

LECTURE 1

CIVIL ENGINEERING PRACTICE



*CEEN 4812: Construction Management
Uzair (Sam) Shamsi, Ph.D., P.E.
Adjunct Professor
Department of Civil and Environmental Engineering*

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DISABILITY STATEMENT

- ◆ YSU requires the following disability statement appear on each syllabi:
- ◆ "In accordance with University procedures, if you have a documented disability and require accommodations to obtain equal access in this course, please contact me privately to discuss your specific needs. You must be registered with CSP Disability Services, which is located at Wick House, and provide a letter of accommodation to verify your eligibility. You can reach CSP Disability Services at 330-941-1372."

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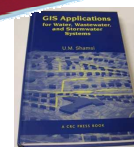
OUTLINE

- ◆ **General**
 - ◆ Student teacher introduction
 - ◆ Signup sheet
 - ◆ Schedule
 - ◆ Textbook
 - ◆ Grading
 - ◆ Learning objectives
 - ◆ Course Web site
 - ◆ Class monitor
- ◆ **Overview of Civil Engineering Practice**
 - ◆ Disciplines
 - ◆ Roles and responsibilities
 - ◆ Career
 - ◆ Business of Civil Engineering: mission and vision
- ◆ **Team Project**
- ◆ **Homework 1: Team brochures**

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ABOUT YOUR PROFESSOR

- ☑ **Technical Manager, Michael Baker Jr., Inc. Pittsburgh, PA**
 - Water and wastewater engineering
 - Hydrologic & hydraulic modeling and GIS
- ☑ **Professor**
 - University of Pittsburgh, GIS and Hydrology
 - Penn State University, Continuing Education
 - Youngstown State University, GIS and Hydrology
- ☑ **Education:**
 - Ph.D. (Civil Engineering), University of Pittsburgh, 1988
- ☑ **22 years of experience, 100+ projects, 100+ publications**
- ☑ **Books:**
 - GIS Tools for Water, Wastewater, and Stormwater Systems, An ASCE Press Best-seller, 2002.
 - GIS Applications for Water, Wastewater, and Stormwater Systems, CRC Press, 2005.
- ☑ **Professional Engineer in PA, WV, OH, GA**
- ☑ **2006 Engineer of the year, ASCE Pittsburgh**



Contact: sshamsi@mbakercorp.com
Office phone (9 AM – 5 PM) 412-375-3076

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YOUR TURN

Please introduce yourself

- Your name
- Your area of interest:
 - Water Resources, Transportation, Structures, Construction, etc.
- Your employer (if working)

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TENTATIVE SCHEDULE

CLASS #	LECT. #	DATE	LECTURE	BY
1	1	8/24/2010	Overview of civil engineering practice – organizations and roles; team projects	Shamsi
2	2	8/31/2010	Leadership principles and attitudes, Ethics and professionalism	Shamsi
3	3	9/7/2010	Estimation and bidding; award of contracts	Shamsi
4	4	9/14/2010	Preparation and interpretation of common engineering reports	Shamsi
5	5	9/21/2010	Project management; scheduling 1	Shamsi
6	6	9/28/2010	Project management; scheduling 2	Shamsi
7		10/5/2010	Mid Term Examination	Shamsi
8	7	10/12/2010	Sustainable development	Shamsi
9	8	10/19/2010	Environmental requirements and permits	Wallace
10	9	10/26/2010	Construction equipment and safety	Wallace
11	10	11/2/2010	Plans and specifications	Zang (Baker)
12	11	11/9/2010	Interactions between engineers and construction professionals	Frank Obhof
13	12	11/16/2010	Construction management; project controls	Frank Obhof
14	13	11/23/2010	Project financing and asset management; value engineering	Johngrass
15	14	11/30/2010	Team project presentations / Introduction to Integrated Design Project	Martin / Shamsi
16		12/7/2010	Final Examination	Shamsi

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TEXT BOOK

- ◆ Title: Construction Methods and Management
- ◆ Authors: Stephens W. Nunnally,
University of Florida
- ◆ Publisher: Prentice Hall
- ◆ Edition: 8 (2010)
- ◆ Type: Hardcover
- ◆ Pages: 576
- ◆ Price: \$103.00
- ◆ ISBN: 0-13-500079-3



www.prenhall.com

- ◆ Most lectures will be taught using handouts. Many lectures will be posted on the course Web site. This book will be mostly used as a self study reference book.

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GRADING

- ◆ **20% Homework (includes team project)**
 - ◆ **Late homework will not be accepted or graded**
- ◆ **10% After Class Quiz**
- ◆ **30% Mid-Term Exam**
- ◆ **40% Final Exam**

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LEARNING OBJECTIVES

1. Gain an understanding of the elements of construction and project management
2. Gain an understanding of business, public policy and administration fundamentals; and
3. Gain an understanding of the role of the leader and leadership principles and ethical, economic, and environmental considerations

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COURSE WEB SITE

<http://www.eng.ysu.edu/~ceegr/GIS/YSUCM10/YSUCM.htm>

Youngstown STATE UNIVERSITY

CEEN 4812: Construction Management
 Department of Civil and Environmental Engineering
 Youngstown State University, Fall 2008
 Professor Uzair (Sam) Shamsi, PhD, PE

Our thanks to the following Guest Lecturers: Dan Wallace, P.E. (President, Wallace and Franck, Inc.), Scott Zang, P.E. (Technical Consultant, Michael Baker Jr., Inc.), Frank Obhof, P.E. (Project Manager, Kella Construction Co.) and Bill Johngress, P.E. (Project Manager, URS, Inc.)

