

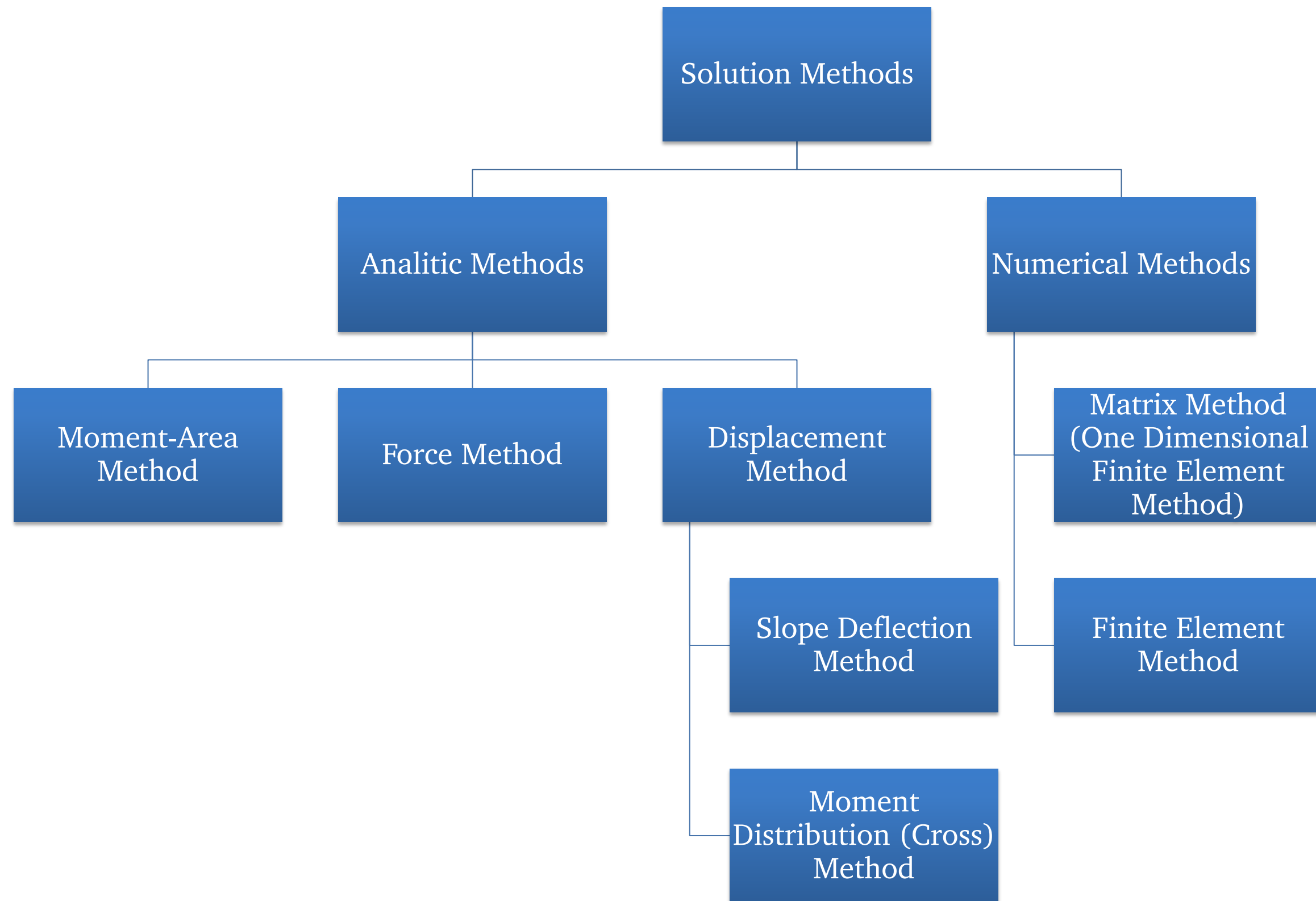
Sonlu Elemanlar Yöntemi ile
Bilgisayar Uygulamaları

