CE 299L – HYDRAULICS LABORATORY

Type (check one): Required: X Elective: _____

2005-2006 Catalog Data: CE 299l. Hydraulics Laboratory. Laboratory experimental work to support theory covered in CE 299. Corequisite: CE 299. Offered in the Spring semester. *One semester; one credit.*

Prerequisites: None

Co-Requisites: CE 299

Textbook: Young, D.F., Munson, B.R., Okiishi, T.H., *A Brief Introduction to Fluid Mechanics*, 3rd edition, John Wiley, 2004.

Other Required Materials: Dr. L. Lin, Hydraulic Manual, CBU, 2002

Other References: None

Instructor: Dr. L. Yu Lin, Professor of Civil and Environmental Engineering

Course Objectives: The principal objective of the laboratory phase of this course is to become knowledgeable with the principles that are inherent in the hydraulics field (both design and operation).

Prerequisites by Topics: None

Topics:

1. Density, specific weight, specific gravity
2. Pressure and manometer
3. Hydrostatics – center of pressure
4. Continuity equation/bernoulli's theorem
5. Pipe system – in series and in parallel
6. Pipe friction losses and fitting losses
7. Hardy-cross method (computer programming)
8. Pump
9. Open channel and weirs
10. Manning's roughness coefficient

Class Schedule: One two-and-a-half- hour session per week

Prepared by: Dr. L. Yu Lin, P.E. **Date:** January, 2005

PROFESSIONAL COMPONENT:
CE 299L – HYDRAULICS LABORATORY

Category (check one)	____ Math/Basic Science __X__ Engineering ____ General Education ____ Other
Design (check one)	____ Significant ____ Some __X__ None
Realistic Constraints (check all that apply)	____ Economic __X__ Environmental ____ Sustainability ____ Manufacturability ____ Ethical ____ Health & Safety ____ Social ____ Political

Relationship to Program Outcomes:

Check all that apply:

__X__ (a) an ability to apply knowledge of mathematics, science, and engineering
__X__ (b) an ability to design and conduct experiments, as well as to analyze and interpret data
____ (c) an ability to design a system, component, or process to meet desired needs
____ (d) an ability to function on multi-disciplinary teams
__X__ (e) an ability to identify, formulate, and solve engineering problems
____ (f) an understanding of professional and ethical responsibility
__X__ (g) an ability to communicate effectively
____ (h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
____ (i) a recognition of the need for and an ability to engage in life-long learning
____ (j) a knowledge of contemporary issues
__X__ (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice