Recognizing the need for professionalism, excellence, and continuous improvement,

- Function effectively as part of a project team,
- Communicate effectively, both orally and in writing,
- Perform in-depth analysis and design in at least three sub-disciplines related to civil engineering,
- Assist with civil engineering problems,
- Perform economic analyses related to planning, design, construction, and management of systems,
- Utilize principles, practices and software to plan and prepare drawings, reports and other documents,
- Carry out systems.

- Apply fundamental communication methods and analytical techniques to determine forces and stresses in structures.

- Utilize suitable methods for land measurement and/or construction layout.

- Student Outcomes - CET graduates will demonstrate the ability to:

  - Professional Responsibilities:
    - Are committed to professional development such as continuing education, professional societies and/or other resources.
    - Are able to work with problem solving skills and hands on skills needed in the fundamental areas of CEE.
    - Have applied the critical thinking skills necessary to obtain a civil engineering degree.

  - Civic Engagement:
    - Are able to achieve results in their educational program to ensure the education:

Program Educational Objectives

- Report and public presentation.
- Each student will learn how each aspect of a large design project is integrated into a complete design.
- Each student will learn new technical, leadership, and problem solving skills.
- Each student will be able to work as part of a project team.

Introduction:

The mission of the Civil Engineering Technology (CET) program at SUNY Poly is to provide quality undergraduate studies in the field of Civil Engineering Technology (CET) in order to prepare students for professional careers and graduate study and to find meaningful employment in the engineering profession.

The goals of the program include:

- Providing an educational experience that is fundamental to the integration of the highest quality and the technical competence in the field of CEE.
- The faculty are committed to the integration of exceptional quality education and professional practices.

Course (Credit) Description:

- Civil Engineering Design

- Transportation Group Project Engineer at CEE, SUNY Poly

Office Hours and Contact Information:

Gloria M. Bonnet
Office: 315.490.6700
Fax: 315.490.6294
E-mail: Gloria_Bonnet@sunyacc.com

The course will consist of a design project with presentations and reports. Lectures in professional practice will be provided. Students will have the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

Please don't hesitate to contact me about anything you don't understand or have been unclear about. My goal is to make sure you get the best education possible.

For all you know, you are not only a credit and a resource in managing projects and presentations, but to pass this class with a

Strong, dedicated reader.

4.0 core of instructors.

Preparation:

Senior standing and at least 2.0 in the following: TCC 424, 422, 440, 442, 444, 432, 434, 410, 100, 200.

and can work with multiple projects (plan on 1.)

Provide students with the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

- Transportation Engineering Project Engineer at CEE, SUNY Poly

Office Hours and Contact Information:

Gloria M. Bonnet
Office: 315.490.6700
Fax: 315.490.6294
E-mail: Gloria_Bonnet@sunyacc.com

The course will consist of a design project with presentations and reports. Lectures in professional practice will be provided. Students will have the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

Please don't hesitate to contact me about anything you don't understand or have been unclear about. My goal is to make sure you get the best education possible.

For all you know, you are not only a credit and a resource in managing projects and presentations, but to pass this class with a

Strong, dedicated reader.

4.0 core of instructors.

Preparation:

Senior standing and at least 2.0 in the following: TCC 424, 422, 440, 442, 444, 432, 434, 410, 100, 200.

and can work with multiple projects (plan on 1.)

Provide students with the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

- Transportation Engineering Project Engineer at CEE, SUNY Poly

Office Hours and Contact Information:

Gloria M. Bonnet
Office: 315.490.6700
Fax: 315.490.6294
E-mail: Gloria_Bonnet@sunyacc.com

The course will consist of a design project with presentations and reports. Lectures in professional practice will be provided. Students will have the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

Please don't hesitate to contact me about anything you don't understand or have been unclear about. My goal is to make sure you get the best education possible.

For all you know, you are not only a credit and a resource in managing projects and presentations, but to pass this class with a

Strong, dedicated reader.

4.0 core of instructors.