Structural Analysis with Finite
Element Method

Dr. Öğr. Üyesi Orkun YILMAZ



Solution Methods for Structural Analysis

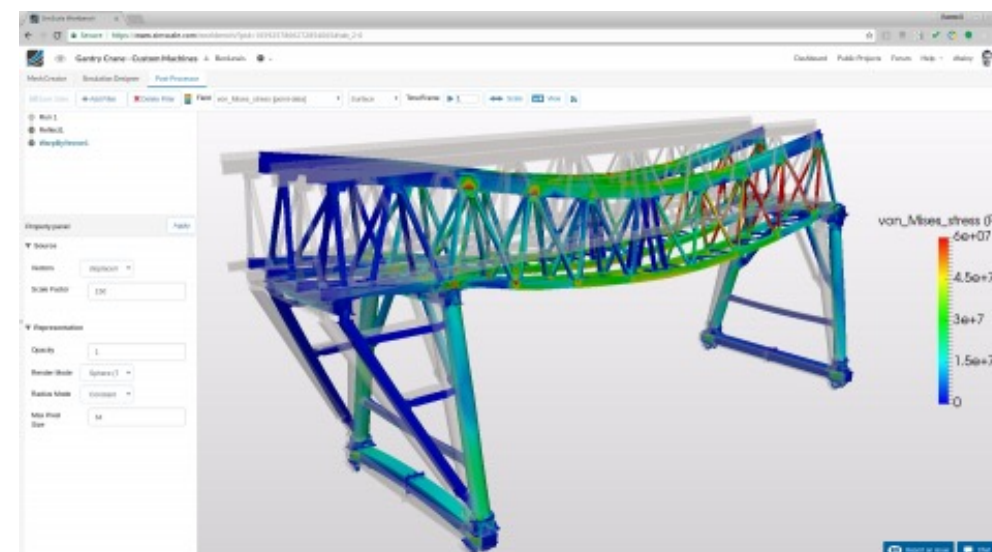
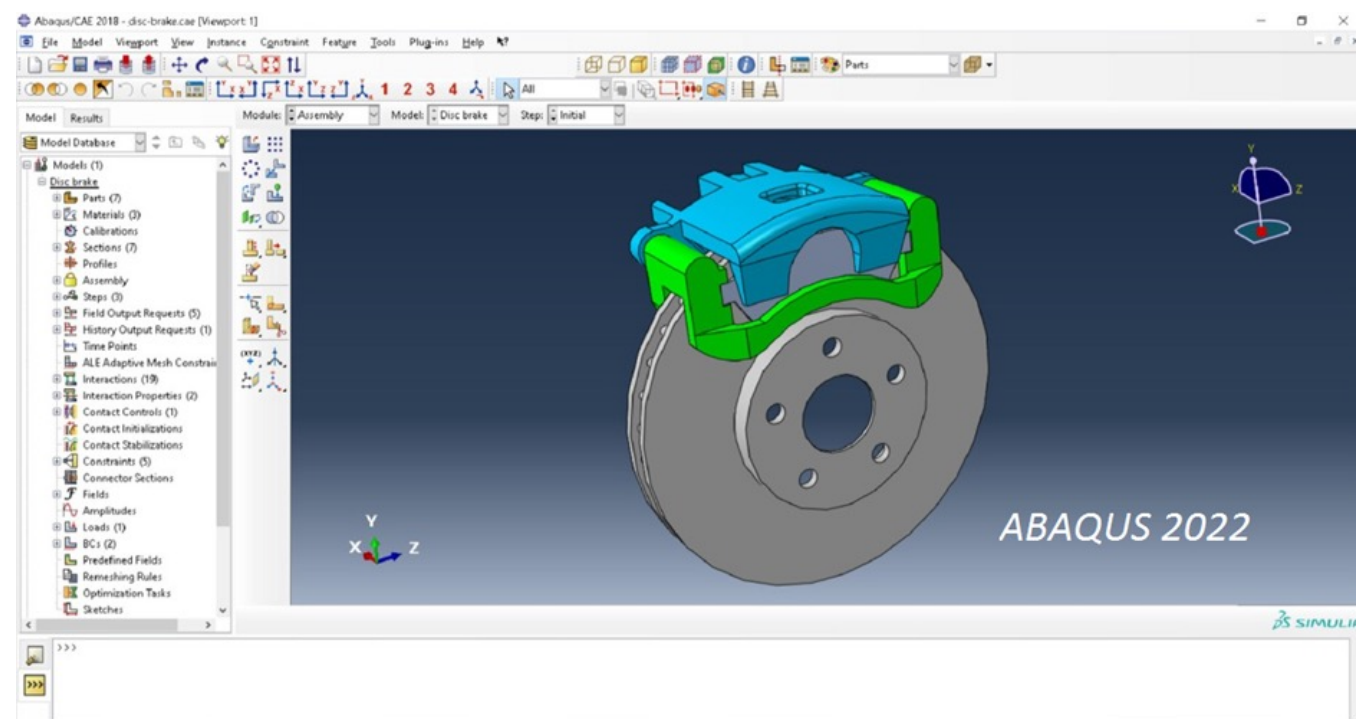
