Imprint

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Introductory Information

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Head of Department
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Study programmes to be reviewed
Bachelor of Science in Construction Management
Master of Science in Project Management

Expected starting date
Fall, 2006 for B.Sc. in Construction Management
Fall, 2008 for M.Sc. in Project Management

Duration of Study of programmes
9 Semesters for B.Sc. Degree + 1 Semester Internship
4 Semesters for M.Sc. Degree

Expected Intake of Students
80 students for the B.Sc. programme, 30 students for the M.Sc. Programme

Academic Staff
The total teaching staff is 34
Associate Professors (Ph.D.) – 1
Assistant Professors (Ph.D.) – 3
Lecturers (M.Sc.) – 15
Part Time Lecturers – 2
Assistant Lecturers (B.Sc) – 6
Lab/Technical Assistants – 7

Student Population
Undergraduate regular (full time) – 308
Undergraduate extension (evening – part time) – 340
Postgraduate – 0
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- Asfaw Eshetu Tolla, M.Sc.
- Dr.-Ing. Bedilu Habte
- Belay Yitayew, B.Sc.
- Binebeb Shiferaw Terefe, B.Sc.
- Dagnachew Getachew, B.Sc.
- Dandena Tufa Degaga, M.Sc.
- Debela Jaleta
- Fekadu Lemma, M.Arch.
- Habtewold Demewez Getahun
- Imam Mahmoud Hassen, M.Arch.
- Samuel Tadesse Tafesse, Ph.D.
- Sintayehu Hunde Abebe, M.Sc.
- Solomon Sertse, M.Sc.
- Surafel Ketema Desta, Ph.D.
- Tefera Desta, M.Sc.
- Wondimu Kassa Lemma, B.Sc.
- Wossen Woldekidan Ashebir, M.Sc.

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Master course descriptions

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History of the department

The Department of Construction Technology and Management (formerly known as the department of Building Technology) is part of the Addis Ababa University, Faculty of Technology. It is one of the three departments located in the Southern Campus of the Faculty of Technology. It was originally established 52 years ago in February 1954 as a separate institute (then it was called the Ethio-Swedish Institute of Building Technology - ESIBT), through a cooperation programme between the Ethiopian and Swedish governments. In 1961 the Institute was incorporated into the Addis Ababa University (then called Haile Sellassie I University) and became the Building College. Later in 1969, the Building College became part of the College of Technology in the University (which later became the Faculty of Technology).

The department is currently the only institution in Ethiopia offering a B.Sc. programme in Construction Technology and Management, both in regular fulltime and part time evening programmes. It has finalized plans to offer an M.Sc. programme in project management in two years time.

History of the curriculum

Through the years, the department has been conducting different programmes related to construction including a three year diploma programme in Building Technology, a B.Sc. degree in Building Technology (briefly between the years 1958-62), different construction related skill trainings, certificate programmes, and post diploma trainings. In 2002 the Department, having investigated the need for highly qualified professionals not only in building construction, but also in the wider field of construction and management of civil works in the country, has launched a five year B.Sc. programme in Construction Technology and Management. Its advanced diploma programme has phased out following the decision of the Ministry of Education for all departments at Addis Ababa University to phase out diploma programmes.
Bachelor of Science in Construction Management

Introduction

A construction project in present times is becoming a complex and risk-laden venture. It involves the expenditure of a large sum of capital as well as the application of technologies of which many are aware, some are conversant, but few are expert. Construction management evolved from construction site management as a professional practice distinct from design in response to these increasing complexities in the construction industry. This development was observed in the early 1960’s in the USA and in the 1980’s in Europe. Highly sophisticated construction systems led to the specialization of both design and construction professionals. Additionally, increasing regulatory mandates, litigation and other risks created a need for a new professional to be an advocate for the owner and bridge the gap between the owner, the designers and the contractor in order to efficiently manage the construction process.

Construction management began as a further specialization of other professions such as architecture and civil engineering, but presently, with the increasing complexity and versatility of construction projects, it has become useful to begin education in construction management at an earlier stage. Countries like U.S America, South Africa, India, and many European countries have resorted to this new approach to help them lay a clear foundation for Construction Management (CM) as a profession distinct from other related professions in the industry. This has also facilitated the transformation of the industry through research and application of new and better ways of managing construction projects.

One of the transformations in the construction process has been the introduction of better methods of procurement that could be considered as a remedy for the problems of the old Design-bid-build method. This method has been criticized for its fragmented, bureaucratic and adversarial nature. New approaches such as Design-Build (Turn Key), Build-Operate-Transfer (BOT), Finance-Build-Operate-Transfer (FBOT), have been introduced to streamline the construction process and make it more efficient by avoiding bureaucratic and corruptive involvements. However such complex process has necessitated a separate body to manage the whole process from the project inception to completion by advocating the interest of the client. Thus clients now make agreements with one construction management/facility management consultant that steers the process as per the requirements of the client. This has become the norm for public and major private constructions internationally.

Construction Management in the Ethiopian context is a new profession. Up to now, there has been no professional training in construction management in
Ethiopia. Thus the management of construction sites has been covered, albeit inadequately, by different generalist professionals such as civil engineers, architects, advanced diploma graduates of building engineering, site foramen etc. Though there is a significant increase both in volume and complexity of work seen in the construction sector in Ethiopia, several studies in the present state of the sector show that more than 80% of the constructions are delayed, run over budget and/or are marred with claims and continuous and bitter disputes. Further more, the industry is still slow as it largely relays upon labor intensive on site activities, which lack plant manufactured and site assembled construction. The deteriorating quality of construction works is also clearly apparent. As a result international construction companies who possess extensive experience in managing complex constructions are taking over most major construction in the country leaving our local contractors out of the competition.

As a result of this the country demands transformation in the construction sector. Such transformations require considerable equipment and plant management specialty. Thus construction management professionals in substantial numbers are highly necessary. Such demands will be difficult to cater at specialization (postgraduate) level because first the output of construction managers trained at the postgraduate level would be too few and second such graduates are bound to value their parent disciplines more, so that promotion of an independent discipline that can focus on transforming the construction process would be less practical.

The opening of the construction technology and management B.Sc. programme at the AAU in Sep 2002 is primarily targeted at addressing this national need. Prior to the opening of the programme, the department has received continuous petitions and request from former graduates of the department in advanced standing programme in building technology who are directly engaged in most constructions in the country, and thus have witnessed first hand the gap in the area of construction management. Furthermore, in a workshop organized before the opening of the programme, stakeholders in the construction industry including prominent contractors and architectural and engineering consultants have also confirmed this need for construction management professionals and actually pushed for the opening of such a programme.
Rationale

The construction sector is one of the most important contributors for the political-legal, economical, social and technological development of our country, Ethiopia. There is no wonder that it represents one of the biggest portions of the national economy and capital budget.

Recent facts indicate that about 58% of the federal capital budget of Ethiopia is channeled to the development of physical infrastructure. Moreover, the involvement of the private sector as partners in the capital investment, in the last decade, has resulted in increased capital investment in the field, as well as, promoted the innovation of more advanced technologies & materials in the construction industry.

With the advancing technological and changing human behavioral aspects, construction management is increasingly becoming more complex and requires specific educational training, practical experience and updating on the last information of developments in the field.

At present, while there is relatively better advancement in applying modern materials, techniques and methods in architectural and structural designs, it has been felt that implementation of these designs on the ground has not moved on same track as expected and is lagging behind. It would therefore be worthwhile to mention here some of the problems often cited in the construction sector today:

- Shortcomings in the preparation of tender documents and bid evaluations that expose projects to never-ending disputes and grievances as well as the pitfalls of contract documents in resolving such claims and disagreements, through mediation, arbitration, litigation, and/or conciliation.
- Poor coordination of project resources such as material, human, financial, physical and information that would often result to periodical suspension of work and significant delay of projects,
- One could hardly find a construction company competent enough to participate in international bid by adopting the international quality assurance system in the product and processes of the construction activities,
- One could hardly find a construction company who could properly keep records and documents of its past performances and apply information based management systems in its future undertakings,

In effect, it has become a common trend today to see projects running to difficulties in terms of meeting their contractual requirements such as completion time, budgetary limitations, and quality of work. In light of these constraints, the need for construction managers & experts has
been manifested and therefore repeatedly expressed by leading construction firms, consultants, government bodies and other stakeholders at various workshops organized by the department and the faculty. Furthermore, former graduates of the department who bear the burden of the problem at construction sites have shown keen interest to pursue further education in this field to fill-up the management gaps created during their assignment at different construction projects.

To this end, and address the gaps between the ever increasing construction needs in the dynamic environment on the one hand and the current state and professional level of competence in the country under the area of management on the other hand, the department had recently launched a B.Sc. programme in Construction Technology and Management.

Currently, the MoCB - ECBP is leading the overhaul of the construction sector. This has opened new possibilities to revise the B.Sc. programme in Construction Technology and Management in order to include more practical training, and to create strong linkage with industries and to update the technology in the programme. This draft proposal of curriculum revision has therefore been prepared by the departmental committee for curriculum revision in association with the Ministry of Capacity Building and experts from the Federal Republic of Germany.

**Objectives**

In addition to the general objective of the Addis Ababa University, the B.Sc. degree programme in Construction Management in particular has the following specific objectives:

- Through the development of practice oriented education and research, to produce well-qualified professionals in the fields of construction management,
- Promote a strong sense of ethics and professionalism in the construction sector,
- Conduct researches to identify real problems in the country related to construction management, methods & materials, and find better solutions.
- Provide former graduates in related fields who are involved in the construction industry a chance to develop their skill and competence.
Graduates’ professional profile

Before defining the profile of B.Sc. graduates in construction management it is worthwhile to first discuss some of the basic terminologies related to the field of study.

Project Management is defined as the planning, coordination and administration of project components that include the stakeholders and their relationships, resources, processes and their combined performances for getting things done successfully. It encompasses the whole management processes from the date when the project is invented to the date the project is physically handed over to the investor, including the management aspects in the operation and maintenance phase of the project. (Fig-1)

Construction Management, as defined under the border term Project Management, is a professional services discipline applied to the planning, organizing, executing and monitoring processes of construction projects from the procurement to completion and closing-up phases.

Professional construction managers address the needs of projects and owners by providing management services and expertise tailored to the project needs in the implementation phase. This management approach makes construction management unique that it doesn’t lend itself to standardization. It involves continual review and updating of planning and scheduling, and monitoring of the construction projects for an optimized utilization of available resources in a manner that is economical safe and efficient (in terms of cost, time and quality).

Construction management professionals (CMP) plan the execution of construction project/s by coordinating people, equipments and materials together with finance. They investigate available resources and site condition, make estimations and initial planning and budgeting costs including advice on securing low
cost finances. They plan and prepare work schedules and cash flow; procure materials, form work-teams, direct and monitor performance and quality of works to complete projects in time, with in budget and with required quality. This may be the construction of a new building/ infrastructure, or the maintenance and refurbishment of existing ones.

Construction management graduates may start work as site engineers and site supervisors, they read and interpret construction drawings, direct production of site surveys, choose construction systems and methods, check the quality of materials, and works done, identify and solve technical construction problems during construction, quantify works done on site (as built quantity measurement).

However, as they gain more experience they involve in contract administration. They prepare tender documents, process prequalification of bidders, advise the clients with appropriate contract types, and conduct tender appraisals, assist the client during negotiations and signing of contract agreements.

Highly experienced senior Construction Project Management professionals may specialize in Project Management and work as construction management consultants advocating the interest of the client and managing the whole process of construction projects from inception through the design process and the execution until final completion by coordinating the works of different professionals such as architects, engineers technicians, surveyors, contractors, subcontractors etc and they daily contact with the site workforce. In these cases he/she is a provider of professional services to the owner. He organizes the effort, develops the management plan, monitors the participants’ progress against the plan and identifies actions to be taken in the event of deviance from the plan.

As construction management consultants they also involve in project development (project definition and feasibility study) thus they manage and coordinate inter-disciplinary professionals working closely with economists, sociologists, planners etc.

Construction management consultants may also be involved in post construction works as facility managers working on maintenance of buildings and infrastructure, management of plants etc. Here they identify problems on facilities and infrastructure, choose best methods and materials for maintenance, coordinate and check the quality of maintenance works, produce shop drawings for maintenance based on original design drawings. They also make periodic examination of construction works and identify problems before deterioration occurs and undertake preventive measures. They may also be involved in post occupancy (use) performance appraisal and property valuation of buildings and infrastructure.
Ethiopian related topics

The construction sector in Ethiopia is plagued by lack of skill and financial resources. The application of technology that is directly imported from developed countries may not always bring the best result. Thus the programme includes topics integrated in many courses providing practical knowledge and possibility of research in the use of local construction techniques, and materials. Furthermore the programme has a separate module that focuses on application of such knowledge in a project based approach that integrates construction, economics and management knowledge to develop low cost construction that can benefit the majority of Ethiopians who have low income.

Summary

The profile of B.Sc. Graduates of Construction Management can be summarized in the following points:

- Organize resources /human, equipment and material/ and lead construction projects with efficient and effective management systems.
- Ensure that construction projects are executed as per the design & specification.
- Administer contracts, make legal agreements uphold construction codes and maintain professional ethics.
- Conduct researches to identity real problems on site pertaining to construction management, methods & materials, and find better solutions.
Students

Background

Undergraduate students entering the Department of Construction Technology and Management are enrolled directly from secondary schools all over the country. These students are the ones who have completed 2 years of pre-college education in the science stream after the 10th grade, and who pass the college entrance examination administered nation wide by the Ministry of Education. The students are given a chance to select there preferred Faculty and Departments and based on their choice and their academic performance they are selected to study in the Department of Construction Technology and Management. Thus students entering the Department can reasonably be expected to have a science background with inclination to applied sciences such as engineering and construction.

Admission requirements

Students are admitted into the programme as per the admission criteria of the Faculty of Technology. i.e. successful completion of the 10+2 college preparation programme offered nationwide, and passing the college entrance examination. Admission is competitive among illegible applicants.

Graduation requirements

Students will be eligible for graduation upon successfully completion of all required courses, internship programme and thesis work. They must also fulfill the requirements of the university.

Degree nomenclature

The degree to be awarded upon completion of the programme is:

“Bachelor of Science in Construction Management”
Bachelor curriculum structure

ECTS

The programme has applied the ECTS (European Credit Transfer system – Credit Points) side by side to the existing credit hour system that is used by AAU. This is mainly to facilitate mobility through exchange of students and staff with over 60 countries of the world that are at present using this system. The Credit Point system is also beneficial because it shifts from the current input based credit hour calculation that consider only the contact hours of students with their instructors to that of output based credit calculations that also account for the time students are expected to invest doing homework and studies in addition to contact hours with instructors.

However, it is understandable that the department and the Faculty of Technology alone cannot change to the ECTS system completely because it will obstruct mobility locally with universities in Ethiopia, as well as with those who still use the credit hour system. Thus to facilitate conversion from one system to the other, the existing Credit hour system will be used in this programme side by side with the ECTS (Credit Point).

The grading of courses shall be based on the existing credit hour system, as the ECTS grading system is not yet fully instituted in many universities. However, internationally accepted conversions can be made from the credit hour system to the ECTS when the grades are needed for transfer to such universities.

Course of bachelor studies

The programme structure is design to have three cycles. The first is an assessment semester that shall be offered with the collaboration of different departments in the faculty. Upon completion of this semester students are expected to have a good understanding of the different disciplines in the faculty of technology.

In the second cycle students will take basic courses of construction technology and construction management for 5 semesters. At the end of this cycle there shall be a holistic examination that covers all departmental courses taken until then. After passing this exam students are required to join a 6 month internship programmes that involves a monitored practical employment in the construction industry.

