

Internship Regulations in Civil Engineering Education: Bayburt University Civil Engineering Department Example

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ABSTRACT

Compulsory professional internships are extremely important in terms of the assimilation of theoretical knowledge in the engineering education process. Universities had set up their own internship regulations for their internships to be done with more attentive or a specific standard. These regulations bring about specific criteria on how to do internships. A poor quality professional internship can lead to the development of a civil engineer who cannot utterly meet the present and future needs of the society. Therefore the internships constitute of implementation phase of the education and training period need to do more attentive.

The aim of this study is to compare and discuss the internship regulations of the major universities of civil engineering education and the internship regulations of Bayburt University Department of Civil Engineering. Thus, it is aimed to examine Bayburt University's differences in the practice of internship-based learning method. As a result, suggestions for increasing the quality of internship application are presented.

Keywords: Civil engineering, internship, education

I. INTRODUCTION

Internships are an important part of the education in universities. Thanks to the internship, students can understand their profession more closely and be more efficient due to fact that they are pre-equipped before beginning a new career. For the fields like construction engineering, where the practice is very important, if internships are done in a disciplined manner, the taken theoretical education is being more meaningful. It can be very difficult for students, who do not perform their professional internship in the desired way, to adapt themselves to their profession in the future, and they may have trouble finding a job [1, 2]. Universities publish internship guidelines in order to ensure that students are properly trained at this stage. Thus, certain schedules for internships are made to provide better quality

In this study, the internship guidelines of state and private universities, whose academic performance are higher than Bayburt University Department of Civil Engineering, are examined based on 2017-2016 URAP data. Then, considering the different obtained results, various proposals are presented to increase the quality of Bayburt University internship practice.

II. RELATED WORK

The students of Bayburt University Department of Civil Engineering start their internship at the end of the 4th semester and its total duration is at least 60 days. Internship is divided into two types as: i)-office and ii)-construction site. Students must complete at least 30 working days for the construction site type of internship and at most 30 working days for the office

type of internship. Buildings, roads, railways, metro, tunnels, bridges, viaducts, dams, harbors, canals and various geotechnical applications are being expected to be selected for construction sites in their internships.

During internship in construction site it is demanded from the students to: follow, learn and examine shell and core construction activities; project implementation; keep necessary documents attachments; learn the application of various activities related to building management; learn about building's components as concrete, steel, wood and their manufacturing and assembling; learn how to conduct experimental research by seeing the application of measurement methods in civil engineering, attend activities of excavations, molds, iron, concrete, wall and roof which are performed in construction site; site land surveying, labor and equipment's management (takeoff sheet, daily site dairy, supervisor's dairy, various records of the running machinery and equipment), have knowledge for activities like material supply and storing (warehouse records, shipyards). The students have to present the performed work in the site during the internship by including visual materials (photographs and free hand drawings, etc.) in internship report [3].

It is preferred that the student contributes in the stages of static design, graphic design, preliminary design or implementing projects during office internship according to Bayburt University Internship Guidance. Internship is declined when the work is done in offices where there was no actual project. During the office internship, it is requested from students to perform take off and estimation, progress payments reports, changes management or project's closure procedures, design practice and laboratory tests related to construction works [3].

The students of Bayburt University in Civil Engineering Department present an internship file including their performed work and gained knowledge from their observation during the internships period to Department Internship Commission. During internship assessment, the performed work along their internship, internship diary (drawings, photographs, documents) and interview result are taken into account [3].

In this study, to show the situation of it versus others universities internship directives the internship guidelines of 67 state and 17 private universities, whose academic performance are higher than Bayburt University Department of Civil Engineering, are examined based on 2017-2016 URAP data in order to take stock of it versus others. Due to the lack of civil engineering departments in some of these universities and the inability to reach the internship directives of some of them, the data of 43 state and 7 private universities could be examined. The examined internship directives were examined by dividing in groups according to internship type, lessons need to be taken before starting the internship, internship period, internship evaluation criteria, the created the evaluation board and internship assessment practice. In this way, the differences in the internship regulations of the universities were tried to be exhibited through Tables 1 and 2.