Preparation:

Senior standing and at least 2.0 in the following: TCC 424, 422, 440, 442, 444, 432, 434, 410, 100, 200.

and can work with multiple projects (plan on 1.)

Provide students with the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

- Transportation Engineering Project Engineer at CEE, SUNY Poly

Office Hours and Contact Information:

Gloria M. Bonnet
Office: 315.490.6700
Fax: 315.490.6294
E-mail: Gloria_Bonnet@sunyacc.com

The course will consist of a design project with presentations and reports. Lectures in professional practice will be provided. Students will have the opportunity to work as part of a multi-disciplinary Civil Engineering Design Project.

Please don't hesitate to contact me about anything you don't understand or have been unclear about. My goal is to make sure you get the best education possible.

For all you know, you are not only a credit and a resource in managing projects and presentations, but to pass this class with a

Strong, dedicated reader.
Cancellation will be available online at: WWW.SUNY.EDU/CLASS/23489. All courses at SUNY Polytechnic Institute will be taught online starting with Fall 2017. If you have any questions, please contact the instructor.

Cancellation of classes: When due to inclement weather: SUNY Poly has a 24-hour snow rule to announce class cancellations.

On our Monday’s plan to do some living in Room 1125.

Academic conduct: “And most importantly the project will not be completed well and on time by just meeting the deadlines. The presentations in December should not be mere recitation of the material. Instead, they should be part of a larger narrative of your own development and experiences as students.”

Code of Conduct: Policy on Misused Classes & Misused Policies. The instructor is expected to attend every class period. Students are expected to attend every class period.

Please write a note. The instructor is expected to attend every class period. Students are expected to attend every class period.

Project Deadline: By the end of the semester, in concert with the project outcomes you should have a summary of material you may need to find. Use research, design, and analysis skills.

Other Materials (e.g., software): We will be using Microstation, Inroads, Storm A. Sanitary, AutoCAD, HCS, and others.

This course is designed to simulate a real-world engineering company environment. In that real world, there are deadlines and expectations, and the knowledge and skills you acquire in this class will have been the most work you ever had to do.

Fall 2017

CTC 490 - Capstone Design

SUNY Polytechnic Institute
<table>
<thead>
<tr>
<th>Project Development - Final Report Due</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet in Room 2159 - Final Grades Discussed</td>
<td>Dec 11</td>
</tr>
<tr>
<td>Project Presentation Rehearsal &amp; Final Revisions to Plans and Reports</td>
<td>Nov 27</td>
</tr>
<tr>
<td>Project Design Revisions - Finalize Estimate</td>
<td>Nov 20</td>
</tr>
<tr>
<td>Preliminary Design Report (90% Submit) Due</td>
<td>Nov 13</td>
</tr>
<tr>
<td>Preliminary Design Report Due - Review handed back</td>
<td>Nov 6</td>
</tr>
<tr>
<td>Project Design Concepts - Sketches and PowerPoint Templates Run-Through</td>
<td>Oct 30</td>
</tr>
<tr>
<td>Project Design</td>
<td>Oct 23</td>
</tr>
<tr>
<td>Project Design</td>
<td>Oct 16</td>
</tr>
<tr>
<td>Meet on your own during week - Project Design - don’t let off the gas!</td>
<td>Oct 9</td>
</tr>
<tr>
<td>Mid Semester Break (NO CLASS)</td>
<td>Oct 7</td>
</tr>
<tr>
<td>Project Design Concepts - Sketches and PowerPoint Templates Run-Through</td>
<td>Sept 25</td>
</tr>
<tr>
<td></td>
<td>Sept 18</td>
</tr>
<tr>
<td></td>
<td>Sept 11</td>
</tr>
<tr>
<td></td>
<td>Sept 4</td>
</tr>
<tr>
<td></td>
<td>Aug 28</td>
</tr>
</tbody>
</table>

**Project Schedule - Project Milestones**

1. August 28
   - Pick a team name (Your “Company”)
   - Pick 3 distinct design means for the 3 interchange concepts of one concept team
   - Set schedule & project milestones
   - Discuss 3 team members & responsibilities
   - Review Styles & Means of understanding
   - Project & Team Intro

2. September 4
   - Decide on what will be made for this project, the project
   - Discuss the project and determine basic options
   - Labor Day holiday (NO CLASS)

3. September 3
   - Present Design Outline and finalize design for Component Logos
   - Discuss & Prepare Design Concepts - Have Sketches Ready!

