

Ministry of Education

Identified Competency Focus Areas and Core Courses for

Ethiopian Higher Education Institutions’ Exit Examination

Program: - BSc in Surveying Engineering

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# **Introduction**

Surveying Engineering concerns with acquiring, storing, managing, processing, integrating, and visualizing geographic and spatially referenced information as well as integrating the data for different kind of analyses. Surveying Engineers conduct one, or more, of the following activities; determine measure and represent land, three dimensional objects, point fields and trajectories; assemble and interpret land and geographically related information, use that information for the planning and efficient administration of the land, the sea and any structures thereon; and, conduct research into the above practices and to develop them.

Surveying Engineering program is one the Bachelor program given in 9 (nine) public universities in Ethiopia. Those universities are: Arba Minch University, Ambo University, Wachemo University, Mizan Tepi University, Assossa University, Wollega University, Dire Dewa University, Madda Wolabu University Jigjiga University and other universities.

The harmonized curriculum developed for this program basically had two categorize, which is before and after 2012 E.C. As per the direction from ministry of education all of Surveying Engineering undergraduate will take an exit exam starting from 2015 E.C. An exit exam is conducted to evaluate the practical skills, knowledge and attitude of a student who learnt courses or competencies of a given curriculum. The exit exams are given at the end of the tenure of higher education to get a degree or diploma for a particular program.

The Ethiopian Ministry of Education has disclosed a plan to introduce exit exams in all undergraduate university programs from the next academic year, starting June 2015 E.C. The ministry’s decision can be regarded as a manifestation of decreasing trust in degrees acquired from universities and student grades, both of which are no longer regarded as a true measurement of actual academic capabilities.

The proposed scheme appears to resemble a high-stakes exam. Students who do not pass can be given additional opportunities to sit for another round of the exit exam but will not be entitled to any form of employment unless they pass. The ministry believes that the scheme will bring about attitudinal changes by discouraging students from rampant exam cheating and helping them do their own work.

The main idea behind an exit exam is the need to check whether students have attained the intended learning outcomes of the programs they have attended. In fact, exit exams can offer several potential benefits if designed as a reliable measure of student learning. There are those who argue that the competition and transparency encouraged through exit exams can help raise the declining quality of education and provide the chance for restoring confidence in a given higher education system.

Exit exams are also regarded as helpful in instituting a system of accountability and transparency through which students, instructors, higher education institutions and academic leaders can be measured for their success or failure, based on student outcomes. This is due to the capacity of the exams to offer detailed up-to-date feedback about student performance and the system.

The academic program reviews and benchmarking that could ensue following exit exam results can also be vital to the improvement of the quality and effectiveness of academic programs and institutional performance. In addition to helping pinpoint areas for development or improvement at institutional level, achievements on exit exams can offer options for individual students, who achieve higher scores, to attend higher education institutions.

Exit exams can also provide useful information to universities on the overall quality of their system with the ensuing incentive of prioritizing high-quality instruction without which they may risk losing their competitiveness. Employers can use exit exams as a means of gauging the performance and potential of recent college graduates whom they wish to employ. However, there are also those who consider exit exams as an unnecessary intrusion in the system. Regardless of their benefits, not all higher education institutions will necessarily see the need for such a scheme, and for a variety of reasons.

# **Expected profile of graduates**

The graduates of the Surveying Engineering program should demonstrate competency in one or more of the following Surveying Engineering competency areas: boundary/land surveying, photogrammetry, geodesy, GIS, cartography, cadaster and other related area of applications. The graduates of the Surveying Engineering program should:

* Demonstrate continued capacity for employment in one or more Surveying Engineering specialty area.
* Demonstrate capacity for graduate education.
* Demonstrate continued membership in professional organizations.
* Demonstrate a continuing commitment to lifelong learning.
* Demonstrate an ability to pass professional licensing or certification examinations after achieving requisite professional experience

# **Competencies and learning outcomes**

The graduate of Surveying Engineering degree program should have the following competencies and learning outcomes:

* The graduates of the Surveying Engineering program should demonstrate continued capacity for employment in one or more Surveying Engineering specialty area.
* The graduates of the Surveying Engineering program shall demonstrate capacity for graduate education.
* The graduates of the Surveying Engineering program shall demonstrate continued membership in professional organizations.
* The graduates of the Surveying Engineering program shall demonstrate a continuing commitment to lifelong learning.
* The graduates of the Surveying Engineering program shall demonstrate an ability to pass professional licensing or certification examinations after achieving requisite professional experience.

# **Course to be included in the exam**

The major course listed on the harmonized curriculum (old curriculum /before 2012 E.C.) are the main focus area for the preparation of the exit exam. Those courses are listed as the following:

* Introduction to Surveying
* Adjustment of Surveying Measurements
* Cartography (Introduction & digital)
* Topographic Surveying
* GIS (I & II)
* Spatial Database Management System
* Remote Sensing (introduction and DIA)
* Photogrammetry (Interpretative & Analytical)
* Geodesy (Introduction, Advanced & Control Surveying)
* Global Positioning System (GPS)
* Cadastral Surveying
* Land Administration
* Transportation Engineering
* Route Surveying
* Highway Engineering- (I, II & III)

**NB:** The courses indicated in bracket or in roman number are critical to evaluate the skill, knowledge and attitude of the student. However, the exam from those courses should consider the scope and questions.

Where are the expected knowledge, skill and attitude competencies that graduates need to have after completing their courses? They should be written clearly and separately.

# **Categorizing courses into themes**

The above listed course included in the exit exam are categorized based the relationship subject matter of the courses and learning outcomes.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.N** | **Course theme** |  | **Course name** | **Course ECTS** | **Weight in %** |
| 1 | Basic of Surveying | 1 | Fundamentals of Surveying  | **5** | **4.35** |
| 2 | Adjustment of Surveying Measurements | **5** | **4.35** |
| 2 | GIS and Cartography  | 3 | Cartography (Introduction & digital) | **10** | **8.70** |
| 4 | Topographic Surveying  | **5** | **4.35** |
| 5 | GIS (I & II) | **10** | **8.70** |
| 6 | Spatial Database Management System | **5** | **4.35** |
| 3 | Remote Sensing and Photogrammetry | 7 | Remote Sensing (introduction and DIA) | **10** | **8.70** |
| 8 | Photogrammetry( Interpretative & Analytical) | **10** | **8.70** |
| 4 | Geodesy | 9 | Geodesy (Introduction, Advanced & Control Surveying) | **15** | **13.04** |
| 10 | Global Positioning System (GPS) | **5** | **4.35** |
| 5 | Cadastral and Land Administration | 11 | Cadastral Surveying | **5** | **4.35** |
| 12 | Land Administration | **5** | **4.35** |
| 6 | Transportation and Highway Engineering  | 13 | Transportation Engineering | **5** | **4.35** |
| 14 | Route Surveying | **5** | **4.35** |
| 15 | Highway Engineering- (I, II & III) | **15** | **13.04** |
| **Total** | **115** | **100.00** |

# **Conclusion**

The proposed exit exam for 2015 academic year graduates of first degree consists of 15 courses or main area of the modules. This exit exam is considered as the main input for educational quality assurance, to meet graduate profile, to assess students’ educational achievements, improves learning outcomes set on the curriculum and used as source of information for decision makers.

The undergraduates of Surveying Engineering generally took major course, supportive courses and common courses. However, the main focus of the graduates should be on the major courses to be competent for the exit exam. Moreover, at the end of each course and also the program each student must fulfill the outcomes of the graduate profile listed on the curriculum.

The course domain included for exit exam is mainly focus on the major courses from the curriculum and categorized in six course themes. These course themes are Fundamentals of Surveying, GIS & cartography, remote sensing & photogrammetry, geodesy, cadastral & land administration, and transportation & highway engineering.

This document is a draft document for competency selection and identifying courses for exit examination to held in 2015 E.C. and any comment will be accepted related to the competency