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ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD4

Afghan Women Internship Program

2015 Academic Year Final Report



February 17, 2016

This publication was produced for review by the United States Agency for International Development (USAID).
It was prepared by Tetra Tech, Inc.

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February 17, 2016

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Re: Contract No. EDH-I-00-08-00027-00/ Task Order No. 1
Afghanistan Engineering Support Program (AESP)

Final Report FY2015

[REDACTED]
Tetra Tech is pleased to provide the Final Report for Academic Year 2015 of the Afghan Women Internship Program. The enclosed report summarizes the program activities from February 28, 2015 through January 28, 2016. Included are summaries of the training provided, final reports from the interns themselves, and the internship curriculum.

Tetra Tech is proud of the impact this program has on the lives of our interns, and the program exemplifies USAID OEGI and Tetra Tech's commitment to capacity building and gender equality in the engineering community.

Please contact me at your convenience should you have any questions or comments regarding this report.

Respectfully,
Tetra Tech, Inc.

[REDACTED]
Chief of Party (AESP)

AFGHANISTAN ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

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WO-LT-0042 AMD4

Afghan Women Internship Program

2015 Academic Year Final Report

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DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

EXECUTIVE SUMMARY

Tetra Tech's (Tt) Afghanistan Engineering Support Program (AESP) provides training opportunities for female students enrolled in engineering, architecture, and related programs. The program was started in 2011, making 2015 the fourth full year of this program. The program is coordinated with the leadership of the universities in Kabul, although it has no affiliation with the universities.

Engineering, long considered a field unsuitable for women in Afghanistan, offers limited opportunities for recently graduated female engineers. Women are often discouraged to pursue the career path or are unaware that positions are available for women. Tt's internship program provides professional training and practical training while promoting gender equality and women's empowerment.

The internship program provides opportunities to apply skills and concepts learned through coursework to "real world" situations. It is intended to provide exposure to design and collaborative processes, site visits, practical learning experience including theory and practical construction materials, quality control and quality assurance, construction health and safety, construction management, design software, program management, project implementation, and other topics in the fields of Civil, Mechanical, Architectural, Structural, Transportation, Electrical, and Environmental Engineering.

The internship program is designed to deliver a wide variety of job training throughout the year. Through this process, the interns learn valuable lessons and gain real life experiences to better equip them to be competitive candidates in the field of engineering.

The primary focus of the program is to: fill the gaps in their theoretical education, provide professional experiences to students, and to promote critical thinking skills. However, a secondary yet equally important purpose is to promote gender equality in Afghanistan. Women gain confidence and are given experiences that have not been previously offered to women. The program is carving a place for women in Afghanistan in the field of Engineering.

This program has continued to evolve over time. Each year, AESP analyzes the past program and makes improvements for the upcoming year. This allows AESP to provide a more comprehensive program catered to the intern hired. This dedication to providing a supplementary education to meet international standards allows the majority of internship graduates to pursue successful careers in engineering.

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1.0 INTRODUCTION

The mission of the Afghan Women Internship Program is to design and implement an internship program for female students studying architecture, engineering, and other related fields. The interns are in their last academic year at universities in the Kabul area. The program provides opportunities to apply skills and concepts learned through coursework to “real world” situations. While the program is centered on workplace interaction and training to expand the interns’ capabilities, a secondary focus is to promote gender equality and women’s empowerment. The Tt AESP provides the interns with the tools to not just succeed, but to thrive in a male-dominated field and culture.

During the month of February 2015, 16 female engineering students from Kabul University and Kabul Polytechnic University were interviewed. Four were selected to participate in Tt AESP’s Afghan Women Internship Program. Two were studying civil engineering, one was studying architecture and one was studying electrical engineering. On average, the interns spent three days a week interning from February 28, 2015 through January 28, 2016. They trained with a variety of engineers in diverse applied engineering areas. The details of the interns’ training and work experience are described in the following sections.

2.0 INTERNSHIP PROGRAM

Tetra Tech (Tt) strives to provide an effective internship opportunity for local national female engineering and architectural students under the Tetra Tech Afghanistan Engineering Support Program (AESP). In close cooperation with expatriate engineers and local national professionals, this program provides the interns opportunities to apply skills and concepts learned through university coursework in a professional engineering environment.

Tt AESP’s 2015 Afghan Women Internship Program covered two areas:

- The first and main focus of the program was to integrate concepts students learned in diverse engineering programs with practical experience. This was accomplished by providing engineering training programs and discussions to supplement and expand upon concepts learned in the classroom.
- The second area encompassed professional development training including communication and workplace etiquette.

The main objectives for the interns included:

- Shadowing on a realistic engineering planning, design and implementation project.
- Becoming familiar with current codes, standards, and specifications.
- Developing skills for interacting with practicing professionals.
- Developing skills for interacting with individuals outside of the engineering profession.
- Empowering women studying Engineering in Afghanistan.

As part of the internship requirements, all four interns were asked to write a final summary and evaluation of their experiences in the program. These documents can be found in Appendix A.

2.1 ENGINEERING TRAINING

The female engineering interns in the Tt AESP internship program learned engineering skills by receiving on-the-job training. After on-the-job training was obtained, the interns performed assignments to build their capacity. While these assignments were not designed to

support the Tt work order workload, the interns attended theoretical and practical training sessions. Additionally, they shadowed expats and local staff of Tt AESP and USAID engineers as they completed their daily activities.

The education programs of the interns was based around either architecture, civil or electrical engineering. Therefore, program topics centered on these engineering disciplines.

Engineering topics included:

- Structural Engineering including applying codes.
- Site Monitoring.
- Quality Control and Quality Assurance.
- Construction Management and Scheduling.
- Transportation Engineering.
- Health and Safety in Engineering.
- General Civil Engineering.
- General Electrical Engineering.

In addition to the above topics, other training included supplemental workshops, shadowing events with professional engineers, site visits, and software training.

2.2 ENGINEERING DOCUMENTATION

A major part of engineering design is the development of engineering documents. Therefore, this was a focus for the interns throughout their internship period.

All interns participated in cost estimation and bill of quantity development training. This included training and discussions with Tt AESP senior engineers. The interns were asked to provide cost estimation documents using AutoCAD and MS Excel based on their calculations for the assigned activity.

All interns were expected to improve their technical writing skills. In addition, the interns were expected to report on their internship experience in the form of memos and reports. After they developed each document, they were given feedback on report organization and technical writing. These reports can be found in Appendix B.

2.3 PRACTICAL ENGINEERING

The interns worked directly with lead expat engineers and local national engineering professionals in a team environment to: learn work processes, gain experience in teamwork, ask pertinent questions, and learn from the engineers' experience. The interns performed a variety of routine engineering assignments as training exercises under supervision. The interns performed basic engineering tasks such as the review of simple plans and submittals and the computing of basic engineering calculations under the supervision of their trainers.

2.4 TRAINING AND WORKSHOPS

Workshops served as a major training component, aimed at supplementing the interns' formal education and giving them practical experience. Some workshops or trainings were required for all interns, however others were tailored to the interns' personal interests. The workshops varied from in-depth and hands-on workshops to detailed discussions with various engineers on specific topics.

2.4.1 Construction Material Workshop

2.4.1.1 Concrete

The purpose of this workshop was to make the interns ready for future engineering activities in construction material testing. It scheduled this workshop to help interns learn how to design a concrete mix for specific marks, how to provide a sample of concrete mix design and how to perform concrete test in the lab.

The content of this workshop covered lectures on mix design which included a concrete mixing activity. The mixing activity included calculation of cement, aggregate, sand, and water amounts for different types of concrete. This workshop also included hands-on concrete testing in the lab (i.e. concrete strength, slump test, etc.).

In May, a concrete workshop was given in three parts: lecture, mix design activity, and lab testing. Two Tt AESP local national engineers with experience in concrete led all three workshops. The lecture consisted of concrete mix designs, testing standards, and an assignment. Upon completing the assignment, the interns were asked to create a mix design and perform slump testing during the mix production. Concrete samples were collected from the respective mix designs. The samples cylinders were cured for a few days, after which they were taken to a lab for testing of compressive strength. See Appendix C for the interns' memorandums on the concrete workshop.

2.4.1.2 Soil

The soils workshop included lectures on Soil Mechanics theory and hands on soil testing in the lab which included sessions in: the California Bearing Ratio (CBR) test, moisture content, Atterberg limits, proctor tests, soil classification, and coaching.

In June, a soils workshop was given in two parts: lecture and lab testing. In both parts, a Tt AESP local national engineer with experience in soil mechanics instructed the course. The interns learned about five different soil tests and their applications. In the lab, they witnessed the tests being performed by the lab technicians. See Appendix D for the interns' memorandums on the soils workshop.

2.4.1.3 Asphalt

The interns received lectures on: asphalt theory and hands on asphalt testing in the lab. Also included were coaching sessions and site visits to ongoing road projects, when available

In June, a Tt AESP transportation engineer held an asphalt workshop in two parts consisting of a lecture on asphalt composition and creation, with applications to road construction and tests to use while building roads. During the lab portion of this workshop the interns witnessed the tests being performed by lab technicians. See Appendix E for the interns' memorandums on the asphalt workshop.

2.4.2 Project Estimation

The content of the project estimation training covered: project cost management and construction material estimates (quantity take-off).

In November, [REDACTED], an AESP Senior Engineer, held a project estimation workshop at the AESP compound for the interns. The total duration of this training was two months. In this workshop he covered: project estimation, project cost and material estimation and some other general information related to engineering. Interns worked on both drawings and calculations for an assignment. See Appendix F for the interns' memorandums on the Project Estimation workshop.

2.4.3 Project Management Workshop

This workshop covered a basic overview of project management, quality control and quality assurance, scheduling, and work load balancing. The AESP construction management Deputy Director and an AESP scheduler trained the interns for more than two months. Topics included project management, quality control and quality assurance, construction management, scheduling, performing assignments and general discussions. The trainers assigned the interns a bi-weekly report based on provided data from the construction site of one of the Tt projects.

2.4.4 Architectural On- The- Job Training

This on-the-job training was held for the architectural intern, who received updated information about the architecture and Tt projects. After familiarization with the projects, she was asked to do an architectural design for a three-story building including the basement in a specific area.

The outcome of this on-the-job activity included delivering plans, elevations, sections, details and landscape plans of the assigned project after close supervision of the Tt architect and some civil engineers.

2.4.5 Electrical On- The- Job Training

This on-the-job training was held for the electrical engineering intern in the electrical department of Tt AESP. The electrical intern received updated information about her field and Tt projects and was asked to do some specific activities and assignments related to the topic.

This on-the-job training covered electrical codes and standards, electrical specifications, electrical calculation, electrical equipment, electrical lighting, electrical ACAD design and electrical estimations.

See Appendix G-K for the intern's memorandums on the electrical training.

2.4.6 Shadowing

Through the job shadowing program, the interns were able to have discussions with Professional Engineers (PE) at AESP and USAID about their ongoing engineering projects issues, importance of their current engineering projects, and challenges faced.

All four interns shadowed various engineers at Tt to learn about current Tt projects, plans, and staffing. Tt engineers held discussions about ongoing AESP projects with the interns. Interns also attended meetings to improve their communication skills by interacting with other professional engineers from USAID and associated organizations. Interns participated in meetings on the Tarakhil Power Plant Water Piping System on two occasions. During these meetings and shadowing events, the interns asked questions and gained knowledge about holding meetings.

The interns also attended a lunch gathering at the US Embassy to meet Mr. [REDACTED] United States Ambassador to Afghanistan, Mrs. [REDACTED] and other female leaders. During this visit the interns were encouraged to be the best in every working environment and to prove their abilities and skills.

See Appendix H for the interns' memorandums on the Tarakhil Power Plant Coordination meeting.

2.4.7 Site Visits

During the internship period, the interns completed three site visits. Two visits took place at the US Embassy compound and one was at Camp Eggers. The site visits that took place at the US Embassy Compound was held in two stages. The first stage was related to the site preparation for construction. The second stage was related to the buildings under-construction and concrete pouring for the new Embassy housing and offices. These visits were led by USAID and Embassy construction engineers. The interns saw the construction site and were able to ask questions directly from the site and contractor project managers.

The third site visit was to Camp Eggers. The interns were accompanied by both AESP and Camp Eggers expatriate engineers to the site to collect data about site demobilization, site grading and leveling, site compaction and backfilling to make it ready for Connex renovations.

See Appendix I for the interns' memorandums on the site visits.

Table 1 summarizes the site visits offered to the interns during the year.

Table 1 - Site Visit Details

| Sites | Applicable Engineering Disciplines | Dates |
|-------------------------------------|--|-------------------|
| Site visit at Camp Eggers | Architect, Structural, Civil, Electrical Engineering | June 11, 2015 |
| USAID/US Embassy Construction Sites | Architect, Structural, Civil, Electrical Engineering | September 3, 2015 |
| USAID/US Embassy Construction Sites | Architect, Structural, Civil, Electrical Engineering | January 12, 2016 |

2.4.8 Engineering Software Training:

Software training was provided to the interns during the program and included the following:

2.4.8.1 AutoCAD

Basic and advanced tutorials for AutoCAD were provided. Advanced work was provided for those interns interested in a more comprehensive knowledge of the CAD system. The interns learned both Tt AESP and USAID AutoCAD standards.

The content of the training included:

- An introduction to AutoCAD
- Setting up a template
- Exposure to the AutoCAD workspace and layout
- Menus and short cuts
- Use of basic drawing, editing, and viewing tools
- Organizing drawing objects on layers
- Inserting reusable symbols (blocks)
- Adding text, hatching, and dimensions
- Use of scales

- Preparing a layout to be plotted
- Plotting a drawing
- A practical AutoCAD project.

The training duration was conducted over more than one month. See Appendix J for the interns' memorandums on the AutoCAD Training.

2.4.8.2 AutoCAD Civil 3D

Basic and advanced tutorials for AutoCAD Civil 3D were provided. The content of the training included:

- Introduction to AutoCAD Civil 3D
- Preparing a topographical plan
- Creating points, surface, alignment, profiles, corridors, and sections
- Geometric design of road
- Practical sample project.

The duration of this training was for more than one month, and included a road design example in the Civil 3D program. See Appendix J for the interns' memorandums on the AutoCAD Civil 3D Training.

2.4.8.3 GIS (Geographical Information System)

ArcGIS training was provided to all interns for two to three hours a week over a month. The training included a basic introduction to GIS applications and assignments to practice those applications.

The content of the training provided an introduction to GIS. This included: Arc Map interface and tools, data view, layout view, layers, data frames, map elements, layer properties for symbols and labels, tools for examining your data, working with the selection tools, metadata, geographic data review, linking features and attributes, data formats, working with Arc catalog, editing spatial data, editing attribute data, Geo referencing, coordinate systems, datum, projections and distortion, projecting data, table structure, data types, table manipulation, connecting tables, working with graphs and reports, basic cartographic concepts, creating maps in Arc Map, and printing and plotting maps.

See Appendix J for the interns' memorandums on the GIS Training.

2.4.8.4 STAAD Pro

This software training was related to STAAD Pro, a common structural engineering design software used in Afghanistan.

The training covered an introduction to STAAD-Pro V8 and how to utilize the space, menus (File, Edit, View, Tools, Geometry, Select, Commands, Analyze, Mode, and Window).

The training included a practical example to design a reinforced concrete structure of a two-story building.

2.4.8.5 MS Project

This training covered introduction and overview, activity breakdown, sequence activities, assign resources, assignment durations, developing and controlling the schedule and automatically leveling and viewing resources. At the end of the training the interns prepared a schedule for the construction of electrical towers.

2.4.8.6 Primavera P6

This training covered introduction and overview, activity breakdown, sequence activities, assigning resources and durations, developing and controlling the schedule, automatically leveling and viewing resources, updating schedules and developing different reports and formatting gantt charts. At the end of the training the interns were asked to develop the schedule for construction of electrical tower using Primavera P6.

2.4.8.7 Epanet -2

This training covered introduction and overview, hydraulic design calculation of different water supply, distribution and treatment systems. At the end of the training the interns were asked to design a water supply system for a military camp as a practical example.

2.4.8.8 Autodesk Storm and Sanitary Analysis

This training covered introduction and overview, hydraulic design calculations for different sanitary sewer and storm drainage systems. At the end of the training the interns designed a sanitary sewer system for one of the residential apartments in the Kabul area as a practical examples.

All common Microsoft Office programs such as Excel, Word, and PowerPoint were used throughout the internship period, with special emphasis on Excel as a tool for structural design. Table 2, below summarizes the Software training offered to the interns during the year.

Table 2 - Software Training Details

| Software | Applicable Engineering Disciplines | Training Level |
|--------------------------------------|---|--------------------------|
| AutoCAD | All disciplines | Beginner to Intermediate |
| AutoCAD Civil 3D | Transportation, Architectural and Civil | Beginner to Intermediate |
| ArcGIS | Urban Planning/Mapping | Beginner |
| STAAD Pro | Structural and Civil | Beginner to Intermediate |
| MS Project | All disciplines | Beginner to Intermediate |
| Primavera P6 | All disciplines | Beginner to Intermediate |
| Epanet- 2 | Structural and Civil | Beginner to Intermediate |
| Autodesk Storm and Sanitary Analysis | Structural and Civil | Beginner to Intermediate |
| Microsoft Excel | All disciplines | Beginner to Intermediate |

2.4.9 Professional training

Throughout the internship period, the interns were continually exposed to common workplace etiquette beyond typical engineering tasks. This training included topics in communication and professional development.

2.4.10 Communication

Communication is an important aspect in all business settings and is often not emphasized in science related fields. It is however important to include as part of any workplace learning experience. Tasks covered under communication included:

- Document control, including filing procedures, and structures.
- Technical writing (memos, reports, emails).
- Meetings; including etiquette, preparation, and minutes.
- Presentations, public speaking, and Microsoft PowerPoint design.
- Preparation of periodic reports such as weekly / biweekly or quarterly reporting.

Other forms of communication were also developed, such as technical writing. This training included writing in general, rules of writing, and writing memos, quarterly reports, and final reports. Other assignments for writing such as presentations on engineering or on their experiences in the intern program were also given. AESP 2015 interns also prepared presentations which they gave to the USAID POCs of the internship program and for the Tt Executive Vice President.

At the beginning of the program, a presentation was given by the interns to the [REDACTED] USAID POCs, where the interns provided information about: what they have learned, and their expectations and recommendations for the internship program.

The second presentation was given to the Tt Executive Vice President at the AESP villa. The interns presented about the internship program opportunities and their expectations from AESP management team for future activities and employment opportunities for interns.

Additionally, [REDACTED] (POC for the Internship Program) and the interns prepared a presentation for the graduation ceremony of the interns at USAID. This presentation was about the internship program overall and the benefits of this program for female students. The interns presented the section of their interest and their recommendations about the internship program. During this presentation, the interns and the management team of AESP including [REDACTED] Tt Executive Vice President, Mr. [REDACTED] - AESP Chief of Party accompanied [REDACTED].

2.4.11 Professional Development

While nearing the end of the internship period, emphasis was placed on skills useful for post-internship and graduation employment. These workshops covered:

- Resume preparation.
- Cover letter preparation.
- Interview Skills.
- Mock Interview.

The resume workshop included a presentation on resume structure, the difference between a CV and resume, and discussions on how to tailor one's CV to different jobs. Each intern had a chance to discuss their personal resumes and to present revisions for professional review. Following this, a professional interview training was conducted. This included mock interviews with individual feedback from the interviewers. A job-search training was also given by expatriate and local staff.

2.4.12 Internship Program Curriculum Development

Each year the POC of this program updates and develops the internship program curriculum; deciding which training and workshops are most suitable for the year. The POC evaluates the outcome and effectiveness of the previous year's training when creating the curriculum. The curriculum is based on the interns' field of study, and is designed to include subjects that are necessary for a career in Engineering, but are not present in the interns' formal university training.

See Appendix O for the 2015 internship program curriculum.

3.0 SUMMARY AND ANALYSIS

Tt AESP's 2015 Afghan Women Internship Program covered tactical engineering workplace topics crucial to the development of the young female engineers' careers. Topics included basic workplace tasks such as: technical writing, engineering design, and document control, engineering calculations, and training in common engineering software. Experience provided by the program also included lessons in more specific engineering topics: transportation engineering, and construction site visits. These lessons were coupled with shadowing experienced engineers from a variety of backgrounds to make interns ready for working in the real world of engineering and capable of dealing with the ongoing challenges of the engineering world. The interns become familiarized with a professional working environment, communication skills, project deadlines, how to deal in individual activities and how to be an active team member.

The program structure serves as basis to build upon and improve for future years of the engineering internship program. Every year, the curriculum is catered to the engineering field of the interns hired. However there are certain improvements that Tt will put in place for 2016.

Firstly, Tt AESP will provide more opportunities for site visits. Also, the program intends to include material testing; such that the interns participate in the same material testing activities as the academic year 2015 interns. The upcoming year will introduce new subjects of Quality Assurance, Quality Control, and Safety following the shift in AESP work orders. Finally, Tt would like to provide more opportunities for the interns to give presentations, not only to improve the interns' skills but also to increase awareness of opportunities for women in Kabul.

The training curriculum supports the learning objectives of the Afghan Women Internship Program through practical education, workshops, hands-on training of various engineering techniques, and lessons in engineering software. The curriculum mirrors the skills that the interns will need for their future careers in Engineering. Each year, enhancements help the internship program to grow into an even greater resource to advance the education and careers of young women in Afghanistan.

APPENDICES

APPENDIX A - INTERN 2015 FINAL REPORTS



USAID
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ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

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Afghan Women Internship Program

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AFGHANISTAN ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

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Afghan Women Internship Program

2015 Academic Year Final Report - ARSA PAKTA

February 16, 2016

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EXECUTIVE SUMMARY

An internship, in my point of view, is a medium stage between the study period stage and an actual working environment stage. This stage introduces students of any major to their specific working field. Through this stage, students are trained in how to apply things that they have learned theoretically to real world problems. There are many beneficial internship programs offered by reliable organizations in each and every country to the undergraduates of any major for which they apply in their study period in order to build their skills through these programs. The Afghan Women Internship Program, funded by USAID and conducted by Tetra Tech (Tt), is a useful and helpful program for female engineering students in Afghanistan. It provides female engineering students with great understanding of office communication skills, team work, administrative rules and work experience for future employment. Beside these great efforts, this program sharpens the skills of female engineering students by providing beneficial software trainings, technical trainings, site visits, shadowing, and mentorship from experienced and talented staff, experienced engineers, and other engineering related activities.

The first section of this report is a brief introduction to the internship program and the scope of the internship program. This is followed by a short introduction of the internship program at Tetra Tech, and the activities that the interns have participated in since joining Tetra Tech. The report also outlines the descriptions of every activity completed by the interns, and the positive impacts of these activities on their educational background and on sharpening interns' skills. These descriptions are followed by recommendations regarding possible improvements to this internship program and an acknowledgment section.

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1.0 INTRODUCTION

The Internship program that has been funded by USAID and conducted by Tetra Tech-AESP for the year 2015 has been very effective and has had great influence on its participants' careers. Since engineering is mostly a male dominated field and there are no available opportunities for female engineering students, this was a real opportunity for female students to learn and practice in the engineering field. This program provided advantageous on-the-job trainings to the trainees, developed their practical work skills, helped them gain work experience and become familiar with work environment for future employment, advanced communication and group work skills, and taught them how to apply the earned skills to the future working career and helped them get closer to their educational goals. The most beneficial engineering subjects learned were team work, office communication skills with other engineers and experts, working in a practical engineering environment, and most importantly, improving students' self-confidence. This program was really effective in gaining a good work experience through several software trainings, site visits, shadowing, and visiting construction material laboratories. All of the practical training helped us learn and apply our existing skills onto a specific problem. Interns were provided computers, outlook email addresses, and mentorship from engineers, educational books, and resources. Through this process and interaction, the interns learned several valuable lessons and gained real life experiences that made them better and compatible for the future workforce.

2.0 ACTIVITY

There were several lectures and software learning activities in this project given in order for the interns to gain effective work experience. In the category of lecture activities, we were taught some important theories and based on those theories, we were given projects and assignments to do. For the software category, we were trained on the software menus, its usages, and its application. Then, we were given different projects to work on using those software. These trainings are briefly outlined in the following table:

Table 1: List of Activities

| Topic | Date | Instructor |
|--|--------------------|------------|
| Technical writing training | April 09, 2015 | |
| Effective presentation training | March 27, 2015 | |
| Auto CAD software training | March 10, 2015 | |
| STAAD Pro software training | April 10, 2015 | |
| International Building Code (IBC) training | April 23, 2015 | |
| Tarakhil meeting | April 01, 2015 | |
| MS project software training | July 07 2015 | |
| Concrete mix design training | June 04, 2015 | |
| Soil training | June 10, 2015 | |
| Site visit | June 15, 2015 | |
| Asphalt training | June 17, 2015 | |
| Epanet software training | August 27, 2015 | |
| Shadowing | June 09, 2015 | |
| Civil 3D Software Training | September 17, 2015 | |

| | | |
|---|-------------------|--|
| GIS Software Training | October 9, 2015 | |
| Health & Safety Training | October 15, 2015 | |
| Cost Estimation Training | October 20, 2015 | |
| Primavera Software Training | November 10, 2015 | |
| Auto Desk Storm Water and Sanitary Analysis | December 05, 2015 | |
| Contract Management Training | January 09, 2015 | |
| Writing CV and Resume and Mock-interview | January 26 | |
| Site Visit | January 13, 2015 | |
| Construction Project Management/ Project Implementation | January 05, 2015 | |

2.1 SITE VISITS

Site visits are the practical activities for technical people and engineers, after they plan to design different types of structures, water and waste water supply systems, dams, and many other engineering designs. Engineers also attend several site visits to oversee the construction progress.

Engineering students also visit different sites during their study period in order to see whatever they learn theoretically from classroom lectures in a practical setting. As part of the internship program, we completed several site visits and gained knowledge of practical works at construction sites. Since I am a Civil Engineering Student, everything that I learned in these visits was very effective for me.

2.1.1 Camp Eggers Site Visit

This site visit took place on June 11, 2015 to gain experience of practical work at construction sites. It was our first site visit during our study period. Therefore, I can validate that it had many positive impacts on increasing our practical experience. [REDACTED] the Internship Program Lead and [REDACTED], Tt structural engineer also visited the site with us.

2.1.2 US Embassy First Construction Site Visit

This site visit took place on September 03, 2015 for interns to get familiarized with practical work at construction sites. Lessons from this site visit are very beneficial and useful to my field of study. Before getting to the site, we were shown maps of the US embassy and USAID structures by [REDACTED]-USAID and [REDACTED]USAID. [REDACTED]gave us the required information about the general contractor, and subcontractor of the construction project and their duties along with some other beneficial information about the project and the map. There was an efficient schedule and good management for workers, material, and works, which is significantly important for a construction project. This site visit increased our site work experience, our management skills, and the interaction between civil engineers, architectures, labors, and other staff at site. Hence, I am very satisfied of these effective site visits in order to bring my educational and practical background of site works to high and professional levels.

2.1.3 US Embassy Second Construction Site Visit

This site visit took place on January 12, 2015 to gain practical work experience at construction sites. Two important steps were taken for this activity: [REDACTED]ntroduced the site visit plan, the construction site, its location and address, the work progress, and the purpose of the site visit to us: the second and

major step of this activity was to move inters towards the site. Entering to the construction site, following activities were ongoing at site:

- Rebar wok
- Form work
- Rebar cutting
- Rebar bending
- Excavation
- Insulation
- Concrete pouring

The most important outcomes and results that could be mentioned from this site visit were seeing most of technical works, and seeing the progress of construction and application of the design in a specified construction site. Comparing to my first site visit at USAID, the initial work of the construction was in progress, such as, demolition, excavation and other preparatory works but in this site visit, the construction progress was in stage of building the second floor of building. Therefore, it was a good chance to see the two completely different phases of real life construction.

2.2 SOFTWARE TRAINING

A major and important portion of our internship program consisted of learning different engineering related software packages. Engineering works, particularly design works, are very hard to practice manually and is time consuming. Therefore, designing and scheduling works with the aid of software packages decreases time consumption and increases work accuracy. We received two kinds of software trainings in our internship program – the software trainings by Tetra Tech experts and the self-online study provided on Tetra Tech website. Taking these trainings were a great opportunity for us since we did not have such advantageous software trainings during our university training. These trainings enabled us to use the software for important engineering purposes in our future careers and to take the best possible advantage of the internship program.

2.2.1 AutoCAD Software Training

The subject of this assignment was AutoCAD engineering software training assigned to us from January 15, 2015 through February 15, 2015. The training was conducted by [REDACTED] and the purpose of this training was to learn how to make essential engineering related drawings using AutoCAD software. During this training, we learned different ways to create both civil engineering related drawings and architectural related drawings. Then we learned about the CAD standards manual of Tetra Tech and its application on our drawings. We also created our own drawings after receiving the AutoCAD training. We all were given separate assignments to practice CAD software and to make different constructive drawings.

2.2.2 STAAD Pro Software Training

This training was conducted at Tetra Tech by [REDACTED], Tt Structural Engineer. This effective training was for civil engineering interns, ([REDACTED]). The purpose of STAAD Pro training was to teach us the usage of this software and to enable us to design different civil engineering related structures using this software. We had a 20-day long lecture regarding the usage of this software. Then we both were given an assignment that was drawn by [REDACTED] (architectural intern), with the help of AutoCAD software. I drew a structural model of the building and then inserted live load, dead load, earthquake load, wind load, and other loads. In every step of this assignment, [REDACTED] was reviewing the model and was supervising my work.

2.2.3 MS Project Software Training

The subject of this assignment was MS Project training and was held for all the interns to teach interns how to make detailed and appropriate schedules for any purpose [REDACTED], the Project Controls/Scheduler at Tetra Tech gave us different lectures on the subject topic and all the interns were assigned to make schedules by their own. [REDACTED] provided us the data to make the schedule for and we made the schedule for the Construction of Transmission Line Towers. During making the schedule, I learned a lot from this software, and became very familiar and earned experience. [REDACTED] reviewed our assignments and asked us to revise the document anywhere he had comments, this way, I built my skills successfully.

2.2.4 Epanet- 2 Software Training

The Epanet-2 software training was held for the civil interns [REDACTED] at Tetra Tech. [REDACTED] Senior Mechanical Engineer, trained us on this subject. The purpose of this training was to learn designing different types of water supply systems. This training was conveyed into three steps. The first step was the theory. We were thought the theory and concepts of water supply engineering. In the second step of this training, we were taught how to make the design of water supply system practically using Epanet software. The third and final step of this training was the assignment project which was designing a water supply system for a large community.

All of the required data such as scope of work, PDF drawings, AutoCAD drawings and some other helpful material were given to us and we worked on the design of the project. During making the design by this software, we had lots of discussions and with our trainer and he helped us kindly with solving our problems and answering our questions.

2.2.5 MS Office Online Training

This was a self-online study online training that took place over three months. The content was provided by Tetra Tech experts. The purpose of this training was to learn different software packages that will help us executing office works. Although I did not have any specific assignment for this training, it helped me to do the daily tasks or on-the-job office tasks with more ease.

2.2.6 Civil 3D Software Training

The subject of this assignment was civil 3D engineering software training occurred on September 17, 2015. This software is used for several purposes, such as creating drawings, designing water supply and waste water systems, and creating road drawings. The purpose of this beneficial training was to make interns learn how to make essential road related drawings using civil 3D software. We practiced creating our own drawings after finishing the civil 3D software training. Drawings that I submitted for this training included:

- Horizontal alignment of road
- Vertical alignment of road
- Road Profile
- Road Cross section
- Survey points insertion into software
- Managing and editing the points

I learned different ways of creating drawings of different sections of a road. A civil engineer needs to read, understand, and draw road drawings. Thus, after learning this software, I am now able to read and draw different road drawings.

2.2.7 GIS Software Training

The subject of this assignment was Geographical Information System or GIS software training occurred on October 09, 2015. This advantageous software training was held to teach interns on how to create different types of maps with different scales, applying changes for several purposes, and reading the geographical maps. Following to this training, we were given a project to make a map and geo-referencing any other map with x and y coordinate system. While working on this project by GIS software, we had a lot of discussions and questions answered by our trainer which helped us to solve our problems. The important topics that I learned from this training were the procedures used for making a map by ourselves and giving coordinates system to a picture of a map which was both effective and interesting. Undoubtedly, these skill buildings from different fields will not only help me choosing my own major in future but also will help me doing office work in GIS field as well.

2.2.8 Auto Desk Storm Water and Sanitary Analysis Software Training

This training was held on December 05, 2015. The purpose of this software training was to convey some important concepts of waste water treatment and design of a waste water treatment system. Design and characteristics of manholes, hand holes, outfalls, waste water treatment and their routes were the contents of the training. After the training, we designed a waste water treatment system using this software.

2.2.9 Primavera P6 Software Training

The subject of this assignment was Primavera P6 software training, which was held on November 10, 2015, and the purpose of this training was to teach the interns to make detailed and appropriate schedules for any purpose. The lecture and the assignment step for this training enabled us to use this software for our daily tasks or other projects. After the training, our assignment was to make schedules for the transmission line towers' construction on our own.

2.3 TECHNICAL TRAININGS

Technical trainings contain some advantageous and essential lessons and lectures that affect the technical skills of people in specific areas or in their field of study. In the same manner, we had many technical trainings in our internship period at Tetra Tech. These effective trainings were led by technical experts. We studied many topics in these technical trainings and I can argue all the things that we learned were directly related to our field- civil engineering.

Table 2: List of Technical Trainings

| Topic | Date | Trainer |
|---|-------------------|---------|
| International Building Code (IBC) training | April 23, 2015 | |
| Concrete mix design training | June 04, 2015 | |
| Soil training | June 10, 2015 | |
| Asphalt training | June 17, 2015 | |
| Health and safety Training | October 15, 2015 | |
| Cost Estimation Training | October 20, 2015 | |
| Contract Management Training | December 28, 2015 | |
| Construction Project Management/ Project Implementation | December 29, 2015 | |

| | | |
|---|-------------------|--|
| Job-seeking Training (CV and resume preparation, Mock interviews) | January 17, 2016 | |
| Construction Project Management/ Project Implementation | December 27, 2015 | |

2.3.1 International Building Code (IBC) Training

The subject training was presented to us on April 23, 2015 at Tetra Tech. [REDACTED] instructed us (Architectural and Civil Interns and myself) throughout this training. This training was executed for interns to learn how to use International Building Codes (IBC) and how to solve issues on engineering structures' safety. After receiving this training, I learned on how professionals apply the guidelines presented in IBC to find solutions for specific problems; such as, hurricanes, fire inflames and others. All I learned during the mentioned training will help me practice the engineering field and learn different practices in the world of engineers.

2.3.2 Concrete Mix Design Training

[REDACTED] Civil Engineers, conducted the concrete mix design training for us on May 21, 2015 to practice skills of making and testing concrete mix designs, including slump testing. We took an effective training of calculation and preparation of concrete mix design mathematically using PCA manual chapter 9 for making the concrete mix design. Following this task, we prepared our own concrete mix design individually with the guidance of our instructors. The final step was testing the prepared concrete samples using a compression testing machine at KA Construction Material Testing Laboratory. We learned the testing procedures during this training, which allowed us to practice engineering on our own. We prepared the mix design by ourselves and tested them, therefore, it was one of my great experiences in my internship period.

2.3.3 Soil Training

This training was conducted by [REDACTED] in May 28, 2015. This training was conducted for interns to gain an effective introduction on soil and testing of soil for different purposes. The interns went to KA Construction Material Testing Laboratory to do some practical experiments on soil and apply some of important topics that we had learned from soil lecture. We did three tests on the soil. The first test was Modified Proctor Test, in which we used a modified proctor in order to find maximum density and minimum moisture content of the soil for soil compaction purpose. The second test was finding the liquid limit of that specific type of soil for finding plasticity Index (PI) of the soil showing the soil strength. The third and last test was finding the plasticity of soil in which we took an ellipsoidal-sized of soil mass and rolled it over a ground glass surface.

2.3.4 Asphalt Training

The subject of this training was asphalt pavement design, and it occurred on June 17, 2015 in Tetra Tech. This one-day long training was held to give a brief introduction about asphalt pavement design to the interns.

2.3.5 Health and Safety Training

The subject of this training was health and safety, and it was held on October 09, 2015. The purpose of this training was to let interns know about the importance of observing and applying safety issues in a construction site and the dangers cause by unsafe construction progress. Wearing safety hats, safety glasses, safety belts, safety gloves, and considering many important safety subjects in a construction site for workers, engineers, and for public were the contents of this training.

2.3.1 Cost Estimation Training

The training was held in order to teach the interns how to estimate the cost of a construction project, a building, or a house. We were taught the procedures for estimating the cost of a building and its parts and we were given an assignment project to do on our own. I learned a lot about the estimation cost strategies during this training.

2.3.2 Contract Management Training

This training was held to let interns know about the contract management process, different types of contracts, their usages, owner responsibilities, and contractor and sub-contractor responsibilities. The points covered in this training were very helpful.

2.3.3 Construction Project Management/ Project Implementation

This training was conducted to teach the trainees about the concepts of asphalt and pavement. The contents of this training were:

- Different types of asphalt
- Different Usage of asphalt
- design life of flexible pavement
- Asphalt compaction
- Learning different layers of pavement
- The characteristics and the purpose of pavement layers
- Thicknesses of the layers
- Drainage system for the road and its planning procedures

It was a valuable and a technical training that built our skills and had a great impact on our field knowledge.

2.3.4 Job-Seeking Training (CV and Resume Preparation, Mock Interview)

This final training was carried out in order to instruct the interns about the curriculum vitae (CV) writing, the resume writing styles and some important interview rules. Since interns had graduated from university, they were given trainings on the application process for jobs and the preparation process for a successful interview. In this training, the interns were instructed on how to make their Curriculum Vitae (CV) or resumes to apply for jobs. This training was given by [REDACTED] Human Resource Manager of Tetra Tech. Several techniques and tricks that we can apply onto our CV / resume in order to be shortlisted and selected in different organizations were discussed. The MIS Manager also gave a presentation on the important points to be considered in an interview. Interns were also asked to give an interview for practice purposes, and the HR representatives shared their positive feedback on our interview practice. This was the most interesting and useful training that I had that was outside the field of engineering. Every simple trick was new and interesting to me.

2.3.5 Quality Control (QC) and Quality Assurance (QA) Training

This training was executed for the interns to give the knowledge of Quality Control and Quality Assurance (QC and QA) principles and let the interns know about the review of different kinds of submittals. The training was executed in two parts by one trainer. In the first part, we were trained by [REDACTED] about the Q/C and Q/A concepts. He delivered the following important theories in an effective manner during the history and past thoughts about Quality:

- What is quality?
- What are market expectations

- Quality Vs. grade
- Precision Vs. accuracy
- The quality movement
- What is ISO (international standardization for organization)
- Quality management concepts
- Quality policy
- Quality objective
- Quality assurance
- QA Vs. QC
- Quality audits
- Quality plan
- The seven Quality control tools
- Cause and effect analysis
- Cost of quality

In the second part of training [REDACTED] gave us some submittals for reviewing purpose based on the concepts we learned in the lecture training. We went through the process of reviewing the submittals, gave comments, discussed the comments with our instructor and approved and rejected the submittals. As a result, after learning from the training contents and going through the assignment procedure, I learned how to review submittals, what important points to consider while reviewing submittals, what steps should I take while reviewing and how to solve problems if I am confronted with. Generally, I am familiarized with work procedure in the Tetra Tech environment.

3.0 SUMMARY AND ANALYSIS

Different kinds of trainings that are related to our field of study directly impact our skills and our professional knowledge. It was able to provide different productive trainings to us during the internship program. These skills will help us in our future career and I will be able to apply these skills because I have done projects for each of the training in which I took part. The trainings were conveyed in a great manner, the procedure was good, and thus, I don't have any recommendations for the betterment of the Afghan Women Engineering Program.

3.1 RECOMMENDATIONS

As mentioned before, I am very much satisfied from this internship program and all of the activities that we have done was very useful to us. Therefore, I can state that we are trained and skilled to the best level during the one-year period of the internship program. However, I have some recommendations for the improvement of this program and also for the improvement of future interns. These recommendations are as follows:

- Increase the site visits to buildings under-construction.
- Increase shadowing with USAID and other Ministries.
- Give more changes for interns to practice on office work.
- Increase Material Testing in the Lab.

3.2 ACKNOWLEDGEMENTS

As an intern I am very thankful for USAID and Tetra Tech, who have provided an internship opportunity for female engineering students. I thank our kind supervisor [REDACTED] who always tried to schedule the trainings that we were comfortable with. I also thank Tt and USAID engineers that helped us through shadowing, sharing their engineering experiences, and solving our engineering problems. I would also like to thank Tt for training us in different areas of Engineering.

Tt executed the whole program as if we were part of the Tt team, and enabled us to build our office communication skills, work in a practical engineering environment, to learn the technics of reviewing submittals, scheduling, document review and revising the documents, and most importantly, the strength and self-confidence which are the real and greatest achievements in a student's life. This program was really effective in its overall aspects.

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ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD4

Afghan Women Internship Program

██████████ - Final Report



February 16, 2016

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AFGHANISTAN ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD 4

Afghan Women Internship Program

2015 Academic Year Final Report - NILAB FAIZI

February 16, 2016

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

EXECUTIVE SUMMARY

An internship program is a pre-professional experience that provides an opportunity to gain relevant knowledge and skills and become ready for real job. Afghan woman internship program is a female empowerment program that provides opportunity for female engineering students. This program provides interns with opportunities to learn office work. This also provides them software and technical training which is beneficial for their future career. During this internship I did lots of on the job activities and gain software training, technical trainings and site visits which was really beneficial for me. I recommended some others activities at the end, and I thank those who give me the internship opportunity and helped me in my internship.

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1.0 INTRODUCTION

The Afghan Women Internship Program is funded by USAID and implemented by Tetra Tech Afghanistan Engineering Support Program (AESP) for the academic year 2015. This program which has proven to be useful and helped Afghan female engineering students to sharpen their skills, gain real experience in the engineering world and make them ready for the future challenges. Besides increasing the interns' capabilities, this program aims to promote gender equality and female empowerment. The internship allows female interns to become familiar with office work and office environments, takes them to site visits and gives shadowing opportunities. Also, software training are provided by expert engineers for interns. These on-the-job trainings are an important opportunity for interns which is really helpful for intern's educational background and future professional life.

2.0 ACTIVITY

During my university period I was looking for an internship opportunity to learn office work, become familiar with an office environment and get working experience. I was wishing to become part of this internship program and fortunately I was selected to be the architect intern of Tt for the 2015 academic year.

From the first day that I started my internship in Tetra Tech till end of the program I did many activities related to my field and learn some office works. Activities are listed in the below table:

Table 1: List of Activities

| Topic | Date | Instructor |
|--|-------------------|------------|
| MS office online training | February 28, 2015 | |
| Technical writing training | April 09, 2015 | |
| Effective presentation training | March 27, 2015 | |
| Auto CAD software training | March 10, 2015 | |
| International Building Code (IBC) training | April 23, 2015 | |
| Photoshop software training | May 4, 2015 | |
| MS project software training | May 03, 2015 | |
| Concrete mix design training | June 04, 2015 | |
| Soil training | June 10, 2015 | |
| Site visit | June 11, 2015 | |
| Revit Architecture software training | July 13, 2015 | |
| GIS software training | October 9, 2015 | |
| Health and Safety training | October 15, 2015 | |
| QA/QC training | October 20, 2015 | |

| | |
|---|------------------|
| Primavera software training | November10,2015 |
| Constriction management training | January 05, 2016 |
| Cost Estimation | October 20, 2015 |
| 3D MAX software training | |
| Writing CV and Resume and Mock Up interview | January 26, 2016 |

2.1 SHADOWING

Shadowing is working with another employee who might have a different job, who might have something to teach or can help the person to learn new things related to his or her work. During the internship program I completed shadowing which was a good experience for me. I met with successful ladies who shared their life experiences with us and they encouraged us to never give up. This was an important part of the shadowing for me.

2.1.1 Lunch gathering with [REDACTED]

The lunch gathering with [REDACTED] was one of the shadowing events that we had outside of the Tetra Tech office. At USAID, we met [REDACTED], the Ambassador's wife. She introduced herself and we had lunch together. She also called some other ladies who worked there, so we met new people and they shared their stories and told us where they worked and what their jobs were. Also, we shared our experience of life with them and they encouraged us for our future professional life and wished us the best of luck.

2.1.2 Office Shadowing 2

The first days when we were new in Tetra tech office engineer [REDACTED] taught us about the office share drives and how to work and share files also taught us about the office work and gave information about the office projects. During the internship program we had shadowing with other expert engineers and learned a lot of useful things.

2.2 SITE VISITS

Site visits in the engineering field are a process done before design in order to observe the site and gather specific information about the site. After site visits, the design process starts in order to build a structure. Engineering students also have site visits during university period, to gain practical experience and learn new things that they did not learn in classrooms. As an engineering student, I did site visits while doing projects at university. Also, Tetra Tech office gave me opportunities to visit sites. It was really beneficial for me, because I received information about many new and useful things such as applying project management during the construction process. I saw different stages of site work, beginning with excavation and continuing until the structure is fully built. In addition, during site visits I saw the concrete pouring process which was really interesting and a good experience for me. Beforehand I did not have this much information about the site visit process or the important safety that we must take on construction sites. The site visits were a great experience and it will be useful for my future professional life.

2.2.1 Camp Egger Site Visit

During the internship program in Tetra Tech the first site visit which we had took place at Camp Eggers on June 11th, 2015. People who involved were Engineer [REDACTED], Engineer [REDACTED] interns [REDACTED] and myself. That place was under construction so they took us there to teach us how the

construction work starts, what the process for constructing connexes is, and what the closeout processes are like.

2.2.2 US Embassy First Construction Site visit

The first site visit took place at USAID on September 03, 2015 it was a beneficial practice to get familiar with the site construction work. People who were involved in this site visit are Mr. [REDACTED] and Mrs. [REDACTED] and myself and three other interns ([REDACTED]). During this site visit I became familiar with site work, I learned how designs are being used on construction sites and how to manage all the work which was going on the site and this was a good practical example for me.

2.2.3 US Embassy Second Construction Site Visit

The second site visit took place on January 12, 2016, at USAID. The people who involved this visit were [REDACTED] - Structural Engineer, [REDACTED] - Mechanical Engineer, Mr. [REDACTED] Electrical Engineer, [REDACTED] - Project Manager, [REDACTED] - USAID Project Manager, [REDACTED] - USAID Civil Engineer, [REDACTED] - USAID Civil Engineer, [REDACTED] - Tetra Tech Architect, and myself and three other interns ([REDACTED]).

2.3 PRESENTATIONS

After starting the internship program at Tetra Tech, we had given two presentations. However, first, Engineer [REDACTED] gave us a presentation about effective presentation skills. The purpose of this presentation was to teach us how to prepare ourselves and deliver a presentation in a good and clear way. After learning the effective presentation skills, we were asked to prepare a presentation about ourselves and the Tetra Tech internship program. After preparing the presentations and applying the skills that we have learned, we presented the presentations to Mrs. [REDACTED] and Mrs. [REDACTED], the USAID point of contacts (POC's) for the internship program. The second time we gave the same presentation was to Mr. [REDACTED] Vice President, it also held in the Tetra Tech office. Mrs. [REDACTED] and Mr. [REDACTED] received the presentations and they got information about the interns, the past activities that we have done and the future activities that we were supposed to do at Tetra Tech. It was also beneficial for us and helped us to learn how to prepare a good presentation, including how to present a presentation in a way to attract the audience.

2.4 LAB ACTIVITIES

The lab activities contained two stages. First, the teacher/coach give extensive background information about the subject. Then we went to the lab to become introduced with the equipment and start the practicable lab work. Lab activities provided opportunities for students to apply the content knowledge to the task at hand. In this internship program me and two other interns, [REDACTED], attended construction material tests at the Construction Material Testing Laboratory KA. The first test was a concrete compressive strength test and the other tests were soil compaction, liquid limits test and plastic limit test. These lab tests helped me to get information about the equipment's use in labs, and become familiar with lab works. It was a good practice experience.

2.5 SOFTWARE TRAINING

The internship program provided us real working experience opportunities and the facilities that could help us to work as a professional person in the future. These trainings included engineering software training to learn software and to know how to work with the software programs which is really important for every engineering student. In today's world most engineering work is being done with the aid of software, without using software it would be so hard to work. Therefore they gave us software training taught by expert engineers in Tetra Tech. The software trainings I received from Tetra Tech are listed below:

2.5.1 AutoCAD Software Training

Auto CAD was the first software training that we got in Tetra tech from Engineer [REDACTED]. This training was for all of the four interns, because Auto CAD is one of the most useful engineering software every engineer need to know and to draw the engineering drawing.

2.5.2 MS Office Software Training

MS Office training was an online package for us. This training was in web site of www.mytetrathec.com, in the Microsoft self-peace trainings included many different course of MS Office programs and I chose MS Word and MS Excel to learn it online. For doing office work we need to know software like MS office package.

2.5.3 Photoshop Software Training

Photoshop training was given by Engineer [REDACTED] i for me and one other intern [REDACTED]. Photoshop is a program which mostly uses by designers all over the world. Architecture deals with designing so as an architect learning this program helps me in my professional life.

2.5.4 MS Project Software Training

The MS Project program offers the ability of organizing, planning, and managing resources in order to complete a goal. This program was taught to the interns during internship program by Engineer [REDACTED] [REDACTED] Project Cost Scheduler with the purpose of learning project management.

2.5.5 Revit Architecture Software Training

Revit software training was given by Engineer [REDACTED] to me and [REDACTED], this software is mostly uses by Architect for 2D and 3D designing. As an Architect learning this program will helps me in doing design both at university projects and future career.

2.5.6 GIS Software Training

Geographic Information System (GIS) is a software program that can be used to store, maintain, analyze, and manage a variety of geographical data. GIS can also be used to prepare the map of the data. This training was given by engineer [REDACTED] for me and three other interns [REDACTED]. GIS was a new software for me that I have learned. I did not have any past experience about this software.

2.5.7 Primavera P6 Software Training

Primavera provides the project management software for the architecture, engineering and construction industries. This training was given by Engineer [REDACTED] in the Tetra Tech office, with the purpose of teaching interns how to monitor and plan, and can be used by project managers, schedulers, employers, and stakeholders. From this training, I learned how to schedule tasks, assign resources and how to assign a calendar for a project.

2.6 TECHNICAL TRAININGS

Technical trainings taught the interns special skills on the technical components of their jobs. We had technical trainings during our internship in Tetra Tech which were delivered by experts. I had learned many effective things from these trainings. The trainings that we had are listed below:

Table 2: List of Technical Trainings

| Topic | Date | Trainer |
|--|----------------|------------|
| International Building Code (IBC) training | April 23, 2015 | [REDACTED] |

| | |
|------------------------------|-------------------|
| Concrete mix design training | June 04, 2015 |
| Soil training | June 10, 2015 |
| Health and safety | October 15, 2015 |
| Cost Estimation | October 20, 2015 |
| Constriction Management | December 29, 2015 |
| Resume and CV writing | January 17, 2016 |

2.6.1 International Building Code (IBC) Training

This training was on IBC on the 23rd of April at Tetra Tech. Three interns were in this training including myself, architectural interns, and two other civil engineering interns. The training was given by [REDACTED], and M [REDACTED]. I had past experience with codes, as I had to learn codes in university, specifically the codes which are related to architecture and also some ACI codes which I learned during concrete subjects.

2.6.2 Concrete Mix Design Training

The presentation about concrete and calculation was given by engineer [REDACTED] on May 21, 2015. The presentation attendees were myself, and two other interns [REDACTED]. After the presentation, I prepared a concrete mix design myself, and two other interns that Engineer [REDACTED] helped and guided us in making the mix design. We also did a slump test during mixing of concrete at Tt villa. This practical practice of making concrete was done in Tetra Tech office. The last step was testing the concrete strength which was done on June 4, 2015 in a concrete testing laboratory. I had past experience in making concrete mix design at university but I did not have that opportunity to do it by myself so this training was a very effective and beneficial experience.

2.6.3 Soil Training

This training was an introduction to soil and testing soil in a lab. Engineer [REDACTED] was our instructor and this training was delivered for me and two other interns [REDACTED]. First, Engineer [REDACTED] presents a presentation about soil, which included the introduction to soil, important characteristics of soil, secondly step was soil test, we went to soil testing laboratory we saw how the soil is being tested. The training occurred on May 28, 2015. I did not have any past experience in this program.

2.6.4 Health and Safety Training

This training was about health and safety during construction work on the site and was given by Engineer [REDACTED] to me and three other interns [REDACTED] in Tetra Tech office. The purpose of this training was to learn the importance of health and safety, and also to introduce the background and history of this program, and taking care of employees working on site to avoid injures.

2.6.5 Cost Estimation Training

Cost estimation was held in order to teach interns how to estimate the cost of their construction project. This training was given by Engineer [REDACTED] to me and three other interns [REDACTED] in Tetra tech office transportation department. The purpose of this training was to learn how to calculate the cost of engineering projects. During my university period I did not have any past experience about cost estimation.

2.6.6 Constriction Management Training

The job of construction managers is to plan and supervise construction projects from start to finish. Training about construction management was given by [REDACTED] in different days at Tetra tech office. The purpose of this training was to teach us specific project objectives including delineation of scope, budgeting, and project requirements and scheduling.

2.6.7 Job-Seeking Training (CV and Resume Preparation, Mock Interview)

A resume provides a summary of an individual's qualifications for a job. The training on resume writing was given by [REDACTED] to me and other three interns in the Tetra Tech office. The purpose of this training was to enable us to write, and provide a summary of our skills, abilities and accomplishments. Since resumes are a primary tool in a job search, your resume needs to be carefully written and critiqued. Therefore, they taught us how we can carefully write our resumes.

3.0 SUMMARY AND ANALYSIS

At the end, I would like to say this internship enabled me to get familiar with the office environment and also I learned how to work within an office which was a good experience for me. Also, every training that I have received in this internship was very useful and beneficial for me. I learned many new things related to my field. I learned new software like AutoCAD and Revit Architecture which are some of the most useful software programs for an architect. I learned how to apply theories to practical work, which is beneficial for my future career. Now I am able to work in an office as I know how to use all the things I have learned through this practical work.

3.1 RECOMMENDATIONS

I am glad to have this opportunity to work as an intern in Tetra Tech because I have learned many new things. Every training that I got during these six months was really beneficial for me. However, besides all the training, I also want to list some of my recommendations:

- Increase our site visits
- Be involved in office work other than the other trainings
- It will be good to have more shadowing opportunities

3.2 ACKNOWLEDGEMENTS

I would like to thank USAID and the Tetra Tech office for giving me such a good opportunity of having this internship in such a good place. I have learned lots of things including doing office works such as submittal reviewing, doing group work with other office staff and sharing the individual works that I have done with an expert engineer, applying corrections on all of it. These were new experiences for me. I became familiar with the office environment. At the very end of internship I was assigned to do a residential house design. Completing that project showed me that now I am capable in doing work as an architect. I also want to thank Engineer [REDACTED] our supervisor, for helping and guiding us and papering us many training and also Tetra Tech Engineers for giving us training and helping us to learn.

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USAID
FROM THE AMERICAN PEOPLE

ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD4

Afghan Women Internship Program

[REDACTED] - Final Report

February 16, 2016

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AFGHANISTAN ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD 4

Afghan Women Internship Program

2015 Academic Year Final Report - NOORJAHAN
SAFI

February 16, 2016

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

EXECUTIVE SUMMARY

The purpose of Afghan Women Internship Program that was implemented by Tetra Tech and funded by USAID was to provide work experience. During this period of time, they provided very significant trainings to build our capacity and improve our technical skills. We had training sessions that included different software programs, construction material trainings, cost estimation training, technical writing, giving presentations to the management team of USAID and Tt and other useful information.

The programs that have been presented by Tt engineers including national and expats during the academic year were really well-organized and covered all the required subjects clearly. Besides, all the theory which we have learned during four years at University, we have applied into practice and had a chance to use this important training in our future career.

Using the international codes for structure design was another important topic of this internship program and assisted us to use these codes in proper ways. The codes that we have learned and applied on some of our assignments are American Concrete Institute (ACI), International Building Code (IBC), and Minimum Loads for Building, American Association of State Highway and Transportation Officials (AASHTO), American Society for Testing and Materials (ASTM) and more.

Practical activities including concrete mix design, soil mechanics, asphalt and steel testing in the lab were also important for us. We learned how to design concrete mix accurately, how to properly add the admixture and how the statement method should be prepared. Therefore, all the mentioned opportunities will really improve our technical skill and allow us to use these practical training in our professional life.

Furthermore, technical capacity of all of the interns was improved and we will try our best to apply these practical learning in our engineering field and provide a perfect civil structure designs, BoQ, cost estimation and total budget with work breakdown analysis.

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1.0 INTRODUCTION

The Afghan Women Internship Program which was funded by USAID and conducted at Tetra Tech is a really valuable and helpful program for female engineers in Afghanistan. The number of ladies and female students in the engineering field is always less than other fields, especially in a country such Afghanistan. We have a limit of female engineers in this field, so this program provided a chance for all the participants to find a suitable job inside Afghanistan and participate in the development of this country.

Furthermore, this training enabled female engineering students to gain work experience, learn new design software programs, increase practical knowledge and allow us to collect technical data, uploading that data to the computer, designing civil structure projects, provide cost estimation sheet and create suitable working schedules for the proposed civil structure projects. Therefore, it is a really important program for interns to take the four years of theory and complement it with practical knowledge. I will never forget the practical subjects which I have learned here in Tetra Tech.

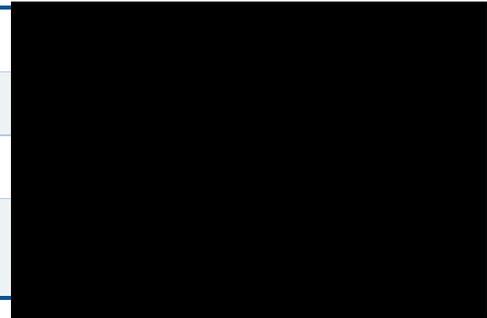
2.0 ACTIVITY

There were several lectures and software learning activities in this project given in order for the interns to gain effective work experience. In the category of lecture activities, we were taught some important theories and based on those theories, we were given projects and assignments to do so. For the software category, we were trained on the software menus, its usages, and its application. These trainings are briefly outlined in the following table:

Figure 1: List of Activities

| Topic | Date | Instructor |
|--|---------------------------|------------|
| Technical Writing Training | <i>April 09, 2015</i> | |
| Effective Presentation Training | <i>March 27, 2015</i> | |
| Auto CAD Software Training | <i>March 10, 2015</i> | |
| Epanet 2 Software Training | <i>June 22, 2015</i> | |
| International Building Code (IBC) Training | <i>April 23, 2015</i> | |
| Tarakhil Meeting | <i>April 01, 2015</i> | |
| MS Project Software Training | <i>May 03, 2015</i> | |
| Concrete Mix Design Training | <i>June 04, 2015</i> | |
| Soil Training | <i>June 10, 2015</i> | |
| Site Visit | <i>June 15, 2015</i> | |
| Asphalt Training | <i>June 17, 2015</i> | |
| Shadowing | <i>September 11, 2015</i> | |

| | |
|---|-------------------|
| Civil 3D Training | August 12, 2015 |
| GIS Training | October 8, 2015 |
| Primavera P6 Training | November 21, 2015 |
| Autodesk Storm and Sanitary Analysis Training | January 4, 2015 |



2.1 SHADOWING

Shadowing is one of the advanced and effective programs for sharing professional information and ideas with each other in a group discussion meeting. Depending on the management, sometimes it is required to have a group discussion and share all the important information with each other, especially with less experienced staff, and to note all positive points so that they can be applied on future occasions. Additionally, in the shadowing events everyone can have the chance to explain their ideas and thoughts about the subjects.

2.1.1 US Embassy Shadowing

During the first six months of our internship program, only one shadowing session was took place on Thursday September 11, 2015 at US Embassy. The involved people in this event were [REDACTED] architect at Tetra Tech, I and three other interns [REDACTED]. The purpose of this session was watching movie regarding Afghan culture and also many problems of young boys in Afghanistan.

2.2 SITE VISITS

Sites are the location where the students would learn practical activities and begin changing that four years of theory into real-world applications. It is necessary for all the professional staff to learn practical activities and increase their capability in regard to field work. Therefore, during internship program we attended several site visits which all of them were really necessary and important for the interns as we do not have such opportunities in the university. Some of these site visits are as follow:

2.2.1 Camp Eggers Site Visit

The Camp Eggers site visit was scheduled on Thursday June 11, 2015. The involved people in this site visit were [REDACTED] - Civil Engineer at Tetra Tech, [REDACTED] Architect at Tetra Tech, I and three other interns - [REDACTED]

First of all, we met with the project managers and engineering staff of the mentioned camp, each phase of the project was explained in detailed by the project manager and it was really important for the new interns and we arrangement for foundation works, compaction of foundation and etc.

2.2.2 US Embassy First Construction Site Visit

The first site visit of our internship program took place at US Embassy compound on Thursday September 3, 2015. The involved people in this site visit were Mrs. [REDACTED] Civil Engineer at USAID, [REDACTED] - Civil Engineer at USAID, [REDACTED] - Construction Manager, [REDACTED] - Tetra Tech Architect, myself and three other interns - [REDACTED]. Before visiting the site, the subject in regard of safety was clearly explained by Tetra Tech staff, who discussed paying attention to the safety rules and regulations which include wearing safety clothes and safety shoes.

After preparation, we went to USAID and took many memorable pictures with all the senior staff of USAID. Then the goal of the construction project at USAID was clearly explained by [REDACTED] and [REDACTED] they gave information about the owner of the project, general contractor and subcontractor

of the construction project. The received information was really useful and helpful for me and other interns.

This was a great practice work for me and other interns and it is really appreciated and I will never forget this memorable practical training.

2.2.3 US Embassy Second Construction Site Visit

The second site visit of our internship program was visiting another portion of US Embassy compound, including buildings under construction and concrete pouring. This occurred on Tuesday January 12, 2016. The involved people of this site visit were [REDACTED] - Structural Engineer, [REDACTED] - Mechanical Engineer, [REDACTED] - Electrical Engineer, [REDACTED] - Project Manager, [REDACTED] - Project Manager, [REDACTED] - Civil Engineer, [REDACTED] - Civil Engineer, [REDACTED] - Tetra Tech Architect, I and three other interns [REDACTED] i).

We visited the water treatment plant, mechanical system of the buildings, concrete pouring and some other important locations. During this visit we asked our questions and we received very clear and useful responses.

I can state that the visit was an excellent experience for me, I learned many important topics about site works and I got familiarized to the site work processes, which will have good impact to my future career.

2.3 PRESENTATIONS

Presentation was another important part of the internship program which made us able to give presentations with self- confidence and without feeling shy. For this purpose, before presenting any slides, we received a presentation about technical presentation skills on May 12, 2015. This training covered all the important points about a professional presentation including the formatting of slides, presenters' clothes and the way of presenting. After that we gave two presentations about ourselves, the internship program and our expectations to Mrs. [REDACTED] (POC of this project at USAID) and Mr. [REDACTED] o - Vice President of Tetra Tech.

2.4 LAB ACTIVITIES

During the internship program we had several laboratory activities and construction material testing in the lab including concrete strength test, soil mechanics, steel and asphalt testing. The mentioned tests which we have done this year were really important for all of us. The laboratory schedule was prepared by Engineer [REDACTED] and Engineer [REDACTED]. The purpose of this lab test was mixing dry materials then adding water to the mix until getting the required slump by testing the sample in the laboratory and our knowledge was increased by visual practice and inspection. It was a good opportunity to bring our studies into practice.

2.5 SOFTWARE TRAINING

These days, using engineering software is an easy option in order to facilitate the design process of a project and to save time and accuracy on a project. Therefore, it was required for all engineers to learn this new technique for saving time and providing a quality product for the donor, client and construction companies.

Under this internship program, we have learned the following software programs in a very professional ways which enabled us to design structural project by applying these new software programs.

2.5.1 AutoCAD Software Training

The subject of this assignment was AutoCAD training, arranged from 28th of February till the 30th of March by Miss [REDACTED] and three other interns learned this important software and it was really interesting for all of us. After learning this software I am able to draw the project plans, elevations,

sections and details. Providing all the above-mentioned drawings in a short period of time was one of the hard things about designing by hand.

2.5.2 MS Project Software Training

The subject of this assignment was MS Project and the proposed subject was explained by Engineer [REDACTED]. This training took one month, starting on May 5, 2015 and ended on June 5, 2015. Three interns and I participated in this training. This was my first training in MS Project. This training was one of the most beneficial and valuable trainings, which I learned at Tetra Tech. Attending this training enabled us to create a project schedule and compare the actual performance with planned activities. Furthermore, this is a sort of project management and project implementation which need to be followed during implementation of project. After completion of the project, we did an assignment using this software.

2.5.3 Epanet-2 Software Training

This training was started on June 22, 2015 at Tetra Tech and the proposed software was explained to me and to [REDACTED]. It was very important training, because we had an idea about the theory but no idea about practical activity and how to apply it. After understanding this software, all the studied materials can be applied and the result is very clear and acceptable for all international and national agencies. As it is right of each individual to have access to the clean and potable water. Therefore, all engineers should know this software and design a huge project in a provincial level.

2.5.4 STAAD Pro Software Training

STAAD Pro is very useful program in civil engineering and it can easily calculate the moment and shear for all of the components, such as slab, beams, columns and foundation. We were asked to calculate these important items by hand and more time was required to calculate moment and shear, so this software enabled us to calculate moment and shear for all the above mentioned items. Furthermore, we can easily design all of the above items and can check the results with the allowable strength of concrete and steel. Therefore, it was really important for all civil engineers to know this software and use it in practical ways.

2.5.5 Civil 3D Software Training

The subject of this assignment was Civil 3D and it was arranged in Tetra Tech villa by Engineer [REDACTED]. It started on August 12, 2015 and ended on September 28, 2015. This is very useful program for road design and enabled us to calculate all construction and geometric parts of the road include location map, alignment, cross section, longitudinal profile and location of each structure. We have studied road project in great detail but it was really difficult for us to draw the design line over profile. After applying this software, it is easy to design all the geometric parts of the road which include horizontal and vertical curves, super elevation, camber and longitudinal slopes.

2.5.6 GIS Software Training

The subject of this assignment was GIS training arranged for one month from October 08 to November 07, 2015 and taught by [REDACTED]. The purpose of this software is to find the exact location of the project and draw the alignment of project. I can argue that it was really important for all of us to know this software, so fortunately the training was provided by Tetra Tech. We have learned the proposed software in professional ways.

2.5.7 Primavera P6 Software Training

The subject of this assignment was Primavera P6 training from November 21, 2015 to January 12, 2016 taught by Engineer [REDACTED]. We can use this software to create a schedule for the project implementation. Additionally, the actual progress is easily compared with the approved plan, so any delay

can easily be adjusted and it has some other benefits over MS Project. I can state that this program is the developed version of MS Project and was professionally explained by [REDACTED]

2.5.8 Autodesk Storm and Sanitary Analysis (ASSA) Software Training

The training was arranged by Tetra Tech and explained by Engineer [REDACTED] [REDACTED] on January 4, 2016. At the beginning Engineer [REDACTED] explained all the required information about the Autodesk Storm and Sanitary Analysis Training program.

In due course, I have learned the required information about the ASSA which is important to know. This training was valuable and was used for university assignments which included designing of water supply scheme, networks, pipe diameter and maximum and minimum pressures inside the pipe. It was really interesting software, because all the questions in regard of our practical activities have been solved.

2.6 TECHNICAL TRAINING

Technical trainings comprise the largest segment of technical communications. These trainings are really effective, powerful and important for all engineers. This is because all engineers should have technical knowledge of their disciplines and should be familiar with technical writing skill for presenting the project implementation reports.

Figure 2: List of Technical Trainings

| Topic | Date | Trainer |
|--|--------------------|------------|
| Technical Writing Training | April 09, 2015 | [REDACTED] |
| Auto CAD Training | March 10, 2015 | [REDACTED] |
| International Building Code (IBC) Training | April 23, 2015 | [REDACTED] |
| MS Project Software Training | May 03, 2015 | [REDACTED] |
| Concrete Mix Design Training | June 04, 2015 | [REDACTED] |
| Soil Training | June 10, 2015 | [REDACTED] |
| Asphalt Training | June 17, 2015 | [REDACTED] |
| STAAD Pro Training | March 22, 2015 | [REDACTED] |
| Quality Control and Quality Assurance Training | September 17, 2015 | [REDACTED] |
| Cost Estimation Training | November 5, 2015 | [REDACTED] |
| Health and Safety Training | November 12, 2015 | [REDACTED] |
| Construction Management Training | January 05, 2016 | [REDACTED] |

2.6.1 Technical Writing Training

As it is required by office to have proper writing skills, the Technical Writing training was planned by Tetra Tech and delivered by [REDACTED] on March 09, 2015 in the Tetra Tech conference room. In this training, I and three other interns participated and learned most of the skills which was required for writing. With the help of this training, I can easily write a report and can present the project activities to a senior authority.

In addition, we have learned all the report types, such as cumulative reports, progress reports, final reports, and yellow, green and red reports. This has had a positive impact in my career, and I will follow all the rules and regulations of report writing. Many thanks to all of Tetra Tech's senior authority and USAID.

2.6.2 International Building Code (IBC) Training

As all structural design has to be done by international codes, International Building Code was provisionally explained by Tetra Tech which included explanations of Fire and Smoke Protection, Fundamentals of Pressure Relief Devices, Bearing Capacity of Soil (BCOS), external and internal design of building, concrete design, steel design, and wind and earthquake calculation and deflection. The training took place on April 23, 2015 in the Tetra Tech conference room. All four interns were present at this training and learned how to use and apply the IBC code in design of the projects.

Receiving this training enabled us to use the codes in proper ways and calculate the important items of the structure properly, so with the help of this and other codes, we can provide a perfect design for the large projects. This training was very important in order for all the interns to understand the International Building Code (IBC) Training.

2.6.3 Soil Training

As knowing different type of soil is important for all the civil engineers, the proposed training was provided by Tetra Tech on June 4th, 2015 and the practice took place in a laboratory. For the designing of all type of project it is important to know the type of soil which includes clay, silt, sand, gravel and mixed sand with gravel and bearing capacity of above mentioned soils.

In addition to this, liquid limit, plastic limit, plasticity index and maximum dry density were also explained by laboratory representatives. It was very helpful training, because the different types of soil were checked visually.

2.6.4 Asphalt Training

Road subject was explained as a detailed theory during the four years period in university, but applying that theory into practice was really difficult. Therefore, this important practical training was provided by Tetra Tech on 15th of May in the Tetra Tech conference room to myself and the other civil engineering intern, [REDACTED]

Thickness calculation of each asphalt layers and mix design of asphalt was professionally explained by Engineer [REDACTED]. For all civil engineers, it is important to know the mix design of asphalt, thickness of asphalt, and temperature during mixing and paving. Now I know how the asphalt needs to be designed and paved on the road base course.

2.6.5 Concrete Mix Design Training

The training was presented by Engineer [REDACTED] on 21st of May. I and two other interns attended this training. After the training, we started the practical portion in which we prepared a concrete mix design.

Previously we have studied the theory, but Engineer [REDACTED] helped us to prepare a perfect mix design. After preparing the proposed mix sample, we tested the strength after seven days had passed. We

learned how the concrete cube needs to be tested, how the result is going to be recorded, and how this result is important for the life of the project.

2.6.6 Quality Control and Quality Assurance Training

This training was given by Engineer [REDACTED] on the 17th of September at Tetra Tech. We received important information about Quality Control and Quality Assurance. As the quality of the project is necessary for the life of the project, we learned how the quality of the project must be checked and how the quality needs to be achieved for all projects. It is necessary to monitor the project during implementation to fulfill the donors and clients requirements and implement the project with high quality which will allow the project to stand against any loads, so this was very interesting issue for me and others.

2.6.7 Cost Estimation Training

The subject of this assignment was Cost Estimation training, which was held for 15 days from the 5th of November till the 20th of November, 2015 by Engineer [REDACTED] I and three other interns - [REDACTED] participated as trainees to learn the estimation of each activity and calculate all of the proposed materials such as cement, sand, gravel, stone, bricks, skilled and unskilled labors and costing of the proposed quantities. Therefore it was really important for all of us to know, how to prepare BoQ and project cost.

2.6.8 Health and Safety Training

The subject of this assignment was Health and Safety training, which was held for 15 days, from the 12th of October till the 23th of November by Engineer [REDACTED]. I and three other interns - [REDACTED] - also participated as trainees.

For the project implementation, it is very important to follow the safety rules and regulations to avoid any wasting of human life, machinery and resources. We learned how the project needs to be implemented with the safety rules and regulations in mind, as this is a huge requirement of international agencies to have an approved safety instruction manual.

2.6.9 Construction Management Training

The construction management Training was given by Mr. [REDACTED] on the 5th of January 2016 and Mr. [REDACTED] on the 6th of January 2016 in the Tetra Tech conference room. The road structure training was given by Mr. [REDACTED] on the 7th of January until 10th of January 2016 in the Tetra Tech conference room. In these trainings, I and three other interns participated - A [REDACTED] Construction management and project implementation management are really important trainings for all those engineers who are going to be involved in the project implementation process. We have learned how the project needs to be implemented, how the report needs to be prepared, how the quality of project needs to be checked and furthermore how critical issue needs to be solved. Now we are able to think about all the critical issues in advance and prepare the alternative ways.

3.0 SUMMARY AND ANALYSIS

This was a one year internship program for me and others where we have learned a lot here at Tetra Tech. I will never forget this practical training, such as learning engineering software programs, applying theory into practice and having a visual check of all the required subjects. I will try my best to apply all of this information to my professional skills and improve my technical activities, while working with donors. This internship program was well organized by Tetra Tech. All the time we have been busy with the civil department engineering tasks and the engineers have worked hard with us and prepared modern materials and information.

3.1 RECOMMENDATIONS

Our internship program was well organized and managed, and we have learned a lot here in Tetra Tech. Therefore you are all kindly requested to provide job opportunities for all those interns who have trained here, otherwise we will never apply it in our future career.

3.2 ACKNOWLEDGEMENTS

First, I would really like to thank USAID for providing us this opportunity which is really useful and helpful for Afghan female engineers because it is a rare opportunity we don't have such occasions in Afghanistan for female engineering students.

I thank my hard working supervisor, [REDACTED], who always helped us get opportunities to work with expert engineers at USAID and make this internship much more useful. In the current situation of Afghanistan, female students need huge support to build up their career, this internship has boosted my confidence and allowed me find myself in a real working environment. Additionally, some examples of how I benefitted from the Tetra Tech internship include the following:

- I became familiar with the working environment
- My communication skills developed
- I have learned team working and individual working
- I have experienced the real working environment and did capacity building activities and assignments
- I took part in submittal review
- I have learned time management skills and producing high quality products
- Attending meetings and taking notes
- How to write resumes/CVs and how to be well prepared for a successful interview
- How to be well prepared for the presentation to the technical and management teams

And also thanks to Tetra Tech and USAID Engineers that really helped us through shadowing, sharing their engineering experiences and answering our engineering questions.

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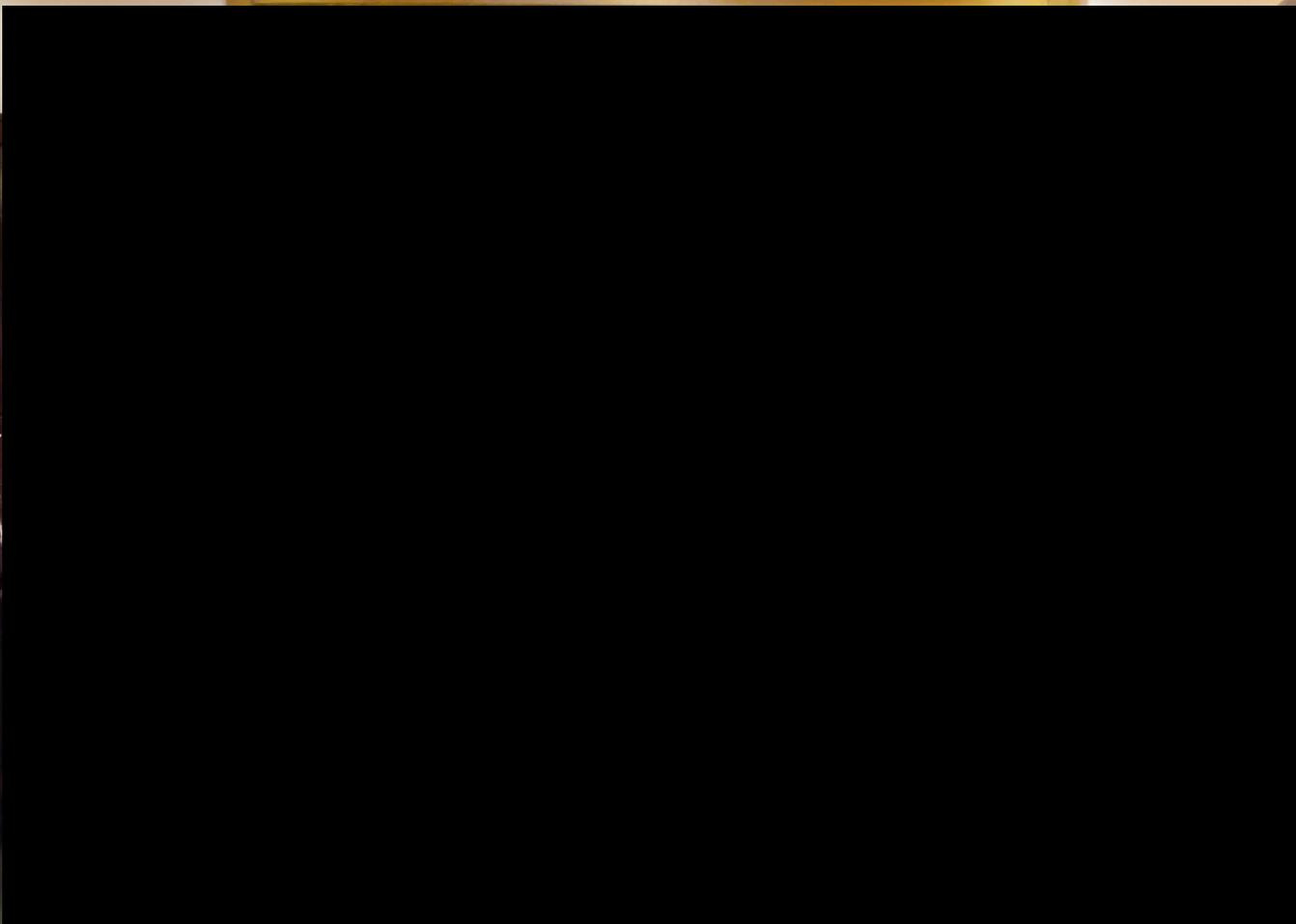
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Task Order No. 1

WO-LT-0042 AMD4

Afghan Women Internship Program

[REDACTED] - Final Report



February 16, 2016

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AFGHANISTAN ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD 4

Afghan Women Internship Program

2015 Academic Year Final Report - TAIBA JAFARI

February 16, 2016

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

EXECUTIVE SUMMARY

Throughout this report, I have described the Afghan Women Internship Program activities and the exposure that I have had during the time that I was a part of this program at Tetra Tech AESP.

The purpose of the Afghan Women Internship Program is to provide female engineering students with opportunities for practical engineering-related lessons. Through this program, young female engineering students take trainings in accordance with their requirements. In addition to being involved in site visits and other events, they can become familiar with real world aspects of engineering.

Activities that I attended during my internship at Tetra Tech consisted of software trainings, technical trainings, site visits, on-the-job trainings and shadowing. Software trainings were provided to help us learn the software we are required to work with, such as AutoCAD and MS Project. The other sort of trainings that we had were technical. The Civil, Electrical and Architectural Interns focused on the technical trainings most related to their majors, together with the related departments at Tetra Tech. Having the opportunity to work in an organization that values team work created a sense of cooperation and group effort, as we all worked towards a common goal.

In addition to the software and technical trainings, there were on-the-job trainings that included us in some ongoing activities in the office, so that we could learn and reinforce our studied lessons practically. Besides these, we were required to prepare memos and reports for each task, and we were involved in other engineering activities, such as submittal review and scheduling.

Site visits were also an important part of this internship, and completing this activity allowed us to become familiar with the sites where projects were ongoing. This part of internship was very important and interesting, because our universities do not provide site visits, and having this kind of experience during our internship enhanced the students' abilities for a brighter future.

More details on the different activities of our internship are provided in the following report.

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1.0 INTRODUCTION

An internship program in the engineering field is what university engineering students search for, because high-level engineering requires the engineer to have experience and professionalism. As there are no opportunities for female engineers in Afghanistan, creating such an opportunity is a creative way to prepare female engineers to join the workforce. The Afghan Women Internship Program was funded by USAID and executed by Tetra Tech. This program provided opportunities for female students in their fourth year of engineering. The ultimate goal of this program was capacity building, and enhancing the skills of women in the engineering field.

Important activities during this internship included efficient trainings, which helped us become more professional in our field. The two important categories of these trainings were software and technical trainings, each of which are beneficial for our future careers.

Table 1: List of Activities

| Topic | Date | Instructor |
|--|------------------------------|------------|
| <i>MS Office Training</i> | <i>April 21st</i> | |
| <i>Photoshop Training</i> | <i>June 27th</i> | |
| <i>AutoCAD</i> | <i>March 10th</i> | |
| <i>Electrical Codes</i> | <i>April 30th</i> | |
| <i>Electrical Equipment</i> | <i>April 5th</i> | |
| <i>Electrical Specifications</i> | <i>June 5th</i> | |
| <i>Effective Presentation Training</i> | <i>April 16th</i> | |
| <i>Technical Writing</i> | <i>March 9th</i> | |
| <i>Interns Presentation</i> | <i>May 12th</i> | |
| <i>Revit Architecture training</i> | <i>June 30th</i> | |
| <i>MS Project Training</i> | <i>July 7th</i> | |
| <i>Site Visit</i> | <i>June 15th</i> | |
| <i>Electrical Calculation</i> | <i>July 15th</i> | |

1.1 SHADOWING

Shadowing are the events or exposures that USAID and US Embassy provides for the internship program, and covers any events between the interns and USAID as the funding agency. During shadowing events, interns were invited to USAID and US Embassy to join in programs which covered social and technical issues.

1.1.1 First Shadowing Event

The US Embassy invited us to join them for watching a movie. The movie, which was recorded in Afghanistan, had expressed different issues and problems that an Afghan man had when he wanted to get married. We were also introduced to Mrs. [REDACTED], the US Ambassador's wife.

1.1.2 Second Shadowing Event

The second shadowing event occurred on Thursday August 20. Mrs. [REDACTED] invited us for lunch, during which we met Ambassador [REDACTED] and other well-known and experienced people. Ms. [REDACTED] Local Ordinance Advisor, Ms. [REDACTED] i, Gender Program Specialist and Ms. [REDACTED] [REDACTED], Senior Development Outreach Coordinator joined our group. It was a great pleasure joining such honorable people.

1.2 SITE VISITS

Site visits are the experiences we have on different project sites. During site visits we learn practical aspects of engineering designs and get familiar with importance of visiting the sites where the designs are applied. Additionally, visiting the sites help us to be more realistic and apply what we have learned to future designs and project management.

1.2.1 Camp Eggers Site Visit

This site visit took place on June 15, 2015 and was conducted by [REDACTED], Civil/Structural Lead for Tetra Tech. All interns attended. The camp was under the demolition and site clearing process. Two of the AEGIS employees guided us and answered all our questions. We had all the safety materials like boots, glasses, and hard hats. It was the greatest experience for all of us.

1.2.2 US Embassy First Construction Site Visit

This site visit took place on September 3, 2015. The purpose of this visit was to familiarize us with engineering fields. We had a great visit to the construction site and generator power plant on the under-construction site. Electrical Engineers explained the site features, and clarified any ambiguous points. The power generation part of this site visit was the best part for me because I never had any experience with power plants.

1.2.3 US Embassy Second Construction Site Visit

The next site visit that was conducted in the US Embassy was a tour through the construction site, and electrical and mechanical systems. The important parts of this event were the solar panel system, lightning assessments and electrical installations in basic construction activities. Pouring concrete and form work were the construction activities which we were exposed to. Mechanical room equipment and the water treatment plant were other aspects of this site visit. [REDACTED] - USAID Structural Engineer, [REDACTED] - USAID Mechanical Engineer, [REDACTED] - USAID Electrical Engineer, [REDACTED] and [REDACTED] - USAID Project Managers, [REDACTED] USAID Civil Engineers, and [REDACTED] - Tt Architect and the Internship Program Lead accompanied during this site visit.

1.3 PRESENTATIONS

Presenting is the important skill of delivering information to audience. We had two presentations during my internship. The first presentation was a basic introduction of the internship program and ourselves for [REDACTED] - the Internship Program Leads from USAID. The second presentation with the same content was presented to [REDACTED] - AESP Chief of Party and [REDACTED] - AESP Executive Vice President at Tetra Tech by the interns. These two experiences were very instructive for me. Since Tetra Tech employees checked our presentations slides and skills, they had their comments on it.

1.4 SOFTWARE TRAINING

Software training was one of the important parts of our training at Tetra Tech. Software is one of the important tools of engineering which enables engineers to work precisely, quickly and easily. These

trainings were the necessity of our career. The software we learned during this period of time were: MS Office Package, AutoCAD 2014 (which is required for most of the engineers), Revit Architecture, Photoshop, MS Project, Arc GIS, and Primavera. We were asked to work on a sample project in each of the software programs in order to learn practically. The software we learned will definitely help us in our future careers and will give us skills to work as professionals.

1.5 TECHNICAL TRAINING

Technical trainings are the part of trainings concerning our own majors. I received Electrical Equipment, Electrical Specifications and Electrical Codes trainings as my technical trainings. During each, electrical engineers of Tetra Tech were the instructors. Technical trainings in Tetra Tech were somehow different from school, because they covered career aspects of the theories we have learned in school.

Table 2: List of Technical Trainings

| Topic | Date | Trainer |
|----------------------------------|---------------------------------|---------|
| <i>Electrical Equipment</i> | <i>April 5th</i> | |
| <i>Electrical Specifications</i> | <i>June 5th</i> | |
| <i>Electrical Codes</i> | <i>April 30th</i> | |
| <i>Technical Writing</i> | <i>March 9th</i> | |
| <i>Electrical Calculation</i> | <i>July 15th</i> | |
| <i>Electrical Design</i> | <i>December 14th</i> | |
| <i>Cost Estimation</i> | <i>November 5th</i> | |
| <i>Health and Safety</i> | <i>November 12th</i> | |

1.5.1 Electrical Equipment

This training was instructed by [REDACTED] Senior Electrical Lead, in order to get familiar with vital parts of the electrical system including the power transformers. Since in an electrical system design, it is of a great importance to use proper equipment and proper ratings, it was very beneficial for me to have a training on electrical equipment.

1.5.2 Electrical Specifications

Electrical specifications are all about how to get familiar with the specifications defined for different parts of a project. During this training, [REDACTED] - Electrical Project Engineer, described the different parts of a specification document and led me to a website where I could find a general template of all engineering specifications.

1.5.3 Electrical Codes

The most important part of engineering is to design in compliance with norms and standards. Being able to know and read the codes when required is vital. Therefore, as one of the technical trainings, we had codes that covered the issues. The code book that we mostly focused on, was NEC (National Electrical Code).

1.5.4 Technical Writing

Reports bring the result of engineering projects on to paper. Technical writing was a guide to write reports, emails, and Memos. [REDACTED] - former MIS Manager for Tetra Tech, conducted this training for us. We got to know how to create with our assignment memos, how to write reports and emails. Throughout the internship, we were assigned to write assignment memos, and put all we learned into paper.

1.5.5 Electrical Calculation

Electrical calculation was a training conducted by [REDACTED] Electrical Lead, and made me familiar with usage of excel sheets when doing calculations, and what are the steps to undertake while doing electrical design calculations. Because excel sheets have great importance in electrical calculation process, I received good information of how to use excel sheets accordingly.

1.5.6 Electrical Design

Electrical design training was a wonderful task that helped me learn how to design the electrical system of a house and an overview of urban electrical design. This training was conducted by [REDACTED] – Electrical Engineer. I started with a simple design, and went through two more complex ones. Each time I took my design to the instructor, he would check and give comments on them. Since this training was in parallel to my wiring design course in school, I got more benefit of it. This training resulted in my getting a good score in school as well.

1.5.7 Cost Estimation

One of the important features of engineering is to be able to estimate the cost of the project. This feature give the engineers a tool to come up with the economical designs. This training was conducted during a series of estimation trainings at Tetra Tech by [REDACTED] – Civil Engineer. This training gave us a good vision on how the cost estimation process takes place and what are the items considered. At the end, we had an assignment in accordance with the training we got.

1.5.8 Health and Safety

To help us understand the safety points, this training was conducted to us by [REDACTED] - Health and Safety Engineer. He gave us overviews on what are the possible troubles in the site and how to prevent them from happening and who to use the protection materials during visiting the sites.

2.0 SUMMARY AND ANALYSIS

The internship program helped me improve my engineering required skills. Technical trainings, software trainings and site visits were all capacity building programs. Internship is a kind of job experience that helped us to be ready for future jobs. Becoming familiar with official environment, which is completely different from university, is one of its benefits. Since universities are just teaching theories, understanding of how theories are applied in real life is a need, which was met during our internship program. Trainings that were scheduled according to our needs were held on their fixed dates. The engineers of Tetra Tech trained us, gave us assignments accordingly and answered our questions and made me able to use the software I learned in my university projects. The trainings I passed, gave me new skills to better work on projects and now I have a better understanding of my major. Furthermore, I was involved in some on the job trainings that made me understand more about engineering career.

2.1 RECOMMENDATIONS

Because an internship is a path for university students to learn the real job requirements, which are different from university theories, site visits are vital events. Site visits give the interns a good idea of how the projects are applied. Visiting the sites is important for either becoming a design engineer or a

site engineer. The only recommendation I want to add is, the program should increase the number of the site visits. Universities do not provide these opportunities, so it is a very important for interns during internship.

2.2 ACKNOWLEDGEMENTS

I would to dedicate my special thanks to USAID for providing similar programs and opportunities for Afghan women students. I would also like to thank Tetra Tech and each member of the team for their efforts, and positive attitude. During this internship, I learned how to conduct official communications, the process of reviewing and commenting projects, the difference between theory and practice. Therefore, I highly appreciate everyone who participated in our internship program.

APPENDICES

APPENDIX A
PHOTOS



Figure 1) Intern presentation to [REDACTED]

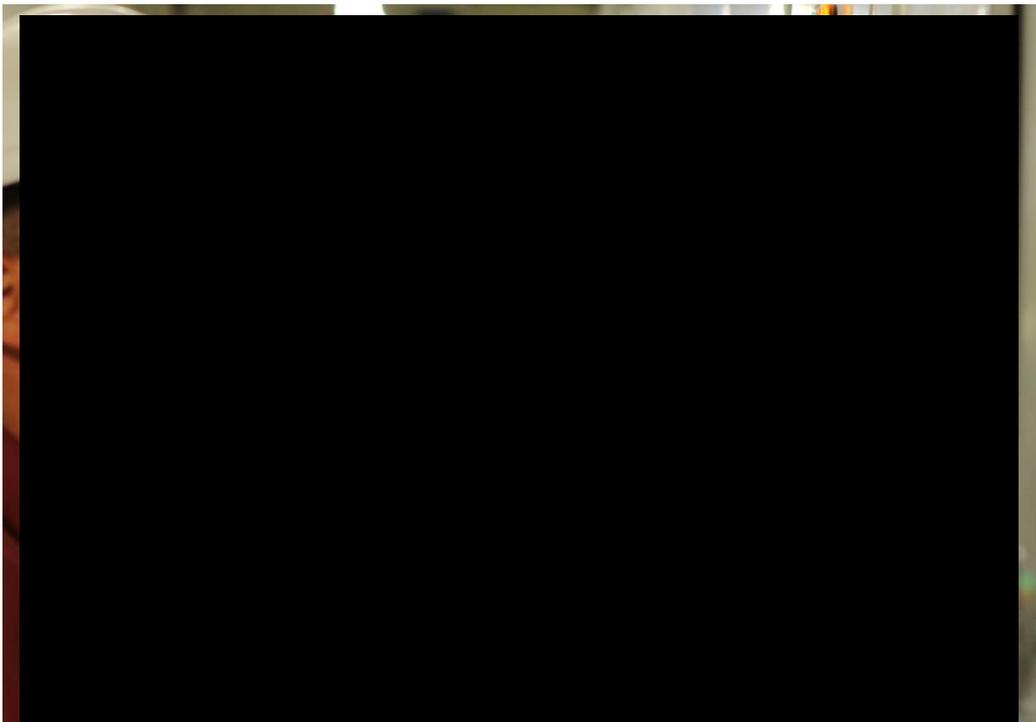


Figure 2) Site Visit in US Embassy Generator House

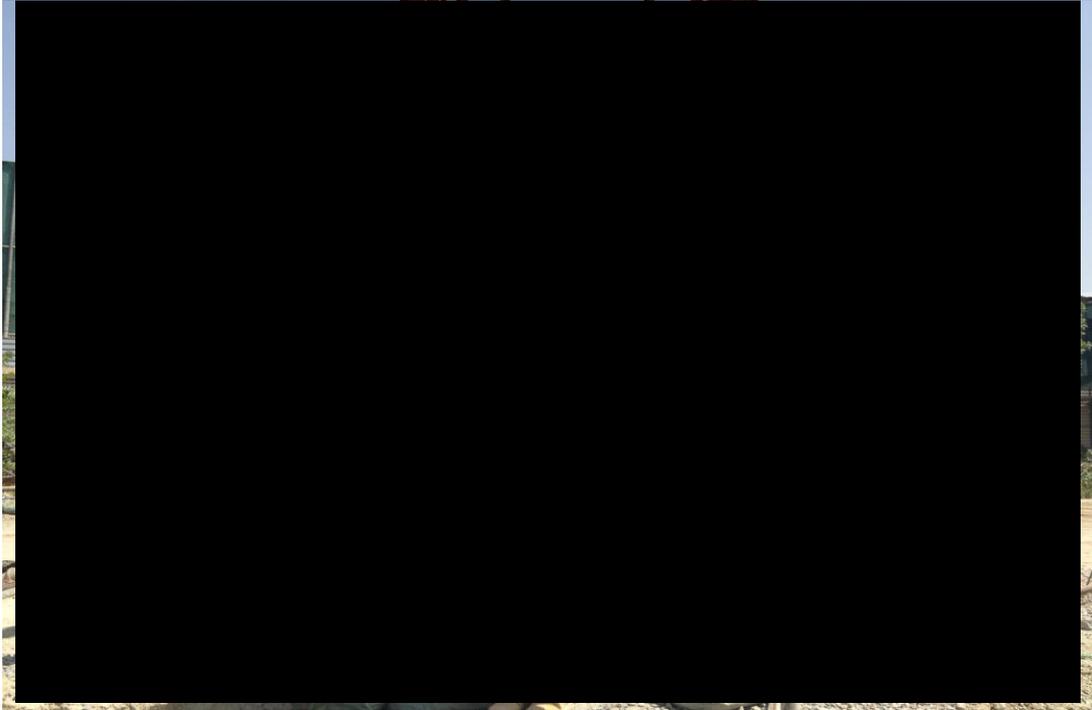


Figure 3) Camp Eggers Site Visit

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**APPENDIX B - TECHNICAL WRITING AND EFFECTIVE
PRESENTATION MEMORANDUM**

Assignment MEMO

By: [REDACTED]

Date: March 09, 2015 & April 16, 2015

Assignment: Technical Writing and Effective Presentation Trainings

Instructor: [REDACTED] i

Summary

The Technical Writing and Effective Presentation trainings were held for us to learn about the documents we are to write and the presentations that we will prepare. We were taught about how to effectively present and how to write technically.

Background

During the Technical Writing training, different kinds of reports which we will write were described. We learned to write memos and reports. In order to understand about the presentations and how to present effectively, we passed the effective presentation training, during which we got the points to prepare well organized power point slides. I had a technical writing course at the university before this training. At that course, different types of documents such as memos, reports and letters were defined. However, at Tetra Tech I practiced writing them, which helped me a lot.

Assignment Activities

In technical writing training, the instructor ([REDACTED] MIS Manager) presented on topics such as outlining what we want to write and expanding on our thoughts. We were asked to write a few lines about something, after which the instructor checked all the papers and revised them. The instructor also described templates of the reports and memos we are assigned to write at Tetra Tech. During the effective presentation training, the instructor explained well organized slide shows, and how to design slides to promote their readability. For instance we learned that in order to have readable slides, taking care of the font colors, background colors, size and types of the fonts is very important.

Outcome

Gaining familiarity with types of reports we will have to write was an outcome of the Technical Writing training. As a result of our Effective presentation training, we designed our presentation files and presented in front of the Mr. [REDACTED] and USAID contacts.

Summary and Analysis

Since we have to write many reports and memos, even as interns, and we will have presentations in our internship, both of these trainings were helpful. Engineers need to write reports and of course writing is not taught in engineering schools, so we required to learn writing during our internship period.

Pictures and Figures

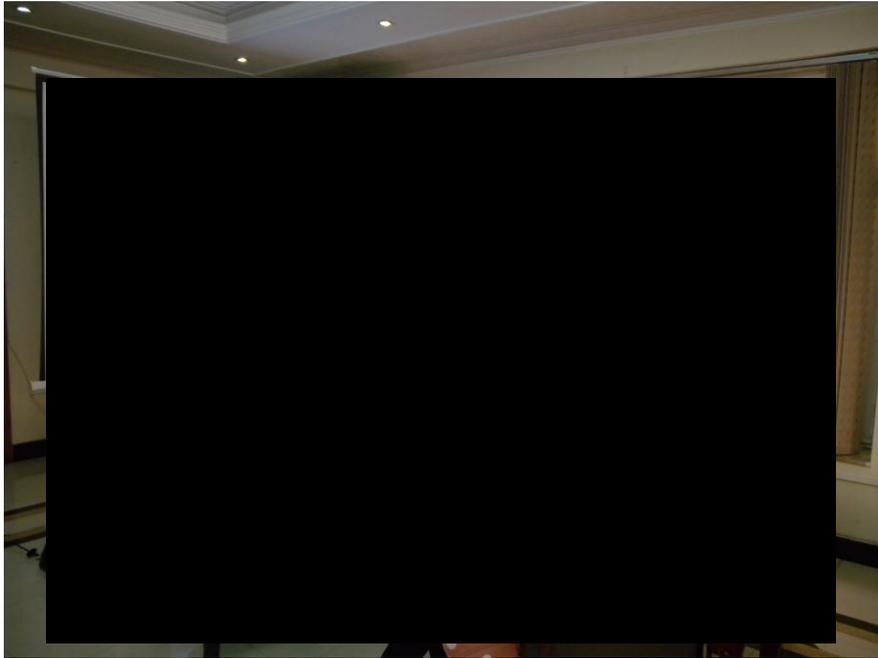


Figure 1. Technical writing session

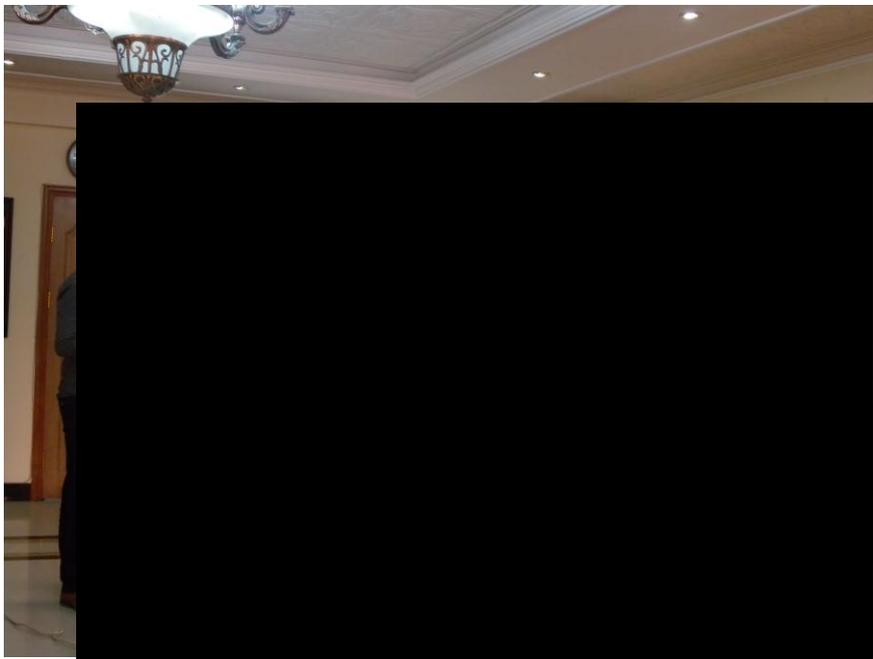


Figure 2. Effective presentation session

Assignment MEMO

By: ██████████

Date: March 09, 2015 & April 16, 2015

Assignment: Technical Writing and Effective Presentation Training

Instructor: ██████████

Summary

These trainings were carried out in order to teach us technical writing and presentation skills and also to prepare us for writing and giving effective presentations.

Background

The subject of these trainings was Technical Writing and Effective Presentations. The technical writing training was presented to us on Monday, March 9. People involved in technical writing training were our instructor Mrs. ██████████ MIS Manager, myself, our supervisor ██████████, and the three other interns (██████████). The effective presentation training was presented on Thursday, April 16. Those involved in effective presentation training were our instructor ██████████, Civil Engineer, myself, and the three other interns. My practical experience was in academic technical writing at university but not in technical writing. I did not have any previous experience for effective presentation training.

Assignment Activities

The technical writing training was executed in one step in the large conference room at Tetra Tech.

We were taught about:

- Kinds of technical writing
 - Academic writing
 - Technical writing
- Parts and characteristics of academic writing
 - Introductory paragraph
 - Body paragraph
 - Conclusion paragraph
- How to write our assignment memos:
 - Summary paragraph
 - Background paragraph
 - Assignment activities
 - Outcome
 - Summary and Analysis

We had discussions during this training and we were also given a class assignment in order to catch more from the lecture.

The effective presentation training was also executed only in one step. Its contents were:

- Introduction to presentation
- The three main purposes of giving a presentation
 - Inform
 - Encourage
 - Educate
- How to make a presentation
 - Determine your purpose
 - Know your audience
- How to give a presentation
 - The voice
 - Use of right words
 - Use of body language

These were the contents of the effective presentation training and technical writing training. Important topics to learn were technical writing skills and important tips for giving and preparing effective presentation.

Outcome

The outcome from the technical writing training was learning the difference between academic writing and technical writing which was most beneficial for me. Also, learning about preparing and giving a presentation made me more confident and built my skills effectively for providing a presentation and giving a presentation.

Summary and Analysis

The things that I have learned were beneficial for me and were most useful for both my study period in university and my internship period in Tetra Tech. These advantageous skills will help me in my educational background for example: as an employee in an office, I will have knowledge and skills of writing for some reports and time sheets. Also having effective presentation skills will help me when giving presentations on meetings and other important events.

Pictures and Figures

Pictures taken during training are:



Figure 1: [REDACTED] giving us technical writing presentation

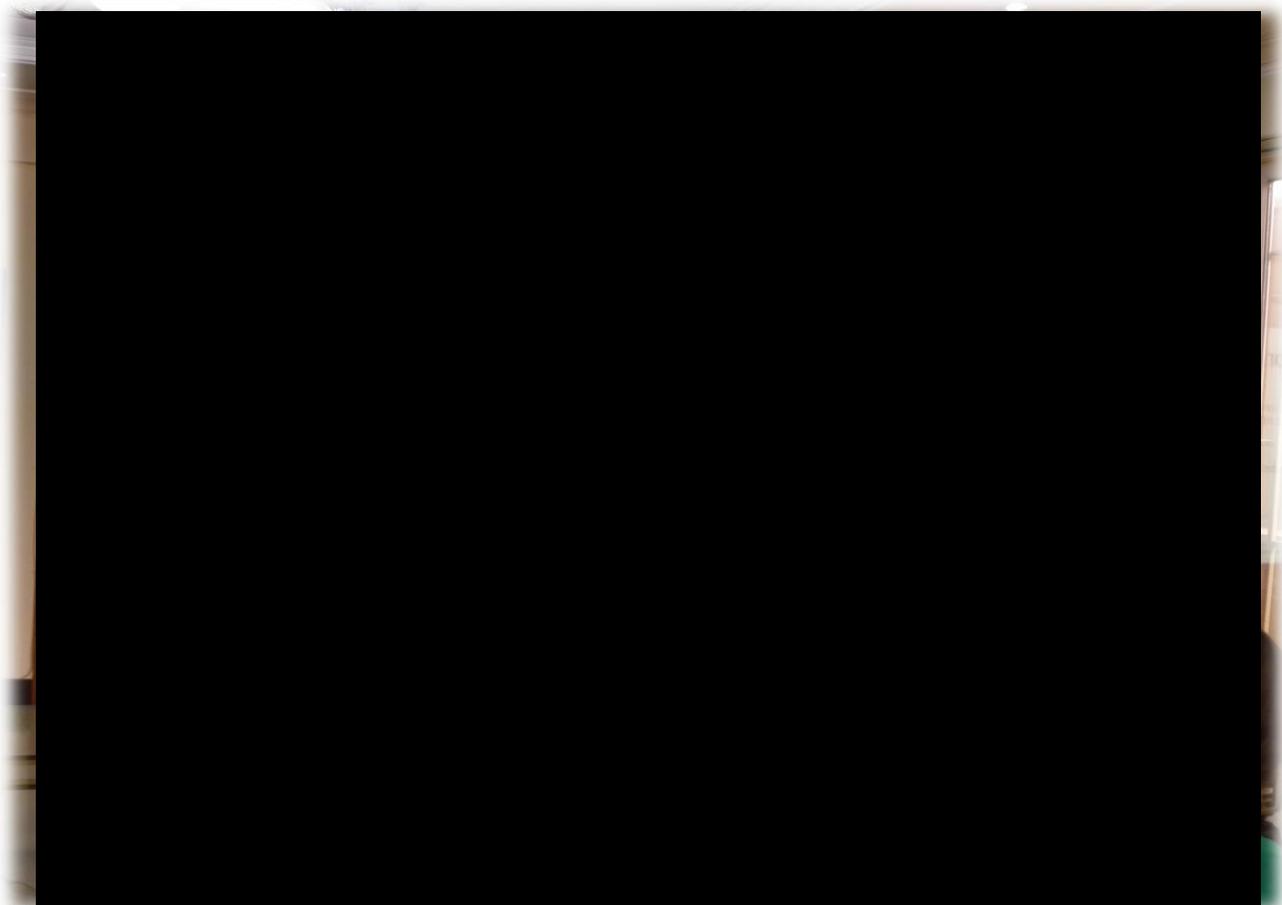


Figure 2: Mr. [REDACTED] giving us effective presentation training

Assignment MEMO

By: [REDACTED]

Date: March 09 & April 16, 2015

Assignment: Technical Writing and Effective Presentation Training

Instructor: [REDACTED]

Summary

This assignment memo includes two separate trainings which were the Technical Writing and Effective Presentation trainings. In these trainings, I learned information about effective presentation skills and technical writing skills. These trainings will be beneficial and useful in my university assignments as well.

Background

The Effective Presentation training was given by [REDACTED] on the 16th of April in the Tetra Tech conference room. The Technical Writing training was given by [REDACTED] on the 09th of March in the Tetra Tech conference room. In these trainings, I and the three other interns, [REDACTED] participated. These trainings were very important for all interns. I had no past experience about technical writing skills and effective presentation skills.

Assignment Activities

The main topics that covered in these trainings are: presentation length, how to understand new materials, how to choose formats or styles for presentation, how to write a presentation, information about the writing process, and the standards for technical writing. The information we received was really useful for me to apply in all of my assignments at university, as well as in office work, daily work and in my future career.

Outcome

The outcomes from Technical Writing and Effective Presentation trainings are listed below:

- Improved my writing proficiency and skills
- Became familiarized with reports and memos formatting
- Repaired my writing skills
- Difference between technical and nontechnical writing
- How to provide beautiful and organized presentations
- Text formatting and length of presentation agenda and content
- How to insert and show the main points and topics in the slides
- Developing my presenting skills
- Slides formatting and color combination for text and background of slides.

Summary and Analysis

These trainings were really useful and important for me and the other interns because this training helps me in doing office work and in my university assignments and any other assignments in the future. Now I am familiar with most of the technical writing standards.

Pictures and Figures



Figure 1: [REDACTED] and interns during Effective presentation training

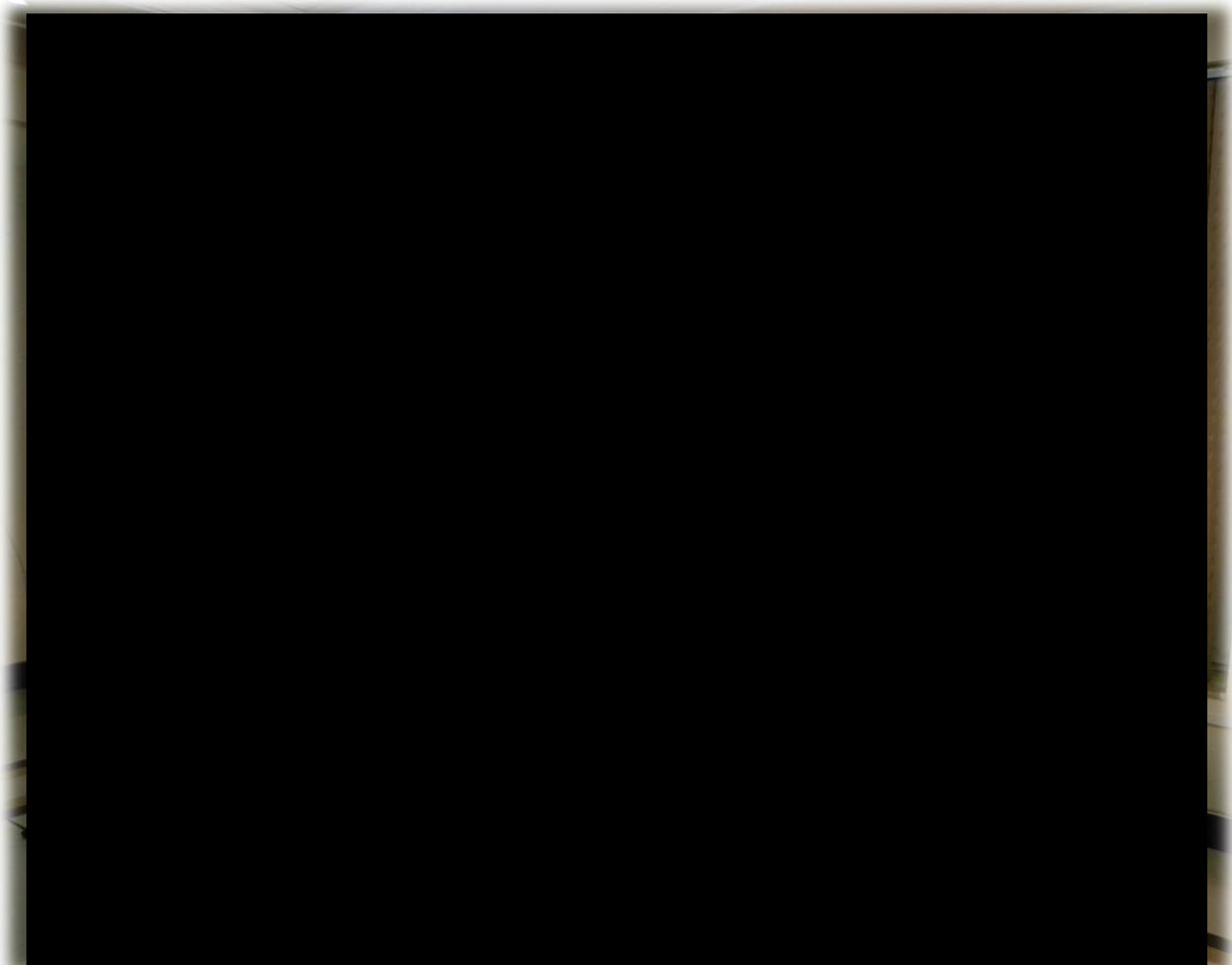


Figure 2: [REDACTED] and interns during Technical Writing training

APPENDIX C- CONCRETE WORKSHOP MEMORANDUM

Assignment MEMO

By: [REDACTED]

Date: June 5, 2015

Assignment: Concrete Mix Design

Instructor: [REDACTED]

Summary

This training was very useful for me because I learned about concrete mix design characteristics and the methods used to identify these specifications. It is clear that all the information that I have learned was exactly related to my field of civil engineering.

Background

The training was presented by Engineer [REDACTED] on May 21st. Two other interns and myself attended this training. After the training, we started the practical portion in which we prepared a concrete mix design. During the preparation of the concrete mix design on May 28th, Engineer [REDACTED] helped us. After this activity, we completed tests in a laboratory on the June 3rd. I had no past experience with concrete mix design.

Assignment Activities

This training had three main elements:

- 1- Concrete Training:** The first session was a lecture in the Tetra Tech office. The lecture covered the procedure for the mix design of concrete. At the end of the class, each of us was assigned to do a mix design calculation for a specific strength of concrete. My assignment was a mix design for 35Mpa strength of concrete.

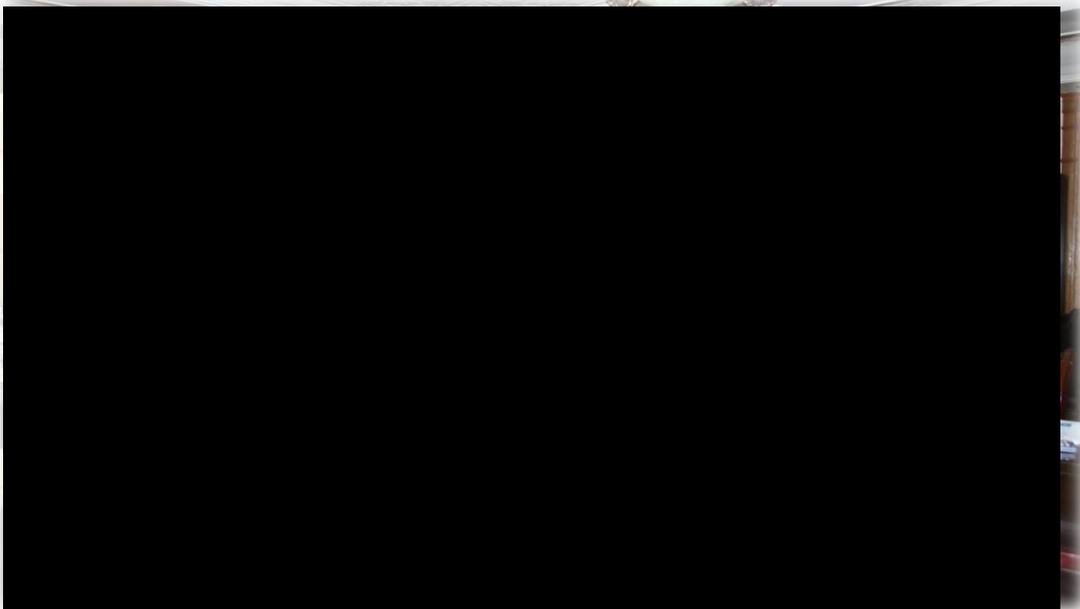


Figure 1: Presentation of concrete mix design by [REDACTED]

2- **Concrete Mixing:** One week after the concrete lecture we had the second session. We physically performed the mix design in the Tetra Tech office compound for the specific strength of concrete assigned to us in the lecture. After we started the concrete mix design separately, I mixed the cement, sand, gravel, water with a shovel. Then I did the slump test, filled cylinders with fresh concrete, and finally, I had one concrete cylinder containing my mix design.

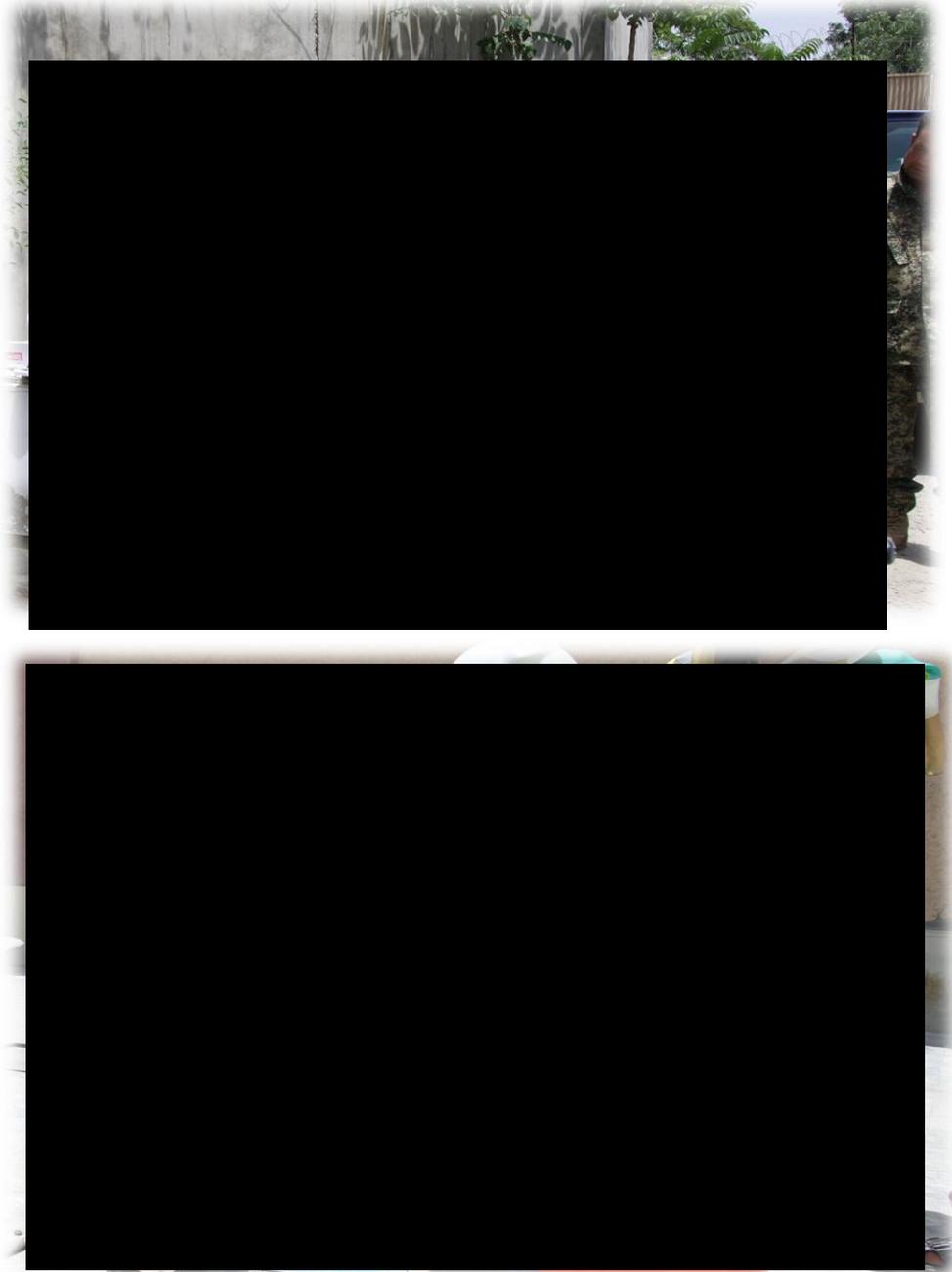


Figure 2: Preparation concrete mix design at Tt villa

Concrete Lab: The concrete cylinders we cast in the villa were taken to a laboratory to test them. We did this seven days after we mixed the concrete. The lab performed a compressive test of the concrete. The laboratory was very well equipped and had the latest and standard apparatuses for concrete testing. The test was according to the ACI standards. During the test, we had the lab forms for compressive test of concrete and I did the associated calculation with the expert working in the lab to find the strength of concrete cylinders. The strength of the concrete I prepared was 43Mpa.



Figure 3: Testing of concrete mix design

Noorjahan Safi mixed design

| | | |
|----------------------------|-------|---------|
| Water Cement Ratio | w | 0.392 |
| Fineness Modulus | Fm | 2.88 |
| Specific Gravity of Cement | Sp.Gr | 3.15 |
| Air Content | ac | 1.5 |
| Water | W | 193.0 |
| Cement Ratio | Cr | 492.3 |
| Fine Aggregate | Fa | 655.9 |
| Coarse Aggregate | Ca | 999.62 |
| Total Weight | Tw | 2034.82 |

Outcome

I learned about:

- Concrete design and characteristics
- Concrete lab (concrete testing)
- Cylinders and how they are used
- Information about steel rods and how they are used

Summary and Analysis

We learned how concrete is obtained by this test. We also learned that when concrete is placed in forms and allowed to cure it becomes hard like stone. This hardening is caused by the chemical action between water and cement, which causes the concrete to grow stronger with age.

Figures

Pictures during training and testing concrete mix design are provided in previous sections.

Assignment MEMO

By: [REDACTED]

Date: June 4, 2015

Assignment: Concrete Mix Design

Instructor: [REDACTED]

Summary

This training in concrete mix design took place in order to learn the practical skills of making and testing concrete mix design, including slump testing.

Background

The presentation and the training on concrete mix design was given by [REDACTED] Civil Engineer from the transportation department of Tetra Tech, on May 21st, 2015. The students involved in this activity were interns [REDACTED]. As part of the training, we prepared the concrete mix design separately with the help of [REDACTED] Civil Engineer from the transportation department at Tetra Tech, on May 28th. Finally, testing of the concrete mix designs that we had created took place at KA Construction Material Testing Laboratory on June 4th. I had past experience in making concrete mix design and testing it practically at university, but this training and practical experience was more beneficial for me because we had enough time for asking our questions to the engineers and lab technicians.

Assignment Activities

First, we attended a presentation at the Tt conference room on general information about concrete, including: its characteristics, formation, advantages and disadvantages, ingredients, strength, different types and curing. After studying general information about concrete and its different behavior and characteristics, we went through the next step of the concrete mix design activity.

Second, we took an effective training on the mathematical calculation and preparation of concrete mix design using the Portland Cement Association (PCA) manual (Chapter 9) for making concrete mix designs. At this stage, we had increased our understanding of how to make a concrete mix design and calculate the amount of cement, water, fine aggregate and coarse aggregate needed for making concrete. The next step of this activity was to complete our assignments on concrete mix design. We had to do the calculations for a specified type of concrete of a determined compressive strength, given to us by [REDACTED]. The aim of assigning these tasks was to do calculations by ourselves and to prepare us for making our own concrete mix design.

The next step of this task was to prepare our own concrete mix designs separately with the help of [REDACTED]. First, we weighed the cement, water, fine aggregate and coarse aggregate according to the calculation that we had completed in our assignments. Then we mixed those quantities and divided the mixed concrete into two parts. We poured the first part into a mold of known volume into three layers, executing a down stroke 25 times on every layer with an armature. Then we completed a slump test on the second part of the concrete using slump test instruments in order to know workability of the concrete. After finishing the slump test and filling the molds, these molds were taken to KA Laboratory for the curing process, and kept in water at 25^o C for seven days.

The next and final step was testing the prepared concrete samples using the compression testing machine at the KA Laboratory. We went there and each of us tested our prepared concrete samples. There were some errors and mistakes regarding the required and provided strength of the concrete that I made, but we were instructed and informed by our instructors on what to do and how to be careful when making such a design.

To conclude, I learned that the design that I made had lower compressive strength than was required, because the formation and distribution of fine and coarse aggregate was poor and there were gaps between the ingredients. Second, I did not add a large enough amount of water to my concrete mix design. In result, the slump was zero and its workability was low.

Outcome

The most important outcomes from this practice were learning by doing things ourselves so that we won't forgot these practical skills. Although I have past experience in making such designs, I did not have the opportunity to prepare the mix design by myself and to test it. In university, this practice was completed by other students. Therefore, I can emphasize that it was a great experience for me and I won't forget it.

Summary and Analysis

This was a great experience for me and I have learned a lot from this practice. Although I had past experience of this kind of activity, I learned a lot of new things. It's clear that doing these kind of exercises will directly affect my personal knowledge. As a civil engineering student, I need to study these tasks not only theoretically but also practically as I did in this training. Therefore I can emphasize that it was an effective experience for my educational background. Everything we did was beneficial, therefore I don't have any recommendations for next trainings.

Pictures and Figures

Pictures taken during training, preparing, and testing concrete mix design.

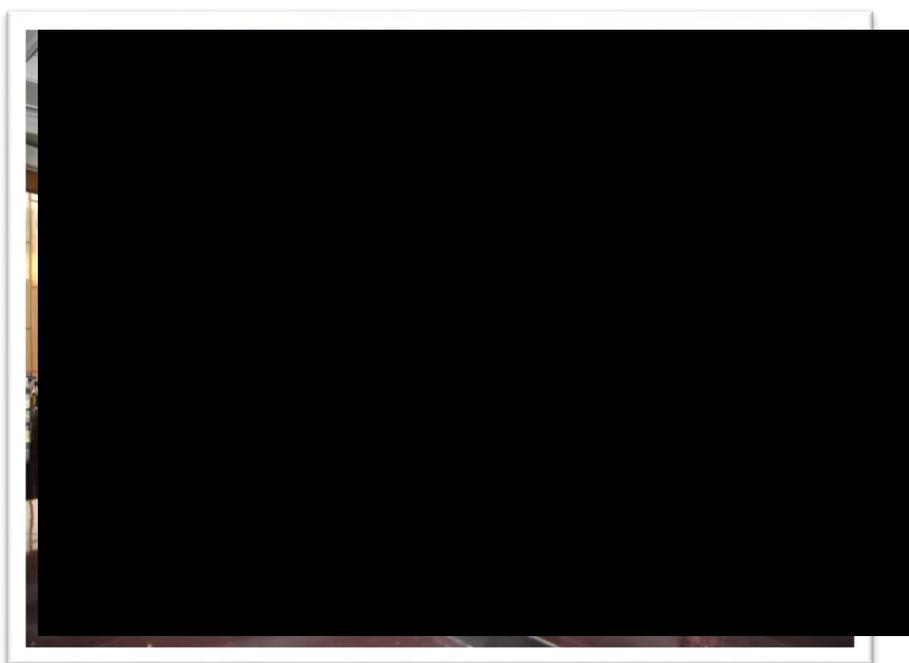


Figure 1: Presentation of concrete mix design by [REDACTED]



Figure 2: Preparation concrete mix design at Tetra Tech villa



Figure 3: Testing of concrete samples

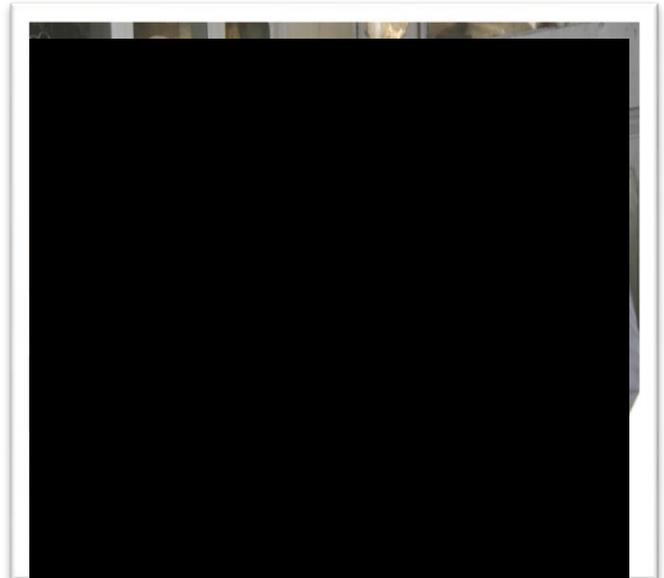


Figure 4: Testing of concrete mix design

Assignment MEMO

By: [REDACTED]

Date: June 29, 2015

Assignment: Concrete Mix Design

Instructor: [REDACTED]

Summary

The interns had a Concrete Mix Design training, in order to learn the calculations and the practical procedures to make a concrete mix design.

Background

This training included a concrete presentation, studying how to do concrete mix design calculations, making concrete mix designs, and testing the concrete mix design in a laboratory. The presentation about concrete and calculations was given by engineer [REDACTED] on 21st of May. The presentation attendees were myself, and two other interns [REDACTED]. After the presentation, I prepared a concrete mix design myself, and two other interns and Engineer [REDACTED] helped and guided us in making the mix design. The last step was testing the concrete that we had made and that was done on 3rd of June in a concrete testing laboratory. I had past experience in making concrete mix design at university.

Assignment Activities

First, [REDACTED] gave a presentation about concrete, and taught us some general information about concrete and its characteristics. Then she taught us how to do calculation for making concrete mix design. She gave information about how to calculate mix design for specific ratios, then selected different marks for each intern.

Secondly we calculated concrete mix design for a specific ratio by using PCA manual chapter 9. We calculated the amount of water, cement and fine and coarse aggregate that we needed for making the concrete mix design. The calculation was checked again by [REDACTED]

Then we started to make the concrete mix design, and engineer [REDACTED] helped us in making the concrete. By using the amount that we calculated for cement, water and coarse and fine aggregate we mixed them one by one. After mixing we completed a slump test of the concrete, and then we filled the mold and put it in 25° water for seven days to measure the 75% of its strength.

The last step was the concrete test in the lab to find the compressive strength of concrete. After seven days we went to concrete testing laboratory and tested the concrete that we made and checked the strength. The important topics that I learned were how to do the calculation, how to make a mix design for concrete, and how to check the strength, notice errors and identify my mistakes.

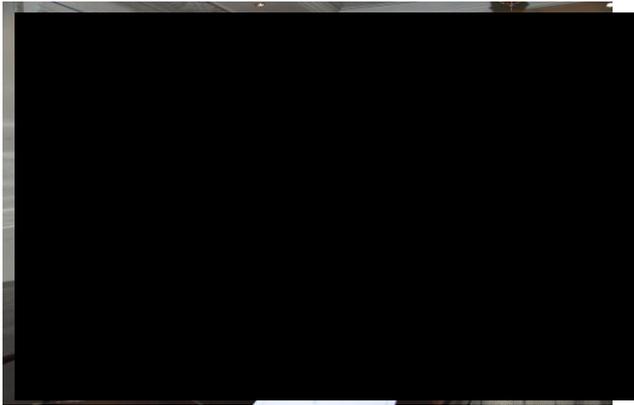
Outcome

The outcome for me was really good. It was a great experience and I learned many new things. Though I did have past experience, it was not in such a good way, because in university we did it in groups and I did not know all the process of making concrete mix design well. However, now I do not have any problem with it.

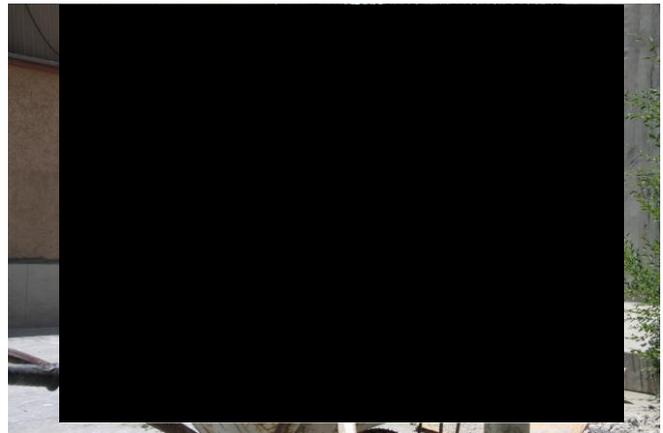
Summary and Analysis

I learned many things such as the preparation of concrete mix design and the associated testing. It was a great experience for me, as I was familiar with theoretical concrete mix design, but this was a practical experience. I am sure it will help me in my future career.

Pictures and Figures



1) [Redacted]



2) Preparation of my concrete mix design at Tt



3) Concrete test in laboratory

APPENDIX D - SOIL WORKSHOP MEMORANDUM

Assignment MEMO

By: [REDACTED]

Date: June 15, 2015

Assignment: Soil Training

Instructor: [REDACTED]

Summary

Soil plays an important role in the construction of buildings. Engineers who build the foundation of structures must be informed about the characteristics of soil and know how to prepare it for foundations.

Background

This assignment was about introduction to soil and testing soil in a lab. Engineer Wahabullah was our instructor; this training was for me and two other interns [REDACTED]. This training occurred on 11th June. I did not have any past experience in this training.

Assignment Activities

Firstly, Engineer [REDACTED] gave a presentation about soil, which included the introduction to soil, important characteristics of soil, types of soil, and which soil is good for foundation. At the end he showed pictures of fractured buildings and gave information on how soil can cause the failure of buildings.

The second step was a soil test. We went to a soil testing laboratory and we saw how the soil is being tested. The important topic that I have learned is how to test soil in laboratory. It was helpful for me to see a live soil test.

Outcome

As a result during this training I learned many important things related to soils and soil tests.

Summary and Analysis

I learned about soil characteristics and soil types. I learned how to test soil when we want to build foundations. It was a good experience and it will positively affect my future professional life. This training was well executed and I do not have any recommendations.

Assignment MEMO

By: [REDACTED]

Date: June 10, 2015

Assignment: Soil lecture training

Instructor: [REDACTED]

Summary

This beneficial practical soil training took place so that we could receive an effective introduction to soil and how to test soil for different purposes.

Background

The training on soils was presented in a lecture format, a standard proctor test, and an exercise in which we found the liquid limit and plasticity limit of soil. This soils training was delivered on May 28th by our instructor [REDACTED] Civil Engineer from the Tt transportation department, and attended by myself and two other interns - one civil and one architectural. I can state that I had past experience of this kind of lecture and soil testing procedure practically at university.

Assignment Activities

For this activity, two general and effective steps were taken. First, we had a training on soil, which contained a brief introduction to soil, geotechnical engineering, different soil types, soil texture, elements existing in soil, soil classification as well as practical examples regarding soil classification and tabular data. These were the contents of the training that we had before starting our tests. Although I had good knowledge of soil and its properties prior to the training, we learned beneficial information about soil and its characteristics, and the training provided a refresher on this topic.

Secondly, we were taken to KA Construction Material Testing Laboratory in order to do some practical experiments on soil and to apply some of important topics that we have learned from soil lectures. In this case, we went to the laboratory and completed three beneficial tests on soil. The first one was a test using a modified proctor to find the maximum density and the minimum moisture content of soil for soil compaction. At the start, we took some soil and passed it through sieve No.4. Then we added water (2%) into the soil and mixed, after which we placed the soil in 5 layers and imparted 56 blows to each layer using a specific hammer. After finishing this, we took a small portion of soil and weighed that to find the density of soil. We continued adding water several times and noted the density of soil. Once we found the density of soil (adding water increased its density), we recorded that as maximum density and the according soil moisture as optimum moisture content. This was the amount of water that should be added when compacting that specific type of soil.

The second test was finding the liquid limit of that specific type of soil to find the plasticity Index (PI) of soil which shows the strength of soil. We took a sample of soil and passed it through sieve No.4, added water (2%) into soil, and mixed them properly. After that, we placed the soil inside of the cap of the liquid limit testing device and made a 3cm gap in the soil inside the cap. Then, we imparted 25 to 35 blows using its handle and observed if the soil was connected by 2mm. We completed this procedure two additional times by changing the blows from 20 to 30 and 15 to 20 and by increasing water by 2%. Finally we found the liquid limit of the soil.

The third test was finding the plasticity of soil, in which we took an ellipsoidal-size of soil mass and rolled it over a ground glass surface. Three tests at varying moisture content were conducted and the corresponding cone penetration was found. Finally, the moisture content corresponding to penetration of $d=20\text{mm}$ was plasticity limit.

In summary, I can state that attending the soil lecture at start and then completing these effective laboratory tests on soil was a great practice. It helped me in solving the difficulties and problems that I had encountered on past laboratory tests because we had done those laboratory tests in faculty practically in which we were in groups of 6 or 7 persons. Conducting those practical tests here individually was very advantageous.

Outcome

These are some of graphical regarding the laboratory tests.

LL= liquid limit

PL=plastic limit

PI=plasticity index

PI=LL-PL

Summary and Analysis

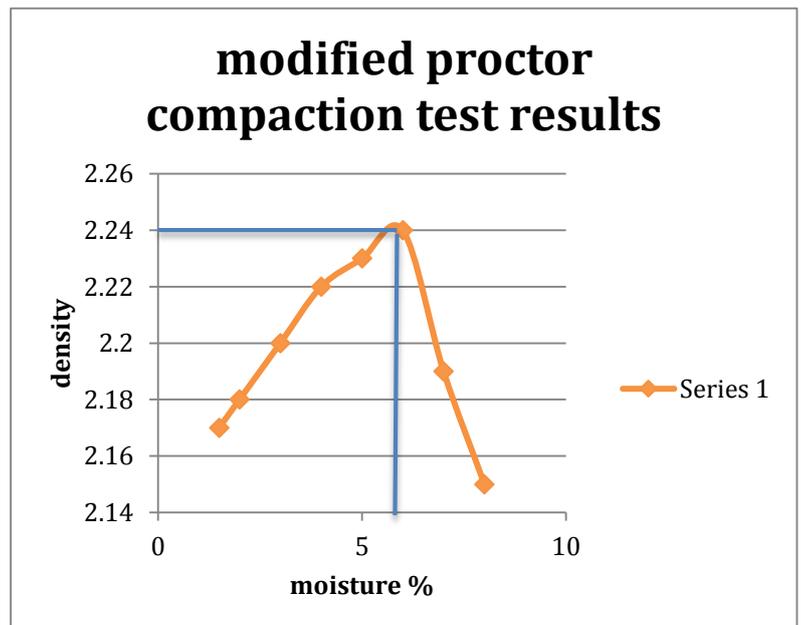
As I emphasized before, the soil lecture contained lots of effective information that we did not have previous knowledge of. Also, the practical laboratory tests that we conducted were beneficial for me as I learned some important technical works and procedures that are directly related to my field of study. Therefore, I can argue that I am satisfied with this great training which had many effective impacts on my educational background.

Pictures and Figures

Pictures taken during soil lecture and laboratory testing are below.



Figure 1: Soil lecture by [REDACTED]



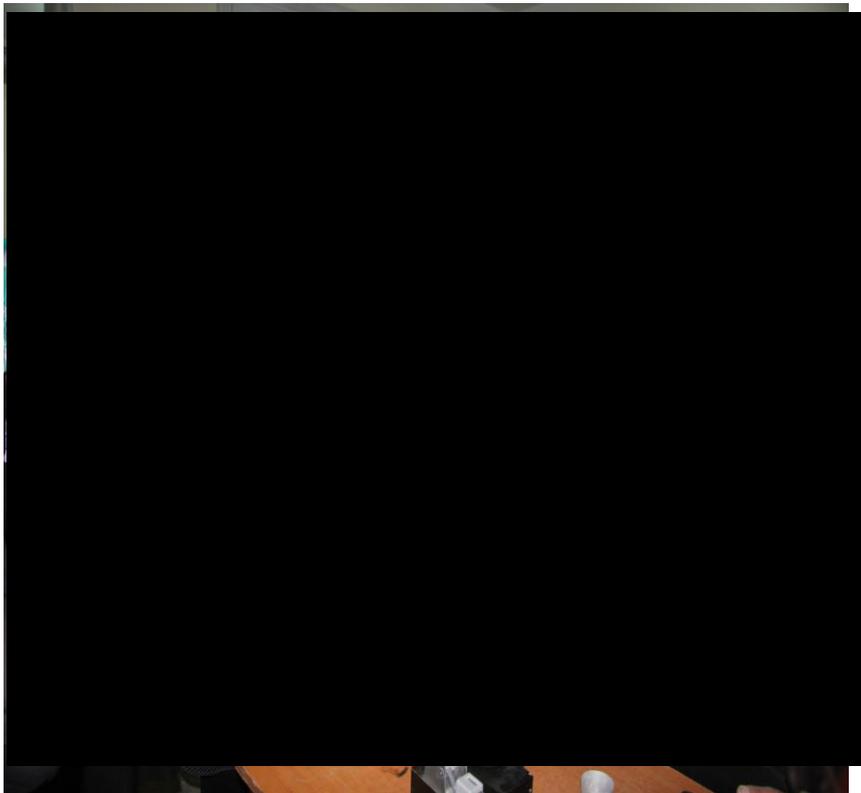
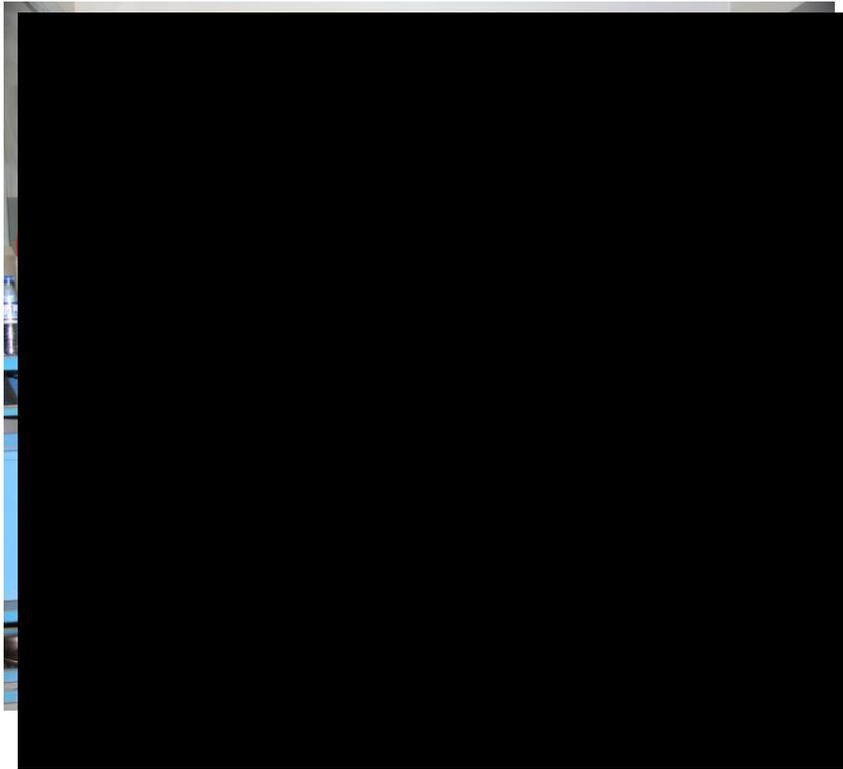


Figure 3: Liquid limit & plastic limit test by KA engineer

Assignment MEMO

By: ██████████

Date: June 4th, 2015

Assignment: Soil Investigation Training

Instructor: ██████████

Summary

This assignment memo covers the Soil Investigation Training that held at Tetra Tech office and took few days, then we conducted a site visit to the KA construction material testing laboratory for performing the soil investigation testing practically in the laboratory.

The training was very useful and we have learned a lot about soil, soil type, soil compaction and soil texture and have got lots of information.

Background

This training was given in PowerPoint slides. It helped us learn about how to prepare informative slides in a presentation and use a projector as well. This training included an introduction to soils. The training was given on June 4, 2015 in the Tetra Tech conference room and given by ██████████

Two other interns and my-self attended this training in the office, afterwards we conducted a site visit to a laboratory to carry out relevant soil tests as visual inspection.

The training was beneficial for me because it helped me to learn important information regarding soils as a civil engineer. I didn't have such kind of information before, and I received a great practical experience from this training that will be really useful and helpful for my future career.

Assignment Activities

Eng. ██████████ give us a presentation about soil. I listened to the presentation and took the important notes. In my point of view, all topics covered were very important for me as a civil engineer as well as for all engineers. This is because if we don't have enough information about these topics then we will not be able to perform our field related tasks, especially design of structures. I learned information about sieve analysis, standard proctor and differences between tests.

Outcome

I learned the items below:

- Sieve Analysis
- Sand Cone Method
- Standard Proctor
- Modified Proctor
- Soil texture
- Soil classification

Summary and Analysis

The topics I learned are very important for a civil engineer. We studied soil mechanics and we learned the theories, but with help of this practical training we turned theory into practice.

Pictures and Figures

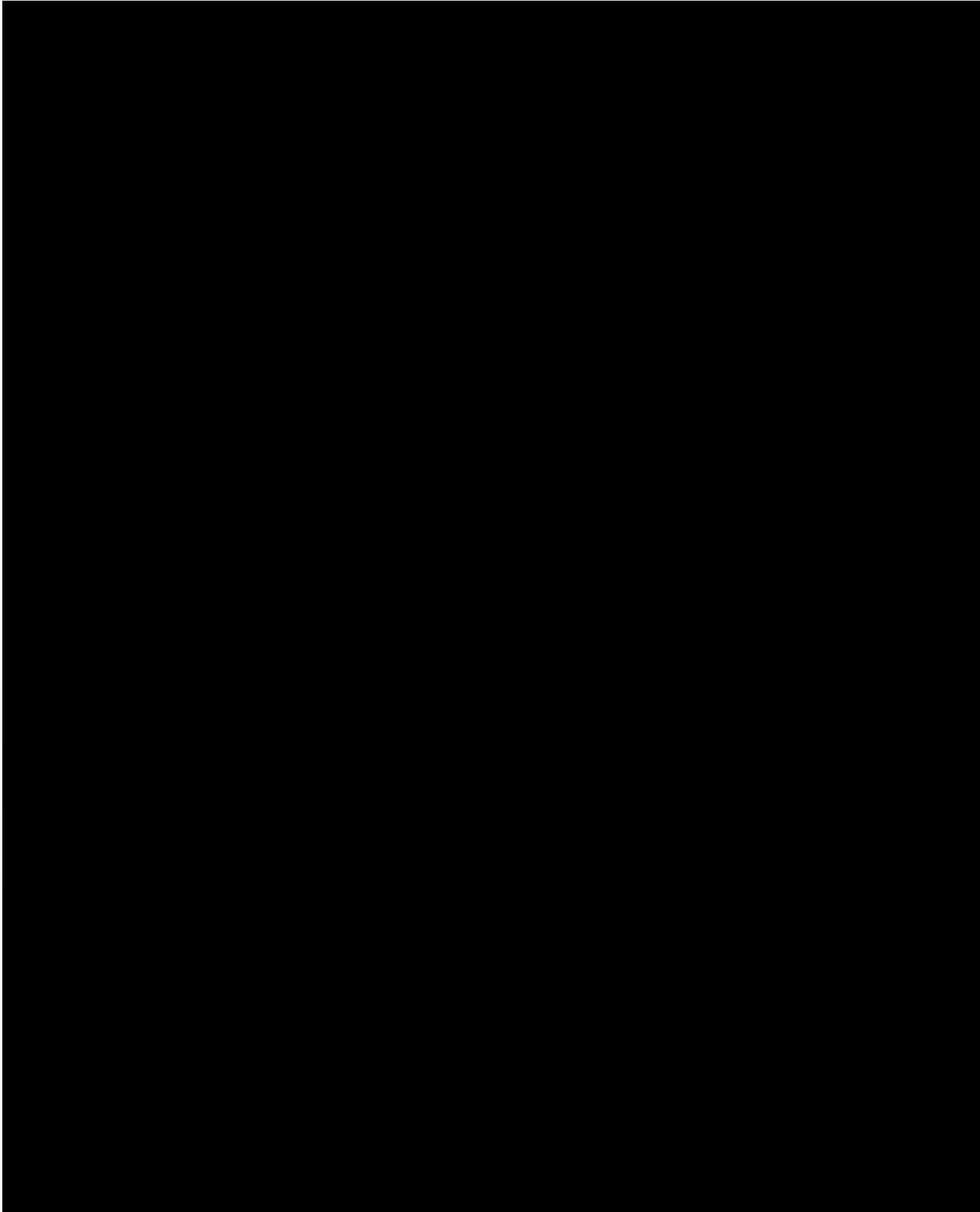


Figure 1 and 2: Pictures taken during the training

APPENDIX E - ASPHALT WORKSHOP MEMORANDUM

Assignment MEMO

By: ██████████

Date: June 17, 2015

Assignment: Asphalt Training

Instructor: ██████████

Summary

This one-day training was held to give a brief introduction about asphalt pavement design to the civil engineering interns.

Background

The subject of this training was asphalt pavement design and it occurred on June 17, 2015 in the Tetra Tech conference room. Students involved in this training were myself and the other civil engineering interns. I can state that this was the first introduction that I had about asphalt pavement design, as neither of us had taken pavement design courses yet. Thus, I can state that I did not have any past experience in this kind of training.

Assignment Activities

This training was delivered by ██████████ Civil Engineer at Tetra Tech, in a great and understandable manner. The contents of the training were:

- A brief introduction to road works
- Introducing kinds of pavement designs (rigid or concrete pavement & flexible or asphalt pavement)
- The explanation of different layers of asphalt pavement design
- Introducing different coatings of asphalt and their durability
- Asphalt mix temperature consideration
- Causes and effects of Several dangerous asphalt defects

We also had lots of discussions and questions during the training in order to understand and learn more from the training, since this was our first introduction to pavement design as civil engineering students.

Important topics to learn were the pros and cons of asphalt pavement design, the process of paving asphalt and the introduction on materials used in asphalt pavement design.

In conclusion, since it was our first introduction to asphalt pavement design we learned a lot and now understand important facts and information about asphalt pavement design.

Outcome

The outcome from this effective training was that I became familiarized with two important kinds of pavement design, which were concrete pavement and asphalt pavement, and I received an introduction of the pros and cons of these two types of design. Also, gaining knowledge of how to lay the different layers of pavement design, which layer should be paved first and where it should be paved, temperature consideration for both concrete pavement and asphalt pavement, slope consideration of these two pavement designs and finally learning about different types of defects that is caused by making wrong pavement design. Below are pictures demonstrating the processes for good pavement design that we have learned in this training.



Figure 1.a: Defects in pavement design



Figure 1.b



Figure 1.c



Figure 2: Work progress (site compaction)



Figure 3: Site preparation for pavement design

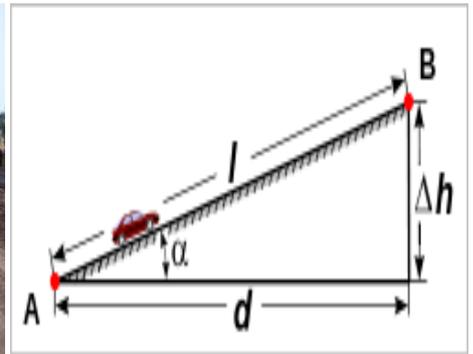


Figure 4: Slope consideration

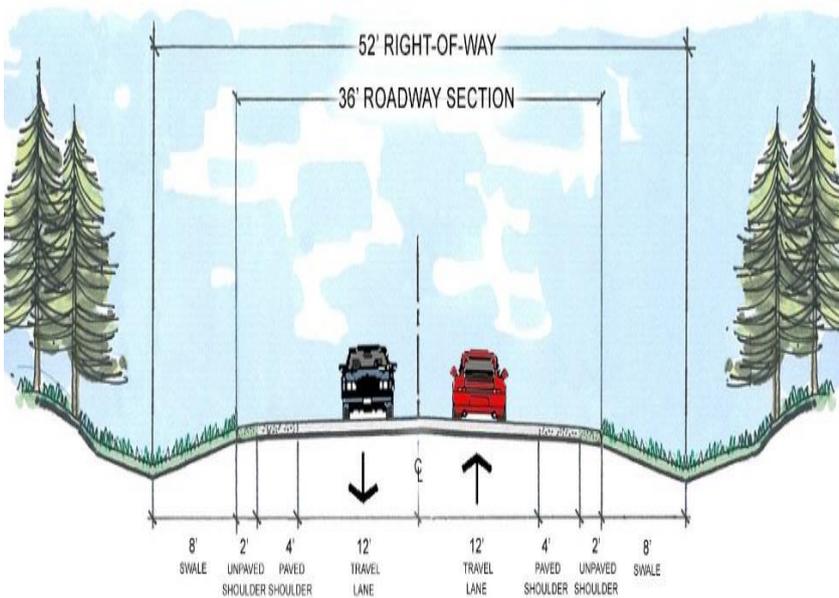


Figure 5: Right of way and roadway section consideration

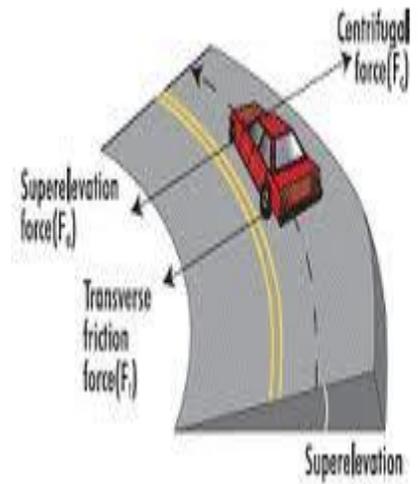


Figure 6: Forces consideration in a Super elevation

Summary and Analysis

Since the content of the training was new to us, we have learned a lot from this training. I can argue that all of the things that we learned are directly related to us as civil engineering students. Because transportation engineering is a branch of civil engineering and this training was related to the transportation engineering, it was beneficial to my field of study. Also, the effects that it might have on my professional goals are: since my major in civil engineering is not specified yet, as it belongs to the master's degree, by gaining these skills outside of university, I will be able to work in different fields of civil engineering.