In the third cycle students will focus on construction management courses with some electives. At the end they will be required to complete a project and thesis work before graduation.
Distribution of main studies in percentage

The main studies in this programme are construction technology and construction management which take up 49% of the overall studies.

- Construction management studies: 31%
- Construction technology studies: 18%
The Programme is designed in a module structure. A module as used here is a unit of study with in the overall education of the programme that has a distinct objective and a set of interrelated courses within it that lead to the achievement of the module objective. The modules for this programme are based on the professional profile of a Construction Manager which describes the areas of competencies that must be achieved. The Construction Manager’s competencies can be summarized as follows:

- Competencies for a construction manager:
- Practical and scientific knowledge of construction, process, methods, techniques, materials and equipment
- The ability to communicate through writing, and graphical and technical drawing
- Analytical/Mathematical knowledge, logic and reasoning
- Knowledge of quantity surveying and estimating
- Knowledge of land surveying
- Basic understanding of the Architectural and Engineering design methods and process
- IT knowledge and the skill to work on construction related software
- Ethics and etiquettes of professional practice including professional report writing and communication skills,
- Organizational and management skills, leadership and Teamwork
- Financial knowledge, cash flow management
- Negotiation and decision making skills
- Entrepreneurial skills
- Organized record keeping skills
Knowledge of labor law claims management and contract administration

Based on these competency requirements the construction management modules are thus designed to focuses on theses competencies. The modules are:

1 - Construction
This module is designed to give students a clear understanding of the materials used and methods and techniques employed in construction. Ultimately the target is to give students a practical and applicable knowledge of the workings of the very industry they are expected to manage.

2 – Organization Management
Under this module, students will learn how best to subdivide the works of the project into manageable sections considering the available skills and resources; and manage organizational structure and staffing as the project progresses.

3 - Quality Management
The module teaches about the procedures and techniques to meet the contractual requirement and the corporate quality management requirements and to provide appropriate verifications that have been achieved.

4 – Time Management
In this module the students will learn how to apply time scheduling techniques for construction projects. They will also learn how to control and give remedial
measures to project with respect to time.

5 – Law Managing
Projects requires bring together different professionals to work together. To moderate the terms of working together projects are bound by contractual laws. Thus in this module are included courses targeted to give detailed knowledge of laws governing contractual agreements, business agreements, or human interaction in general. Theses interpret in to Contractual law, Commercial law, and Civil Codes.

6 - Economics
One of the main targets of construction management is optimization of cost. Thus the economics module contains courses that give clear understandings of the basic rules of economics and accounting together with the means of managing construction finance for efficient use.

7 - Appropriate Technology
Developing courtiers like Ethiopia are always working under meager resources. Thus methods of implementing constructions with the lowest possible cost for the required quality outcome are important. This module includes courses that cover appropriate low-cost construction techniques (for Ethiopia) and materials as well as cost efficiency through management.

8 - Thesis & Holistic project
This module is designed to integrate the comprehensive knowledge and skill taught to students up to the last semester in to a focused application to bring about the ultimate goal of the programme – competency in managing construction projects. Thus this module is an independent/or group research or project focusing on the technology or management aspect of construction.

0 - Interdisciplinary Studies
Communications
Managing projects requires communication between different professionals. Thus in this module written/spoken communications and technical communication by drawings and graphics are taught. Methods of research are also addressed here.

Engineering Sciences
Engineering science is an important supplemental knowledge to understanding construction technology thus here basic engineering sciences are taught.
Design (Arch. & Eng.)
In order to facilitate communication with the two important professions that must work together with the construction manager in construction projects, an understanding of how architectural and engineering designs are made is necessary. Thus in this module basic architectural and engineering design courses are given.

General Studies
University level studies require general courses that broaden the thinking dimensions of students. In this module are thus included analytical, communicative and reasoning basics together with ethics and civic understanding.
### Course Offerings

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<td>ENGG 1001 Introduction To Engineering Professions</td>
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<td>COTM 2101 Building Construction I</td>
<td>COTM 2202 Principles Of Const. Management</td>
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AAU Department of Construction Technology & Management

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Internship

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23
Relationship to professional practice

One of the primary objectives of the curriculum review is to be more practice oriented to this end the two main interventions in this revised programme, workshop training and practical internship are explained below.

Workshop training & practical internship

Objectives

The Workshop Training and Practical Internship will be designed to offer students with the following specific objectives.

- Insure that students acquire practical training of the various construction trades, familiarize with basic construction operations as well as create the sense of feeling while attending the theoretical notions of construction technology offered afterwards.
- Acquaint students with the basic construction terminology, introduce the workmanship skill, material and equipment requirements of construction projects and bring the new entrants from the various corners of the country to one and same level.
- In the mid term of the courses, expose students to the real challenges of the practical world on issues that require technical, contractual, managerial and financial considerations in conducting construction operations.
- Assist and promote students to focus on real-case study programmes as well as enthusiastically participate in resolving the varied and complex nature of construction problems through their term papers and final project, which the construction sector is finally believed to benefit from.

Programme organization

It is devised to conduct the Workshop Training & Practical Internship in the following terms:

Workshop training

The workshop training will be organized to encompass: Carpentry work: cutting and fixing formwork for structural members, setting out works, placing and
fixing profile boards, doors and windows, Masonry works: hollow blocks and brick laying (single and double layer), stone masonry wall, preparing dressed stone, curb stone, fixing roof clay tiles, concrete work: batching, mixing and pouring concrete, cutting, bending, placing and fixing reinforcement bars, pointing and plastering works, welding: carry out different types of welds, fillet welds, butt welds, Plumbing works: pipe laying (potable water supply and waste water disposal) placing joints, collar, Electric installation works: placing conduits, wires, junction boxes.

Workshop training will be organized throughout the semester courses such that students actually perform the respective construction trades in the workshops. However, during the assessment semester, students would be required to involve with the following trainings right upon entry to the department. The training would entail:

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<th>Construction Trades</th>
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<tr>
<td>Carpentry Works, Masonry Works, Concreting &amp; Bar bending</td>
<td>2</td>
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<td>Welding, Plumbing Works Electric Installation Works</td>
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**Practical internship**

It is proposed to have a semester educational excursion programme which will be scheduled in the middles of the courses. Students will be enrolled to construction project areas where they can apply their technical know-how gathered from educational scheme. Although tasks to be availed depend on the third parties who sponsor the students, the focus will be involvement as trade-men and participate in the making-up of the permanent structure of the project. Furthermore, the students are anticipated to participate under the following streams: Work measurement on site,

- Payment Certificate Preparation,
- Trade's Productivity Rate Determination,
- Preparation of Work Programme,
- Report Recording,
- Quality Control: Testing & Inspection
- Planning & Scheduling
- Cash Flow Forecast
- Tender and contract preparation,
- Bid evaluation processes
- Site organization and mobilization
Evaluation

The evaluation mechanism for the work shop training during the assessment semester will be as specified in the table above. Evaluation for the remaining part of the work shop training, distributed along the semester, will be implicit in the evaluation of the corresponding courses. Evaluation of the Workshop Training shall consider student’s participation and regular attendees to the various trades and disciplines, enthusiasm to the training including the level of skill and understanding reached by the respective students.

Students enrolled in the Practical Internship will be required to write a weekly report on the task they have been assigned and get the signature by superintendents. Students prior to entry for the second term are required to produce a term-paper or report from their weekly records and submit to the department.

Methodology

Workshop training:
It is proposed to upgrade the existing workshop already found within the premises of the faculty to its full capacity such that it can launch a training programme for about 160 students per year. This would entail the following advantages to the teaching process:

Assign highly qualified staff that can provide and synchronize the training programme with the corresponding courses of the department to be offered forthwith.

Administration wise, coordination and follow-up of the training programme will be facilitated if the students remain within the custody of the department. The department will be equipped enough to undertake research works and conduct trainings and other professional undertakings for multi-disciplines in the construction sector.

Practical internship:
During the third semester summer vacation, a total of 80 working places should be searched in the construction sector over the country to enroll students for an internship. Since students are anticipated to work outside their campus, the programmes are subject to financial constraints regarding students’ living expenses and transportation costs. Looking to the current situation, it is difficult to open these programmes by only relying on private and public corporate that spend for the students’ expenditures every year. To this end, it is proposed to hold a separate annual budget to the department for consistent launching of such programmes.
Teaching and learning methods

Teaching methodology

The existing system of teaching at the department focuses on classroom lectures. However, quite a number of the courses in the areas of construction, architectural design, engineering design etc. have projects, onsite/workshop practices, assignments, and site visits. There is still a clear lack of technology-based teaching such as e-learning, and audiovisual use. It is proposed now to include more practical training, and teaching methods that include audiovisual equipments and e-learning. In addition, more project-oriented and seminar type courses are included to bring together knowledge accumulated in different courses and see their practical application. (The detailed teaching methodologies for each course is summarized in the following table)

Examination order

The main examination methodology used up to now is written mid semester and final exams which are finally interpreted into letter grades. In addition, there are projects and assignments that are added in to the final evaluation. Here it is proposed to include continuous assessment together with major exams at the middle and end of the course. In addition, evaluation methods such as oral examinations and practical demonstration shall be used when appropriate. Holistic examination is proposed at the end of three years. This holistic exam covers a range of courses in order to check if students have attained the required combined knowledge and if they can bring these together to solve a particular problem. The grading system is proposed to be based on the sigma curve under normal circumstances where average group of students are being evaluated. Final project/thesis shall be evaluated by a panel of judges from the department and invited experts from the industry, where the students are expected to defend their work. (The detailed examination order for each course is summarized in the following table)
Master of Science in Project Management

Introduction

The management of construction projects today requires knowledge of modern management as well as an understanding of the design and construction process. This is because a construction project in present times is becoming a complex and risk-laden venture. It involves the expenditure of a large sum of capital as well as the application of technologies of which many are aware, some are conversant, but few are expert.

According to the Project Management Institute, the discipline of Project Management can be defined as follows:

“Project management is the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participation satisfaction.”

However, Project Management is distinguished from the general management of corporations by the mission-oriented temporal and unique nature of a project. A project organization will generally be terminated when the mission is accomplished.

In projects involving construction, in addition to knowledge of management, familiarity with the special knowledge domain related to the project – in this case construction (e.g. roads, bridges, buildings, dams etc.) are indispensable. The basic ingredients for a project management framework may be represented schematically as:
The functions of project management for construction generally include the following:

- Specification of project objectives and plans including delineation of scope, budgeting, scheduling, setting performance requirements, and selecting project participants.
- Maximization of efficient resource utilization through procurement of labor, materials and equipment according to the prescribed schedule and plan.
- Implementation of various operations through proper coordination and control of planning, analysis, evaluation of ideas, selection, design development, estimating, contracting and construction in the entire process.
- Development of effective communications and mechanisms for resolving conflicts among the various participants.

As can be seen from figure 2, a project management process cycle starts from the inception of a project by defining the project scope and extends up to completion (at times even up to operation and maintenance of built facilities). The complexity of integrating and managing these different phases has prompted even further specializations in project management such as Real Estate Management and Managing Large Infrastructure Projects under public private partnership arrangements.

Historically there is evidence that large projects have been executed by using some form of management as far back as the Great pyramid of Giza (2570 BC). However modern project management techniques appeared after the development of The Gantt Chart (1910) by Henry Laurence Gantt (1861-1919) and the Programme Evaluation and Review Technique or PERT (1958) method invented by the US Department of Defense.
While in the Ethiopian construction industry application of modern project management techniques is very limited. Limited size of most projects may be cited as one reason for this situation but the lack of knowledge in modern project management techniques is paramount. In the past 5 – 10 years Ethiopia has embarked on ambitious development programmes that have a huge infrastructure construction component. The demand for efficient project management for these projects is forcing the involvement of foreign companies at the expense of local ones.

Presently, in Ethiopia project management training on post graduate level is limited to the MBA programme offered in the Faculty of Business and Economics of the Addis Ababa University and the project management programme offered by the Ethiopian telecom institute. However, the MBA programme is mainly targeted towards managing business and corporations and is thus far too general to be effectively applicable for construction related projects, especially those having national economic and social significance, while the Ethiopian telecom institute focuses on project management of telecommunication and IT projects.

Construction Management as one component of the project management process cycle (see figure on page 3) is offered at B.Sc level in the department of Construction Technology and Management and at M.Sc. level at the Civil Engineering Department of the AAU.

**Rationale**

Infrastructure is a basic prerequisite for development of any nation and thus it is an important contributor for the political-legal, economical, social and technological development of our country, Ethiopia. It is no wonder that the Ethiopian government development strategy in the past decade has given high emphasis on infrastructure construction and has allocated large part of its capital budget to it.

Recent facts indicate that about 58% of the federal capital budget of Ethiopia is channelled to the development of physical infrastructure. Moreover, the involvement of the private sector as partners in the capital investment, in the last decade, has resulted in increased capital investment in the field, as well as, promoted the innovation of more advanced technologies & materials in the construction industry.

With increasing complexity and scale of the infrastructure development projects in Ethiopia, the overall advancement in technology and changing human behavioral aspects, construction project management is increasingly becoming more complex and requires specific educational training, practical experience and updating on the last information of developments in the field.
At present, the Ethiopian construction sector is unable to respond adequately to the demands of efficient project management. This can be seen clearly from the increasing tendency to deal with foreign companies instead of local ones in such projects. It would therefore be worthwhile to mention here some of the problems often cited in the construction sector today:

- Shortcomings in developing project scope, feasibility study and project planning resulting in poor coordination among different parties which ultimately resulting in projects exceeding their allocated budget, and expected completion time,
- Shortcomings in the preparation of tender documents and bid evaluations that expose projects to never-ending disputes and grievances as well as the pitfalls of contract documents in resolving such claims and disagreements through mediation, arbitration, litigation, and/or conciliation,
- Poor coordination of project resources such as material, human, financial, physical and information that would often result to periodical suspension of work and significant delay of projects,
- One could hardly find a construction company competent enough to participate in international bid by adopting the international quality assurance system in the product and processes of the construction activities,
- One could hardly find a construction company who could properly keep records and documents of its past performances and apply information based management systems in its future undertakings,

In effect, it has become a common trend today to see projects running to difficulties in terms of meeting their contractual requirements such as completion time, budgetary limitations, and quality of work.

In light of these constraints, the need for post graduate programme in Project Management relating to construction is apparent. The benefits of a Postgraduate programme in Project Management can be summarized as follows:

- It provides the already accumulated pool of B.Sc. graduates in construction related fields such as civil engineering, architecture and the more recent graduate of this department in construction technology and management, a chance to specialize thereby providing an opportunity to upgrade the capacity of the local construction industry. As B.Sc. graduate come with actual work experience they provide excellent link with industry and a chance to solve present project management problems in the local industry through their thesis research.
- M.Sc. graduates will also address the acute shortage of lecturers in the area of construction management at B.Sc. level, thereby creating the possibility of launching more B.Sc. programmes in
Construction Management in other universities of the country.

- The M.Sc. programme will also help to spearhead the current efforts of the government through the Ministry of Capacity Building MoCB, Engineering capacity building programme (ECBP) to bring the Ethiopian construction industry to international standards, through research and consultancy services.

This proposal for an M.Sc. Programme in Project Management has therefore been prepared by the departmental committee for curriculum revision in as-

Objectives

In addition to the general objective of the Addis Ababa University, the M.Sc. degree in Programme Management has the following specific objectives:

- Through the development of research oriented education, to produce well-qualified professionals in the fields of Project Management of large infrastructure construction.
- Conduct researches that identity real problems in the country related to infrastructure project management, and find better solutions.
- Provide construction and related professionals who are already working in the sector a chance to upgrade their knowledge and competency in managing large projects.
- Promote efficiency, organization and sound management in the construction industry.
- Promote a strong sense of ethics and professionalism in the construction sector.

Graduates’ profile

Project Management involves the planning, coordination and administration of project components that include the stakeholders and their relationships, resources, processes and their combined performances for getting things done successfully. It encompasses the whole management processes from the date when the project is invented to the date the project is physically handed over to the investor, including the management aspects in the operation and maintenance phase of the project.

Therefore, Project Managers address the needs of projects and owners by providing management services and expertise tailored to the project needs. This management approach makes Project Management unique in that it doesn’t lend itself to standardization. It involves continual review and updating of plan-
ning and scheduling, and monitoring of the projects for an optimized utilization of available resources in a manner that is economical safe and efficient (in terms of cost, time and quality). Therefore the profile of M.Sc. graduates of Project Management may be defined as follows.

**M.Sc. Graduates of Project Management:**

- Define the scope of projects considering the needs of the client, and the feasibility of the project envisaged.
- They compare different financings schemes and provide advice on securing low cost finances by investigating available resources and conditions; making financial estimations and planning and budgeting costs.
- Develop a management plan and involve appropriate professionals at appropriate times and coordinate the efforts of these professionals with, equipments, materials and finance.
- They plan and prepare work schedules and cash flow; procure materials, form work-teams, direct and monitor performance and quality of works to complete projects in time, with in budget and with required quality.
- Monitor the participant professionals’ progress against the plan and identify actions to be taken in the event of deviance from the plan.
- Administer contracts, make legal agreements up hold codes and maintain professional ethics.
- Conduct researches to identify real problems on pertaining to construction project management, and find better solutions.

Project Managers may work as consultants providing professional services to the owner/client advocating the interest of the client and managing the whole process of construction projects from inception through the design process and the execution until final completion by coordinating the works of different professionals such as economists, sociologists, planners etc (at project development phase); architects, engineers, technicians, surveyors, (at project planning phase); contractors, subcontractors etc. (at project implementation phase).

Construction management consultants may also be involved in post construction works as facility managers working on maintenance of buildings and infrastructure, management of plants etc. Here they identify problems on facilities and infrastructure, choose best methods and materials for maintenance, coordinate and check the quality of maintenance works, produce shop drawings for maintenance based on original design drawings. They also make periodic examination of construction works and identify problems before deterioration occurs and undertake preventive measures. They may also be involved in post occupancy (use) performance appraisal and property valuation of buildings and infrastructure.
Students

Background

Students accepted into the masters programme are those having a minimum of B.Sc. degree in either construction management or a related field of study. They are also expected to have at least 2 years of work experience in construction sites. Therefore the students are expected to have a reasonably good background of construction techniques, and management of a construction project. Students from related field of studies may also be required to take corrective courses if they are deemed to have deficiencies in certain areas.

Admission requirements

Students must have a B.Sc. degree in Construction Management, or an equivalent degree in a related field of study, and they must meet the admission requirements of the school of graduate studies. Regarding applicants with a degree in a related field of study the department shall rule on their eligibility. Students from indirectly related undergraduate programmes are expected to successfully complete corrective courses deemed necessary by the department to continue in the M.Sc. Programme.

Graduation requirements

A student will be eligible for graduation upon successful completion of all required courses in addition to the thesis work. He/ she must also fulfil all requirements of the school of graduate studies.

Degree nomenclature

The degree to be awarded upon completion of the programme is:

"Master of Science in Project Management"
Master curriculum structure

Introduction

The M.Sc. programme is designed to be a two year full time study with possibility to focus on three areas. It also include a flexible ½ a semester corrective programme for students coming from indirectly related backgrounds. However, possibility of offering the full M.Sc. programme in continuing education (evenings, or weekends etc.) is still under consideration.
ECTS

The programme has applied the ECTS (European Credit Transfer system – Credit Points) side by side to the existing credit hour system that is used by AAU. This is mainly to facilitate mobility through exchange of students and staff with over 55 countries of the world that are at present using this system. The Credit Point system is also beneficial because it shifts from the current input based credit hour calculation that consider only the contact hours of students with their instructors to that of output based credit calculations that also account for the time students are expected to invest doing homework and studies in addition to contact hours with instructors.

However, it is understandable that the department and the Faculty of Technology alone cannot change to the ECTS system completely because it will obstruct mobility locally with universities in Ethiopia, as well as with those who still use the credit hour system abroad. Thus to facilitate conversion from one system to the other, the existing Credit hour system will be used in this programme side by side with the ECTS (Credit Point).

The grading of courses shall be based on the existing credit hour system, as the ECTS grading system is not yet fully instituted in many universities. However, internationally accepted conversions can be made from the credit hour system to the ECTS when the grades are needed for transfer to such universities.

Modules

The M.Sc. programme is organized along major modules that describe the major areas of studies. Each module contains one or more courses under it. The description of the modules is given below.

1. Project Development
Devised to enable students interpret the Socio-economic features of projects into practical terms for engineering applications. The ultimate goal is to promote students involve in the process of determining project feasibility from the technical, social, financial, environmental and legal considerations. The focus of the study would be Real-Estate Development and Infrastructure Projects.

2. Procurement and Contract Management
Intended to provide students a profound knowledge of the various forms of contract arrangements from the international and national context. A critical review of the FIDIC documents under different contractual circumstance, contractual risks and risk sharing concepts, claim management, procedures for resolution of disputes would be core subjects to be dealt under this module.
3. Facility Management
Gives students a clear idea and knowledge of the principles of facility management that include technical, financial and legal issues for consideration between the owner/ financiers and the users/ beneficiaries of the project in the period of delivering the intended goods and services. This module teaches on handling and maintaining of equipment and tools, civil works, utilities, gardens, security and cleaning services including contractual relations that would ultimately promote provision of quality services, reduce costs allocated for operation and maintenance and improve durability of the fixed assets.

4. System Engineering
A project is a system of people, equipment, materials and facilities organized and managed to achieve specific goal. At the same time, the task of Project managers involves challenges arising from numerous interacting forces and variables such as rapidly changing technology, rising costs, increasing competition, resource shortages etc. This module attempts to inspire students a system approach in the decision making process where, project managers seek to maximize the project goals by unifying the planning and work efforts of the various units working under different challenges. IT application in planning and Operation Research will constitute the core subjects to be dealt here.

5. Construction
This is a continuation of the module in the under-graduate programme, but with more emphasis on advanced and modern materials, methods and techniques of construction that makes students cope-up with the pace of change of business and technology of which they are anticipated to manage. The focus will be advanced construction systems and techniques:

6. General Studies
As a pre-requisite, a post graduate study requires high level and diversified thinking of the practical dimension. To this end, this module is devised to offer students more advanced courses that improve their thinking and analytical abilities to conduct researches and related activities in their practical fields.

7. Thesis
Designed to integrate the comprehensive knowledge gathered from the academic tray with the need of the industry to which students are already familiar in their practical experience. It is intended to produce an independent research work and project focusing on real-estate development, feasibility study for infrastructure projects, system engineering or facility management.
Research

The master programme focuses on research. Thus most courses shall have small papers integrated into the courses that lead to a one semester long main research thesis at the end of 3 semesters of course work. The master research papers are also envisaged to be the basis for further research with in the department and in the industry to solve critical problems of the construction industry in Ethiopia.

Ethiopian related topics

The students attending the programme are expected to have experience in the local construction industry and thus the researches in the programme including the final thesis, course assignments etc shall primarily be on Ethiopian examples and industry problems.

Teaching and learning methods

Teaching methodology

The teaching method shall be based on classroom lectures, seminars, assignments papers and relevant visits. In addition technology based teaching methods such as e-learning, audiovisuals; video conferencing etc. shall be used as necessary.

Examination Order

The main examination methodology to be used shall be continuous assessment together with major exams at the middle and end of the course. In addition, evaluation methods such as oral examinations and practical demonstration shall be used when appropriate. The grading system shall be absolute grading system which focuses on the evaluation of student performance against expected objectives of courses (instead of relative evaluation of students) Masters Thesis shall be evaluated by a panel of judges from the department and invited experts from the industry, where the students are expected to defend their work.
### Project Development Focus

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<td>3. Facility Management</td>
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*table: detailed course of master studies

Project Development focus
table: detailed course of master studies

Contract Management focus
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</table>

**table: detailed course of master studies**

**System Engineering focus**
National and international cooperations

As mentioned in the history of the department, the earliest international relations the department had been with Sweden. However that relationship has diminished to nil in recent years. On the other hand the program of construction management is relatively new to the department and the country as well, thus realizing the need to have good relationship with international institute; the department is in the process of establishing relations with Berlin University of Technology.

Nationally the department is assisting the formation of departments in this new field of study in different regional universities. It has established link with the construction industry through the testing and research services it gives to the contractors and construction material importers as well as the National Quality Standards Authority. Members of the department are also highly involved in development of National standards for construction materials and works.
Quality assurance management

All academic programmes must have an inbuilt quality assurance mechanism that is designed to guarantee the quality of new/revised programmes and also maintain the same or improved quality while the programme is running.

The department has followed the system of quality assurance already existing in the university where by all programmes including this new curriculum undergo rigorous checking and quality control first at departmental curriculum review committee made up of senior staff members, then in workshops that involve stakeholders and after that the programme is reviewed and approved at the Faculty Academic Committee. Further it shall be scrutinized at the university Senate Academic Standards Committee, before getting its final approval at the highest university body the Senate.

In addition to this this programme has employed the benchmarking mechanism to insure that its programme is up to international standards, to this end this programme was revised with German Universities as bench mark with the technical assistance of a German Professor from the Technical University of Berlin. However it should be noted that necessary adaptations are made in order to best fit the Ethiopian context.

Accreditation by independent reputable bodies is the third mechanism for quality assurance. This revised programme is in the process of seeking accreditation from reputable German accreditation company.

The revised programme has also devised mechanisms to enhance its link to the construction industry. This is also envisaged to be a natural means of continuously gauging the quality of the programme and its relevance to the construction Industry.
Infrastructure

The department shares the southern campus with the other departments of architecture, urban and regional planning and material research and testing. However it has two lecture halls with 100 student's capacity and seven class rooms that it uses exclusively. Other resources are shared such as the campus PC room which houses about thirty PCs with which the students are offered CAD and related applications in construction. The construction workshop that houses, plumbing, masonry, carpentry and electricity workshops is used to offer practice oriented teaching in construction technology; whereas, the laboratories of Material Testing and Research Department in the campus are utilized for the instruction of procedures and demonstration of material testing behavior.

Further more the department has planned new infrastructure for the coming three years including testing equipment, teaching aids, books, class rooms etc. as can be seen on the attached tables for infrastructure requirements (see appendix).

<table>
<thead>
<tr>
<th>Facility</th>
<th>Quantity</th>
<th>Capacity per student</th>
<th>Remark</th>
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<tr>
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</tr>
<tr>
<td>A-Hall</td>
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<td>NLH</td>
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</tr>
<tr>
<td>Rm 9</td>
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<td>Rm 6</td>
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<td>Studios</td>
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<td>The studios are still insufficient compared to the number of students.</td>
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<tr>
<td>Rm 210</td>
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<td>Rm 3</td>
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<tr>
<td>Workshops</td>
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<td>In addition the workshop has 2 larger covered work shades. How ever the workshops are poorly equipped in terms of machinery therefore the planned infrastructure upgrading focuses upgrading equipments for all the workshops.</td>
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<td>Carpentry</td>
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<tr>
<td>Instructors</td>
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<td></td>
<td>For a total of 25 staff the number of instructors offices are very small, and they were not originally designed for offices thus are not sufficient for their purpose.</td>
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<tr>
<td>CAD Studio</td>
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<tr>
<td>Library</td>
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<td>Max 650</td>
<td>Collection of 8000 books, 10 currently running magazine subscriptions, also provides internet access for students</td>
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<td>Currently 165</td>
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### M.Sc. Programme Infrastructure Requirements

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<th>3rd Year (2008/09) Birr</th>
<th>Total Birr</th>
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## Table: B.Sc. Programme Infrastructure Requirements

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<td>50,000.00</td>
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<td>101,000.00</td>
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<td>Included as accessories in laboratory equipment</td>
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<td><strong>8 Building Space</strong></td>
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<td>Class Rooms</td>
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<td>Offices</td>
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<td>Workshops</td>
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Finances

The annual budget for the complete southern campus in 2005 was between 2,000,000 and 2,500,000 Birr. This translates into roughly 180,000 to 227,000 Euro, which means that each of the three departments probably had 70,000 Euro (770,000 Birr) at his disposal.

This budget had to cover all expenses, including salaries. Compared to the calculated and necessary investments within the years 2006 through 2011, given below, the insufficient budget of the departments becomes evident.

By now, the southern campus also covers for some of his expenses by generating income from services such as materials testing and soil testing in its laboratories. However, this income is insignificant and covers only minor costs, for example telephone bills. Also, as of this day, 25% of any income generated by university facilities has to be paid to the university itself, further reducing this income.

The departments of the southern campus therefore hope that the soon to be introduced Research Units in the Master Study courses will generate a certain amount of money in the near to intermediate future.

Staff

The department has 25 full-time staff members,; one Associate Professor (Ph. D.), Three Assistant Professors (Ph.D.), fifteen Lecturers (M.Sc.), 2 part-time lecturers (M.Sc.), six assistant lecturers (B Sc.), and seven Technical Assistants (Diploma), including those in the supporting department of Material Testing and Research who also teach in the Department of construction Technology and Management. bringing the total number of staff engaged in teaching at the department to 34. This does not include staff from other departments in the university teaching all general courses such as Mathematics, English etc.

Further more the department has planed to hire new staff in the coming three years and has also prepared a staff training schedule to meet the demands of the new curriculum as can be seen on the attached tables for infrastructure requirements (see appendix).
<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Staff</th>
<th>Academic Qualification</th>
<th>Position</th>
<th>Area of Specialization</th>
<th>Employment Status</th>
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<tbody>
<tr>
<td>1</td>
<td>Ato Asfaw Eshetu</td>
<td>M.Sc.</td>
<td>Lecturer</td>
<td>Civil Eng/ Infrastructure Planning/Financial Management</td>
<td>FT</td>
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<tr>
<td>2</td>
<td>Ato Agedom Haile</td>
<td>B.Sc.</td>
<td>Grad. Ass</td>
<td>Architect</td>
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</tr>
<tr>
<td>3</td>
<td>Dr. Ing Bedilu Habte</td>
<td>Ph.D.</td>
<td>Ass. Prof.</td>
<td>Structural Eng/Computer Applications in Civil Eng.</td>
<td>FT</td>
</tr>
<tr>
<td>4</td>
<td>Ato Bekele Fulea</td>
<td>M.Sc.</td>
<td>Lecturer</td>
<td>Civil Eng/ Materials/Workshop</td>
<td>FT</td>
</tr>
<tr>
<td>5</td>
<td>Ato Belay Yitayew</td>
<td>B.Sc.</td>
<td>Grad. Ass</td>
<td>Civil Eng/ Workshop Plumbing</td>
<td>FT</td>
</tr>
<tr>
<td>6</td>
<td>Ato Belayneh Berhanu</td>
<td>B.Sc.</td>
<td>Lecturer</td>
<td>Civil Eng/ Geotechnique/Materials</td>
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<tr>
<td>8</td>
<td>Ato Binyam Kassa</td>
<td>MArch</td>
<td>Lecturer</td>
<td>Architect/Urban Planning/ MBA</td>
<td>On study leave (Expected September 2007)</td>
</tr>
<tr>
<td>9</td>
<td>Ato Dagnachew Getachew</td>
<td>B.Sc.</td>
<td>Grad. Ass</td>
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<tr>
<td>10</td>
<td>Ato Dandena Tufa</td>
<td>MArch</td>
<td>Lecturer</td>
<td>Architect/Urban Planning/Road Network and Traffic Planning</td>
<td>FT</td>
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<tr>
<td>11</td>
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<td>Diploma</td>
<td>Tech. Ass. III</td>
<td>Masonry/Carpentry</td>
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<tr>
<td>12</td>
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<td>FT</td>
</tr>
<tr>
<td>13</td>
<td>Ato Fekadu Lemma</td>
<td>MArch</td>
<td>Lecturer</td>
<td>Architect/Urban Design</td>
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<td>14</td>
<td>Ato Gemichis Tamiru</td>
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<td>Ass.Lect</td>
<td>Civil Eng/ MBA</td>
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<td>15</td>
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<td>Lecturer</td>
<td>Architect/ Urban Planning/ Inner City Redevelopment</td>
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<td>Ato Samson Abate</td>
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<td>Grad Ass</td>
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<td>Civil Eng/ Geotechnique</td>
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<td>18</td>
<td>Ato Sintayehu Hunde</td>
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<td>Civil Eng/ Geotechnique</td>
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<td>20</td>
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<td>Ass. Prof.</td>
<td>Civil Eng/ Construction Materials</td>
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<tr>
<td>24</td>
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<td>Ph.D.</td>
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### Ethiopian Academic Staff Recruitment Plan

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<th>2007/08</th>
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### Expatriate Staff Employment Plan

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### Technical Assistants Employment Plan

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### Ethiopian Academic Staff Recruitment Plan

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### Expatriate Staff Employment Plan

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Appendix

Teaching Staff CVs
Asfaw Eshetu Tolla, M.Sc.