Table 1. Data about education directive of state universities examined *

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|-----------------|------------------------------------|----------------------|--------------------|--------------|---------------------------|----------------------------|-----------------------|-----------------------|
| ODTÜ | 2 nd | Site | | 20 | 50 | Internship diary | Internship commission | Successful |
| | 3 rd | Site/ Office | | 30 | | Trainee Evaluation Report | | Failed |
| HACETTEPE | 2 nd | Site | | min 20 | 40 | Internship diary | Internship commission | Successful |
| | 3 rd | Site/ Office | | min 20 | | Trainee Evaluation Report | | Failed |
| İSTANBUL | 1 st | Site/ Office/ Lab | | max 20 | 70(Lab max 15, Office 25) | Internship diary | Internship commission | Successful |
| | 2 nd | Site/ Office/ Lab | | | | Trainee Evaluation Report | | Accepted days number |
| | 3 rd | Site/ Office/ Lab | | | | Presentation -If necessary | | Failed |
| GEBZE TEKNİK | 2 nd | | | min 20 | 40 | Internship diary | Internship commission | Successful |
| | 3 rd | | | min 20 | | Trainee Evaluation Report | | Failed |
| | | | | | | Presentation -If necessary | | |
| GAZİ | 2 nd | Site | | 25 | 50 | Internship diary | Related professor | Successful |
| | 3 rd | Site/ Office | | 25 | | Trainee Evaluation Report | | Failed |
| | | | | | | Interview -If necessary | | |
| İSTANBUL TEKNİK | 2 nd | Engineering practice | | min 20 | 60 | Internship diary | Internship commission | Successful |
| | 3 rd or 4 th | Construction project | | min 20 | | Trainee Evaluation Report | | Accepted days number |
| | | | | | | Failed | | |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [4-9].

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|----------------------|-------|-----------------------|---|------------------|---------------------------|--|-----------------------|-----------------------|
| EGE | 2nd | Site | | 20 | 40 | Internship diary | Internship commission | Successful |
| | | | | 20 | | Trainee Evaluation Report | | Revision |
| | 3rd | Site/ Office | | | | | | |
| ATATÜRK | 2nd | Site | min 30 | 60 | Trainee Evaluation Report | Internship commission | Successful | |
| | 3rd | Site/ Office | min 30 | | Interview | | Failed | |
| ERCIYES | 2nd | Site | | 24 | 48 | Internship diary | Internship commission | Successful |
| | | | | 24 | | Trainee Evaluation Report | | Accepted 12 days |
| | 3rd | Office | | | | | | |
| SELÇUK | 2nd | Site | | 20 | 40 | Internship diary | Internship commission | Mark |
| | 3rd | Office | | 20 | | Trainee Evaluation Report | | |
| MARMARA | 2nd | | | min 18 max 36 | 36 | Internship diary | Internship commission | Successful |
| | | | | min 18 max 36 | | Trainee Evaluation Report | | Accepted days number |
| | 3rd | | | | | | | |
| DOKUZ EYLÜL | 1st | Site | | max 15 | 50 | Internship diary | Internship commission | Successful |
| | 2nd | Site/ Office | | max 25 | | Trainee Evaluation Report | | Accepted days number |
| | 3rd | Site/ Office | | min 10 | | Presentation -If necessary | | Failed |
| YILDIZ TEKNİK | 2nd | Site/ Site and Office | Must have taken 80% of courses in 4 semesters | min 30 | 60 | Internship diary- Internship report | Internship commission | Successful |
| | | | | min 30 max 60 | | Trainee Evaluation Report | | Revision |
| | 3rd | Site/ Site and Office | | | | Must be successful in 90% of 6 semesters | | |
| İZMİR YÜKSEK TEKNOJİ | 2nd | Site | | min 20 | 40 | Internship diary | Advisor | Successful |
| | 3rd | Office | | min 20 | | Internship report | | Revision |
| | | | | | | | | Failed |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [10-17].