Picture and Figures

Pictures taken during this training are below.



Figure [redacted] carrying out the lecture

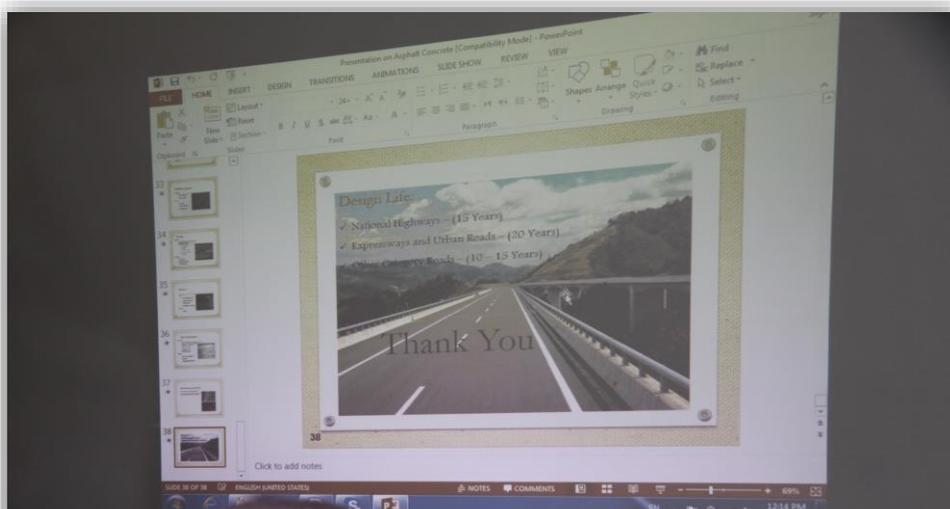
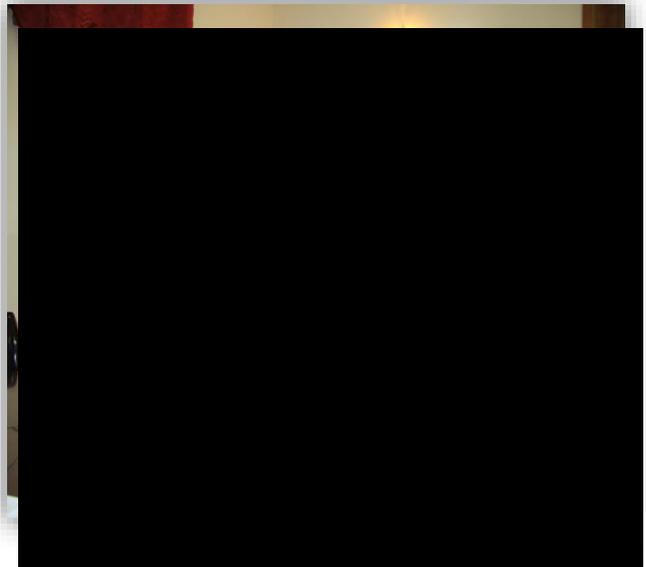


Figure 8: slides prepared by [redacted]

Assignment MEMO

By: [REDACTED] i

Date: May 15, 2015

Assignment: Asphalt Concrete training

Instructor: [REDACTED]

Summary

This assignment memo covers the Asphalt Concrete training presented through a few days of lectures including the schedule and practice of performing the asphalt and bitumen laboratory tests.

The training was very useful and we have learned a lot about asphalt concrete and bituminous materials that are used as flexible pavement for road.

Background

The Asphalt Concrete training was conducted on 13th, 14th and 16th May, 2015 in the Tetra Tech conference room and including one day at a lab. This training was given by [REDACTED] for the engineering including myself.

This was a great opportunity for the engineering interns to work together as team members with experienced and professional engineers. By conducting such technical and professional trainings in the Tt office, we interns learned more information than what we studied in faculty.

Assignment Activities

At the beginning of the training [REDACTED] as instructor talked generally about asphalt concrete and showed us a presentation with lots of pictures and discussed in detail about asphalt pavement, pavement design, types of pavement and types of roads.

On the last day of the training we discussed flexible pavement in detail, including its benefit and failures that are common in Afghanistan. We also discussed how to perform patching work to repair any defect on asphalt concrete accordingly, as well as how to construct a durable and safe road. After lectures and presentation, we went to the construction material testing laboratory and we tested bitumen material and asphalt concrete and got more experience.

The information and subjects that we learned are very fruitful for all interns and will be very useful for our current and future professional careers.

Outcome

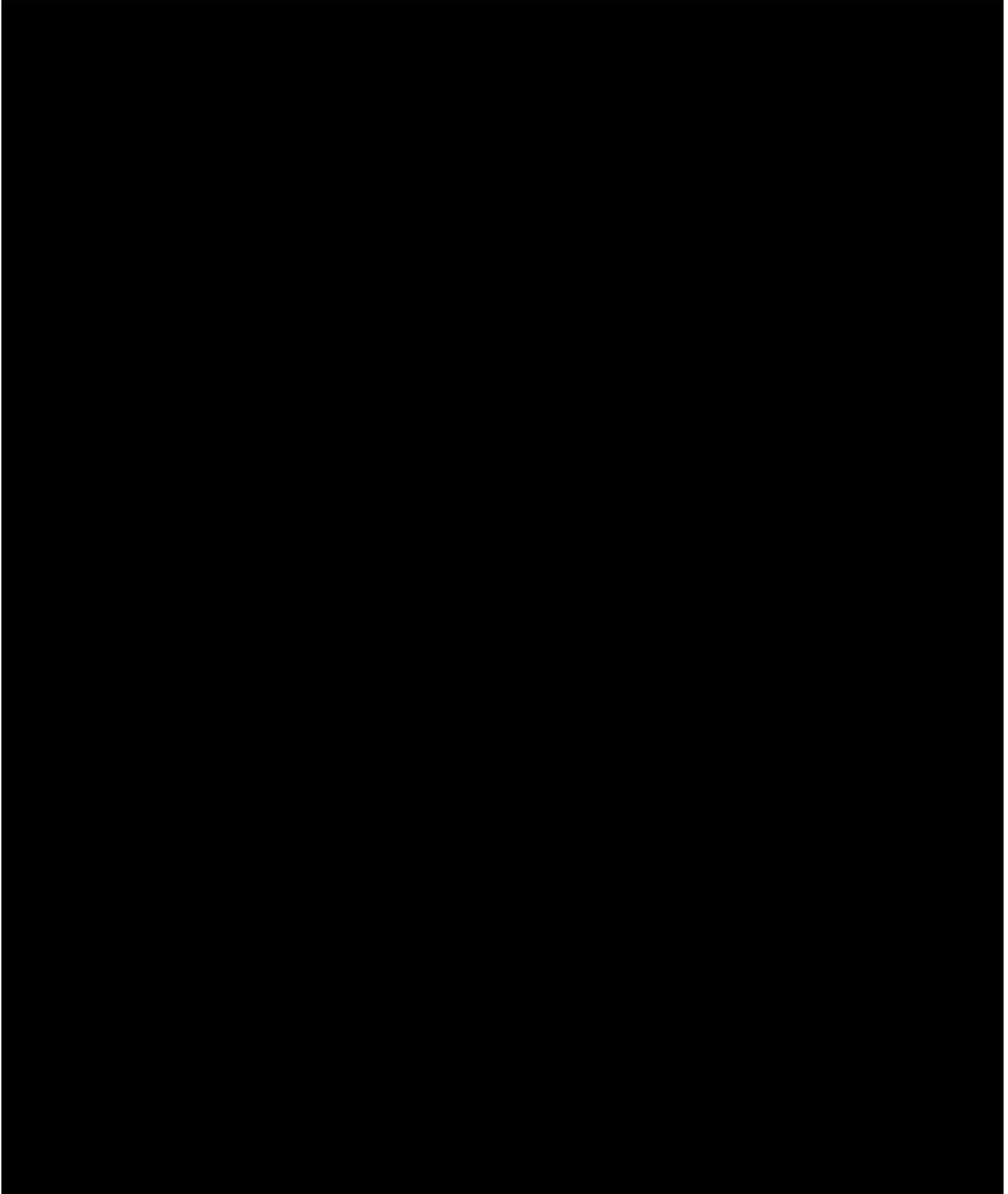
I learnt the following information:

- Brief introduction to asphalt concrete and pavement design
- Generally about road works
- Brief and important information about asphalt concrete
- How to construct and operate & maintain asphalt roads
- How to have a durable and safe roads
- Work methodology of asphalt work on site

Summary and Analysis

The asphalt training was presented in a very good and practical manner that was important for me and for the other engineering interns, as we learned lots of information which we had not known before. I hope this training will be an asset in my professional life.

Pictures and Figures



APPENDIX F - COST ESTIMATION MEMORANDUM

Assignment MEMO

By: [REDACTED], Electrical intern

Date: November 5, 2015

Assignment: Cost Estimation

Instructor: [REDACTED] Project engineer

Summary

Cost Estimation was a training to learn about approximating project costs. This is one of the engineering features needed to be able to estimate costs, and to consider economy in designs. The instructor was one of the engineers of the transportation department, Mr. [REDACTED]ili, and all of the interns were involved.

Background

This training was held in November 2015. I did not have any previous experience in this regard. So, this was my first step, and gave me a good concept of cost estimation.

Assignment Activities

We started the training with a first introductory explanation, and then went through a sample to learn the whole process. At the very end, there was an assignment for each of us to practice. The sample was a house plan. We divided it into parts and each of us was assigned for the estimation of one part.

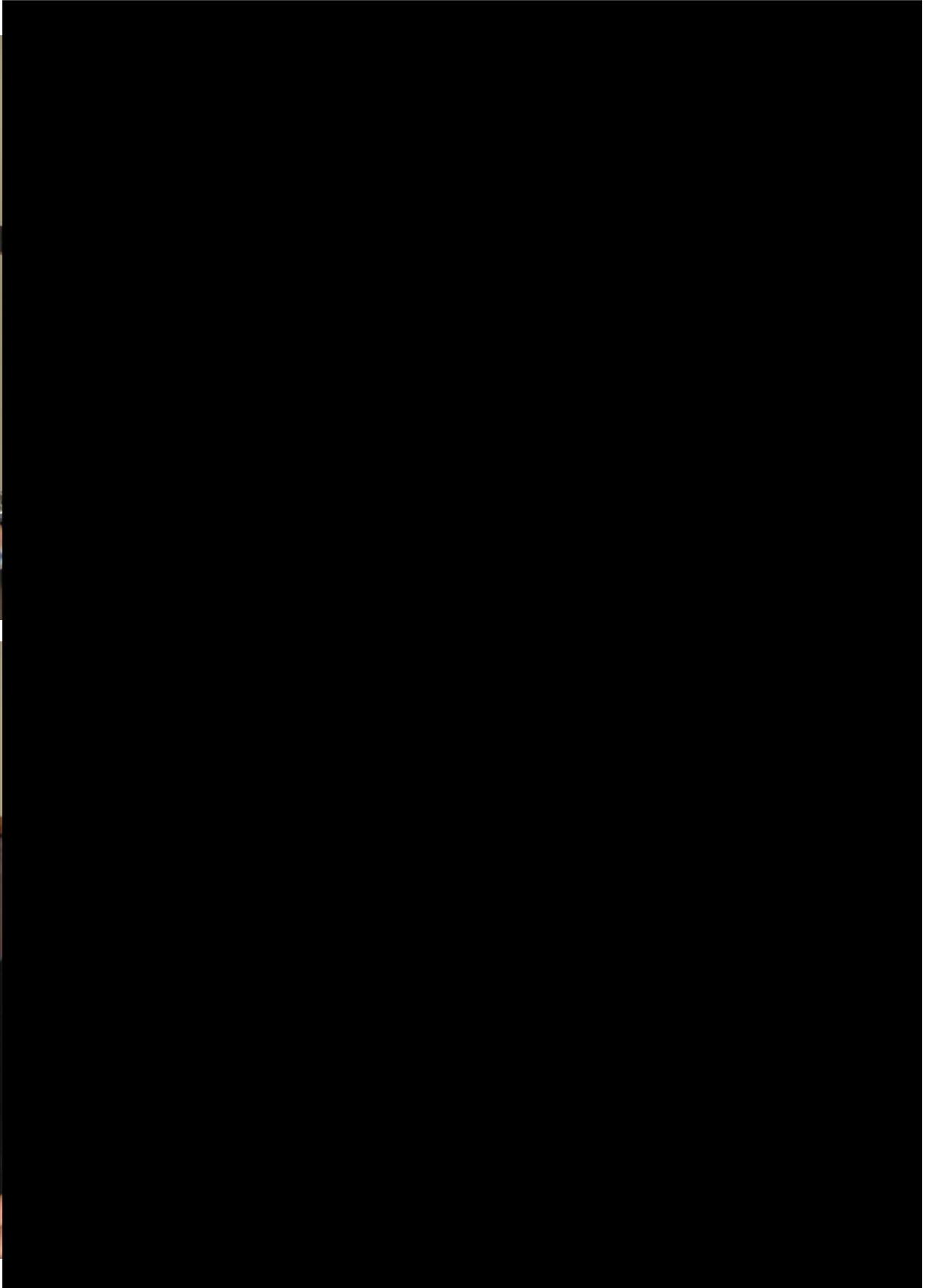
Outcome

The best outcome of this process was finding a basic knowledge in cost estimation. Since we did not have cost estimation in school, it gave us a good understanding for future jobs.

Summary and Analysis

One of the engineering concerns is the matter of economy. To understand this aspect of engineering, cost estimation is a requirement. This training will help us in our future job of engineering.

Pictures and Figures



Assignment MEMO

By: [REDACTED]

Date: October 20, 2015

Assignment: Cost Estimation Training

Instructor: [REDACTED]

Summary

This beneficial practice took place so that we could learn how to estimate the construction costs of a building and a road.

Background

The subject of this assignment was Cost Estimation Training, which was delivered on October 20, 2015 by [REDACTED] Civil Engineer at Tt. Interns involved in this training were interns [REDACTED] and myself. Although I had past experience with road construction cost estimation, I did not have any previous experience in estimating the cost for a building.

Assignment Activities

This training was delivered in two steps. The first step of the training was theoretical, and covered the theory and concept of cost estimation. Although we had knowledge of cost estimation from classes at university, reviewing and learning new concepts built our skills and reinforced important subjects that we were supposed to learn during this training. The theoretical components of this training included:

- General information about cost estimation for building and road.
- Brief introduction to types of cost estimation.
- Construction material estimation including cost.
- Labor estimation including cost.
- Rough estimation for preparation of a Bill of Quantity (BoQ).
- Detailed estimation for preparation of a Bill of Quantity (BoQ).
- Detail estimation for a small type building as assignment.

The second and final step of this training was the assignment project that was given to us by Mr. [REDACTED]. In this step, we were given the task of estimating the cost of a three story building. All of the required data, such as the AutoCAD drawings, was prepared by the [REDACTED] the architectural intern. The building was divided into four parts and each part assigned to each of the interns for the estimation purpose. Following successful completion of the cost estimation for the building, I submitted the assignment to my instructor for review and comments. While doing the assignment, my instructor and I had lots of discussions and questions answered, and he helped me with solving our problems very kindly.

Important topics for me to have learned included gaining new ideas and concepts of cost estimation, doing cost estimation practice by myself and the group work during the lecture step of the training. I can say that doing the cost estimation practically made me able to make any other cost estimation confidently.

Outcome

The result from this beneficial training was positive and effective. This knowledge will help me when experiencing different types of problems in future working environments, especially working on cost estimations in the engineering field. The actual practice of cost estimation and finding solutions for real world problems was critical in building my skills.

Summary and Analysis

I have learned lots of new things that I was not aware of. As it is known, the more a person practices, the more he/she learns, and here I have practiced a lot and gained good knowledge of cost estimation. Without any doubt, building skills in these different types of civil engineering fields will not only help me choosing my own major in future but also will help me doing office work in any field of civil engineering.

Assignment MEMO

By: ██████████

Date: October 20, 2015

Assignment: Cost Estimation Training

Instructor: ██████████

Summary

This cost estimation training took place so that we could learn how to estimate the construction cost of a building.

Background

The subject of this training was “Cost Estimation” and it was given by Engineer ██████████ a civil engineer at Tetra Tech. Interns involved in this training were myself, and the other three interns ██████████ I had did not have any past experience about cost estimation of building.

Assignment Activities

This training had two steps. The first was theoretical. Engineer ██████████ taught the theory and concepts of cost estimation. The contents of the theory that we learned during this training were:

- General information about cost estimation for building and road.
- Brief introduction to types of cost estimation.
- Construction material estimation including costing.
- Labor estimation including costing.
- Rough estimation for preparation of a Bill of Quantity (BoQ).
- Detailed estimation for preparation of a Bill of Quantity (BoQ).
- Detail estimation for a small type building as assignment.

Second, we were assigned to estimate the cost of a three story building, which was designed by myself during the design training. The building was divided into four parts and each part was assigned to one of the interns for estimation purpose. Finally, I did the cost estimation of the building and submitted the assignment to my instructor.

Important topics for me to learn were concepts of cost estimation, and I did a cost estimation practice by myself. Now I feel I am able to do cost estimation of construction buildings.

Outcome

As a result, what I learned in the training will help me when experiencing different types of problems in working environments, especially in the cost estimation engineering field in the future. The actual practices of cost estimation and finding solutions was discussed in the training. Some important outcomes that I learned include:

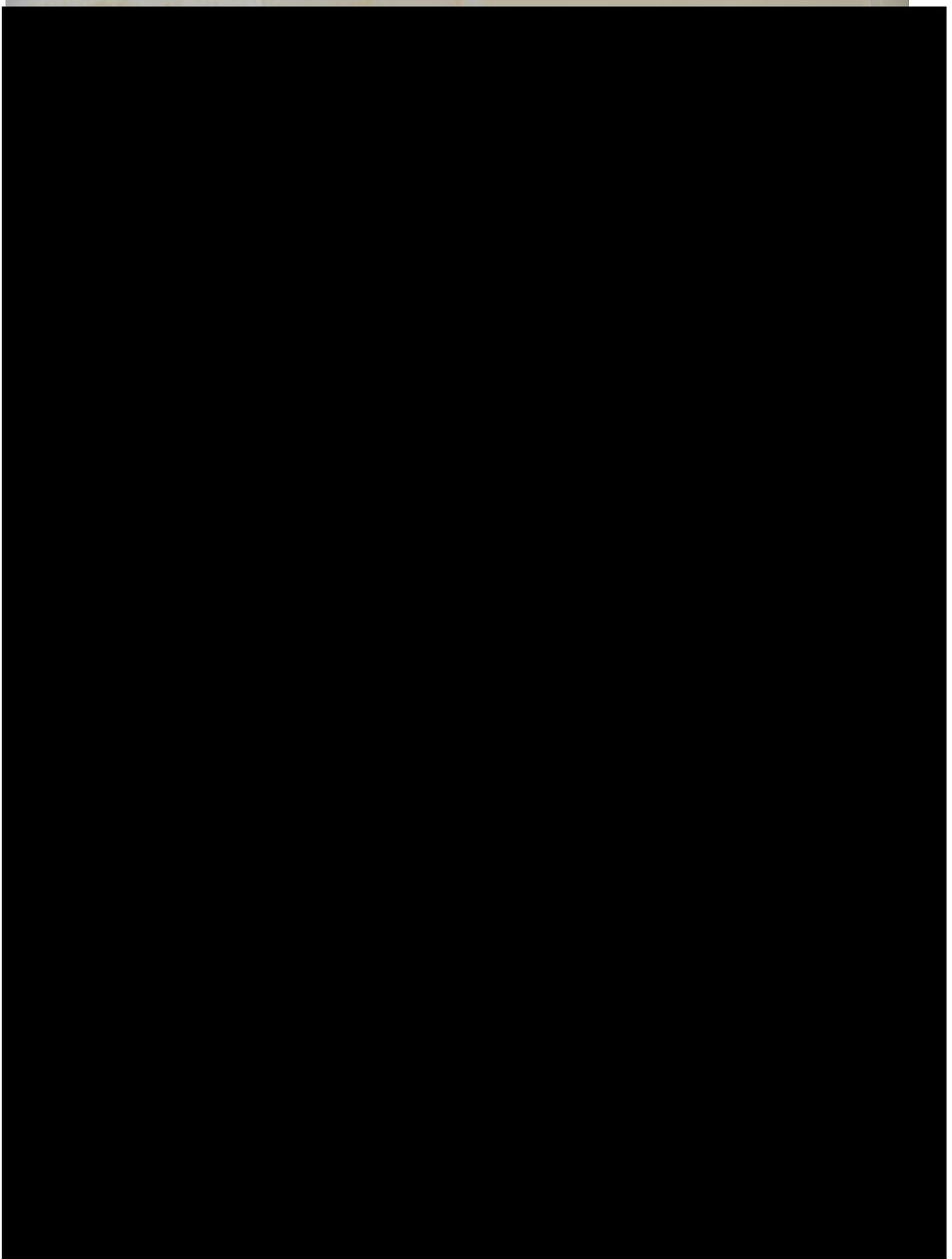
- Become familiar with the integration of cost estimation into project management processes and procedures.
- Understand the importance of the central role and importance of managing costs throughout a project lifecycle.
- Estimate costs and deal with cost escalations and reductions.

Summary and Analysis

I have learned a lot of new things that I did not know. Every step of the cost estimation training was effective because I learned the theory which added to my knowledge and also enabled me to do cost estimation practically. And surely I can say it will help me in my future engineering career.

Pictures and Figures

Some of photographs taken during the training;



Assignment MEMO

By: [REDACTED]

Date: November 5, 2015

Assignment: Cost Estimation Training

Instructor: [REDACTED]

Summary:

This assignment memo assume the training on cost estimation that presented via a presentation and practical estimation of construction material and counting the cost of laborers for project. The training was for few days in small meeting room, Tetra Tech office and instructed by [REDACTED].

The training was very useful and we have learned lots about cost estimation and project costing in detail that will be good hand for my future careers.

Background:

The subject of this assignment was Cost Estimation training, which was held over 15 days, from November 5th to 20th by Engineer [REDACTED] and three other intern [REDACTED] were also trainees. I had no past experience in this subject and this was my first practice in cost estimation.

Assignment Activities:

The cost estimate is an important and main value of a project, service, resource and operation. The cost estimate is the product of the cost estimating process, used for planning, sales quotes, or resource allocation. The training was provided by AESP Tetra Tech office. This training was beneficial for all interns, I didn't have any information about cost estimation before my internship program. After completion of the training, we had an assignment where we applied what we had learned in our assignment as well as in our project.

Outcome:

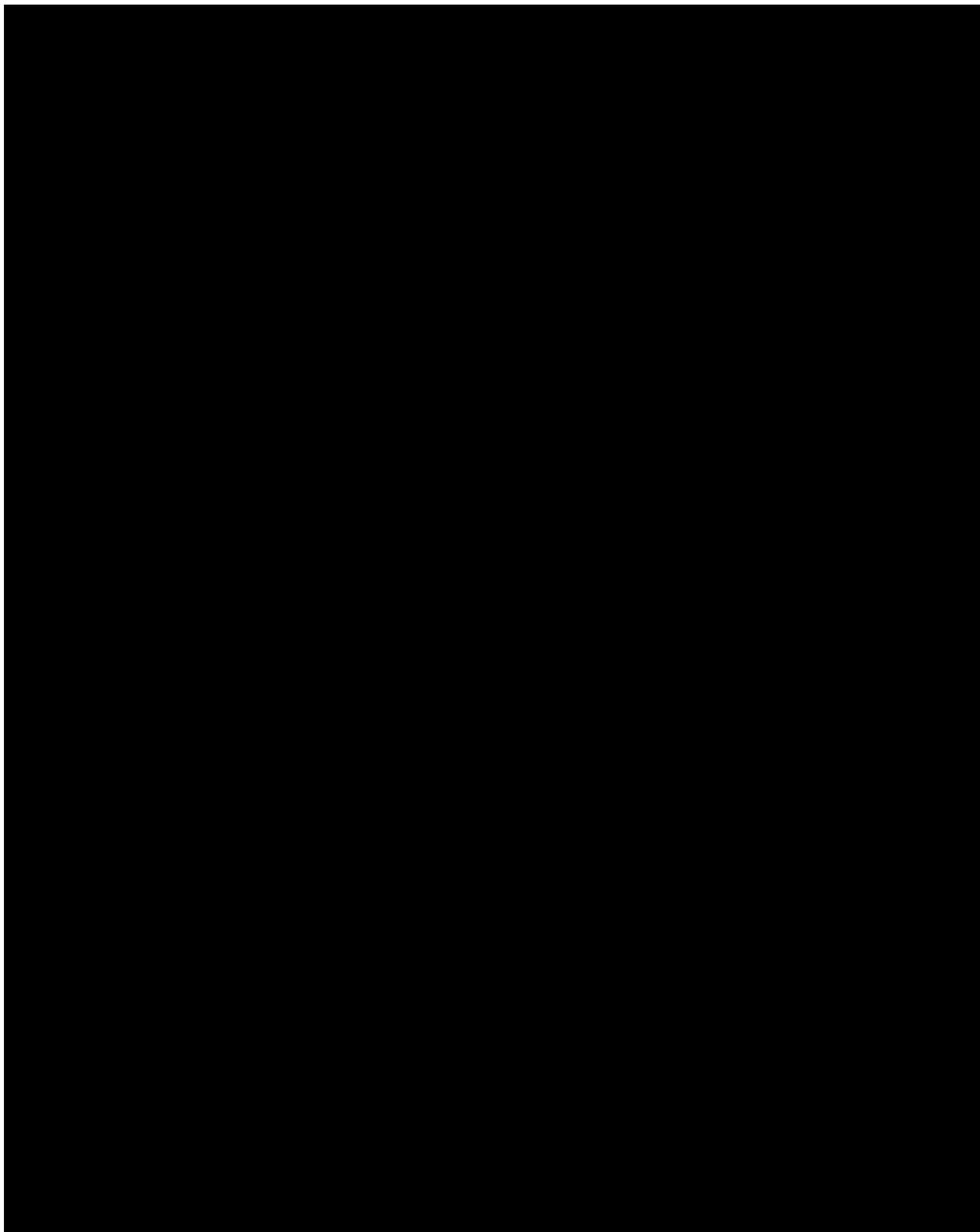
I learned information below

- Cost estimation types
- Cost estimation methods
- Construction cost estimates
- Measurement rule for walls, window, door, peak and other element of a building
- Method for estimation the number of workers and labor work for a project
- Learned more about detail and roughly estimation
- Preparing the cost estimation table and how to insert the figures into the table
- Technique for balancing the project cost based on variations occurred in the project

Summary and Analysis:

This training was suitable and valuable for me and all interns, because now we are able to conduct cost estimation easily and even balance the project cost accordingly, so the training was good practice for me and I vote to conduct more such kind of useful training.

Pictures and Figures



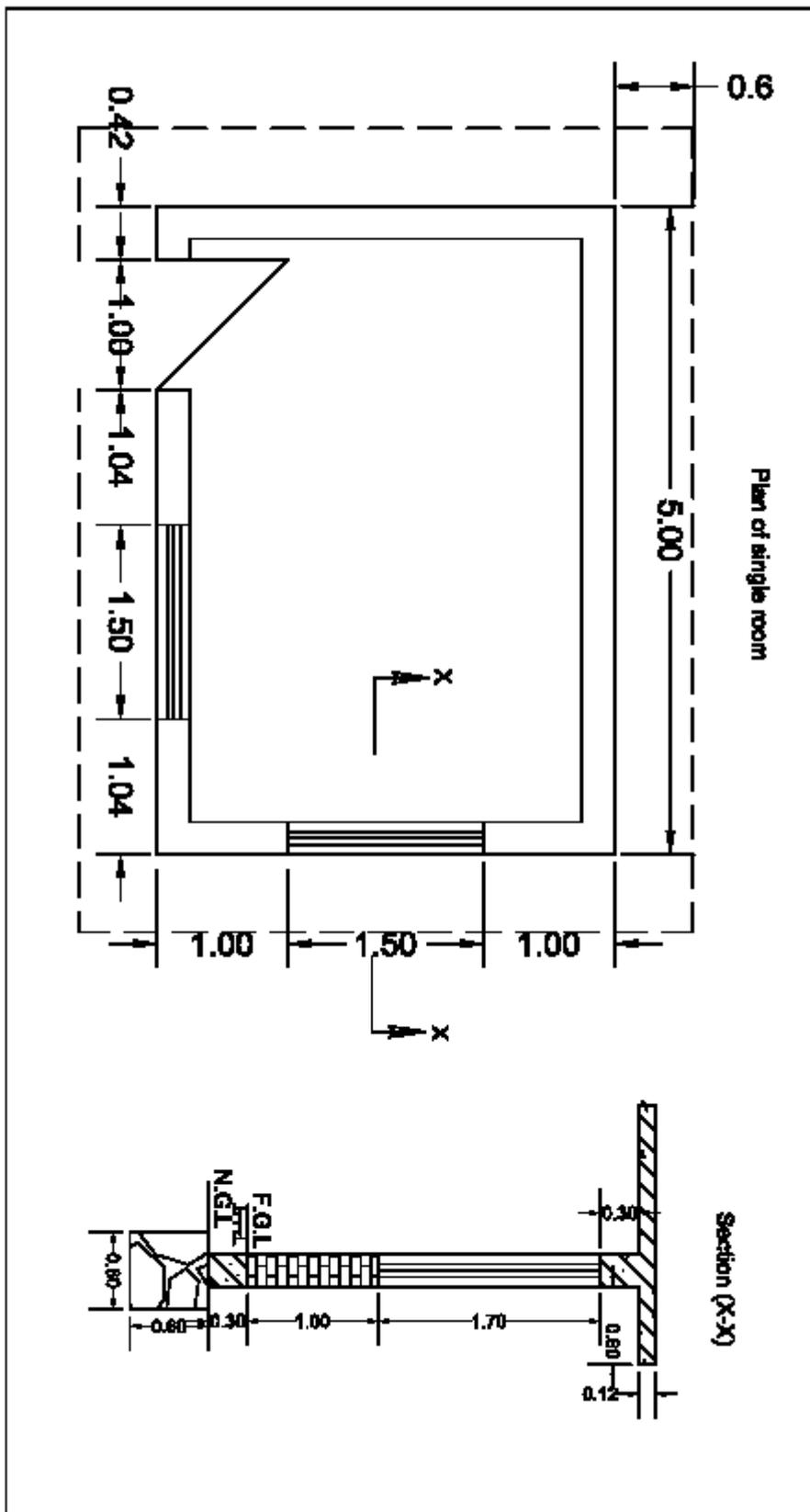
Appendix-1

Estimation Sheet for Single Room

| S.No | Description | Unit (M) | Number | Length (M) | Width (M) | Height (M) | Quantity (M ³) | Remarks |
|------|--------------------------|----------------|--------|------------|-----------|------------|----------------------------|---------|
| 1 | Excavation of Foundation | M ³ | 1 | 17.00 | 1.00 | 0.60 | 10.20 | |
| 2 | Stone Masonry | M ³ | 1 | 16.00 | 0.60 | 0.60 | 5.76 | |
| 3 | Ring Beam | M ³ | 1 | 16.00 | 0.25 | 0.30 | 1.20 | |
| 4 | Brick Masonry | M ³ | 1 | 16.00 | 2.70 | 0.25 | 10.80 | |
| 5 | Top Ring Beam | M ³ | 1 | 16.00 | 0.25 | 0.30 | 1.20 | |
| 6 | Slab | M ³ | 1 | 6.20 | 4.75 | 0.12 | 3.53 | |
| 7 | Plaster | M ² | 1 | 32.00 | 3.00 | | 96 | |
| 8 | Plastic Painting | M ² | 1 | | | | 96 | |
| 9 | Windows | M ² | 2 | 1.50 | 1.70 | | 5 | |
| 10 | Door | M ² | 1 | 1.00 | 2.70 | | 3 | |
| 11 | Formworks | M ² | 1 | 16.00 | 4.75 | | 76 | |

Costing Sheet for Single Room

| S.No | Description | Unit (M) | Quantity (M ³) | Unit Cost (USD) | Total Cost (USD) | Remarks |
|--------------------------|--------------------------|----------------|----------------------------|-----------------|------------------|---------|
| 1 | Excavation of Foundation | M ³ | 10.20 | \$ 5.00 | \$ 51 | |
| 2 | Stone Masonry | M ³ | 5.76 | \$ 100.00 | \$ 576 | |
| 3 | Ring Beam | M ³ | 1.20 | \$ 200.00 | \$ 240 | |
| 4 | Brick Masonry | M ³ | 10.80 | \$ 90.00 | \$ 972 | |
| 5 | Top Ring Beam | M ³ | 1.20 | \$ 200.00 | \$ 240 | |
| 6 | Slab | M ³ | 3.53 | \$ 200.00 | \$ 707 | |
| 7 | Plaster | M ² | 96.00 | \$ 100.00 | \$ 9,600 | |
| 8 | Plastic Painting | M ² | 96.00 | \$ 2.00 | \$ 192 | |
| 9 | Windows | M ² | 5.10 | \$ 100.00 | \$ 510 | |
| 10 | Door | M ² | 2.70 | \$ 100.00 | \$ 270 | |
| 11 | Formworks | M ² | 76.00 | \$ 50.00 | \$ 3,800 | |
| Grand Total (USD) | | | | | \$ 17,158 | |



APPENDIX G - ELECTRICAL TRAINING MEMORANDUM

Assignment MEMO

By: [REDACTED], Electrical Intern

Date: December 14, 2015

Assignment: Electrical Design

Instructor: [REDACTED] Electrical Engineer

Summary

This task was a well-described design training and practice. The instructor explained electrical designs and what must be considered while designing a project in a professional way and according to the Codes and Standards. At the same time, I had assignments to accomplish and submit.

Background

Design is one of the major tasks of engineering. Since it is important, it needs more time to be spent learning about it. Mistakes in engineering designs can create irreparable problems. We had two design courses in university that were parallel in time with this training period. This training helped me a lot to get a good grade in those classes. [REDACTED] one of the electrical engineers of Tetra Tech was the instructor, and he put much effort into this training.

Assignment Activities

We started our training with wiring design. Lighting design, and receptacle plan as well as panel schedule and conductor selection and other aspects of a home wiring design were all covered. At the end of a total explanation session I had a simple house plan to practice my own skills on. The instructor used to check and feedback, then in accordance to the comments I could revise my job. After a simple design, I had two more complicated assignments that covered house plans having more than one floor and more power requirements.

Outcome

Learning electrical design, practicing with a skilled engineer, and reviewing my assignments were the best outcomes of this task.

Summary and Analysis

This training was a wonderful task helping me promote my knowledge of design and understanding what is the difference between an engineer and an electrician. The simple difference that I understood was that engineers are those that design and consider future requirements and economy. The design phase requires more time than other trainings. I recommend donating more time on this phase for next generation of interns.

Assignment MEMO

By: ██████████

Date: June 08, 2015

Assignment: Electrical Specifications

Instructor: ██████████

Summary

Electrical specification training was held for me and was led by one of the electrical engineers in May 2015. Every project has specification documents for the equipment. This training was held so that I could understand what kinds of data are included in specifications.

Background

For this assignment, ██████████, one of the electrical engineers, was the instructor, and I was the only intern involved. As in our schedule, this training was held in month of May. The materials for this assignment were Tt project specification documents, and general specification documents from an internet site.

Assignment Activities

In this assignment, I referred to the documents assigned by the instructor, studied parts of them and looked for items that were described by the trainer. The most important thing about this training was learning to read the specifications given in projects.

Outcome

The best outcome of this training for me was understanding what a project specification is, what the major parts in a specification document are and how to read and use them.

Another thing I found useful was that I learned new things about equipment. Since the documents had specifications which referred to equipment, I noticed many new points while reading the specifications.

Summary and Analysis

The structure of a specification document was explained. I learned how to find general specification templates on the internet. Additionally, the most important point for me was that I can now understand how to find required information within a large amount of data given in a specification document.

Assignment MEMO

By: [REDACTED]

Date: April 05, 2015

Assignment: Electrical Equipment Training

Instructor: [REDACTED]

Summary

The electrical equipment training was one of the trainings was provided to me by the Tetra Tech electrical department.

Background

The electrical equipment training was started in March 2015. This training was scheduled for me because I am the only electrical intern at Tetra Tech. Electrical Engineers ([REDACTED] and Mr. [REDACTED] were teaching me in this field. I learned about the equipment of a substation, focusing on power transformers. We had studied about transformers at university, but through this exercise, I developed a better understanding of power transformers.

Assignment Activities

I was given some books and chapters to study about the electrical equipment. I studied the assigned readings and asked the electrical engineers about specific questions. I also studied substation drawings and pictures of previous site visits to visualize the arrangement of a substation.

Outcome

The first and major outcome of this training period for me was getting familiar with the configuration of a substation and power transformers. Since I had an incomplete understanding of power transformers, this training helped me in that.

Summary and Analysis

Because I am going to be a power engineer, understanding the substations is a must for me. I would like to have more experiences in the substation field.

APPENDIX H – TARAKHIL MEETING MEMORANDUM

Assignment MEMO

By: ██████████

Date: April 01, 2015

Assignment: Weekly Tarakhil Review Meeting

Instructor: No Instructor

Summary

This weekly meeting and the gathering of clients and stakeholders were done in order to review and solve issues regarding Tarakhil Power Plant.

Background

The meeting subject was the Weekly Tarakhil Power Plant Review. It occurs every Wednesday at Tt. The meeting participants were from USAID, Tarakhil, Phoenix, and Tetra Tech organizations. I have past experience with this kind of meeting at Tetra Tech. In the past month of being at Tetra Tech, I participated in another meeting. The intention of that meeting was to introduce the work orders of Tetra Tech. Therefore, I can mention that this past experience was practical for preparing myself for the Tarakhil Power Plant Meeting.

Assignment Activities

The other intern and I completed two steps to prepare for this meeting. First, the objectives and the intention of the meeting were introduced to us briefly by ██████████ in the Tt basement conference room from 1:45pm to 2:30pm. I will say that our instructor, ██████████ taught us very kindly.

Second, we prepared ahead of time in the conference space. At the beginning of the meeting, Mr. ██████████, Tetra Tech's Chief of Party, introduced ██████████ and myself to all of the staff present. Then they started addressing the meeting agenda, suggestions, and discussions for some of the problems regarding Tarakhil Power Plant.

At last week's meeting, the issue of the RFP needing to be improved at the suggestion of ██████████, Tarakhil's Project Engineer, was raised. This issue was discussed again during this meeting. Next, Phoenix proposed that two persons with technical knowledge should be introduced to drive the foam trucks, and should be trained for 4 months in India beforehand. However, Mr. ██████████ preferred instead to have more than two persons and believed that 4 months was too long for training. Phoenix then offered that two persons should be trained, and afterwards that they should come to Kabul and train the others. This was not approved due to the concern that having only two persons directly trained who then trained the others would result in a significant loss of data.

One of other important issue in this meeting was concerning the water softener and safety materials for Tarakhil Power Plant. They confirmed Phoenix's suggestion to have a separate chemist to test water or other materials, which had been rejected by ██████████ last week. Last week he stated that one person should do both tasks including the driving and material testing. In this meeting it was decided this was not possible. They also agreed that the driver must have English language knowledge as well as having technical knowledge. The issue of investment of safety materials needed for firefighting system was discussed and approved. These included cap, coat, built, headphone, and others.

These were the discussions and approvals, though some of the approvals were postponed to next week's meeting. The important topics to learn were their discussions, their agreements, and their intention for finding solutions to a specific problem.

Outcome

As a result of attending this kind of formal meeting, some things I have learned are how stakeholders in engineering projects interact with each other, share their suggestions, make agreements, and prioritize their discussions about important issues. Also, this meeting taught me the importance of concentrating on the main points during meeting discussions and taking notes.

Summary and Analysis

From attending this meeting, I have learned about how professionals find and politely suggest possible solutions for specific problems. The most important thing related to my professional background was learning what to do in meetings, how to talk, how to behave, and how to identify the main issues of concern.

Assignment MEMO

By: ██████████

Date: April 01, 2015

Assignment: Weekly Tarakhil Review meeting

Instructor: ██████████

Summary

I participated in the weekly Tarakhil Review Meeting that is held at Tetra Tech every Wednesday to review the project progress and to solve any problems or issues related to the Tarakhil Power Plant project. I participated in this meeting for the first time. Now I know rules of meetings and how to talk about different topics about the Tarakhil Power Plant, and I learned from this meeting.

Background

The subject of the meeting was the weekly Tarakhil Review meeting held on Wednesday April 01, 2015. The meeting participants were USAID and Tetra Tech.

I don't have past experience attending official meetings so this was my first time. Through this meeting, I learned a lot of information about how to hold meetings, what the rules are, how to behave, and finally how to reach a specific and useful result.

██████████ gave an overview of information including the project map and background of the weekly Tarakhil Review meeting, an assignment which was very helpful for me. I now know all of the rules of business meetings including how to talk and how to consult.

Assignment Activities

This training consisted of two parts:

1. Briefing about Tarakhil Power Plant project presented by ██████████ – Tetra Tech Electrical Engineer
2. Attending the Weekly Tarakhil Review meeting.

The meeting started at 2:30pm. First of all, ██████████ Tt's Chief of Party introduced us to the meeting participants, and then started the meeting.

I listened carefully to the discussion about the project work progress, one of the issues which they discussed about was safety. Phoenix recommended two people attend safety training in India for four months. Tarakhil thought that four months for safety training in India was too much. We introduced five persons for foam truck training in India. ██████████ i agreed with one chemical person as introduced by ██████████, who would assess the water and make the Tarakhil SCADA. Shakib just accepted one driver for the foam truck but did not hire a chemical person, but shall nominate one chemical person. Then, participants talked about the purchase of materials for the foam truck.

Outcome

I learned the information below:

- Received information about the Tarakhil Power Plant.
- Got information about attending an official meeting.
- Highfalutin capacity gradation.
- Gained experience for the future.
- Got all information about the project work progress.

Summary and Analysis

I learned the rules of business meetings, such as how to talk in meetings. I also learned about the Tarakhil Power Plant and similar subjects. I participated in this meeting and I learned the subject. As this meeting was my first official meeting in my life, this meeting was very informative for me. I am happy I was a participant in this meeting.

APPENDIX I – SHADOWING AND SITE VISITS MEMORANDUM

Assignment MEMO

By: [REDACTED]

Date: June 22, 2015

Assignment: First Site Visit

Instructor: [REDACTED]

Summary

This site visit was very beneficial for me because I learned about all construction work and the methods to identify these specifications. It's clear that the information that I learned was exactly related to my field of civil engineering. It was the first site visit that we had during this internship and it was really helpful.

Background

The subject of this assignment was the site visit to the Camp Eggers construction site on June 11th, 2015. People involved in this site visit were [REDACTED] an architect at Tetra Tech, [REDACTED] a civil engineer at Tetra Tech, myself and three other interns ([REDACTED]). I did not have any past experience with site visits during my internship.

Assignment Activities

First, [REDACTED] I introduced us to [REDACTED] (an architect at the site) and M [REDACTED] (the project manager of that construction site). Then we were introduced to the plan, the construction site, its location and address, and progress of the work happening there. We went to the site and met [REDACTED]. We were taken to every part of the site and were instructed efficiently on every civil, electrical, architectural and mechanical engineering related work happening there. Also, they introduced some rollers for soil compaction.

This site visit was very helpful for me. I have learned a lot about construction.

Outcome

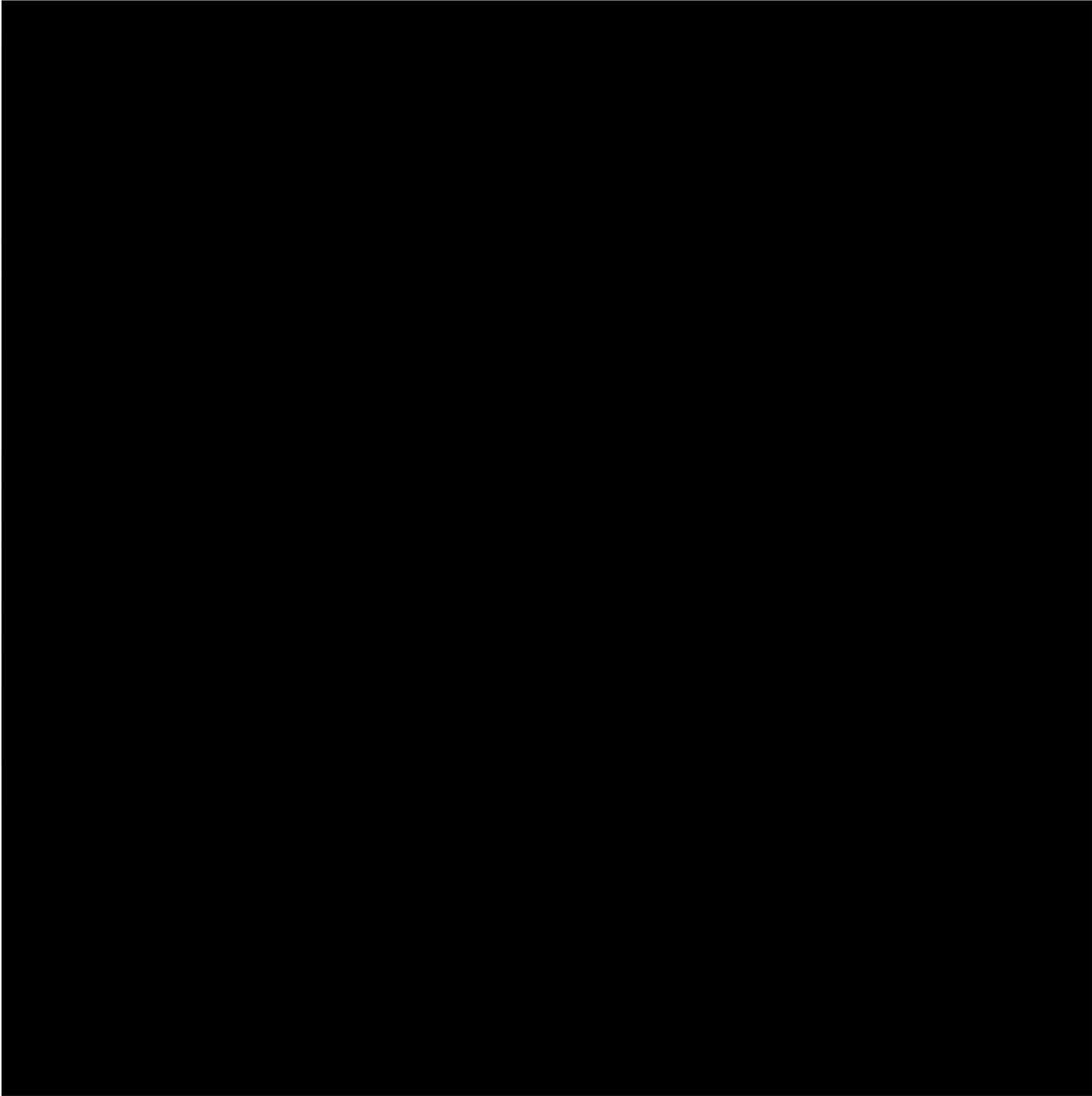
The outcomes included becoming familiar with the construction site and different phases required at a site, as well as introducing to new people and engineers who taught us new things.

Summary and Analysis

I have learned a lot from this site visit that is helpful to my field of study. This was a great practice work for me and other interns. I am really thankful for Tetra Tech and my supervisor Zurwa Farhad who created this opportunity for us.

Pictures and Figures

Pictures taken this activity are bellow.

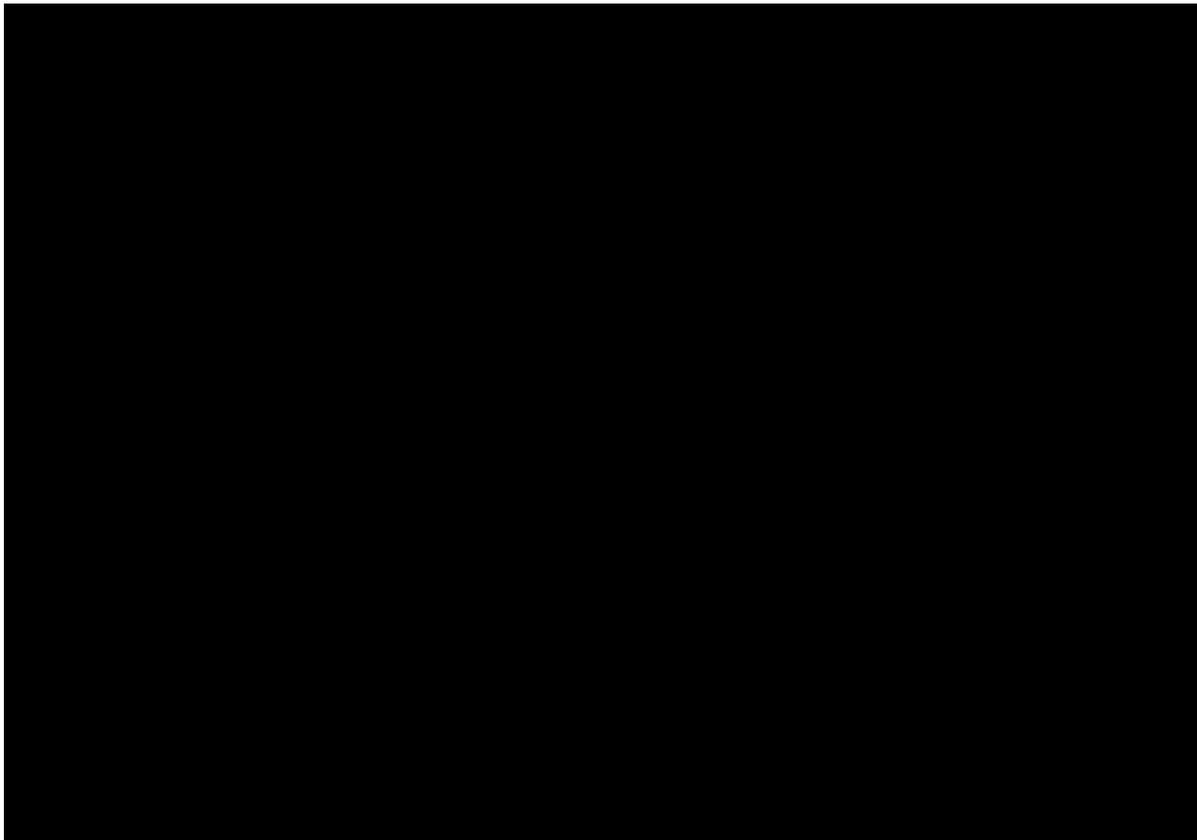


- Seeing maps of the US Embassy and USAID building
- Acquiring the required information about the general contractor, owner, and subcontractor of a construction project
- Seeing the construction work
- Seeing the plumbing system
- Seeing the coverage of walls and ceiling
- Seeing the power generator machines
- Seeing complex procedure of generating power
- Seeing electrical system

Summary and Analysis

I have learned a lot of things during this site visit which are beneficial to my field of study. I learned the importance of the site visit for construction works and having an efficient schedule as well efficient management for workers and materials. This was a great practice work for me and the other interns. I am really thankful to Tetra Tech, especially my supervisor [REDACTED] who created this opportunity for us.

Pictures and Figures



Assignment MEMO

By: [REDACTED]

Date: January 12, 2016

Assignment: Third Site Visit

Instructor: [REDACTED] [REDACTED]

Summary

In this site visit, I learned information about the construction site work which is important to know. This site visit was beneficial and useful now and for my future career.

Background

The subject of this assignment was a visit at US Embassy construction site on January 12th, 2016. People involved in this site visit were [REDACTED] (structural engineer), M [REDACTED] (mechanical engineer), [REDACTED] (electrical engineer), [REDACTED] (project manager), [REDACTED] (project manager), [REDACTED] (civil engineer), [REDACTED] (civil engineer), [REDACTED] (Tetra Tech architect), myself and the three other interns [REDACTED]

Assignment Activities

After introductions, we were taken to the site. The first place we visited was the drinking water treatment plant, where we saw water tanks and water treatment system which make the water potable. All of the required processes to treat water for drinking purposes to provide a safe source of water supply were explaining, including processes such as settling and filtration, and chemical processes such as disinfection. This is the removal of contaminants from untreated water to produce drinkable water that is pure enough for the most critical of its intended uses, usually for human consumption. Substances that are removed during the process of drinking water treatment include suspended solids, bacteria, algae, viruses, fungi, minerals such as iron, manganese and sulfur, and other chemical pollutants such as fertilizers.

After that, they guided us to one of Embassy building's roof and showed us the mechanical systems that were located in the roof and explained to us how the systems work and what the outcomes of these systems in the building are. From the roof, we were also able to see the ongoing construction work of another building. Then the solar panel system was explained and we were given information on how the system works and for what purpose they are used for. Lastly we went to the construction site and we saw the ongoing work including the rebar work, form work, rebar cutting, excavation, insulation and concrete pouring. We also asked question of the engineers about each work and they patiently and clearly answered all of our questions.

The engineers clearly explained the proposed mix design, admixture, cold weather arrangement, placing and compaction of concrete. Additionally, it was explained that it was planned to cover the fresh concrete for the first 48 hours to protect against ice and freezing. Next, the curing process was explained.

I would like to say it was an excellent experience for me, I learned many important topics about site work and I got familiarized with the site work processes, which will have a good impact on my future career.

Outcome

The most important outcomes and results that could be mentioned from this program, as it was our second time visiting a construction site, were our introduction to construction work and familiarization to site work including:

- Excavation
- Concrete pouring
- Form work
- Curing of concrete
- Rebar work
- Rebar cutting
- Rebar bending

Summary and Analysis

I learned a lot of things from this site visit which are beneficial to my field of study. I learned that it is important for a construction project to have an efficient schedule and management for workers, materials and work. I have learned and observed important components of construction projects, such as excavation, concrete pouring, formwork and reinforcement work, as well as being introduced to a water treatment plant.

Assignment MEMO

By: [REDACTED]

Date: June 15, 2015

Assignment: Camp Eggers Site Visit

Instructor: [REDACTED]

Summary

This beneficial site visit took place in order for us to gain some knowledge of practical work at construction sites.

Background

The subject of this assignment was a visit to the Camp Eggers construction site and its date of occurrence was Thursday June 15th, 2015. People involved in this site visit were [REDACTED] Tetra Tech Structural Engineer, [REDACTED] Tetra Tech Architect, myself and three other interns [REDACTED]. I did not have any past experience with site visits from my study period at university.

Assignment Activities

Two important steps were taken for this activity. First, [REDACTED] provided an introduction on the plan, the construction site, its location and address, work progress and the purpose of that construction progress. This construction project was for constructing three-story buildings by Conexus for the U.S. Embassy Security Group at Camp Eggers. Also, we were taught by our supervisor ([REDACTED]) and [REDACTED] about safety issues and to wear safety clothes, such as safety glasses, shoes and caps, before entering the construction site.

The second and major step of this activity was visiting the site. We went to the site after passing through security. We entered the site and met [REDACTED], Architect at the site, and Mr. [REDACTED], Project Manager of the site. We were taken to every part of the site and were shown the civil, electrical, architectural and mechanical engineering related works. We were shown the excavated site for the building, and the dogged holes for finding some remains of foundations of previous structures with the help of historical data. Then we were taken to the fully compacted site. After that, they introduced some rollers for compaction and their characteristics, and the way to find damaged soil underground by using the compaction rollers.

To conclude, this site visit was a general and technical introduction to the beginning of construction work at the site. This site visit had a positive impact on our educational background as we were familiarized with the work processes on site. We learned how management of the construction project was carried out for construction works in the correct order. The placement of wells for both water supply and wastewater to the building was the most interesting subject to me. Finally, I learned that giving the site a slope in order to give a direction for rain and snow water is a very important part of every construction project.

Outcome

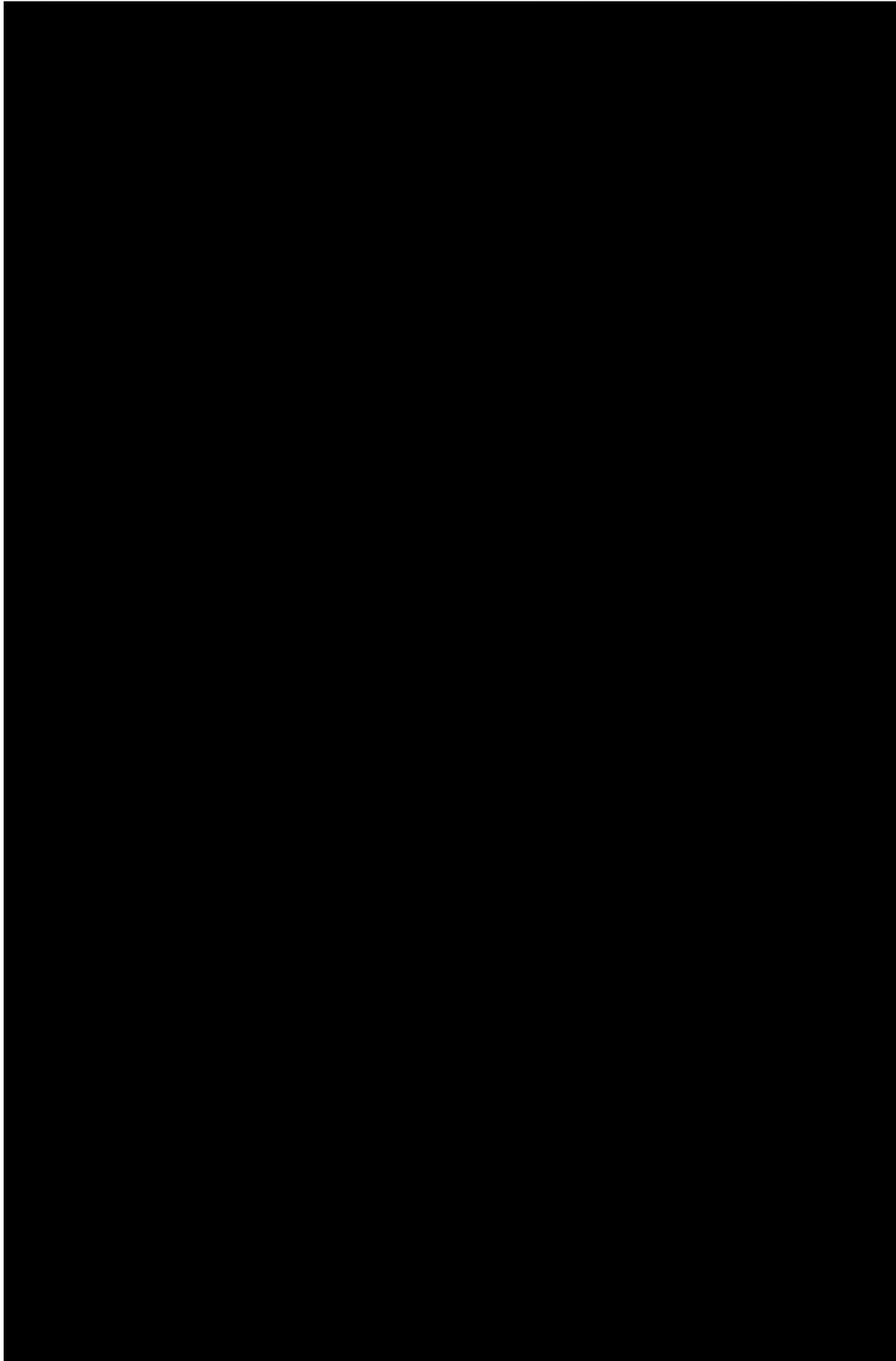
The most important outcome and results that could be mentioned from this program, as it was our first time visiting a construction site, was our introduction and familiarization to sites and site work.

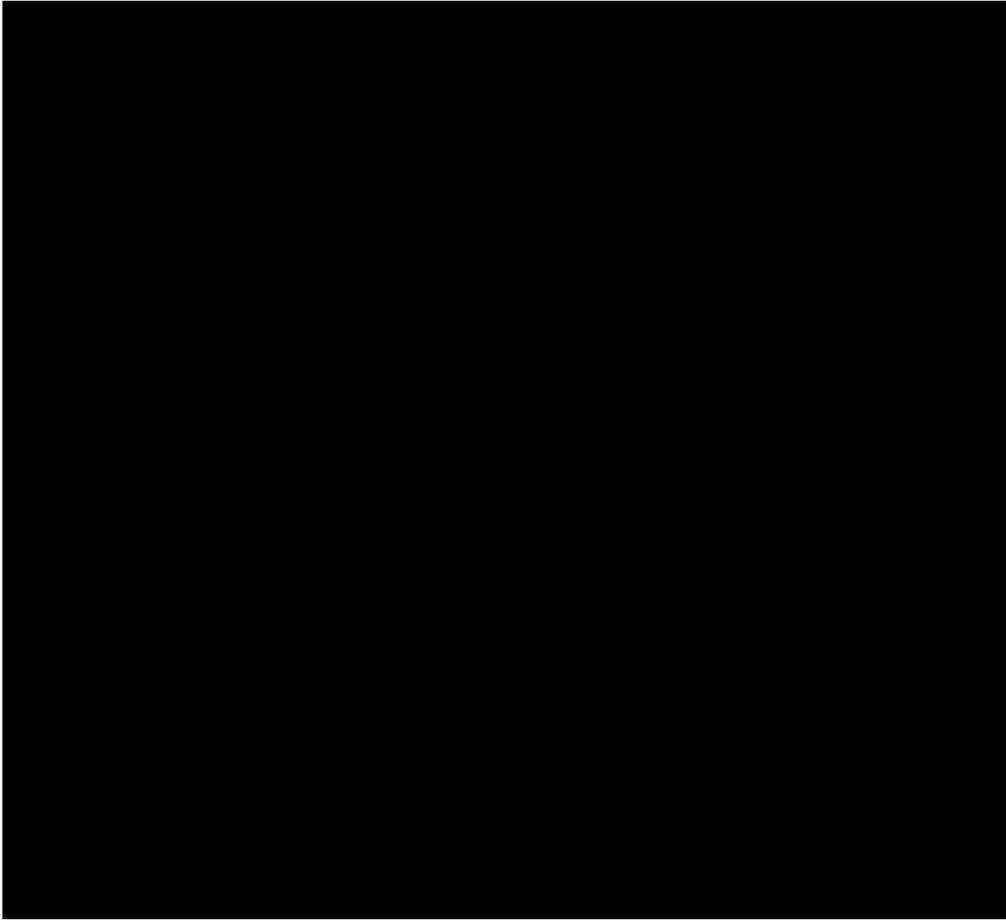
Summary and Analysis

I learned many things from this site visit which are beneficial to my field of study. I learned that it is important for a construction project to have an efficient schedule and management of workers, materials, and work. As progress in this site was at the beginning stage, I learned and observed basic works of a construction project, such as excavation, compaction and finding structural remains. This was great practice and I do not have any suggestions for changing the methods of program. One suggestion I do have is that a site visit program should be scheduled for us again so that we will have the chance to have more site visits and to learn new things.

Pictures and Figures

Pictures taken in this activity are below.





Assignment MEMO

By: [REDACTED]

Date: September 3, 2015

Assignment: Site Visit

Instructor: [REDACTED]

Summary

This beneficial site visit took place in order to gain experience of practical work at construction sites.

Background

The subject of this assignment was a visit to a USAID construction site and its date of occurrence was September 3, 2015. Technical instructors for this site visit were [REDACTED], Civil Engineer at USAID, [REDACTED], Civil Engineer at USAID, [REDACTED] Project Manager, and [REDACTED], Tetra Tech Architect. The four interns, [REDACTED], [REDACTED], and myself attended. I had past experience with site visits during my internship at Tetra Tech.

Assignment Activities

Three important steps were taken prior to and during the site visit. In the first step, we had some preparation for the site visit at the Tetra Tech office that included wearing the safety clothes and safety shoes. After that, the next step was to go to USAID.

The second step, going to USAID, included taking photos with [REDACTED] the Ambassador's wife. We enjoyed a great time at USAID and captured many memorable photos with USAID staff. While at USAID, we were shown maps of US embassy and USAID structures by [REDACTED] and M[REDACTED]. Mr. Ralph gave us the required information about the owner, general contractor and subcontractor of the construction project and their duties along with some other beneficial information about the project and the map.

At the third and major step of our site visit, we visited a warehouse. While at the warehouse, we were instructed about the construction work, including the steel framing, the concrete walls, plumbing system, the coverage of walls and ceiling, the sprinkler system inside the warehouse and the electrical system. After that, we went to the batch plant to see the power generator machines. It was my first time seeing this kind of heavy and large power-generating machines, and I learned its complex procedure of generating power.

To conclude, this site visit was a general and technical introduction to construction work on site and to some power generating systems. This site visit had a positive impact on our educational background as we were familiarized with the work processes on site, management of the construction site and different designs of structures along with their proper use. We learned how management of construction projects is carried out in the correct order.

Outcome

The outcome from this site visit was beneficial for our educational background both for now and in the future. It has increased our knowledge of site work, the management skills, and the interaction between civil engineers, architects, laborers and other staff. Thus, it can be stated that I am satisfied that these kind of effective site visits will bring my educational and practical background of site work to high levels.

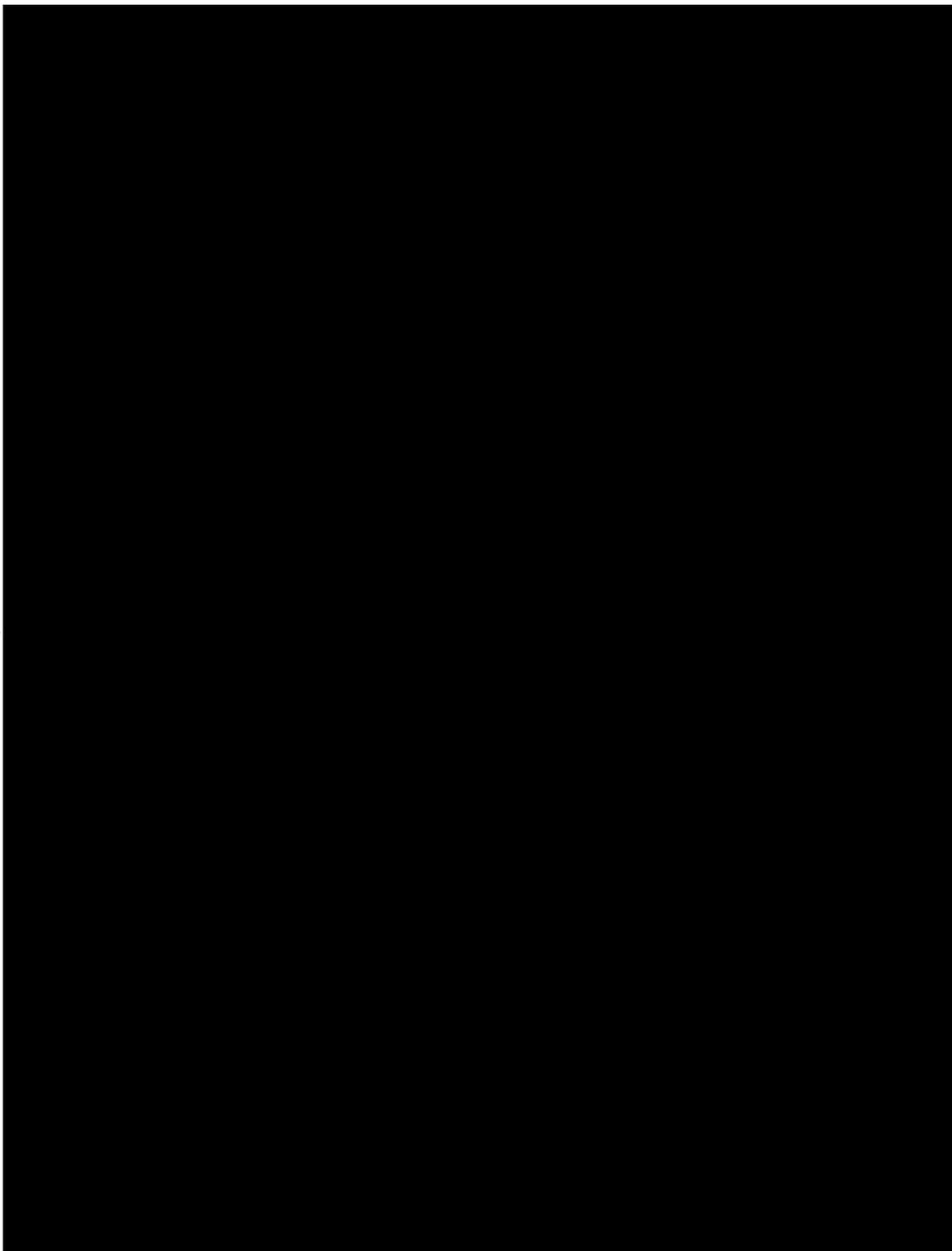
Summary and Analysis

The information I have learned from this site visit is really beneficial to my field of study. As I mentioned before, there was an efficient schedule and management of workers, materials and tasks which is most important for a construction project. This was a great practice and I do not have any suggestion for changing the program. I would suggest for the scheduling of another site visit for us.

Pictures and Figures

Pictures taken during site visit.

Figure



Assignment MEMO

By: [REDACTED]

Date: January 12, 2016

Assignment: USAID Site Visit

Instructor: [REDACTED]

Summary

This beneficial site visit took place in order to gain practical work experience at construction sites.

Background

The subject of this assignment was a visit at USAID construction site on January 12, 2016. People involved in this site visit were [REDACTED]

[REDACTED] ct, myself and three other interns including [REDACTED] I did have past experience of such site visits during my internship period at Tetra Tech.

Assignment Activities

Two important steps were taken for this activity. First, Mis [REDACTED] provided an introduction on the plan, the construction site, its location and address, work process and the purpose of that construction project. This construction project was for constructing an eight-story building for USAID staff and employees. We also learned about safety issues, such as wearing safety clothes, safety glasses, safety shoes and caps, before entering the construction site.

The second and major step of this activity was going to the site. After passing through security, we entered the site and met all previously mentioned staff. After introduction to the staff, we were brought to the drinking water treatment plant. Over there, we were taught about the process through the water is treated and made drinkable, and we were shown the water treatment facilities, water tanks, filter tanks and many other facilities. Then, we were brought to the roof of diplomats' residential building to see the construction project from above. We were shown some facilities located at top of building such as the air handling unit. We had many discussions and questions with the experts about the construction process and became familiarized with the procedures used there. After that, we were showed the facilities in the panel room of the diplomats building. Then, we went to a specific location where there were the solar panel system installed. We were introduced to the process through which the solar panels works, its functions and efficiencies. By then, we went to the construction site and saw:

- Rebar wok
- Form work
- Rebar cutting
- Rebar bending
- Excavation
- Insulation
- Concrete pouring

Each of the activities were briefly explained by staff when walking around the site.

To conclude, this site visit was a general and technical introduction to the construction work at the site. This site visit had a positive impact on our educational background and we were familiarized with the work processes on site. We learned how management of the construction project was carried out for construction works in the proper order.

Outcome

The most important outcomes and results from this program were learning about the technical work and seeing the progress of construction and application of design in a specific construction site. I learned many things from this site visit which are beneficial to my field of study, including:

- Seeing the rebar work
- Pouring concrete and learning the procedures for its pour
- Seeing rebar cutting and bending
- Seeing the form work and the procedure they tied the forms
- Seeing the insulation work and excavation work

All of these topics are important areas that I was expecting and hoping to see and learn. Also, visiting the water treatment plant for the first time was the most effective practice for me. Besides going to site, all information given about the construction and facilities of the existing building was beneficial. Generally, all of the information was efficient. Before this site visit, everything I learned both in office and university was theoretical, and I was really hoping to interact with these activities practically. Fortunately, through the help of USAID and their staff, I got the chance to have this kind of visit and to learn and build my skills.

Summary and Analysis

Going to the site and learning about the actual work progress at USAID was a great practice and I do not have any suggestions for changing the methods of program. I do suggest that another site visit program should be scheduled for us, so that we will again have the chance to learn more during these visits.

Assignment MEMO

By: [REDACTED]

Date: July 7, 2015

Assignment: Camp Eggers Site Visit

Instructor: [REDACTED]

Summary

The site visit took place in Camp Eggers, which is currently under construction. It was the first site visit that we had during this internship, and I found it to be very beneficial.

Background

The subject of this assignment was the site visit at Camp Eggers. The site visit took place on the 11th of June. This site visit was for myself and three other interns (Arsa, Taiba and Noorjahan). Instructors were [REDACTED] Structural Engineer and [REDACTED], lead of the internship program at Tetra Tech, [REDACTED] Project Director and [REDACTED] Deputy Construction Manager at Camp Eggers. I did have site visits at university but it was in places where the construction work was already completed. This was my first site visit experience in such a place.

Assignment Activities

First, [REDACTED] made an appointment, on Thursday June 11th, for three other interns and myself, [REDACTED] to go to Eggers camp. We were introduced to [REDACTED].

Then [REDACTED] told us about the site, the purpose of building in the camp and for how many people. Then we asked any questions that we had.

Next, [REDACTED] gave us information about the construction process They were constructing the foundation for building. He gave information about the foundation, how they make the soil proper for foundation and how to use it for building. Also they showed the water supply system, and the waste water system.

Then we saw the material which they were going to build, which was a Conex. We saw the internal design of the Conex and electrical system. At the end they showed the architectural, structural and electrical drawings of the camp.

In university, I have learned many thing theoretically but the important thing I learned from this site was to see everything practically, which is really beneficial for me and helps me not to forget what I have learned and to apply it in future.

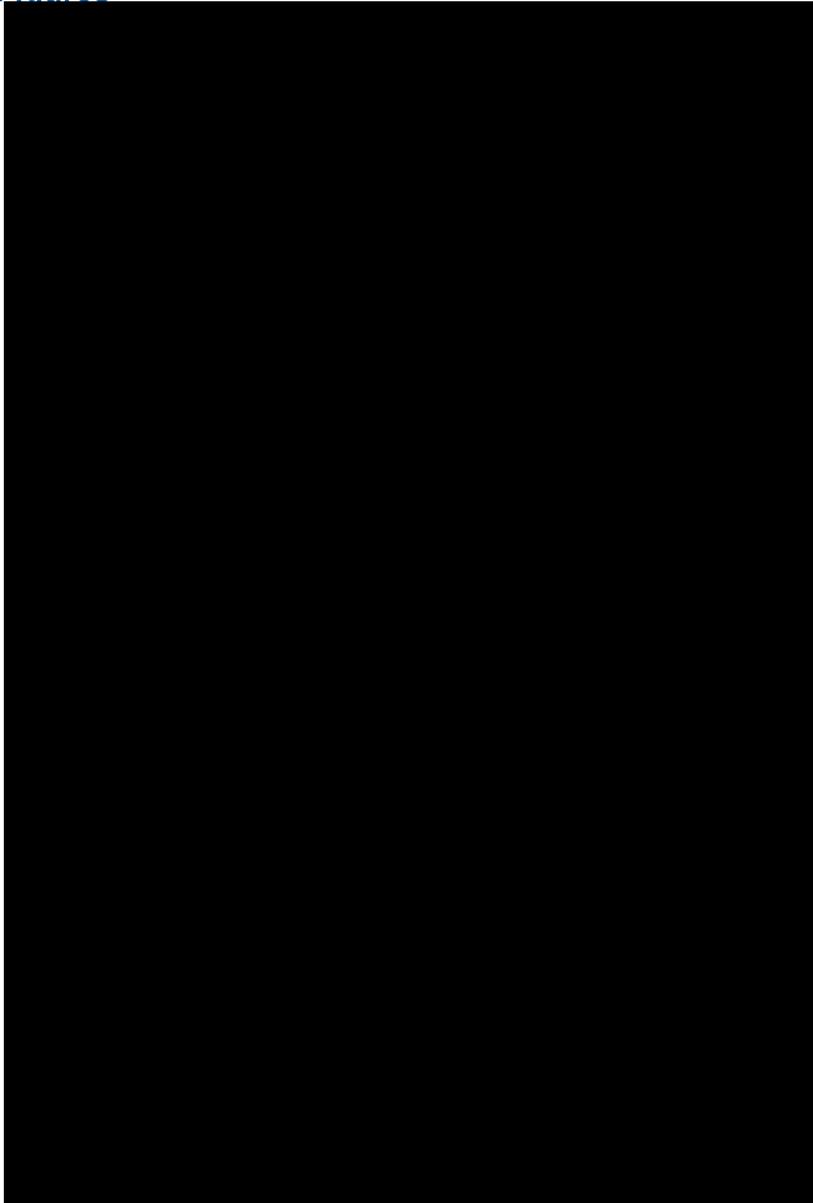
Outcome

The site visit had many good outcomes for me. I learned lots of things about building foundations and the process of how foundations are built. I learned about the water supply system and waste water system.

Summary and Analysis

I learned many things about the construction process, and it is directly related to my professional goals. In my future career I will be familiar with the practical work. It was a good practice and I would like to say it will be better to have many visits like this.

Pictures and Figures



Assignment MEMO

By: [REDACTED]

Date: January, 12, 2016

Assignment: USAID Site Visit

Instructor: [REDACTED]

Summary

This site visit was to the USAID building for the interns to show them the ongoing construction work there.

Background

The subject of this assignment is the site visit which was took place on January 12, 2016, at USAID. The people involved were [REDACTED]

[REDACTED]). During this internship program we visited different places in the site, all of which were excellent experiences.

Assignment Activities:

Three important steps were taken during this site visit. First, we prepared ourselves and wore hard hats, eye protection (safety glasses), hard soled shoes or boots to meet the requirements of site safety for visitors. Then we went to US Embassy with our supervisor Engineer Zurwa Farhad.

Second, we were introduced to [REDACTED]. They guided us to the site and gave us information about the places that we went.

Third, we were taken to the site. The first place we visited was the drinking water treatment plant where we saw water tanks and water treatment system which make the water potable. We were explained about processes involved in treating water for drinking purposes to provide a safe source of water supply using physical processes such as settling and filtration, and chemical processes such as disinfection. The removal of contaminants from untreated water to produce drinking water that is pure enough for the most critical of its intended uses, usually for human consumption. Substances that are removed during the process of drinking water treatment include suspended solids, bacteria, algae, viruses, fungi, minerals such as iron, manganese and sulfur, and other chemical pollutants such as fertilizers.

After that they guided us to one of the Embassy building's roof and showed us the mechanical systems that were located on the roof and explained to us all the processes of how the systems work and what are the outcomes of these systems in the building. We were also able to see the ongoing construction work on the other building from above. Then we went to see the solar panel system. They showed us the system and gave information on how the system worked and for what purpose they use it for. Lastly we went to construction site and we saw the ongoing work at the construction site such as rebar work, form work, rebar cutting, excavation, insulation and concrete pouring. We asked question from the engineers about each type of work and they patiently and clearly answered each of them.

To sum up, I would like to say it was an excellent experience for me. I learned many important topics about site work and I got familiarized to the site work processes, which will have a good impact to my future career.

Outcome

As a result of this site visit, I learned many different things such as the mechanical systems which are used in embassy buildings to create facilities for the people who were living there. I also learned how systems were organized and how much area they occupy. I learned the new system of roof rain water drainages and the insulations that they did use in roofs to resist against blast and heat exchange. As an architect, knowing these systems and space division is really important for me, and during this site visit I saw the real life examples of these. Visiting the construction site was an interesting experience, during which I practically learned a lot about site work and saw all the lessons that I had learned theoretically during university. I was hoping for this kind of opportunity and luckily I received it, through the help of Tetra Tech and USAID.

Summary and Analysis

From this site visit I learned about the working process on a construction site and also learned about the mechanical systems uses within a building. I only suggest one thing - if it is possible, increase the number of site visits during the internship so we could learn more things.

Assignment MEMO

By: ██████████

Date: June 13, 2015

Assignment: Camp Eggers Site Visit

Instructor: ██████████

Summary

This was my first site visit since becoming an intern at Tetra Tech. The Eggers Camp is near the Tetra Tech villa and it takes almost five minutes to get there. This camp was in the demolishing and site clearing process.

Background

This site visit exposure which happened on June 11, 2015 was led by Mr. ██████████ for all interns, and ██████████ (our supervisor) also attended. Two of the AEGIS employees were our guides at the construction site. This was the first time that I was out for a construction site visit, and it was very interesting for me.

Assignment Activities

We all had safety shoes, glasses and vests. We all had our IDs and went to the camp in two cars. There in the camp, we were guided by one project director ██████████ and one Deputy Construction Manager ██████████. They explained everything about their project site and construction issues, and answered our questions as well.

Our instructor was also trying to ask the questions that we didn't notice. This would remind us about what we must be aware of when we are out for site visits.

I saw many interesting things, but most interesting for me was observing a temporary generator power station and the container electrical installations (a small panel board and conduits connected).

Outcome

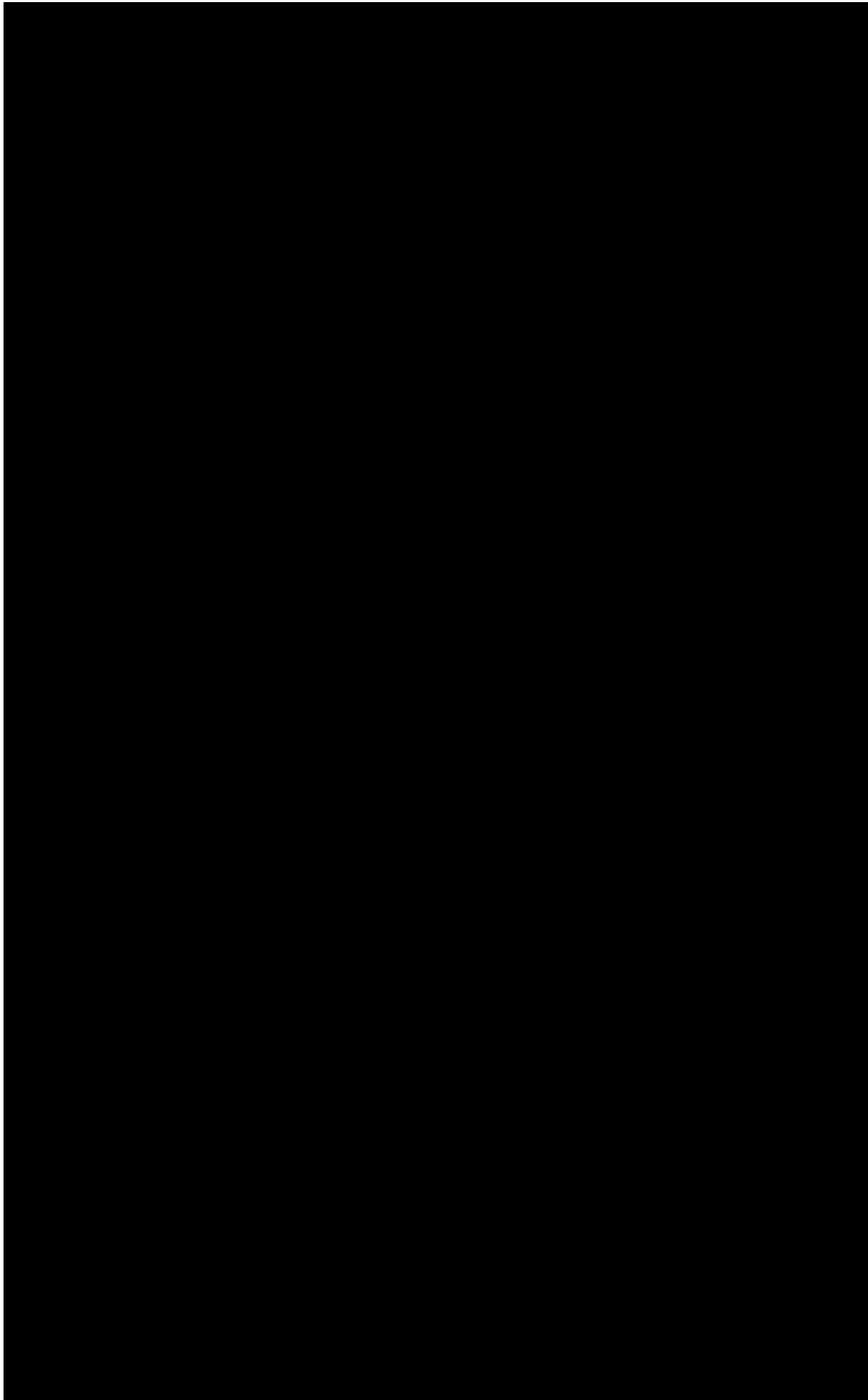
One of the points to notice in this exposure was that we got information about the construction site and its appearance, the requirements for a project, and different groups of employees.

Another point that was interesting for me at that particular site was related to the dormitories they are going to construct. Those dormitories are going to be made by containers isolated and designed to be used as small personal rooms, and this was very interesting for me.

Summary and Analysis

I learned how the site visit process happens, the responsibilities of the persons in the site, how to observe safety on the site, what a project director does and the points I outlined in the paragraph above. This exposure could be the basis of my future career as a site engineer. I wish I could have more exposure, especially ones that have many electrical aspects to understand.

Pictures and Figures



Assignment MEMO

By: [REDACTED]

Date: January 13, 2016

Assignment: US Embassy Site visit

Instructor: [REDACTED]

Summary

As the practical aspect of our internship program, we had a site visit at USAID. During this exposure, we visited the water treatment plant, the mechanical room, construction site, and the solar thermal system.

Background

This site visit was conducted by our supervisor [REDACTED] and our contact point in USAID [REDACTED] on January 13, 2016. We have been at USAID for site visits previously, but this time we had a greater experience that covered many things that we have not experienced previously.

Assignment Activities

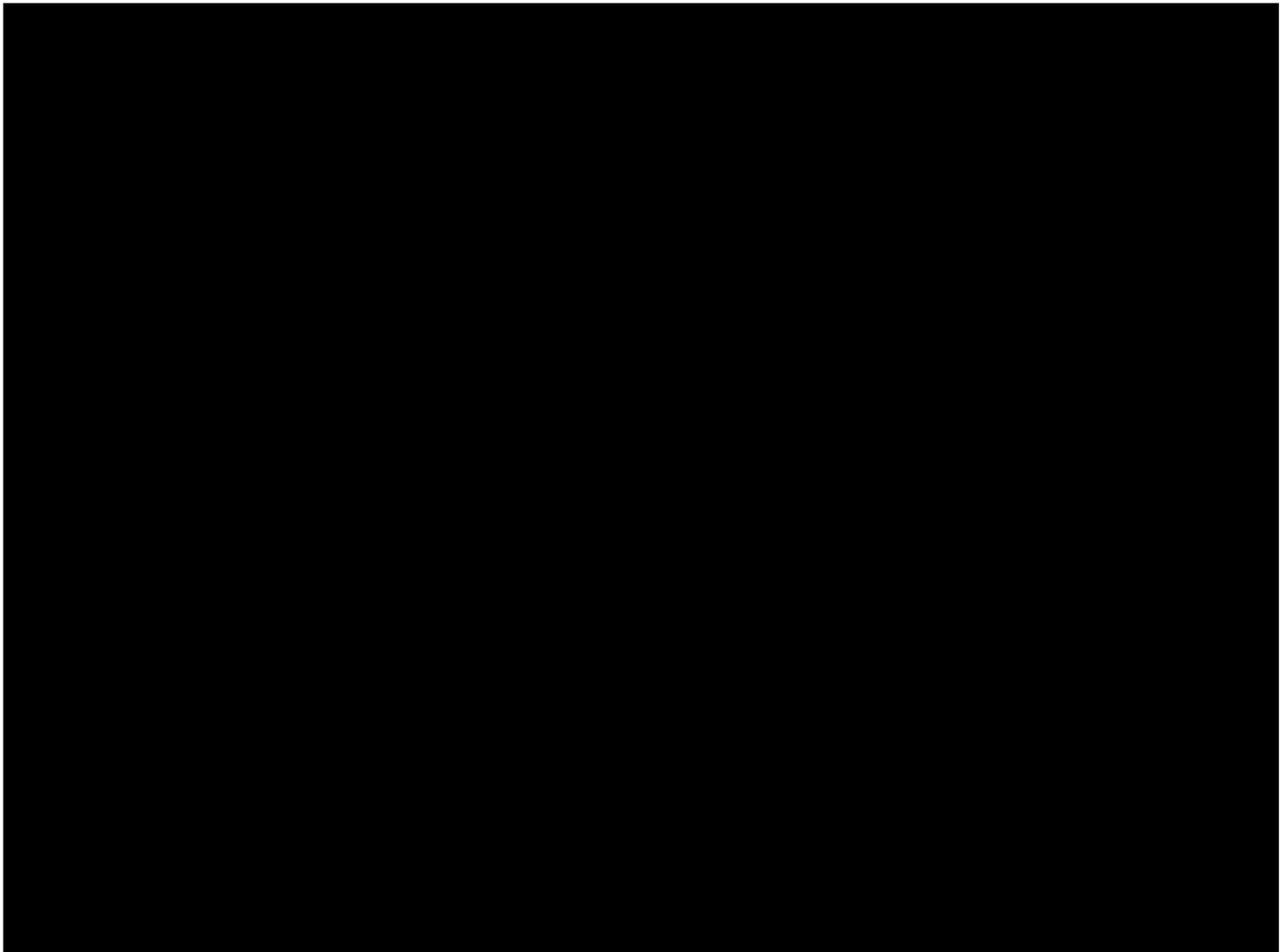
The very first step in a site visit is to take care of safety issues. We all wore the safety boots and hard hats. There were electrical, mechanical, and structural engineers there the whole time, each explaining to us the site aspects related to their own fields. For me, there were so many new things especially in terms of solar thermal systems. First, we went to a water treatment plant where the water for all the buildings was treated and then distributed. At the second step, we had a view of the whole construction site from the top of a building and I saw the lightning assessments on the roof. The mechanical room was the next place to go. Then we saw the solar thermal system, and how it works was explained. Next, we have been taken to construction site where labors were working on foundations. Pouring concrete, steel bending and cutting, placing forms, and some electrical assessment installations were the interesting exposures we experienced.

Outcome

The most important outcomes of this site visit were the worthwhile information we received, and the wonderful experience of being on the site. We got to know new things about the water treatment process, lightning assessment, and how the solar thermal system works in real life. We also learned about the important points to consider for electrical system of a building while working on the foundation, what are load banks, concrete shooting and vibrating machines, form works and rebar bending machines. These were very important things to learn.

Summary and Analysis

This activity was all about site, and that was fascinating. Site visit is a very important point for my goal of being a professional electrical engineer. One important result that I got after this event was that there are many things to learn in the site, and that I need to look for such opportunities.



Assignment MEMO

By: [REDACTED]n

Date: September 3, 2015

Assignment: US Embassy Site Visit

Instructor: [REDACTED]

Summary

This site visit held at US Embassy. We had a visit of some construction sites, warehouses, and power generation parts. It was our first site visit in the embassy area.

Background

Site visits are the most awesome parts of the internship program that make us familiar with engineering in real world. For me, it was a great pleasure going to the generator power plant at US Embassy. I haven't seen the generators parallel operation before. It was very interesting to observe how the generator power plants work and how to control the generators. Also, we had a visit of the structural facilities in the warehouse building. We saw how the electrical conduits run around the whole building and the trays that hold them together.

Assignment Activities

We wore our safety boots and hard hats. First, we met Mrs. [REDACTED] since she came to meet us and then, we started our tour in the warehouse. Construction Manager [REDACTED] was accompanied us and he talked about steel frames, plumbing system and electrical system inside the ware house. Then, we had a visit of the power generation plant. Their electrical engineers explained every question we had. It was a wonderful site visit day.

Outcome

I achieved the experience of visiting a generator power plant which was great for me. I found it wonderful because before, I only had the theory of parallel generator operation and did not know how they are actually operating and being controlled.

Summary and Analysis

For me, it was an experience of my own job. I liked it a lot, and I know such experiences help me in my engineering career.

APPENDIX J – SOFTWARE TRAINING MEMORANDUM

Assignment MEMO

By: ██████████

Date: January, 12, 2016

Assignment: Primavera training

Instructor: ██████████

Summary

The Primavera training was given by Engineer ██████████ for the four interns in the Tetra Tech internship program.

Background

The subject of this assignment was the computer software Primavera. Primavera Systems provides project and program management software for the architecture, engineering and construction industry. Focused on project portfolio management, or PPM, Primavera solutions lets users measure progress, assure governance, improve team collaboration and prioritize project investments and resource. Training of this program was given by Engineer ██████████ for myself and three other interns (██████████) in Tetra Tech office. I did not have any past experience with this program.

Assignment Activities

The Primavera training was given in two steps. First, Engineer ██████████ introduced us to the software, told us about the importance of this software and the usage of the program. Then he started working on the program and taught us how to work in this program. He taught us how to add tasks, how to make calendars and assign them to different tasks, how to assign resources to the activities and how to update the schedule.

The second step was that we were assigned to make schedule in Primavera for the construction of a transmission line tower. We did the assignment as a practical work on the program and submitted it to Engineer ██████████. He reviewed it, identified our mistakes, and we corrected and resubmitted it.

The important topics that I have learned from this training are the following;

- What is schedule
- How to develop a schedule
- What are the benefits of planning, monitoring, and controlling project activities
- Allocating resources

Outcome

As a result of this training, now I am able to create and develop schedules, assign resources and update schedules.

Summary and Analysis

From this training I learned how to create a schedule, how to manage it and assign resources, and to create a calendar with tasks from the schedule. It is good for every engineer to know about project management and scheduling, and this training will help me in my future career goals. I do not recommend any changes to this program. The way Engineer ██████████ taught us was really good.

Assignment MEMO

By: [REDACTED]

Date: November 21, 2015

Assignment: Primavera P6 Software Training

Instructor: [REDACTED]

Summary

Primavera P6 is a project management tool used for time management and scheduling. Primavera P6 training was very positive and very useful for me, and it gave me the opportunity to learn a lot about Primavera P6. This program is really needed for all engineers because this software is used in most parts of the world for planning and scheduling.

Background

The Primavera P6 training started from the 21nd of November until the 12th of January, 2015 by Engineer [REDACTED]. The trainees were myself and the three other interns [REDACTED]. I had no past experience in this program and this was my first training about Primavera P6. The trainer used a practical approach and involved all of the interns during this training to ensure that every intern gained understanding.

Assignment Activities

During this training one of the most important and useful soft wares in engineering field and that is Primavera. The training was provided by AESP Tetra tech office. This Training was very benefits for all interns, I didn't have any information about Primavera P6 before my internship program but now I have all information about this program and also the end of training I have an assignment that I have done.

Outcome

I learned how to:

- Create project schedule
- Create activities
- Create work breakdown structure (WBS)
- Assign resources
- Assign cost
- Create relationships between activities
- Analyze the updated project
- Add codes to activities
- Format schedule

Summary and Analysis

This program was suitable for us, because now we can take care of planning and scheduling easily with this program. It's also helpful for our career in the future because when we are applying for an engineering vacancy, this will be an important skill.

Pictures and Figures

This is my Assignment Project

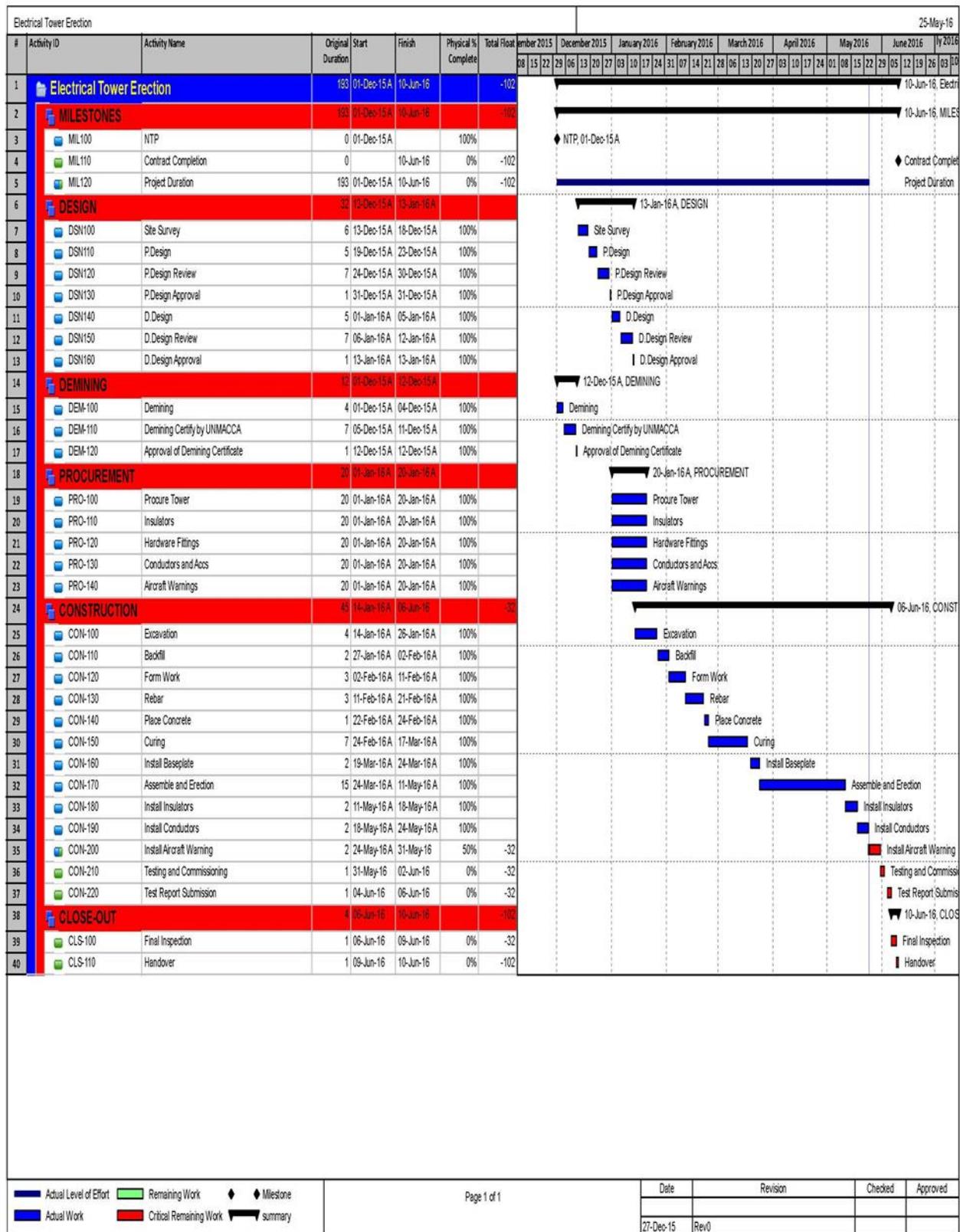


Figure 1: Schedule Made through Primavera P6 software

Assignment MEMO

By: [REDACTED]

Date: November 21, 2015

Assignment: Primavera P6, Software Training

Instructor: [REDACTED]

Summary

Primavera P6 is a scheduling software like MS Project. In series with our project management and MS Project training we had a Primavera P6 software training.

Background

[REDACTED] was the instructor for this training. All of the four interns were involved in this task, and we had all the opportunity to join and learn using Primavera P6. The predecessor to this training was MS Project that I learned here.

Assignment Activities

During this training period, we would go to the assigned place and follow the flow of a project being scheduled in Primavera P6.

Outcome

Promoting our management and scheduling skills was the best outcome of this training.

Summary and Analysis

Since in future I need to work on projects, and every project needs management and schedule, then this training gave me a good tool for my profession.

Assignment MEMO

By: ██████████

Date: November 21, 2015

Assignment: Primavera P6 Training

Instructor: ██████████

Summary

The purpose of Primavera P6 training was to teach the interns how to create detailed and appropriate schedules for technical purposes.

Background

The Primavera software training was conducted for all the interns, ██████████ and myself. We had been taught how to make schedules using MS Project software at university, but in this training we learned a new and updated software for scheduling purpose, Primavera P6.

Assignment Activities

We received lectures on Primavera for about one month by ██████████ Project/Cost Scheduler at Tt. I learned how to complete the following tasks during this training:

- Create Work Break Down Structures
- Write and edit tasks and activities in Primavera software
- Link those added tasks
- Make calendars in this software
- Assign resources to the activities
- Calculate duration for activities.
- Assign costs to the schedules in different methods
- Create a baseline for the tasks
- Update the schedule that we create.

After about one month, all the other interns and myself were assigned to make schedules at our own. ██████████ provided us with the data to make the schedule for the construction of a Transmission Line Tower. We prepared schedules using the Primavera software which is one of the great experiences of my career. This is one of the efficient ways to make a schedule.

In conclusion, this training enabled us to use this software for our daily tasks or other projects. Use of such software would enable us manage our time in an efficient and an effective way. By creating productive and good schedules, engineers can finish tasks before their due dates.

