SUBJECT GEOGRAFIC INFORMATION SYSTEMS

We are teaching this as a standart subject in the lenght of 33 hours per year. Students are not only learning how to use the program, but also how to process layers from GPS and adjust it, vectorizate layers from raster maps or photos (digitalize map), they're learning to create and edit attribute table (edit of informations on objects in the map), edit and insert pictures and captions in maps. In addition, students are learning to use mobile applications Mergin Maps and QFIELD. Last but not least, we're teaching students basics of legal matters working with these informations and softwares. (Copyright Act, licence agreement etc.)

Knowledge of these aplications is very demanded in praxis these days (eg. Mapping trees on estates, mapping availability of public transport in some area, gaining data for marketing surveys or perhaps optimalizating arrivals of emergency services).
After passing this subject students obtain bilingual certificate (in czech and english language) with certification control sticker for authentication of authenticity of this certificate. It will also be possible to verify validity of certificate on e-mail adress zitna.blanka@psjg-hk.cz. For verification it is necessary to text me year of issuance, name of the student and number of certification control sticker.

Thematic plan:

Theme	Number of hours
Introductory lesson	1
What is GIS - theory	1
Legal matters working with GIS	1
Installation of program	1
Basic functions of program QGIS	1
What does digital maps offer us? - theory	1
Looking up elements on map in the program QGIS	1
Extended searching in the program QGIS	1
Search of elements using spatial query in the program QGIS	1
Measuring in maps in the program QGIS	1
Creation map in GIS - theory	1
Symbolism and legends in maps in the program QGIS	1
Geografic data models – theory	1
Symbolism acording to atributes, insetr layers in the program QGIS	1
Cartogram and captions on them in the program QGIS	1
Source of data for GIS on the Internet – theory	1
Map output in the program QGIS	1
Exam from theory of GIS	1
Practical work from GIS	2

GPS navigation eTrex 20x, 30x, 32x	1
Measurement of waypoints in terain - terain practice	1
Map processing with waypoints - map output	2
Vectorization of maps	2
Georeferencer and vectorization of streets	3
Program INPUT	4
Program Qfield	5
Final lesson	1

Digital competence- student:

- using necessary set of digital devices (PC, mobile, tablet, GPS navigation..), aplications (eg. QGIS, Mergin Maps, QField,..) and utilities (eg. Reader of QR codes,..), they use it school work and in their personal life; digital technologies and ways of using them set and change on the basis of how available options develop and how their own needs are
- gain, consider, manage, share a give out data, informations and digital content in various formates; they choose methods, strategy and ways, appropriate to specific situation and purpose, (eg. informations from the Internet can compare, check correctness of data, ..)
- create, upgrade and connect digital content in various formates; expresses using digital tools, (eg. actively using PowerPoint presentations, tabs in Excel, can create chart from data..)
- suggest solutions through digital technologies, which helps improve processes or technologies; they're able to help with technical problems,
- deal with variability of digital technologies and consider how developmnent of technologies influence various aspects of someone's life and society and environment, consider risks and gains, (eg. being able to aplicate skills from one program to more advanced program..)

Intersubject relationships:

Mathematics - calculations for geography

Information science – use of computer technology, ability working with graphic programs, use of GPS navigations

Physics – physical laws related to geography

Physical education – map area, saving waypoints in terain

English language – description of functions of programs, technical support

Aesthetic education - color scale, aesthetics of creating maps

Cartography – types of maps, map content, map markers, map description, colorful hypsography, altitude and topography

Social studies – laws, licence agreement, Copyright Act

Marks:

A	90–100	A+	98-100
		A	93-97
		A-	90-92
B	80–89	B+	87-89
		B	83-86
		B-	80-82
C	70–79	C+	77-79
		C	73-76
		C-	70-72
D	60–69	D+	67-69
		D	60-66
F	0–59	F	0-59