No.	DATE	Lecture Name	Homework Solution
1	8/25/2007	Overview of civil engineering practice – organizations and roles, team project Project Teams	1. Team Brochures
2	9/1/2007	Leadership principles and attitudes; Ethics and professionalism	2. Ethics
3	9/8/2007	Estimation and bidding; award of contracts	3. Estimating
4	9/15/2007	Preparation and interpretation of common engineering reports	4. Hoover Dam Report
5	9/22/2007	Project management 1: Basics and scheduling	
6	9/29/2007	Project management 2: MS Project	5. Gantt Chart
	10/6/2007	Mid-term Exam	
7	10/13/2007	Sustainable development	
8	10/20/2007	Environmental requirements and permits (Guest lecture by Dan Wallace)	
9	10/27/2007	Construction equipment and safety (Guest lecture by Dan Wallace)	
10	11/3/2007	Plans and specifications (Guest lecture by Scott Zang; No handouts on the Website; please use the paper copies distributed in the class)	Scott Zang Homework Solution (Not for grade)
11	11/10/2007	Interactions between engineers and construction professionals (Guest lecture by Frank Obhof; No handouts on the Website; please use the paper copies distributed in the class)	
12	11/17/2007	Construction management, project controls (Guest lecture by Frank Obhof; No handouts on the Website; please use the paper copies distributed in the class)	
13	11/24/2007	Project financing and asset management; value engineering (Guest lecture by Bill Johngress)	
14	12/1/2007	Team project presentations / Introduction to Integrated Design Project (Dr. Martin / Husain)	
	12/8/2007	Final Examination	

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COURSE WEB SITE

**“YSU Construction Management Course” Link
from www.GISApplications.com**



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CLASS MONITOR

1. **Must have a cell phone**
2. **Must attend all classes on time**
3. **Must live on or near campus**
4. **Communicate with students on Professor's behalf (e.g., if the professor will be late for the class)**

Scott Gintert

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THE PRACTICE

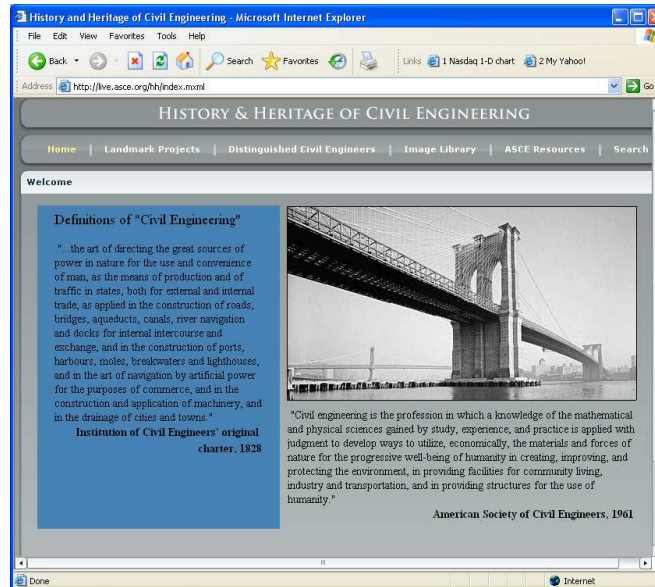
WHAT IS CIVIL ENGINEERING?

LET'S BRAINSTORM



WHAT IS CIVIL ENGINEERING?

<http://live.asce.org/hh/index.mxml>



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WHAT IS CIVIL ENGINEERING?

- ◆ Old (1828) definition
- ◆ "...the art of directing the great sources of power in nature for the use and convenience of man, as the means of production and of traffic in states, both for external and internal trade, as applied in the construction of roads, bridges, aqueducts, canals, river navigation and docks for internal intercourse and exchange, and in the construction of ports, harbours, moles, breakwaters and lighthouses, and in the art of navigation by artificial power for the purposes of commerce, and in the construction and application of machinery, and in the drainage of cities and towns."
- ◆ Institution of Civil Engineers' original charter, 1828

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WHAT IS CIVIL ENGINEERING?

- ◆ New (1961) definition
- ◆ "Civil engineering is the profession in which a knowledge of the mathematical and physical sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize, economically, the materials and forces of nature for the progressive well-being of humanity in creating, improving, and protecting the environment, in providing facilities for community living, industry and transportation, and in providing structures for the use of humanity."
- ◆ American Society of Civil Engineers, 1961

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WHAT IS A CIVIL ENGINEER?

- ◆ Excerpts from an article by Stuart A. Moring, P.E., President, ASCE Georgia Section, ASCE News, April-May 2004
- ◆ "As much as engineers like to see projects built, I think we prefer to see things that have a purpose to society. If you are like me, your favorite math problems were "story problems" – what is the least number of coins in \$1.87, or the fastest path to the library, via bike path, trail and pond. We like to have some point to our calculations, not just to find the sum of a column of numbers, and we want our results to have some meaning to mankind, not just to win our case or demonstrate a theorem."
- ◆ "Our Code of Ethics speaks for the profession about what is important and proper to us. I don't think it's any accident that the first Fundamental Principle is the focus on service to humanity. This is what sets engineers apart from many other professions."

