

# FLUIDS MECH-322 FALL 2019

## ANONYMOUS CLASS ASSESSMENT

Often there is discussion regarding the development of independent thinkers and how to achieve? The development of the independent mindset is never achieved by providing all the questions and all the answers! All researchers will agree that at the beginning of any research endeavor that one will never know all the problems and will never have all the answers. But the hallmark of the independent mind is having a problem solving mentality, having the ability to self-learn, having the ability to extrapolate data and to form conclusion, and having the fortitude to be unafraid to seek answers from multiple independent sources. Academic institutions at all levels have a formidable task for the 21<sup>st</sup> Century to transform student learners from an environment where “likes” and “dislikes” are more important than learning and demonstrated knowledge. Institutions that are successful will provide the next generation of independent thinkers that will face significant challenges in the next 20 years, considering the massive rate of technological advancement.

In the next 20 years, the world will see a cure for Cancer, will reach out and will start to colonize other planetary worlds, will discover new materials that will forever change our understanding of physics, and will be able to see further back into the past than ever imagined and will begin to understand the origins of “everything”. Academic leaders are faced with the challenge of teaching materials and concepts that have not changed for 100 years to prepare students to solve problems that we can’t even imagine today, and to be able to develop tools based upon on concepts that have not even been conceived. We live in a daunting academic environment, and the only solution is to focus on student development that embraces discovery and inquiry, and to develop a mindset that “rejects” being told all the answers and to develop a mindset that expects to be challenged and to understand that it’s “ok” to not know the answers. Rather the most important skill that we can impart to students is to develop an understanding of the “process” to find and to understand answers to unknown problems and questions. It will be these students and these institutions that will contribute to the long term survival and expansion of human kind.

Please answer the following briefly:

1. Engineering design is the execution of applied physics for the development of technical solutions for challenges facing the survival of mankind; and, the technical communications of those solutions. Please comment on if you think MECH-322 Fluids Mechanics and parametric design has enhanced your skills and ability as a student, and as a future engineering professional, relative to engineering design thought and technical communications. Why or Why Not? Thank you.
2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322 Fluid Mechanics?



## ENGINEERING DESIGN & PARAMETRIC THINKING

1. MECH 322 has enhanced my ability to solve any engineering problem as I've learned to apply a mindset and process to tackle any topic.
2. I believe that MECH-322 helped me to realize that I was using my own road map for other classes, but this class helped me consolidate my thinking and used a road map for all problems.
3. Yes, it allowed me to better break apart & understand what is happening in a system.
4. Process of thinking has changed.
5. I believe these concepts have enhanced my ability and skills. I believe this because it has helped me understand and solve problems where an equation is not simply given, and I have to create my own.
6. Yes. It has made me think of problems more as a process then finding individual solutions.
7. It has helped my skills. The method can be applied to any question no matter the geometry.
8. I do think that MECH 322 has enhanced my skills and abilities as a student and engineer because it has taught me to step back and see the bigger picture through following and understanding universal and parametric concepts.
9. Thinking of a problem step by step ensures that you are following the solution to the end with the correct units.
10. This class has definitely increased my understanding and skills as a student.
11. I do feel that this class has helped develop my skills. It has definitely been the hardest class at Kettering and challenged my abilities.
12. Although the problem may seem complex and difficult to solve, applying the equations that we know will help solve easily.
13. This class has helped me greatly with my ability to fully think through a situation. What do I have, what do I need?

14. This class helped me take the time to observe and understand a system or situation before starting. This allows me to plan a better approach to the problem.
15. Fluids has definitely enhanced my problem solving skills and abilities, as it teaches a road map that can be applied to ANY problem.
16. This class has made me view & understand the entire problem before diving into it. This will help me better analyze problems in the workplace.
17. Fluids has enhanced my skills of making sure that I am correctly using the equations given to me not just as equations, but as physical relationships.

