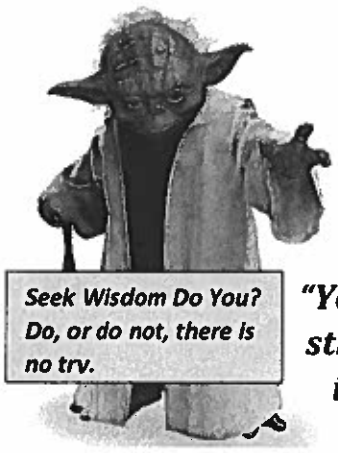
MECH-420 HEAT TRANSFER

SPRING 2022



"..enhanced skills"

"Yes, the two courses challenged me and brought me a new level of stress; however, I have never learned to an understanding as I have in those courses. "

"Work ethic. This was required to do well in the course and will translate to my full-time job."

"How to deal with tough, partially incomplete problems and how to communicate effectively. "

"You can't cheat the path. You have to put in the work 100%. No short cuts."

"Persistence. If I keep trying, I can learn what I want and need to in engineering,"

"Parametric thought has enhanced my skills because it provides me a step-by-step process to solving any problem related to heat transfer."

"Yes, this course is a challenge which pushes you to see the big picture and understand fundamental principals about how the physics works, allowing you to draw relationships and articulate your thought process through the entire problem."

MECH-322/420 ANONYMOUS Q/A

SPRING 2022

Considering there is no opportunity to have me as a professor in the future, your comments are requested below to share with future MECH-322/420 students. Your comments are 100% **ANONYMOUS** and are submitted without names or email.

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 conclusions, 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 21st 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 25 years, the world we will see a cure for Cancer, we will reach out and will start to colonize other planetary worlds, we will discover new materials that will forever change our understanding of physics, we will start to control and hopefully reverse the ravages of global warming and climate change, we will be able to see further back into the past than ever imagined and we 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 and are challenged to prepare students to solve problems that we cannot even imagine today, and to prepare students to develop and to use tools based upon 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 and roadmap"* to find and to understand answers to unknown problems and questions, that we can only dream about today. It will be these students and these institutions that will contribute to the long-term survival and the universal expansion of humankind.

Thanks for completing and emailing back. Have a great educational and industrial career. Thank you for your time.

