MAE 331 – Fluid Mechanics  
Spring 2020  
Sec 004 – CRN: 13295  

Online Lecture MWF 3-3:50 pm using the zoom.us online meeting platform  
(Available for download at https://wvu.zoom.us. However, you do not need to download the app. Your instructor will email you the instructions on how to connect)

- **Text**  

- **Course Description**  
  Basic governing equations for fluid flow are derived and used to solve engineering problems. Fluid properties, fluid statics, Bernoulli equation, mass, momentum, and energy conservation, dimensional analysis, internal and external flow, and laminar and turbulent flow are covered.

- **PRE-REQUISIT**: Must have passed MATH 251 with a grade of C or better and MAE 241, Statics

- **Course Instructor**: Dr. Cosmin Dumitrescu, MAE Department  
  Contact Information: 304-293-3330; cedumitrescu@mix.wvu.edu or cedumitrescu@mail.wvu.edu  
  Office Hours - MWF 4 - 4:50pm – online using the zoom.us online meeting platform. Your instructor will email you the instructions – Note: The instructor will appreciate if you will let him know by email before the start of the office hour if you want to communicate with him during the office hour.

  Teaching Assistants: Katherine Reid (krreid@mix.wvu.edu) and Reuel Zinn(rszinn@mix.wvu.edu)  
  Please contact Teaching Assistants directly for their office hours

- **Grading**  
  The final grade in the course will be assigned on the following basis (subject to change):  
  - Homework 5%  
  - Project 5%  
  - Quizzes 10%  
  - Exam 1 25%  
  - Exam 2 25%  
  - Final Exam (comprehensive) 30%  

  The letter grade will be based on a straight 90-80-70-60… scale.  
  **NOTE**: a final course score of 59.4% and below is a letter grade of “F”, whether you are graduating or not, have a job lined up or not. **No exceptions.**

- **Online Class Attendance Policy**  
  Class attendance contributes significantly to academic success. Students who attend classes regularly tend to earn higher grades and have higher passing rates in courses. Students are responsible for missed work and for assignments given during absences. For anticipated university-approved absences or special circumstances the student must seek instructor’s approval.
ONLINE CLASS RULES:

1. Make sure you mute your microphone and turn off your camera. This will reduce the demand on everybody’s internet connection.
2. Use the chat feature to ask questions. You can send the question to everyone or (privately) to the Host (i.e., to your instructor), if you feel more comfortable doing so. I will stop my lecture from time to time to check and answer your questions. I will also use the chat feature to send links to any material or website if needed, in addition to posting material online.
3. Please be considerate to your colleagues and do not ask questions that do not relate to the class. I will dedicate a few minutes at the end of class for questions related to assignments and else.
4. Use the online Office Hour meeting for particular questions related to assignments or else. I will create Breakout rooms to facilitate one-to-one or group discussions. I will also answer emails.
5. Please be respectful of others in the class. Some of us will struggle to participate due to bad connections or similar so let’s try to make the most of our time together.
6. Assignments must be submitted ONLINE at the time they are due, using the method mentioned in the assignment (i.e., WebWork, ecampus, Google Drive, etc.).
7. Late assignments will be heavily penalized 10% per day.
8. Late assignments will not be accepted after solutions are discussed in class, posted online, or after one week past due.
9. All assignment problems must be presented on individual pages on plain white paper or engineering pad paper (each page must have SECTION, DATE, and NAME). Make sure your assignment PDF copy is legible on a computer screen.
10. Missing an exam for an unacceptable reason* will result in a Zero grade for that exam.
11. Completeness, neatness and legibility in assignments, exams and projects are mandatory. Sloppiness will be penalized at instructor’s discretion.

* Students who have University sanctioned activities or military obligations must provide advance-notice if exam dates conflict with those activities for exam make-up purposes.

• COURSE LEARNING OBJECTIVES MAPPING

<table>
<thead>
<tr>
<th>Course Learning Objective</th>
<th>ABET Outcomes*</th>
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<tbody>
<tr>
<td>Develop a logical approach to solving engineering problems in fluid statics and fluid dynamics</td>
<td>1</td>
</tr>
<tr>
<td>Be able to detect the types of problems that can be solved in a simple analytic process</td>
<td>1</td>
</tr>
<tr>
<td>Apply knowledge from mathematics, physics, and statics to solve fluid flow problems</td>
<td>1</td>
</tr>
<tr>
<td>Learn to apply assumptions and simplifications in the solution to various fluid problems</td>
<td>1</td>
</tr>
<tr>
<td>Be aware of ethical and professional responsibilities in the engineering field and make informed judgements</td>
<td>4</td>
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</tbody>
</table>

This course effectively supports more ABET Outcomes than those shown in this table but will provide evidence to support the assessment of ABET outcomes 1 and 4.
Outcome 1. An ability to apply knowledge of mathematics, science, and engineering;
Outcome 4. Ability to recognize ethical and professional responsibilities in engineering;

