Module (Course Syllabus) Catalogue

2022-2023

College/ Institute	Erbil Technology College	
Department	Automation Industrial Technology Engineering.	
Module Name	Engineering Anlysis.	
Module Code	ENA501	
Degree	Technical Diploma / Bachelor / High Diploma Master PhD	
Semester	Five	
Qualification	Automation Industrial Technology Engineering.	
Scientific Title	Lectuerer	
ECTS (Credits)	PhD	
Module type	Prerequisite / Core Assist.	
Weekly hours	3	
Weekly hours (Theory)	(3)hr Class	(18)Total hrs Workload
Weekly hours (Practical)	(0)hr Class	(0)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Dr. Talhat Ismael Hassan	
E-Mail & Mobile NO.	07504701532	
Lecturer (Practical)	Dr. Talhat Ismael Hassan	
E-Mail & Mobile NO.	talhat.hassan@epu.edu.iq	
Websites		

Course Book

Course Description	In life there is no certainty about what will happen in the future but decisions still have to be taken. Therefore, decision processes must be able to deal with the problems of uncertainty. Uncertainty creates risk and this risk must be analysed. Then Engineering analysis for solving many problems in our life has important role in applied scinces. In many situations large amounts of problems is available which requires mathematical engenering techniques for analysis. There fore Engineering analysis currently plays an important role in the development of so many other sciences such as. Engineering, medicine, Agriculture, commerce, economy, social sciences, practical sciences (mathematics, physics and chemistry). Also, The application of trasformation is very extensive and is used in all branches of Science and Technology, Industry, Business, Finance, Economics, Sociology, Psychology, Education, Medicine etc. The concept of Engineering analysis with the common people consists of problems and modulls for describing a phenomenon such as electronic, digital signal prossesing, mathematical and physics problems.
Course objectives	The course objective of this course for the student is to know the subject of engenering analysis. In addition, they able to understand and get benefit for all of the methods and transformations, also to know the concept and basic of the Engineering analysis to be able to apply these concepts to solve application problems and examples which they make in apply science like electronic, digital signal prossesing, engineering, network and computer science.

	Identifying the student with the importance of engineering analysis, and the stages of it and learning laplace transformation, z transformation, foruerier series, taylor series Macloryan series
Student's obligation	1)Student readiness is very important to learn and get a note about the lesson because you are amenable to the lesson. 2) Be in the Hall or lab before starting time of the lecture 3) Listen to the lecture and write a note 4) If you don't understand please ask? **5) Is not allowed to use a mobile phone in the classroom during the time of lecture until the teacher goes out of the classroom, If you use it, therefore you face legal punishment.**
Required Learning Materials	White board and Data show to view the headlines, definitions and tables.

Evaluation

Task		Weight (Marks)	Due Week	Relevant Learning Outcome
Paper Review		0		
Assignments	Homework	3		
	Class Activity	3		
	Report	1		
	Seminar	1		
	Essay	0		
	Project	0		
Quiz		20%		
Lab.		0%		
Midterm Exam		20%		
Final Exam		60%		
Total		100%		

Specific learning outcome:	1- white bourd. 2- Data show 3- Discussion on subjects.
Course References:	[1] Merle C. Potter.,(2019) Engineering analysis, third edition.

	[2] Tai-Ran Hsu (2018); Applied Engineering Analysis. [3] Kirk D. Hagen (2020) Introdution to Engineering Analysis. Forth Edition. B– Magazines and review (internet): Using internet to get more information about the subjects of Engineering analysis.

Course topics (Theory)	Week	Learning Outcome
1- some basic about Engineering Analysis.	1	
2- Introductio of Laplace transformation and examples.	2	
3- Laplace transformation for some elementary function and examples.	3	
4- proparites of Laplace transformation and examples.	4	
5- Invese Laplace transformation and examples.	5	
6- Laplace transformation of time scalling, exponential scaling, time dalay and examples.	6	
7- Introduction of Z transform , Discrete – Time System Response, Geometric series and examples.	7	
8- proparites of Z transform and examples.	8	
9- signals and systems, time system, unit sample resonse and numerical examples .	9	
10- Forier series transorm and numerical examples	10	
11- Taylor series and numerical examples.	11	
12- Maclorian series and numerical examples.	12	

Quasion example design

Q1-Define engineering analysis and what are main techniques for solving problems ?
Q2/ Define the Laplace transformation. Write the properites of laplace transformation.

Q3/ prove that $L\{\sin ax\} = \frac{a}{p^2+a^2}$

Q4. Define the Z transformation . write and solve the examples on the the rules of Z transform.

20. Extra notes:

I have no notification about my subject engenering analysis.

External Evaluation

1- **The course book of Engineering Analysis is completely related to syllabus of subjects, the preactical syllabus satisfy the goal of engineering analysis subjects.**

The pratical course is completely defined the theoretical and practical lectures. Dr. Basim Mohammed Fadhil Lecturer of automobile Engineerring department.