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-322/420 Fluids Mechanics/Heat Transfer and a focus on parametric thought 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.
    A. Yes, this course is a challenge which pushes you to see the big picture and understand fundamental principals about how the physics works, allowing you to draw relationships and articulate your thought process through the entire problem.
    B. Yes because I can combine different known values to find unknowns.
    C. I think the focus on parametric equations is critical to understanding the math to ensure you aren't just plugging in random numbers.
    D. Yes I believe this heat transfer class has improved my technical understanding because I did not think about how heat transfer is the only reason engineers are having a hard time with building new technologies.
    E. Yes, this course has "helped" my engineering thought process. Thinking through problems parametrically by following the road map is helpful for gaining a deeper understanding.
    F. Both fluids and heat transfer are challenging subjects. They do require a new level of dynamic parametric analysis students haven't seen before. Upon studying both of these classes students will be able to walk away with toolsets and knowledge to solve tough problems.
    G. Yes, the two courses challenged me and brought me a new level of stress; however, I have never learned to an understanding as I have in those courses.
    H. I think it has enhanced my ability as an engineer as it has taught me to look at multiple variables affectively a problem at once.
    I. Yes, using excel for parametric design is a powerful tool.
    J. Personally, I think it is confusing at first w/only using variables but after a few examples it actually does help.
    K. Has enhanced my studying habits. In both fluids last term, and heat transfer this term I studied for longer than any other classes at Kettering.
    L. Parametric thought has enhanced my skills because it provides me a step-by-step process to solving any problem related to heat transfer.
    M. Yes because it helps to learn the transfer of energy in real life applications.
    N. I do think MECH 420 has enhanced my skills because I am able to solve more complex problems than I was before.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?
    A. You need to practice often and spend time visualizing the problem to know the right road map for the geometry. There are similar concepts and trigger words which will get you on the right problem-solving path.
    B. Practice previous material you are weak on.
    C. Just do the work, understand the math. There is no way around it.
    D. I would suggest students to do all the homework and go back and RE-DO their quizzes to fully understand their mistakes.
    E. Follow the road map and think through the geometry and engineering.
    F. Study for 8-hours in accordance with each lecture.
    G. Do not get behind. I will make it 10X harder for you to catch up especially when everything builds off of each other.
    H. Do the homework and study. The material is difficult but manageable with practice.
    I. Start the homework early before the first class every week.
    J. To figure out the road map and write down the steps separately.
    K. Get ahead on studying/HW problems early in the term.
    L. Read through the PowerPoints on your own time until you completely understand the equations and roadmap.
    M. Study, do homework.
    N. Do as many problems as you can and re-do quizzes before exams.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?
    A. Try to study with other students and teach the problems to each other. Need to re-write the roadmaps from the notes in you ow words to fully grasp them.
    B. Take time to learn it.
    C. Pay attention, take good notes, and understand the math.
    D. I would advise students to work with others on homework to build a solid understanding of the problems given.
    E. Follow the path and you will succeed.
    F. There is no excuse for laziness; you have to find the time to study, regardless of stresses or personal circumstances. If you can't find study, you don't belong here.
    G. Figure out when study tools help you early on. For example, flash cards for DEFINITIONS. You must memorize and understand them.
    H. Go to lecture and focus on how the equations can guide you.
    I. Start homework early.
    J. Work with a group on homework/run ideas by each other.
    K. Review the notes before coming to class. Helps to understand the lecture.
    L. Follow the path.
    M. Study do homework, ask for help.
    N. Do as many problems as you can and use study aids.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?
    A. I feel like I made great growth and understood far more through the 11 weeks than I could ever imagined. I really did learn and was forced to see the big picture.
    B. I feel like it has definitely been enhanced, both learning heat transfer in the first place, and enhancing topics from thermos and fluids.
    C. Yes my understanding of the subject was enhanced! I did not know much about heat transfer at all before this class.
    D. Yes, I have a deeper knowledge of heat transfer.
    E. A lot, because I learned.
    F. Absolutely, I have grown to know more than I ever thought I would or could.
    G. I think it was because the course pushed me harder than I thought I could do.
    H. Yes, I now have an understanding of the building blocks of heat transfer.
    I. Yes, I had little to no knowledge on the subject material.
    J. Was very enhanced I believe I could solve real world heat transfer problems given the tools.
    K. Yes, although this course was difficult, the struggles and lessons learned helped me grow and understand better.
    L. Yes because a lot of learning and understanding was achieved.
    M. Yes I do, because I can now solve problems that I could never have before.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?
    A. Unit analysis to check your work. The math does not lie and if the units are correct you ae well on your way to solve the problem.
    B. Working with variables and units rather than numbers.
    C. Check your units. They will guide you through the problem and show your mistakes.
    D. Think through the problem and be sure the solution is logical.
    E. How to deal with tough, partially incomplete problems and how to communicate effectively.
    F. You can't cheat the path. You have to put in the work 100%. No short cuts.
    G. Persistence. If I keep trying, I can learn what I want and need to in engineering,
    H. Seeking answers independently of the classroom.
    I. Critical thinking and figuring out the path to sole a problem.
    J. Work ethic. This was required to do well in the course and will translate to my full-time job.
    K. Being able to look at a given problem and knowing how to solve it.
    L. To keep learning studying hard and always something new to learn.
    M. Solving HT problems but also preserving over when I feel I am not doing well in a class.

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2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

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I do think Mech 420 has enhanced my skills because I am able to solve more complex problems than I was before.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Do as many homeworks as you can, and redo quizzes before exams.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Same as previous, but also use study aids too.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Yes I do, because I can now solve problems that I would never have before.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

Solving HT problems, but also persevering even when I feel I am not doing too well in a class.

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Yes because it helps to learn the ~~the~~ transfer of energy in real life applications

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Study do homework

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Study do homework ask for help

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Yes because a lot of learning and understand was achieved.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

To keep learning studying hard and always something new to learn.

