

## Assessments on the Status and Future of Map and Cadaster Education in Vocational Schools

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**Abstract:** As in various countries around the world, technology has been developing in our country and the need for trained and qualified technical staff has been growing in parallel to this development. Maps constitute the groundwork of the planning and project designs conducted in the fields of engineering related to infrastructure. Cadastral mapping technicians play an important role in all the studies conducted in order to obtain these maps. For this reason, it is necessary for cadastral mapping technicians to renew themselves in parallel to these developments. Today, the tools used in the mapping sector are being renewed in parallel with the rapidly changing technological developments and software and hardware are also updated in accordance with this renewal. For this reason, it is necessary to review the mapping education given at vocational schools by taking the current conditions and developments into consideration.

**Keywords:** Map and cadaster, education , land registry cadaster, cadastral mapping technician

### Introduction:

In Turkey, technician training was first started in a planned manner in 1953. By 1962, the number of technician training schools had reached 26; 22 of which were evening and 4 were day schools. Due to several reasons, technician training programs were ended in 1967 and high technician training programs were ended in 1972. A total of 45 schools (colleges) affiliated to YAYKUR were opened in 1975 and in 1979 the number of technician schools was increased to 59, including 45 vocational schools. In 1982, vocational schools were defined in the Higher Education Law No. 2547 and subordinated to universities. These schools offer education and training under technical programs, economics and administrative programs, health programs and marine programs. Students who graduate from the technical programs of vocational schools are granted the professional title of “technician” and the graduates of social programs are granted the professional title of “professional staff member”. Alongside other factors, it is necessary to employ well-trained and qualified staff to do the work in order to achieve the expected result in any kind of work. This affects all the engineers, technicians and mechanics working in the mapping sector. Unfortunately, the education performed in the mapping sector has never been discussed and examined as a whole or deficiencies and problems have not been identified to create solutions. In solving the problems, it is necessary to discuss the education given at universities together with the education given at high schools. In this study, certain suggestions are provided regarding the current state of “cadastral mapping technician”

education, problems encountered in the programs and the solutions to these problems.

### MAP AND CADASTER PROGRAMS:

In our country, there are map and cadaster programs offered at 44 vocational schools which are affiliated to 36 universities in various population centers. Some of the programs at these vocational schools also offer evening classes (Table 1).

It is highly important that the cadastral mapping technicians educated at these schools, who will meet the needs of various public institutions, municipalities and the private sector, start their professional lives as qualified individuals. Our colleagues working in the mapping sector are employed not only within the country but also abroad and they have to compete with their colleagues from other countries in the international arena. The only way to be successful in this competition is to have qualified personnel who know their profession well, are highly skilled and have strong practical skills. In fact, our colleagues working in the mapping sector state that there is a constant need for qualified staff (engineer, technician and mechanic) and they have difficulties in finding employees that have the desired qualities. This shows that vocational and technical education in our country is not at the expected level in terms of quantity or quality. This situation has certain reasons, which will be explained below.

### Courses and curriculums:

The vocational schools that train cadastral mapping technicians did not change the curriculums of map and cadaster programs for years. Certain partial



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changes were made in the programs through the Development of Human Resources through Vocational Education Project (IKMEP) in the academic year of 2009-2010. However, there were certain inconsistencies in the distribution of the courses to semesters and in the curriculums because the opinions of experienced academic staff who had taught in these programs for years were not taken when implementing these regulations. Some subjects to be taught were included in the courses given in the first or the second semester without considering whether the students had acquired the necessary background. Besides, the developments in technology should be taken into account and the regulations should be performed accordingly when modifying the courses and determining the syllabuses.

#### Tools, laboratories and equipment:

Properly equipped computer laboratories and the tools and equipment used in the practices of the sector should be available at educational institutions in order to be able to train the qualified and skilled technicians demanded by the mapping sector. Unfortunately, most mapping and cadaster programs at various vocational schools neither have properly equipped computer laboratories nor are equipped with tools and equipment of the latest technology. Those who have such tools and equipment possess them in very limited numbers. However, the intermediate staff of a profession should have strong practical skills. Therefore, the groups formed for applications need to be composed of a fairly small number of students. This problem can be solved by having adequate numbers of tools and equipment. But under the circumstances, the qualified staff required by the sector equipped with the tools of the latest technology cannot be trained.

