1. Course: ENCP 360 - Fluid Mechanics
2. Credits and Contact Hours: 3 credits, 3 lecture hours per week
3. Instructor: Varies
4. Example Textbook: Munson, B.R., Young, D.F., Okiishi, T.H., Gerhart, P.M., Gerhart, A.L., Hochstein, J.I. (2016) Fundamentals of Fluid Mechanics: 8th Edition, John Wiley & Sons, ISBN#: 978-1-118-84713-8.
5. Course Information
   1. Catalog Description: Basic principles of fluid statics and dynamics; conservation laws of mass, momentum, and energy developed in the context of the control volume formulation; application of dimensional analysis, dynamic similitude, steady-state laminar viscous flow, and turbulent flow.
   2. Prerequisites: D or better in ENCP 200 or ECIV 200 or EMCH 200 or BMEN 212 or BMEN 260 or BMEN 263 or ECHE 300; D or better in PHYS 211.
   3. Substitute for ECHE 320 or ECIV 360 or EMCH 360
6. Course Goals
   1. Learning Outcomes. Students will be able to:
      1. Use conservation principles (mass, momentum, energy) to analyze a variety of problems involving fluid flow.
      2. Apply the principles of fluid statics and dynamics for computing forces and analyzing flow measuring devices.
      3. Use dimensional analysis for organization and rationalization of experimental data and use the similitude principle for the design of scale physical model.
      4. Use energy principles to analyze open and closed conduit flow problems.
   2. Learning Outcomes (LOs) relation to ABET EAC Criterion 3 Student Outcomes

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| ABET EAC Criterion 3 Student Outcomes | LO1 | LO2 | L03 | L04 |
| an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. | X | X | X | X |

1. Topics Covered

* Introduction
* Fluid Properties
* Fluid Statics
* Fluid Dynamics
* Bernoulli’s Theorem
* Kinematics of Flow
* Fluid in Motion
* Flow Types
* Reynolds Transport Theorem
* Conservation of Mass, Momentum and Energy
* Application of Conservation Laws
* Similitude, Dimensional Analysis and Modeling
* Viscous Flow
* Pipe Flow
* Open-Channel Flow

1. Document History

Created April 5, 2022