Outcome

Here is the schedule that I have prepared using this software.

Assignment MEMO

By: ██████████

Date: May 04, 2015

Assignment: MS Project

Instructor: ██████████

Summary

The MS Project program is the discipline of organizing, planning, and managing resources to complete a specific goal. The program was taught to interns during the internship program for the purpose of learning project management.

Background

This assignment was the MS Project training led by Engineer ██████████ Tetra Tech Project/Cost Scheduler, on May 04, 2015. The training was delivered for myself and the three other interns ██████████. I did not have any past experience in this program.

Assignment Activities

The first step was an introduction to MS Project. Engineer ██████████ gave a presentation about the program and some general information about MS Project.

The second step was practice work on the program, and Engineer ██████████ taught us the usage of program.

The last step was completing an assignment on the construction of a transmission line tower. We had to schedule the project in MS Project and submit it to him before the due date.

The important topic that I have learned is scheduling, and that it's important to schedule a project. Now I'm able to do scheduling for my university projects and it will be helpful for my future professional life.

Outcome

As a result of this software training I have learned how to work in MS project. I learned how to schedule tasks and I prepared a schedule by myself.

Summary and Analysis

It is important for us to arrange our tasks and assemble it into a schedule. All kinds of engineers need to use it. Studying this program taught me how to arrange and organize project activities, which is beneficial for my future career.

Assignment MEMO

By: [REDACTED]

Date: July 07, 2015

Assignment: MS Project Software Training

Instructor: [REDACTED]

Summary

During this training, we were concerned with MS Project software. Instructor [REDACTED] explained how to develop the project schedule.

Background

MS Project is a software for scheduling and project management. This training was held for all four interns starting in May 2015. I had a course on project management at university, but I hadn't worked with scheduling in a software before.

Assignment Activities

A few introductory sessions were conducted to help us understand the following: what the project and project management is, who is a project manager, how to divide activities in a project into categories, etc. The next step was getting started with the software and developing a sample project step by step.

The last part of this task was a project assigned to each of us. We were all asked to develop the schedule for it, considering the resources, calendars and deadlines.

Outcome

The major outcome of this task was that I scheduled a sample project by myself. Since I learned to work with MS Project, using it to schedule and manage tasks, I could develop the project that was assigned. I used these skills to prepare a schedule for my electronic project at university.

Summary and Analysis

Engineers need to manage their projects, so to be a professional engineer, learning the scheduling and management of a schedule is a requirement.

Assignment MEMO

By: [REDACTED]
Date: May 5, 2015
Assignment: MS Project Training
Instructor: [REDACTED]

Summary

This training was one of the most beneficial and valuable trainings that I have received at Tetra Tech. It made me learn a lot about MS Project, a program which is really important and helpful for Civil Engineers and Architects

Background

The subject of this assignment was MS Project. The training by Engineer [REDACTED] lasted one month, starting on May 5 and ended on June 5. Three interns and I participated in this training. I had no past experience in this program and this was my first training in MS Project.

Assignment Activities

We learned that MS Project is a software that helps with planning, supervising and managing resources. We also learned that using this software helps with achieving specific technical objectives. The Project Manager has the responsibility of listing all activities, how the activities are related to each other, the duration, the amount of resources and budget, and deadline for each task. After completion of the training, we had an assignment regarding our training. We applied what we learned in our training in our assignment as well as in our project.

Outcome

I studied the below information:

- MS Project Definition
- Project Planning
- Project Execution
- Tasks and activities Control
- Project Closure

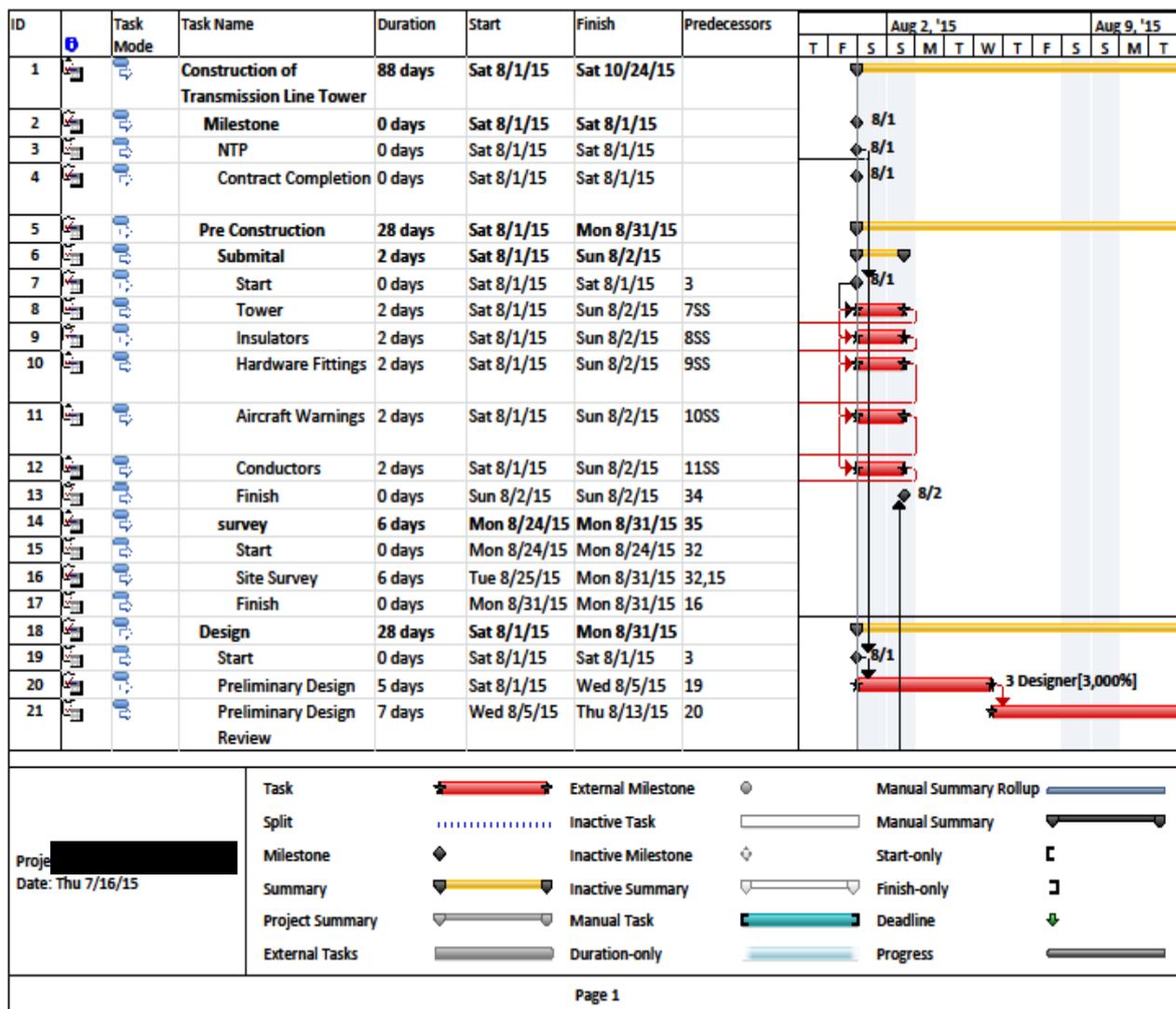
Summary and Analysis

I learned how to:

- Understand and control project schedules.
- Communicate and present project information.
- Organize work and people to make sure that projects are completed on schedule.

Pictures and Figures

Below is my MS Project assignment:



Assignment MEMO

By: [REDACTED]

Date: May 3, 2015

Assignment: MS Project Training

Instructor: [REDACTED]

Summary

The MS Project Training was held in order to learn to create great detailed and appropriate schedules for engineering projects and technical purposes.

Background

The subject of this assignment is MS Project training. The training was delivered by [REDACTED] Mechanical Engineer and Scheduler for Tt, and attended by the four interns [REDACTED]. [REDACTED] hadn't had any past experience with this kind of training.

Assignment Activities

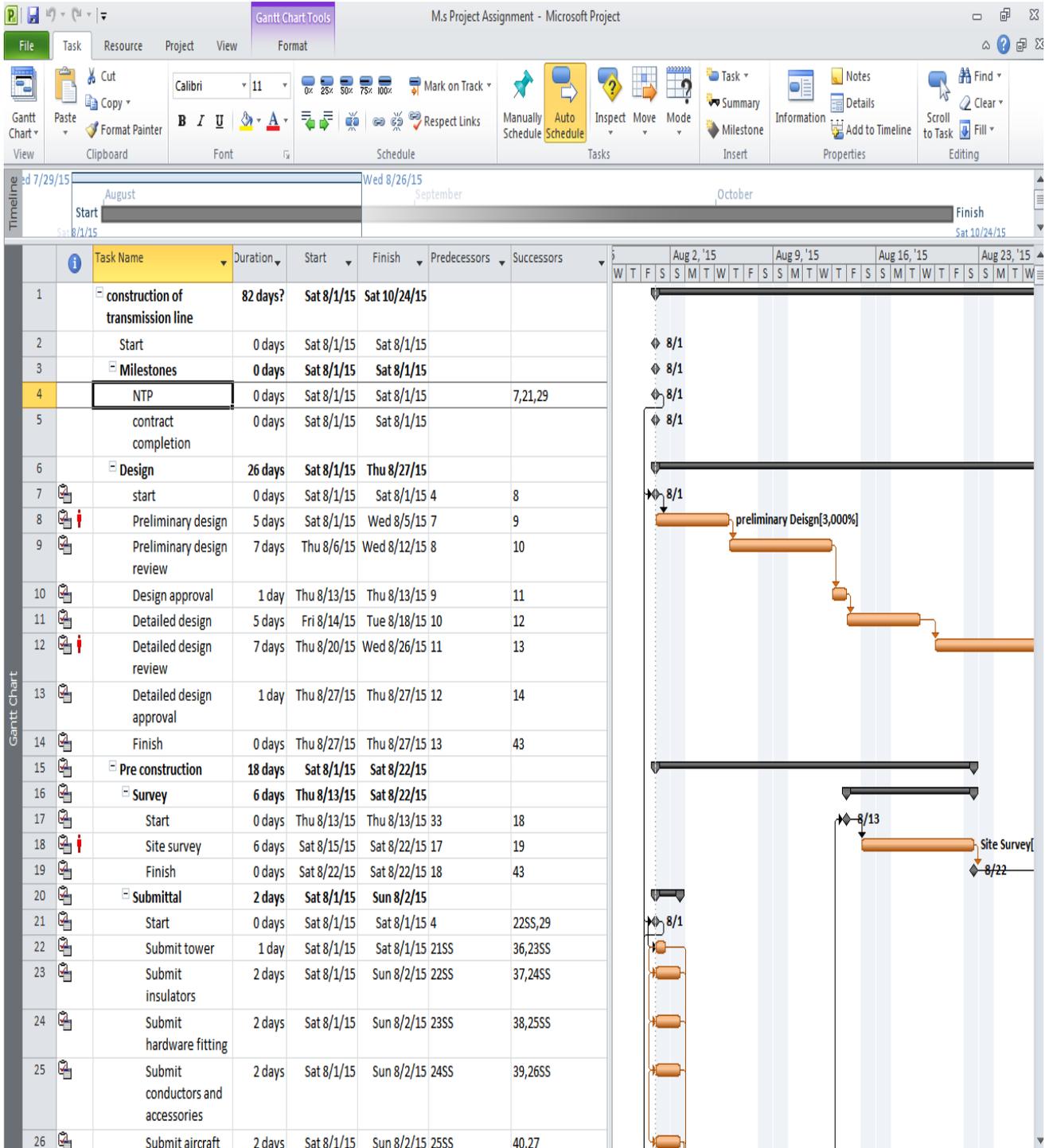
The activities during this training can be divided into two main steps. First, we had lectures conducted over one month by [REDACTED]. With his good attitude and great effort, he taught us much information from this software. For example, we learned how to write and edit tasks and activities in MS Project, how to link those added tasks, how to make calendars in this software, how to assign resources to the activities, how to create a baseline for the tasks, and how to update the schedule that we create.

The second step was taken by the four interns who undertook assignments individually. [REDACTED] provided data for making a schedule for Construction of Transmission Line Tower. While making the schedule we learned a lot from this software, because we were asking [REDACTED] questions and sharing the difficulties that we had so we were able to become more familiar and gain a lot of practice. Lastly, we submitted the assignment schedules to [REDACTED] to review and after that we will revise that again, this will build our skills successfully.

In conclusion, both the lecture and the assignment steps for this training made us able to use this software for our daily tasks or other projects. The important topics we learned from this training were how to use this software for creating schedules and how to manage our time in an appropriate way. By creating and following good schedules, we can finish our tasks before their due dates and we can do our job as talented project managers in the future.

Outcome

Below is my project that I have created using the MS Project software.



| | Resource Name | Type | Material | Initials | Group | Max. | Std. Rate | Ovt. Rate | Cost/Use | Accrue At | Base Calendar | Code | Add New Colum |
|----|---|----------|------------|----------|----------|------|-----------|-----------|----------|-----------|----------------|------|---------------|
| 1 | Site Survey | Work | | S | Tech | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 2 | preliminary Deisgn | Work | | p | Designer | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 7 day calender | | |
| 3 | Detailed Design | Work | | D | Designer | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 7 day calender | | |
| 4 | Demining | Work | | D | Tech | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 5 | Procure Tower | Work | | P | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 6 | Insulators | Work | | I | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 7 | Hardware Fittings | Work | | H | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 8 | Conductors and Accessories | Work | | C | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 9 | Aircraft Warnings | Work | | A | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 10 | Excavation for Foundation | Work | | E | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 11 | Backfill and Compaction | Work | | B | Logistic | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 12 | Form Work | Work | | F | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 13 | Rebar Work | Work | | R | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 14 | Place Concrete | Material | | P | Material | | \$0.00 | | \$0.00 | Prorated | | | |
| 15 | Cure Concrete | Work | | C | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 16 | Install Baseolate | Work | | I | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 17 | Assemble and Errection | Work | | A | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 18 | Install Insulators | Work | | I | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 19 | Install Conductors | Work | | I | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 20 | Install Aircraft Warnings and Accessories | Work | | I | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 21 | Testing and commissioning | Work | | T | Labor | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 6 day calender | | |
| 22 | Sand | Material | meter cube | S | material | | \$0.00 | | \$0.00 | Prorated | | | |
| 23 | Crush | Material | meter cube | C | | | \$0.00 | | \$0.00 | Prorated | | | |
| 24 | Water | Material | meter cube | W | | | \$0.00 | | \$0.00 | Prorated | | | |
| 25 | Cement | Material | ton | C | | | \$0.00 | | \$0.00 | Prorated | | | |
| 26 | Vhicle | Work | | V | | 100% | \$0.00/hr | \$0.00/hr | \$0.00 | Prorated | 7 day calender | | |

Summary and Analysis

One of the most important things that I have learned is scheduling and managing projects, whether they are construction projects or any other type, including even my daily tasks. As everyone knows that a civil engineer can also be a good construction project manager. Learning about this software from [redacted] gave us the opportunity to know more about project management, as well as to help me in choosing my future major as an engineer.

Assignment MEMO

By: [REDACTED]

Date: April 21 2015

Assignment: MS Office Online Training

Instructor: Tetra Tech Website

Summary

The MS Office training was our first online training at Tetra Tech, It was an online based training that I watched on the www.mytetratech.com website. In this period of training, I learned how to use MS Word and MS Excel.

Background

The MS Office training was an online training in web site of mytetratech.com. The Microsoft self-paced trainings included many different courses on programs such as MS Word, MS Excel, Powerpoint, MS Access and others. These training courses were designed to help us learn the most recent information about applications on our PCs. It was our first training at Tetra Tech. We started it on the second day after I joined Tetra Tech. I completed a training in MS Word and MS Excel. I had learned these programs during my school period, but I had forgotten them. I studied them again to learn more up to date things about the programs.

Assignment Activities

In this training, I listened to online videos of MS Word and MS Excel courses. The training taught me how to use these computer programs. In this training, I learned office programs, which are beneficial and important to know and use in everyday office work, and also in university assignments.

Outcome

This training was beneficial for me because learning these programs helps me in doing my university assignments and also in office work that will be needed in the future. It improved my skills in the computer programs of MS Word and Excel.

Summary and Analysis

There were many MS Office programs and I learned MS Word and MS Excel because I felt that I needed to learn them completely from beginner up to advanced. It is related to my professional goals because this training not only helps me in completing my university work, but also these programs are necessary to know when doing office work so I found it effective for my future.

Assignment MEMO

By: ██████████

Date: April 21, 2015

Assignment: MS Office Training

Instructor: Online Base

Summary

The first training I completed at Tetra Tech was an online MS office training on the www.mytetratech.com website. We were assigned to take optional office program training.

Background

The MS office training began after we started at Tetra Tech in March 2015. This training was held online and the four interns were assigned to select each of the office programs that they would need to know. I selected MS Access and some professional trainings in MS Word. I had some courses in MS programs (Word, Excel, Power Point) when I was a school student.

Assignment Activities

On the days I was at Tetra Tech, I opened the site and started listening to lectures. I usually took notes about important points. If there was something ambiguous for me, I used the Google to search for it, and I also practiced in the program environment.

Outcome

Because of these trainings, I was able to learn the MS Word program better than before, and I found tools to use to easily create my documents. I also started to use the MS Access program and became familiar with access forms.

Summary and Analysis

There were points in training that I hadn't noticed before in MS Word. I learned how to better use MS Word. I didn't know anything about MS Access, so through this training, I became familiar with it. I always need to create documents for my assignments and research papers, so having a better understanding of MS Word will help me. As stated before, I had no previous experiences in MS Access, though I was interested to learn it. In the future, creating forms and Access files might be required.

Assignment MEMO

By: ██████████

Date: April 10, 2015

Assignment: STAAD Pro Training

Instructor: ██████████

Summary

This beneficial practice took place for the interns, including myself, to learn how to make essential structural analysis and design using STAAD Pro software.

Background

The subject of this assignment was STAAD Pro engineering software training conducted by Fida Mohammad, Structural Engineer at Tt, delivered on April 10, 2015. Two interns were involved in this training, ██████████ and myself. I did not have any past experience with STAAD Pro software.

Assignment Activities

Two major and effective steps were taken for this training. First of all, we were taught the purpose and usage of this STAAD Pro. We had a 20 days of lectures regarding the usage of the software. The content of the lectures included:

- Modeling of different types of structures
 - Drawing nodes (joints for the structure)
 - Drawing beams
 - Drawing columns
 - Drawing plates (slabs)
 - Providing supports for the structures
- Assigning various types of loads for the created structure
- Checking for errors in the structure
- Analyzing the structure
- Designing the structure
- Checking the output of analysis and design for the structure

Then we were given an assignment drawn by Nilab Faizi, an architectural intern, in Auto CAD software. We worked on this assignment and had lots of discussions and questions from our instructor during design of that structure.

The important topics that we learned were that how to go through several procedures step by step and understand their relationships with each other.

Outcome

This training had a lot of beneficial outcomes but the most important ones for me were the application of the theories that we learned in our structure and concrete courses, and designing structures individually using this software.

Summary and Analysis

Although we had previous knowledge of applying codes requirements to structures, designing beams, columns and slab, and drawing several shear and moment diagrams, learning this software helped us that how to do this work more efficiently, with minimum errors and less time consumption. It is clear that learning these kinds of software has a direct relation to my professional goals as a civil engineering student. It will also help me in office work if I work as a structural engineer in the future.

Assignment MEMO

By: [REDACTED]

Date: March 22, 2015

Assignment: STAAD.Pro Software Training

Instructor: [REDACTED]

Summary

In this training, I learned much important information about the STAAD.Pro software. This training was beneficial and will be useful in my university assignments and my future career in order to model, analyze and design a structure.

Background

The training was carried out on the 22nd of March at Tetra Tech and was delivered by Engineer [REDACTED]. In this training I and the other civil intern [REDACTED] were the trainees. This training was very important for both of us. The important part of structural engineering, analysis and design of structures is carried out by this software effectively and efficiently. I had no past experience with this software program. By attending this training I have gained enough knowledge to carry out analysis and design of structures by using this software.

Assignment Activities

Eng. [REDACTED] gave us important information about the STAAD.Pro program. The content of the lectures included:

- Modeling of different types of structures
 - Drawing nodes (joints for the structure)
 - Drawing beams
 - Drawing columns
 - Drawing plates (slabs)
 - Providing supports for the structures
- Assigning various types of loads for the created structure
- Checking for errors in the structure
- Analyzing the structure
- Designing the structure
- Checking the output of analysis and design for the structure

After completion of the training on the 12th of August, we had an assignment where we applied what we had learned in our training to our assignment as well as in our project. The information we learned from Eng. [REDACTED] was really helpful for me. I can use this information in my university group work on modeling, analyzing, and designing, and also in my future career.

Outcome

I learned how to:

- Use this program in engineering field

- Draw and create model of a Structure
- Analyze a structure
- Design a structure

Summary and Analysis

This training was beneficial and effective for me because learning this information helps me in analyzing and designing an engineering structure with minimum errors and with less time consumption. It will also help me in carrying out my university assignments and I will also need it in my future career as a structural engineer.

Assignment MEMO

By: [REDACTED]

Date: October 8, 2015

Assignment: GIS Software Training

Instructor: [REDACTED]

Summary:

This training was very positive and very useful for me and it gave me the opportunity to learn a lot about GIS (geographic information system). This program is really necessary for all engineers.

Background:

The subject of this assignment was GIS training, which was held over one month, from the 8th of October until the 7th of November by Engineer [REDACTED] and three other interns [REDACTED] were the trainees. I had no past experience with this program and this was my first training about GIS.

Assignment Activities:

During this internship program, we learned that one of the most important types of software used in the engineering is GIS. The training was provided by the AESP Tetra Tech office. This training was very beneficial for all interns. I didn't have any information about GIS before my internship program but now I have all information about this program. After the completion of the training, we had an assignment regarding our training, where we applied what we had learned in the training as well as in our project.

Outcome:

I learned how to use GIS to:

- Draw a map
- Determine all points on the earth
- Determine location of hospitals
- Determine management of forest stands
- Do conflict mapping
- Do development planning
- Describe the functional basis of GIS

Summary and Analysis:

This program was suitable for us, because now we can create map drawings easily with this program. It's also beneficial for our future career because when we are applying for engineering positions, they will certainly ask us about GIS.

Pictures and Figures:

This is my Assignment Project



Figure 1: Afghanistan Map Made through GIS software

Assignment MEMO

By: ██████████

Date: October 9, 2015

Assignment: GIS Software Training

Instructor: ██████████

Summary

The Geographic Information System (GIS) software training was given by Engineer ██████████ for me and three other interns in Tetra Tech's office during this internship.

Background

The subject of this assignment is about Geographic Information System, (GIS) a system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data. This training was given by engineer ██████████ for me and three other interns ██████████. GIS was a new software for me that I have learned, and I did not have any past experience with this software.

This is where introduction material about the assignment is placed. This includes: what the subject is, when the assignment happened, and who else was involved. Any of your past experiences with this program should be mentioned here. Past experiences can be practical or in University.

Assignment Activities

Firstly engineer ██████████ presented us a presentation about the use of GIS software where he introduced the software, gave information on how and where we can use this software, and what are the benefits of using GIS.

Secondly he started the practical work on GIS, and during the period of the training we learned how to use the software also we did practical work ourselves. At the end of the training we were assigned to do a project on GIS software to show how much we learned.

The important topic that I have learned is that this software enables us to create maps and graphs, using GIS software as well as enabling us to enter new map data through use of a digitizer or by direct input of coordinate information using the principles of coordinate systems, longitude, latitude, and elevation, topography, and map scales.

Outcome

The outcome from this program is that I learned how to create maps and graphs using the coordinate information.

Summary and Analysis

I learned how to create and work on maps, and also how to find out a location on the earth in small scale of a desktop. I do not have any suggestion for making any changes in this training.

Assignment MEMO

By: [REDACTED]

Date: October 9, 2015

Assignment: Geographical Information System (GIS) Software Training

Instructor: [REDACTED]

Summary

This advantageous software training took place to learn how to use GIS software to make different types of maps on different scales, to read the geographical maps, and to apply changes on the maps for several purposes.

Background

The GIS software training was held on October 9, 2015, and was conducted by [REDACTED] Tetra Tech GIS Analyst. All of the interns attended this training. This was not the first time I attended the GIS software training. Previous interns of Tetra Tech had a presentation on GIS at Kabul University, engineering faculty, and I was one of the participants of that presentation.

Assignment Activities

This training was conducted to provide interns with some general knowledge of GIS software. We had some information about the GIS software previously but this training helped us to understand the new concepts and catch all other important subjects that can benefit us in the practice of engineering in our careers. The theories were as follows:

- Purpose and usage of GIS software
- ARC map and catalog packages GIS software:
- Create different types of shape files by arc catalog package:
 - Points shape file
 - Line shape file
 - Rectangle shape file
- Geo-referencing an existing map picture with longitude and latitude coordinates
- Make a sample map at the end of training

We were also given a project to create a map and geo-referencing any other map by giving X and Y coordinates. We discussed many aspects of the GIS software assignment with our instructor that helped us learn the GIS software through practice.

The important topics that I learned were the procedures used for making a map individually for the first time and giving coordinates to a picture of a map. This was both effective and interesting for me.

Outcome:

I learned to visualize maps using the GIS software. Below you can see one of the assignments that I completed using the above mentioned software.

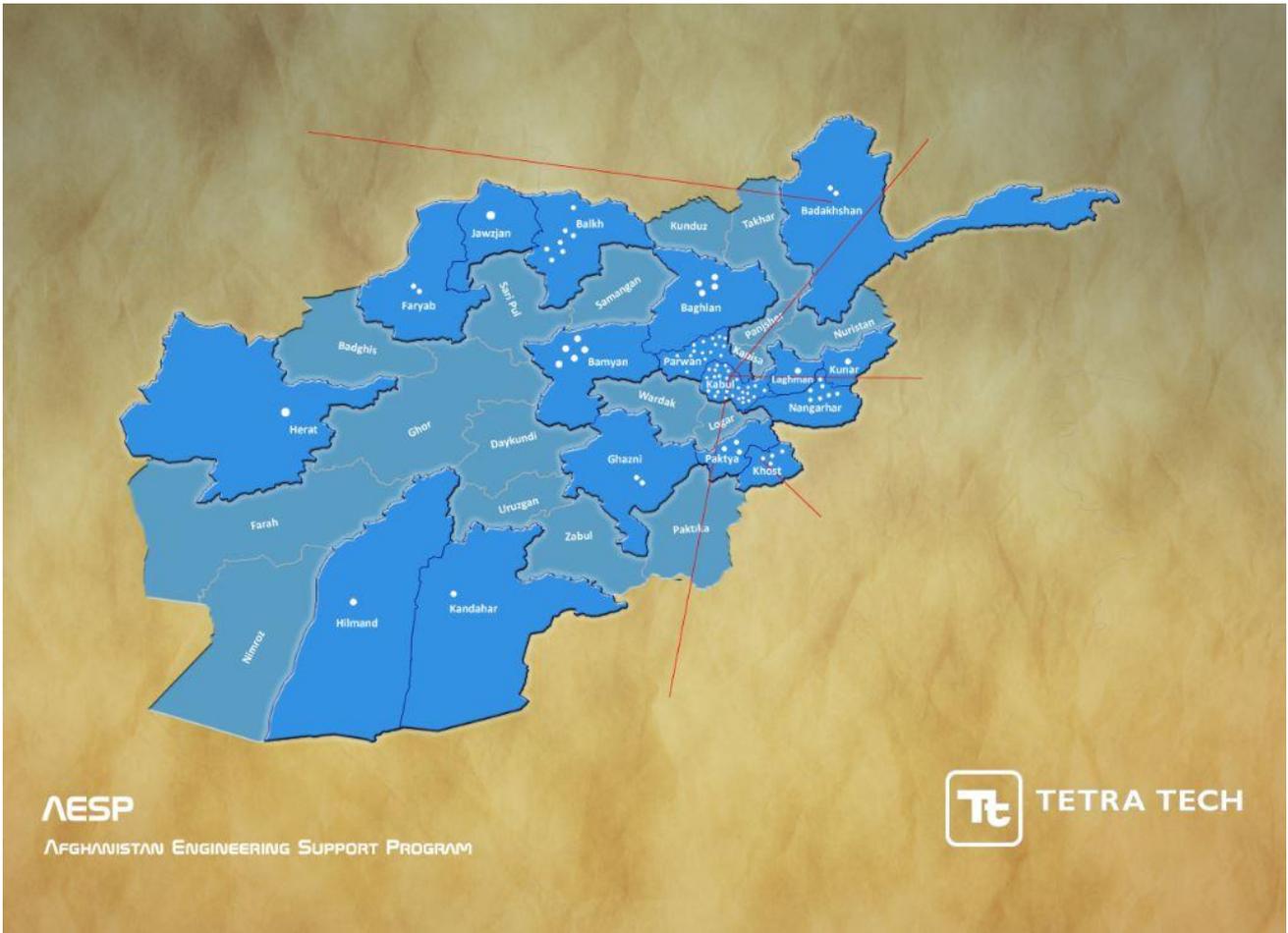


Figure 1: Afghanistan Map Made through GIS software

Summary and Analysis

I learned many skills that I can use to grow in different fields and choose any major that I am interested in to build my career. This will also allow me work in an office environment with more efficiency.

Assignment MEMO

By: [REDACTED]

Date: July 30, 2015

Assignment: Revit Architecture

Instructor: [REDACTED]

Summary

Revit is a computer aid design (CAD) software which helps to create digital drawings, 3D models. Training on Revit was delivered by Engineer [REDACTED] for me and [REDACTED] over two weeks.

Background

The subject of this assignment is about a computer aid design CAD software called Revit Architecture, and the instructor was Engineer [REDACTED]. This training was given for me and [REDACTED] from June 19, 2015 through June 30, 2015. I did not have any past experience in using this program in the past.

Assignment Activities

Firstly the instructor introduced the software and gave some information about how this software works and how we can use it. Then, she taught us the usage of the software within two weeks, and at the end she gave us an assignment to design a house using that software. The important topics is that I learned were to create 3D easily using Revit, because it is part of a design project to create the 3D view to show how it will look at the end when the building is complete. The important thing about learning Revit software is that is a good software which helps me a lot while designing.

Outcome

As a result, Revit Architecture gave me valuable real world experience creating digital drawings, 3D models, sections and details. You'll learn how to design floors, walls, windows and doors in plan view and then 3D view.

Summary and Analysis

Revit software is specifically built for Building Information Modeling, including features for architectural design. Therefore, as an architect this software will help me in my future career because it enables me to create digital drawing and 3D modeling.

Assignment MEMO

By: ██████████

Date: July 30, 2015

Assignment: Revit Software Training

Instructor: ██████████

Summary

We had a Revit software training held at Tetra Tech from June 19, 2015 through July 30, 2015. Ms. ██████████ lead this software training. It was wonderful making 3D models of plans in Revit.

Background

Software programs are big engineering tools. The more software programs that you learn and know how to work with, the better designs you can deliver. Revit is a nice design tool that helps you make 3D models of your design. This software has a great implementation especially in architecture. I have not worked with this software out of Tetra Tech.

Assignment Activities

Through this training period, we had our instructor explaining how to work with the software, and making sample designs for us. Then, we had the time to practice on what we learned.

Outcome

In conclusion, I received the skill of working with a design software, and ability to create 3D design which is a wonderful ability of design approach to reality.

Summary and Analysis

In general, it was great opportunity to learn a new software. It is so expensive to learn new software programs outside. By the way, it was interesting for me to be able to have a design similar to reality.

Assignment MEMO

By: [REDACTED]

Date: June, 27,2015

Assignment: Adobe Photoshop Software Training

Instructor: [REDACTED]

Summary

The subject of this assignment was the Adobe Photoshop software training, which was given by [REDACTED]

Background

The training was about Photoshop software, and was given by Engineer [REDACTED] for two interns – myself, architectural intern and [REDACTED] electrical engineering intern. This training took place on June 27th, 2015. I did not have any past experience using this software, and this was my first time that I learned how to use this software.

Assignment Activities

The instructor [REDACTED] first introduced the software, then taught how us the software works and how to design using this software. We practiced by ourselves and made sure if we had any questions that we asked him to explain it to us. Photoshop is mostly used in designing, which is important for me to learn as an architect.

Outcome

Photoshop is a program which is used by most designers all over the world. Architecture mostly deals with designing, so learning this program will help me in my future career.

Summary and Analysis

I learned many things, like making components for 3D models so the model looks real and many other different designing tools. In my professional life, I will face many projects on which I will have to do many designs and this program will really help me.

Assignment MEMO

By: [REDACTED]

Date: June 27 , 2015

Assignment: Photoshop

Instructor: [REDACTED]

Summary

Photoshop which is a graphical software which we were trained on. This was a wonderful training during which we learned designing photos.

Background

The subject in this training was the graphical program Photoshop started on April. In this training there were two trainees, and [REDACTED] was the instructor. I had a previous introduction to this program in the school, so during this training I learned how to actually work with the program.

Assignment Activities

During the time period of this training different tools in the Photoshop program were explained combined with their usages in design activities. The vital topic to learn in Photoshop is the usage and application of each tool and option. Since there are many tools in Photoshop that seem to do the same work but are actually different, so as a designer the exact usage of each tool must be known.

Outcome

The outcome of this training was clearly learning a program which is mostly important in different design areas.

Summary and Analysis

To work in design teams engineers may need to be familiar with design programs. The more programs you know, the more professional of a designer you are. As a suggestion I would better like this task if we had more time to spend on practical designs

Assignment MEMO

By: [REDACTED]

Date: December 05, 2015

Assignment: Auto Desk Storm Water and Sanitary Analysis Software

Instructor: [REDACTED]

Summary

This valuable training was scheduled and conducted in order to teach the interns the basics, theories and actual processes of waste water disposal and treatment.

Background

The subject of this assignment was the theories and practices of wastewater system design, conducted through the Autodesk Storm and Sanitary Analysis software. This training was held on December 5, 2015 and facilitated by [REDACTED] Mechanical Engineer at Tt. Interns attending this training were [REDACTED] and myself. I had not any past experience of learning this software.

Assignment Activities

Three major and effective steps were taken for this training. In the first step, we were taught the purpose and usage of this software. We had 20 days of lectures regarding the usage of the software, theory and some example problems. The contents of the lecture included:

- An introduction to waste water engineering.
- A brief explanation of hydraulic equations used for waste water disposal system.
- Description of waste water system components such as:
 - Manhole
 - Hand hole
 - Street inlet
 - Catch basin
 - Inverted siphon
- Introduction of waste water treatment plant and its components.
- Types of treatment process:
 - Primary treatment
 - Secondary treatment
 - Tertiary treatment
 - Advanced treatment

During the second step, we were introduced to the software, learning its purpose, usage and menus. Then, there were some example problems solved before using the software package. I was taught how the example problems are solved and how the input data is inserted and needed for the example problems. After that, some more complex example problems were taught by our instructor, for us to practice and learn more.

In the third step of this training, [REDACTED] and I were given an assignment to make a waste water system for a large community. I learned some new concepts through working a lot on that project as well by asking many questions of my instructor. Important topics that were taught included learning how to go through several step-by-step procedures in a design software and knowing their relationships. Also, learning the software theory and application was very effective.

Outcome

This beneficial training was very important for my future career. I learned application of the theories taught in my waste water engineering course, as well as learning how to use this software to design a waste water disposal system myself.

Summary and Analysis

Though I had previous knowledge of applying code requirements on waste water systems, learning this software helped me to learn how to do these works efficiently, with fewer errors and in less time. It is clear that learning these kinds of software have a direct relation to my professional goals as a civil engineering student. It will also help me in office works in the future, if I work as a waste water engineer.

Assignment MEMO

By: [REDACTED]

Date: January 04, 2016

Assignment: Autodesk Storm and Sanitary Analysis Software Training

Instructor: [REDACTED] i

Summary

In this waste water design training I learned information about the theories and practices, as well as learning about the Autodesk Storm and Sanitary Analysis Software. This was one of the important subjects for me because we applied our theoretical knowledge of software for the design, analysis and treatment of sanitary and storm waste water systems. This training was useful for me and other interns in order to know all the design principles used for the waste water system engineering.

Background

The training was carried out on the 4th of January by Engineer [REDACTED] on the 4nd of January 2016 at Tetra Tech with myself and [REDACTED] as trainees. This training was very important for capacity development and we were given assignment activities.

We received important information about the waste water theories and practices as well as the Autodesk Storm and Sanitary Analysis software modeling and simulations. After completion of the training on the 12th of January 2016, we had an assignment where we applied what we had learned in our training. The information we learned from Eng. [REDACTED] was very useful for me.

Outcome

I learned how to:

- Design the storm water sewer networks
- Design the sanitary sewer systems
- Design of highway drainage systems
- Design the waste water treatment systems

Summary and Analysis

This training was beneficial and important for me because learning this information helps me in completing waste water engineering projects and my university assignments.

Assignment MEMO

By: [REDACTED]

Date: August 8, 2015

Assignment: Civil 3D Software Training

Instructor: [REDACTED]

Summary

This beneficial practice took place for interns to learn how to make essential engineering-related road drawings using civil 3D software.

Background

The subject of this training was civil 3D engineering software and was conducted by [REDACTED] Civil Engineer, on August 8, 2015. As the civil 3D software was a new software to learn, this training was especially valuable and was attended by [REDACTED] and myself.

Assignment Activities

We were given 20 days training on road construction including the following:

- Draw the horizontal alignment of a road.
- Draw the vertical alignment of a road.
- Create alignment's profile, corridor, and assembly.
- Create cross section for a road
- Insert survey points into software and managing and editing the points

We were given an assignment project to practice and apply the content that we have learned during the training. During this activity, the interns were tasked to create drawings according to the information that was given to us by our instructor. Each intern was given different assignments to work on. Eng. [REDACTED] reviewed all the assignments

This training was very productive as we got the opportunity to learn new things in the field of engineering. This was one of the opportunities for all of us to design a road project under supervision of such a professional instructor.

Outcome

A road project that I prepared:

The drawing of the profile, horizontal alignment, vertical alignment, and cross section of 1Km road section, using civil 3D.

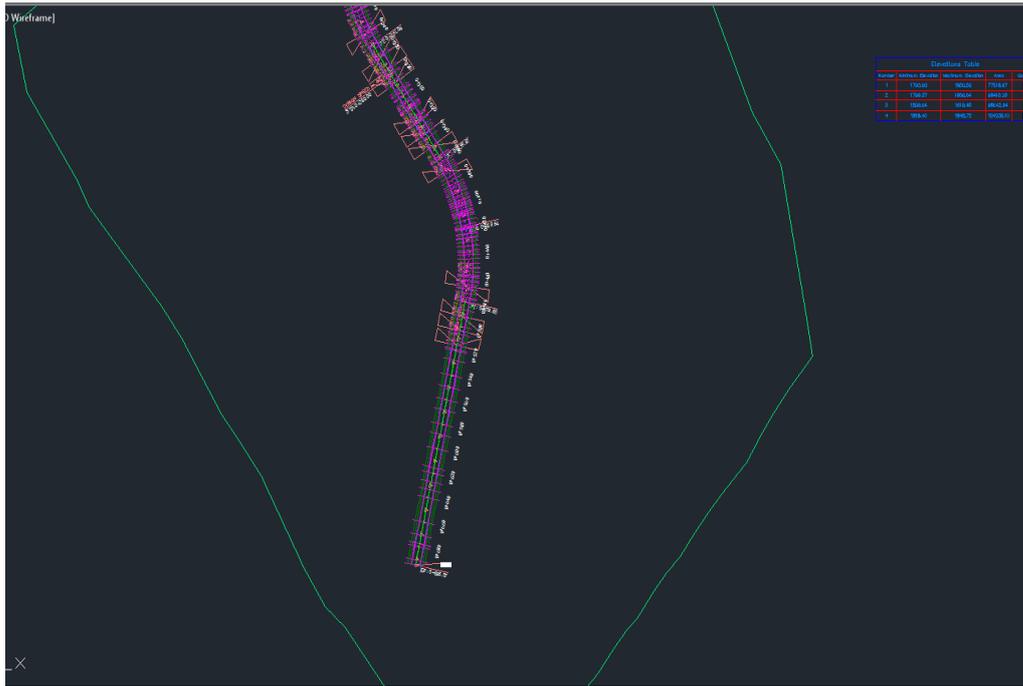


Figure 1: Road horizontal Alignment

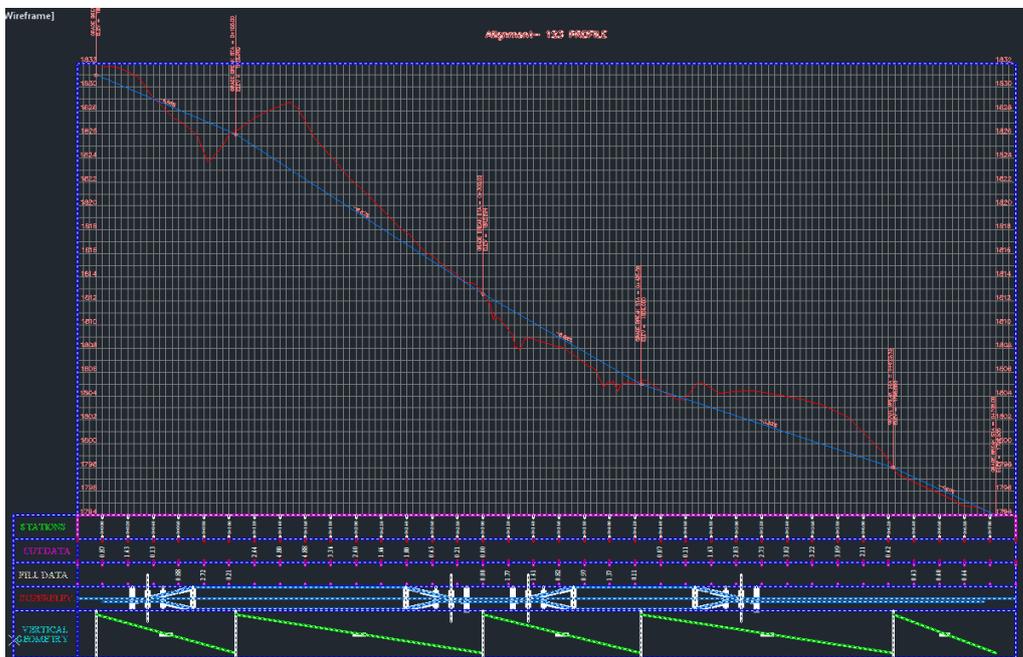


Figure 2: Road Vertical Alignment

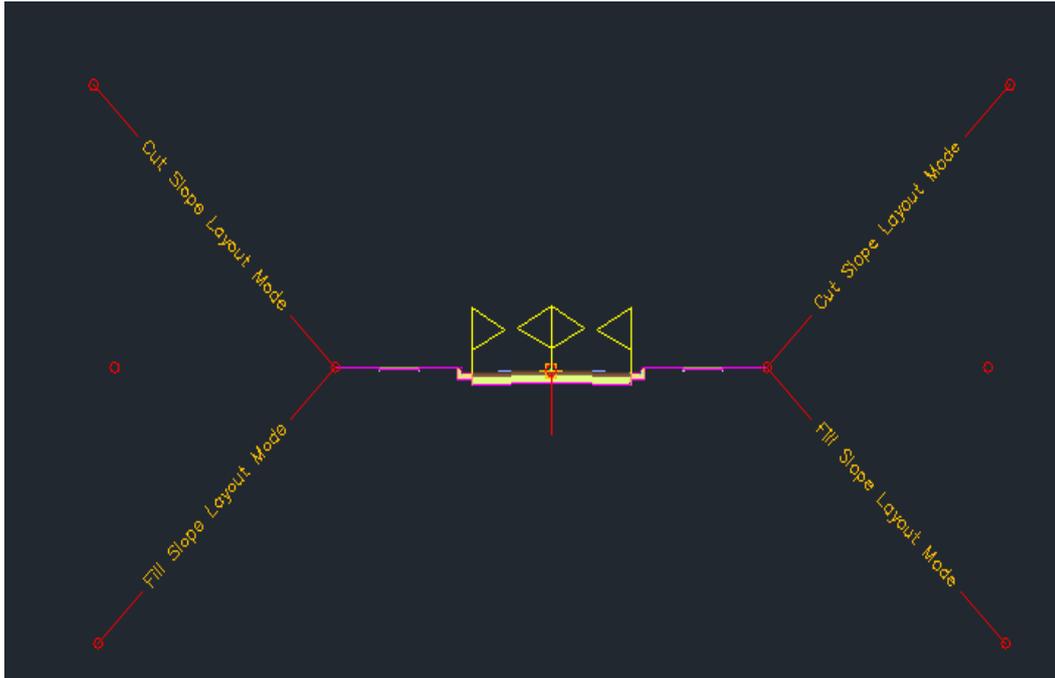


Figure 3: Road Cross Section

Summary and Analysis

I learned to create drawings for the different sections of a road. It is worth mentioning that a civil engineer needs to read, understand, and design an alignment. Thus, from this training, I am now able to read and draw different types of road related drawings. Having the opportunity to learn this software, has a beneficial and a positive impact on my educational background. I may use the knowledge I have learned from this training in my career ahead.

Assignment MEMO

By: [REDACTED]

Date: August 12, 2015

Assignment: Civil 3D Software Training

Instructor: [REDACTED]

Summary

This training was one of the most beneficial and useful trainings that I have received at Tetra Tech. It made me learn a lot about civil 3D Software training on the job, a program which is really important and helpful for civil engineers and architects.

Background

The subject of this assignment was civil 3D Software. The training by Engineer [REDACTED] lasted one month, started on August 12, 2015 and ended on September 28, 2015. Myself and [REDACTED] participated in this training. I had no past experience in this program and this was my first training in civil 3D software.

Assignment Activities

We have learned that civil 3D is a software that helps with creating, analyzing, and managing civil engineering drawings and projects. After completion of the training, we had an assignment where we applied what we learned in our training as well as in our project.

Outcome

I studied the below information:

- Introduction to Civil3D
- Import surveying points data to civil 3D
- Creating surface in civil 3D
- Creating Parcels in Civil 3D
- Creating assembly and road corridors
- Creating profile from alignment
- Creating alignments

Summary and Analysis

The Civil 3D Software program was useful for us to learn, because now we can draw surveying points, surface and profile easily with this program. It's also useful for our careers in the future.

Assignment MEMO

By: [REDACTED]

Date: June 22, 2015

Assignment: Epanet-2 Software Training

Instructor: [REDACTED]

Summary:

In this training, I learned information about the Epanet-2. This training was beneficial and will be useful in university assignments, design of water supply, design of water network and also in my future career.

Background:

The training was carried out on the 22nd of June at Tetra Tech. In this training, myself and the other civil intern Arsa Pakta were the trainees. This training was very important for civil engineers and water network engineers. I had no past experience with the Epanet-2 software program.

Assignment Activities:

This training was given by Engineer [REDACTED] Adli on the 22nd of June at Tetra Tech. We received important information about the Epanet-2 program. After completion of the training on the 12th of August, 2015, we had an assignment regarding our training. We applied what we had learned in our training to our assignment as well as in our project. The information we learned from Eng. [REDACTED] was really very beneficial for me. I can use this information in my university group work on design of water networks, and also in my future career.

Outcome:

I learned how to complete the activities below:

- Plan and improve a systems hydraulic performance
- Model a water distribution system
- Analyze a hydraulic calculation
- View the results of analysis
- Design water quality analysis for water supply pipe scheme networks
- Design Water Distribution piping systems
- Hydraulic design of pumping machineries, water tanks and reservoirs

Summary and Analysis:

This training was beneficial and important for me because learning this information helps me in completing engineering projects and my university assignments. We learned the theories before but with help of this training, we put the theories into practice.

Assignment MEMO

By: [REDACTED]

Date: August 27, 2015

Assignment: Epanet- 2 Water Supply Engineering Software Training

Instructor: [REDACTED]

Summary

The purpose of this training was to make essential water supply hydraulic design calculations and method statements for different types of water supply, distribution, and treatment systems.

Background

The subject of this assignment was training on Epanet-2 engineering software, conducted on February 28, 2015, by [REDACTED] Senior Mechanical Engineer at Tt, and was attended by [REDACTED] and myself.

Assignment Activities

Eng. [REDACTED] taught us the theory and concepts of water supply engineering. Although we had some knowledge of water supply engineering from the university, learning and understating new concepts built our skills and enabled us to catch the other important subjects that will be helpful in an engineering career. The contents of the training are as follows:

- To know the concept of Water Supply Engineering.
- Important principles of hydrology.
- Principles of applied hydraulics
 - To manage equation and its application
 - Hazen William equation and its application
 - Continuity equation
- Rules and disciplines of water supply engineering
 - Water distribution system types
 - Open channel flow
 - Available head
 - Permissive pressure
 - Permissive velocity
 - Pipeline flow
 - Advantages and disadvantages of direct pumping
 - Pump operation time
 - Water demand
 - Average daily demand
 - Peak hour demand
 - Maximum day demand

- Population estimation
- Water distribution system configuration
 - Loop system
 - Branches system
- Water distribution network
- Water distribution system components
 - Pipelines
 - Junction
 - Reservoir
 - Tank
 - Emitters
 - Valves
 - Minor head loss
 - Pumps

During this training, we also practiced designing water supply system through Epanet software. We started our work with designing a closed channel water supply system with all its permitted factors, such as the available head, permissive velocity and permissive pressure, amount of flow and channel material, and economic considerations of this system. After learning such design, we designed a pipe system. The factors considered making a pipe system were well structure, available head, booster pump, and storage system for water distribution. Likewise we made several different designs of water supply systems using Epanet-2 software and finally completed the second step of the training.

The third and final step of this training was the assignment project that was given to us by Mr. [REDACTED] which was to design a water supply system for a large community. All of the required data such as scope of work, PDF drawings, Auto CAD drawings and some other helpful material were given to us and we started working on the design of the project. While making the design with Epanet- 2 software we had many discussions and questions with our trainer and he helped us kindly with solving our problems.

The important topics that I have learned were applying the concepts of hydrology, hydraulic and water supply engineering to a real world problem. Although we solved lots of problems related to the hydrology, hydraulic and water supply engineering, we had not previously made any design of a project individually. Therefore, I can say that doing the design practically made us able to make any design confidently.

Outcome

The result from this beneficial training is arguably positive and effective. These will help us experiencing different types of problem when working at water supply engineering field in near future. Two important things for me were learning the Epanet- 2 software for water supply system purposes, and again using this software for my own design.

Summary and Analysis

I have learned lots of new things that I was not aware of. Applying the theory that we have been learning for several years to a real world design was very interesting and learnable for me. After application of these theories, making a difference water supply system design was one of the important topic that I have learned. Finally, these skills building from different types of civil engineering fields will not only help me choosing my own major in the future but also will help me doing office work in any field of civil engineering.