**education**


B.Sc, Civil Engineering, Addis Ababa University, Faculty of Technology, 1992

**professional experience**

2005- to date: Addis Ababa University, Faculty of Technology (south), Department of Construction Technology and Management
Position: Lecturer

Position: Project Manager
Major Tasks:
Prepare overall Strategic Plan, Control and Manage the proper implementation of projects by introducing internal control and management systems to projects undertaken by Sileshi Consult from conceptual to implementation phase.
Develop updated organizational structure for efficient flow of works; coordinate individual efforts of the functional units towards company’s portfolio and business strategy.
Advice on Financial, Contractual and Technical issues; propose and plan resource and logistic requirements of projects undertaken by Sileshi Consult prior to design and construction works.
Staff recruitment in accordance with demands by functional units, make interviews, negotiate and prepare employment contract.
Preparation of proposal on the optimal utilization of the Urban Development Fund by KFW (Financier), to ten Regional Cities in the process of identification of demand driven projects at grass root level with Sileshi Consult.
Prepare feasibility studies, tender and contract documents for design, supervision and construction of complex projects.

Freelancer Sub-Consultant (Practicing Professional Structural Engineer) to the following firms:

- Zeleke Belay Consult, Consulting Architects Plc,
- SAM Consult, Consulting Architects Plc,
- Regional State of Oromia, Adama Project Office
- Addis Ababa University, Faculty of Technology, Department of Technology and Construction Management.

Major Tasks:
Structural design, tender and contract documents of projects with varying magnitude.
Design checking of Supreme Office of Rural Development and Respective Bu-
reaus and Martyrs Monument and Related Building Complex of Oromyia Regional State at Adama.
Offer courses such as construction management and materials to under graduate students in Addis Ababa University, Faculty of Technology (South)

1997-2001 (Full-time basis): Lecturer; Addis Ababa University, Faculty of Technology (south)
Offering various building construction courses such as Construction management, Construction materials, Building site supervision and Quantity surveying including supervision work of materials testing laboratory in the Materials Research and Testing Department.

1998-2001: Position: Senior Professional Engineer
Major Tasks:
Structural and Project Engineer responsible for managing and coordination of the following projects from design to pre-construction services,
Active involvement in the preparation and evaluation of Tender and Contract Documents including handling the subsequent administration of the contracts and conduct periodic supervision in the performance and realization of the following projects.

- The design of Addis Ababa Water and Sewerage Authority. (G+5) Head office building made of partly pre-fabricated building elements and partly cast-in-situ concrete frames. Project cost Birr 40 million.
- The design of Commission for Sustainable Agricultural and Environmental Rehabilitation in Amhara Region (Co-SAERAR). (G+3) Head office building at Bahir Dar, Project cost Birr 5.4 million.
- The design of Teffera Seyoum Commercial Complex (G+12) in Addis Ababa. Project cost Birr 35 million.
- The design of Organization for Rehabilitation and Development in Amhara Region (ORDA). G+3 Head office building at Bahir Dar. Project cost Birr 5.2 million.
- The Construction of Addis Ababa Water and Sewerage Authority (AAWSA) head office building, project cost Birr over 40 million.
• The design of Addis Ababa Water and Sewerage Authority, Vehicles Repair & Maintenance, Electrical and Mechanical Workshops in Addis Ababa. Project cost 4.6 million.
• The design of Christian Relief and Development Association, (G+3) Office building and training center, Kality. Project cost birr 15 million.
• The design of National Bank of Ethiopia, multi-storey Car Parking. Project cost birr 5 million.
• The design of Sileshi Consult, G+5 mixed use building. Project cost birr 3 million.
• Periodical Supervision, Construction work of Head Office Buildings at Bahir Dar for:
  • Rural Road Authority (RRA)
  • Commission for Sustainable Agricultural & Environmental Rehabilitation in Amhara Region
  • Organization for Rehabilitation and Development in Amhara (ORDA)
• 1995-1998  Position: Professional Engineer
• The design of Worbek House Project for Apartment, Office and shops in Addis Ababa (G+7).  Project cost Birr 10 million.
• The design of Rural Road Authority, (G+3) head of building at Bahir Dar.  Project cost Birr 5.0 million.
• The design of Project Implementation Office (World Bank), community facilities in Addis Jimma road. Project cost Birr 5 million.
• Periodical Supervisor, the construction of Mugher higher secondary school, Kindergarten and residential buildings at Mugher. Project cost Birr 5 million.
• The design of Treshing shed and Lath house, Institute of Agricultural Research at Holeta. Project cost birr 0.8 million.
• The design of slaughterhouses at nine regional towns. Project cost Birr 4.5 million.
• Resident Engineer, the construction of National Bank of Ethiopia Central Service Complex (G+11) in Addis. Project cost Birr 56 million.
• Periodical Supervision in the construction work of:
  • Worbek house in Addis Ababa
  • Project Implementation Office, Community Facilities project in Addis Jimma road
  • Holeta Lath house and Treshing shed.
• 1992-1995 (Full-time basis)  Ethiopian Electric Light & Power Authority, Engineering Department.
• Supervisor Engineer, 132KV Gilgel Gibe-Ghodo tower transmission undertaken by expatriates Energo-Invest Company.
• Supervisor Engineer, 230 & 132 KV substations project with staff dwelling houses at Dire Dawa undertaken by expatriates; Energo-
Invest particularly responsible for the outgoing transmission line project.

- Design Engineer, Northern Ethiopia 230, 132 & 66 KV transmission and substation projects, involved in checking the design of steel tower members used for same project.
- Preparation of standard module of 66KV transmission line with Eucalyptus post applicable to new projects as well as maintenance work.
- Development of computer programme for Sag-tension table of power transmission line projects to be undertaken by own force of EELPA.
Dr.-Ing. Bedilu Habte

**education**

2002 Sun Certified Programmer for Java 2, Frankfurt, Germany.

1996-00 Ph.D. in Informatics in Civil Engineering, Darmstadt Technical University Germany.

1993 Post Graduate Diploma in Low Cost Housing from IHS in Rotterdam, The Netherlands.

1985-88 M.Sc. in Civil Engineering (Structural), Addis Ababa University.

1978-83 B.Sc. in Civil Engineering, Addis Ababa University.

**professional experience**

2003 to date Assistant Professor at the Addis Ababa University, Department of Construction Technology and Management; P.O.Box 518, Addis Ababa, Ethiopia

2002 Software Developer at Software Management Consulting GmbH, Aschaffenburg, Germany.

2001 Software Developer at Bauerer Componentware GmbH, Rimpar, Germany.

2000 Software Developer at Kozminski Gewerbeimmobilien mbH, Frankfurt, Germany.


1983- 1996 Lecturer, Department of Construction Technology and Management (former Building Technology), Addis Ababa University, Addis Ababa.

**Key Qualifications:**

Structural analysis and design of civil engineering structures. Software development in different languages like Java, C++, Fortran etc. Development of Web based software applications for internet use. Application of structural analysis software like ANSYS and SAP. Teaching Structural Analysis, Structural Design and Computer Application courses both at the graduate and undergraduate level.
Major projects and contributions

- Development of a commercial web-based application for the marketing of optical aids and accessories, in Rimpar, Germany.
- Development of a commercial web-based application to broker the rental and marketing of offices and real-estate in Frankfurt, Germany.
- Participated in the International Conference on Concurrent Engineering, at Lyon, France; and presented a paper entitled: “Internet Based Integrated Software System for Structural Design Application.”
- Structural design of various structures including Shoe-soul factory in Addis Ababa,
- Zerihun Building
- 24 family cooperative housing,
- dormitory and offices at Mekele Arid University.
- Specification and Quantity Surveying preparation of a Russian Structural Design for the Debre-Zein Air force Base extension.
- Software development for structural analysis and design purposes.
Belay Yitayew, B.Sc.

**education**

- 2005  
  12+4 Civil Engineering, Technology faculty,  
  Addis Ababa University

- 1988-1990  
  Advanced diploma in Sanitary Engineering,  
  Arbaminch Water Technology Institute

**professional experience**

- July 1997 to date  
  Plumbing workshop head & Instructor at the Addis Ababa University, Department of Construction Technology and Management  
  P.O.Box 518, Addis Ababa, Ethiopia

  Construction supervisor at Legedembi Gold Mine Construction  
  Projects, Shakisso
Binebeb Shiferaw Terefe, B.Sc.

Akaki Adventist School
Sep, 1984   Mar, 1996
School Diploma

Addis Ababa University
Sep, 1996   Aug, 2001
B.Sc. Degree in Civil Engineering

- An assistant lecturer at the same university from Sep 2002 to date.
- Teaching practical surveying courses at AAU (surveying I, Surveying II, and surveying field practice)
- With an excellent experience with operation of surveying equipment.
- A system administrator for Technology Faculty (south) Computer center from Dec 2003 to date
- Road Construction Trainer for Technical and Vocational teachers
  - At the Addis Ababa Education bureau - as an In-service trainer for about five months
  - At the ministry of education for about three months during summer 2002
Dagnachew Getachew, B.Sc.

yekatit 12 comprehensive secondary school
Granted ESLCE certificate

Addis Ababa university department of Architecture and urban planning
Bachelors’ degree

Currently working as a graduate assistant at AAU

Design of ‘mekagno’ park under the ‘eco-city’ projects under taken by the arada sub-city administration during the fiscal year 2003-04

Teaching technical drawing at a private technical school 2002-2005

Worked at the Addis Ababa municipality in the department of building codes and licensing 2001-2002
Dandena Tufa Degaga, M.Sc.

Certificate in Transport Planning
MPH and the World Bank, Addis Ababa, 2001

M.Sc. in Human Settlements

B.Sc. in Architecture and Urban Planning

Diploma in Building Trade

Key Qualifications:

- Over sixteen years professional experience in architecture, human settlement and urban planning; (Oct.1988 to date)
- Human settlement studies and urban planning works with recognized achievements in many urban centers including Addis Ababa, Adama, Harar, Weliso, Wukro and Debre Berhan; (1989-2004)
- Demonstrated ability and experience in site planning and design of variety of residential houses, apartments, offices, hotels, restoration of historical sites, and other human settlement elements; (1988 to date)
- One of the very few Senior Architect-planners in Ethiopia specializing in human settlement and urban planning (combining theory and practice);
- Proven ability to work in multi-cultural environments and personalities;
- Outstanding Team leader with ability to delegate tasks and make sound decisions in stressful environments.
- Very good knowledge of the geography of Ethiopia and urban areas.
- One of the Key Players in the Revision of Master Plan of Addis Ababa and Adama cities.
- Multi-lingual; fluency, both written and oral, in Oromiffa, Amharic, English and French.
- Proven presentation skill to a large audience including the international community;
- Executive Committee Member of the Association of Ethiopian Architects (AEA). Nov. 1999 to 2001)
Employment Record:

September 1997 to date:
Addis Ababa University, Faculty of Technology, Department of Construction Technology and Management.
Lecturer Position

July 2002 to October 2004:
Adama Master Plan Revision Project (Part Time Work)
Senior Architect planner

December 1998 to July 2002:
Office for the Revision of Addis Ababa Master Plan (ORAAMP)
(Part time work)
Senior Architect planner

October 1988 to September 1997:
National urban Planning Institute (NUPI)
Working with different capacities (from assistant planner to Senior Architect planner)

Major Projects and Contributions:

Research Work:
Conducting research on Construction Time and Site Management: Towards Cost and Quality Control, SIDA/SAREC, Addis Ababa University, (May 2005-Feb. 2006)

At Addis Ababa University, Faculty of Technology, Department of Construction Technology and Management. (1997-to date)
Position: - Lecturer
Major areas of teaching: - Building Drawings, Building Construction and Architectural Planning and Designs.

• Private and team works of architectural designs and Supervisions (Selected ones)
• Design of numerous private residential housing and villas with site supervision of the respective designs (1988 to date)
• Design competition for G+10 mixed use building, Boran Real Estate, (January-March 1997)
• Development of typology for Bulbula Housing Cooperative, Addis Ababa, (Jan.-February 2001) and construction site supervision of the 24 housing units (May 2001 to January 2002)
• Office blocks and training center for Hunde NGO at Holeta and Mojo area offices, design (December 2001 to January 2002), construction site supervision (April to December 2002)
• Design of library and classrooms block for Ambo Senior
Secondary School 50th Anniversary (November to December 2003) and under construction since January 2005 with my supervision

- Site Planning and design of flower-culture at Holeta for Arsi Agricultural Mechanization PLC., (December 2003 to January 2004)
- Team work design for conservation of historical site and monuments at Madda Walaabu, (March to May 2004)

At Adama Master Plan Revision Project (2002-2004)

- (Part Time Work)
- Made land use survey and analysis of Adama city (the base for later studies);
- Assessed and defined boundary for the future Adama city;
- Planned Road Network and Transportation in the preparation of Adama Master Plan;
- Prioritized roads for immediate implementation of asphalt and gravel surfaced developments with proposal of necessary cross-sectional details;
- Worked on the optional location of stadiums and recommended a site for Adama Abebe Bikila stadium;
- Synthesized the Strategic Development Frame (SDF) prepared for fifteen years by different study teams;
- Prepared Strategic Development Action Programme (SDAP) for Adama;
- Development norms and standards for the revised master plan.
- Studied the urban planning and construction permit regulations for the city of Adama;
- Prepared detailed development plans for the city, and
- Evaluated different planning studies and architectural design studies of Adama
- Presented the above studies at different levels to government officials, business community, general public, and different organizations working on Adama.


- Assessed land use and other planning problems of the city, and analyzed the expansion trend of the city.
- Assessed, analyzed and planned road network and transportation services for the city of Addis Ababa;
- Assessed, analyzed and planned environmental issues around Addis Ababa;
- Presented and discussed the studies of road network and transport related issues of Addis Ababa, as per the revised master plan, with government officials, business community, general public, international organization members, etc.