## FUTURE STUDENTS ADVICE

1. Follow the road map and practice problems to be successful.
2. Follow the Road Map, it is the only way.
3. Do the homework & practice the road map.
4. Learn Berry's Road Map.
5. Understand and to do all the homework.
6. Attend all of the classes and study quiz problems and class examples for the tests.
7. Work Hard and Practice.
8. Practice a lot. It helped me succeed in MECH 322. Do problems from the book and from the past test and quizzes.
9. Don't get tripped up on different geometries, know the steps for any shape and situation.
10. To do well in this class, prepare to be able to take 4 hr exam in 2.5 hours. Ask lots of questions. Make sure you really, really understand to do well.
11. Study do homework. Go ask for help and follow the road map.
12. Work through thinks in variables, then you will see hidden cancellations and understand more.
13. Start practicing earlier rather than later.
14. Pay attention in class, do the homework, and take the time to really understand the problems.
15. Start off strong and read the 1<sup>st</sup> Chapter. Go all out before quiz to see where you are at.
16. Follow the roadmap and know how your units and their conversions are in order to do well.

## SEPARATE FROM EXAM FIRST

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- 1) I do think that MECH 322 has enhanced my skills and ability as a student and engineer because it has taught me to step back and see the bigger picture through following and understanding universal and parametric concepts.
- 2) Practice. A lot. It helped me succeed in MECH 322. Do problems from the book and from the past tests and quizzes.

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Logan Snider

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2.) Start off strong & read the 1<sup>st</sup> chapter! Go All out before 1<sup>st</sup> Quiz to see where you're at

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2) Pay attention in class, do the homework, and take the time to really understand the problems.

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Although the problem may seem complex and difficult to solve, applying the equations that we know will help solve easily.

Yes, I didn't know  
much about the behavior  
about fluids beforehand.

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2. Study, do problems, go ask for help and follow the road map.

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Often there is discussion regarding the development of independent thinkers and how to achieve? The development of the independent mindset is never achieved by providing all the questions and all the answers! All researchers will agree that at the beginning of any research endeavor that one will never know all the problems and will never have all the answers. But the hallmark of the independent mind is having a problem solving mentality, having the ability to self-learn, having the ability to extrapolate data and to form conclusion, and having the fortitude to be unafraid to seek answers from multiple independent sources. Academic institutions at all levels have a formidable task for the 21<sup>st</sup> Century to transform student learners from an environment where "likes" and "dislikes" are more important than learning and demonstrated knowledge. Institutions that are successful will provide the next generation of independent thinkers that will face significant challenges in the next 20 years, considering the massive rate of technological advancement.

In the next 20 years, the world will see a cure for Cancer, will reach out and will start to colonize other planetary worlds, will discover new materials that will forever change our understanding of physics, and will be able to see further back into the past than ever imagined and will begin to understand the origins of "everything". Academic leaders are faced with the challenge of teaching materials and concepts that have not changed for 100 years to prepare students to solve problems that we can't even imagine today, and to be able to develop tools based upon on concepts that have not even been conceived. We live in a daunting academic environment, and the only solution is to focus on student development that embraces discovery and inquiry, and to develop a mindset that "rejects" being told all the answers and to develop a mindset that expects to be challenged and to understand that it's "ok" to not know the answers. Rather the most important skill that we can impart to students is to develop an understanding of the "process" to find and to understand answers to unknown problems and questions. It will be these students and these institutions that will contribute to the long term survival and expansion of human kind.

Please answer the following briefly:

1. Engineering design is the execution of applied physics for the development of technical solutions for challenges facing the survival of mankind; and, the technical communications of those solutions. Please comment on if you think MECH-322 Fluid Mechanics and parametric design has enhanced your skills and ability as a student, and as a future engineering professional, relative to engineering design thought and technical communications. Why or Why Not? Thank you.
2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322 Fluid Mechanics?

1. Process of thinking has changed

2. Learn berry's Road Map

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I do believe these concepts have enhanced my ability and skills, I believe this because it has helped me understand and solve problems where an equation is not simply given and I have to create my own.  
Advice to future students is to understand and do all the homework.



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1. yes, it has made me think of problems more as a process than finding individual solutions
2. attend all of the classes and study quiz questions and class examples for the tests.

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1) This class has helped me greatly with my ability to fully think through a situation. What do I have, what do I need?

2) Work through things in Variables, then you will see hidden cancellations and understand more.

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1) This class has helped me take the time to observe and understand a system or situation before starting. This allows me to plan a better approach to the problem.  
2) Start practicing earlier rather than later.

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*It has helped my skills, the method can be applied to any question no matter the geometry. Work hard, and practice.*

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- 1). I believe that Mech-322 help me realize that I was using my own road map for other Classes but this class helped me consolodate my thinking and use a road map for all Problems.
- 2). Follow the Road Map, it is the only way.