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LICENSED ENGINEER

- ◆ “Engineering Practice Act” -- to protect the health, safety and welfare of the citizens of that state.
- ◆ Having an engineering license means more than just meeting a State’s minimum requirements. It means you have accepted both the technical and the ethical obligations of the engineering profession.
 - ◆ (Ref: ASCE Policy Statement # 433)



CIVIL ENGINEERING OVERVIEW

◆ <http://www.careercornerstone.org/pdf/civil/civileng.pdf>

◆ Civil Engineering is grouped into seven major divisions of engineering:

1. Structural
2. Environmental
3. Geotechnical
4. Water Resources
5. Transportation
6. Construction; and
7. Urban Planning

Sloan Center: A Non-profit organization established in 1934 by Alfred Pritchard Sloan, Jr., then President and Chief Executive Officer of the General Motors Corporation.

Sloan Career Cornerstone Center

Civil Engineering Overview

The Field - Preparation - Day in the Life -
Specialization - Earnings - Globalization -
Career Path Forecast - Professional Organizations

The Field

From the pyramids of Egypt to the international space station, civil engineers have always faced the challenges of the future - advancing civilization and building our quality of life.

Today, the world is undergoing vast changes—the technological revolution, population growth, environmental concerns, and more. All create unique challenges for civil engineers of every specialty. The next decades will be the most creative, demanding, and rewarding of times for civil engineers, and now is the best time to find the right career for you.

Civil engineers are in the forefront of technology. They are the leading users of sophisticated high-tech products - applying the very latest concepts in computer-aided design (CAD) during design, construction, project scheduling, and cost control.

Civil engineering is about community service, development, and improvement... the planning, design, construction, and operation of facilities essential to modern life, ranging from transit systems to offshore structures to space satellites. Civil engineers are problem solvers, meeting the challenges of pollution, traffic congestion, drinking water and energy needs, urban redevelopment, and community planning.

Our future as a nation will be closely tied to space, energy, the environment, and our ability to interact with and compete in the global economy. You, as a civil engineer, will perform a vital role in linking these themes and improving quality of life for the 21st century. As the technological revolution expands, so the world's population increases, and as environmental concerns mount, your skills will be needed. There is no limit to the personal satisfaction you will feel from helping to make our world a better place to live. Whatever area you choose, be it design, construction, research, teaching, or management, civil engineering offers you a wide range of career choices for your future.

Civil Engineering is grouped into seven major divisions of engineering: Structural, Environmental, Geotechnical, Water Resources, Transportation, Construction, and Urban Planning. In practice, these are not always hard and fixed categories, but they offer a helpful way to review a very diverse and dynamic field.

*Civil Engineering Overview™ - Sloan Career Cornerstone Center (www.careercornerstone.org)
Some resources are provided by the US Department of Labor, Bureau of Labor Statistics and the American Society of Civil Engineers. Page 1 of 10

CIVIL ENGINEERING DISCIPLINES

Specialization

There are seven major disciplines within civil engineering that are closely interrelated:



Structural

As a structural engineer, you will face the challenge of designing structures that support their own weight and the loads they carry, and that resist wind, temperature, earthquake, and many other forces. Bridges, buildings, offshore structures, space platforms, amusement park rides, and many other kinds of projects are included within this exciting discipline. You will develop the appropriate combination of steel, concrete, timber, plastic, and new exotic materials. You will do the planning and design, as well as visit the project site to make sure the work is done properly.



Environmental

The skills of environmental engineers are becoming increasingly important as we attempt to protect the fragile resources of our planet. Environmental engineers translate physical, chemical, and biological processes into systems to destroy toxic substances, remove pollutants from water, reduce non-hazardous solid waste volumes, eliminate contaminants from the air, and develop groundwater supplies. In this field, you may be called upon to resolve issues of providing safe drinking water, cleaning up sites contaminated with hazardous materials, disposing of wastewater, and managing solid wastes.



Geotechnical

Geotechnical engineering is required in all aspects of civil engineering, because most projects are supported by the ground. As a geotechnical engineer, you might develop projects below ground, such as tunnels, foundations, and offshore platforms. You will analyze the properties of soil and rock that support and affect the behavior of these structures. You may evaluate the potential settlements of buildings, the stability of slopes and fills, the seepage of ground water and the effects of earthquakes. You will investigate the rocks and soils at



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CIVIL ENGINEERING DISCIPLINES



Water Resources

Water is essential to our lives, and as a water resources engineer, you will deal with issues concerning the quality and quantity of water. You will work to prevent floods, to supply water for cities, industry, and irrigation, to treat wastewater, to protect beaches, or to manage and redirect rivers. You might be involved in the design, construction, or maintenance of hydroelectric power facilities, canals, dams, pipelines, pumping stations, locks, or seaport facilities.



Transportation

Because the quality of a community is directly related to the quality of its transportation system, your function as a transportation engineer will be to move people, goods, and materials safely and efficiently. Your challenge will be to find ways to meet our ever-increasing travel needs on land, air, and sea. You will design, construct, and maintain all types of transportation facilities, including highways, railroads, airfields, and ports. An important part of transportation engineering is to upgrade our transportation capability by improving traffic control and mass transit systems, and by introducing high-speed trains, people movers, and other new transportation methods.



Construction

As a construction engineer, you are the builder of our future. The construction phase of a project represents the first tangible result of design. Using your technical and management skills will allow you to turn designs into reality – on time and within budget. You will apply your knowledge of construction methods and equipment, along with the principles of financing, planning, and managing, to turn the designs of other engineers into successful projects.