- Studied Hotel topologies and location of commercial sites in Addis Ababa city and Akaki town; (Dec. 1988 to March 1989)
- Involved in the selection of Industrial Sites in three capitals of Administrative regions for the purposes of establishing Industrial Estates: Adama, Assela and Debre Berhan; (Oct. 1989 to Feb. 1990)
- Prepared Development Plan for Weliso town, population of 22,800, as an assistant planner; (June to Oct. 1990)
- Worked, as planner, in the Woliso planning team with full responsibility; (Nov. 1990 to Sept. 1992)
- Involved in a case study team assigned to study the urban – rural boundary delineation problems in towns of four administrative regions: Addis Ababa, East Shewa, Arsi, and South Shewa; (March to May 1991)
- Spearheaded development plan for Wukro town, population 20,000 and recommended sites for various urban functions; (Oct 1992 to Sep 1993)
- Involved in the preparation of Debre Birhan Development Plan which includes survey, assessment and recommendation; (May to Sep 1994)
- Coordinator of Master Plan Preparation Department; (May 1992 to Jan. 1994)
- Acting Head of Master Plan Preparation Department (Feb. to Sep. 1994)
- Participated in site selections and urban development studies for various urban functions in different parts of Addis Ababa; (1989 to 1994)
- Prepared development plans Harar town as a senior Architect Planner; (Feb 1996 to May 1997)
- Coordinated and worked as a senior Architect Planner in the study of the development plan of Hosaena and Semera towns; (Aug. 1996 to Sep. 1997)
- Participate in the study of Kotebe District Development Plan; (May to Sep. 1997)
- Design of housing typologies for high-income, middle-income and low-income groups for Kotebe District Development Plan, (August to September 1997)
Debela Jaleta

2005 12+3 Educational Planning & Management, College of Education, Addis Ababa University

1991-1992 Diploma in Industrial Education (TTE), Addis Ababa University

2001 to date Technical Assistant at the Addis Ababa University, Department of Construction Technology and Management; P.O.Box 518, Addis Ababa, Ethiopia

Nov.1995 – June2001 Technical Assistant, Technical Teacher Education

Fekadu Lemma, M.Arch.

**education**

B. Sc. in Architecture and Town Planning, Addis Ababa University, Ethiopia.

Diploma in Electricity, Addis Ababa Technical School, Addis Ababa, Ethiopia.

**Key qualifications:**
- Over fifteen year professional experience in architecture and building construction site supervision.
- Over fifteen years experience as university instructor.
- Demonstrated ability and experience in team leading and coordination.
- Eight years education with M.Sc. in human settlement; B.Sc. in architecture and town planning and Diploma in Electricity.
- Proven research skill and experience of working in other developing country, viz., Kenya.
- Multi-lingual, fluency in Amharic, English, and Oromiffa.
- Member of the Association of Ethiopian Architects (AEA)

**Professional experience**
**Sep. 2000 - to date** PACE Consulting Architects PLC.
General Manager and owner of the consulting firm working on urban planning, construction design, supervision and administration, including preparing and/or monitoring the preparation of all planning, architectural, engineering designs, and tender documents and technical review & analysis of tender submittals for a number of contracts.

Recent projects include: Adama City Master Plan Revision, Awash Commercial Transactions Head Quarters, Family Guidance Association SW Branch Building Complex, Babogaya Lodge, Nib Housing Associations’ house design, etc…

**Sep. 1999 - 2001** Addis Ababa University
Department head, Building Technology Department, Faculty of Technology, Addis Ababa University.
Duties and responsibilities include: co-ordination of the staff and departmental activities, consulting students and acting as an official representative of the department.

**Sep. 1994-Sept. 1997** Addis Ababa University
Continuing education programme coordinator, Building Technology Department, Faculty of Technology, Addis Ababa University.
Duties and responsibilities include: co-ordination of the staff and continuing education programme activities, consulting extension students and acting as an official representative of the programme.

Sep. 1997-October. 1998 Katholieke Universiteit Leuven, Belgium

February 1999. -Sept. 1999 Addis Ababa University
Continuing education programme coordinator, Building Technology Department, Faculty of Technology, Addis Ababa University.
Duties and responsibilities are same as above.

Sep. 1988 - to date Addis Ababa University
Lecturer at the Construction Technology and management Department, Faculty of Technology, Addis Ababa University,
Duties and responsibilities include: lecturing and instructing courses pertaining to Building Drawing, Building Construction, Building Construction supervision, Architectural Planning and Design. During these years I have served at different ranks, i.e., beginning from Graduate Assistant, then an Assistant Lecturer after one year service and finally a lecturer as of 1998.
Besides, I have designed and still designing and supervising constructions for different residential buildings, shops, offices, etc; with quite a number of them realized.

May 1999 - to Sep. 2000
General Manager and owner of Fekadu Consulting Architects. Small architectural practitioner’s office mainly worked on residential, small offices, commercial and catering buildings designs and construction supervision. Quite a number of these designs have been realized.

Jun. 1999 - to January 2001
Worked as part-time construction site supervisor of civil works for RINA International Investments, Golden Rose Agro-Farm PLC, Tefki, Oromiya.
Duties and responsibilities include: - Project planning supervision and progress monitoring of construction contracts and preparation of regular progress reports for the flower farm company. Other duties have involved preparation of tender documents and technical review & analysis of tender submittals.

Jun. 1999 - to January 2001
Worked as part-time construction site supervisor of civil works for Burayu Spring Water PLC, Burayu, Oromiya. Duties and responsibilities are as described above.
Jun. 1999 - to January 2001
Worked as part-time construction site supervisor of civil works for Amanti Food Processing PLC, Burayu, Oromiya. Duties and responsibilities are as described above.

Experience in private Consulting Firms
EKIP Consulting Architects and Engineers. Worked as junior architect on part-time bases for three months.
Duties and responsibilities include: preparing construction drawing for a 50 bed hospital, Hotel extension, etc.

Debebe Yazew Consulting Architects. Worked as a junior architect on part-time bases for nine months.
Duties and responsibilities include: preparing architectural designs and construction drawings for various types of buildings including residential, office, hotel and mixed use developments.

Habtewold Demewez Getahun

education
Advanced Diploma in Building Engineering at the Addis Ababa University.

professional experience
2004-2005
Technical Assistant at Addis Ababa University, Department of Construction Technology and Management; P.O.Box518, Addis Ababa, Ethiopia

2004
Site and Office Engineer in Private General

2000-2001
As foreman in Private General Contractor

2002-2003
As a teacher in Ministry of Education.
Imam Mahmoud Hassen, M.Arch.

September 2000
Master of Architecture in Human Settlement
Katholieke Universiteit Leuven, Leuven, Belgium

July 1998
Certificate of training in Teaching Methodologies (for 3 weeks) Organized by the
Addis Ababa University, Faculty of Education

June 1997
Bachelor of Science in Architecture and Urban Planning
Addis Ababa University, Addis Ababa, Ethiopia

October 2001 to date
Instructor
Department of Construction Technology & Management,
Addis Ababa University

September 1998 – October 1999
Assistant Lecturer
Department of Construction Technology & Management,
Addis Ababa University

September 1997 – September 1998
Graduate Assistant
Department of Construction Technology & Management,
Addis Ababa University

July 1997- September 1998
Junior Architect
Wossen Architects, Addis Ababa

July 2002 – September 2004
Architect Planner
PACE Consulting Architects & Engineers, Addis Ababa

October 2004 – Present
Senior Architect Planner
PACE Consulting Architects & Engineers, Addis Ababa

September 1997 - Present
Freelance architect
Addis Ababa
Key Qualifications:

- Trained as an Architect as well as Urban Planner in human settlements; holds masters of Architecture degree, with 7 years of architectural design and urban planning experience.
- Have experience in undertaking architectural design of projects of various scale and complexity.
- Have experience in urban planning specially in the area of centrality (planning city centers, inner city redevelopment, urban design)
- Have experience in teaching of undergraduate architectural and construction courses

Major projects and contributions

- Participated in the master plan revision of Adama city as the team leader of the centers and marketplaces study team. Produced with the team two major study documents which outline a proposal for the hierarchical development of marketplaces and centers throughout Adama in the coming 15 years, and worked on the integration of this study with the overall structure plan of the city. Also worked in several task groups, participated in numerous public presentations during the development of the masterplan.
- Undertaken Architectural design of different buildings individually as well as in partnership with other freelance artists. Including:
  - A P.P. bags factory built with a construction cost of over 5 million birr, in BURAYU town OROMIYA regional State.
  - T.B. Out patient center, involving as-built drawing, modifications and design of new additions for the Addis Ababa T.B. outpatient center, Kolfe, Addis Ababa. (Project done for MAT consulting architects).
  - Nile Center: office for the joint center of 10 African Countries along the Nile basin, in Addis Ababa; involves the modification of 5 villas in to one integrated modern office. (Project done for PACE consulting architects and engineers)
  - Awash Garment Emporium: G+4 office and garment production hall in Addis Ababa (Project done for PACE consulting architects and engineers)
  - OROMO CULTURAL CENTER and Historical reconstruction at Madda Walabuu, Bale - OROMIYA involving design of traditional/historical Tukuls as well as modern museum, restaurant, and assembly hall. Project done for the OROMIYA Culture and Tourism Commission with a group of freelance architects.
• Design, modification and architectural site supervision of several residences.

• Urban Design workshop: Participated in an urban design workshop under the frame of “Brussels 2000 cultural capital of Europe”. As part of the design group, produced a conceptual proposal for northern industrial wasteland at the fringe of the city of Brussels. Proposal: Urban landscape/park under the theme “hybrid spaces”, Brussels September 2000.
Samuel Tadesse Tafesse, Ph.D.

**Education**

Feb. 1996–Nov. 2000  Ph.D. in Geotechnical Engineering  
Department of Geotechnical Engineering  
Faculty of Civil and Environmental Engineering  
Norwegian University of Science and Technology (NTNU), Trondheim

University of St. Cyril and Methodius, Institute of Earthquake Engineering and Seismology, Skopje Republic of Macedonia.


1979–1983  Bachelor of Science in Civil Engineering, Addis Ababa University (AAU), Ethiopia

**Employment Record:**

Nov. 2000–2006  Assistant Professor and Head of Department of Construction Technology and Management, Faculty of Technology, AAU

1996–November 2000  University Scholar, Ph.D. student, NTNU,

Sept. 1989–Feb. 1996  Lecturer and Chairman of Building Technology Department, AAU

Sept. 1983–Feb. 1986  Graduate Assistant and Assistant Lecturer  
Building Technology Department, AAU

**Key Qualifications:**

More than twenty years of experience in geotechnical research, teaching and consulting. Main areas of research are soil modeling, Liquefaction of sand and developing correlations between laboratory and field tests.

Teaches all basic and advanced courses in geotechnical engineering.

Has been adviser for several post graduate students working in the field of geotechnical engineering.
Major projects and contributions

- Surveying and Structural design of Dormitory and Office buildings of Mekele University,
- Site supervision and geotechnical investigation of different private and government projects
- Team leader of Soil exploration crew for Fincha sugar factory, Angereb water supply dam and others government and non-government projects

- Predicting sand behaviour using a state parameter model. Zede 19, December 2002. publications
- Behaviour of Saturated sand under different triaxial loading and liquefaction. Ph.D thesis
- Investigation into some of the engineering Properties of Addis Ababa red clay soil. M.Sc. thesis

- Vice Chairman of Ethiopian Association of Seismology and Earthquake and Engineering membership
- Member of Ethiopian Civil Engineering Association
Sintayehu Hunde Abebe, M.Sc.

**education**
- Higher Education: AAU, Faculty of Technology
  - M.Sc. Degree in Civil Engineering
  - Specializing in geotechniques (Feb 2004 G.C)
  - B.Sc. Degree in Civil Engineering (July 1999 G.C)

**Professional Experience**

**Employment Record:**
Employed as graduate assistant in the Department of Construction Technology & Management (the former Building Technology) in Sep 1999;

2004 to date, working at lecturer capacity

**Key Qualifications:**
Structural analysis and design of different civil engineering structures.
Geotechnical site investigation and laboratory testing, construction site supervision

**Major Projects and Contributions**
- Structural design of various structures including
- The new Kelifa Building (a G +10 Building)
- Construction site Supervision of various buildings including
- AAU Staff Apartment (a G+6 Building costing about 10 million)
Solomon Sertse, M.Sc.

Qualification: 
Master of Science in Project Management

Institution:
University of Cape Town (in association with the University of Wuppertal, Germany)

Major Courses:

Thesis title:
THE PROJECT MANAGEMENT OFFICE AS PRACTICE WITHIN THE CONSTRUCTION INDUSTRY: Overcoming obstacles in implementing and leveraging improved project management performance.

Date of completion: June 15, 2006

Qualification:
Bachelor of Science in Civil Engineering

Institution:
Addis Ababa University, Ethiopia

Date of Completion: August 22, 2001

Work experience

• Research assistant at University of Cape Town, Department of Construction Economics and Management from Feb. 2006 to Jun. 2006.

• Assistant lecturer at Addis Ababa University, Faculty of Technology, Department of Construction Technology and Management from Sep. 2002 to Feb. 2004.

• Graduate assistant at Addis Ababa University, Faculty of Technology, Department of Construction Technology and Management from Sep. 2001 to Aug. 2002.

• A member of standard setting committee on road and bridge construction under Ethiopian Quality and Standard Authority from


**Conference papers**


**Journal paper (submitted to publishers)**

Desta, S. Root, D. & Diederichs, J. (TBA) The Practice of Project Management Office (PMO) Concept within the German Architect, Engineer, Contractor (AEC) Sector (Submitted to Journal of Engineering and Design Technology)


Surafel Ketema Desta, Ph.D.

1999-2003
Ph.D. in Building Materials, Norwegian University of Science and Technology (NTNU), Norway

1995
University course matriculation certificate in International Construction Management, Lund University, Sweden

1988-90
M.Sc. in Civil Engineering (Structural), Addis Ababa University.

1977-81
B.Sc. in Civil Engineering, Addis Ababa University.

Employment record:

2003 to date
Assistant Professor at the Addis Ababa University, Department of Construction Technology and Management; P.O.Box 518, Addis Ababa, Ethiopia.

2000 - 2003
Part time laboratory co-ordinator (Building Materials Lab.), Norwegian University of Science and Technology, Norway.

1995 - 99
Lecturer, Architecture and Urban Planning Department, Addis Ababa University, Addis Ababa.

1990 - 95
Lecturer and Deputy Director of the Materials Research and Testing Department, Addis Ababa University, Addis Ababa.

1985 - 90
Lecturer and Research engineer, the Materials Research and Testing Department, Addis Ababa University, Addis Ababa.

1982 - 85
Assistant Lecturer, Research engineer, the Materials Research and Testing Department, Addis Ababa University, Addis Ababa.

1981 - 82
Graduate assistant and Research assistant, the Materials Research and Testing Department, Addis Ababa University.
Key qualifications:
Structural analysis and design of different civil engineering structures. Teaching Structural Analysis, Structural Design and Construction Material courses both at the undergraduate level.

Major projects and contributions
Structural design of various structures including

- Shoe-soul factory in Addis Ababa,
- Multi-purpose apartment buildings in Addis Ababa
- Various G + 1 family cooperative housing in Addis Ababa,
- Various single residential houses (G+1, G+2) in various parts of Addis Ababa
Tefera Desta, M.Sc..

B.Sc degree in Civil Engineering, Faculty of Technology, Addis Ababa University, 1995

M.Sc. degree in Civil Engineering with major in structural Engineering, Faculty of Technology, Addis Ababa University, 1999

**Key qualification:**
Worked as a senior Structural engineer and developed enriched experience in 3D modeling, analysis and design of different types of structures such as office, shop and apartment buildings, Hotels, Museums, ware houses and industrial buildings, residential houses, school, mosque, etc. The candidate have also got M.Sc. Specialization in Structural Engineering and conducted a research work on Reinforced Concrete Section Analysis and Design of Columns for M.Sc. thesis.