Name of University	Vocational School	Number of students accepted	Name of University	Vocational School	Number of students accepted
Selçuk Üni.	VS of Tech. Sciences	40	Celal Bayar Üni.	Köprübaşı VS	50
Atatürk Üni.	Erzurum VS	40	Muğla Sıtkı Koçman	Muğla VS	40
Uludağ Üni.	Gemlik AKVS	30	Mersin Üni.	VS of Tech. Sciences	50
Hacettepe Üni.	Polatlı Tech. BVS	40	Niğde Üni.	Bor VS	50
Erzincan Üni.	Vocational School	50	Celal Bayar Üni.	Sarıgöl VS	40
Uludağ Üni.	İzmit VS	40	Selçuk Üni.	VS of Tech. Sciences	40
İnönü Üni.	Malatya VS	40	Bülent Ecevit Üni.	Zonguldak VS	50
Yıldız Teknik Üni.	Yıldız VS	40	Afyon Kocatepe	Emirdağ VS	50
KTÜ	Trabzon VS	50	Giresun Üni.	VS of Tech. Sciences	80
Akdeniz Üni.	VS of Tech. Sciences	50	Afyon Kocatepe	Sandıklı VS	40
Mersin Üni.	VS of Tech. Sciences	50	Sütçü İmam Üni.	Göksun VS	50
Muğla Sıtkı Koçman	Muğla VS	40	Selçuk Üni.	Taşkent VS	35
Süleyman Demirel	VS of Tech. Sciences	60	Artvin Çoruh Üni.	Artvin VS	40
Fırat Üni.	Sivrice VS	50	Tunceli Üni.	Tunceli VS	40
Dokuz Eylül Üni.	İzmir VS	45	Süleyman Demirel	VS of Tech. Sciences	60
Çukurova Üni.	Karaisalı VS	40	Ahi Evran Üni.	Kaman VS	80
Dokuz Eylül Üni.	İzmir VS	45	Atatürk Üni.	Pasinler VS	45
Düzce Üni.	Kaynaşlı VS	35	Sinop Üni.	Boyabat VS	40

19 Mayıs Üni.	Kavak VS	40	Selçuk Üni.	Kadınhanı VS	90
Akdeniz Üni.	VS of Tech. Sciences	50	Süleyman Demirel	Uluborlu VS	60
Harran Üni.	VS of Tech. Sciences	40	Süleyman Demirel	Uluborlu VS	60
Trakya Üni.	VS of Tech. Sciences	55	Selçuk Üni.	Hadım VS	80
Mustafa Kemal Üni.	İskenderun VS	50	Fırat Üni.	Sivrice VS	50
Amasya Üni	VS of Tech. Sciences	40	Selçuk Üni.	Güneysinir VS	80
Dumlupınar Üni.	Tavşanlı VS	40	Tunceli Üni.	Tunceli VS	40
Bitlis Eren Üni.	Tatvan VS	40	Harran Üni.	Şanlıurfa VSTS	40
Adıyaman Üni.	Kahta VS	45	19 Mayıs Üni.	Kavak VS	40
Doğu Akdeniz	Comp. and Tech. S.	2	Trakya Üni.	Edirne VSTS	55
Korkut Ata Üni.	Osmaniye VS	50	Mustafa Kemal Üni.	İskenderun VS	50
GOP Üni.	VS of Tech. Sciences	50	Korkut Ata Üni.	Osmaniye VS	50
Hitit Üni.	VS	40	Düzce Üni.	Kaynaşlı VS	35
Adıyaman Üni.	Kahta VS	45	Amasya Üni	Amasya VSTS	40
Hitit Üni.	VS	40	Niğde Üni.	Bor VS	50
Celal Bayar Üni.	Köprübaşı VS	50	Afyon Kocatepe	Emirdağ VS	50
GOP Üni.	Tokat VSTS	50	Selçuk Üni.	Kadınhanı FIVS	90
Sütçü İmam Üni.	Göksun VS	50	Giresun Üni.	Teknik Bil. VS	80
Dumlupınar Üni.	Tavşanlı VS	40	Celal Bayar Üni.	Sarıgöl VS	40
Okan Üni.	VS	12	Tunceli Üni.	Tunceli VS	40
Bülent Ecevit Üni.	Zonguldak VS	50	Sinop Üni.	Boyabat VS	40
			Ahi Evran Üni.	Kaman VS	80

**Table1;** Available in Turkish Universities Vocational Schools System

#### Teaching staff:

Another important point in training cadastral mapping technicians is that the teaching staff of the programs is selected from among geomatics engineers with bachelor's degrees and since these engineers do not have much experience and any pedagogical training, they experience considerable ineptitude especially in their first years. Due to the lack of the required number of teaching staff members, in many schools the existing instructors teach excessive hours and have to teach classes that are not related to their fields, which result in a lack of efficiency. Furthermore, it is necessary for the members of the teaching staff to update their knowledge in parallel with the developments in technology. The necessary staff development studies are not carried out in many vocational schools.