Urban Planning

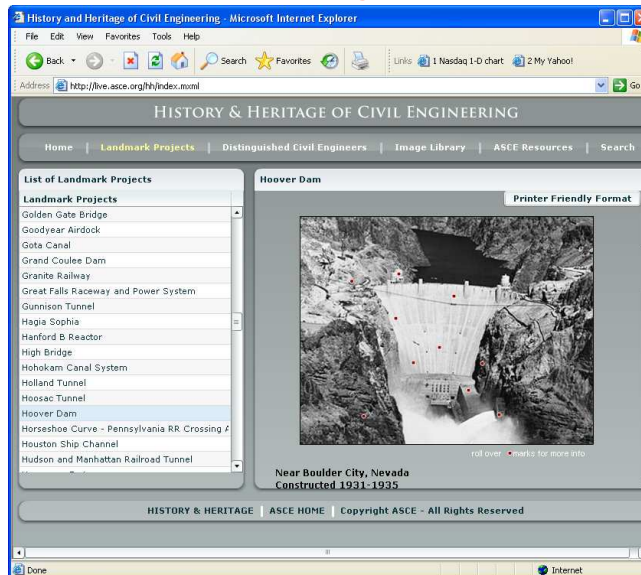
As a professional in this area, you will be concerned with the entire development of a community. Analyzing a variety of information will help you coordinate projects, such as projecting street patterns, identifying park and recreation areas, and determining areas for industrial and residential growth. To ensure ready access to your community, coordination with other authorities may be required to integrate freeways, airports, and other related facilities. Successful coordination of a project will require you to be people-oriented as well as technically knowledgeable.



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CIVIL ENGINEERING LANDMARK PROJECTS

<http://live.asce.org/hh/index.mxml>



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HOOVER DAM

- ◆ Purpose: To control the devastating floods on the Colorado River, generate hydroelectric power, and store the river's ample waters for irrigation and other uses.
- ◆ In March 1931, the Bureau of Reclamation awarded the contract to a consortium of six large construction firms, called Six Companies, Inc., that bid together on the project because it was larger than any one could handle.
- ◆ More than 1,500,000 cubic yards of soil and rock were removed
- ◆ Required a total of 4,400,000 cubic yards of concrete and 45,000,000 pounds (20,408 tons) of reinforcing steel.
- ◆ On September 30, 1935, Franklin D. Roosevelt officially dedicated the dam, saying, "I came, I saw, and I was conquered, as everyone will be who sees for the first time this great feat of mankind."



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DAY IN THE LIFE OF A CIVIL ENGINEER

- ◆ The only constant in the professional lives of civil engineers is that they never have typical days.
- ◆ Every day is different, bringing new challenges and unique demands, and the nature of these demands varies according to the specialization and seniority of the engineer.
- ◆ Most civil engineers work in teams, they spend time on things not necessarily well described in their titles.
- ◆ Virtually all engineers spend some part of every day doing some routine administrative tasks, and newly-graduated engineers may be surprised to find they will most likely file, type, send e-mail, make phone calls, take notes in meetings, and many other ordinary chores.

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LIFE OF A CIVIL ENGINEER

- ◆ Teams and Coworkers
 - ◆ Almost all jobs in civil engineering require some sort of interaction with coworkers. Whether they are working in a team situation, or just asking for advice, most engineers have to have the ability to communicate and work with other people.
- ◆ Tasks and Titles
 - ◆ Civil engineers have a wide array of specialty areas to choose from. The titles civil engineers hold are far more broad than most people know and their duties are even more diverse.
- ◆ Work Experience
 - ◆ Civil Engineers tend to experience their work as part of an extremely significant contribution. In addition, civil engineers are committed to their profession and to performing well as part of a team.

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CIVIL ENGINEER STARTING SALARIES

- ◆ Vary based on your areas of expertise, experience, education, supervisory responsibility, accountability for projects, and the geographic location, size, and industry of the employer.
- ◆ According to a 2005 salary survey by the National Association of Colleges and Employers starting average salaries were:
 - ◆ \$43,679 per year for bachelor's degree candidates
 - ◆ \$48,050 per year for master's degree candidates
 - ◆ \$59,625 per year for Ph.D. candidates
- ◆ Add \$15,000 for 2009/2010
- ◆ Add \$5,000 to 10,000 in high demand areas (e.g. Northern Virginia, D.C., Columbus)
- ◆ According to the U.S. Department of Labor, Bureau of Labor Statistics, civil engineers are expected to see average employment growth through 2014. This is not a bad news!

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ADDITIONAL RESOURCES MODERN MARVELS



- ◆ History Channel
- ◆ Video archives of previous shows on www.history.com
- ◆ Engineering Disasters series
 - ◆ Tacoma (WA) Narrows Bridge Collapse due to wind induced vibrations, November 7, 1940
 - ◆ Teton Dam Breach due to embankment leak, Idaho Falls, June 5, 1976




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ADDITIONAL RESOURCES MAN MADE



- ◆ National Geographic Channel
- ◆ <http://channel.nationalgeographic.com/series/man-made/>
- ◆ Construction challenges and solutions
- ◆ Engineering Marvels
- ◆ Video archives of previous shows
- ◆ Examples
 - ◆ Incredible Islands of Dubai
 - ◆ Monster dam (Itaipu, Brazil) – under construction - six times bigger than Hoover dam

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READING ASSIGNMENT



- Section 1. Introduction
 - Explains how construction industry works

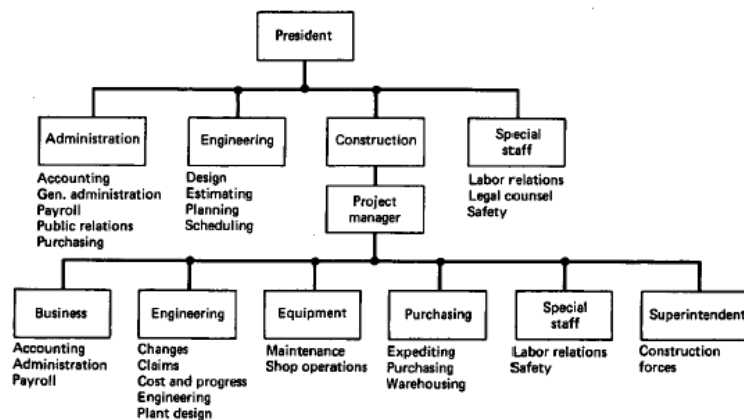


Figure 1-10 Representative construction company organization chart.