**Professional work experience:**
Worked on Structural design and preparation of bill of quantities and specifications for building projects of different types in associate with PACE Consult – Consulting Engineers & Architects, SKAS Consulting Architects, and Quantity Surveying & Construction Cost Consulting Bureau and other Architects. The following are some of them:

**Some of main projects undertaken:**
1. Structural design of shop and apartment building for Ato Woldeberhan Tsegay - G+3, Mekele
2. Structural design of Yemisrach Hotel (three star) for Ato Tesfaye Hailu – G+4, Debre Berhan
3. Structural design for the supreme office of Rural Development for Oromia Regional State, Adama (Co –designer)
4. Structural Design of multipurpose head quarter G+2 building (office, library, youth center and clinic) for Family Guidance Association of Ethiopia, South Western branch, Jimma
5. Structural design for the supreme office of Administration & Justice for Oromia Regional State, Adama (Co –designer)
7. Structural design revision of shop and office building for Ato Getu Geletie - G+6, Addis Ababa (Co –designer)
8. Structural design of Apartment Building for Yen Abubeker G+4, Addis Ababa (Co –designer)
9. Structural design of Office and shop building for TG International
Participate in structural design and preparation of bill of quantities for Temben Agbe Mineral Water Botling Factory, Tigray

11. Structural design of shop and apartment building for Ato Mesfine Gebeyehu - G+3, Addis Ababa

12. Structural design of shop and pension for Ato Dereje Ashamie - G+3, Dessie

13. Structural Design of office Building for Ato Ahmed Beshir Ibrahim - G+1, Nazreth

14. Structural Design of Almeta Medicine Factory - G+1, Addis Ababa (Co-designer)

15. Structural Design of Assela Cultural Mussium - G+3 with basement, Assela (Co-designer)

16. Structural design of Muazibnujebil Moske, Addis Ababa

17. Structural design of residential houses with different complexity and extent
Wondimu Kassa Lemma, B.Sc.

From September 2005 to date I am studying for my Masters Degree in Structural Engineering (2 years programme) at AAU.

University education (B.Sc.) 1997-2002 at Bahir Dar University:

- Oct. 2004 to date
  Graduate Assistant at the Addis Ababa University, Department of Construction Technology and Management; P.O.Box 518, Addis Ababa, Ethiopia

- July 2003 to Oct. 2004
  Assistant Lecturer at Bahir Dar University, Department of Civil Engineering; P.O.Box 26, Bahir Dar, Ethiopia

- July 2002 to July 2003
  Graduate Assistant at Bahir Dar University, Department of Civil Engineering; P.O.Box 26, Bahir Dar, Ethiopia

- Participant in conducting Lab tests related to civil engineering material properties while I was at Bahir Dar University.

- I have Worked Structural design of:
  - G+3 School building
  - Two factory buildings
  - G+3 Hotel building
Wossen Woldekidan Ashebir, M.Sc..

**education**

1995 – 1998  
Master of Urban Design, University of the Witwatersrand, Johannesburg, South Africa

1986 – 1990  
B.Sc. in Architecture and Town Planning, Addis Ababa University  
Addis Ababa, Ethiopia

1970 – 1990  

2000 to date  
Lecturer, Dept. of Construction Technology and Management, Addis Ababa University, P.O.Box 518, Addis Ababa, Ethiopia

2003 to date  
Head Project Planning, Physical Plant Development Office, Addis Ababa University, Addis Ababa, Ethiopia

1998 – 2000  
Architect, Barlin & Chaskelson Architects, Johannesburg, South Africa

1995 – 1996  
Asst. Town Planner, Sandton Town Council, Johannesburg, South Africa

1991 – 1995  
Asst. Lecturer, Dept. of Building Technology, Addis Ababa University, Addis Ababa, Ethiopia

1991 - Present  
Practicing Architect/Urban Designer, Private Practice, Addis Ababa, Ethiopia  
Project Coordinator, Eco-city project, Bole Kifle-Ketema, Addis Ababa

**Key qualifications:**

- Architectural Design
- Urban Design, MUD thesis topic- Urban Rituals: A Study of Religious and Secular Rituals as an Informer of the Built Environment, Received the Gordon McIntosh Prize for ‘worthy discourse related to Civic Planning and Design’.  
- Project management of Building construction works.
- Urban Planning
Major projects and contributions

- Randfontein Offices Shops and Filling Station development, Johannesburg, South Africa
- Thulani Police Station, Doornkop, South Africa
- Donnelly Residence, Johannesburg, South Africa
- Schematic Study, for a 60-family housing development, Randburg, South Africa
- SAERT Headquarters (Offices and Training facilities), Mekele, Ethiopia
- Mohammed Said Residence, Adama (Nazareth), Ethiopia
- Binyam Tesfaye Recreation Center, Bishoftu (Debre-Zeit), Ethiopia
- General Supervision, on the client’s side, representing Addis Ababa University in its construction projects worth Birr 250 million for Graduate Expansion Programmes
- Overseeing the maintenance of existing university facilities, i.e., Dormitories, Classrooms, Libraries, etc.

- Association of Ethiopian Architects
- South African Council of Architects, Reg. No. 6204 (“Architect”)
# Bachelor course descriptions

**Course Title:** WORKSHOP TRAINING  
**Course Designation:** COTM 1101  
**Course Credit Hours** 3 Cr. Hrs  
**Course Credit Points** 4 Cr. Pts  
**Course Prerequisite** -  
**Course Description**

**Carpentry work:** Tools and Materials, Safety rules, wooden joints, wooden truss and perlin work, roof covering, wooden ceiling works, cutting and fixing formworks, setting out works, placing and fixing profile boards, wooden scaffolding works, doors and windows.

**Masonry works:** Different type of masonry walls, hollow blocks and brick laying, stone masonry wall, preparing dressed stone, curb stone, stone stairs, bonding and finishing of masonry works, fire places.

**Concrete work:** batching, mixing and pouring concrete, cutting, bending, placing and fixing reinforcement bars, pointing and plastering works.

**Welding:** Safety Rules, welding equipment, different types of welds, fillet welds, butt welds, etc, sheet metal and welding.

**Plumbing works:** Safety rules and regulations, Hand tools and equipment used in plumbing. Plumbing materials, Installation of fixtures, pipe laying (potable water supply and waste water disposal) placing joints.

**Electrical installation works:** Safety rules and regulations, Tools and materials used in electrical installation, electrical Instruments. Splicing and joints, Soldering, Circuits, Fuses. Placing conduits, wires, junction boxes.

---

**Course Title:** INTRODUCTION TO ENGINEERING PROFESSIONS  
**Course Designation:** ENGG 1001  
**Course Credit Hours** 2 Cr. Hrs  
**Course Credit Points** 3 Cr. Pts  
**Course Prerequisite** -  
**Course Description**

Definition of a Profession. Professional Profiles of different engineering professions (Architecture, Construction Management, Civil, Mechanical, Chemical, Electrical and Computer, Urban Planning.) Roles of the professions in the industry, concept of Ethical professional practice. Areas of specialization. Educational Excursions to the industry.
<table>
<thead>
<tr>
<th>Course Title:</th>
<th>TECHNICAL DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 1003</td>
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<tr>
<td>Course Credit Hours:</td>
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<td>Course Prerequisite:</td>
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<thead>
<tr>
<th>Course Title:</th>
<th>ENGINEERING MECHANICS</th>
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<td>Course Designation:</td>
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<table>
<thead>
<tr>
<th>Course Title:</th>
<th>CONSTRUCTION MATERIALS I</th>
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<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 1102</td>
</tr>
<tr>
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<tr>
<th>Course Title:</th>
<th>CONSTRUCTION DRAFTING</th>
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<tr>
<td>Course Designation:</td>
<td>COTM 1004</td>
</tr>
<tr>
<td>Course Credit Hours:</td>
<td>3 Cr. Hrs Lect.2 Lab 3</td>
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<td>Course Credit Points:</td>
<td>6 Cr. Pts ECTS-European Credit Transfer System</td>
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<tr>
<td>Course Prerequisite:</td>
<td>COTM 1003</td>
</tr>
<tr>
<td>Course Description:</td>
<td>Construction Drawings: Drafting, symbols and conventions, Dimensioning, Drawing plans, Sections, Elevations, Scales and conventional Construction drawings. Reading exercise of Sanitary, electrical, Mechanical, Structural drawings including road profiles, road cross-sections standard drawings for road works.</td>
</tr>
</tbody>
</table>
Course Title: **COMPUTER APPLICATIONS IN CONSTRUCTION**  
Course Designation: COTM 1002  
Course Credit Hours: 2 Cr. Hrs  
Course Credit Points: 5 Cr. Pts  
Course Prerequisite: -  
Course Description: Introduction to computer hardware, software, operating systems and application software. Advanced Data Analysis with Ms-Excel: using built-in functions and user-defined formulae, creating and using databases, Solver options, creating professional looking charts. Introduction to graphics software. The AutoCAD window elements; Using coordinate entry methods; Controlling Views: the zoom commands, pan; Drawing Objects: the line family, polygons, arc, circle etc; Drawing Aids: the Ortho command, Object snap and tracking, grids; Editing Objects: selection methods, modifying tools; Layers: Controlling layers: Locking unlocking, On /Off, Freeze; Modifying: Changing and matching object Properties; Hatching, Dimensioning, Adding texts to drawings; Plotting: Units and scales, selecting paper sizes, plotting; Introduction to Basic 3D.

Course Title: **CONSTRUCTION MATERIALS II**  
Course Designation: COTM 2103  
Course Credit Hours: 3 Cr. Hrs  
Course Credit Points: 4 Cr. Pts  
Course Prerequisite: COTM 1102  
Course Description: Concrete: Ingredients of concrete –Aggregate, cement and admixtures; Concrete Mixing, Conveying and placing, placing concrete in hot and cold weather, Consolidating, finishing and curing concrete. Materials breakdown; Metals: Mechanical properties of metals, Ferrous metals and Alloys; Nonferrous metals; Timber: Mechanical properties and durability of timber, Common Ethiopian timber. Asphalt: Types, lab and plant produced mixes, properties of Asphalt, introduction to asphalt mix design, Asphalt as damp proofing; asphalt as road surfacing material.

Course Title: **SURVEYING**  
Course Designation: COTM 2001  
Course Credit Hours: 4 Cr. Hrs  
Course Credit Points: 7 Cr. Pts  
Course Prerequisite: -  
Course Description: Types of surveying: Distance measurement techniques: Leveling: Measurement of angles: Direction of a line: Azimuth and bearing of a line. Computation of areas: From coordinates, double meridian distance. Topographic surveying: calculation of volumes of earthwork: from cross sections, from spot levels, from contours.  
Field practice and data analysis is mandatory

Course Title: **BUILDING CONSTRUCTION I**  
Course Designation: COTM 2101
<table>
<thead>
<tr>
<th>Course Title:</th>
<th>HYDRAULICS</th>
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<td>Course Designation:</td>
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<td>Course Credit Hours:</td>
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<td>5 Cr. Pts (ECTS - European Credit Transfer System)</td>
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<td>Course Prerequisite:</td>
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<tr>
<td>Course Description:</td>
<td>Fluids, properties and definitions (density, compressibility, viscosity); The fundamental laws of fluid mechanics: Continuity, momentum and moment of energy equations. Ideal fluid flow; Water flow in open channels: Definition, Energy and Momentum principle in open channel flow, Specific energy, Specific force, Critical flow, Channel transitions, and Hydraulic jump. Water flow in pipes: Laminar and turbulent flows, pipe friction, Energy losses in pipes, Measurements of flow, Head loss equation. Pipe lines and Pipe networks.</td>
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<tr>
<th>Course Title:</th>
<th>STRENGTH OF MATERIALS</th>
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<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 2003</td>
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<tr>
<td>Course Credit Hours:</td>
<td>3 Cr. Hrs Lect. 2 Lab 3</td>
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<td>Course Credit Points:</td>
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<td>Course Prerequisite:</td>
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<tr>
<th>Course Title:</th>
<th>SOIL MECHANICS</th>
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<td>Course Designation:</td>
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<td>Course Credit Hours:</td>
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<td>Course Credit Points:</td>
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<tr>
<td>Course Prerequisite:</td>
<td>COTM 2003</td>
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</tbody>
</table>
Course Description

Course Title: WATER SUPPLY AND TREATMENT
Course Designation: COTM 2004
Course Credit Hours 3 Cr. Hrs Lect.2 Lab 3
Course Credit Points 5 Cr. Pts (ECTS -European Credit Transfer System)
Course Prerequisite COTM 2005

Course Title: PRINCIPLES OF CONSTRUCTION MANAGEMENT
Course Designation: COTM 2202
Course Credit Hours 3 Cr. Hrs Lect.3 Lab 0
Course Credit Points 5 Cr. Pts (ECTS -European Credit Transfer System)
Course Prerequisite MGMT 201

Course Title: BUILDING CONSTRUCTION II
Course Designation: COTM 2102
Course Credit Hours 3 Cr. Hrs Lect.2 Lab 3
Course Credit Points 5 Cr. Pts (ECTS -European Credit Transfer System)
Course Prerequisite COTM 2101
Course Title: THEORY OF STRUCTURES
Course Designation: COTM 2006
Course Credit Hours: 3 Cr. Hrs  Lect.2  Lab 3
Course Credit Points: 5 Cr. Pts  (ECTS -European Credit Transfer System)
Course Prerequisite: COTM 00

Course Title: CONSTRUCTION WORKING DRAWING
Course Designation: COTM 2008
Course Credit Hours: 2 Cr. Hrs  Lect.0  Lab 6
Course Credit Points: 5 Cr. Pts  (ECTS -European Credit Transfer System)
Course Prerequisite: COTM 1004
Course Description

Requirement: a complete construction working drawing of a 2-story building of manageable size with appropriate details.

Course Title: LOW COST CONSTRUCTION
Course Designation: COTM 3701
Course Credit Hours 2 Cr. Hrs Lect. 1 Lab 3
Course Credit Points 4 Cr. Pts (ECTS - European Credit Transfer System)
Course Prerequisite COTM 2101
Course Description Introduction to theories of low cost construction, historical perspective of low cost construction: modular coordination, and standardization, rationalization of building elements, and materials, mechanization and prefabrication. Low cost through Building systems and construction work coordination.

Course Title: TECHNICAL REPORT WRITING AND RESEARCH METHODS
Course Designation: COTM 3001
Course Credit Hours 2 Cr. Hrs Lect. 1 Lab 3
Course Credit Points 3 Cr. Pts (ECTS - European Credit Transfer System)
Course Prerequisite FLen 201

Course Title: PERFORMANCE MANAGEMENT
Course Designation: COTM 3301
Course Credit Hours 3 Cr. Hrs Lect. 3 Lab 0
Course Credit Points 4 Cr. Pts (ECTS - European Credit Transfer System)
Course Prerequisite COTM 2202
Course Description

**Resource Management:** Financial, Human, Physical and Information Resources, **Quality Management:** Quality Assurance Systems, ISO Certification, Testing & Inspection, **Cost Management:** Cost & Schedule Performance Models, Cash Flow Analysis & Monitoring, **Project and Site Organization:** Principles, Job site Planning, Mobilization, Submittals, Project Buysouts, Methods and Channels of Communication, **Change, Uncertainty and Risk Management:** Concepts, Risk Identification and Assessment, Risk Response Planning.