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment | |
|---------------------|-------|----------------------------|--|------------------|-------|----------------------------|-----------------------|----------------------------|--------------------|
| KTÜ | 2nd | Site | | min 15 max 40 | 60 | Internship diary | Internship commission | Successful | |
| | 3rd | Site | | min 15 max 40 | | Trainee Evaluation Report | | Accepted days number | |
| | | | | | | Interview | | Failed (<60 point) | |
| FIRAT | 2nd | Site | | 24 | 48 | Internship diary | Internship commission | Successful | |
| | 3rd | Office | | 24 | | Trainee Evaluation Report | | Failed | |
| SÜLEYMAN DEMİREL | 2nd | Structure | | max 30 | 60 | Internship diary | Internship commission | Successful | |
| | 3rd | Transportation/ Hydraulics | | max 30 | | Trainee Evaluation Report | | Accepted days number | |
| | | | | | | Interview -If necessary | | Revision | |
| | | | | | | | | Failed | |
| ESKİŞEHİR OSMANGAZİ | 2nd | Structure | Construction materials, structure elements, architecture knowledge, technic drawings | 25 | 50 | Internship diary | 3 academic members | Successful | |
| | 3rd | Transportation | Estimation knowledge/Topography 1-2, earthworks and railway engineering, highway engineering | 25 | | Trainee Evaluation Report | | | 2 academic members |
| | | Geotechnical | Soil mechanics I and soil mechanics II | | | Presentation -If necessary | 1 academic member | | |
| | | | Hydraulics | | | | | | 1 academic member |
| ULUDAĞ | 2nd | Site/ Office | | min 30 max 45 | 60 | Internship diary | Internship commission | Successful | |
| | 3rd | Site/ Office | | min 30 max 45 | | Trainee Evaluation Report | | Accepted days number | |
| SAKARYA | 2nd | Structure | | 20 | 40 | Internship diary | Internship commission | Successful | |
| | | | | | | 3rd | | Transportation/ Hydraulics | 20 |
| | | | | Written note | | | | | |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [18-23].

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|-----------------|-------|---|--------------------|--------------|-------|---------------------------|-----------------------|-----------------------|
| İNÖNÜ | 2nd | Site | | min 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Site | | min 30 | | Trainee Evaluation Report | | Accepted days number |
| | | | | | | Interview | | Failed |
| GAZİANTEP | 1st | Site | | min 20 | 60 | Internship diary | Internship commission | Successful |
| | 2nd | Office/ Lab | | min 20 | | Trainee Evaluation Report | | Failed |
| | 3rd | Hydraulics/ Geotechnical/ Transportation | | min 20 | | Interview -If necessary | | |
| ANADOLU | 2nd | Structure (Lab/Office) | | 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Hydraulics/ Geotechnical/ Transportation (Lab/Office) | | 30 | | Trainee Evaluation Report | | Accepted days number |
| KOCAELİ | 2nd | Site | | 22 | 44 | Internship diary | Internship commission | Successful |
| | 3rd | Site/ Office | | 22 | | Trainee Evaluation Report | | Failed |
| PAMUKKALE | 2nd | Site | | 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Office/ Professional internship | | 30 | | Trainee Evaluation Report | | Failed |
| | | | | | | Presentation | | |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [24-28]

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|-----------------|-------|--|--|--------------|-------|---------------------------|-----------------------|-----------------------|
| CELAL BAYAR | 2nd | Site | Must be successful in technic drawings, materials knowledge, basic knowledge, elements of structure, graphical software, construction materials II. | min 25 | 50 | Internship diary | Internship commission | Successful |
| | 3rd | Office | Hydraulics, steel structure, concrete II, transportation, static of structure I, soil mechanics I, water supply and sewerage, steel structure design, concrete II, transportation network design, static of structure II, soil mechanics II) | min 25 | | Interview | | Accepted days number |
| MERSİN | 2nd | Site | | 20 | 40 | Internship diary | Internship commission | Successful |
| | 3rd | Office | | 20 | | Trainee Evaluation Report | | Revision |
| AFYON KOCATEPE | 2nd | Structure | | min 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Hydraulics/ Geotechnical/ Transportation | | 30 | | Trainee Evaluation Report | | Accepted days number |
| KIRIKKALE | 1st | Site | | 10 | 50 | Internship diary | Internship commission | Successful |
| | 2nd | Office | | 20 | | | | |
| | 3rd | Site | | 20 | | Trainee Evaluation Report | | Failed |

*It is taken from the websites of universities between 25.08.2017-08.09.2017 days [29-32].

