



Erasmus+ Programme
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ERASMUS+: Higher Education – International Capacity Building

Overall Course Evaluation Report by Pilot Students

Course: SDI-T for environmental impact assessment

Executive Summary

This document presents briefly a synthesis of the evaluation questionnaires submitted by EMME Course 3 “SDI-T for environmental impact assessment”.

The piloting phase of three EMME Courses took place from May 2020 till mid-November 2020, a few months time period for students to follow the syllabus, study the materials, and deliver all the exercises/projects of the course. In fact, time span was much more longer than forecasted seven weeks due to COVID pandemic and summer vacations. Pilot students ran in parallel for each course independently, and four students enrolled in each course (12 total) coming from ME partnership universities. The objective of the pilots was to assess course contents and effectiveness and to gain insights depending on the performance of students regarding the course complexity and workload.

Introduction

The evaluation questionnaire given to pilot students upon completion of the course consists of 12 test questions and evaluation summary. The questionnaire is common to all courses. The list of questions is the following:

1. Do you think that the aim, as described above, has been reached well in this course?
2. How was the workload of the course?
3. How do you grade the course as a whole?
4. Mark the strongest weeks of the course
5. Why these weeks are strongest?
6. Mark the weakest weeks the course:
7. Why these weeks are most weak?
8. Which parts of the course do you recommend to omit?
9. Why do you recommend omitting these parts?
10. What parts of the course do you recommend to add?
11. How was your background knowledge to this course? Was the course too easy or too complicated for your knowledge?
12. Grade the quality of contacts with lectures
13. How do you evaluate the course?

Results

Four pilot students were enrolled to the “SDI-T for environmental impact assessment” course, two of them are from Iran and the other two are from Yemen. Three (3) of them managed to complete the course.

When questioned whether the aim, has been reached well in this course (Question 1), pilot students’ answers range from 4 to 5 on the rating scale (1-5), showing positive reception of the course on behalf of the pilot students. Commenting on and justifying their answers they said that they learned a lot from all parts of the course. They think that one of best advantages of this course was that it covers a lot of content and is very comprehensive but on the other hand it could also be its disadvantage because it is not easy to take in this amount of information from different areas in a short amount of time, and if the course was longer we could have a deeper understanding of the content.

Regarding course overload (Question 2), pilot students' answers range from 4 to 5 on the rating scale (1-5), meaning high overload. Students pointed out that some sectors, like 1 and 2, are unrelated. Also from their point of view there are too many files in the theoretical parts of the course, and they missed some information which was needed to process practical exercises.

Overall assessment of the course quality and content (Question 3) by pilot students' answers range from 3 to 5. It was stressed by students that most of the course lessons were not much of new kinds of lessons and could be done by ArcGIS too (in the course the open source QGIS was software recommended to execute the practical exercises). However the most likely thing about the course is the high level of analysing ability and options which can be learned and used in many fields such as urban planning.

Marking the strongest weeks of the course (Question 4) shows that the strongest weeks are 1, 2 and 6. Students pointed out, that order building their knowledge according to order weeks is fine, so order of weeks in AC from week 1 till 7 is excellent.

Explaining "Why are these weeks the strongest? (Question 5) students said, that better and more obvious training files for week 1 and 2 were prepared and useful kinds of lessons could be found in the section 6. For some students first week of the course was the hardest in case of the novelty of information. In this week almost all parts were new. some of the pdf files were more clear and understandable but some were too long and hard to understand. Also some parts of the course are very hard for students from other background such as urban planning. For example, the "GEODETIC COORDINATE REFERENCE SYSTEMS AND CARTOGRAPHIC PROJECTIONS" which needs a firm base in mathematics as a prerequisite to this section of the course and might need a separate course to learn.

Marking the weakest weeks of the course (Question 6) shows that the weakest week is 5. Students pointed out that in some cases course materials for defining terms and expressions could be supported by providing images, as in the cases which images were used more frequently the concept was much clearer and easier to understand.

