JOHN WESLEY THEOLOGICAL COLLEGE
COURSE TEMATICS

Corse: Mathematics 1	Course type: Lecture+Seminar /….	Credits: 4	Course ID: KTAK101a
Course responsible:	Programme type: full time	Hours/Week: 4	Assessment: exam

Course objectives:

Acquiring basic knowledge of set theory, mathematical logic, vector algebra, differential and integral calculus.

Competencies to be improved:

Autonomy and responsibility: F1
Knowledge: T1, T8
Ability: K5, K6
Attitude: A2

Compalsory literature:

Presentations
Relevant parts of the following textbooks:
Jean-Marc Schlenker: Lecture notes on elementary logic and set theory. University of Luxembourg.
https://math.uni.lu/~wiese/PrepCourse-Notes-Schlenker.pdf
A.Havens: Vector Algebra.
https://people.math.umass.edu/~havens/VectorAlgebra.pdf
Marvin L. Bittinger et al: Calculus and its applications. Addison-Wesley, Boston, 2012.
https://www.sac.edu/FacultyStaff/HomePages/MajidKashi/PDF/MATH_150/Bus_Calculus.pdf
Jay Abramson: College algebra, OpenStax College, Rice University, Houston, 2015.
https://www.uco.edu/cms/files/math-college-algebra--fa17-uco.pdf

Recommended literature:

Edwin Herman, Gilbert Strang: Calculus Vol. 1. OpenStax College, Rice University, Houston, 2018.
https://d3bxy9euw4e147.cloudfront.net/oscms-prodcms/media/documents/calculus-volume-1-5.2-previous.pdf
Edwin Herman, Gilbert Strang: Calculus Vol. 2. OpenStax College, Rice University, Houston, 2017.
https://d3bxy9euw4e147.cloudfront.net/oscms-prodcms/media/documents/CalculusVolume2-OP.pdf

Course content:

Sets. Mathematical logic. Vectors. Operations with vectors, expansion into components. Real polynomials and functions. Domain and range of a function. Limits for functions. Continuity. Differential quotient. Derivative function. Basic rules of differentiation. L'Hospital's rule. Application of derivatives for the analysis of functions. Monotone increase and decrease. Convexity properties. Local extrema. Inflexion points. Antiderivative. Indefinite integral. Definite integral. Application for area computation.
Multivariate functions. Partial derivatives.

Course requirements:
Attendance at classses, keeping up with the course progress, submitting the expected homeworks

Grading scale:
>90 %: excellent, 81-90 %: good, 66-80 %:satisfactory, 51-65 %:pass

Course Programme: WJLF ENVIRONMENTAL SCIENCE	Semester: 2022_2023_1	Lecturers: Dr. István Kun