#### Status of students:

As is known, when vocational schools were first opened, they accepted students from both vocational high schools and common high schools requiring a certain score (first 120 then approximately 105). Although not very high, students were accepted based on a score; therefore the qualities of graduates were considerably high. Vocational high school graduates could easily adapt as they had a certain degree of vocational background. Later on, the changes in the university entrance system caused a significant decrease in the number of students who attended to vocational high schools. In order to increase the number of students at these high schools, vocational schools at universities started to accept vocational high school graduates according to their average grades without requiring a score for the university entrance exams, which is known as "open admission". Unfortunately, this practice, which was initially started in good purpose, did not give the

expected result. On the contrary, the students that come to vocational schools through open admission considerably decrease the quality of these schools. Since the academic backgrounds of these students are very weak, let alone teaching professional skills and new developments, instructors have to revise certain subjects from primary and secondary school curriculums. Frankly speaking, despite the good purpose behind it, open admission practices have been unsuccessful. The directors and the teaching staff members of these schools continuously mention the negative and unfavorable aspects in this regard at meetings and symposiums. Almost all the academic staff members of vocational schools want open admission to be cancelled or at least the admission of students based on an entrance exam score, as was the case in the past.

### Suggestions:

The desired results cannot be achieved in the education of cadastral mapping technicians, who constitute a functionally important component of the mapping sector of our country. The following points should be taken into consideration in order to be able to train well-educated and qualified cadastral mapping technicians demanded by the sector:

- The physical structures of schools, such as classrooms, equipment laboratories and computer laboratories should be optimized.
- The existing courses and curriculums should be revised at the meetings that will be held with experienced teachers working at vocational school and the courses to be canceled, new courses to be included in the programs, the syllabuses and semesters of these courses should be determined. These studies should be carried out through the collaboration of vocational high schools and universities.
- The number of the teaching staff at vocational schools should immediately be increased to adequate levels and the number of students per instructor should be decreased. Instructors should not teach 4-5 different courses as if they are primary education teachers, but branch out in certain fields. If possible, experienced professionals who worked in the field for a certain time should be included in the teaching staff.
- Cadastral mapping technicians are professionals who work among engineers and other staff and defined as the intermediate staff of the profession, therefore, they should have strong practical skills. Vocational schools should have an adequate number of tools and software applications used by the private sector and public institutions in order to train the technicians in a manner that they can successfully perform their duties either in the field or in the office. Old and out-of-date tools should be renewed as soon

as possible and the equipment at schools should be replaced with new models of the latest technology.

- The issue of open admission should immediately be discussed and canceled or reformed. The most accurate step to be taken in this regard would be giving priority to vocational high school graduates but at the same time obliging them to get a certain score at the university entrance exams (approximately 100-150). Vacancies should be given to general high school graduates without waiting for additional placements.

- Mapping and cadaster programs are one of the most opened programs at vocational schools of universities. Since obtaining the required equipment and setting up laboratories are easier and more economical compared to other programs, mapping and cadaster programs were opened in many vocational schools without considering employment options. When the admission quotas for the academic year of 2013-2014 are examined, it can be seen that there were vacancies left in some schools. The future might be dangerous for the mapping and cadaster programs at certain universities. Considering the employment opportunities of students, it should be thought very carefully when opening new schools.

- Although practical training has constantly come to the fore, its problems have not been solved as desired. Cadastral mapping technicians have their practical training in the mapping offices of the private sector, rather than the public institutions related to our profession and municipalities. Most of the intern students state that the practical training they have at those places do not contribute to their development and they are employed for tasks that any layman can do. It should be maintained that municipalities and related public institutions accept an adequate number of interns for practical training.

- Technicians who graduate from vocational schools perform their military services under the same conditions as high school graduates. Shorter military service periods for technicians compared to high school graduates may motivate them and may also increase the interest towards vocational schools.

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