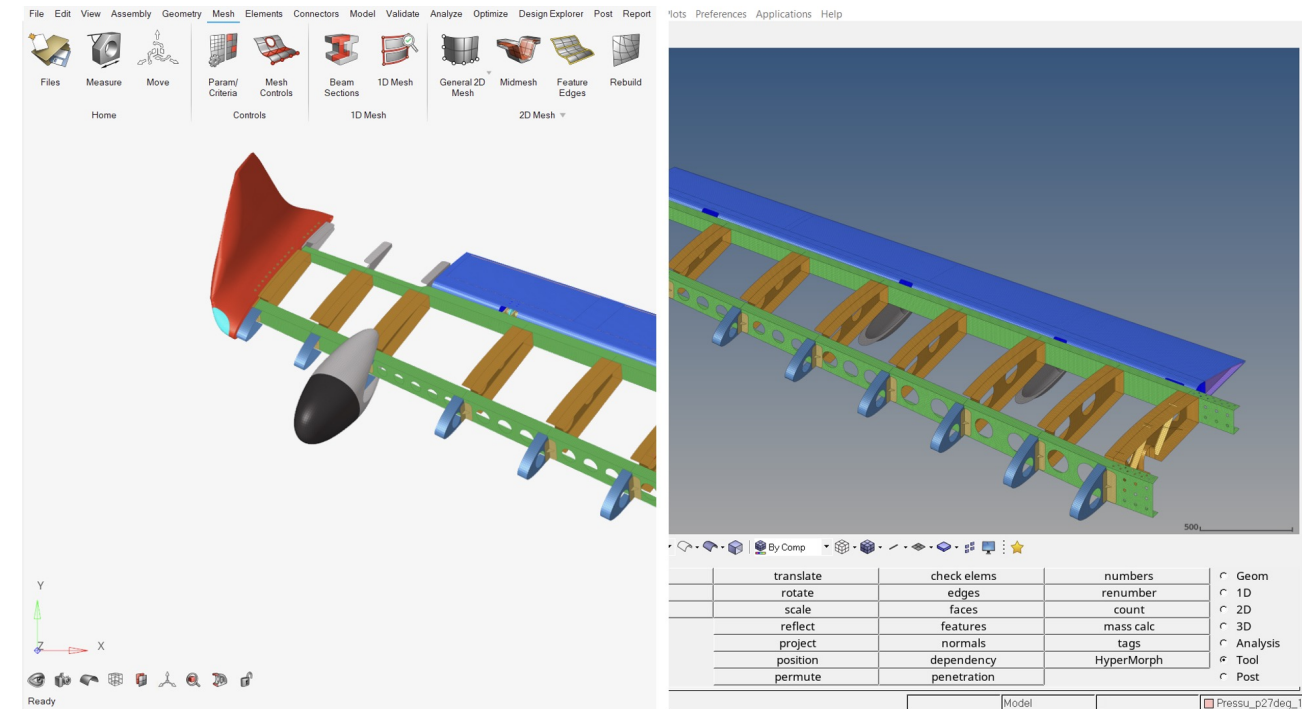
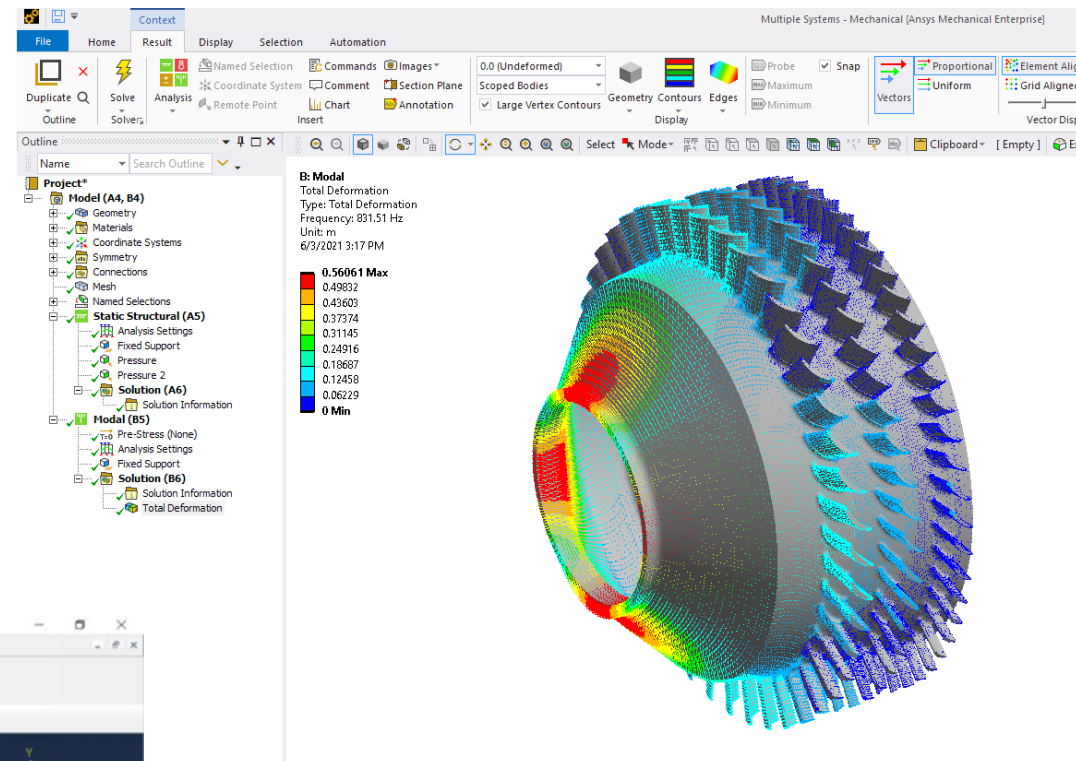


