

**CTC 261**  
**Hydraulics**  
**Instructor: Jayne Baran**

**Time: TR 11:00-11:50 am, Kunsela B232**  
**Lab: Wed Noon-2 pm (Donovan 1155)**  
**Semester: Spring 2024**

**Course Description:**

Introductory course in applied hydraulics. Topics include fluid statics, buoyancy, open channel flow, conduit flow, culvert hydraulics and design, storm water systems. Course consists of two hours of lecture and two hours of laboratory per week. Prerequisite: CTC 224-Statics and Strength of Materials

**Credit Hours: 3**

**Learning Outcomes:**

1. Learn fundamental principles of hydraulics and apply technical concepts to the solution of problems.
2. Perform standard analysis and design using hydraulics principles.

**Required Text and Materials:**

Nathanson, Jerry A. and Schneider, Richard A., Basic Environmental Technology, Pearson, 2015, 6<sup>th</sup> edition, ISBN 13:978-0-13-284014-9

HDS-5 <https://www.fhwa.dot.gov/engineering/hydraulics/pubs/12026/hif12026.pdf>

**Office Hours and Contact Info:**

Monday 12:30-1:30 pm; Wednesday 2-4 pm  
(Or by appointment)  
Email: [jayne.baran@sunypoly.edu](mailto:jayne.baran@sunypoly.edu)

Donovan Hall 1197  
Phone: (315) 792-7542 (leave message)  
Website: <http://www.sunypoly.edu/~barans/>

**Topics and Projects:**

<b>Topics:</b>	<b>Description</b>	<b>Hrs</b>	<b>Lab or Project</b>
1	Introduction and Fluid Properties	1.0	Lab: Flow Visualization
2	Fluid Statics	4.0	Lab: Fluid Statics
3	Fundamental Hydrodynamics	2.0	
4	Open Channel Flow	2.0	Software: Flowmaster/Culvertmaster
5	Hydraulic Devices	2.0	
6	Culvert Hydraulics	2.0	Project: Culvert Replacement
7	Culvert Design	2.0	or Culvert Design
8	Stormwater Systems	3.0	
9	Stormwater Pollution Control Plans	2.0	
10	Detention Design	2.0	
	Experimental Labs	4.0	
	Software/Design Projects	16.0	
	Mid-Term/Final	4.0	

## Methods of Evaluation:

### **Homework:**

Homework shall be typed or neatly handwritten in pencil on engineering graph paper. There is no provision for make-up of late homework assignments. The homework grade will be based on the top ten of eleven homework assignments.

### **Projects/Labs:**

Applied design projects and reports emphasize teamwork and communication, as well as the application of industry-standard hydraulic, word-processing, spreadsheet, and presentation software. The need for professionalism and excellence is reinforced through the requirement for assignments to be completed on time and in a neat and well-organized manner. Several laboratory experiments and a design project will be completed in this course.

### **Examinations:**

There will be one midterm and one final exam scheduled during the semester. Students are expected to take the exams at the scheduled times. Generally, no make-up test will be given except for medical emergencies or other valid reasons for which prior approval has been obtained.

### **Attendance/Participation:**

Students are expected to attend every class period and have homework and project assignments completed and ready to present. The need for professionalism and excellence is reinforced through the requirement for assignments to be completed on time and in a neat and well-organized manner. A missed class does not excuse responsibility for the work covered in class and the homework assignments.

Homework	25%
Projects/Labs	25%
Mid-Term Exam	25%
Final Exam	25%
<b>TOTAL</b>	<b>100%</b>

## Code of Conduct:

Students are referred to the Student Handbook for SUNY Poly's current Code of Academic Conduct regarding plagiarism and other inappropriate academic activities.

## Cancellation of Classes Due to Inclement Weather or Other Emergency:

SUNY Poly has a 24-hour hotline to inform students, faculty and staff when severe winter weather prompts the cancellation of all classes. On-campus, you can call the “Snowline” by dialing ext. 7669 (“SNOW”). Off-campus, Snowline can be reached by calling 315-792-7385. Snowline cards are available at various locations on campus.

In the event of severe weather, Snowline will announce only the cancellation of ALL classes. The cancellation of all classes will also be posted online, at sunypoly.edu, and will be broadcast on radio and television stations in the Utica-Rome, Syracuse and Albany areas. Individual class cancellations are always available at <https://webapp.sunypoly.edu/forms/cancelled-classes/>

In the event that classes go online, Blackboard Collaborate will be used

## Accommodations for Students with Disabilities:

**Accommodations for Students with Disabilities:** Your access in this course is important to me. In compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act, SUNY Polytechnic Institute is committed to ensuring comprehensive educational access and accommodations for all registered students seeking access to meet course requirements and fully participate in programs and activities. Students with documented disabilities or medical conditions are encouraged to request these services by contacting Student Accessibility Services (SAS) or filling out the [Disability Declaration form](#). Please note, you must provide documentation to SAS and meet with staff *before* receiving accommodations. Please do this as early as possible so that we have adequate time to arrange your approved academic accommodation/s. Once SAS creates your accommodation plan, it is your responsibility to provide me a copy of the accommodation plan. If you experience any access barriers in this course, such as with printed content, graphics, online materials, etc., reach out to me or Accessibility Services right away. For information related to these services or to schedule an appointment, please contact the SAS using the information provided below.

### **Office of Student Accessibility Services**

[SAS@sunypoly.edu](mailto:SAS@sunypoly.edu)

(315) 792-7310

Peter J. Cayan Library, L112