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TEAM PROJECT

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TEAM PROJECT

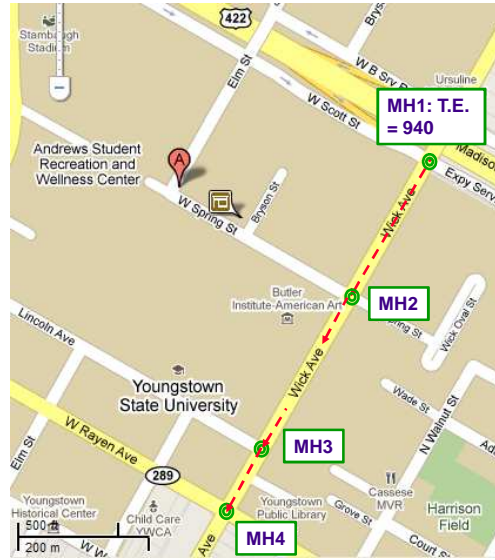


- Will be done as team homework after mid term exam
- Will count for two homework grades (No. 6 and 7)
- Each team will submit a team document
- Each team should have periodic meetings. The team leader will assign tasks to team members with deadlines.
- Each member of the team should contribute to his/her team homework. Team leader will identify any member that did not contribute. **A NON-CONTRIBUTING TEAM MEMBER WILL GET ZERO POINTS FOR HOMEWORK.**

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PROJECT DESCRIPTION

- Construction of a 24-inch reinforced concrete storm sewer pipe on Wick Ave from W Scott St to W Rayen Ave
- This pipe will replace an existing storm sewer pipe
- Keep existing manholes on, W Scott, W Spring, Lincoln, and W Rayen
- Given data:
 - Top elevation of starting MH1 on W Scott St = 940 ft
 - Required manhole depths = 15 ft
 - Required pipe slope = 1.50 %
 - Hint: Use starting MH bottom elevation and required pipe slope to calculate top and bottom elevation of each MH



PROJECT SCHEDULE

Team	Task	Due Date
Client	Prepare and distribute the RFP	5 PM on 10/12/2010
Consultant	Submit a proposal in response to the RFP	5 PM on 11/9/2010
Contractor	Submit a proposal in response to the RFP	5 PM on 11/9/2010
Agency	Select the winning bidder	5 PM on 11/16/2010
Client	Send notice of award	5 PM on 11/23/2010
All Teams	Class presentations	11/30/2010

MAKE TEAMS

Four teams

1. **Consultant (an engineering consulting company): Bid on the RFB**
 2. **Contractor (a construction company): Bid on the RFB**
 3. **Client / Owner (a city or public utility): Prepare a request for bids (RFB)**
 4. **Regulatory Agency (Ohio EPA): Review and score the proposals**
- Each team will have approximately 1/4th of the class sorted by student's last name
 - Each team should have a name, a logo, and vision and mission statement (Homework 1).
 - Each team should nominate a team leader.

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TEAMS

Team 1: Consultant

Name: ?

Leader: ?

1. Baker, David M.
2. Barton, Wesley S.
3. Beers, Nathan C.
4. Chaney, Nicholas R.
5. Chen, Wen Jing
6. Dezarn, Kevin T.

Team 2: Contractor

Name: ?

Leader: ?

1. Ekweremuba, Obinna
2. Gintert, Scott M.
3. Holsopple, Andrew G.
4. Kovacs, Zachary S.
5. Kwallek, Raymond A.
6. Lang, Kevin T.

Team 3: Client

Name: ?

Leader: ?

1. Mashburn, Joshua C.
2. Matelan, Lucas R.
3. Monus, Daniel J.
4. Moore, Kimberly A.
5. Oddo, Jeremy L.
6. Phillips, Daniel
7. Quetot, Robert E.
8. Sherock, David M.

Team 4: Agency

Name: ?

Leader: ?

1. Smulski, David
2. Ward, Bradley S.
3. Wiesen, Sandra J.
4. Kiswardy, Justin

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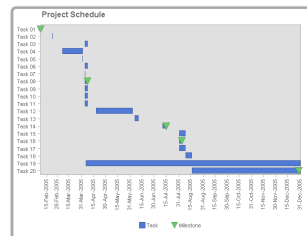
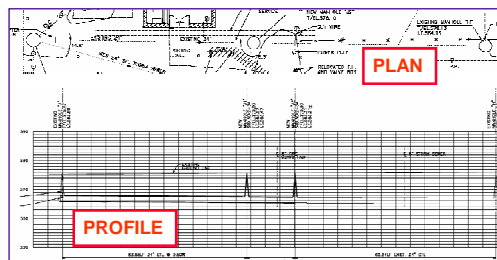
CLIENT TEAM TASKS

- Prepare a 5-10 page RFP for this construction project
- At a minimum, include the following typical bidding document sections described in Lecture 3 and 4
 - Project Description
 - Scope of Work
 - A plan view map or drawing (can use Google Map or Earth)
 - Administrative Information: Pre-bid meeting and site tour, questions, clarifications & concerns, delivery of bids (time & location and number of copies)
 - Bidder qualifications
 - Selection criteria
 - Proposal content and format
 - Cost table (similar to New Have calculation sheet in Lecture 3)
- Create a PDF of the RFP and Email it to all project teams leaders and Dr. Shamsi on or before the due date.