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Parametric thought has enhanced my skills because it provides me a step by step process to solving any problem related to heat transfer

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Read through the powerpoints on your own time until you completely understand the equations and roadmap.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Follow the path

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Yes, although this course was difficult, the struggles and lessons learned helped me grow and understand better.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

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Has enhanced my studying habbits. In both fluids last term, and Heat Transfer this term I studied for longer than any other classes at Kettering.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Get ahead on studying / HW problems early in the term.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Reveiw the notes before coming to class. Helps to understand the lecture.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Was very enhanced. I believe I could solve real world heat transfer problems given the tools.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

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Personally, I think it is confusing at first w/ only using variables but after a few examples it actually does help.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

To figure out the roadmap and write down the steps separately.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Work with a group on homework / run ideas by each other.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why? Yes, I had little to no knowledge on the subject material

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why? Critical thinking and figuring out the path to solve a problem

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Yes, using excel for parametric design is a powerful tool

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Start the homework early before the first class every week

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Start HW early

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Yes, I now have an understanding of the building blocks of heat transfer

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

Seeking answers independently of the classroom

MECH-322/420 ANONYMOUS Q/A

SPRING 2022

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I think it has enhanced my ability as an engineer as it has taught me to look at multiple variables affecting a problem at once.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Do the homework and study. The material is difficult but managable with practice.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Go to lecture and focus on how the equations can guide you.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why? I think it was because the course pushed me harder than I thought I could do.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

Persistence. If I keep trying, I can learn what I want and need to in engineering.

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Yes, the two courses challenged me and brought me a new level of stress; however, I have never learned to an understanding as I have in those courses.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

DO NOT get behind. It will make it 10x harder for you to catch back up especially when everything builds off of eachother.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Figure out what study tools help you early on. For example, flashcards for Definitions. You must memorize & understand them.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Absolutely, I have grown to know more than I ever thought I would or could

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

You can't cheat the path, you have to put in the work 100%. No shortcuts.

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Both fluids and heat transfer are challenging subjects. They do require a new level of dynamic parametric analysis students haven't seen before. Upon suddisy both of these classes students will be able to walk away with the toolset and knowledge to solve the toughest problems.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Study for 8 hours in accordance with each lecture.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

There are no excuse for lazyness, you have to spend the time to study, Regardless of illnesses or personal circumstances. If you can't study you don't belong here.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

A lot, because I learned

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

How to deal with tough, partially incomplete problems and how to communicate effectively.

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Yes, this course has my engineering thought process. Thinking through problems parametrically by following the road map is helpful for gaining a deeper understanding.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Follow the road map and think through the geometry and engineering.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Follow the path and you will succeed

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Yes, I have a deeper knowledge of heat transfer.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

Think through the problem and be sure the solution is logical.

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Yes I believe this heat transfer class has improved my technical understanding because I did not think about how heat transfer is the only reason engineers are having a hard time with building new technologies

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

I would suggest students to do all of the homework and go back and redo their quizes to fully understand their mistakes

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

I would advise students to work with others on homework to build a solid understanding of the problems given.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

Yes my understanding of the subject was enhanced! I did not know much about heat transfer at all before this class

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

check your units. they will guide you through the problem and show your mistakes

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I think the focus on parametric equations is critical to understanding the math to ensure you aren't just plugging in random numbers.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Just do the work, understand the math. There is no way around it.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Pay attention, take good notes and understand the math

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

I feel like it has definitely been enhanced, both learning Heat Trasfer in the first place, and enhancing topics from thermo and fluids.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

Working with variables and units rather than numbers.

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Yes because I can combine different known values to find unknowns.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

Practice previous material you are weak on.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Take time to learn it.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

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Yes, this course is a challenge which pushes you to see the big picture and understand fundamental principles about how the physics work, allowing you to draw relationships and articulate your thought process through the entire problem.

2. What suggestion would you provide to future students to enhance their understanding and performance within ME-322/420 Fluid Mechanics/Heat Transfer?

You need to practice often and spend time visualizing the problem to know the right roadmap for the geometry. There are many similar concepts and trigger words which will get you on the right problem solving path.

3. What advice would you provide to MECH-322/420 Fluid/Heat Transfer students in Dr. Berry's class to enhance their success and performance?

Try to study with other students and teach the problems to each other. Need to rewrite the roadmaps from the notes in your own words to fully grasp them.

4. Considering that you passed the course, do you feel that your understanding of the subject material was enhanced and why?

I feel like I made great growth and understood far more through the 11 weeks than I could have ever imagined. I really did learn and was forced to see the big picture.

5. What was the single most important skill set taught that will hopefully assist your career as a practicing engineer and why?

Unit analysis to check your work. The math does not lie and if the units are correct you are well on your way to solve the problem.

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