4. September 2
   - Build basic PowerPoint template
   - Present to component designers for company logos
   - Discuss how the project can be made
   - Review the project and determine basic options
   - Each design concept book the presentation
   - During week - meet on your own and build a consensus on team member roles

**Fall 2017**

SUNY Polytechnic Institute

CTC 490 - Capstone Design
The final Presentation is considered professional and appropriate dress is required. All presentations will

4. Presentations

- grammatically spelling and grammar carry an equal weight.
- be done using powerpoint, additional handouts or material to the audience is encouraged.
- the report needs to be both technically and grammatically correct. All errors in technical content
- estimate and schedule
- all calculations and plan sheets are needed.
- sections for structural, transportation, environmental, led, site development, etc.
- proposed project description and alternatives
- existing conditions
- types of contracts
- estimate summary
- then build it, it should include (but not limited to):

3. Report

- what is we are trying to have built.
- lo go, JNTJ Poly log go, capture design project execution, and any notes that make it easier to understand.
- claims to your project, name, references, scope, all references to applicable, summarize all.
- that are responsible for the project, block, consulting firm, name, drawing number.
- Plan set drawings will be printed on a common folder, the "contractor".
- CAD can be drafted or microstation. I can be a big help in all things inside and microstation.
- All plans need to be error-free, clear to the viewer, and easy to read and understand, the "contractor",
- Plan Sheets

2. Form. Hand cards are so 21st century.

- order so that others can follow your logic, and should never always be in excel or another electronic
- name of the project, block of design, project description, project calculations, and errors in technical content

1. Project Requirements:

- Method of Evaluation:

6. Have a presentation at the end.

5. Present a final report and in final time, your presentation and many things to you can. This presentation will

- review at least one team member and the report should read each report and check each plan.

4. Help out other team members if you finish your part early. Be flexible on your role(s).


2. Meet in Room 112A on days besides our Mondays to advance progress.

1. Keys to success:

Fall 2017

CTC 490 - Capstone Design
Student Services Suite 309 North Hall South of By Phone (315) 792-7170 or By email: ds@sunyacc.edu

Appointments can be scheduled with the Disability Services Office and discussed your need for accommodations. For information on accommodations for students with disabilities and medical conditions are encouraged to request these services by registering with the Disability Services Office. SUNY Poly is committed to ensuring equal access and accommodation for all its registered students in accordance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act.

Course Syllabus - DISCLOSURE STATEMENT - FALL 2017

Course Title: DISCLOSURE STATEMENT - FALL 2017

Credit: 4.0

Course Description:

"C" or better to meet requirements.

The following is a guide to the grading scheme used for the final grade. The instructor reserves the right to lower grades if necessary.

Grading:

You have a choice: A grade given to each of the team members.

Grading:

Meet on Monday during the final exam week. The grading criteria and the final grade can be made when we discuss the project after the presentation. All hands are due at the beginning of the night before the presentation begins. A grade will be assigned.

6. Due Date

5. Hand-in:

DUE: DEC. 6, 2017

Boning! Make it Fun and Exciting! AND EASY FOR THE PUBLIC TO UNDERSTAND. THIS IS NOT A

say to convey the design information clearly, creatively, engagingly and accurately. AND DON'T BE

SUNY Polytechnic Institute

CTC 490 - CAPSTONE DESIGN
The Project:
An Improved NYS Thruway Interchange for Utica

● What?
  ○ Your company has been selected to prepare a feasibility study and preliminary designs for an improved Interchange 31.