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**Course Title:** FUNDAMENTALS OF STRUCTURAL DESIGN  
**Course Designation:** COTM 3003  
**Course Credit Hours** 3 Cr. Hrs  
**Lect.** 2  
**Lab** 3  
**Course Credit Points** 6 Cr. Pts (ECTS -European Credit Transfer System)  
**Course Prerequisite** COTM 2006  

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**Course Title:** SEWAGE DISPOSAL AND TREATMENT  
**Course Designation:** COTM 3005  
**Course Credit Hours** 3 Cr. Hrs  
**Lect.** 2  
**Lab** 3  
**Course Credit Points** 4 Cr. Pts (ECTS -European Credit Transfer System)  
**Course Prerequisite** COTM 2004  

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**Course Title:** FOUNDATIONS  
**Course Designation:** COTM 3002  
**Course Credit Hours** 3 Cr. Hrs  
**Lect.** 2  
**Lab** 3  
**Course Credit Points** 4 Cr. Pts (ECTS -European Credit Transfer System)  
**Course Prerequisite** COTM 2002
### Course Title: ARCHITECTURAL PLANNING AND DESIGN  
**Course Designation:** COTM 3004  
**Course Credit Hours:** 3 Cr. Hrs  
**Lect.** 1  
**Lab** 6  
**Course Credit Points:** 5 Cr. Pts  
(ECTS -European Credit Transfer System)  
**Course Prerequisite:** COTM 1004  
**Course Description:**  
Introduction to architectural planning and Design, Determinates of architectural design: Space. Form and Function, Structure, Materials, Technology etc. Analysis of site and design programme. Site planning & design of a small residential house. Medium scale public building (complexes). Small community center; small campus buildings, small mixed use developments, small Hotel, Health center, etc, with emphasis on planning requirements (Building regulations, out door space utilization, organization etc) and construction. Semester Project: - Options: Walk-up apartment, Small community (civic) center, Small campus building, Small mixed use developments, Small Hotel, Health center etc.

### Course Title: ROAD AND BRIDGE CONSTRUCTION  
**Course Designation:** COTM 3102  
**Course Credit Hours:** 4 Cr. Hrs  
**Lect.** 3  
**Lab** 3  
**Course Credit Points:** 6 Cr. Pts  
(ECTS -European Credit Transfer System)  
**Course Prerequisite:** COTM 2001  
**Course Description:**  

### Course Title: WATER WORKS CONSTRUCTION  
**Course Designation:** COTM 3104
<table>
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<tr>
<th>Course Title:</th>
<th>SPECIFICATION AND QUANTITY</th>
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<tbody>
<tr>
<td>Course Designation:</td>
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</tr>
<tr>
<td>Course Credit Hours</td>
<td>3 Cr. Hrs  Lect.2  Lab 3</td>
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<tr>
<td>Course Credit Points</td>
<td>6 Cr. Pts (ECTS -European Credit Transfer System)</td>
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<tr>
<td>Course Prerequisite</td>
<td>COTM 2101</td>
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<tr>
<td>Course Description</td>
<td>Introduction o cost estimate: - Preliminary [approximate] estimate, Detailed estimate. Standard methods of measurement: Preparation of take off sheets. Specification: subject, nature and procedures of specification writing, Measurement and specification for Principal items of civil works: -, excavation and earthwork, masonry works, concrete works, metal and wood works, glazing, steel work, roof and damp proofing works, finishing works, sanitary and electrical installation works, Demolition and alteration, site works etc. Rates: - Analysis and establishment of rates, Direct and Indirect Costs, Overheads and profits.</td>
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<tr>
<th>Course Title:</th>
<th>CONSTRUCTION PLANNING AND SCHEDULING</th>
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<tr>
<td>Course Designation:</td>
<td>COTM 3402</td>
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<tr>
<td>Course Credit Hours</td>
<td>2 Cr. Hrs  Lect.2  Lab 0</td>
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<td>Course Credit Points</td>
<td>3 Cr. Pts (ECTS -European Credit Transfer System)</td>
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<tr>
<td>Course Prerequisite</td>
<td>COTM 2202</td>
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<tr>
<td>Course Description</td>
<td>Planning Fundamentals: Planning Process, Project Master Plan, Scope and Work Breakdown Structure (WBS), Responsibility Matrix, Scheduling: Creating the schedule, Network Scheduling &amp; PDM, PERT, CPM, Scheduling with Resource Constraints, GERT.</td>
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<tr>
<th>Course Title:</th>
<th>MODERN CONSTRUCTION TECHNOLOGY</th>
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<tr>
<td>Course Credit Hours</td>
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<tr>
<td>Course Credit Points</td>
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<tr>
<td>Course Title:</td>
<td>COST ENGINEERING</td>
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<td>Course Designation:</td>
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<td>Course Credit Hours</td>
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<td>Course Credit Points</td>
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<tr>
<td>Course Prerequisite</td>
<td>COTM 2202</td>
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<tr>
<td>Course Description</td>
<td>Tender and pre-tender cost estimating; price forecasting,</td>
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<td>cost norms, price indices, construction price analysis,</td>
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<td>and synthesis of unit rates for construction trade, fixed</td>
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<td>and variable construction costs, risk-return assessment.</td>
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<td>Quality and value engineering: concepts of quality</td>
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<td>measures, cost benefit analysis, cash flow models, network</td>
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<td>models. Use of computer software for cost engineering</td>
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<tr>
<th>Course Title:</th>
<th>CONSTRUCTION EQUIPMENT AND PLANT MANAGEMENT</th>
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<tr>
<td>Course Credit Hours</td>
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<td>Course Credit Points</td>
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<tr>
<td>Course Prerequisite</td>
<td>COTM 2202</td>
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<tr>
<td>Course Description</td>
<td>Introduction to construction equipment, equipment &amp; plant</td>
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<tr>
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<td>handling and management, scheduling and deployment.</td>
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<td>Equipment costs: investment cost, equipment purchase,</td>
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<td>depreciation cost, maintenance and operation cost, lease,</td>
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<td></td>
<td>rent. Types of equipment: earth moving equipment, shovels</td>
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<td>and cranes, aggregate production plants, pile driving</td>
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<td>equipment, asphalt mixing and laying equipment, material</td>
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<td></td>
<td>handling devices, concreting equipment, pumping and</td>
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<td>dewatering equipment.</td>
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<th>Course Title:</th>
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<td>Course Credit Hours</td>
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<td>Course Credit Points</td>
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<tr>
<td>Course Title:</td>
<td>CONSTRUCTION SITE SUPERVISION</td>
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<td>Course Designation:</td>
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<tr>
<td>Course Credit Hours</td>
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<td>Course Prerequisite</td>
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<tr>
<td>Course Title:</td>
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<td>Course Designation:</td>
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<tr>
<td>Course Credit Hours:</td>
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<td>Course Description:</td>
<td>In this Course students are expected to apply skills learned in the areas of construction and management previously as well as in the same semester to develop an ideal or real project, and plan it from inception to completion.</td>
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<th>Course Title:</th>
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<td>Course Prerequisite:</td>
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<tr>
<td>Course Description:</td>
<td>HRM Functions and strategic role in Construction, manpower recruitment: operational &amp; managerial manpower deployment, organizational behavior, motivation, leadership quality, team composition. Planning the organization's human resource, the theoretical nature and practical purpose of labor law: employment contract, employee-employer relationships, labor disputes, unfair labor practices. Dispute settlement procedure: Industrial councils, conciliation boards, arbitration &amp; mediation. Health and safety in construction: safe practices in construction, safety inspection procedures, appropriate measures for accident prevention in construction.</td>
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<td>Course Prerequisite:</td>
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<tr>
<td>Course Description:</td>
<td>Construction Environment: Equipment, Manual, Elevated, Glazing, Structural Steel and Metal Works; Using Chemical rich Materials. EHS Legal and Regulatory Requirements for Construction Projects: Human Concerns; Economic Costs and Benefits; Record Keeping. EHS Management Programme: Planning, Implementation and Monitoring process. Professional and Occupational EHS requirements</td>
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<td>Course Title:</td>
<td>FINANCIAL MANAGEMENT IN CONSTRUCTION</td>
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<tr>
<td>Course Designation:</td>
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<tr>
<td>Course Credit Hours</td>
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<tr>
<td>Course Credit Points</td>
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<td>Course Prerequisite</td>
<td>ACCT 201</td>
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<tr>
<td>Course Description</td>
<td>Capital requirement of a firm, flow of fund in a corporation, functions &amp; goal of financial management, financing decisions: means of finance securities, short &amp; long term financing of construction projects, dividend decisions &amp; policy, firms financial operation: financial statement &amp; analysis, working capital management, investment policy: project appraisal, capital budgeting, system of monitoring &amp; control.</td>
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<th>Course Title:</th>
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<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 5602</td>
</tr>
<tr>
<td>Course Credit Hours</td>
<td>3 Cr. Hrs Lect.3 Lab 0</td>
</tr>
<tr>
<td>Course Credit Points</td>
<td>4 Cr. Pts (ECTS -European Credit Transfer System)</td>
</tr>
<tr>
<td>Course Prerequisite</td>
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<table>
<thead>
<tr>
<th>Course Title:</th>
<th>COMPUTER BASED CONSTRUCTION PLANNING (PROJECT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 5402</td>
</tr>
<tr>
<td>Course Credit Hours</td>
<td>2 Cr. Hrs Lect.1 Lab 3</td>
</tr>
<tr>
<td>Course Credit Points</td>
<td>4 Cr. Pts (ECTS -European Credit Transfer System)</td>
</tr>
<tr>
<td>Course Prerequisite</td>
<td>COTM 3402</td>
</tr>
<tr>
<td>Course Description</td>
<td>Project Management Information Systems: Functions, Computer Based Tools, Application of Computer Software, Primavera, Microsoft Project; Seminar: Students, upon entry from practical internship, are required to prepare construction plan and schedule using software to set up control systems for the projects. The project may be a real case or prototype construction project; student shall present and discuss their project in class. Available computer software would be applied while planning and scheduling the construction activities.</td>
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<thead>
<tr>
<th>Course Title:</th>
<th>CONCRETE TECHNOLOGY (ELECTIVE COURSE)</th>
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<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 5101</td>
</tr>
<tr>
<td>Course Title:</td>
<td>COMPUTER PROGRAMMING (ELECTIVE COURSE)</td>
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<tr>
<td>Course Designation:</td>
<td>COTM 5001</td>
</tr>
<tr>
<td>Course Credit Hours</td>
<td>3 Cr. Hrs  Lect.2  Lab 3</td>
</tr>
<tr>
<td>Course Credit Points</td>
<td>4 Cr. Pts (ECTS -European CreditTransfer System)</td>
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<tr>
<td>Course Prerequisite</td>
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<thead>
<tr>
<th>Course Title:</th>
<th>CONSTRUCTION MATERIALS MANAGEMENT (ELECTIVE COURSE)</th>
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</thead>
<tbody>
<tr>
<td>Course Designation:</td>
<td>COTM 5202</td>
</tr>
<tr>
<td>Course Credit Hours</td>
<td>3 Cr. Hrs  Lect.3  Lab 0</td>
</tr>
<tr>
<td>Course Credit Points</td>
<td>4 Cr. Pts (ECTS -European CreditTransfer System)</td>
</tr>
<tr>
<td>Course Prerequisite</td>
<td>COTM 2103</td>
</tr>
<tr>
<td>Course Description</td>
<td>Construction Materials: Permanent and Temporary Materials and their Management; Construction Materials Production Management: Quarries, Plants and Industries; Construction Materials Supply Management: Supply Chain management; Purchasing or Procurement of Construction materials; Transportation of Construction Materials; Construction Materials Handling, Storage and Inventory Management; Construction Materials Standard and Quality management.</td>
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<tr>
<th>Course Title:</th>
<th>RESOURCE OPTIMIZATION</th>
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<tr>
<td>Course Designation:</td>
<td>COTM 5602</td>
</tr>
<tr>
<td>Course Credit Hours</td>
<td>3 Cr. Hrs  Lect.3  Lab 0</td>
</tr>
<tr>
<td>Course Credit Points</td>
<td>5 Cr. Pts (ECTS -European CreditTransfer System)</td>
</tr>
<tr>
<td>Course Prerequisite</td>
<td>-</td>
</tr>
<tr>
<td>Course Description</td>
<td>Introduction to Linear Programming &amp; the Simplex Algorithm, Formulation and Application to Project Scheduling, the Critical Path Scheduling Algorithm, Resource Oriented, Cost Oriented and Time Oriented Scheduling Algorithms, Algorithms for Resource Allocation with Bottleneck Resource, Scheduling with uncertain Time Durations, Time/Cost Trade-off scheduling.</td>
</tr>
</tbody>
</table>
Course Title: LOW COST CONSTRUCTION MANAGEMENT (PROJECT)
Course Designation: COTM 5702
Course Credit Hours: 3 Cr. Hrs  Lect.1  Lab 6
Course Credit Points: 6 Cr. Pts  (ECTS -European Credit Transfer System)
Course Prerequisite: COTM 701
Course Description: In this course students are expected to take a real or imaginary project of a medium scale, housing or public facility project and plan a low cost construction combining aspects of design, construction and management of the project.

Course Title: ENTREPRENEURSHIP
Course Designation: COTM 5002
Course Credit Hours: 2 Cr. Hrs  Lect.2  Lab 0
Course Credit Points: 3 Cr. Pts  (ECTS -European Credit Transfer System)
Course Prerequisite: -
Course Description: What is entrepreneurship? What are its benefits? Who is an entrepreneur, types of entrepreneurs, key ingredients of entrepreneurs. The business plan, identifying and utilizing opportunities, creative thinking and job creation. Developing innovative ideas, market research, promotion, small business economics and financing, profit making, risk. Start up business, introduction to taxes and other legal conditions, Running an office, leadership, future visualization and planning, motivation, team work and office management negotiation and decision making. Intellectual property and its protection, Ethical behavior and good business.

Course Title: ENVIRONMENTAL PLANNING (ELECTIVE COURSE)
Course Designation: COTM 5004
Course Credit Hours: 3 Cr. Hrs  Lect.3  Lab 0
Course Credit Points: 4 Cr. Pts  (ECTS -European Credit Transfer System)
Course Prerequisite: -
Course Description: Environment and Society, water, soil & air resources, Environmental Laws & Regulation, Processes and Issues, Environmental Impact Assessment, Environmental Quality & Pollution Management, Environmental Protection & Health, Environmental Values & Ethics

Course Title: FINAL THESIS
Course Designation: COTM 5802
Course Credit Hours: 6 Cr. Hrs  Lect.0  Lab 18
Course Credit Points: 12 Cr. Pts  (ECTS -European Credit Transfer System)
Course Prerequisite: -
Course Description: Independent research related to the construction industry focusing either in the management or technology aspect of construction. Students are expected to show their ability to work independently in identifying, formulating and analyzing construction problems, and finding appropriate solutions through research. The topic for the thesis could either be initiated by the student (up on approval by the department) or it could be selected from a list of topics furnished by members of the department thesis committee.
Master course descriptions

COTM 6002----Corrective Course in Construction Management
Prerequisite   -  9 Cr. Pts  4 Cr. hrs   Lect  3  Lab 3


COTM 6101-------- Front-End Assessment (4 cr. hrs. – 9 cr. pts)
Prerequisite   -  9 Cr. Pts  4 Cr. hrs   Lect  2  Lab 6

COTM 6102----- Feasibility Study (4 cr. hrs. – 9 cr. pts)
Prerequisite COTM 6101 9 Cr. Pts 4 Cr. hrs Lect 2 Lab 6


COTM 7101----- Strategic Management (3 cr. hrs. – 7 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs Lect 2 Lab 3


COTM 7103 ---- Project Portfolio Management (3 cr. hrs. – 3 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs Lect 2 Lab 3

Enable students select an appropriate asset allocation mix based on time horizon and risk tolerance, explain the vectors of an active portfolio strategy and assess different measures of portfolio performance. Definition, role, evolution and phases of portfolio management, Specification of investment objectives and Constraints, Choice of Asset Mix, Formulation of Portfolio Strategy, Security analysis, Portfolio Execution, Portfolio Revision and Rebalancing, Capital Asset Pricing Model, Performance Evaluation.