Important Dates
<table>
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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Monday, January 13</td>
<td>On Campus First Day of Classes</td>
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<tr>
<td>Friday, January 17</td>
<td>Last Day to Register, Add New Courses, Make Section Changes,</td>
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<td></td>
<td>Change Pass/Fail and Audit</td>
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<tr>
<td>Monday, January 20</td>
<td>Martin Luther King Jr. Day Recess: University Closed</td>
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<tr>
<td>Friday, March 6 by noon</td>
<td>Mid-Check Grades Due</td>
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<tr>
<td>Saturday, March 14 through</td>
<td>Spring Recess</td>
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<td>Sunday, March 29</td>
<td></td>
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<tr>
<td>Friday, April 10</td>
<td>Spring Holiday: University Closed</td>
</tr>
<tr>
<td>Friday, April 24</td>
<td>Last Day to Drop a Class and Last Day to Withdraw from the University</td>
</tr>
<tr>
<td>Friday, May 1</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td>Monday, May 4 through Friday, May 8</td>
<td>Final Exam Week</td>
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• Teaching Philosophy

1. As the instructor, I will do everything possible to help you learn and understand the material, but you must do your part. The student is ultimately responsible for actually learning the material.

2. As always, it is best if you can read the book material prior to lecture. But equally important is to ask questions during lecture. If I get no questions, then I have to assume the material is easily understood and I can move onto the next topic. ASK QUESTIONS

3. In my course, a grade of “C” means that you have gained an average knowledge of the topic material and have a grasp of only the basic concepts. It is not a trivial matter to obtain an “A” in my course, but by the same token, it is also difficult to get an “F”.

4. If you have a question on material, the textbook, homework, how I graded, and life in general, come and see me. I am always open to answering your questions or meeting with you to discuss your questions and concerns.

5. I cannot stress enough the importance of doing the work yourself – this includes reading, homework, projects etc. For example, to prepare for an exam, you really need to work through the homework problems on your own. This is the only way that you will train your brain to look at a new problem and be able to answer the questions: a) what is it asking, b) what relevant theory do I need to apply, c) what is a representative system drawing for this problem, d) what assumptions and simplifications can I make, e) what local, initial or boundary condition information do I need to solve, f) what are the steps to solve this problem. This is what will prepare you for the exam. Looking/copying a solution of the homework problem does not properly train your brain for engineering analysis.
STATEMENT ON ACADEMIC INTEGRITY
The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, instructors will enforce rigorous standards of academic integrity in all aspects and assignments of their courses. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the West Virginia University Academic Standards Policy (http://catalog.wvu.edu/undergraduate/coursecreditstermsclassification). Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see your instructor before the assignment is due to discuss the matter. In addition, the Statler Policy of Academic Integrity will be used to address instances of academic dishonesty according to the following table:

STATLER POLICY OF ACADEMIC INTEGRITY
(Approved by the Statler College Academic Standards Committee, 28 March 2019)

<table>
<thead>
<tr>
<th>Case</th>
<th>Violation</th>
<th>Penalty</th>
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</table>
| 1    | Cheating or plagiarism on minor course element (e.g., quiz, weekly lab report, homework as specified in the syllabus) | Report of academic dishonesty  
Grade of zero on the entire minor course element  
Possible one-letter reduction in final grade |
| 2    | Cheating or plagiarism on a major course element (e.g., exam, project) | Report of academic dishonesty  
Grade of zero on the entire major course element  
Possible additional one-letter reduction in final grade  
Possible UF† recommendation  
Possible exclusion from further participation in class |
| 3    | Collusion on major course element | Report of academic dishonesty  
Exclusion from further participation in class  
Failure in the course  
Recommendation for UF† |
| 4    | Other (document alteration, tampering with records, etc.) | Report of academic dishonesty  
Grade of zero on the entire major course element  
Possible additional one-letter reduction in final grade  
Possible failure in the course  
Possible exclusion from further participation in class  
Possible UF† recommendation |

* Dismissal from Statler College is permanent for Academic Integrity violations. Student conduct violations can be considered in dismissal.  
† UF - Unforgivable F Grade; cannot be replaced under D-F repeat policy.  
‡ Separable sanctions (e.g., dismissal from Statler College, suspension, or expulsion from WVU) will be recommended for aggravated or second AI offenses.  
§ Warning letters may be issued from the Statler College or the WVU Office of Student Conduct.  
Sanctions will be assessed at the instructor and at the college/university levels. Additional sanctions may be assigned at the level of the instructor, college, and/or university.  
FORBIDDEN on Exams and Quizzes: The use of programmable calculators or smart devices (including smart-phones, smart watches, tablets, cameras, wearable devices, etc.) is prohibited unless specifically indicated by the instructor.

INCLUSIVITY STATEMENT:
The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in your classes, please advise your instructors and make appropriate arrangements with the Office of Accessibility Services. (https://accessibilitieservices.wvu.edu/)
The Statler College Smart Device Policy: “The use of programmable calculators or smart devices (including smart-phones, smart watches, tablets, cameras, wearable devices, etc.) on exams and quizzes prohibited unless specifically indicated by the instructor.”