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|----------------------|--------|----------------------------|--------------------|--------------|-------|---------------------------|-----------------------|-------------------------|
| DUMLUPINAR | 1st | Site and Office | | 20 | 60 | Internship diary | Internship commission | Successful |
| | 2nd | Structure | | 20 | | Trainee Evaluation Report | | |
| | 3rd | Hydraulics/ Transportation | | 20 | | Interview | | Failed |
| MUĞLA SITKI KOÇMAN | 2nd | Professional internship | | min 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Expert field | | min 30 | | Internship report | | Failed |
| | | | | | | Presentation | | |
| HARRAN | 1st | Structure | | min 20 | 60 | Internship diary | Internship commission | Successful |
| | 2nd | Hydraulics | | min 20 | | | | Interview -If necessary |
| | 3rd | Transportation | | min 20 | | Failed | | |
| BALIKESİR | 2nd | Site | | 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Office | | 30 | | Trainee Evaluation Report | | Accepted days number |
| RECEP TAYYİP ERDOĞAN | 2nd | Site | | min 30 | 60 | Internship diary | Internship commission | Successful |
| | | | | | | | | 3rd |
| | Failed | | | | | | | |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [33-37].

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|------------------------|-------|-------------------------------|--------------------|--------------|-------------------|---------------------------------------|-----------------------|------------------------|
| BÜLENT ECEVİT | 2nd | Site | | 30 | 60 | Internship diary | Internship commission | Successful (>60 point) |
| | 3rd | Site/ Office | | 30 | | Trainee Evaluation Report | | Failed |
| | | | | | | Interview -If necessary | | |
| NİĞDE ÖMER HALİS DEMİR | 2nd | Site | | 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Site/ Site and Office (max15) | | 30 | | Trainee Evaluation Report | | Revision |
| | | | | | | Interview/ written note -If necessary | | Failed |
| NAMIK KEMAL | 1st | Site/ Office | | max 30 | 60(Office max 20) | Internship diary | Internship commission | Successful |
| | 2nd | Site/ Office | | max 20 | | Trainee Evaluation Report | | Accepted days number |
| | 3rd | Site/ Office | | max 20 | | | | Failed |
| AKSARAY | 2nd | Site | | 30 | 60 | Internship diary | | Successful |
| | 3rd | Site/ Office | | 30 | | Trainee Evaluation Report | | Accepted days number |
| | | | | | | Interview -If necessary | | Failed |
| BOZOK | 1st | Structure | | 20 | 55 | Internship diary | Internship commission | Successful |
| | 2nd | Office | | 15 | | Trainee Evaluation Report | | Accepted days number |
| | 3rd | Transportation/ Hydraulics | | 20 | | Interview -If necessary | | Failed |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [38-42].

Continuation of Table 1*

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|-------------------|-------|----------------------------|---|------------------|-------|---------------------------|-----------------------|-----------------------|
| NECMETTİN ERBAKAN | 2nd | Site | | 20 | 40 | Internship diary | Internship commission | Mark |
| | 3rd | Office | | 20 | | Trainee Evaluation Report | | |
| | | | | | | Interview | | |
| ADİYAMAN | 2nd | | | 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | | | 30 | | Trainee Evaluation Report | | Failed |
| | | | | | | | | |
| BARTIN | 2nd | Site | Obligatory for taking construction site course | 25 | 50 | Internship diary | Internship commission | Mark |
| | 3rd | Transportation /Hydraulics | Obligatory for taking Transportation II /Hydraulics courses | 25 | | Trainee Evaluation Report | | |
| GÜMÜŞHANE | 2nd | | | min 15 max 40 | 60 | Internship diary | | |
| | | | | 3rd | | | | |
| | | | | | | | | |

* It is taken from the websites of universities between 25.08.2017-08.09.2017 days [43-46].