Explaining "Why are these weeks the strongest? (Question 7) students said. That they have some problems related to given data, also pointed out the weakness in responding to questions, and were unhappy to find errors during practical exercises. What deals with dideo lectures, students were unable to open lectures 1.7 (a, b, and c) and videos of the final project to watch.

Answering to question "Which parts of the course do you recommend to omit?" (Question 8), students pointed out that all parts are fine, however their heads parts 1 and 2.

Following question "Why do you recommend omitting these parts?" (Question 9), and students explained that the lessons are not much related to the main purpose of the course and they go so deep into details which are not needed by their heads.

Answering to question "What parts do you recommend to add to the course?" (Question 10), students just suggested to improve some parts of a course related to insufficiencies in drawing of the maps and adding attributes of the maps that could cause the students not being able to edit and create simple maps.

From answers to questions "How was your background knowledge to this course? Was the course too easy or too complicated for your knowledge?" (Question 11), it is clear, that students are familiar

with fundamentals of GIS and related subjects. What deals with special software, students often have some experience in using ArcGIS. However students claim, that mostly course is slightly complicated for their knowledge. For example, students, who are studying the urban planning speciality, explain, that the most difficult were first two weeks in case of the novelty of information. In this week almost all parts were new. some of the pdf files were more clear and understandable but some were too long and hard to understand, some points like coordinates systems were a little complicated. And the workflow was large and exercises took much time. Overall learning GIS online is not as easy as face to face learning and the fact that sometimes it took time for the tutors to answer questions and solve the problems was a negative factor that would affect the student's work and timetable.

By doing “Grading the quality of contacts with lectures” (Question 12), students pointed out that despite were some ambiguities in lessons but the quality and the scientific level of the course was appropriate, and there were lots of new topics and courses out there. Another issue was the accent of some of teachers, which was hard to understand sometimes.

Answering to question “How do you evaluate the course?” (Question 12), students explained, that the course was surely very beneficial and brief in teaching applicants how to work with QGIS. It could be said that the route from beginning to the end of the course could be more settled according to the knowledge of the applicant from the software. For instance, to teach theoretically what’s the aim of QGIS and its differences from other software’s of the same category in lesson 1 could be considered as a more efficient way of introducing the course and the software to applicants.

To sum up, the following points should be brought into the spotlight:

- The course is evaluated positively in almost all of its aspects.
- The course builds new and extends previous students’ knowledge.
- The course content and structure meet the course developers’ initial aims and objectives.

Taking upon these, we can state that the course although somewhat difficult is significant in shaping students’ knowledge in GIS, Remote Sensing and Spatial Data Infrastructures as well as in applying this knowledge to Environmental Management issues and application in Middle East and beyond.

Eimuntas Parseliunas, Vilnius Gediminas Technical University



Course evaluation report by pilot students

Course: SDI-T for environmental impact assessment (EIA)

Aim: This course aims at providing an overview of EIA using RS and GIS with organizational and technical components. Students will explore theoretical and practical concepts of EIA. The course starts with introduction to GIS and RS for spatial data harmonization and analysis, and then focus on the applications in Environmental Impact Assessment.

Name and family name of the student: Abdualghani Faid Abdu Ahmed.

Email: f.ab20@yahoo.com

1. Do you think that the aim, as described above, has been reached well in this course?

(1: Not at all, 5: Yes, completely)

1 2 3 4 5

Comments:

2. How was the workload of the course? (1: low, 3: fair, 5: high)

1 2 3 4 5

Comments:

3. How do you grade the course as a whole? (1: very weak, 3: fair, 5: very good)

1 2 3 4 5

Comments:



4. Mark the strongest weeks of the course

- 1 week (3) 2 week (7) 3 week(1) 4 week(2) 5 week(4)
 6 week(5) 7 week(6)

5. Why these weeks are strongest?

Comments:

The project is need a big work. If the question which exercise is strongest it well be easy to detect, but I well answer according to the size of data download from internet and quick response the teacher exercise to solution sent.

