kazariani (GTU)** and Catherine Khokhiashvili (GTU)

**QA review and support:** Giorgi Chiaureli (GTU) and Mamuka Gvilava (GeoG)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **Bachelor’s Course:** 3D Visualisation and Photogrammetry (basic level, upgrading existing GiT syllabus, utilising HERiTAG headings, teaching materials and software available to GTU)

**Responsible assigned:** **Diana Botkoveli (GTU)** and Giorgi Chiaureli (GTU)

**QA review and support:** Malkhaz Khurtsidze (GTU) and Mamuka Gvilava (GeoG)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **Bachelor’s Course:** Introduction into new instrumentation such as (i) terrestrial laser scanning (detailed level, upgrade of existing Geodesy syllabus and equipment available to GTU) (ii) Other tools such as Ground Penetrating Radar (GPR), vehicle mounted mobile mapping, micro laser scanner (general introduction).

**Responsible assigned:** **Giorgi Chiaureli (GTU)** and Diana Botkoveli (GTU)

**QA review and support:** Malkhaz Khurtsidze (GTU) and Mamuka Gvilava (GeoG)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **Joint Master’s Course:** GiT in Cultural Heritage and Tourism

**Responsible assigned:** **Mikheil Elashvili (ISU)** in collaboration with Catherine Khokhiashvili (GTU) and Giorgi Khaburzania (NACHPG)

**QA review and support:** Malkhaz Khurtsidze (GTU) and Dimitri Japaridze (ISU)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **Joint Master’s Course:** 3D Laser Scanning in Cultural Heritage and Archaeology – Hardware and Software

**Responsible assigned:** **Giorgi Chiaureli (GTU)** and Diana Botkoveli (GTU) in collaboration with Mikheil Elashvili (ISU), Giorgi Datunashvili (ISU) and Giorgi Khaburzania (NACHPG)

**QA review and support:** Malkhaz Khurtsidze (GTU) and Dimitri Japaridze (ISU)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **GTTC Continuing Education Module:** GiT in Cultural Heritage and Tourism

**Responsible assigned:** **Mikheil Elashvili (ISU)** in collaboration with Catherine Khokhiashvili (GTU) and Giorgi Khaburzania (NACHPG)

**QA review and support:** Malkhaz Khurtsidze (GTU) and Dimitri Japaridze (ISU)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

**Draft teaching materials produced:** 2018.04.30

**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

* 1. **GTTC Continuing Education Module:** 3D Laser Scanning in Cultural Heritage and Archaeology – Hardware and Software

**Responsible assigned:** **Giorgi Chiaureli (GTU)** and Diana Botkoveli (GTU) in collaboration with Mikheil Elashvili (ISU), Giorgi Datunashvili (ISU) and Giorgi Khaburzania (NACHPG)

**QA review and support:** Malkhaz Khurtsidze (GTU) and Dimitri Japaridze (ISU)

**Draft syllabus:** 2018.02.10

**Presentation at evaluation meeting:** 2018.02.15

**Syllabus submitted to Coordinator:** 2018.03.01

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**Course trial for teachers:** 2018.04.30-05.30

**Upload final teaching materials to FTP:** 2018.06.30

**Launch course trial for students:** 2018.09.01

**Syllabus QA and approval:** 2018.10.15 (end of project)

**General guidance for implementation of tasks:**

When two persons are indicated as responsible, first is taking lead in cooperation with colleague.

Syllabuses to be developed in English and Georgian, materials desirable in both languages as well.

GTU and ISU to introduce bachelor’s and master’s courses into curricula, jointly where applicable.

Create the contents and syllabus following EU quality standards and local regulations (following own QA systems of ISU and GTU).

GTU and ISU to create continuing education modules jointly & in cooperation with AUTH Partner.

Finish work in July, 2018, so the teaching can start in September, 2018 and approved before project end in October 2018.

Upload all materials into FTP under WP 2 and WP 5 folders (coordinate with M. Gvilava of GeoG).

Courses to be delivered in GTU Remote Sensing Lab and ISU GIS Lab, both facilities to be provided by universities within the framework of HERiTAG GTTC.

Bachelor’s and Master courses and continuing education modules (items 5, 7 and 9) to be based on field studies (1 cultural heritage site, 1 archaeology site, 1 cave), as well as on available HERiTAG training sample materials. Students should be involved in field work and practical cases as well.

These practical cases to be presented during labour/career days held by GTU, ISU and BSU and disseminated together with all other courses materials (responsible in GTU: Giorgi Chiaureli, in cooperation with Mamuka Gvilava of GeoG).

Courses should be tested among teachers (use evaluation sheets, see attached) and then trialled with best students in September, 2018 (again, use evaluation sheets, attached) fully following Bologna process standards and QA practices (European Credit Transfer and Accumulation System, evaluation surveys by students, etc.).

Georgian partners should master and use FARO FocusS Laser Scanner laser scanning equipment, FARO SCENE 7.0 software and PointSence Heritage 18.5 for AutoCAD software, as well as other open source software for courses and teaching materials. GTU can use ESRI and Leica Geosystems GIS and RS software as well as the open source GIS. Evaluation versions of the software such as Agisoft PhotoScan can also be used.

Please consult with FARO resources <https://knowledge.faro.com>, <http://setups.faro3dsoftware.com> and use materials there (PowerPoint files, user manuals, etc.) when developing training packages. It might be possible to communicate with FARO to seek educational materials for local adaptation (please communicate via email gtu@hertag.ge, ask for support from Mamuka Gvilava, GeoG).

ISU and GTU should refer to experience of UPV, KTH and AUTH when developing courses such as existing examples on continuing education courses, courses and conferences, courses for industry, masters and other degrees, materials available online and for classroom teaching. Please consult with these resources (use Google translate for rough translation and general understanding):

UPV: <https://www.cfp.upv.es/formacion-permanente/cursos-y-jornadas/cursos-y-jornadas.jsp?idioma=es&area=TODAS&>

KTH: <https://www.kth.se/en/studies/master/transport-and-geoinformation-technology>

Examples developed in the project or earlier include following links:

ISU products: <https://www.dropbox.com/sh/t8i7d8fszjh5ayk/AABi_Ril19l3y_ejw3p8Fejva>

GTU examples: <https://dropbox.com/sh/bcj9uggh65d8u9o/AAC2kWH_8U6dofBKwXjPknEja>

Other resources of existing courses approved by GTU (different field):

<https://www.dropbox.com/s/4tt90tut9oe9dyv/ENG.docx>

<https://www.dropbox.com/s/qco99gvney25g3v/GEO.docx>

Please refer to forms and recommendations at GTU QA web resources at <http://gtu.ge/quality>, <http://gtu.ge/quality/Forms-And-Recomendations/Forms.php> and <http://gtu.ge/quality/Forms-And-Recomendations/Recomendations.php>. Please consult with Malkhaz Khurtsidze (GTU) and Giorgi Chiaureli (GTU) on QA forms and requirements of GTU.

NB: HERiTAG training materials (documents, videos, sample data, PowerPoints) available at FTP ftp://92.241.91.218 user HERITAG pass 1370 can be used and adapted as teaching materials.

GTU personnel and teachers need to submit developed courses and material to Malkhaz Khurtsidze of GTU via gtu@heritag.ge with cc to Mamuka Gvilava mgvilava@geographic.ge. All final drafts and final outputs, once checked, should be submitted to Project Coordinator Prof. Luis Angel Ruiz Fernandez of UPV at laruiz@cgf.upv.eswith, cc to gtu@heritag.ge and mgvilava@geographic.ge.

In addition to above, attached is a questionnaire for evaluation of teachers, to be done with every new course introduced and taught at the university. All new courses created in the context of HERiTAG should have this, or equivalent, QA practices implemented (see attachment). This will soon be available in Google Form, submitting results to gtu@heritag.ge & heritag@geographic.ge.

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**Attachment:** Evaluation Questionnaire (1 page).

STUDENT QUESTIONNAIRE

FOR THE ASSESSMENT OF TEACHERS' ACADEMIC PERFORMANCE

2017-2018

IDENTIFYING INFORMATION

Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subject : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PLEASE ANSWER THE QUESTIONNAIRE HONESTLY. IF YOU DO NOT HAVE SUFFICIENT INFORMATION, PLEASE DO NOT ANSWER THE QUESTION

QUESTIONNAIRE INSTRUCTIONS

Please dewy cross the appropriate box (1). Please select only one option per question. If more than one answer has been ticked or an answer has been crossed out, it will not be counted.

RESPONSE SCALE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
| STRONGLY DISAGREE | DISAGREE | NEITHER AGREE OR DISAGREE | AGREE | STRONGLY AGREE |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 |
| 1 | The teacher has a good command of the subject being taught | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 2 | The teacher answers questions about the subject clearly and precisely | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 3 | The teacher provides relevant information about the subject at the beginning of the course: objectives, contents. methodology, and assessment criteria | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 4 | The teaching pace and the time allocated to each topic are adequate | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 5 | The methodology adopted and the activities carried out contribute to student learning | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 6 | The materials used and/or recommended (bibliography, documentation, teaching resources, etc.) are helpful for learning this subject | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 7 | The teacher contributes to a positive working environment and encourages students to actively participate in the classroom | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 8 | His/her teaching methodology motivates students and awakens their interest in the subject | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
| 9 | All things considered. I think that the teacher of this subject should be regarded as a good teacher | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |

OPINION ON THE SET OF MATERIALS AVAILABLE FOR THIS COURSE ONLINE

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 |
| The teaching materials available online for this particular course or other official online services at the university are coherent with the content of the syllabus and provide key support during the learning process to help achieve the goals established for the course. | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |

Thank you for your to-operation

1. Survey and analysis of Geospatial information Technology (GiT) education and stakeholder needs and opportunities in cultural heritage and tourism sectors (Armenia, Georgia), Final Draft, Erasmus+ HERiTAG Project, GeoGraphic et al., September, 2017 (to be finalised by 15 February 2018). <https://www.dropbox.com/s/veyhpqo034j9i3x/20170920_HERiTAG_D1.2_Education_Needs_Survey_GiT_Cultural_Heritage_Toursim_ARM_GEO.pdf?dl=0> [↑](#footnote-ref-1)
2. Geoinformation and Tourism Technology Centre (GTTC) is to be established by ISU within HERiTAG project in Georgia, ruled by an interdisciplinary and interuniversity council, jointly with GTU, other stakeholders & partners. [↑](#footnote-ref-2)