



### ***Course Mechanics online***

- Homework:
  - Homework (assigned via elearning) has to be submitted to eLearning.
  - Homework solutions will have to be a pdf document. Handwritten solutions can be scanned using the app of your choice but before you upload ensure that the document is **readable**.
  - Homework will not be accepted after the due date.
  - **On the last page of each HW solution set, the following honesty statement with your signature must be included.**  
I attest that the work I am submitting is my own and include only those collaborations permitted by the instructor. I further attest that I have not copied these solutions from other sources.  

Signature \_\_\_\_\_
- II Midterm test/Final Exam:
  - II Midterm test and the Final Exam will be conducted online.
  - Specific instructions via eLearning will be provided on how to take either of them.

### ***Other details, procedures and policies***

Due to a pandemic, this course has switched to an online format. For your review the syllabus handed to you earlier is given below. Policies regarding academic honesty, course learning outcomes and other information remains the same. Students who need any special accommodations are encouraged to contact the instructor directly.

### ***Course Details***

Course Number: **MECH – 7393.001**  
Course Discipline: **Mechanical Engineering**  
Lecture Time: **MW 1:00 pm – 2:15 pm**  
Lecture Room: **ECSN 2.120**

### ***Instructor***

Name: **P.L.Stephan Thamban**  
Email: [stephan@utdallas.edu](mailto:stephan@utdallas.edu)  
Phone: 972-883-4687  
Office: ECSW 2.150E  
Office hours: R 10:15 am- 11:15 am

### **Required Textbook**

Advanced Engineering Mathematics, 2<sup>nd</sup> edition, M. D. Greenberg, Prentice Hall, New Jersey, ISBN-13: 978-0133214314

### ***Course Description***

In this course, which is the second part of a 1-year long Advanced Mathematics course, we will study a wide range of mathematical methods to solve engineering problems. The topics of this course (part II) includes: power/Fourier series, Laplace/Fourier transforms, complex functions, analytical and numerical solutions of important PDEs, vector integral calculus, and conformal mapping. Many of these topics overlap with undergraduate Mathematics courses, but we will dig deeper into each topic.

### ***Course Objectives/ Outcomes***

Mathematical proficiency is a foundation for a mechanical engineer, regardless of his/her specific major. This course promises that, assuming you will fulfill your responsibility (e.g., attend most classes, be attentive, read the assigned materials and complete homework on time), you should be able to achieve the following goals by the end of the semester:

- You will be able to understand how major concepts and techniques were developed in the fields of differential/integral calculus, series approach, and transform/mapping, and how they are relevant to real world problems.
- You will also develop your skills to apply noted concepts and techniques to solve various engineering problems.

### ***Tentative Schedule***

<b>COURSE CONTENT, COURSE SCHEDULE</b>	Power series	Ch. 4
	Laplace transform	Ch. 5
	3D Vectors	Ch. 14
	Vector calculus	Ch. 15
	Vector calculus – scalar/vector fields	Ch. 16
	Fourier methods	Ch. 17
	Diffusion equation	Ch. 18
	Wave equation	Ch. 19
	Laplace equation	Ch. 20
	Complex function	Ch. 21
	Conformal mapping	Ch.22,23
	Complex series	Ch. 24

### ***Grading Policy Important Dates***

Midterm tests	: 30%	1 <sup>st</sup> midterm test	: 19 <sup>th</sup> February, 2020 (tentative)
Final Exam	: 20%	2 <sup>nd</sup> midterm test	: 1 <sup>st</sup> April, 2020 (tentative)
Homework	: 50%	Last day of class	: Apr 30, 2020
		Final exam	: Per UTD schedule (May 2-8)

### ***Course Mechanics***

- Homework :
  - Homework (assigned via elearning) has to be turned-in on due date preferably before the lecture starts.
  - Homework will not be accepted a week after the due date.
  - Homework solutions have to be legibly written (or typed) on a typical letter (8.5” x 11”) sized paper.
  - **On the last page of each HW solution set, the following honesty statement with your signature must to be included.**  
I attest that the work I am submitting is my own and include only those collaborations permitted by the instructor. I further attest that I have not copied these solutions from other sources.

Signature \_\_\_\_\_

### ***Course Policies***

- Academic Honesty:
  - While the instructor encourages discussions with peers while working on homework problems, he deems copying solution of a peer as being dishonest.
  - Scholastic dishonesty during tests/exams may result in failing the course.
- Late/missed work:
  - If due to an unavoidable circumstance (health, family emergencies) a student turns-in work after it is due, upon verifying supporting documents that attest such emergency instructor may waive penalty for late work. It will be dealt with on a case by case basis by the instructor.
  - Missed tests due to health reasons or family emergencies have to be supported by acceptable documentation to be considered for make-up arrangements. It will be dealt with on a case by case basis by the instructor.

### ***UT Dallas Syllabus Policies and Procedures***

The University of Texas at Dallas provides a number of policies and procedures designed to provide students with a safe and supportive learning environment. Brief summaries of the policies and procedures are provided for you at <http://provost.utdallas.edu/home/index.php/syllabus-policies-and-procedures-text> and include information about technical support, field trip policies, off-campus activities, student conduct and discipline, academic integrity, copyright infringement, email use, withdrawal from class, student grievance procedures, incomplete grades, access to Disability Services, and religious holy days. You may also seek further information at these websites:

- [http://www.utdallas.edu/BusinessAffairs/Travel\\_Risk\\_Activities.htm](http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm)
- <http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html>
- <http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm>
- <http://www.utdallas.edu/disability/documentation/index.html>

***The descriptions and timelines contained in this syllabus are subject to some changes, if needed, at the discretion of the professor.***