6. Mark the weakest weeks of the course:

- 1 week(6) 2 week(5) 3 week(4) 4 week(2) 5 week(1)
 6 week (7) 7 week (3)

7. Why are these weeks the weakest?

Comments:

I mean in order building my knowledge according to order weeks. I thank the order weeks in AC from week1-7 is excellent.

8. Which parts of the course do you recommend to omit?

I don't recommend to omit any parts, but I recommend to reminder teachers exercises to check exercises sent from students.



9. Why do you recommend omitting these parts?

10. What parts do you recommend to add to the course?

Comments:

I don't to recommend to add any parts to the course.

11. How was your background knowledge to this course? Was the course too easy or too complicated for your knowledge?

According to my knowledge at the course, I used to think that the course's lectures are directly with the professors of the courses, and therefore it will be easy. But after I know that the lectures are via a platform, sometime if you have any questions about any point in some the exercises it takes time.

12. Grade the quality of contacts with lectures: (1: very weak, 3: fair, 5: very good)

1 2 3 4 5

Comments:

Because the slow of internet.

13. How do you evaluate the course?

(Write a summary of the course, what you have learnt, the quality of lectures, the quality of exercises, etc. at least, 3 pages report is expected)

Environment Impact Assessment (EIA) using Remote Sensing (RS) Geographic Information System (GIS) with organization and technical components. How to use this technical for application in environment impact assessment.

An Environment Impact Assessment (EIA) is a study of the effects of a proposed action on the environment. In this regard the environment includes all relevant aspects of the natural and human resources. The EIA evaluates the expected effects on human health, the natural environment and on property. The study therefore requires a multi-disciplinary approach. It should be done very early at the feasibility stage of a project. In other words, a project should be assessed for its environmental feasibility.



The EIA compares various alternatives by which the project could be realized and seeks to identify the one which represents the best combination of economic and environmental costs and benefits. Alternatives include location as well as methods, process technology and construction methods.

The EIA is based on predictions. It attempts to predict the changes in environmental quality which would result from the proposed project/action. The EIA attempts to weight environmental effects on a common basis with economic costs and benefits and finally, it is a decision-making tool. The EIA is a procedure used to examine the environmental consequences, both beneficial and adverse, of a proposed development project and to ensure that these effects are taken into account in project design. EIA should be viewed as an integral part of the project planning process.

Environmental Impact Assessment (EIA) can broadly be defined as "a study of the effects of a proposed project, plan or program on the environment".

I learn how to GIS data can be collected with easy and accurate methods example with your smartphone. Convert the rectangular geocentric coordinates to ellipsoidal coordinates, convert ellipsoidal coordinates to rectangular geocentric coordinates and how to product the end product: a catalogue of geodetic points and map layer of these points in GIS environment. How to perform the most common spatial operation in GIS. How to get the knowledge download the sentinel data from the Europe Space Agency Sentinel Scientific Data Hub (ESA SciHUB) and basic use of ESA SNAP Toolbox. The risk management for river is impossible without the use of Earth Observation (EO) data from space. The flood extent information is used for image assessment and risk management, and benefits to resource during flooding, it is very important for calibration and vacillation of hydraulic model to reconstruct what happened during the flood and determine what caused the water to go where it did. The three parameters are important for desertification mapping- land surface temperature (LST), vegetation cover, and soil moisture. Warmth coming off the earth's site affects (and is affected by) the world's weather and climate patterns. A good indicator of this phenomenon is the land surface temperature. Land surface temperature maps are also used for commercial agricultural purposes to evaluate water requirements during summer periods when crops may be exposed to heat stress or, in contrast, during winter periods, when crops and trees may be exposed to damaging frost.

