

Discussion on the Teaching of "Photogrammetry Foundation" based on General Education Background

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Abstract. In this paper, the changes in the teaching of photogrammetry are compared and analyzed in the light of the actual situation of the students' training in University surveying and mapping engineering. We have arranged the guiding ideology, target system and teaching content of the course of "photogrammetry foundation" course under the background of general education. The objective system of "photogrammetry foundation" teaching in accordance with the actual situation of the present stage of the school is given, and the composition of the teaching content is optimized. Now the computer technology, the sensor technology and the space technology are in the rapid development stage, and the whole photogrammetry is also in the dynamic development. How to combine it with general education and improve students' interest in this course is still a problem that needs to be thought out in the future.

Introduction

Liberal education originated in the United States[1]. In the 90s of last century, the exploration of general education practice in mainland China was carried out along with the development of quality education [2]. On the basis of practical exploration, the concept of general education was also deepened. General education is not only an educational idea that aims at fostering a harmonious development of many aspects, but also a practical model for cultivating comprehensive talents [3]. The development of general education has great significance in improving diversity, attaching importance to the cultivation of personality and creativity and Cultivating General talents, but there are also many problems [4]. In the professional teaching, it is shown that the lack of practicality, the lack of detailed knowledge and the need for future work are not enough. Because of the large number of subjects, the knowledge of the students has a certain extent, but the depth is not enough [5]. Therefore, it also puts forward new requirements for the teaching of professional courses [6]. Photogrammetry is the two-level subject in the subject of Surveying and mapping. The course "photogrammetry foundation" is an important part of the major undergraduate study of Surveying and mapping engineering and geographic information system. Under the current general education background, how to carry out related content teaching, making surveying and mapping engineering students have better knowledge breadth and better adaptation to future needs is a problem that needs to be considered at the present stage.

Method

As a highly theoretical and practical course, photogrammetry includes two links of theoretical and practical teaching. In order to meet the needs of the development of the times better, taking the general education as the background, the training of "high-quality innovative" talents is the principle. On the basis of the results of social research, the teaching objectives are decomposed, the content of teaching is optimized, the teaching methods are improved and the practice is perfected. The specific idea is shown in Figure 1.

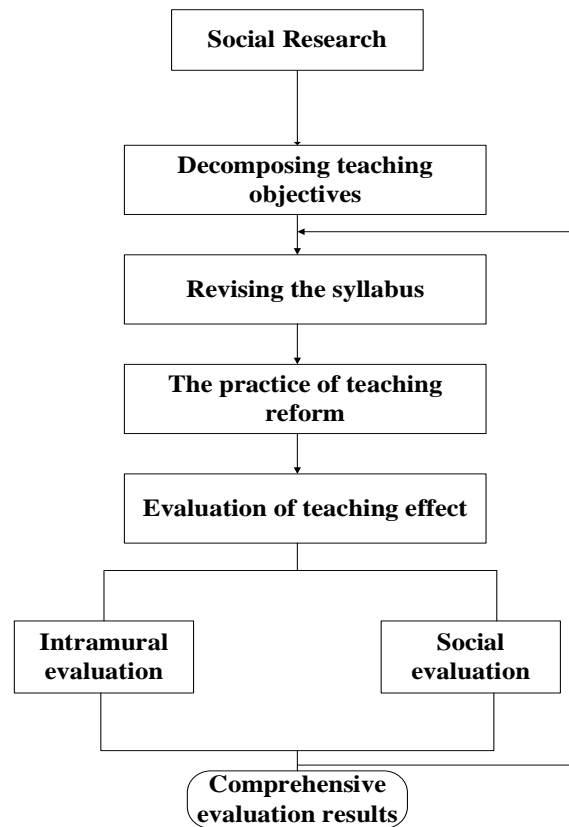


Figure 1 Basic idea of teaching reform and practice

The main task of photogrammetry is to map the topographic maps of various scales and to establish a digital elevation model. The basic content of the photogrammetry course can be divided into two large parts: Photography and measurement. The overall theoretical framework of the "photogrammetry" course is shown in Figure 2.

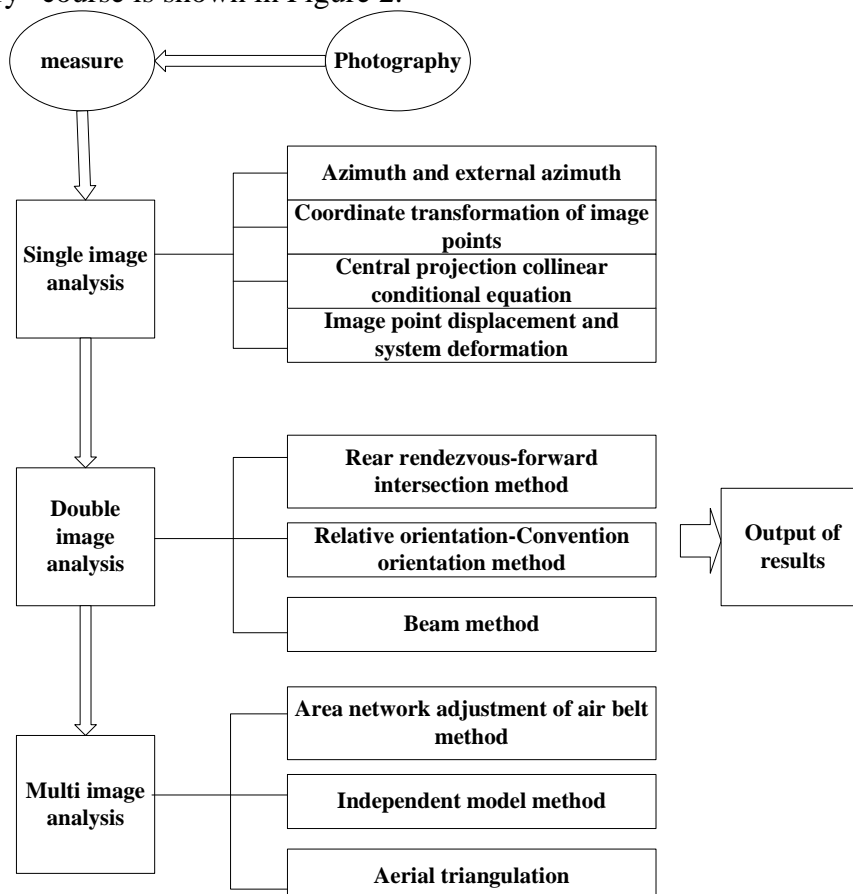


Figure 2 The overall theoretical framework system of the curriculum

Starting from the teaching guiding ideology of "photogrammetry foundation", the objective system of "photogrammetry foundation" course under general education is constructed. In general, the purpose of "photogrammetry basis" is to meet the training of wide caliber talents and meet the requirements of different departments for Photogrammetry and image spatial information to acquire talents. In order to lay a solid foundation for students' further learning and autonomous learning of photogrammetry related contents, for this purpose, the contents involved in teaching are divided into 4 categories: those that need to be mastered, need to remember, need to know and expand interest. The specific target system of curriculum teaching is shown in Table 1.

Table 1 The specific target system of the teaching of "photogrammetry foundation" course

Mastery	Engrave	Know	Interest
Parsing basis of single image	Technical requirements for aerial photography	Aerial image visual interpretation and aerial survey	Analog Photogrammetry
BBI analytic basis	Stereotactic method	The relationship between photogrammetry and remote sensing, GIS, GPS	History of Photogrammetry
Basic process of double mapping	Triangulation method	Photogrammetry	Photogrammetry and computer vision

Result

This paper analyzes the characteristics of the course of photogrammetry and the shortcomings of the present undergraduate teaching. Under the background of general education, the basic idea of the reform of photogrammetry undergraduate teaching and the technological process of exploration and practice are put forward. The comprehensive teaching evaluation shows that the reform scheme and measures proposed in this paper have achieved better teaching results.

Conclusion

This paper, with the background of general education, has promoted the development of photogrammetry undergraduate teaching to a certain extent. It has high practical value. But the teaching of photogrammetry is a complex project. How to establish a practical teaching mode and train high-quality photogrammetry talents to meet the needs of the times still needs further research and exploration by educators.

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