PLANO DE ENSINO – 2024/1

IDENTIFICAÇÃO DA DISCIPLINA:				
CÓDIGO	**NOME DA DISCIPLINA**	**TURMA**	**Nº DE HORAS-AULA SEMANAIS**	**TOTAL DE HORAS-AULA SEMESTRAIS**
EQA5426	Tópicos Especiais em Engenharia Química I	-	04	54

PROFESSOR(ES) MI3NISTRANTE(S)	HORÁRIO DE ATENDIMENTO
Sergio Yesid Gómez Gonzalez (sergio.gomez@ufsc.br)	Segunda 13-16 : Sala E-301 - EQA

PRÉ-REQUISITO(S)	
CÓDIGO	**NOME DA DISCIPLINA**
-	-

EQUIVALENTES
ENQ410034 Introduction to Python for Research (Pós-graduação em Engenharia Química)

CURSO(S) PARA O(S) QUAL(IS) A DISCIPLINA É OFERECIDA
ENGENHARIA QUÍMICA
ENGENHARIA DE ALIMENTOS

EMENTA - SYLLABUS

Python Basics, Objects and Methods, Manipulating Objects, Numpy, Symbolic Mathematics, Thermo, Data Visualization-Manipulation, Statistics.

This course considers the Early Assessment Examination (EAA) in the Graduate Program in Chemical Engineering (PosENQ) at UFSC in agreement with the Normative Resolution nº 01/2021.

OBJETIVOS - OBJECTIVES

At the end of the course, the student should be able to use Python as a code programming language and identify-use the basic structures such as math operations, conditionals, booleans, loops, and arrays. It is also expected that the students become familiar with the use of standard scientific Python environment (Numpy and Scipy), symbolic mathematics (SymPy), development and visualization of graphs (Matplotlib), and using simple and efficient tools to store, manipulate and generate data and analysis (Pandas, Thermo, Scikit-learn). Students are also expected to develop the ability to apply the foundations of the discipline to applied and research problems.

CONTEÚDO PROGRAMÁTICO – PROGRAM CONTENT	H/A

Understand the concepts of computational thinking.	4
Basic operations, operations using booleans, and application of conditionals, and loops under the computer programming language Python.	4
Use of standard scientific Python environment and other useful packages: Numpy-Scipy Thermo SymPy	12
Development and visualization of data and graphs in Python using Matplotlib.	4
Store and manipulate data using Pandas.	4
Introduction to data analysis using Scikit-learn.	4
Applied Case Study.	12
Labs – (Applied Problems Solving)	10

Lecture	Content
1 15/03 4h	Introduction to the Course
2 22/03 4h	Operations, Booleans, Conditionals, and Loops
- 29/03 4h	Good Friday
3 05/04 4h	Scipy - Numpy
- 12/04 -	CACENQ
4 19/04 4h	Sympy - Thermo
5 26/04	Matplotlib

4h	
7 03/05 4h	Pandas
8 10/05 4h	Scikit-learn
9 17/05 4h	Case Study – I
10 24/05 4h	Case Study – II
11 31/05 4h	Case Study – III
12 07/06 4h	**REC**

METODOLOGIA DE ENSINO / TEACHING METHODOLOGY

The classes will present the general idea and relevant discussions of the context of each topic, developing the material using the blackboard and additional resources such as slides, computing software, including:

- Explanation and software implementation of the content involving problems with applications.
- Exercise-solutions drills to fix the content and of discussions related to the topics covered.
- Case study.

METODOLOGIA DE AVALIAÇÃO / ASSESSMENT METHODOLOGY

The final grade will be composed by the following elements:

- Assignments (Labs) (70%)
- Case Study (30%)

The application of the Early Assessment Examination will be offered (a single test), according to Normative Resolution PósENQ 01/2021, considering all topics of the Course. The assessment grade will replace the other assessments and will be applied in the first week of class, at a time to be defined after the first class.

BIBLIOGRAFIA BÁSICA - BIBLIOGRAPHY

Open Access Options and Material available in the Moodle system
Online books at BU/UFSC: http://portal.bu.ufsc.br/a-biblioteca-universitaria-daufsc-

oferece-acesso-a-livros-eletronicos-em-diversas-areas-do-conhecimento/

BIBLIOGRAFIA COMPLEMENTAR - ADDITIONAL BIBLIOGRAPHY

- Hans Petter Langtangen, A Primer on Scientific Programming with Python, 5th Edition, Springer, 2016.
- John Hunt, A Beginners Guide to Python 3 Programming, 1st Edition, Springer, 2019
- Rubin H. Landau, Manuel J. Páez and Cristian C. Bordeianu, Computational Physics, 3rd Edition, Wiley-VCH, 2015

Documento assinado digitalmente
Sergio Yesid Gomez Gonzalez
Data: 18/04/2024 14:01:28-0300
CPF: ***.911.889-**
Verifique as assinaturas em https://v.ufsc.br

Assinatura do Professor

Documento assinado digitalmente
Agenor Furigo Junior
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Assinatura do Chefe do Departamento