Assignment MEMO

By: ██████████

Date: March 10, 2015

Assignment: AutoCAD Engineering Software Training

Instructor: ██████████

Summary

AutoCAD was the first software training that we received at Tetra Tech by Engineer ██████████. This training was for all four interns, because it is an engineering software which is necessary and important for all engineers.

Background

The training was AutoCAD software training. This training started when we joined Tetra Tech in March 2015. Before this training, I had some past experience in using AutoCAD software. I have completed an AutoCAD software training and I have completed my university project in AutoCAD during in my third year of university.

Assignment Activities

The AutoCAD training was for all interns. In this training, ██████████ taught us the usage of this software. First, we were introduced to AutoCAD software. Then ██████████ told us to practice what we had learned from her lessons. She gave us some exercises to do in AutoCAD for more practice. There were many beneficial and important lessons that I learned and that will help me in my drawings.

Outcome

Knowing how to use AutoCAD software is really important for every Architect, because we do most of our work using this software. Learning this software helps me in university projects and in my future career.

Summary and Analysis

In this training, I learned the usage of software and some short cuts that we need to know which makes our work easy. Architects mostly use graph software and AutoCAD is one of most useful ones. Learning this software is necessary to know in professional life of an architect.

Assignment MEMO

By: ██████████

Date: March 10, 2015

Assignment: AutoCAD Software Training

Instructor: ██████████

Summary

This beneficial practice took place so that we could learn how to make essential engineering related drawings using AutoCAD software.

Background

The subject of this assignment was AutoCAD engineering software training conducted by ██████████ Architect at Tetra Tech on February 28th. Interns involved in this training were ██████████ and myself. I had past experience learning AutoCAD practical skills at a 20-day training course from an organization for women that was supported by USAID.

Assignment Activities

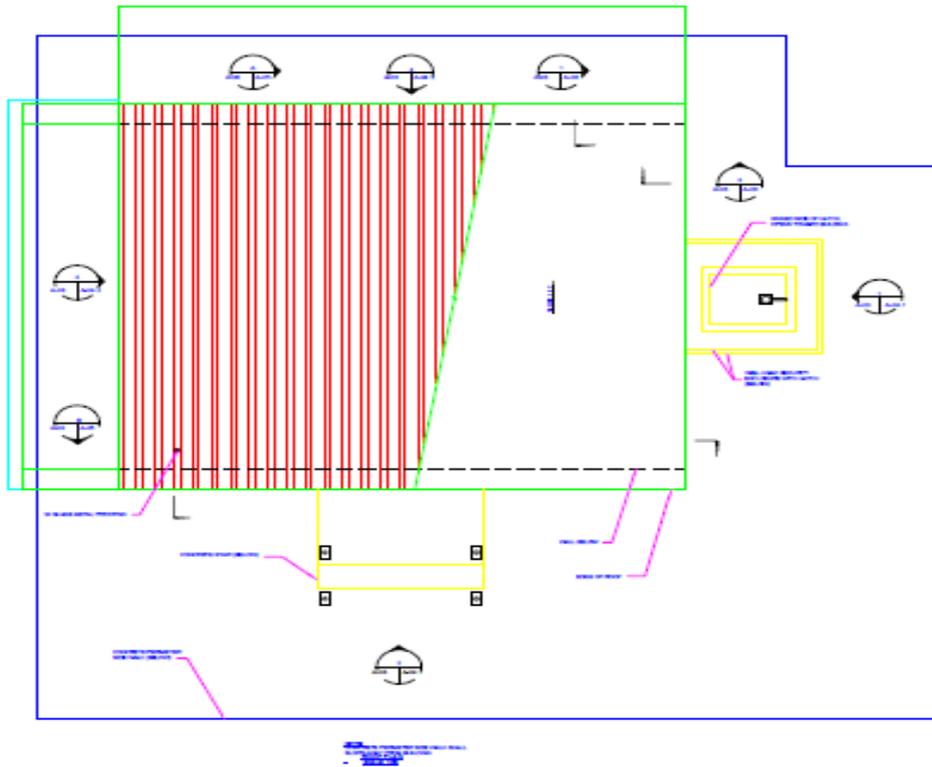
Two major important steps were taken, one during and another after the training was finished. First we had 20 days of training at our office. During this training, we learned ways to create both civil engineering related drawings and architectural related drawings. Also, we learned about the CAD standards manual of Tetra Tech and its application on drawings that we create.

The second step of this practice was creating our own drawings after finishing the Auto CAD training. We all were given separate assignments for practicing what we learned, and then we submitted our assignments to our instructor ██████████.

In summary, we went through two steps for this training which were very advantageous for bringing our technical knowledge to a higher level. Although I had previous knowledge of this software, I had not made any drawings in this software, and so it was difficult for me to use the AutoCAD software.

Outcome

The outcome for this practice is that I can show the drawing that I have prepared using AutoCAD. Below is the top view of a building along with sidewalks next to the building.



Summary and Analysis

I have learned ways to create different types of drawings, for example: civil, electrical, architectural and mechanical engineering related drawings. It is clear that an engineer whether he/she is civil, electrical, mechanical or architectural needs to be able to read and understand CAD drawings. Therefore after learning this software, I am now able to read and draw different types of engineering related drawings. I am fully satisfied having learned this software, as it will have beneficial and positive impact on my educational background in the future.

Assignment MEMO

By: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Summary

This training was very beneficial and very useful for me and it gave me the opportunity to learn a lot about AutoCAD. This program is really necessary for civil and architectural engineers.

Background

The subject of this assignment was AutoCAD training, which took place from the 28th of February to the 30th of March and was presented by [REDACTED]. Three other interns and myself attended this training. I had no past experience in this program and this was my first training on AutoCAD.

Assignment Activities

The 2010 AutoCAD 2D training taught us about engineering drawings, especially AutoCAD standards, how to draw, how to manage it by layout, how to design in this software. This training also provided an introduction to documentation software to support building information, modeling workflows, improve project delivery, maintain more consistent data and respond faster to change. After the completion of the training, we had an assignment regarding our training. In the assignment, we applied what we had learned in our training as well as on our project.

Outcome

I learned the information below:

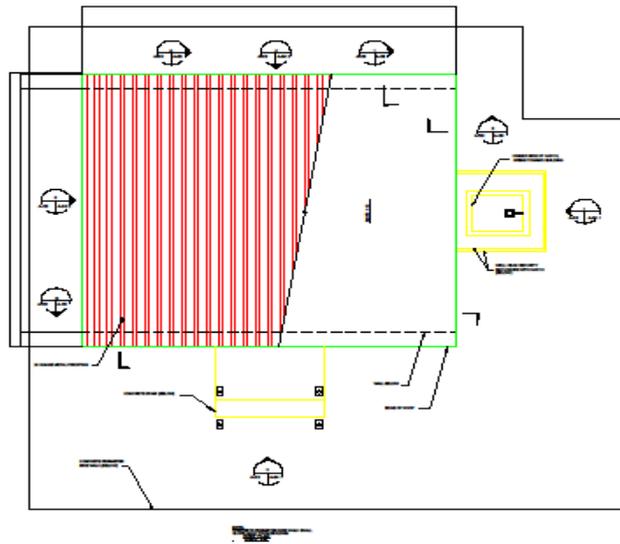
- How to draw
- How to manage it by layout
- How to design and documentation software to support building Information
- How to print in a specific scale

Summary and Analysis

This program was useful for us, because now we can draw project drawings easily with this program. Its also useful for our career in the future because when we are applying for an engineering vacancy, they will certainly ask us about AutoCAD.

Pictures and Figures

This is my Assignment Project:



**APPENDIX K – ENGINEERING/ TECHNICAL CODES
MEMORANDUM**

Assignment MEMO

By:

Date:

Assignment:

es

Instructor:

Summary

As a future electrical engineer, it is important for me to be familiar with the electrical codes and standards and how to use them.

Background

This training was held in April 2015. Since this training was in electrical codes for electrical engineers, I was the only intern participating. The Electrical Engineer who was involved in this training as an instructor was Mr. [REDACTED]. The code book used was the National Electrical Codes (NEC) book. I had a small amount of study of this book and International Electro-technical Commission (IEC) code book prior to this internship program.

Assignment Activities

During the introduction session for the codes, I studied what they are and how to use the code books. The next step was studying some parts of the code book to familiarize myself, and to ask the questions I had. Since no one is able to completely memorize the codes, the most important thing about the code books is to learn how to use them effectively, and that is what I learned here.

Outcome

The best and most vital skill, as mentioned before, was to learn how to use the codes, and that is what I did through this training. Another thing to point out about this subject is that I learned some of the definitions in the NEC book. There are many electrical definitions in the book to learn.

Summary and Analysis

There are two major things I learned: the definitions in the code book and using the codes. As an engineer, I need to understand what the standards and codes are and how to use them. To understand the basis of the project specifications and selections, I will need to know about the codes.

Assignment MEMO

By: [REDACTED]

Date: April 23, 2015

Assignment: International Building Code (IBC) Training

Instructor: [REDACTED]

Summary

This training was provided so that the interns would have knowledge of International Building Code (IBC) and how to solve issues regarding safety on engineering structures.

Background

The training subject was International Building Code (IBC). It was presented to us on April 23th at Tetra Tech (Tt). The training participants were myself and two other interns - one civil engineering intern and one architectural intern. I had previous experience with using these kinds of safety codes during my studies at university, including American Concrete Institute (ACI) for some concrete specifications, and American Society of Civil Engineers (ASCE) codes for steel design specifications, but I had not used IBC before. I can state that my past experience was useful in preparing me to use IBC.

Assignment Activities

We prepared ahead of time in the conference space. The training was executed in three parts by three different trainers. In the first part, we were trained by [REDACTED] Civil Engineer for Tt. He discussed hurricane and cyclone protection in IBC. He also stated that not only do these hurricanes create huge repair costs from damage caused by flying debris as a result of high winds (up to thousands of dollars per building), but also that flying debris and high winds may cause structural failure. Therefore, he emphasized that there is a guideline in IBC which indicates safety standards necessary to protect structures from these disasters. After emphasizing the importance of using IBC codes, he showed examples of the ways to use IBC code.

In the second part of training, [REDACTED] Civil Engineer, trained and informed us about Fire and Smoke Protection in IBC. She discussed Fire Walls, Fire Barriers, Smoke Dampers, Vertical Elements, Penetrations and Joints. These elements must be used when building structures in order to make the structure resistant to fire. Then she presented the guidelines included in IBC, the protection materials and their proper usage.

In the third part of training, [REDACTED] Mechanical Engineer, gave a presentation on the Fundamentals of Pressure Relief Devices in IBC. We were introduced to the usage, connection and setup of these devices, as well as the guidelines pertaining to setup and usage.

These were the trainings regarding use of the IBC. At the end of the presentations, we had a quiz on what we had learned. After completing the quiz, we completely understood what the instructors were expecting from us. The important topics to learn were, first, finding the address of a specific topic in the IBC and second, applying the guidelines given in the IBC to the structures to ensure safety.

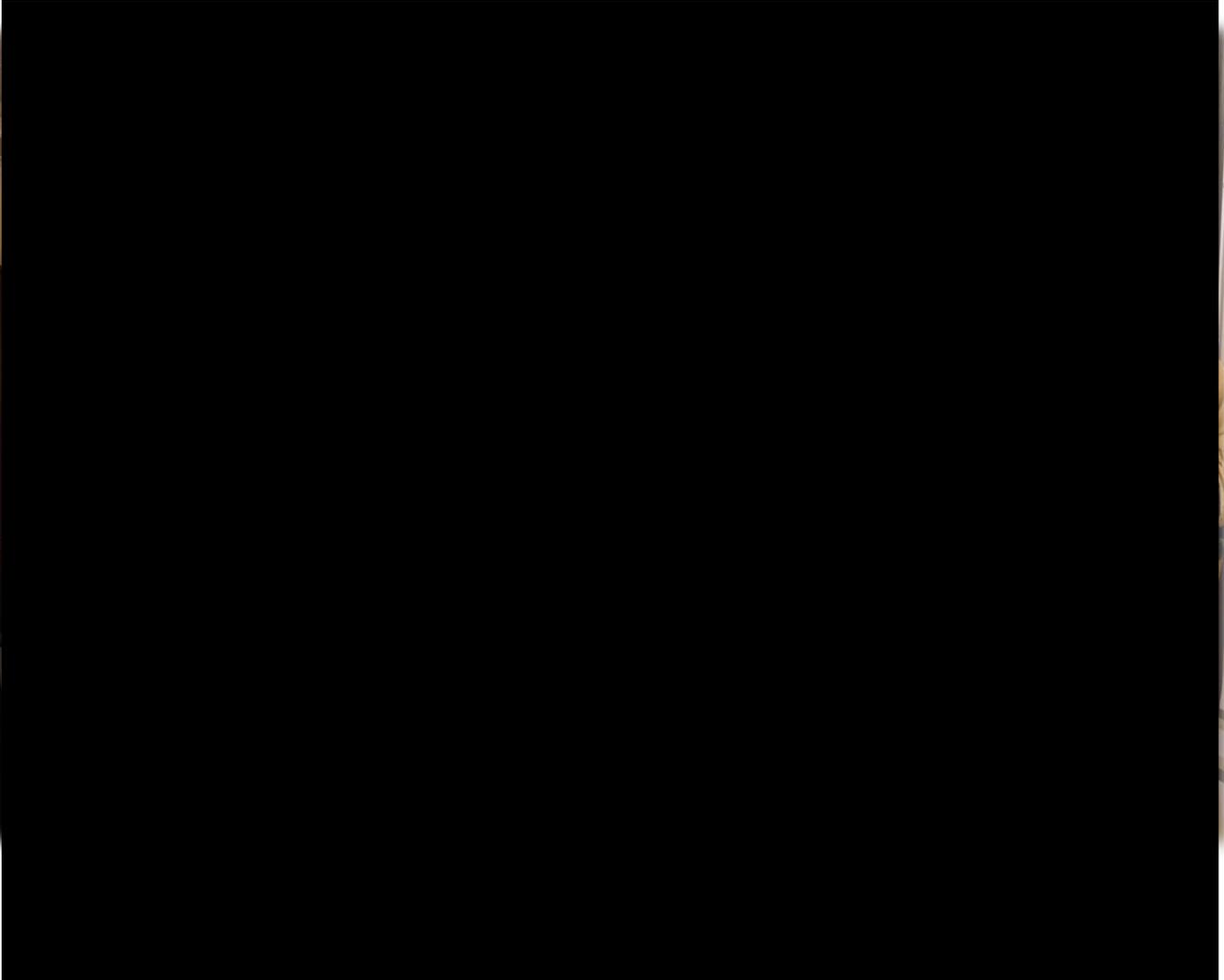
Outcome

As a result, after learning from the training contents and completing the quiz, I have learned how to find the address of a specific topic in the IBC. I can now apply these helpful guidelines to problems that I am facing in constructing structures. Generally, I am familiarized with usage of IBC.

Summary and Analysis

After attending this training, I have learned about how professionals apply the guidelines presented in the IBC to find solutions for specific problems such as hurricanes, fires, and other incidents. All of the things that I have learned were exactly related to my field of study, civil engineering.

Pictures and Figures



Assignment MEMO

By: [REDACTED]

Date: April 30, 2015

Assignment: International Building Code (IBC) Training

Instructor: [REDACTED]

Summary

This training was very useful for me because all engineers should have information about codes and the usage of them. I learned many things in this training which I didn't know or study in my classes at university.

Background

This presentation covered introduction to the International Building Code (IBC), Fire and Smoke Protection, Fundamentals of Pressure Relief Devices, Bearing Capacity of Soil (BCOS) and Deflection Training. The training took place on the 23rd of April in the Tt conference room. All four interns were present at this training.

This training was given in a powerpoint presentation, so it helped us learn how to prepare informative slides for a presentation and on a project as well.

The training was good for me because it helped me to learn more information regarding how important IBC is for a civil engineer and how to apply it in our field. Because I didn't have this kind of training before, I got a great practical experience from this training and it will be really useful and helpful for my future career.

Assignment Activities

This training consisted of three main activities:

- [REDACTED] gave a presentation including general information about IBC
- [REDACTED] spoke about Fire and Smoke Protection
- [REDACTED] spoke about Fundamentals of Pressure Relief Devices

The training was started at 9:30 AM and finished at 11:30 AM. I listened to the presentation and took the important notes. In my point of view, all covered topics were very important for me as a civil engineering student as well as for all engineers. This is because if we don't have enough information about these codes then we will not be able to perform our field related tasks, especially the design of structures.

Outcome

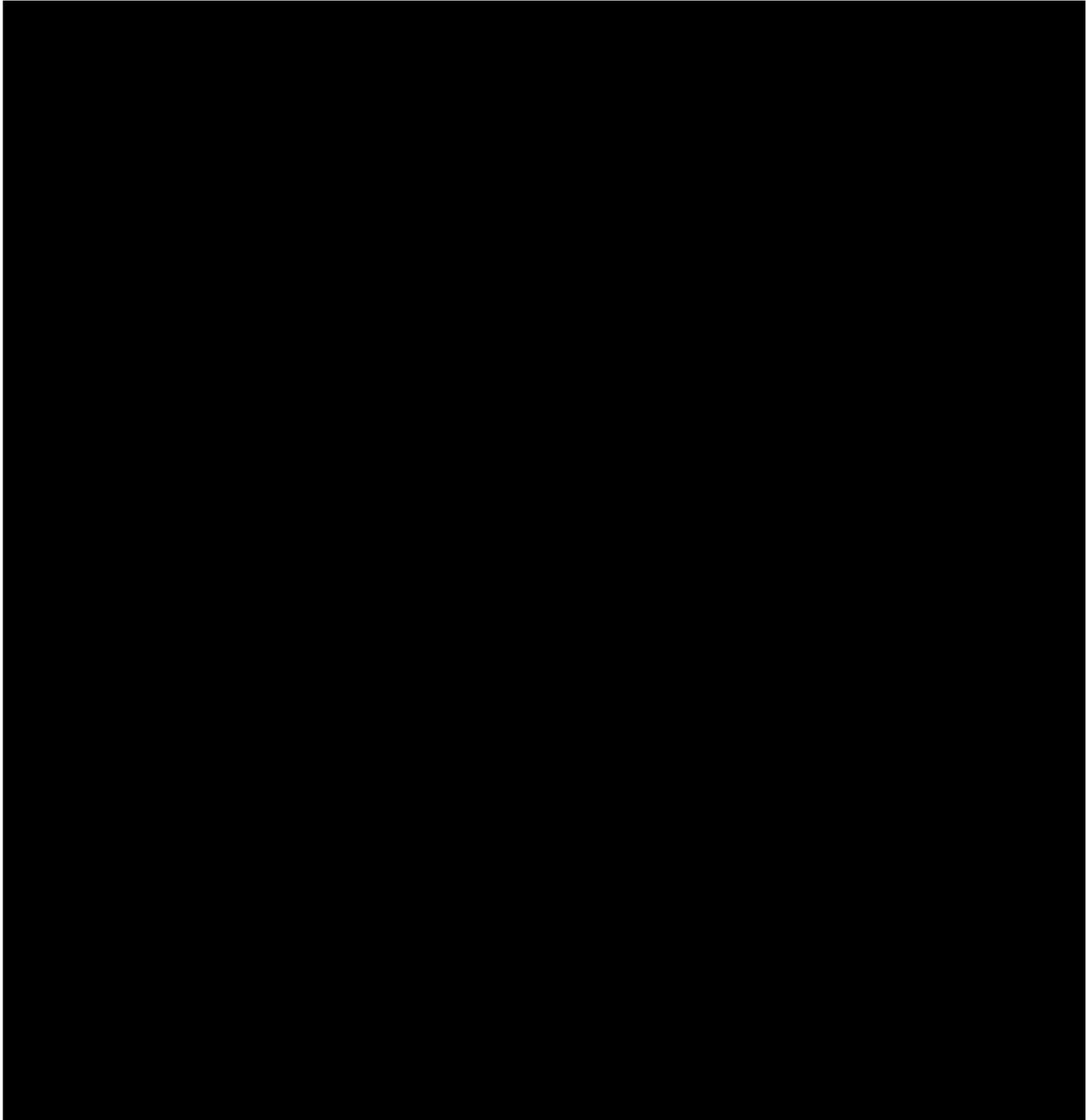
I studied the information below:

- Introduction to IBC
- Importance of IBC for a civil engineer to provide safety
- Usage and applying of IBC
- The seriousness of damages reveal for not complying IBC provisions

Summary and Analysis

The topics I learned are very important for a civil engineer because if a civil engineer does not know about IBC he/she cannot complete a safe design and her work is not credible. As we all know, design is very important element of an engineer's job, so the importance of this code is high. I want to thank Tetra Tech for their efforts to provide this effective presentation for us which was really interesting and informative for me.

Pictures and Figure



Assignment MEMO

By: [REDACTED]

Date: April 5, 2015

Assignment: International Building Code (IBC) Training

Instructor: [REDACTED]

Summary

This training was about International Building Codes (IBC). In this training, they introduced different type of building codes which are used in building construction, informed us about the use of building codes and taught us how to use it.

Background.

This training subject was IBC and this training was held on the 23rd of April at Tetra Tech. Three interns were in this training: me (architectural intern) and two civil engineering interns. I had past experience learning about codes. I have learned codes related to architecture at university and also used some ACI codes in concrete subjects.

Assignment Activities

The two other interns and myself had a presentation from [REDACTED] on different topics. First we went to the large conference room, and lectures about IBC were prepared in Powerpoint. The instructors presented the slides one by one

1. The first presentation was presented by [REDACTED] Civil Engineer. First he presented some general information about IBC codes, and different types of building codes. Then he gave the example of hurricanes or cyclones, and he mentioned the damage hurricanes or cyclones can cause. Then he told us about the solutions and how to protect against hurricanes or cyclones. He addressed some IBC codes in relation to the problems which cause building damage.
2. The second presentation was given by [REDACTED] Civil Engineer. She introduced the Fire and Smoke Protection section in IBC codes, and she presented information about materials like Fire Walls, Fire Barriers, and Smoke Dampers. These are used to protect against fire and smoke in a building. Then she presented the codes related to fire and smoke protection in IBC codes.
3. The last presentation was given by [REDACTED] Mechanical Engineer. It was about Fundamentals of Pressure Relief Devices which is about associated lines and process equipment to safely handle the material ejected. After, he presented us with information on the requirements of the codes from ASME (The American Society of Mechanical Engineers).

At the end when all presentations were finished, they asked us some questions related to IBC for practice and to teach us how to use the codes. There were several things to learn and I learned the usage of IBC because it is necessary to know IBC and its usage.

Outcome

I was informed about IBC codes, why we use them, what are their benefits, how many type of building codes exist. We were given information about some problems that buildings face and the solution for these problems that guide us on how to use IBC. At the end, questions which were given to us to solve was a good exercise for me.

Summary and Analysis

I learned the usage of IBC. It is related to my professional goals because I will use IBC in the future, since we cannot design a comfortable and a strong building without taking standard building codes in account.

Pictures and Figures

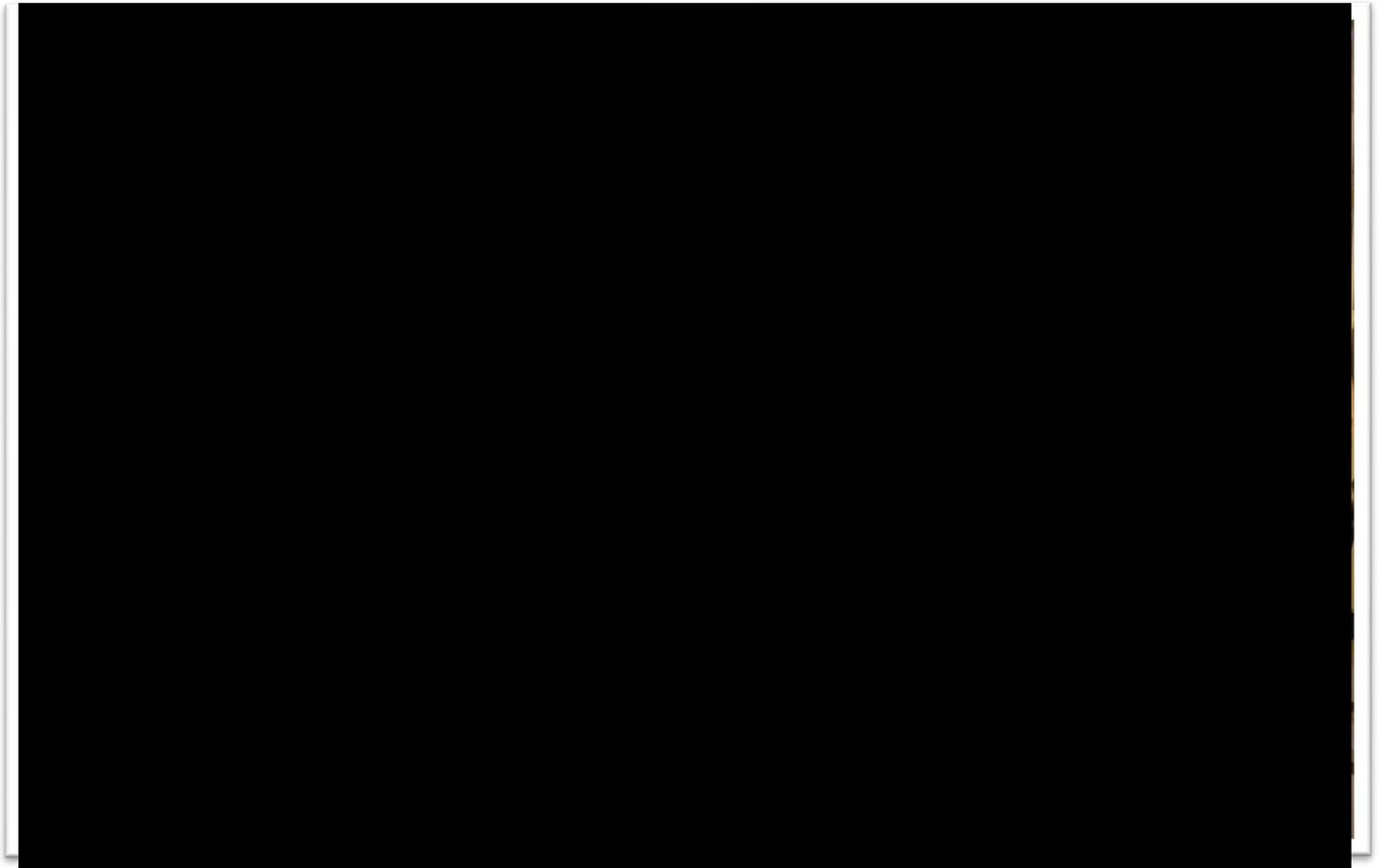


Figure- 2:_ Training by

APPENDIX L – HEALTH AND SAFETY MEMORANDUM

Assignment MEMO

By: [REDACTED] Electrical Intern

Date: November 12, 2015

Assignment: Health and Safety

Instructor: [REDACTED] Safety and Safety Manager

Summary

Health and safety training involved us with different issues in the site that must be taken into consideration in order for human to be safe. People can lose their lives or irreparable losses may happen if health and safety issues are ignored.

Background

We had the Tt Health and Safety Manager as the instructor for this task. I and the other three interns [REDACTED] all joined this training. I did not have any past experience of such a training.

Assignment Activities

We had handouts to follow the objectives of the training, and the instructor tried to visualize the dangers and safety issues of the site using slides and videos. We saw how harmful the site could be when the safety is not considered. The interesting part of this training that attracted my attention was the video part, where I saw how terrible things can happen on the construction sites.

Outcome

Coming to an understanding with the importance of safety and employee health, and what to take into consideration when working on the site were the important outcomes of this task.

Summary and Analysis

I learned the importance of safety when it comes to working on the site, and what to take care about. It would be better if we were asked to bring what we understood into a sample practice. For example, we could have a site visit concentrated on safety only.

Assignment MEMO

By: [REDACTED]

Date: October 15, 2015

Assignment: Health and Safety

Instructor: [REDACTED]

Summary

This training was given in order to instruct other interns and myself about important health and safety practices on construction sites

Background

This training was about health and safety during construction work on site, and the training was given from engineer [REDACTED] for me and three other interns [REDACTED] in Tetra tech office. I did not have any past experience about this program in the past.

Assignment Activities

On the first day of training Engineer [REDACTED] made an introduction to this program and taught us what is health and safety's important in construction site and what the benefits to take care of health and safety of workers during construction. Then he told us how the top of health and safety attracted people attention, and played some video that showed some accidents happened in construction sites. The important topics that I learned from this training was that we must put safety first in site work to avoid injuries or death of employed workers.

Outcome

The important outcome from this training is learning the important of health and safety, as well as introducing with the background and history of health and safety, and taking care of employee works on site to avoid injuries.

Summary and Analysis

I learned how employee injuries happen during construction site work, and how we should take care so that injuries do not happen. The solution is health and safety application during construction work on site. The way of teaching this training was good I learned many things I do not suggest any changes.

Assignment MEMO

By: [REDACTED]

Date: October 12, 2015

Assignment: Health and Safety

Instructor: [REDACTED]

Summary:

This training was very beneficial for me and other three interns [REDACTED] because it gave us the opportunity to learn a lot about health and safety.

Background:

The subject of this assignment was the Health and Safety training, which took place over 15 days, from 12th October, 2015 until 23th November, 2015. The training was given by [REDACTED]. Before the training, I had no knowledge of health and safety during construction. It was my first training which taught me a lot about the importance of how to protect workers from injuries and/or fatality.

Assignment Activities:

The training on health and safety in engineering described how the most serious and frequent hazards occur, how to assess the risks involved, and how to eliminate or control these risks and hazards. This training is suitable for all the engineers.

Outcome:

I learned how to do the following:

- Understand information about health and safety
- Understand how to implement a health and safety policy for an organization
- Understand Material Safety Data Sheets (MSDSs)
- Identify the key health and safety issues in a company
- Explain the principles of health and safety management at construction work
- Review employee safety programs and recommend improvements

Summary and Analysis:

This training was suitable for us, because now we understand all information about Health and Safety it's also beneficial for our Engineering career in the future because when we are applying for an engineering vacancy.

Assignment MEMO

By: ██████████

Date: October 15, 2015

Assignment: Health and Safety Training

Instructor: ██████████

Summary

This training was conducted to teach other interns and myself about health and safety issues on a construction site, the importance of observing health and safety on the site, and the appropriate ways of conducting work at site.

Background

The subject of this assignment was health and safety training, held on October 15, 2015. Mr. ██████████ Health and Safety Engineer, instructed all the other interns and myself. We had previously been given an introduction to the health and safety issues in other Tt trainings as well, but this training was specifically about health and safety issues at construction sites which can be life threatening to an engineer.

Assignment Activities

We had four days of lectures on health and safety issues about different hazards caused by missing Personnel Protective equipment, and not following health and safety guidelines during construction work. The contents of this training were taken from Occupational Safety and Health Administration (OSHA) pocket guideline and are as follows:

- Hazards of workers falling down
- Excavation hazards
- Hazards form electrical systems
- Stairs hazards
- Safety belt requirements
- Hazards due to cranes
- Threats due to existing of chemical material
- Lifting risks
- Safety materials in construction site
 - Eye and face protection
 - Foot protection
 - Hand protection
- Head protection
- Injuries and Hazards caused by ramps and sloped areas
- Financial Reasons: How well you follow standard safety procedures can affect the company's bottom line both directly and indirectly. Companies are obviously aiming to make a profit, but you run the risk of affecting this profit when rules are not followed. Great safety programs result in reduced workers' compensation claims, insurance costs, and legal fees.

These are indirect expenses. They also reduce the risk of incidents happening on-site which reduces chances of losing manpower at site. These are direct expenses.

In conclusion, I would say that learning the important contents from our instructor not only made us know the site hazards but also we recalled our responsibility as a site engineer in the project progress.

Outcome

The outcome of this training giving priority to the health and safety issues during the construction activities and saving lives. Before the Occupational, Health, and Safety Administration (OSHA), there were many deaths and injuries but invention of OSHA, the number of injuries and fatality has reduced to about 20 percent.

Summary and Analysis

Everything about health and safety at the construction site is advantageous for a civil engineering student to understand. This training will help me become a successful engineer on-site in the future. Site safety is information that everyone in construction site should be aware of and must have the knowledge of safety and health. Hence, this training was very effective for me. I am satisfied with this great training that had a lot of positive impacts on my educational background and career.

**APPENDIX M - QA/QC AND CONSTRUCTION MANAGEMENT
TRAINING MEMORANDUM**

Assignment MEMO

By: [REDACTED]

Date: September 17, 2015

Assignment: QA/QC

Instructor: [REDACTED]

Summary

The Quality Control and Quality Assurance training helped me learn a task of professional engineers. During this training I learned what quality is, who defines quality, who measures it, and how important it is to maintain quality.

Background

I had a small amount of information about the standards beforehand, like International Standard Organization (ISO) entity which measures and define quality. However, during this training I could better understand where they came from. This was a good opportunity to understand quality control and assurance importance and process expressed by a qualified engineer.

Assignment Activities

We had an assigned time to join and benefit from the engineer's presentation about quality control and quality assurance. Handouts were distributed in order for us to have the material with us. We were involved in a scenario to better understand the chain of process in a quality control and assurance task. We were given submittals for review to make sure that each interns knows the specifications and contract requirement and given feedback on submittals.

Outcome

I understood the concept and importance of quality. Review submittals and recommend approval or rejection as per contract and specification requirements. Furthermore, I came to a good concept of quality control processes which makes promotion to the quality of project deliverables

Summary and Analysis

Quality is what makes customers satisfied. The more a customer is satisfied, the more organization receives credit and fame, and the more requests for production comes. This is what makes the organization successful. My recommendation in accordance on how to improve this training could be to create a chance for the interns to play a sample role as the quality controller.

Assignment MEMO

By: [REDACTED] Electrical intern

Date: January 5, 2016

Assignment: Construction Management Training

Instructor: [REDACTED]

Summary

The whole training was instructed by three engineers of Tetra Tech. [REDACTED] talked about construction projects and the processes taken, Mr. [REDACTED] talked about road construction, and [REDACTED] helped us on weekly and biweekly report writing using site information.

Background

We have not been in the sites that much, that is why we did not know about the construction site activities. This was a proper understanding of what the basics and phases of the projects are, and how they are reported during the implementation process.

Assignment Activities

We got two training lectures, one by [REDACTED]. Then we received an assignment of making biweekly reports using the site information of different projects. After the reports were submitted, we received comments and revised our reports accordingly. To prepare the biweekly report assignment, we used the data in daily site reports of a project and put them all together into biweekly report template of Tetra Tech.

Outcome

The reports we submitted as our assignment show what we learned to do. Furthermore, we got trainings and learned the construction and road project phases, and the activities below each phase.

Summary and Analysis

We talked about where the project starts from, what stages and phases the projects divides into, what are the subdivisions, and how the projects reaches an end. During project implementation, engineers go to site and have reports for each day. We learned to use those daily reports to make weekly and biweekly reports.

Assignment MEMO

By: [REDACTED]

Date: September 17, 2015

Assignment: Quality Control and Quality Assurance Training

Instructor: [REDACTED]

Summary

In this training, I learned information about Quality Control and Quality Assurance which is important to know. This training was beneficial and useful for me, as I can use this information in my future career.

Background

The training was carried out on the September 17, 2015 by Engineer [REDACTED] at Tetra Tech. In this training, three interns and I were the trainees. This training was very important for all engineers. I had no past experience in Quality Control and Quality Assurance.

Assignment Activities

We received important information about the Quality Control and Quality Assurance (QA and QC) program, standards for quality control program and different processes involved in quality audits. After completion of the training on October 5, 2015, we had an assignment regarding our training. We applied what we had learned in our training to our assignment as well as in our project. The information we learned from Eng. [REDACTED] was really beneficial for me. The trainer gave us submittals for review and trained us on how to review submittals and make sure that it meets the contract and specifications requirement.

Outcome

I learned how to complete the activities below:

- Management of resources in project
- Improve product quality
- Management of the service or product
- Management of analysis and development
- Management responsibility
- Review submittals

Summary and Analysis

This training was beneficial and important for me because I will need it in site work and also in my future life. QA and QC is used to measure and assure the quality of a product and also the testing of procured material for its conformance to established quality, efficiency, safety, and reliability standards.

- Design Phase
 - Schematics
 - Drawings
 - Material/ Equipment specifications
 - Material/ Equipment quantities
- Procurement phase
 - Equipment and material
 - Man power and tools
- Construction phase
 - Mobilization
 - Installation
 - Training
 - Commissioning

In the second part of the training, we were taught about asphalt and pavement design practices and its drainage systems. Topics covered in the training included:

- Asphalt
 - Types of asphalt and asphalt production
 - Temperature requirements of asphalt
 - Asphalt compaction
- Pavement design
 - Types of pavement design
 - Introduction to the layers of flexible pavement design
 - Thickness and load requirements for pavement design
- Drainage system consideration for pavement design

In third part of this beneficial training, we gained some knowledge of contract management, including types of contracts and the role of the contract type on a construction project. Besides learning about different types of contracts, we were given the task of making a bi-weekly report including eleven daily reports.

In conclusion, this important training on different parts of Construction Project Management/ Project Implementation was very useful and well-presented.

Outcome

The outcome of this training is that I became familiarized with different components of project management. Receiving a full explanation of the different types of contract management and learning asphalt characteristics was both new to me and had positive impact on my understanding. Increasing my knowledge of the different layers of pavement design, including which layer should be paved at which thickness and location, temperature consideration for asphalt pavement, slope consideration of the pavement design, and learning about different types of defects caused by poor pavement design was very interesting and helpful for me.

Summary and Analysis

Since most of the content covered was new to me, I learned a lot through this training. All of the things that I learned are directly related to my educational background, as a civil engineering

student. Because project management is a factor on any civil engineering projects, this training was beneficial to my field of study. Also, the effect that these trainings may have on my professional goals are that through having these skills in project management, I can work in different departments of civil engineering.

Assignment MEMO

By: ██████████,

Date: July 16, 2015

Assignment: Quality Control (QC) and Quality Assurance (QA) Training

Instructor: ██████████

Summary

This training was executed to the interns in order to gain the knowledge of Quality Control and Quality Assurance (QC/QA) principles and become able to review different kinds of submittals.

Background

The training subject was Quality Control (QC) and Quality Assurance (QA). It was presented to us on July 16, 2015 by ██████████ Scheduler at Tt. The training participants were myself and three other interns, one civil engineering intern, one architectural intern and one electrical engineering intern. I did not have any previous experience with this kind of training.

Assignment Activities

The training was executed in two parts. In the first part, we were trained by Mr. ██████████ about the QC/QA concepts. He delivered these important theories in an effective manner during one week of training. The contents of the training included:

- History and past thoughts about quality
- What is quality?
- What are market expectations
- Quality vs. grade
- Precision vs. accuracy
- The quality movement
- What is ISO (International Standardization for Organization)
- Quality management concepts
- Quality policy
- Quality objective
- Quality Assurance
- QA vs. QC
- Quality audits
- Quality plan
- The seven quality control tools
 - Cause and effect analysis

- Cost of quality

In the second part of training, [REDACTED] gave us some submittals for reviewing purposes based on the concepts we learned in lecture training. We went through the process of reviewing the submittals, giving comments, discussing the comments with our instructor and approving and rejecting the submittals.

In summary, we learned the theory behind QA/QC and then applied the theory to an assignment, which built our skills effectively.

Outcome

As a result, after learning from the contents of the training and going through the assignment procedure, I learned how to review submittals, which important points to consider when reviewing submittals, what steps should I take when reviewing, and how to communicate a problem with a senior engineer if I am confronted with one. I can now apply these beneficial guidelines to any problem I might face in reviewing submittals. Generally, I am now better familiarized with work progress in Tetra Tech environment than in the past.

Summary and Analysis

Since everything was new for me, I benefited from these new theories very much. All of the things that I have learned were directly related to my field of study, civil engineering. While reviewing the submittals, I was familiarized with structure designs, such as foundation design, slab design and road design.

Assignment MEMO

By: [REDACTED]

Date: January 5, 2016

Assignment: Construction Management

Instructor: [REDACTED]

Summary

This assignment memo included two separate trainings: Construction Management and Asphalt. In these trainings, I learned about rules, materials, and equipment used for construction projects and about asphalt, including road structure and design. This training was very positive and helpful for me and for the other interns.

Background

The Construction Management training was given by [REDACTED] on January 5th and [REDACTED] on January 6th in the Tetra Tech conference room. The road structure training was given by [REDACTED] from January 7th to January 10th in the Tetra Tech conference room. All of the interns - [REDACTED] - attending these trainings.

Assignment Activities

This assignment consisted of two parts:

The first part of this assignment was the Construction Management training given by [REDACTED] and [REDACTED] in the Tetra Tech conference room. One other intern and I attended this training, and it was positive and useful for me to learn about construction management. I had no past experience about construction management.

The second part of this assignment was the Asphalt training given by [REDACTED] in the Tetra Tech big conference room. The information we learned from [REDACTED] was really helpful for me because I learned about asphalt, composition of road, road design and road maintenance. This information was very important the other intern and I.

Outcome

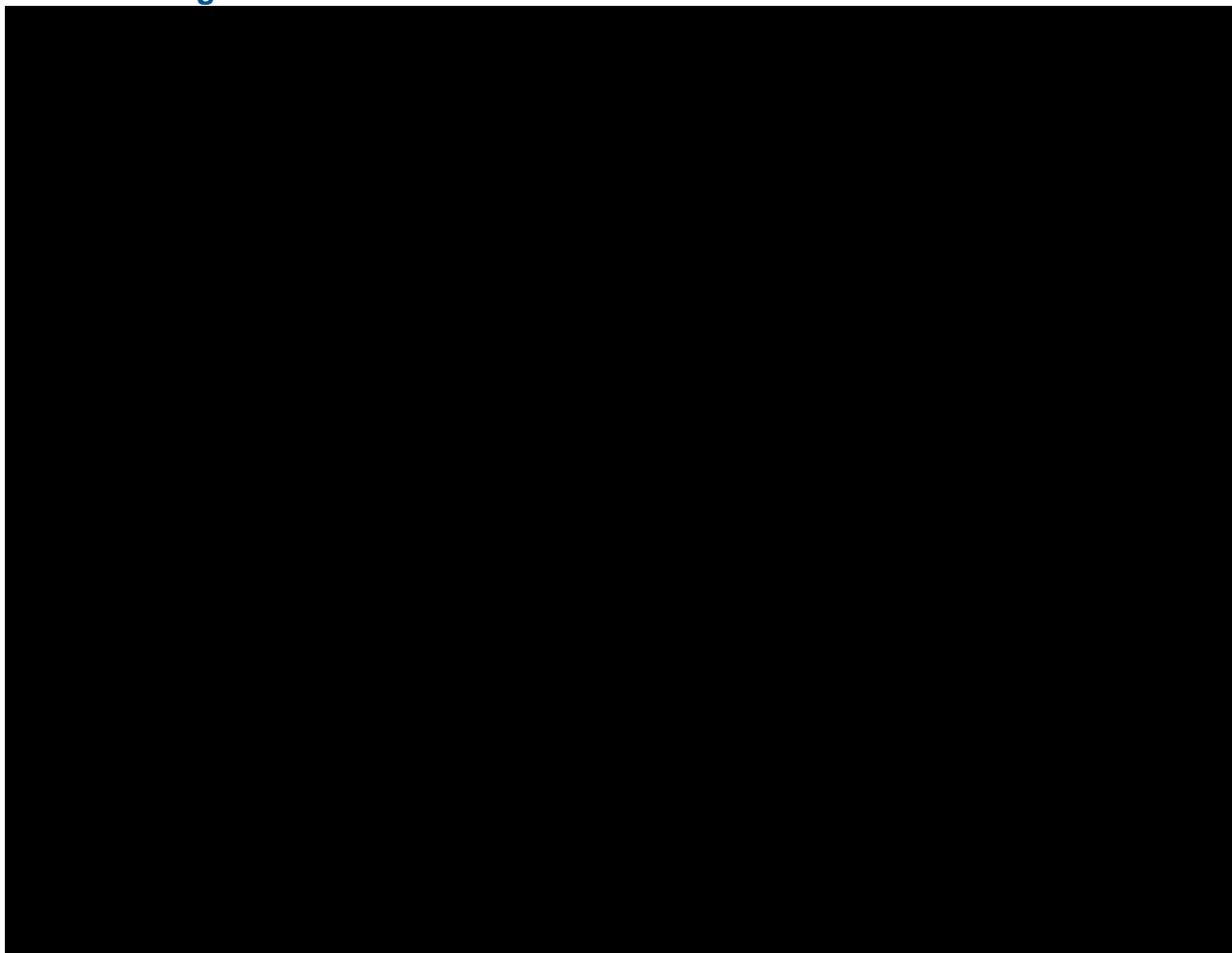
I learned the information below:

- Analyze methods, materials, and equipment used to construction project
- Understand the scope of the construction management.
- Understand and read construction documents
- Understand the management of resources in project
- Understand about asphalt
- Understand the composition of road structure
- Understand the road design
- Understand the maintenance of road

Summary and Analysis

These trainings were really useful and important for me and the other interns because this training will help me in doing office work, in my university assignments and in my future work. I now understand a lot of things about construction management.

Pictures and Figures



APPENDIX N – JOB SEARCH TRAINING MEMORANDUM

Assignment MEMO

By: [REDACTED] Electrical Intern

Date: January 17, 2016

Assignment: Resume Writing

Instructor: [REDACTED] Tt HR Manager

Summary

This was a training to learn CV and resume writing because we were graduating from our internship program and were at the stage of applying for the jobs. We learned how to start and proceed with writing a resume, and what is required to be included in a resume and CV.

Background

During the ending days of our job in Tetra Tech, we had a training about how to write a resume. We had our CVs previously, but after this training we learned how to write a professional resume and CV. [REDACTED] the HR of Tetra Tech was the instructor for this event. I had a session of CV writing when I was in the second year of school in a presentation for university female project.

Assignment Activities

We got the presentation of resume writing, what should and what should not be included in a resume were all explained. Two other Tetra Tech staff ([REDACTED] [REDACTED]) shared their experiences in resume writing as well. At the end, we were asked to send our updated resumes to the HR department to be reviewed and share their positive feedbacks for revising the resumes.

Outcome

After this training, we changed our resumes to a more professional template and also we used Tetra Tech template at the very end.

Summary and Analysis

Resume is what matters the most while applying for a job. Long before people see yourself, they see your resume. It is of a great benefit to know how to create a well-organized resume.

Assignment MEMO

By: [REDACTED] Electrical Intern

Date: January 19, 2016

Assignment: Mock Interview

Instructor: [REDACTED]

Summary

A training of interview DOs and Don'ts was held for us to understand the process of interview. At the end of the day, we had a mock interview.

Background

My first job interview was the time I applied for this internship. Since it was the first time, I had big mistakes, for example body language, stress, talking beyond the required answer and so on. This time, we had [REDACTED] who trained us about how to attend and pass a successful interview.

Assignment Activities

First, we received the required knowledge of how to interview. Then we had the time to apply what we learned in a mock interview. [REDACTED] were the interviewers. They scored our interview and gave comments. During this training, we were well prepared for the real interview we had the following day. The next day was the real interview day. We had a real job interview, after which we were hired at Tetra Tech.

Outcome

As the result of this training, I had a better understanding of interview Dos and Don'ts. I knew how to control the tension of interview time, and how to act and behave in the interview. The best part of this task was that I got to know my abilities and weaknesses.

Summary and Analysis

Since we are entering the next stage of our life which is employment and career stage, it was necessary to have some practice of job application and interview. Tetra Tech provided us with the opportunity. Thanks to Tetra Tech, we had wonderful experiences.

Assignment MEMO

By: [REDACTED]

Date: January 26, 2015

Assignment: Job-seeking Training (CV and resume preparation, Mock interviews)

Instructor: [REDACTED]

Summary

This was one of the final trainings conducted to instruct the interns about the curriculum vitae (CV) writing, resume writing, and some important interview practices.

Background

The subject of this training was Job-seeking Training (CV and resume preparation, Mock interviews) conducted by [REDACTED], MIS Manager on January 26, 2016. This training was conducted for all the other interns and myself. As I did not have any experience of writing a professional CV, this training helped me learn how to write a professional-looking CV or resume so that I can apply to different engineering organization after completing the internship program at Tt.

Assignment Activities

[REDACTED] conducted us about how to write a CV, resume and cover page when applying for a position. The contents of the training were as follows:

- Writing a CV
 - General set up features for writing a CV.
 - Key components
 - Heading
 - Objective
 - Education
 - Experience
 - Skills
 - Reference
 - Sections in a CV.
 - Text contents considerations.
 - Trick to be considered in CV writing to attract human resource manager (HR).
 - To avoid not needed information in CV
 - To avoid photo and color insertion to CV.
- Writing a resume
 - What is resume?
 - What information does a resume include?

- The purpose of resume writing.
- The contents to be included in a resume.
- Difference between CV writing and Resume writing.
- Cover page Writing
 - The importance of cover page writing.
 - The contents and rules of cover page writing.

██████████ MIS Manager conducted training on how to build interview giving skills in ourselves. The contents of the training were as follows:

- Rules to be considered and preparation to be taken before going to an interview.
- What to do during an interview.
- What should be done after an interview?

After the above two instructions, ██████████, Deputy MIS Manager, interviewed all the other interns and myself to give us practice. After having interviews with the four of us (interns), the interview panel shared their comments to each of the intern on where to improve and prepare themselves for the final interviews.

These were the essential contents of the Job-seeking training.

Outcome

The outcome of the job-seeking training was that we learned the difference between CV and resume, learned how to write a cover page and learned several key tips to pass in an interview. We also learned about how to prepare for an interview which was very helpful for all of us, because we are all new graduates and may have had many problems in giving an interview if such training was not provided to us.

Summary and Analysis

What I learned from this training was very valuable and useful to me before giving a real interview at Tt and/or in any other organization in future. Learning these advantageous skills will help me in my future interviews. Therefore I thank our instructors, ██████████ for taking their time for this training.

Assignment MEMO

By: [REDACTED]

Date: January 26 2016

Assignment: Job-seeking Training (CV and resume preparation, Mock interviews)

Instructor: [REDACTED]

Summary

This training was to instruct the interns the curriculum vitae (CV) writing, resume writing also teach them some interview rules.

Background

The subject of this training was Job-seeking Training (CV and resume preparation, Mock interviews). The training was took place on January 26 2016, at last week of my internship program. People involved in this training were our instructor [REDACTED], and the other three interns ([REDACTED] I did wrought my CV in past and also I had given a presentation about CV writing but I did not have any past experience about how to give interview and what are the important question to answer while giving interview.

Assignment Activities

The job seeking training had three steps. The first step we was given by Hellai Noorzai about how to write CV, resume and cover page for an interview, this training took place at Tetra Tech.