Application of GIS and RS in (EIA), how QGIS could be used for pollution emission calculation and interpretation. Made modelling of airborne contamination. Analysis the distribution of pollutants in the water reservoirs using QGIS. Evaluate of groundwater status. Create terrine model on lieder data. Use GIS and RS to evaluate flood risk analysis. Quantify the effect of drought on vegetation using the SPEI index as a measure of drought and normalized different index NDVI as proxy of vegetation status and productivity. Calculate incidence proportion and incidence rate and make a ring map from calculated data using QGIS script. How to get familiarize students with an example of the utilization of GIS for disease analysis and mapping. The exercise was developed in relation to the disease analysis lecture in SDI-T for environmental impact assessment (EIA) course. apply spatial autoregressive models to study the relationship between breast cancer mortality and affecting factors such as obesity, smoking, and employment situation. Spatial autoregressive models are used to study the relationship and extract the role of each parameter on cancer mortality. generate suitability maps that highlight proper locations around cities for solid waste disposal using GIS and MCDM1. A GIS specialist can collect spatial data related to different parameters that affect the suitability of the sites and convert them to proper data structures. In the next step, they can use an MCDM method to calculate the relative weights of affecting, and sometimes conflicting, parameters. Having the weights, they can apply a weighted overlay analysis to find the most suitable sites for solid waste dumping. use AHP (Analytical Hierarchical Process) to calculate the weights of the parameters that determine the suitability of land for being used as a waste dumping site. Having the weights for the parameters, students will run a weighted overlay analysis in QGIS software to find the most suitable sites for evacuation sheltering. Application GIS and RS on EIA, biological disaster risk assessment. Web GIS, as a type of distributed information systems, provides the possibility to share geospatial data and functionalities over the internet. In its purest form, a Web GIS is composed of a server that stores the spatial data and performs some parts of the required analysis along with a client that can be accessed using a web browser. The application is accessible through a URL. Therefore, users can easily use it on their machine without the need to install any applications. Over the past decades, Web GIS has been widely used in different geoscience disciplines. how to use a Web GIS solution, named iMSEP, for presentation and analysis of spatial data, related to environmental



impact assessment. learn how to upload spatial data into iMSEP, how to use the analysis functionalities of the system, and how to visualize and publish the outputs.

The quality of lectures is excellent but if the video at link where we can download where google drive is very difficult.

The quality of exercises is also excellent and clearly except two exercises 1.4. spatial datasets – SQL queries where file of exercise have omitting pictures and instruction steps no clear completely. 5.4. mapping drought effect vegetation where some instruction steps no clearly and abbreviation.

We are suffering difficulties in republic of Yemen because of warfare. This suffering represent in absence the electricity which make you unable to charge your personal computer, also the other suffering represents by bad, slow and cost of internet service where many of exercises need to download the data. There are many other suffering affected directly or indirectly on students.

(Write a summary of the course, what you have learnt, the quality of lectures, the quality of exercises, etc. at least, 3 pages report is expected)

First of all, I want to thank everybody that have been a part of this course. I have learnt very much and am very thankful.

- I have learnt a lot from all parts of the course. I think that one of best advantages of this course was that it covers a lot of content and is very comprehensive but on the other hand it could also be its disadvantage because it is not easy to take in this amount of information from different areas in a short amount of time, and if the course was longer we could have a deeper understanding of the content.

- For me the first week of the course was the hardest in case of the novelty of information. In this week almost all parts were new. some of the pdf files were more clear and understandable but some were too long and hard to understand.

- Some parts of the course are very hard for students from other background such as urban planning. For example, the "GEODETIC COORDINATE REFERENCE SYSTEMS AND CARTOGRAPHIC PROJECTIONS" which needs a firm base in mathematics as a prerequisite to this section of the course and might need a separate course to learn.

- Some sections such as the "GLOBAL NAVIGATION SATELLITE SYSTEMS (Part 2)" from an urban planning student point of view has too much information which I think is good to have but is too detailed and can be presented briefly. of course this information might be essential to students from other backgrounds.

- In some cases specially in the first week course materials for defining terms and expressions it would be much better if images were used more often .As in the cases which images were used more frequently the concept was much clearer and easier to understand.