Item No.	Description	Quantity	Material	Unit Price	Total Price
1	Maintenance & Protection of Traffic	1	LF	0.00	0.00
2	Construction Staking	1	LF	0.00	0.00
3	Additional Street Excavations	50	CV	0.00	0.00
4	Backfill Street Excavations	50	CV	0.00	0.00
5	Additional Bricklay Material	1	LF	0.00	0.00
6	Test Pit	2	EA	0.00	0.00
7	Additional Street Excavations	25	CV	0.00	0.00
8	Backfill Street Excavations	25	CV	0.00	0.00
9	Storm	400	CV	0.00	0.00
10	Formation of Subgrade	5000	SY	0.00	0.00
11	Removal of Pavement	3500	SY	0.00	0.00
12	Earth Excavations	1600	CV	0.00	0.00
13	Cast-in-place Concrete Drainage	540	LF	0.00	0.00
14	Backfill Excavations	100	CV	0.00	0.00
15	Test Pit Excavations	2	EA	0.00	0.00
16	Testing Station Excavations	1	EA	0.00	0.00
17	6" PVC Pipe	40	LF	0.00	0.00
18	6" HDPE Pipe	80	LF	0.00	0.00
19	6" HDPE Pipe	100	LF	0.00	0.00
20	6" Precast HDPE Pipe	75	LF	0.00	0.00
21	Pipe Concrete to Existing Drain in Building	1	EA	0.00	0.00
22	Special Cast-in-place	1	EA	0.00	0.00
23	Manhole Enlargement	8	LF	0.00	0.00
24	Construction Sign	4	EA	0.00	0.00

CONSULTANT AND CONTRACTOR TEAM TASKS

- Prepare a 10-20 page proposal to bid on the RFP from the client team
- Include the following elements / sections
 - Cover page
 - Table of Contents
 - Cover letter
 - Company information
 - Team organization chart (include a project manager)
 - Team member resumes
 - Sections on environmental benefits and regulatory compliance
 - Project cost in tabular format specified in the RFP
 - Project schedule (bar chart format)
 - Plan and profile drawings created using any CAD package
- Email the proposal to the Client and Agency team leaders and to Dr. Shamsi and T.A. by the due date.



CREATE A PROJECT SCHEDULE CHART LIKE THIS

AGENCY TEAM TASKS

- Review the two proposals to select a winner based on the selection criteria specified in the RFP and based on the bidder's write-up on environmental benefits and regulatory compliance.
- Use the scoring system described in Lecture 3 to do a side-by-side comparison of the two proposals. You may use the bid tabulation sheet described in Lecture 3.
- Email the winner information and the bid tabulation sheet with a cover letter to the client team and Dr. Shamsi and T.A. by the due date.

CRITERIA	Weight	ALTERNATIVES					
		Option A		Option B		Option C	
		Rating	Score ⁽¹⁾	Rating	Score ⁽¹⁾	Rating	Score ⁽¹⁾
Criterion C1	1	3	3	3	3	3	3
Criterion C2	2	2	4	1	2	2	4
Criterion C3	3	1	3	3	9	2	6
Total	6	4	10	7	14	7	13

⁽¹⁾Score = Rating * Weight

USE A BID TABULATION SHEET LIKE THIS

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CLIENT TEAM TASK (ROUND 2)

- Based on the recommendations of the Agency Team and your own preference, prepare a notice of award and Email it to the two bidders and to Dr. Shamsi by the due date.

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DIFFERENCE IN MISSION AND VISION STATEMENT

What is the difference between a mission statement and a vision statement? Do you need both?

- A mission statement concerns what an organization is all about.
- A vision statement is what the organization wants to become.

A mission statement answers three key questions:

- What do we do?
- For whom do we do it?
- What is the benefit?

A vision statement, on the other hand, describes how the future will look if the organization achieves its mission. A mission statement gives the overall purpose of an organization, while a vision statement describes a picture of the "preferred future." A mission statement explains what the organization does, for whom and the benefit. A vision statement, on the other hand, describes how the future will look if the organization achieves its mission.

Examples:

Centers for Disease Control	
Mission	To promote health and quality of life by preventing and controlling disease, injury, and disability
Vision	Healthy People in a Healthy World
Minnesota Department of Health	
Mission	To protect, maintain and improve the health of all Minnesotans.
Vision	Keeping All Minnesotans Healthy

Vision: What do you want to accomplish?
Mission: How will you accomplish it?

<http://www.health.state.mn.us/about/strategic/visionvsmission.html>

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SAMPLE VISION AND MISSION STATEMENT

The screenshot shows the Baker website's 'Purpose/Vision/Values' page. The navigation bar includes 'Markets', 'Services', 'Careers', and 'Investor'. A search bar is present. The main content area is titled 'Purpose/Vision/Values' and includes a sub-section for 'Our Purpose Statement' which reads: 'Creating value by delivering innovative and sustainable solutions for infrastructure and the environment.' This section is highlighted with a green box labeled 'MISSION STATEMENT'. Other sections include 'Our Vision' (The firm of choice in the markets we serve.) and 'Our Values' (Integrity, Quality, People & Teamwork, Safety, Communication, Commitment).