Table 2. Data about education directive of private universities examined *

| University name | Class | Internship type | Compulsory lessons | Period (day) | Total | Evaluation criteria | Evaluation board | Internship assessment |
|-----------------|------------|-----------------|------------------------|------------------|-------|---------------------------|---------------------------|-----------------------|
| ATILIM | 2nd | Site | Mechanic I, Static | min 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Office | Construction Materials | min 30 | | Trainee Evaluation Report | | Failed |
| | | | | | | Presentation | | |
| YEDİTEPE | 2nd | Site | English II | min 20 | 40 | Internship diary | Related professor | Successful |
| | 3rd | Office | Any two courses | min 20 | | Trainee Evaluation Report | | Failed |
| | | | | | | Presentation | | |
| ÇANKAYA | 2nd | Site | | min 20 | 40 | Internship diary | Related professor | Successful |
| | 3rd | Site/ Office | | min 20 | | Trainee Evaluation Report | | Failed |
| BAHÇEŞEHİR | 1st or 2nd | | | 20 | 40 | Internship diary | Internship commission | Successful |
| | 3rd or 4th | | | 20 | | Trainee Evaluation Report | | Failed |
| ÖZYEGİN | 2nd | | Introduction | min 20 max 40 | 40 | Internship diary | Supervisor | Successful |
| | 3rd | | Competence management | min 20 max 40 | | Trainee Evaluation Report | | Failed |
| İZMİR EKONOMİ | 2nd | | | min 20 | 40 | Report summary | Internship commission | Successful |
| | 3rd | | | min 20 | | Trainee Evaluation Report | | Failed |
| | | | | | | | Trainee Evaluation Report | |
| MALTEPE | 2nd | Site | | 30 | 60 | Internship diary | Internship commission | Successful |
| | 3rd | Office | | 30 | | Trainee Evaluation Report | | Failed |
| | | | | | | Presentation | | |

*It is taken from the websites of universities between 25.08.2017-08.09.2017 days [47-53].

III. CONCLUSIONS AND DISCUSSION

Like most universities in Turkey, Civil Engineering Department of Bayburt University is accepted two types of internship; site and office. In civil engineering departments of some universities, it is allowed to execute internship except site and office. For instance laboratory structure hydraulics geotechnical and transportation fields and etc. It is observed that when compulsory internship is not requested by the internship commission of universities in laboratory, hydraulics, and geotechnical fields, most of students execute internship in structure field [54]. Students executing internship in building construction want to work again in building construction since they think that they will learn this field better than the other fields [2]. However there are a sufficient number of structure engineers in our country, there is still a deficiency of engineers in different fields such as coastal and harbor engineering, steel, geotechnical and hydraulic structures [1]. Therefore, it is suggested that students must be also encouraged to work in others different fields as in mentioned above during the internship.

Except as some cases, a total internship day to be qualified is generally at least 60 days for Civil Engineering Department of the universities. When considering both the diversity of the department fields and the diversity of the work done in the construction sites, it is seen that the internships, which constitute the large part of the applied training in the civil engineering departments, should be more than 60 days. Therefore, it is suggested that students should execute their internship after the 2nd, 4th and 6th semesters.

Internships are generally evaluated according to internship diary, trainee evaluation report, and presentation if necessary. It was observed in some studies that all the internship days were counted even if some subjects were missing when only the internship diary and trainee evaluation report of the students were taken into consideration [54]. To prevent this situation it is thought that the interviews and written examination require to be more important than the internship report and trainee evaluation report.

In addition, first-year students should be encouraged to participate in presentations to make use of the information gained from internships. Examining the acceptance status of the internship of the students, most of universities evaluate their internships as successful or failed, but some universities have marks also. It is thought that in case of using of mark on the evaluation of internships, students will be more disciplined when performing their internships. The completion of the 2nd and 4th semesters is sufficient for the starting their internships for the students in the Department of Civil Engineering of Bayburt University. But students of some universities have to take some obligatory courses and it is demanded to attend them before starting the internship. Starting the internship after obtaining the basis theoretical knowledge can make this process more efficient.

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