Introduction to the Lecture

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Version: ϵ.2025.SS

MCI

M.Sc Higher Mathematics II

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- The goal of this lecture is to improve what has been taught at M.Sc Higher Mathematics I and start working on engineering problem where there are more than one variable.
- The lecture will focus on mathematical concepts which will have direct usage with real life engineering applications. The structure for this lecture is as follows.
- This lecture is a total of 3 SWS with a total of thirty (45) UE.
  - With 45 UE is devoted to lectures.

Introduction

- Lecture materials and all possible supplements will be present in its Github Repo.
  - You can easily access the link to the web-page from here.

> Github is chosen for easy access to material management and CI/CD capabilities and allowing hosting websites.

- In the lecture some exercises are solved using programming and can be accessed from the Repo website.

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- The student should be comfortable with working with ordinary differential equations and have a good background in calculus.
- For a refreshment on its content the students are encouraged to read the materials presented in the following repos:
- M.Sc Higher Mathematics I

Requirements	Taught Lecture	Code	Degree	Outcome
Laplace Transform	Higher Mathematics I	HMA	M.Sc	Fourier Analysis
Integral Calculus	Higher Mathematics I	HMA	M.Sc	Solving PDEs
Vector Calculus	Higher Mathematics I	HMA	M.Sc	Statistical Analysis
Differential Calculus	Higher Mathematics I	HMA	M.Sc	Probabilistic Methods
-				Complex Analysis

Table 1: Distribution of materials across the semester.

Description	Value
Official Name	Höhere Mathematik 2
Lecture Code	HMA
Module Code	MECH-M-2-HMA-HMA-ILV
Degree	M.Sc
Lecture Name	Higher Mathematics II
Semester	2
Season	SS
Assignments	Personal Assignment Final Exam
Lecturer	Daniel T. McGuiness, Ph.D
Module Responsible	DaM
Software	Python*
SWS Total	3
UE Total	0
ECTS	4

Table 2: Information regarding the lecture.

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- The lecture will have a single personal assignment comprising of a set list of questions and a final exam comprising of all the topics covered in the lecture.

Assignment Type	Value
Personal Assignment	40
Final Exam	60
SUM	100

Table 3: Distribution of materials across the semester.

- The content and unit distribution of the lecture is as follows where a unit is defined as 45 min lecture.

Topic	Units	Self Study
Theory of Probability	12	24
Fourier Analysis	12	24
Partial Differential Equations	12	24
Complex Numbers and Calculations	9	18
Sum	45	90

Table 4: Distribution of materials across the semester.