- The audio and video lectures were also a very good choice for this course. But for higher efficiency I believe that it would be better if the scholar would give extra information rather than only reading from the pdf. Because in some cases a little more explanation about the subject from the teacher or even using a whiteboard for help is very effective and helps in the student's perception.

- The video lectures 1.7 (a, b, and c) did not open for me to watch

- The videos of the final project section did not open for me to watch
- There were also some spelling and typing mistakes throughout the course that sometimes were a trouble. In one of the lectures one page was totally in Greek.

- Another problem for me was the fact that my lap top did not match the requirements of the course and I had some difficulties during few of the exercises. I think that at the start of the course it would be great to know what hardware is needed to be prepared in advance.

- Remote sensing 2 is the same and I think is not necessary for urban planners and could be as a link for students to go to and learn more if they need or be one or two pages as an introduction for the students.

- I believe that other than the first week that the lessons and exercises were heavy and complex and the second week that was completely new for me the exercises from other weeks were more perceptible which I presume is because their subject was more perceivable for me as an urban planner.
- The second week was very exciting for me. Remote sensing is very important but somewhat neglected in urban planning. For me it would have been better if this part of the course was more extensive and the lessons and exercises covered more areas. The lessons were clear and understandable and completely relevant to urban planning.

- I believe that SQL is a very essential tool for working with databases which is an important section of GIS. This section was one of those parts that I think needed more attention. I hoped to learn more in this part of the course. The exercises were good but didn't teach much and because of that were a little hard for me with no background.

- The GeoDa exercise was the same as the SQL. I believe that it is extremely important in our work and also needed more attention. Of course there was a link for further reading that was helpful but still some parts were not easily understandable. I really enjoyed working with the software it was very easy and applicable

- In the fourth and fifth and sixth sections of the project many areas were addressed. The subjects were very practical. I actually learnt very much from

these exercises in regard to the extensiveness and diversity of the lessons. Land use, health, pollution, and etc. were all great exercises that show the vast capabilities of GIS that I was not totally familiar with and is not introduced to students in Iran as thoroughly. I greatly enjoyed the exercises and learned a lot from them. The step by step process for the exercises were very helpful and understandable.

- Overall learning GIS online is not as easy as face to face learning and the fact that sometimes it took time for the tutors to answer questions and solve the problems was a negative factor that would affect the student's work and timetable.

- In this regard I was not able to complete my SQL exercise because my question was not answered. Also for the SPEI exercise because of a gap in the response of the tutor and the following problems, and despite the fact that the tutor responded to me after the gap but I did not have enough time to do the exercise.

- The Final week was also interesting and challenging and was a great experience for me. Only in the video section I had problem with opening the videos.

At the end again I want to thank the great team of experts that have put their time and knowledge towards the establishment of this course. I have learned very much from this course and am very grateful. I hope that our opinions will help this course to becoming its best. Anything that I have said here is only to be helpful in the path of reaching the best results and is not to downgrade the hard work of the team and the great course that they have created.

Kind Regards

Mina Barati



Course evaluation report by pilot students

Course: SDI-T for environmental impact assessment (EIA)

Aim: This course aims at providing an overview of EIA using RS and GIS with organizational and technical components. Students will explore theoretical and practical concepts of EIA. The course starts with introduction to GIS and RS for spatial data harmonization and analysis, and then focus on the applications in Environmental Impact Assessment.

Name and family name of the student: Hossein Ahmadi

Email: hossein.ahmadi.pf@gmail.com

1. Do you think that the aim, as described above, has been reached well in this course?

(1: Not at all, 5: Yes, completely)

1 2 3 4 5

Comments:

the main weakness of the course was the gap between explaining the technical aspects and linking it to the real usage of the technical app options.

On the other hand, in some sectors such as sec 4 and 5 there was a lack of data and unexpected errors happened during the operations.

The lessons in sector 1 and 2 did not actually have an essential rule in main purpose of the works.