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SAMPLE BROCHURE: ENGINEERING CONSULTING > STORMWATER MANAGEMENT

Stormwater Management Services

Baker Has The Experience To Tackle Your Most Challenging Projects

The management and control of stormwater runoff is evolving to address increased regulatory requirements and aging infrastructure. Rapid development has resulted in increased stormwater flows and pollution of our Nation's waters with sediment, nutrients, bacteria, metals, and other contaminants.

Successful management of stormwater requires a multi-disciplinary team that includes planners, engineers, environmental scientists and outreach specialists. Baker's team of highly-qualified professionals works closely together and with our clients to overcome these challenges within the framework of the regulatory drivers and resource constraints.

Regulatory Compliance and Program Permitting

Baker staff has extensive experience assisting clients with regulatory compliance at the local, state, regional and federal levels. Examples include assistance with compliance with stormwater National Pollutant Discharge Elimination System (NPDES) for municipal separate storm sewer systems (MS4s), as well as regional regulations such as the Chesapeake Bay Preservation Act.

Stormwater Program Development

Baker's services range from providing support on specific stormwater issues such as development of an illicit discharge detection and elimination (IDDE) program through development of a comprehensive stormwater program. Baker has also assisted local governments with identification of dedicated funding sources for their stormwater programs necessary to meet increased regulatory requirements and/or desired program enhancements.

Baker analyzed residential GIS data for development of a stormwater user fee for the City of Alexandria, VA.



Baker provided drainage solutions to the City of Virginia Beach, VA, to address flooding problems that had existed for several years.

- Stormwater Permit Compliance
- Stormwater Utility Development
- Policy and Ordinance Development
- Public Outreach and Involvement
- Illicit Discharge Detection and Elimination
- EMPA/LID/Design Manuals
- Infrastructure Design and Maintenance
- CIP Prioritization
- Project Permitting
- Ecosystems/Stream Restoration
- Hydrologic and Hydraulic Modeling
- Watershed Management

Baker

Manuals and Planning

Baker's licensed professional engineers and landscape architects develop manuals to assist clients with a range of stormwater issues, including best management practices (BMPs), low impact development (LID), capital improvement project (CIP) plans, and erosion and sediment control plans.

Baker developed the LID supplement to the Northern Virginia Regional Commission's BMP Handbook.



Public Education and Outreach

Baker staff includes a team of engineers, outreach specialists, and graphic artists that work together to relay highly technical information in a format that is easily understood by the general public. For many of Baker's projects, communication with the public is a critical component for success and often includes obtaining community input on a range of policy issues.

REPORT ACTIVE ILLEGAL DUMPING
OF HOUSEHOLD WASTE TO THE PUBLIC SWAN QUADRANGLE

540-662-4131

For the City of Winchester, VA, Baker developed stormwater outreach materials, including flyers for the stormwater hotline.

Assessments and Modeling

Assessing the impacts of development on stormwater runoff is important to ensure that pipes and culverts are properly sized and that any changes in flow patterns do not cause flooding, erosion, and/or water quality problems downstream. Baker staff has extensive experience modeling existing and future land use conditions to

develop recommendations, including BMPs, to protect nearby streams or lakes.

Design Services

Baker is nationally recognized for innovative design of stormwater management facilities to address flooding, erosion, and water quality issues. Signature projects include design of stormwater management systems for linear projects, including roads and railroads. In addition, Baker is an established expert in LID policies and design.

Baker completed a fast track design for retrofitting an existing (SWM) facility to meet current peak flow reduction and BMP criteria in Fairfax County, VA.



CIP Planning and Permitting

A clear understanding of the costs, benefits, and constraints of proposed projects is critical to successful implementation of a CIP plan. Baker staff has developed detailed cost estimates for projects, evaluated constraints such as property ownership and/or permitting issues (state and local land disturbance, etc.), and developed prioritizations based on these and other criteria.

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SAMPLE BROCHURE: AGENCY



OhioEPA

District Offices

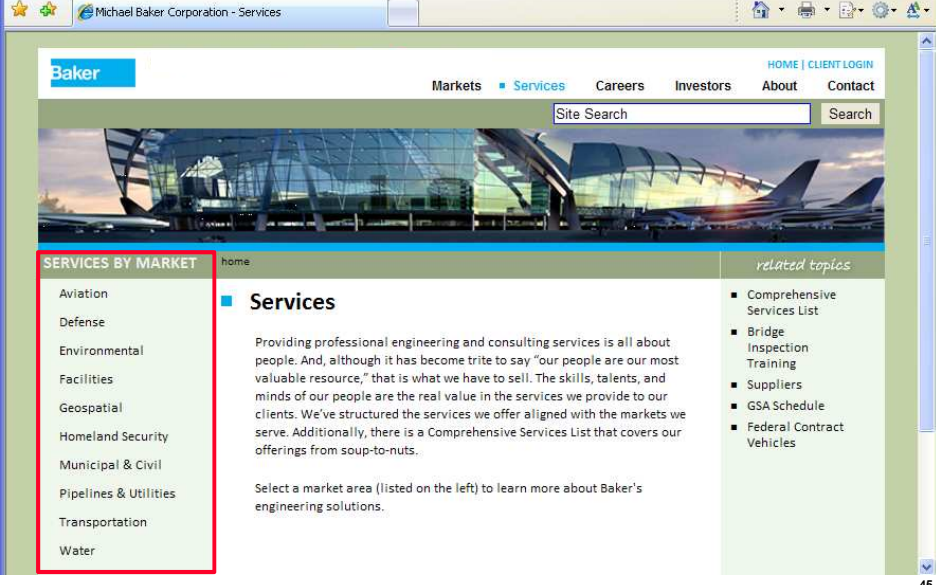
<p>CO Central Office Lansing Government Center 50 West Town Street, Suite 700 Columbus, OH 43215 (614) 644-3020</p>	<p>NWDO Northwest District Office 947 North Dunbridge Rd. Bowling Green, OH 43402 (419) 352-8443 (800) 686-6930</p>
<p>CDO Central District Office Lansing Government Center 50 West Town Street, Suite 700 Columbus, OH 43215 (614) 726-3778 (800) 686-2330</p>	<p>SEDO Southeast District Office 2195 Front St. Lepus, OH 43138 (740) 385-8501 (800) 686-7130</p>
<p>NEDO Northeast District Office 2110 E. Aurora Rd. Twinsburg, OH 44087 (330) 963-1200 (800) 686-6330</p>	<p>SWDO Southwest District Office 401 East Fifth St. Dayton, OH 45402 (937) 285-0357 (800) 686-8930</p>

