

# **New Education in Land Management at Western Norway University of Applied Sciences**

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**Key words:** Education, Land Administration, Cadastral Surveying, Land Management, Land Use Planning

## **SUMMARY**

A master program in land administration was introduced in 2015 at Western Norway University of Applied Sciences (HVL). This is the latest stage of development in a 60-year education development in land surveying and land management, in Bergen. Education in land surveying and land consolidation was established in Bergen in 1957, starting as a 1-year course at Stend agricultural school, aiming to educate technical personnel for the land consolidation courts. In 1980 the course was expanded to 2 years. In the early 90's the education was moved from the agricultural school to Bergen University College (merged into HVL from January 1, 2017) and integrated within Department of Civil Engineering. In 2006 the study was expanded to three years, to a bachelor program in "Land Surveying and Land Management". In 2014 the new master program in Land Management was approved. The first masters in Land Management will be graduated from HVL in June 2017.

The paper presents the development of education programs at Western Norway University of Applied Sciences within Land Surveying and Land Management, with focus on the new master program in Land Management.

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## 1. INTRODUCTION

On January 1, 2017 Sogn og Fjordane University College, Bergen University College and Stord/Haugesund University College merged to become Western Norway University of Applied Sciences (HVL).

HVL will offer educations within

- Health sciences
- Sports, Outdoor Life and Public Health
- Education and Music
- Natural and Social sciences
- Economics and Management
- Engineering and Maritime courses (hereunder Land Surveying and Land Management)

In total HVL will have 16.000 students and 1.800 employees. There are five campuses, Sogndal, Førde, Bergen, Stord and Haugesund. The main language will be New Norwegian (no:*Nynorsk*).



Map showing the campus locations of the Western Norway University of Applied Sciences

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The former Bergen University College (now Campus Bergen) is the largest of the merging University Colleges, with 800 employees and 9200 students, offering education in land surveying and land management. This paper will present and discuss history, development and present status this education.

## **2. HISTORY IN SHORT – FROM LAND CONSOLIDATION TO LAND MANAGEMENT**

### **1957 – 1980**

The origin of the present education in land surveying and land management started in 1957 as a 1 year course in land consolidation at Stend agricultural school, named as Stend land consolidation school (no: *Jordskifteskulen*). The aim of the education was to educate technical personnel (technicians) to the land consolidation courts. Students were given an intensive education in agriculture, land surveying, mapping techniques and law, and the school developed a good reputation.

### **1980 - 1994**

In 1980 the education was expanded to a 2 years education. In 1993 the school was merged with Department of Civil Engineering at Bergen Engineering College, to the new Bergen University College.

### **1994 – 2006**

Department of Civil Engineering offered at the time of the merging a 3-years bachelor education in Civil and Structural Engineering. By this merging the school achieved a considerable strengthening of the institution, giving access to broad expertise and cooperation in different subjects, now not only related to the land, but also to the buildings and constructions on the land. Land surveying as a discipline was strengthened, as the teachers at *Jordskifteskulen* gradually took over the courses in land surveying for the civil engineering students and combined these with the courses in land surveying for the geomatics students. The agriculture aspects of the education should be gradually reduced. In the latter part of the 1990s there became increased focus on the needs for strengthening the cadastral system, and an Official Norwegian Report was in 1999 presented proposing authorization of cadastral surveyors. It was apparent that the Department of Civil Engineering could have a major role in education of the future authorized cadastral surveyors in Norway. To achieve this it was regarded a major benefit to adapt to the ordinary educations model, 3 years bachelor and a 2 years master. In 2006 the 2-years course in land surveying and land consolidation was expanded to a 3-years bachelor education in land surveying and land management.

### **2006 – 2017**

Being the only education institution in Norway giving at bachelor education in traditional land surveying combining both technical and legal issues, with close access to competence in civil engineering, the School was now in good position to develop further and achieve a major role in research and development. In 2007 there were 10 permanent staff members at the Department, 1 of these at PhD level (professor in land consolidation). In February 2017 the permanent staff are 25; 2 engineers, 11 assistant professors and 12 associate professors and professors (PhD level). In parallel with the expansion to a bachelor education, there has been an increase in the number of employees, and in the number of employees with PhD. The increase in employees is caused by development of

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new courses and increase in the number of students, both in the land surveying and in civil engineering.

Since 2006 there has also been an significant increase in research activities in the Department. In 2007 faculty member published 3 articles in an scientific anthology giving 1,4 publication points. In 2008 no peer reviewed articles were published, while in 2009, 2 articles were published giving 1,7 publication point. There has been a steady increase from this point until today. In 2016 faculty members published 8 articles, giving 3,28 publication points. Two faculty member has in 2016 defended their dr. degree theses (one thesis in cadastre, one thesis in civil engineering). The majority of research concerns with land and mapping issues.

### **3. THE STUDY PROGRAMS IN LAND SURVEYING AND LAND MANAGEMENT AT BERGEN CAMPUS**

The bachelor education in Land Surveying and Land Management have become increasingly popular. In 2005, 36 students applied for the 2 years study, and all were admitted. In 2006, 70 students applied the 3 years bachelor study (as their primary choice), and 39 were admitted. In 2016, more than 100 applied (as their primary choice), and 50 were admitted. An average of approximately 35 bachelors have graduated annually over the last 10 years.

#### **3.1 The 3-year bachelor program in Land Surveying and Land Management- curricula**

The program has four main subjects – land use planning, land management, land surveying and GIS. This is made up in smaller subjects built up in 10 credits (ECTS).

##### irst year.

| Semester | Course                           | ECTS |
|----------|----------------------------------|------|
| 1        | Introduction to GIS              | 10   |
| 1        | Law and profession               | 10   |
| 1        | Mathematics                      | 10   |
| 2        | Surveying and statistics         | 15   |
| 2        | Land administration and cadastre | 15   |

##### Second year

| Semester | Course                                 | ECTS |
|----------|--|------|
| 3        | Land administration – practical        | 10   |
| 3        | Cadastral surveying – practical        | 10   |
| 3        | GIS analyzes I                         | 10   |
| 4        | Engineering surveying                  | 10   |
| 4        | Road and land planning                 | 10   |
| 4        | Economy and natural resourcemanagement | 10   |

##### Third year

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| Semester | Course             | ECTS |
|----------|--------------------|------|
| 5        | Land consolidation | 10   |
| 5        | GIS analyzes II    | 10   |
| 5        | Optional course    | 10   |
| 6        | Optional course    | 10   |
| 6        | Bachelor thesis    | 20   |

### 3.2 The master program in land management - curricula

On the background of needs in the job market, an application for a master program in land management was prepared in 2014. The initiative were supported by the National Courts Administration requiring personnel for the land consolidation courts, and the planning authorities at county and municipal level, demanding improved education for planners. The university was not accredited for establishing a master program on own initiative, thus an application was necessary. The application was approved in spring 2015, and the program could start and the first students admitted in autumn 2015.

A bachelor (180 ECTS) with specialization in technical, social, or legal studies can be admitted. The specialization must have relevance for the master's degree, such as Bachelor in Land Surveying and Land Management, Bachelor in Civil Engineering, Bachelor in Geography, Bachelor of Architecture and Bachelor of Laws. Further: a 10 ECTS course in geomatics is required for admission. Average grade must be C or better.

The curricula is shown below. It is an aim to facilitate both for full-time and part-time students. A part-time student has 4 years to finalize the study.

#### First year.

| Semester | Course   | ECTS |
|----------|--|------|
| 1        | Property rights and land administration                  | 10   |
| 1        | Planning law   | 10   |
| 1        | Landscape and place analyses and sustainable development | 10   |
| 2        | Contract law, land acquisition and expropriation         | 10   |
| 2        | Conflict management                                      | 10   |
| 2        | Property valuation and economy                           | 10   |

In the second year of the master program, there are two specializations. The first specialization is within property, and the second specialization is within land planning.

#### Second year, specialization in *property*.

| Semester | Course   | ECTS |
|----------|--|------|
| 3        | Scientific theory and Research Methods                     | 5    |
| 3        | Land consolidation   | 15   |
| 3        | Civil litigation, appraisal and land consolidation process | 10   |

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|   |               |    |
|---|---------------|----|
| 4 | Master thesis | 30 |
|---|---------------|----|

Second year, specialization *land planning*.

| Semester | Course  | ECTS |
|----------|---|------|
| 3        | Scientific theory and Research Methods            | 5    |
| 3        | Place design and infrastructure                   | 7,5  |
| 3        | Aesthetics, architecture and cultural environment | 7,5  |
| 3        | City planning                                     | 10   |
| 4        | Master thesis                                     | 30   |



*Bergen Campus*

#### **4. STATUS AND FUTURE**

In 2015, 15 students were admitted, and 11 are still in the program, 5 as fulltime students and 6 part-time.

The first 4 students will graduate with their master thesis in June 2017. One student specializing in property, and 3 students specializing in planning.

In 2016, 18 students were admitted, 15 are still in the program. 14 students are taking the study full time, and 1 part-time student.

During the next years we will experience how our masters are welcomed in the job market.

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## BIOGRAPHICAL NOTES

After graduating in land consolidation from the Norwegian Agricultural University in 1983, Leiv Bjarte Mjøs worked for three years as a cadastral surveyor in Municipality of Bergen. From 1986 he worked for the Norwegian Mapping Authority, then leaving for the Bergen University College in 2004. Leiv Bjarte Mjøs is now an Associate Professor at Western Norway University of Applied Sciences, Department of Civil Engineering, in Bergen. He has made a dr. philos thesis with the title *Cadastral development in Norway*. Research interests are within land administration.

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