2. How was the workload of the course? (1: low, 3: fair, 5: high)

1 2 3 4 5

Comments:

Almost high and unrelated in some sectors like 1 and 2.

And the lesson files except the exercise files were too much and not much related to what we needed in practices

3. How do you grade the course as a whole? (1: very weak, 3: fair, 5: very good)

1 2 3 4 5

Comments:

Most of the course lessons were not much of new kinds of lessons and could be done by ArcGIS too.

The most likely thing about the course is the high level of analysing ability and options which can be learned and used in many fields such as urban planning.



4. Mark the strongest weeks of the course

- 1 2 3 4 5
 6 7

5. Why these weeks are strongest?

Comments:

Better and more obvious training files for week 1 and 2.

Useful kinds of lessons in section6

6. Mark the weakest weeks of the course:

- 1 2 3 4 5
 6 7

7. Why are these weeks the weakest?

Comments:

1. Given data issues
2. Weakness in responding to questions
3. Errors happened during the practice

8. Which parts of the course do you recommend to omit?

Week 1 and 2 could be much shorter

9. Why do you recommend omitting these parts?

The lessons are not much related to the main purpose and they go so deep into details which are not needed

10. What parts do you recommend to add to the course?

Comments:

There were some insufficiencies in drawing of the maps and also adding attributes of the maps that could cause the students not being able to edit and create simple maps.



11. How was your background knowledge to this course? Was the course too easy or too complicated for your knowledge?

Owing to the fact that my field is urban planning. My knowledge of GIS was from the app ARCGIS which is being used for urban maps and analysis. This course was a little more expertly than we learn in urban planning, so the lessons in some points like coordinates systems were a little complicated. And the workflow was large and exercises took much time.

12. Grade the quality of contacts with lectures: (1: very weak, 3: fair, 5: very good)

1 2 3 4 5

Comments:

even though there were some ambiguities in lessons but the quality and the scientific level of the course was appropriate, and there were lots of new topics and courses out there.

Another issue was the accent of some of teachers which was hard to understand sometimes. `

13. How do you evaluate the course?

(Write a summary of the course, what you have learnt, the quality of lectures, the quality of exercises, etc. at least, 3 pages' report is expected)

As an educated in urban planning I believe that to work with QGIS, helps realize how true functionality of planning could be presented to the world. The vast options by which a professional could extract and even produce new data from almost any available information source.

As a brief understanding of the course I can give these definitions and comments:

GIS benefits

GIS can be used as tool in both problem solving and decision making processes, as well as for visualization of data in a spatial environment. Geospatial data can be analyzed to determine (1) the location of features and relationships to other features, (2) where the most and/or least of some feature exists, (3) the density of features in a given space, (4) what is happening inside an area of interest (AOI), (5) what is happening nearby some feature or phenomenon, and (6) and how a specific area has changed over time (and in what way).

1. Mapping where things are. We can map the spatial location of real-world features and visualize the spatial relationships among them.

2. Mapping quantities. People map quantities, such as where the most and least are, to find places that meet their criteria or to see the relationships between places.

3. Mapping densities. Sometimes it is more important to map concentrations, or a quantity normalized by area or total number.



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4. **Finding what is inside.** We can use GIS to determine what is happening or what features are located inside a specific area/region. We can determine the characteristics of "inside" by creating specific criteria to define an area of interest (AOI).
 5. **Finding what is nearby.** We can find out what is happening within a set distance of a feature or event by mapping what is nearby using geoprocessing tools like BUFFER.
 6. **Mapping change.** We can map the change in a specific geographic area to anticipate future conditions, decide on a course of action, or to evaluate the results of an action or policy.