● Why?
  ○ The Utica area is served by Interstate 90 with an interchange at Genesee Street, with what has evolved into a somewhat convoluted connection to other highways such as NYS Routes 8, 12, and 49.
  ○ Interchange 31 Utica was placed and constructed at a time when the population of the area was concentrated in the City of Utica, making a quick connection from the interstate to where people lived and worked at the time. But since the 1950’s, much of the population has shifted west, north, and south. There are excellent highways to get to these areas, but utilizing them efficiently is a challenge. Some of the connections work, but most could use improvement.
  ○ Exiting from the toll booth, a vehicle travelling to Rte’s 8, 12, and 49 must first merge onto a city street, turn right at a signalized intersection, then a ramp onto Rte 49. It’s very inefficient, and the accident rate is certainly higher than what a direct, limited access highway would be.
  ○ With the coming adoption of ticketless tolling, could direct links from Rte 49 be made?
  ○ What structure could be designed as part of this project? Bridges are a bit outside of the scope of this design team’s capability, but perhaps a new, much-improved visitor’s center?

● What Design?
  ○ It’s up to your team to come up with alternatives. Direct connections to the Thruway? Completely new interchange? A new ramp and bridge to Rte 49? Something unique and “out of the box?” The choice is yours to come up with.

● How?
  ○ Utilize your design, CADD, and organizational skills to put on an insanely great presentation!
Interchange 31 Utica - General Area
Interchange 31 - Utica
No Direct Connection from Interchange to NYS Rte 49 West and Rte’s 8 and 12

Interchange 31 - Utica - Connection Issues
Interchange 31 - Close-up of Toll Booth, Connection to Rte 49/I-790 via Genesee St and Auert Ave
Interchange 31 - Connecting Directly to/from Thruway
Entering Genesee Street from Toll Booth, then to Auert Ave to get to Rte 49/I-790
Thruway & Rte 49 looking west
Looking West from Rte 49 to Possible Connection to Thruway

Looking East from Rte 49 to Possible Connection to Thruway
Looking West over Toll Booth towards possible connection to Rte 49
Possible Connection from Toll Booth over Thruway to connect to Rte 49
Various Informational Websites for the Project:

- NYSDOT: [https://www.dot.ny.gov/index](https://www.dot.ny.gov/index)
- NYSDOT Pay Item Catalog: [https://www.dot.ny.gov/pic](https://www.dot.ny.gov/pic)
- AASHTO: [http://www.transportation.org/](http://www.transportation.org/)
Instructions for Shared Drive

CTC 490 Capstone Design

Accessing the Network Drive

- Click on the Windows Explorer icon
- When the Windows Explorer window opens type \files.sunyit.edu in the filepath area
- This will open the shared drive folder
Accessing the Network Drive

- Double click on the “civil_engineering_technologies” folder
- Then “CET Capstone”

Saving a shortcut to the folder on your desktop

- Hold down the alt key and click on the folder in the corner of the file path
- Continue to hold down the alt key and drag onto the desktop
- Each time you log on this link should be available on your desktop (however, might be computer specific)
Access Shared Drive from Citrix

CTC 490 CAPSTONE DESIGN

Steps

1. Log onto Citrix
2. You should see a folder named “File Sharing”
3. Double click on the “file sharing” folder
4. The first time you will receive a pop-up. Select “Permit use”

Steps (cont.)

5. Next select the “civil_engineering_technologies” folder
6. Last select CET Capstone
People will rely on the quality of your work someday.

What you produce is a reflection on the team and the individuals that make up the team.

Always think about the quality of your work.

**Scheduling:**

- Estimating
- Time-Lapse Study
- Preparing Alternatives

**Estimating Assistance:**

- Estimating Assistance
- Preparing Alternatives

**Highway and Drainage Design:**

- Structural Design
- Traffic Study

**Structural Analysis:**

- Analysis

**Structural Design:**

- Design the main structural elements of the project. This includes determining the loadings, the size of all members, and estimating the cost of the project.

**Mark A. Amend, P.E.:**

- Project Manager
- Project Manager

**Project Manager:**

- Provides technical support and guidance to the project team.

**Team Goals & Structure:**

- Team Goals & Structure
- Team Goals & Structure

**C40 Capstone Design Fall 2017**

Date: September 2017