The contents of the training were:

- Writing a CV
- Important components a CV should include.
- Heading
- Objective
- Education
- Experience
- Skills
- Reference
- Writing a resume
- What is resume?
- What information does a resume include?
- The purpose of resume writing
- The contents to be included in resume
- Difference between CV writing and resume writing
- Cover page Writing

Assignment MEMO

The second step of this training was given by Hope Schaitkin, in this step we were instructed informed about interview giving. The contents of the training were:

- Rules to be considered and things to be done before giving interview.
- What to do during an interview.
- What should be done after an interview?

In the third was giving Mock interview which was taken [REDACTED] And then they give comment about how was our interview.

Important topic to learn were familiarizing us to interview questions and rules and regulations of CV, resume and cover page writing.

Outcome

The important outcome from the job-seeking training was learning the difference between CV, resume and how to write cover page and learning what is interview and how to give it was very helpful for me.

Summary and Analysis

This training was really beneficial for me and I saw the outcome while preparing my CV and giving interview in Tetra Tech. and this assure me that learning this skills will help me with future interviews as well.

APPENDIX O – INTERNSHIP PROGRAM CURRICULUM



USAID
FROM THE AMERICAN PEOPLE

AFGHANISTAN

ENGINEERING SUPPORT PROGRAM

Contract No. EDH-I-00-08-00027-00

Task Order No. 1

WO-LT-0042 AMD4

AFGHAN WOMEN INTERNSHIP PROGRAM 2015 CURRICULUM



March 15, 2015

This publication was produced for review by the United States Agency for International Development. It was prepared by Tetra Tech, Inc.

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AFGHANISTAN ENGINEERING SUPPORT PROGRAM

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March 15, 2015

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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1.0 PROGRAM OVERVIEW

1.1 INTRODUCTION

This training curriculum supports the goals outlined in the Scope of Work (SOW) for work order WOLT0042 Afghan Women Internship Program. Tetra Tech (Tt) strives to provide an effective internship opportunity for local national female engineering and architectural students under the Tetra Tech Afghanistan Engineering Support Program (AESP). In close cooperation with expatriate engineers and local national professionals this curriculum provides the interns opportunities to apply skills and concepts learned through university coursework in a professional engineering environment.

1.2 OBJECTIVE

The objective of the curriculum is to provide the interns a positive learning experience for professional development. The planned curriculum exposes students to aspects of project estimation, construction materials, quality control and quality assurance, construction health & safety, project design, project management, technical writing, effective presentation techniques and engineering software. The programs will involve both theory and practice through on-the-job training, job shadowing, site visits and involvement with ongoing engineering work. The attached details of the proposed curriculum include the Overall Training Framework and Schedule (Appendix A), MS Project Curriculum Schedule (Appendix B), Pre-Event Assessment Questionnaire (Appendix C) and Post Event Evaluation Questionnaire (Appendix D).

1.3 OUTCOME

The training curriculum supports the learning objectives of the Afghan Women Internship Program through practical engineering exercises, workshops and hands-on training of various engineering techniques and applicable engineering software. The curriculum includes benchmarks and outcomes desired for future application in the interns professional careers.

The assessments, evaluations and deliverables will be included in the final internship program report, submitted at the completion of the internship period.

2.0 ENGINEERING PRACTICAL

The interns will work directly with lead expat engineers and local national engineering professionals in a team environment. This environment will allow the interns to learn work processes, gain experience in teamwork, ask pertinent questions, and benefit from the engineers' experience. The interns will perform a variety of routine engineering assignments and training exercises under close supervision. The tasks will include review of simple plans and computing basic engineering.

3.0 SPECIALIZED TRAINING AND WORKSHOPS

Specialized training and workshops will supplement the interns' engineering practicum and formal education, giving them practical experience.

3.1 SPECIALIZED TRAINING:

3.1.1 Project Estimation

The content of the training will cover Project Cost Management, Construction Material Estimates (Quantity Take-Off), Construction Cost Estimates on the drawings of a hypothetical two (2) story building.

Goal: Increase and improve engineering knowledge and technical capacity of intern students in Project Estimation, so they may use it effectively in their future career.

Deliverable: A report/memo detailing the training themes summarizing what was learned, and the impact on their professional career.

3.1.2 Construction Material Training

3.1.2.1 Concrete

The content of the training will include lectures on mix design and concrete mixing activity, which includes calculation of proper ratios of cement, aggregate, sand and water for different concrete mix designs. Intern will also perform hands-on concrete testing in the lab (i.e. concrete compressive strength, slump testing, etc.).

Goal: Increase and improve engineering knowledge and technical capacity of intern students on concrete theory and practical aspects of concrete and concrete testing in the lab, so they may use the information effectively in their future career.

Deliverable: A technical memo detailing the concrete lectures, mix design activity, and concrete testing experience.

3.1.2.2 Soil

The content of the training includes lectures on soil mechanics theory, hands-on soil testing in the lab including determination of California Bearing Ratio (CBR), moisture content, Atterberg limits, soil density, soil classification, and coaching sessions.

Goal: Increase and improve engineering knowledge and technical capacity of intern students on soil theory and soil testing in the lab, so that they may use it effectively in their future career.

Deliverable: A technical memo summarizing the training, including lectures, lab soil testing and a summary of results and potential impact of this training on the interns' professional career.

3.1.2.3 Asphalt

The interns will receive lectures on asphalt theory, hands-on asphalt testing in the lab, coaching sessions and site visits to an ongoing road project (if available).

Goal: Increase and improve engineering knowledge and technical capacity of intern students on asphalt theory and asphalt testing in the lab and to demonstrate practical road construction processes and how they are performed safely at the site. The various roles and responsibilities of QA/QC, site engineers and labor will also be discussed.

Deliverable: A technical memo of the training, including lectures and practical lab demonstrations. The technical memo will include a discussion of how this training will impact the interns' future career.

3.1.3 Quality Control and Quality Assurance

The contents of this training is an introduction to multiple quality control (QC) concepts, including contractors responsibilities, the QC managers role, QC reporting, "Requests For Information" (RFIs), the three phases of inspection, QA/QC coordination meetings, quality control testing, creating quality control plans, and discussions.

Goal: Increase and improve the engineering knowledge and technical capacity of intern students on QA/QC. The training will include on-the-job sessions, which will be helpful in their future career.

Deliverable: A technical memo summarizing the quality control and quality assurance elements covered during the training and how it can be used in their future professional career.

3.1.4 Construction and Electrical Health and Safety

The content of this training topic will provide an introduction to OSHA, Management of Health & Safety, Roles of the Site Health and Safety Officer, top causes of site accidents, electrical safety and scaffolding use.

Goal: To increase interns' knowledge about site safety, and how to apply it to field work and site visits.

Deliverable: A technical memo summarizing the training received on Health & Safety aspects of the construction industry.

3.1.5 International Building Code (IBC)

This training will cover the introduction and application of IBC standards and codes utilized in the Architectural and Civil fields.

Goal: To introduce the students to the codes and standards that are common in their respective fields and how to efficiently utilize them within the design and construction phases.

Deliverable: A technical memo summarizing the results and impact of this training on the interns' professional career.

3.1.6 Project Design

Interns will be given a task to design a hypothetical two (2) story building. They will create architectural plans, elevations and sections, landscaping, structural analysis, loading calculations, as well as electrical design and mechanical design.

Goal: To increase and improve architectural and engineering knowledge and technical capacity of intern students on project designs by applying codes.

Deliverable: A technical memo detailing the design exercise and what they learned, and a summary of results and the impact of the design exercise on their professional career.

3.1.7 Electrical Calculation

This training will cover industrial heat tracing, lighting, photovoltaic system sizing, renewable energy and the environment, specification and drawings for medium voltage line construction, ground rods, electrical load estimation, lightning effects, transmission lines, transformers, medium voltage transmission lines, substations, basic design, wiring, general city power and electrical load estimating.

Goal: To increase the interns engineering knowledge and technical capacity of intern students on high; medium and low voltage power systems.

Deliverable: A technical memo summarizing the results and impact of this training on their professional career with an example of a small lighting design project.

3.1.8 Electrical Codes and Standards

This training will cover the standards and codes utilized in the electrical field to include: Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), International Electrotechnical Commission (IEC) and National Electrical Code (NEC) standards.

Goal: To introduce the students to the typical codes and standards in the electrical engineering field and how to use them during the design and construction phases of a project.

Deliverable: A technical memo summarizing the results and impact of this training on their professional career.

3.1.9 Electrical Specification

This training will cover how to develop, read and interpret specifications.

Goal: To impress upon the students the importance of the designer, engineer, contractor, purchaser, vendor and owner relative to specifications and their relationship to drawings and contracts.

Deliverable: A technical memo summarizing the results and impact of this training on their professional career.

3.1.10 Electrical Equipment

This training will provide the interns with familiarization of the major components of electrical equipment encountered on the various projects they will be exposed to.

Goal: The interns will be able to physically identify the major pieces of equipment both schematically and physically.

Deliverable: A technical memo summarizing the results and impact of this training on their professional career.

3.1.11 Electrical ACAD Design

The interns will be introduced to the basics of lighting, power and heating, ventilation and air conditioning (HVAC), Tele/data, grounding, lightning protection systems design using CAD and the most recent updates in the relevant electrical code requirements.

Goal: The interns will learn how to design building electrical systems, which in turn will help them advance faster in their future career.

Deliverable: A technical memo summarizing the results and impact of this training on their professional career.

3.1.12 Technical and Effective Writing Workshop

This workshop will cover technical writing in general, writing rules, assignment memos, mid-term reports and final reports. After this workshop is complete, feedback will continue to be provided on their writing skills until the end of the program.

Goal: To improve their technical writing skills and generate reports on each activity during their training within the intern program.

Deliverable: The skills learned will be applied to all written deliverables outlined in this curriculum.

3.1.13 Project Management Workshop

This workshop will cover a basic overview of project management, scheduling and work load balancing.

Goal: Improve interns' information and technical capacity on project management and scheduling.

Deliverable: A technical memo detailing the skills acquired through the training.

3.1.14 Effective Presentation Workshop

This training will cover presentation techniques and tools, slides design and arrangement, and effective presentation skills.

Goal: To build and strengthen the self-confidence of the interns for effective presenting skills and knowledge transfer.

Deliverable: Interns will create a presentation on an engineering topic of interest or recent training.

3.1.15 Shadowing

Interns will have discussions with Professional Engineers at USAID about the real engineering world, current engineering projects and challenges.

Goal: Interns will be introduced into a professional work environment, and will receive information about ongoing real-world projects, engineering topics. This exposure will improve their self-confidence in communicating with professional expats and local staff.

Deliverable: A technical memo detailing the shadowing experience including suggestions and recommendations for future shadowing opportunities.

3.1.16 Site Visits

The interns will visit Tarakhil Thermal Power plant, and observe the application of engineering drawings in a real world situation. They will also tour an ongoing construction project at the U.S. Embassy.

Goal: Interns will receive practical on-site safety training, and practical knowledge of ongoing construction and/or electrical projects.

Deliverable: A technical memo detailing their experience; what was observed and a general summary of the overall projects.

3.2 ENGINEERING SOFTWARE TRAINING:

3.2.1 AutoCAD

The content of the training is an introduction to AutoCAD software. The material will describe: setting up a template, exposure to the AutoCAD workspace and layout, menus and short cuts, the use of basic drawing, editing, and viewing tools, organizing drawing objects on layers, inserting reusable symbols (blocks), adding text, hatching and dimensions, the use of scales, preparing a layout to be plotted, and plotting a drawing and an Auto CAD project.

Goal: Introduction with AutoCAD tools, drawings, plotting and standards of Tt.

Deliverable: A technical memo summarizing what was learned and how it will impact their future career goals, and an example of their AutoCAD practice saved in the Tetra Tech CAD Standards folder.

3.2.2 AutoCAD Civil 3D

This training will provide an introduction to AutoCAD Civil 3D, including preparation of a topographical plan, creating points, creating a surface, creating alignments, creating profiles, creating corridors, creating sections, and geometric design of roadways.

Goal: To increase the interns' efficiency using AutoCAD Civil 3D for their future career.

Deliverable: A technical memo summarizing the results of their training and impact of this training on their professional career with an example of the drawings they created, including plans, sections, profiles and details using Tt standards.

3.2.3 GIS (Geographical Information System)

This training topic is an introduction to GIS. The software used will be Arc Map. The interns will be exposed to interface and tools, data view and layout view, layers, data frames, map elements, layer properties for symbols and labels, tools for examining data, working with selection tools, metadata, geographic data review, linking features and attributes, data formats, working with Arc catalog, editing spatial data, editing attribute data, Geo referencing, coordinate systems, datum, projections and distortion, projecting data, table structure, data types, table manipulation, connecting tables, working with graphs and reports, basic cartographic concepts, creating maps in Arc Map, printing and plotting maps.

Goal: To introduce the interns to the topic of GIS and Google Earth, so they can use it in their future careers.

Deliverable: A technical memo summarizing what was learned and the impact of this training on their professional career as well as a copy of an area map they will generate.

3.2.4 STAAD Pro (Structural Analysis and Design Program)

This training will cover introduction to STAAD-Pro V8. The students will create a multi-story concrete moment-resisting structural frame as an exercise using STAAD-Pro V8. This exercise will require the interns to become familiar with modeling, loading, structural analysis and design.

Goal: To introduce the interns to STAAD Pro, to assist them in designing projects in their future careers.

Deliverable: A technical memo on what was learned, a summary of results and impact of this training on their professional career, as well as the example of the design and analysis project of a one story residential building.

3.2.5 Microsoft Project

This training will cover introduction and overview, activity breakdown, sequencing of activities, assigning resources, assigning durations, developing and controlling schedules, levelling resources automatically and viewing leveling results.

Goal: Introduction to MS Project, so that it can be applied to their future career.

Deliverable: A technical memo covering what was learned, a summary of results and the impact of this training on their professional career. An example schedule will be created and included in the memo.

3.2.6 Water Geospatial Engineering Modeling System (GEMS)

This training will expose the students to closed conduit water supply hydraulic analyses, including pressure/pumping, gravity and complex systems, including both theory and practice.

Goal: to introduce the Water GEMS program to the interns, so they can apply it to their future careers.

Deliverable: A technical memo covering what was learned, a summary of results and the impact of this training in their professional career.

3.2.7 Autodesk Storm and Sanitary Analysis Software

This training will cover closed and open conduit sanitary and storm sewer systems, including gravity and forced/pressure.

Goal: To introduce the Autodesk Storm and Sanitary Analysis Software to the interns, so they can apply it on their future careers.

Deliverable: A technical memo covering what was learned, a summary of results and the impact of this training on their professional careers.

3.2.8 Adobe Photoshop

This training will cover introduction to Photoshop basics, including editing and manipulating images, lighting, colors, vegetation, mood/ambiance (including storms, pollution, chaos and glamour) and tricks of the trade.

Goal: To introduce Photoshop, especially as it pertains to use in conjunction with 3Ds Max, Revit materialing and other rendering software.

Deliverable: A technical memo covering what was learned, a summary of results and the impact of this training on their professional career.

3.2.9 Revit Architecture

This training will cover introduction to the Revit Architecture software package. Commands will include importing and exporting drawings, changing 2D to 3D, materialing, arrangement of the camera, taking a section, dimensioning, application to landscape architecture and rendering.

Goal: To familiarize the interns with the capabilities of this program, so they can use it effectively in their future careers.

Deliverable: A technical memo covering what was learned, a summary of results and the impact of this training on their professional career, along with a 3D model of a hypothetical two (2) story building.

3.2.10 Microsoft Office Suite

Interns receive MS Office Suite training through the Tt site online training.

This package includes Word, Access, Power Point, Excel, OneNote, Outlook, OneDrive and Visio.

Interns will attend these online classes based on their interests and qualifications.

Goal: MS Office Suite is an important tool for anyone who wants to work in an office environment. The interns will be introduced to Office Suite so they can apply it to their future career.

Deliverable: A technical memo covering what was learned, a summary of results and the impact of this training in their professional career.

3.2.11 On-The-Job Training:

Based on the Statement of Work (SOW) of the Internship program, Tt will provide oversight and training for interns in their fourth academic year during the 2015 academic year. Interns graduating from this program will also be graduating from the university at approximately the same time. Interns will receive On-The-Job training for their capacity building and to receive work experience (although the training will not be used to support Tt workload).

3.2.12 Mock Interview and Resume Writing training

This training will cover Resume, CV and Cover letter writing, and the difference between a Resume and a CV. The interns will apply what they have learned to their own CVs or Resumes, and will participate in a mock interview to assist them during actual interviews and job seeking efforts after graduation.

APPENDICES

APPENDIX A
TRAINING FRAMEWORK AND SCHEDULE

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|-------------------------------|--|---|--|--------------------------|-----------------------------------|--|--|--|
| 5.1.1 MS Office Package | The MS Office Package online training lectures includes of following programs: <ul style="list-style-type: none"> • Access • Excel • Word • Power Point • Outlook • Project • Lync • OneDrive • OneNote • Visio • Publisher | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | March 01 , 2015 to April 30, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on MS Office Suite | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|-------------------------------|--|---|--|-----------------------------------|--|--|---|--|
| 5.1.2 Auto CAD | <p>The Auto CAD training includes following topics:</p> <ul style="list-style-type: none"> • Introduction to Auto CAD • Contents Set up a template • Understand the AutoCAD workspace and layout • Understand Auto CAD Menus and Short cuts • Use basic drawing, editing, and viewing tools • Organize drawing objects on layers • Insert reusable symbols (blocks) • Add text, hatching, and dimensions • Use scales • Prepare a layout to be plotted • Plot drawings • Auto CAD Projects | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | <ul style="list-style-type: none"> • Learning March 01, 2015 to March 31, 2015. • Practicing March 11, 2015 to May 31, 2015. | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Auto CAD | Intern student apply the training they have received |
| 5.1.3 Auto CAD Civil 3D | <p>The civil 3D software training includes following topics:</p> <ul style="list-style-type: none"> • Introduction to Civil 3D • Preparing Topographical plan • Creating Points • Creating Surface • Creating Alignment • Creating Profile • Creating Corridors | 2 civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Transportation Department | April 01, 2015 to April 30, 2015. | 2 Civil Students | Improve technical capacity of intern students on Civil 3D | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|-------------------------------|---|---|--|-------------------------------|-----------------------------|--|---|--|
| | <ul style="list-style-type: none"> • Creating Sections • Geometric design of road • Assignment | | | | | | | |
| 5.1.4 Microsoft Project | <p>The MS Project software training includes following topics:</p> <ul style="list-style-type: none"> • Introduction and Overview • Starting Project • New Features & Save project • Import Outlook Tasks • Create a New Project • Insert Tasks • Elapsed Duration • Set a Milestone • Setting up People • Adjusting Availability • Setting up Equipment • Setting up Material • Setting up Costs • Assign a Calendar to a Task • Lag and Lead Time • Using Constraints • The Critical Path • Create a Task Calendar • Delete a Calendar • Change the Timeline • Project Duration • Create a Resource Pool • Change Resource Information • Over allocation Report | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Electrical Department | May 1, 2015 to May 30, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on MS Project | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|-----------------------------|--|--|--|--------------------------|---------------------------------|-------------------------------------|---|--|
| | <ul style="list-style-type: none"> Level Resources Automatically View Leveling Results | | | | | | | |
| 5.1.5 STAAD-Pro | <p>The STAAD-Pro software training includes following topics:</p> <ul style="list-style-type: none"> Introduction to STAAD-Pro V8in and its space Menus (File, Edit, View, Tools, Geometry, Select, Commands, Analyze, Mode, Window) A multi-story concrete moment resisting frame Example using STAAD-Pro V8i Project introduction Modeling Weight of the structure Loading Analyze Design Project report | 2 Civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | March 31, 2015 to June 29, 2015 | 2 Civil Students | Improve technical capacity of intern students on STAAD-Pro | Intern student apply the training they have received |
| 5.1.6 Revit Architecture | <p>The Revit Architecture software training includes following topics:</p> <ul style="list-style-type: none"> Introduction to the Revit Architecture basics, Importing and exporting drawing and 3D Changing 2D in 3D Assigning Material | 1 Architect and 1 Electrical intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | March 31, 2015 to June 29, 2015 | 1 Architect & 1 Electrical students | Improve technical capacity of intern students on Revit Architecture | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|--------------------------|--|--|--|--------------------------|-------------------------------------|-------------------------------------|--|--|
| | <ul style="list-style-type: none"> • Arrangement of camera • Taking section • Dimensioning • Rendering | | | | | | | |
| 5.1.7 Water GEMS | <p>The Water GEMS training will cover following topics:</p> <ul style="list-style-type: none"> • Basic introduction to Water GEMS • Close conduit water supply hydraulic analysis, • Pressure/pumping, • Gravity • Complex systems • Theories and practices. | 2 Civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | August 07, 2015 to August 31, 2015. | 2 Civil students | Improve technical capacity of intern students on Water GEMS | Intern student apply the training they have received |
| 5.1.8 Adobe Photoshop | <p>The Adobe Photoshop software training includes following topics:</p> <ul style="list-style-type: none"> • Introduction to Photoshop basics • Editing and manipulating images • Lighting • Colors • Vegetation • Mood/ambiance (including storms, pollution, chaos and glamour) and tricks of the trade. | 1 Architect & 1 Electrical intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | April 01, 2015 to April 30, 2015. | 1 Architect & 1 Electrical students | Improve technical capacity of intern students on Adobe Photoshop | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|------------------|---|---|--|-----------------------------------|---|--|--|--|
| 5.1.9 Arc GIS | <p>The GIS training includes following topics:</p> <ul style="list-style-type: none"> • Introduction to GIS • The Arc Map interface and tools • Data View and Layout View • Layers, data frames, and map elements • Layer properties for symbols and labels • Tools for examining your data • Geographic data review • Linking features and attributes • Data formats • Working with Arc Catalog • Editing spatial data • Editing attribute data • Coordinate systems • Projections and distortion • Projecting data • Table structure • Data types • Table manipulation • Connecting tables • Working with graphs and reports • Basic cartographic concepts • Creating maps in Arc Map | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Transportation Department | September 01, 2015 to September 30, 2015. | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Arc GIS | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|---|--|---|--|---------------------------|---|--|--|--|
| | <ul style="list-style-type: none"> • Printing and plotting maps | | | | | | | |
| 5.1.10 Autodesk Storm and Sanitary Analysis Software | <p>The Autodesk Storm and Sanitary Analysis software training includes following topics:</p> <ul style="list-style-type: none"> • Close and open conduit sanitary and storm sewers • Gravity and forced/pressure | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | October 01, 2015 to October 30, 2015. | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Autodesk Storm and Sanitary Analysis Software | Intern student apply the training they have received |
| 5.1.11 Technical & Effective Writing Training | <p>Technical and Effective Writing training includes of following:</p> <ul style="list-style-type: none"> • Technical Writing Training, Correct Writing roles • Writing Assignment Memos, Quarter and Final reports for the performed activities • Review of the mentioned reports by Technical Lead or Expat • Finalizing of reviewed reports | All intern students to be trained by end of program | Hand out | Conference Room – Tt AESP | Learning March 9, 2015, Writing after each activity - ongoing | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Technical & Effective Writing Skills | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|--|---|---|--|---|--|--|--|--|
| 5.1.11 Presentation Skills | The Presentation skills training includes of following: <ul style="list-style-type: none"> • Presentation techniques and tools • Slides design and arrangement, • Effective presenting skills • Presenting for girls' schools | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Conference Room – Tt AESP and different schools | Training on May 11, 2015, Presenting – ongoing during internship program | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Effective Presenting Skills | Intern student apply the training they have received |
| 5.1.12 Electrical Equipment | The Electrical Equipment training includes following topics: <ul style="list-style-type: none"> • Major pieces of electrical equipment encountered on the various projects | 1 Electrical intern student to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Electrical Department – Tt AESP | March 10, 2015 to March 31, 2015 | 1 Electrical Student | Improve technical capacity of intern student on Electrical Equipment | Intern student apply the training they have received |
| 5.1.13 Electrical Codes and Standards | The Electrical Codes and Standards training includes following topics: <ul style="list-style-type: none"> • Institute of Electrical and Electronics Engineers (IEEE), • American National Standards Institute (ANSI) • International Electro technical Commission (IEC) • National Electrical Codes (NEC) | 1 Electrical intern student to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Electrical Department – Tt AESP | April 01, 2015 to April 30, 2015 | 1 Electrical Student | Improve technical capacity of intern student on Electrical Codes and Standards | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|------------------------------------|--|---|--|---------------------------------|-------------------------------|----------------------|--|--|
| 5.1.14 Electrical Specification | The Electrical Specification training includes following topics: <ul style="list-style-type: none"> • Equipment developing • Equipment reading • Equipment interpreting | 1 Electrical intern student to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Electrical Department – Tt AESP | May 01, 2015 to May 30, 2015 | 1 Electrical Student | Improve technical capacity of intern student on Electrical Specification | Intern student apply the training they have received |
| 5.1.15 Electrical Calculation | The Electrical training includes following topics: <ul style="list-style-type: none"> • Industrial Heat Tracing • Photo Voltaic System sizing • Renewable energy and the environment • Specification and Drawings for 24.9/14.4 kV line construction • Ampere Ground Rods • Electrical Load Estimation • lightning effect • SC Lecture & Exam Questions • Transmission line • Transformer • Medium voltage line • Substation • Wiring • General about city power • Electrical loud estimation | 1 Electrical intern student to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Electrical Department – Tt AESP | May 31, 2015 to June 29, 2015 | 1 Electrical Student | Improve technical capacity of intern students on Electrical Calculation | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|-----------------------------|--|---|--|-------------------------------------|----------------------------------|--------------------------------|--|--|
| 5.1.17 IBC Codes | This training will cover the reading and applying IBC standard and codes utilized in the Architectural and Civil fields. | 1 Architect & 2 Civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Civil Department – Tt AESP | April 01, 2015 to April 30, 2015 | 1 Architect & 2 Civil Students | Improve technical capacity of intern student on IBC Codes | Intern student apply the training they have received |
| 5.1.18 Concrete Training | The concrete training includes of following: Lecture on mix design <ul style="list-style-type: none"> Concrete mixing activity, Each of the interns asked to do calculation for specific concrete mix Concrete testing in the lab Asking questions and writing memos | 1 Architect & 2 Civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Transportation Department – Tt AESP | May 7, 2015 to May 16, 2015. | 1 Architect & 2 Civil Students | Improve technical capacity of intern students on Concrete Training | Intern student may not apply the training they have received in site |
| 5.1.19 Soil Training | The Soil training includes of following: <ul style="list-style-type: none"> Lecture on Soil Soil testing in the lab (CBR, Moisture Content, Atterberg Limit, Proctor test, Soil Classification, Subgrade Soil) Asking questions and writing memos | 1 Architect & 2 Civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Transportation Department – Tt AESP | June 06, 2015- June 11, 2015. | 1 Architect & 2 Civil Students | Improve technical capacity of intern students on Soil Training | Intern student may apply the training they have received in site |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|---|---|---|--|---|--|---|--|---|
| 5.1.20 Asphalt Training | The Asphalt training includes of following: <ul style="list-style-type: none"> • Lecture on Asphalt • Asphalt testing in the lab • Asking questions and writing memos | 1 Architect & 2 Civil intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Transportation Department – Tt AESP | June 17, 2015- June 24, 2015. | 1 Architect & 2 Civil & Students | Improve technical capacity of intern students on Asphalt Training | Intern student may apply the training they have received in site |
| 5.1.21 Quality Control & Assurance Training | The QA/QC training includes of following: <ul style="list-style-type: none"> • Introduction to Construction Quality Management, Definition, History, • Why is CQM necessary? Benefits of CQM, Contractor Responsibilities • Contractor Evaluations • Bill of Quantities • Daily & Weekly QA Report • QA and QC Sequential Checklist • Three Phases of Control • Daily QC Reports • Requests for Information (RFIs)_Tracking • QC/QA Coordination Meeting • Quality Control Testing • Quality Control Plan • Discussion | All intern students to be trained by end of program | CQM package | Civil & Electrical departments – Tt AESP | June 25, 2015- July 09, 2015. | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Quality Control & Assurance Training | Intern student may apply the training they have received in site |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|------------------------------|---|---|--|--|---|--|---|--|
| 5.1.22 Project Design | <p>The Project Design training includes of following:</p> <ul style="list-style-type: none"> • Interns will be tasks to design a hypothetical two (2) stories building • Architecture plans, elevations, sections, and landscaping • Structure analysis • Loading calculation • Electrical design • Mechanical design | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Civil & Electrical departments – Tt AESP | July 01, 2015- August 19, 2015. | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Project Design | Intern student may apply the training they have received in site |
| 5.1.23 Project Estimation | <p>The Project Estimation training lectures includes of following:</p> <ul style="list-style-type: none"> • Lectures on theories of project estimation • Project Cost Management • Construction Material Estimates • Construction Cost Estimates (Quantity Take-Off) | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | September 01 , 2015 to September 20, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Project Estimation | Intern student apply the training they have received |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|--|---|---|--|--------------------------|--------------------------------------|---|--|--|
| 5.1.25 Project Management -Scheduling | The Project Management-Scheduling training lecture includes the following: <ul style="list-style-type: none"> • Basic overview of project management, • Basic overview of scheduling and work load balancing. | All intern students to be trained by end of program | USAID and Tt, Training Pack ,Tt local and international specialist | Tt AESP Civil Department | October 22, 2015 to October 26, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Project Management-Scheduling | Intern student apply the training they have received |

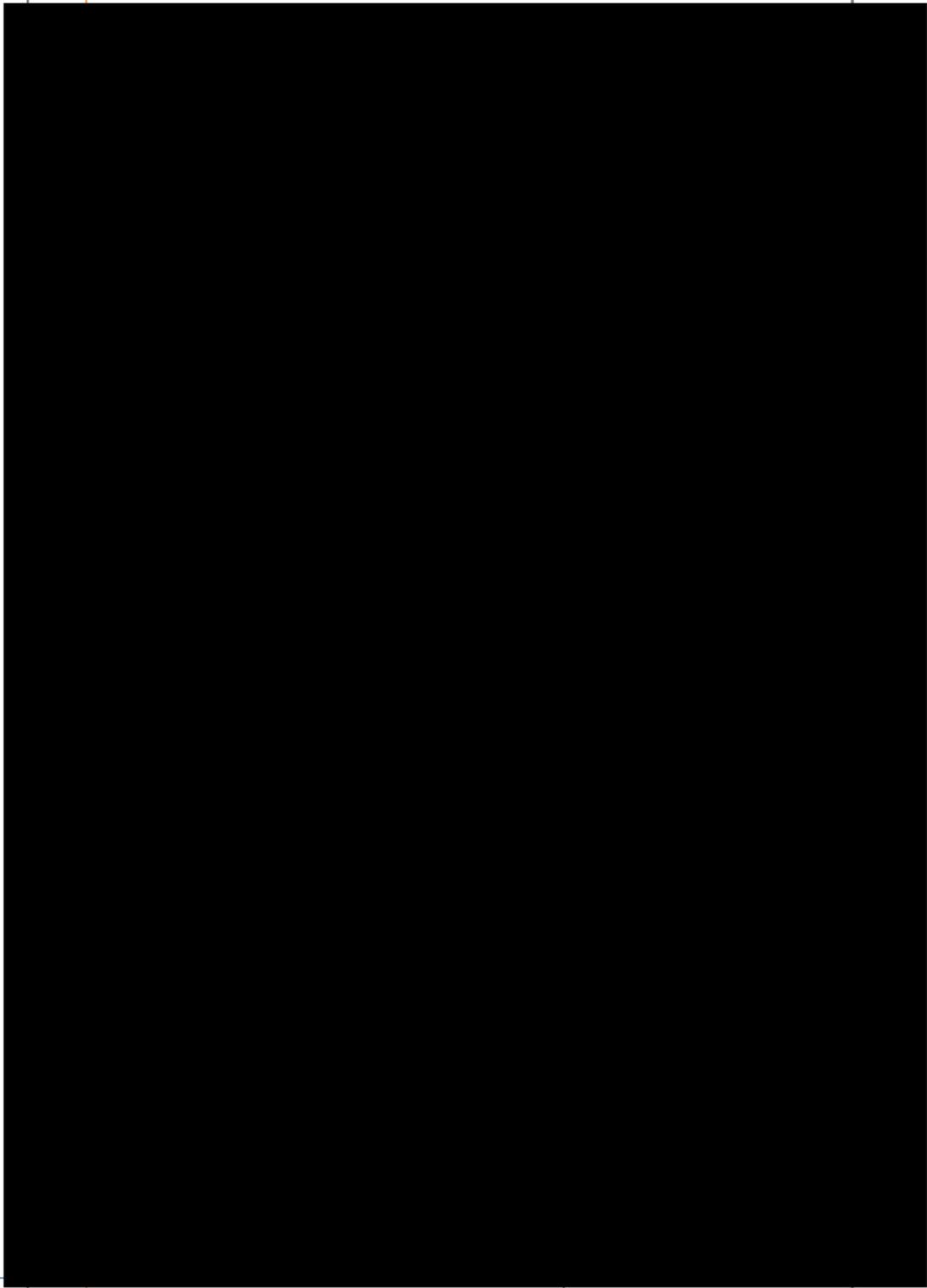
| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|------------------------------------|--|---|-----------------------|---------------------------|----------------------------------|--|---|--|
| 5.1.12 Health & Safety Training | The Health & Safety training includes of following: <ul style="list-style-type: none"> • Introduction to OSHA • Management of Health & Safety • Safety Management • Site Safety and Health Officer • Top Killers • Scaffolding | All intern students to be trained by end of program | OSHA Manual | Conference Room – Tt AESP | March 14, 2015 to March 19, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Safety Training | Intern student may apply the training they have received in site |
| 5.1.14 Shadowing Training | The Shadowing training includes of following: <ul style="list-style-type: none"> • Arranging with USAID • Selecting the Topics • Discussion with Professional Engineers at USAID and asking questions • Writing memos about the shadowing | All intern students to be trained by end of program | USAID | USAID | March 19, 2015 ongoing | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Shadowing events | Intern student apply the training they have received |
| 5.1.16 Site Visit | The Site Visit includes of following: <ul style="list-style-type: none"> • Tarakhil Power plant, Brief description about the Project, Going to the site, Introduction to the site, Asking questions, writing memos • U. S. Embassy, Brief description about the Project going to the site, Introduction to the site, | All intern students to be trained by end of program | Tarakhil PP and USAID | US Embassy | frequently | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Project site visit | Intern student may apply the training they have received in site |

| Training | Summary | Indicator | Evidence | Location | Duration | Participants | Results | Assumption |
|---|--|---|--|---|--|--|---|---|
| | <ul style="list-style-type: none"> Asking questions, Writing memos | | | | | | | |
| 5.1.20 On-The-Job training | <p>The content of this training for capacity building of interns includes below activities:</p> <ul style="list-style-type: none"> CAD drawings according Tt standards, CAD standard check of previous projects As-built-drawings review for GK Road Quality Assurance of transmission lines and substations Design review of Substation Reading and reviewing Scope of projects | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Civil and Electrical department-Tt AESP | September 01, 2015 to October 30, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Receiving work experience | Intern student may apply the training they have received. |
| 5.1.25 Resume writing and Mock interview | <p>The content of this training includes following topics:</p> <ul style="list-style-type: none"> Resume, CV and Cover letter writing Difference between Resume and CV Applying roles on their CVs or Resumes Passing Mock interview with Tt expats, HR and management team | All intern students to be trained by end of program | Tt, Training Pack ,Tt local and international specialist | Conference room-Tt AESP | October 27, 2015 to October 29, 2015 | 1 Architect, 2 Civil & 1 Electrical Students | Improve technical capacity of intern students on Successfully writing resume and passing an interview | Intern student may apply the training they have received. |

APPENDIX B
MICROSOFT PROJECT CURRICULUM SCHEDULE

Afghan Women Internship Program Progress Schedule for the Year 2015

| ID | Task Name | Duration | Start | Finish | January 1 | | March 1 | | May 1 | | July 1 | | September 1 | | November 1 | | January 1 | | | |
|----|---|-----------------|------------------|-------------------|-----------|------|---------|------|-------|------|--------|------|-------------|-----|------------|-------|-----------|-------|------|--|
| | | | | | 12/27 | 1/24 | 2/21 | 3/21 | 4/18 | 5/16 | 6/13 | 7/11 | 8/8 | 9/5 | 10/3 | 10/31 | 11/28 | 12/26 | 1/23 | |
| 1 | Afghan Women Internship Program for Year 2015 | 249 days | 2/28/2015 | 11/3/2015 | | | | | | | | | | | | | | | | |
| 2 | TASK 1 | 245 days | 2/28/2015 | 10/30/2015 | | | | | | | | | | | | | | | | |
| 3 | Trainings, Shadowings and Site Visits | 245 days | 2/28/2015 | 10/30/2015 | | | | | | | | | | | | | | | | |
| 4 | IT Policy, Outlook Accounts and Email Writing and Attendance sheet fill-out | 1 day | 2/28/2015 | 2/28/2015 | | | | | | | | | | | | | | | | |
| 5 | Description to the Ongoing Projects and Share Drive | 1 day | 2/28/2015 | 2/28/2015 | | | | | | | | | | | | | | | | |
| 6 | MS Office Package Training | 61 days | 3/1/2015 | 4/30/2015 | | | | | | | | | | | | | | | | |
| 7 | Auto CAD 2014 Training | 31 days | 3/1/2015 | 3/31/2015 | | | | | | | | | | | | | | | | |
| 8 | Effective Writing Workshop | 231 days | 3/9/2015 | 10/25/2015 | | | | | | | | | | | | | | | | |
| 9 | Electrical Equipment Training | 22 days | 3/10/2015 | 3/31/2015 | | | | | | | | | | | | | | | | |
| 10 | Auto CAD Practice | 82 days | 3/11/2015 | 5/31/2015 | | | | | | | | | | | | | | | | |
| 11 | Health and Safety Training | 6 days | 3/14/2015 | 3/19/2015 | | | | | | | | | | | | | | | | |
| 12 | Introduction to the USAID projects Shadowing | 1 day | 3/19/2015 | 3/19/2015 | | | | | | | | | | | | | | | | |
| 13 | Tarakhil Power Plant Site Visit | 1 day | 3/23/2015 | 3/23/2015 | | | | | | | | | | | | | | | | |
| 14 | STAAD Pro Training | 30 days | 4/1/2015 | 4/30/2015 | | | | | | | | | | | | | | | | |
| 15 | Electrical Codes and Standards Training | 30 days | 4/1/2015 | 4/30/2015 | | | | | | | | | | | | | | | | |
| 16 | Adobe Photoshop Training | 30 days | 4/1/2015 | 4/30/2015 | | | | | | | | | | | | | | | | |
| 17 | IBC Code Training | 30 days | 4/1/2015 | 4/30/2015 | | | | | | | | | | | | | | | | |
| 18 | Kajaki Dam Project's Shadowing | 1 day | 4/15/2015 | 4/15/2015 | | | | | | | | | | | | | | | | |
| 19 | US Embassy Site Visit | 1 day | 4/23/2015 | 4/23/2015 | | | | | | | | | | | | | | | | |
| 20 | MS Project Training | 30 days | 5/1/2015 | 5/30/2015 | | | | | | | | | | | | | | | | |
| 21 | Electrical Specification Training | 30 days | 5/1/2015 | 5/30/2015 | | | | | | | | | | | | | | | | |
| 22 | Concrete Lecture | 1 day | 5/7/2015 | 5/7/2015 | | | | | | | | | | | | | | | | |
| 23 | Concrete Mix Design | 1 day | 5/9/2015 | 5/9/2015 | | | | | | | | | | | | | | | | |
| 24 | Effective Presentation Workshop | 1 day | 5/11/2015 | 5/11/2015 | | | | | | | | | | | | | | | | |
| 25 | Concrete Lab | 1 day | 5/16/2015 | 5/16/2015 | | | | | | | | | | | | | | | | |
| 26 | Presentation at Sardar Kabuli High School | 1 day | 5/21/2015 | 5/21/2015 | | | | | | | | | | | | | | | | |
| 27 | Proposal Writing Shadowing | 5 days | 5/25/2015 | 5/29/2015 | | | | | | | | | | | | | | | | |
| 28 | Revit Architecture Training | 30 days | 5/31/2015 | 6/29/2015 | | | | | | | | | | | | | | | | |
| 29 | Civil 3D Training | 30 days | 5/31/2015 | 6/29/2015 | | | | | | | | | | | | | | | | |
| 30 | Electrical Calculations | 30 days | 5/31/2015 | 6/29/2015 | | | | | | | | | | | | | | | | |
| 31 | Soil Lecture | 1 day | 6/6/2015 | 6/6/2015 | | | | | | | | | | | | | | | | |
| 32 | Soil Lab | 1 day | 6/11/2015 | 6/11/2015 | | | | | | | | | | | | | | | | |
| 33 | Asphalt Lecture | 1 day | 6/17/2015 | 6/17/2015 | | | | | | | | | | | | | | | | |
| 34 | Asphalt Lab | 1 day | 6/24/2015 | 6/24/2015 | | | | | | | | | | | | | | | | |
| 35 | QA/QC Training | 15 days | 6/25/2015 | 7/9/2015 | | | | | | | | | | | | | | | | |
| 36 | Site Visit on one of Tt Projects | 1 day | 6/27/2015 | 6/27/2015 | | | | | | | | | | | | | | | | |
| 37 | QA/QC Shadowing | 1 day | 7/16/2015 | 7/16/2015 | | | | | | | | | | | | | | | | |
| 38 | Two Story Building Design | 36 days | 7/1/2015 | 8/19/2015 | | | | | | | | | | | | | | | | |
| 39 | Architecture Design | 15 days | 7/1/2015 | 7/15/2015 | | | | | | | | | | | | | | | | |
| 40 | Landscape Design | 10 days | 7/16/2015 | 7/25/2015 | | | | | | | | | | | | | | | | |
| 41 | Civil Design | 20 days | 7/16/2015 | 8/4/2015 | | | | | | | | | | | | | | | | |

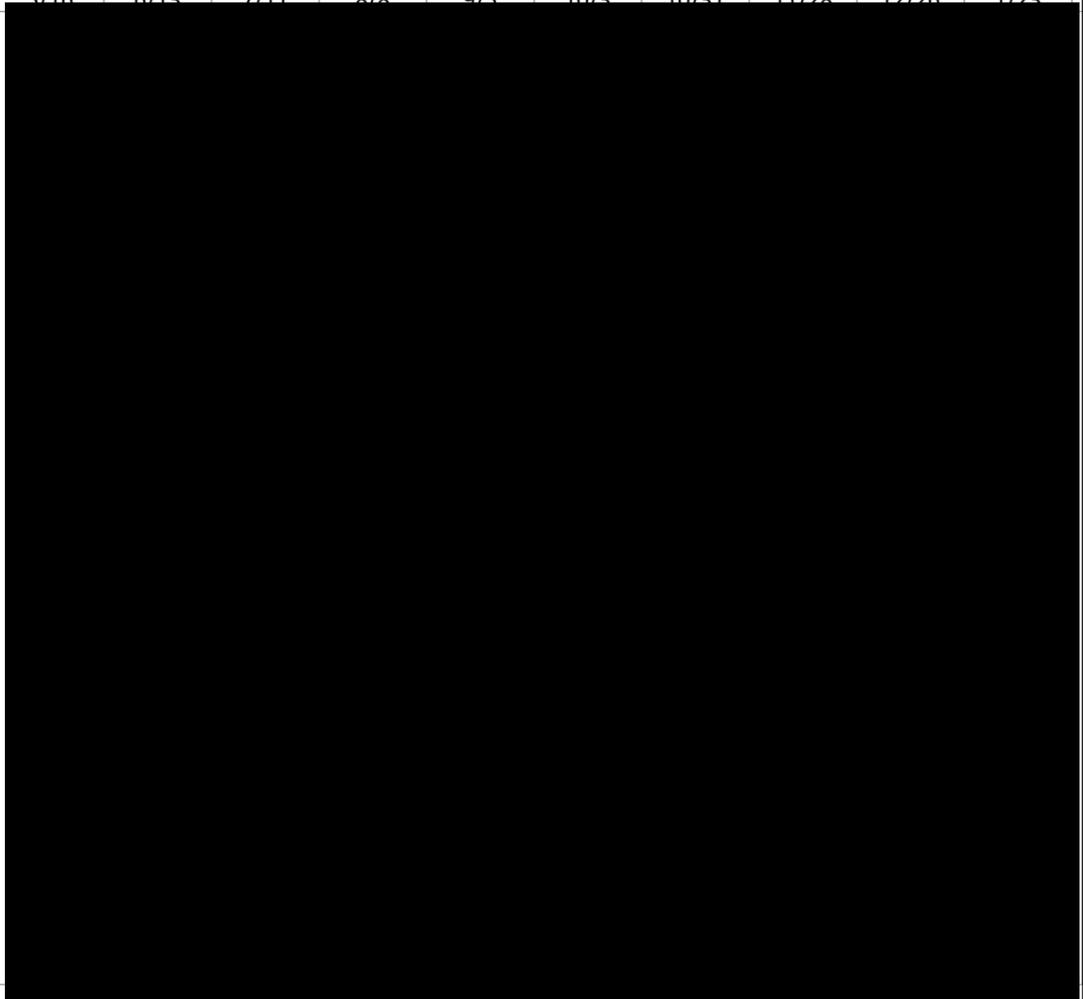


Date: 3/14/2015

| | | | | | | | | | |
|-----------|--|--------------------|--|--------------------|--|-----------------------|--|----------|--|
| Task | | Project Summary | | Inactive Milestone | | Manual Summary Rollup | | Deadline | |
| Split | | External Tasks | | Inactive Summary | | Manual Summary | | Progress | |
| Milestone | | External Milestone | | Manual Task | | Start-only | | | |
| Summary | | Inactive Task | | Duration-only | | Finish-only | | | |

Afghan Women Internship Program Progress Schedule for the Year 2015

| ID | Task Name | Duration | Start | Finish | January 1 | | March 1 | | May 1 | | July 1 | | September 1 | | November 1 | | January 1 | |
|----|--|-----------------|------------------|------------------|-----------|------|---------|------|-------|------|--------|------|-------------|-----|------------|-------|-----------|-------|
| | | | | | 12/27 | 1/24 | 2/21 | 3/21 | 4/18 | 5/16 | 6/13 | 7/11 | 8/8 | 9/5 | 10/3 | 10/31 | 11/28 | 12/26 |
| 42 | Electrical Design | 15 days | 7/16/2015 | 7/30/2015 | | | | | | | | | | | | | | |
| 43 | Mechanical Design | 15 days | 8/5/2015 | 8/19/2015 | | | | | | | | | | | | | | |
| 44 | Vertical Structures Shadowing | 1 day | 8/6/2015 | 8/6/2015 | | | | | | | | | | | | | | |
| 45 | Water GEM Training | 25 days | 8/7/2015 | 8/31/2015 | | | | | | | | | | | | | | |
| 46 | Electrical ACAD Design | 25 days | 8/7/2015 | 8/31/2015 | | | | | | | | | | | | | | |
| 47 | Presentation at Alfath High School | 1 day | 8/13/2015 | 8/13/2015 | | | | | | | | | | | | | | |
| 48 | Water Resources Shadowing | 1 day | 8/27/2015 | 8/27/2015 | | | | | | | | | | | | | | |
| 49 | Arc GIS Training | 30 days | 9/1/2015 | 9/30/2015 | | | | | | | | | | | | | | |
| 50 | Project Estimation | 20 days | 9/1/2015 | 9/20/2015 | | | | | | | | | | | | | | |
| 51 | Project Estimation and Quantity take-off Shadowing | 5 days | 9/10/2015 | 9/14/2015 | | | | | | | | | | | | | | |
| 52 | Presentation at Setara High School | 1 day | 9/17/2015 | 9/17/2015 | | | | | | | | | | | | | | |
| 53 | On-The-Job Training | 60 days | 9/1/2015 | 10/30/2015 | | | | | | | | | | | | | | |
| 54 | Autodesk Storm and Sanitary Analysis Training | 30 days | 10/1/2015 | 10/30/2015 | | | | | | | | | | | | | | |
| 55 | 2nd Round US Embassy Site Visit | 1 day | 10/8/2015 | 10/8/2015 | | | | | | | | | | | | | | |
| 56 | Project Management Workshop | 15 days | 10/5/2015 | 10/19/2015 | | | | | | | | | | | | | | |
| 57 | Project Management and Scheduling Shadowing | 5 days | 10/22/2015 | 10/26/2015 | | | | | | | | | | | | | | |
| 58 | Resume, CV, and Cover Letter Writing Training | 2 days | 10/27/2015 | 10/28/2015 | | | | | | | | | | | | | | |
| 59 | Mock Interview | 1 day | 10/29/2015 | 10/29/2015 | | | | | | | | | | | | | | |
| 60 | TASK 2 | 132 days | 6/25/2015 | 11/3/2015 | | | | | | | | | | | | | | |
| 61 | Evaluations and Reports | 132 days | 6/25/2015 | 11/3/2015 | | | | | | | | | | | | | | |
| 62 | Mid-Term Report | 10 days | 6/25/2015 | 7/4/2015 | | | | | | | | | | | | | | |
| 63 | Interns' Mid-Term Evaluation | 4 days | 7/5/2015 | 7/8/2015 | | | | | | | | | | | | | | |
| 64 | Final Report | 10 days | 10/16/2015 | 10/25/2015 | | | | | | | | | | | | | | |
| 65 | Interns' Final Evaluation | 4 days | 10/30/2015 | 11/2/2015 | | | | | | | | | | | | | | |
| 66 | Certification Ceremony | 1 day | 11/3/2015 | 11/3/2015 | | | | | | | | | | | | | | |



Date: 3/14/2015

| | | | | | | | | | |
|-----------|--|--------------------|--|--------------------|--|-----------------------|--|----------|--|
| Task | | Project Summary | | Inactive Milestone | | Manual Summary Rollup | | Deadline | |
| Split | | External Tasks | | Inactive Summary | | Manual Summary | | Progress | |
| Milestone | | External Milestone | | Manual Task | | Start-only | | | |
| Summary | | Inactive Task | | Duration-only | | Finish-only | | | |

APPENDIX C
PRE-EVENT QUESTIONNAIRE

APPENDIX C

PRE-EVENT QUESTIONNAIRE*

Name/Date of Event

Example

- What is AutoCAD Civil 3D?

- Have you participated in an AutoCAD Civil 3D workshop before? If so, what did you like?

- How does civil 3D works?

- What is different between civil 3D and AutoCAD?

- Have you ever used engineering software? If yes please explain which software?

- What techniques/tools would you like to learn during the Auto Cad Civil 3D Training?

*This questionnaire will be customized for a particular training or workshop.

APPENDIX D
POST-EVENT EVALUATION

APPENDIX D

POST-EVENT EVALUATION

Name/Date of Event

EXAMPLE*

- What topics or aspects of the workshop/training/shadowing/site visit did you find most interesting or useful?

- Knowledge and information gained from the workshop/training/shadowing/site visit?

- Explain what you learned from the workshop/training/shadowing/site visit that will be useful/applicable in your career?

- How do you think the workshop/training/shadowing/site visit could have been made more effective?

* This evaluation will be customized for a particular training or workshop.

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