Disadvantages of GIS technology

1. Geographic Information System is very expensive software (QGIS is free to use), It requires enormous amount of data inputs to be practical for some tasks, it makes it prone for error, it has relative loss of resolution and it has violation of privacy.
 2. Geographic Information System signal needs to be found in remote areas, it is too heavily relied on, the geographic error is increased as you get into a larger scale as the earth is round, Funding for GIS is needed because it is costlier, there will be a loss of knowledge of geography.
 3. GIS layers cause some costly mistakes when the property agents are to interpret the GIS map or the design of the engineer around the utility lines of the GIS, the data availability is a major issue, If the data is not available, then the GIS system is useless.
 4. Disadvantages of using GIS are that its technical nature may portray results as being more reliable than they actually are and the errors and the assumptions can be hidden, leading to a lack of questioning into the results.
 5. Another issue of analysing the results from a GIS is that the results will only be as accurate as the data that they come from, So, the data may not be able to serve different contexts, particularly if the data is not applicable.
 6. GIS technology is not like the other programs, It does not come off the shelf, So, they must be assembled and constructed to the user design, This could be a long, complex and costly process, So, Some GIS systems can fail in their implementation as their creation was rushed or inadequately planned.
 7. GIS systems are so complex, the technology behind GIS technology expands rapidly, causing GIS systems to have a high rate of obsolescence, As GIS is relatively new, integrating GIS data with traditional maps is difficult.
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8. It's very hard to make GIS programs which are both fast and user friendly, GIS systems typically require complex command language, Data fields and their accessibility are not very understood and data can become incomplete, obsolete or erroneous, rendering the GIS misleading.

Throughout the course, it is found that the applicant is to work with QGIS and related plug-ins of said software and occasionally some other applications of data processing. Hence, to maintain a beneficial experience out of the course, applicants are supposed to have a good handle over computer systems and programs, otherwise they will suffer a lot just to get along with steps they are asked to do with a computer. Moreover, the design of the software QGIS itself, owing the fact that it is a highly professional software capable of analysing great amounts of various data, cannot be considered very user-friendly and not everyone would be able to understand the environment of the program and its behaviour. It may even be possible for someone with a background of working with GIS software to face difficulties working with QGIS.

Aside from computer technical subjects, the computing power of this software is wondrous. To be able to locate tiniest bits of geographical elements and analyse the information accounted to them, whilst holding on to large quantities of geographical data is considered such an innovation in data processing world. Through the course, applicant is to learn how to load various categories of data into the software and handle the data to create maps, attributes, charts and results of alike sort. As an example, at one-point applicant is instructed to introduce word-formatted geographical information into the machine to produce graphical data via the software and vice versa.

On a more specific note about downsides of the software, it is worthy of mentioning that in addition to the fact that the software already is hard and complicated for any applicant to figure their way out get accustomed with it, QGIS definitely needs major bug fixes. To be more precise, there were several occasions, more than a few, where data and its procession didn't match the instruction or the procession of data didn't even start, despite several solutions that were tried out via the help of instructors of the courses. There were occasions of software crashing in Windows 10 that could be a matter of compatibility.

On the other hand, the course does not have a firm narration, which means students cannot have a firm structure in their minds to follow the education flow. After a while this gives you a feeling of getting lost between the lessons and cannot understand their relationship.

Another problem is the lack of functional lessons, the education flow covers a big number of subjects which probably are used in many different majors such as urban planning and mapping, as the number of covered subjects grows the will for keeping on reduces and gives the student the feeling of ambiguity and not being able to use them in real projects.

Customizing the course for different students from different fields could be a great improvement if it is possible.



The final project asked at section seven is a good idea for practicing and evaluating the students. It is even better that students pick the subjects by their own interests and relating to their majors. According to what has been said in last paragraph, completing the final project needs the students having a brief knowledge of GIS soft wares before the course. In my opinion completing this task is a hard thing to do without having former knowledge of the software and GIS related subjects.

The course was surely very beneficial and brief in teaching applicants how to work with QGIS. It could be said that the route from beginning to the end of the course could be more settled according to the knowledge of the applicant from the software. For instance, to teach theoretically what's the aim of QGIS and its differences from other software's of the same category in season 1 could be considered as a more efficient way of introducing the course and the software to applicants.