COTM 6202 ----- Procurement and Contract Delivery Systems (4 cr. hrs. – 9 cr. pts)
Prerequisite - 9 Cr. Pts 4 Cr. hrs Lect 3 Lab 3

Procurement and Contract Management Process; Applicable Laws, Rules and Regulations; Recent Concepts: TQM, BPR, TOC, CE, VM/E, VCA, Constructability, Partnering; Delivery System: Definition, Types: Force Account, DBB, DB or Turnkey, F/D/BOT, Construction or Facility Management Systems, Merits and Demerits
COTM 6204 ----- Uncertainty and Change Management (3 cr. hrs. – 7 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs  Lect 2 Lab 3


COTM 7201 ----- Procurement Management (3 cr. hrs. – 7 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs  Lect 2 Lab 3


COTM 7203 ----- Contract Management (3 cr. hrs. – 7 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs  Lect 2 Lab 3

Contract Management: Definition, Purpose; Contract Types: Lump Sum, Bill of Quantity, Cost Plus, Hybrid, Special Contracts; Contract Documents: Contract Agreement; CoC; Technical Specifications & Priced BoQ; Forms, Formats and Schedules; Bonds and Guarantees; Contract Management Process: Pre Contract, Contracting and Post Contracting

COTM 7205 ----- Contract Conditions-FIDIC Focus (3 cr. hrs. – 7 cr. pts)
Prerequisite COTM 6102 7 Cr. Pts 3 Cr. hrs  Lect 2 Lab 3

Contract Conditions: Definition, Purpose; Types: FIDIC Based: Red, Yellow, Orange, Silver and White Books; Others: Contents: Definitions and Interpretations, Obligations and Default, Works / Services / Goods, Measurement / Certificate / Payment; Alterations / Claims; Surety / Remedy / Dispute Resolution

COTM 6301 ----- Principles of Facility Management (4 cr. hrs. – 9 cr. pts)
Prerequisite - 9 Cr. Pts 4 Cr. hrs  Lect 3 Lab 3

Dealing with the integration of multi-disciplinary activities within the built environment and the management of their impact upon people and their workplace, which is essential to the performance of any business. Technical FM: Asset register and Asset management, Building and equipment maintenance, Planned
maintenance, Utility Services: energy management, water supply and disposal, heating, air conditioning, IT technology, Economical FM: Financial Control, Inventory Control, Customer satisfaction, Facilities Finance and Administration, Environmental Services: Transportation services, Safety and Health.

COTM 6402 -----Technical Systems (3 cr. hrs. – 7 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs Lect 2 Lab 3


COTM 6404 -----Operation Research I (4 cr. hrs. – 9 cr. pts)
Prerequisite COTM 6601 9 Cr. Pts 4 Cr. hrs Lect 2 Lab 6


COTM 7401-----Operation Research II (3 cr. hrs. – 7 cr. pts)
Prerequisite COTM 6401 7 Cr. Pts 3 Cr. hrs Lect 2 Lab 3


COTM 6502-----Advanced Techniques in Construction (3 cr. hrs. – 7 cr. pts)
Prerequisite - 7 Cr. Pts 3 Cr. hrs Lect 2 Lab 3

This course is flexible and introduces new and advanced technologies in building and infrastructure construction in the following areas: Substructure, ground water control, deep excavations, cofferdams and caissons, tunneling, and culverts, piled foundations, deep basements, underpinning and shoring. Superstructure: demolishing and temporary work, advanced scaffolding systems, advanced formworks, new technologies in cladding, curtain walling, structural

**COTM 6601 ----- Computer Programming & Quantitative Methods (3 cr. hrs. – 7 cr. pts)**
Prerequisite - 7 Cr. Pts  3 Cr. hrs  Lect  2 Lab 3

Computer Programming: Java Programming Language, Object-oriented programming, Stand-alone Programmes and Applets, Classes and Methods. Variables, Statements and Data types, Expressions, Operators and Conditions. String arithmetic, arrays, loop. Introduction to GUI and windows. Practical Quantitative Methods: Statistical models for variation, basic statistical inference, confidence intervals and hypothesis tests, simple and multiple linear regressions, correlation, quality management, time series forecasting, approximation, interpolation, numerical solutions of non linear equations, linear algebraic systems, decision analysis, optimization by linear programming.

**STAT ----- Applied Statistics (3 cr. hrs. – 7 cr. pts)**
Service Course offered by concerned departments

**COTM 6603 ----- Scientific Research Methods (2 cr. hrs. – 3 cr. pts)**
Prerequisite - 3 Cr. Pts  2 Cr. hrs  Lect  1 Lab 3

Scientific Research Proposals. Methods of Scientific Inquiry, collecting data, searching for literature, filed research, field data collection and statistics, questionnaire preparation/design, Analysis of data, basic statistics, Logical conclusion. Reporting scientific research, composition of scientific research papers, organization, citation and referencing, bibliography graphical representation of data, Presentation, public speaking tips, electronic presentations, PowerPoint preparation and presentation conducting seminars. Responsible conduct of research, including: management of research data; ownership of ideas and intellectual property; ownership and sharing of research methods; authorship and ethics of publication; responses to scientific misconduct; conflict of interest.

**COTM 7701 ----- Inter-Disciplinary Project (4 cr. hrs. – 9 cr. pts)**
Prerequisite - 9 Cr. Pts  4 Cr. hrs  Lect  1 Lab 9

Intended to inspire students the spirit of group and team work at solving problems, take realistic decisions, share information and develop new ideas in the process of addressing the general settings and requirements of projects in the practical world. Students under this course would be required to involve in the inter-disciplinary project organized at the Faculty level encompassing other
departments that have stake in the construction industry. Making the proposal, defining the objectives, scope and limitations as well as identifying relevant areas within the big picture of the project remains under the responsibility of students, however the entire process would be assisted by advisors assigned from the respective departments.

**COTM 7702 ----- Masters Thesis (30 cr. pts)**

Designed to integrate the comprehensive knowledge gathered from the academic tray with the need of the industry to which students are already familiar in their practical experience. The master’s thesis requires the student to produce an independent research work. The topic of research shall be approved by the department and shall be relevant to the curriculum and shall focus on real-estate development, feasibility study for infrastructure projects, system engineering or facility management.
Evaluation forms
ADDIS ABABA UNIVERSITY

INSTRUCTOR PERFORMANCE EVALUATION QUESTIONNAIRE
(To be completed by students)

This questionnaire has been prepared to get your views regarding the teaching performance of your instructor. Please respond to the items on the questionnaire frankly and honestly. Do NOT write your name on the questionnaire; but write the name of your instructor, your department and faculty, the title of the course, course number, the academic year, semester, and your college year in the spaces provided. After you have filled in these, read carefully each of the statements listed from 1-30 below. Then indicate how you evaluate your instructor on each statement by circling one of the following options against each statement:

VG= Very Good   F= Fair   VP= Very Poor
G= Good    P= Poor    DK=Do not know

Instructor’s name_________________________________ Course Title___________________________
Course No._______________  Your Department _________________ Faculty_____________________
Academic Year 199_/200__                   Semester________________
Your year:    Undergraduate Programme:     I II III IV V VI (circle one)
Graduate programme:       I II III IV

1. Clarification of the statement of general objectives of course 1. VG G F P VP DK
2. Presentation and clarification of course plan and course outline. 2. VG G F P VP DK
3. Clarification of the statement of specific objectives at the beginning of each chapter or unit. 3. VG G F P VP DK
4. Knowledge of the subject matter 4. VG G F P VP DK
5. Preparation for classes 5. VG G F P VP DK
6. Presentation of subject matter clearly in the language of instructor 6. VG G F P VP DK
7. Presentation of subject matter. 7. VG G F P VP DK
8. Willingness to encourage students to ask or answer questions in class. 8. VG G F P VP DK
9. Willingness to let students express their opinions about the course in the classroom. 9. VG G F P VP DK
10. Availability during consultation hours. 10. VG G F P VP DK
11. Punctuality for classes. 11. VG G F P VP DK
12. Meeting classes regularity (non-absenteeism) 12. VG G F P VP DK
13. Ability to arouse students’ interest and provoke their thinking 13. VG G F P VP DK
15. Appropriate use of available and relevant instructional materials (backboard, maps,...) 15. VG G F P VP DK
16. Providing feedback on homework, tests and/or assignments on time. 16. VG G F P VP DK
17. Usefulness of homework and/or assignments for course work. 17. VG G F P VP DK
18. Presence of questions in tests, exams, or homework, that require reasoning 18. VG G F P VP DK
19. Amount of time allowed for tests, assignments, or mid-semester exams. 19. VG G F P VP DK
20. Coverage of course content in tests or mid-semester exams. 20. VG G F P VP DK
22. Clarification of the methods of assessing students. 22. VG G F P VP DK
23. Coverage of content according to course outline. 23. VG G F P VP DK
24. Providing/giving a list of reference materials for the course. 24. VG G F P VP DK
25. Use of class period for teaching or discussion of subject and related matters. 25. VG G F P VP DK
27. Willingness to listen to a student’s problems. 27. VG G F P VP DK
28. Ability to maintain appropriate discipline in the class. 28. VG G F P VP DK
29. Clarity of questions in tests, and/or mid-semester exams. 29. VG G F P VP DK
30. Overall assessment of instructor’s teaching effectiveness. 30. VG G F P VP DK
Note:

The Department would appreciate it very much if you could give additional comments regarding the course, which could help us improve the course:

1. Have you been attending classes regularly? _______________________________________________________

2. What grade do you expect to earn in this course? ______

3. Identify any positive aspects of the course________________________________________________________
   __________________________________________________________________________________________
   __________________________________________________________________________________________
   __________________________________________________________________________________________

4. Identify any negative aspects of the course_______________________________________________________
   __________________________________________________________________________________________
   __________________________________________________________________________________________
   __________________________________________________________________________________________

Thank you and good luck!
**ADDIS ABABA UNIVERSITY**  
**COLLEAGUE EVALUATION QUESTIONNAIRE**  
*(To be completed by instructor’s colleagues)*

Listed below are statements, which describe aspects of your colleague’s behavior. Please rate him/her on each of these items by circling the appropriate coded response category. Your ratings should be based on a comparison between the particular individual and the other members of the department. If you feel that you cannot rate him on a particular item or that the item is not applicable to his work, then mark the response category labeled NA.

- VG = Very Good  
- F = Fair  
- VP = Very Poor  
- NA = Not Applicable  
- G = Good  
- P = Poor  
- DK = Do not know

Please do NOT write your name.

<table>
<thead>
<tr>
<th>Name of colleague to be evaluated</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the average I have contact with him: Daily ___ Weekly ___ Monthly ___ Bi ___ Monthly ___</td>
<td></td>
</tr>
<tr>
<td>Faculty ___________________ Academic Year: 199___ 200___ Semester ______</td>
<td></td>
</tr>
</tbody>
</table>

1. Participating actively in department/ Faculty/ institute meeting  1. VG G F P VP DK NA
2. Availability on campus during consultation hours  2. VG G F P VP DK NA
3. Willingness to share University resources with other colleagues  3. VG G F P VP DK NA
4. Showing cordiality to other  4. VG G F P VP DK NA
5. Being a person one can easily approach  5. VG G F P VP DK NA
6. Having positive attitude to word with other  6. VG G F P VP DK NA
7. Respecting ideas of colleagues  7. VG G F P VP DK NA
8. Contributing ideas and activities that improve the teaching/learning process  8. VG G F P VP DK NA
9. Contributing to the identification of problem in the department and helping in finding solution to them.  9. VG G F P VP DK NA
10. Attending seminars organized by the department or faculty  10. VG G F P VP DK NA
11. Participating actively in seminars  11. VG G F P VP DK NA
12. Presenting papers(s) at department of faculty level during the year  12. VG G F P VP DK NA
13. Presenting paper in national or international conferences and workshops  13. VG G F P VP DK NA
14. Reporting to department members on the objectives and outcome of such conferences and workshops  14. VG G F P VP DK NA
15. Identify priority areas in one’s discipline and pursuing research in that area.  15. VG G F P VP DK NA
16. Willingness to prepare research proposals with other colleagues  16. VG G F P VP DK NA
17. Willingness to help less experienced colleagues in identifying areas of research and developing proposals  17. VG G F P VP DK NA
18. Gaining recognition in his/her field or related areas  18. VG G F P VP DK NA
19. Overall assessment of the colleague  19. VG G F P VP DK NA

Do you have any other comments about this colleague?
INSTRUCTOR PERFORMANCE EVALUATION QUESTIONNAIRE

Listed below are statements, which describe aspects of an instructor’s behavior. Please indicate how you rate this instructor, in comparison with the other members of the department, on each statement by circling one of the following options against each statement:

VG= Very Good  F= Fair  VP= Very Poor  G= Good  P= Poor  DK= Do not know  NA= Not Applicable

If you feel that you cannot rate him on a particular item or that the item is not applicable to his work, then mark the response category labeled NA.

Instructor’s name____________________________________________ Department _____________________________
Faculty _______________________  Academic Year: 199___/199_____  Semester_________________

1. Willingness to accept additional teaching assignments when compelling situations arise in the department 1. VG G F P VP DK NA
2. Participating actively in departmental/faculty meetings 2. VG G F P VP DK NA
3. Willingness to accept related assignments other than regular teaching in the department 3. VG G F P VP DK NA
4. Availability on campus for assigned classes/Invigilations 4. VG G F P VP DK NA
5. Availability on campus for consultations. 5. VG G F P VP DK NA
6. Willingness to share University resources with other colleagues 6. VG G F P VP DK NA
7. Having positive attitude to work with other 7. VG G F P VP DK NA
8. Contributing ideas and activities that improve 8. VG G F P VP DK NA
9. Showing concern for the use of resources of the Department and the University at large 9. VG G F P VP DK NA
10. Contributing to the identification of problems in the department and helping in finding solutions to them. 10. VG G F P VP DK NA
11. Attending seminars organized by the department or faculty 11. VG G F P VP DK NA
12. Participating actively in seminars 12. VG G F P VP DK NA
13. Presenting paper(s) at department or faculty level during the year 13. VG G F P VP DK NA
14. Presenting papers in national or international conferences and workshops 14. VG G F P VP DK NA
15. Reporting to department members on the objectives and outcome of such conferences and workshops 15. VG G F P VP DK NA
16. Identifying priority areas in one’s discipline and pursuing research in that area 16. VG G F P VP DK NA
17. Ability to execute research projects 17. VG G F P VP DK NA
18. Preparation of teaching material 18. VG G F P VP DK NA
19. Upgrading of teaching material 19. VG G F P VP DK NA
20. Willingness to accept committee or other assignments outside of the departments but within the University 20. VG G F P VP DK NA
22. Willingness to take assignments outside the University in his area of specialization 22. VG G F P VP DK NA
23. Participation in community efforts for development 23. VG G F P VP DK NA
24. Meeting deadlines 24. VG G F P VP DK NA
25. Performance as an academic advisor 25. VG G F P VP DK NA

Do you have any other comments about this colleague?

________________________________________________________________________________________________________________
________________________________________________________________________________________________________________
________________________________________________________________________________________________________________
________________________________________________________________________________________________________________

When a department does not exist, the dean of the faculty will complete this questionnaire.