



BURSA TECHNICAL UNIVERSITY

Department of Mechanical Engineering

Computer Programming
MECH0291

Lecture 1

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Asst. Prof. Dr. Levent Aydınbakar

Education

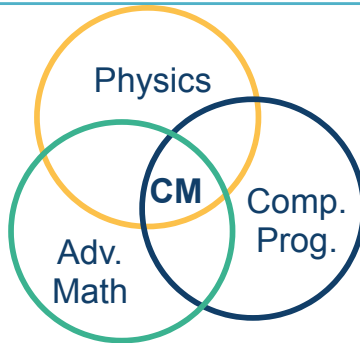
ESOGÜ Makine Mühendisliği

Cranfield University, UK, MSc in CFD

Waseda University, JP, PhD in CFD

Research

Computational Mechanics



Computer Programming

Akışkanlar Mekaniği

Introduction to FEM

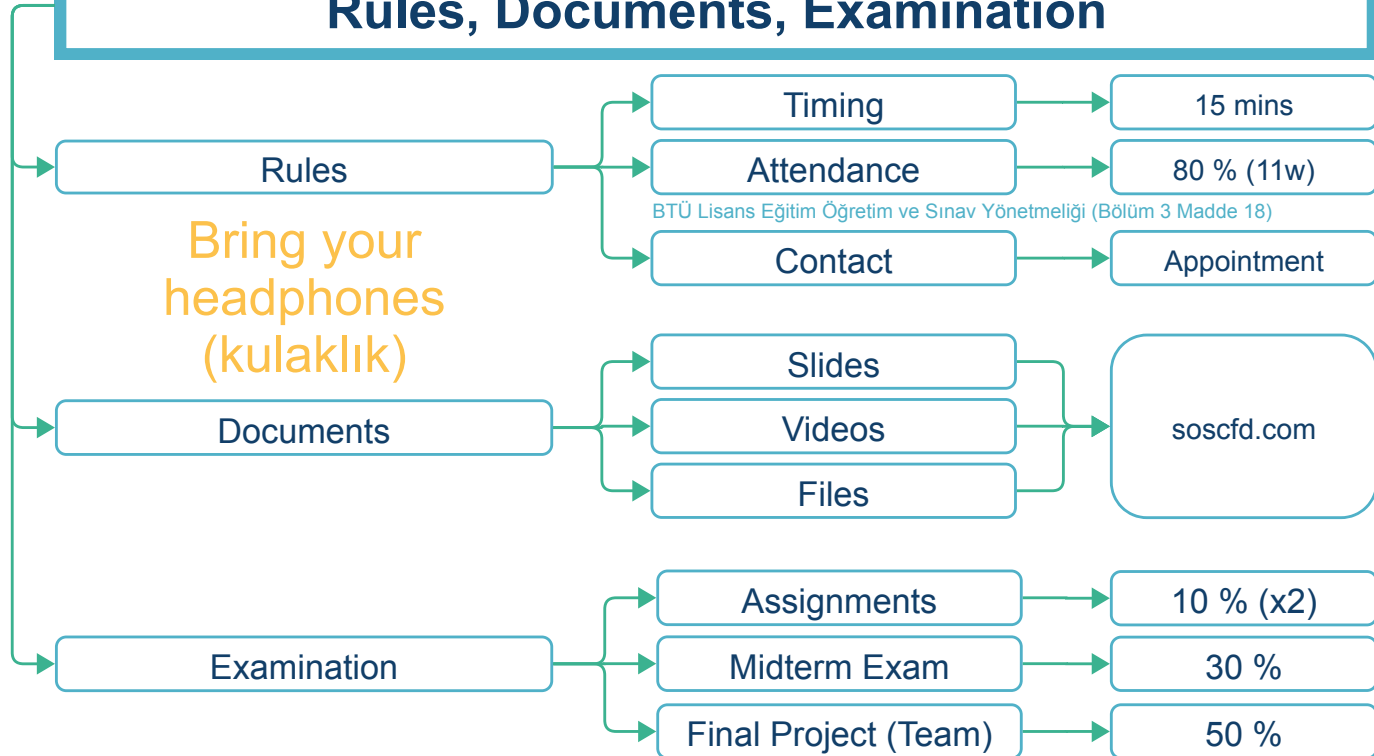
Computational Fluid Dynamics

Courses

Hesaplamalı Akışkanlar Dinamiği (Grad)



Rules, Documents, Examination





Syllabus

Introduction

Introduction to Linux and Computer Programming

Python 2/3

Python modules

Linux terminal

Basics of use of Linux terminal

Python 3/3

Conditions, loops, and files with Python

Vim, ZSH, Screen

Vim, ZSH, and Screen use in Linux terminal

Gnuplot

High quality graph using Gnuplot

GitLab

Use of GitLab for data storing and sharing

LaTeX

Introduction to LaTeX

Shell scripting

Automating tasks with Shell scripting

Pgplots

High quality professional graphs using Pgplots

Python 1/3

Introduction to Python programming

Tikz

Sketching using Tikz

Examples

Example problems by Shell and Python

Final presentations

Final project presentations



Why?

Linux	Terminal & Shell	LaTeX	Python
Open-source	Open-source	Open-source	Open-source
Highly configurable	Automation	Flexible	Most popular
Reliable	Quick	Professional quality	Easy
Private	Management	Automation	Multi-purpose
Secure	Batch processing	No version problems	Shorter codes
Lightweight	Scripting	Equations	Large community
Software management	Powerful tools	Lightweight	Large ecosystem
Performance	Error handling	Precise control	High-level
Stability	Remote access	Pgfplots, Tikz, Sketch...	Cross-platform