The free numbers are for citizens with questions or concerns about environmental issues. The regulated community should use the business line for routine business. Spills and emergencies should be reported to 800-424-9276.

OhioEPA
Getting to Know Ohio EPA


June 2007

SAMPLE SERVICES: ENGINEERING CONSULTING



The screenshot shows the Michael Baker Corporation website's 'Services' page. The browser title is 'Michael Baker Corporation - Services'. The navigation menu includes 'Markets', 'Services', 'Careers', 'Investors', 'About', and 'Contact'. A search bar is located at the top right. The main content area features a large image of a modern airport terminal. Below the image, there is a 'SERVICES BY MARKET' sidebar with a red border, listing various sectors: Aviation, Defense, Environmental, Facilities, Geospatial, Homeland Security, Municipal & Civil, Pipelines & Utilities, Transportation, and Water. The main content area is titled 'Services' and contains a paragraph describing the company's professional engineering and consulting services. To the right, there is a 'related topics' section with a list of links: Comprehensive Services List, Bridge Inspection Training, Suppliers, GSA Schedule, and Federal Contract Vehicles. The page number '45' is visible in the bottom right corner.

SAMPLE SERVICES: CONSTRUCTION



The screenshot shows the Dick Corporation website's 'Services' page. The browser title is 'Dick Corporation - General Contractors / Construction Managers / Design-Builders - Microsoft Internet...'. The address bar shows 'http://www.dickcorp.com/dickcorp/services/'. The page features the Dick Corporation logo and a navigation menu with 'Home', 'Contact Us', 'Our Company', 'Markets', 'Services', 'Locations', and 'Employment'. The main content area is titled 'OUR COMPANY SERVICES' and includes a section for 'General Contracting'. On the left, a circular graphic lists services: General Contracting, Construction Management, Design-Build, EPC, and Full-Service. The 'General Contracting' section contains a paragraph describing the company's 80 years of experience in various construction markets. To the right, there is a photograph of a construction worker wearing a hard hat and safety glasses. The page number '46' is visible in the bottom right corner.

SAMPLE SERVICES: ENGINEERING CONSULTING AND CONSTRUCTION

The screenshot shows the homepage of Wallace & Pancher, Inc. (WPI). The header features the WPI logo and the tagline "Bridging the Gap Between Engineering & Ecology". Below the header is a navigation menu with links for Home, Office Location, Career Opportunities, Contact WPI, and Company News. A secondary menu lists services: Natural Stream Channel Design, Environmental Services, Engineering Design - Survey / Layout, Construction Services, Project Profiles, and Agency / Public Involvement. A paragraph states that WPI was established in 2001 to provide services to a broad range of clients. A list of services is shown, with a red circle highlighting "Natural Stream Channel Design", "Environmental Services", "Engineering Design", "Survey / Layout", "Construction Services", "Project Profiles", and "Agency / Public Involvement". A photo of a stream is also visible. The footer of the screenshot shows the URL <http://www.wallacepancher.com/>.

<http://www.wallacepancher.com/>

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HOMEWORK No. 1



- Due date: 8/31/2010
- This is a team homework
- Each team will submit one homework
- Have a team meeting (after class, today) to name your team and select a team leader. The team leader will assign tasks to team members with deadlines (e.g., John Doe to submit logo image by August 26, 2010).
- Create a 2 page brochure to introduce the services offered by your organization (team)
 - Include a vision and a mission statement (they are different)
 - Include logo and contact info
 - Include services offered
 - Include an image (e.g., a map) or photo
- Attach a cover sheet with team name and names of team members and team leader.
- Each member of the team should contribute to his/her team homework. Team leader will identify any member that did not contribute. A NON-CONTRIBUTING TEAM MEMBER WILL GET ZERO POINTS FOR HOMEWORK.

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...A little
more about
YCC...

Our Mission: To improve the area with an economically productive yet technologically advancing construction company who offers a low cost bidding system and a highly productive work force to meet a wide range of construction needs.

Our Vision: Building a safer, more attractive Youngstown.

Are you curious?



...Find the right contractor for your job!



...We know the importance of aesthetics in a well developed city!

We offer many services including...

Surveying
Excavating Site Design
Land Development Construction Management
Highway / Transportation Systems
Construction Inspection Water Supply Engineering
Hydraulic Systems Construction
Wastewater / Sanitary System Construction

Youngstown Construction Corporation

1 University Plaza, Youngstown Ohio Phn. 330-BUILD-IT Fax 330-WE-BUILD YCC@Engineer.com