

Applied Mathematics 2

Basic Course Information			
Course Number	2209016	Subject Category	Conculatory/G
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Computer	Student Category	Year 3
Period of Study	Semester 2	Classes per Week	2
Required Materials	Mathematics B' by A. Shinozu, Y. Ichiwawa, M. Kobayashi, and M. Sakaguchi 5th ed by E. KREYSGO		
Instructor	Paritorn Sermetta	Adison Dooclae	

Course Objective

When successfully complete this course, students will be able to:
 1. explain what Laplace transform and Fourier transform are and their applications
 2. find the Laplace transform of given function and apply it to solve ordinary differential equation
 3. find the Fourier transform of given function and apply it in engineering

Evaluation/Pubrit	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Students can fully explain what Laplace transform and Fourier transform are and their applications	Students can partly explain what Laplace transform and Fourier transform are and their applications	Students can't partly explain what Laplace transform and Fourier transform are and their applications
Evaluation 2	Students can find the Laplace transform of given complex function and can apply it to solve ordinary differential equation	Students can find the Laplace transform of given basic function and can apply it partly to solve ordinary differential equation	Students can't find the Laplace transform of given function and can't apply it to solve ordinary differential equation
Evaluation 3	Students can find the Fourier transform of given complex function and can apply it to solve partial differential equation	Students can find the Fourier transform of given basic function and can apply it partly to solve partial differential equation	Students can't find the Fourier transform of given function and can't apply it to solve partial differential equation

Relationship with Learning Outcomes

G(1) Wide knowledge on Science and Engineering and practical ability to apply them to solve problems in the society.
G(4) Creativity to make a new value with fusing the knowledge from various fields.

Please change

Teaching Method

Recent of Lecture - Drill - Presentation

Class Format: The class schedule will be changed based on student conditions and more

Please Note:

Course Plan	Contents and Method of Course	Goals	Related MCC
Semester 2			
1st Week	Introduction to the Laplace Transforms	Student understand the process and are able to find the Laplace Transforms of basic functions	Y-A, B 171
2nd Week	Introduction to the Inverse Laplace Transforms	Student are able to find the Inverse Laplace Transforms	Y-A, B 171
3rd Week	The Laplace Transforms of Derivatives and Solving ODEs with the Laplace Transforms	Student are able to find the Laplace Transforms of 1st and 2nd Derivatives and solve ODEs with the Laplace Transforms	Y-A, B 172
4th Week	Laplace transforms of Unit Step function and others	Students are able to define the Unit Step functions derive their Laplace transforms	Y-A, B 173
5th Week	Laplace transforms Dirac Delta functions	Students are able to define the Dirac delta functions and derive their Laplace transforms	Y-A, B 173
6th Week	Laplace transforms of convolutions and integral equations	Students are able to determine the relationship between Laplace transforms of product of two functions and the convolution theorem	Y-A, B 173
7th Week	Review	Week 1-6	
8th Week	Midterm Examination	Week 1-6	
9th Week	Midterm Examination	Week 1-6	
10th Week	No Class		
11th Week	Introduction to Fourier Series and Fourier Transforms	Students understand the motives behind the Fourier series and Fourier transforms and are able to calculate Fourier coefficients of a periodic function of period 2π	
12th Week	Fourier series of Functions of Arbitrary Period	Students are able to calculate Fourier coefficients of a periodic function of general period	
13th Week	Fourier Cosine, Sine series, and Half-Range Expansions	Students are able to expand any periodic or non-periodic function on an interval (0,L) as a Fourier Cosine or a Fourier Sine.	
14th Week	Fourier Transforms and Inverse Fourier Transform Part 1	Students are able to understand the concepts of Fourier and Inverse Fourier transforms and its properties	
15th Week	Fourier Transforms and Inverse Fourier Transform Part 2	Students are able to understand the concepts of Fourier and Inverse Fourier transforms and its properties	
16th Week	Fourier Transforms and Inverse Fourier Transform Part 3	Students are able to understand the concepts of Fourier and Inverse Fourier transforms and its properties	
17th Week	Applications of Fourier Series and Fourier Transforms	Students are able to use Fourier transform in engineering.	
18th Week	Review	Week 11-17	
19th Week	Final Examination		
20th Week	Return Answer Sheets, Review Semester and Feedback		

Do not

	Examination	Class Participation	Drill Submission
Basic Ability	0	0	0
Technical Ability	0	0	0
Interdisciplinary Ability	0	0	0