Course Objective:

To introduce the technique of finite element method and to teach principles of software employing finite element method.

Some Finite Element Analysis Software:

- **Ansys**
- Abaqus
- SimScale
- HyperWorks
- ... and many more



Evaluation System:

Homework: $3 \times 5\% = 15\%$

Project: 20%

Mid-Term Exam: 25%

Final Exam: 40%

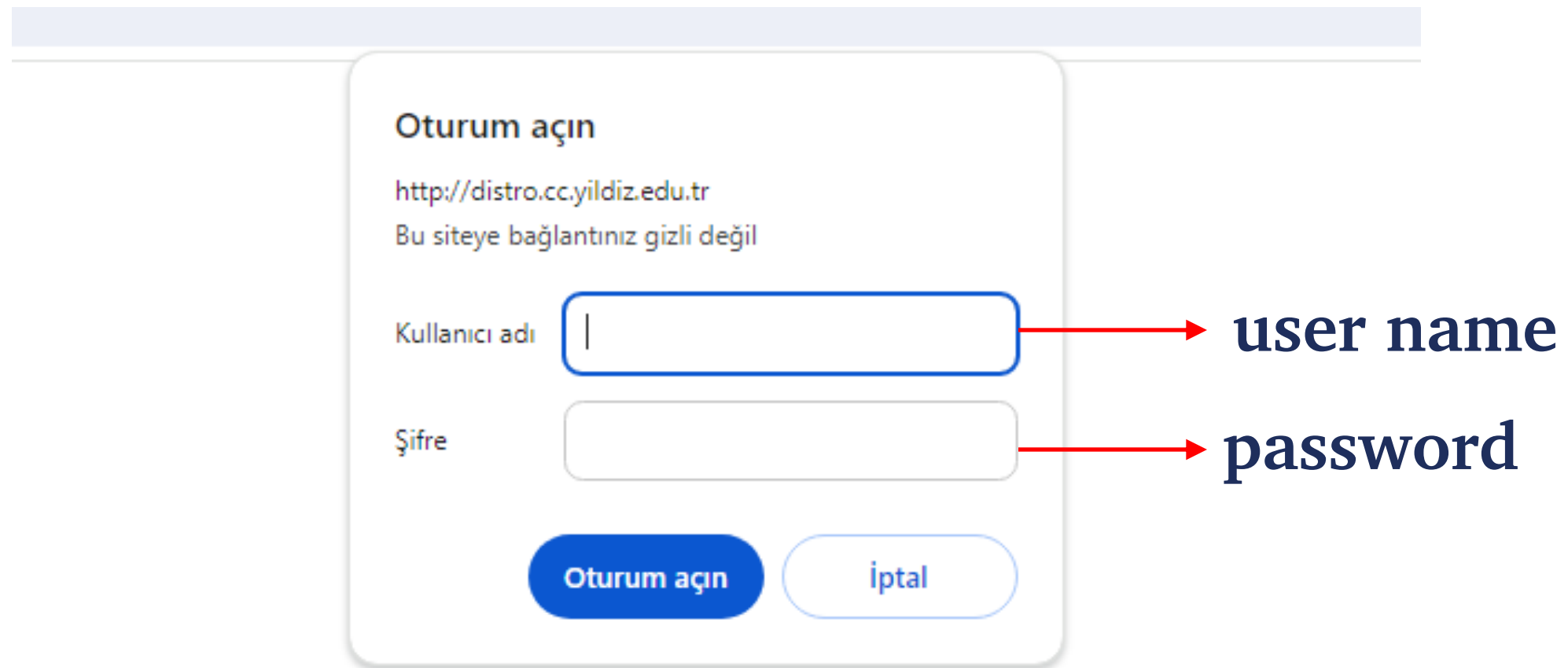
Recommended Readings:

- R. Cook, D.S. Malkus, M.E. Plesha, R.j. Witt, **Concepts and Applications of Finite Element Analysis**, 4th Edition, Wiley, 2001
- Huei-Huang Lee, **Finite Element Simulations with ANSYS Workbench 2023**, SDC Publications, 2023
- Huei-Huang Lee, **Part and Assembly Modeling with ANSYS DesignModeler 14**, A Free PDF Book by Huei-Huang Lee (<http://lab.es.ncku.edu.tw/hhlee/Site/ADM14.html>)
- X. Chen, Y. Liu, **Finite Element Modeling and Simulation with ANSYS Workbench**, CRC Press, 2015

Installing of Ansys Software



Installing of Ansys Software



The image shows a login form titled "Oturum açın" (Log in) for the website <http://distro.cc.yildiz.edu.tr>. The form includes a status message "Bu siteye bağlantınız gizli değil" (Your connection to this site is not hidden). It features two input fields: "Kullanıcı adı" (Username) and "Şifre" (Password). Below these fields are two buttons: "Oturum açın" (Log in) and "İptal" (Cancel). Red arrows point from the text "user name" to the username input field and from the text "password" to the password input field.

Oturum açın

<http://distro.cc.yildiz.edu.tr>

Bu siteye bağlantınız gizli değil

Kullanıcı adı

Şifre

Oturum açın İptal

user name

password

Installing of Ansys Software

Index of /Distro/Utility

Name	Last modified	Size	Description
 Parent Directory		-	
 Ansys/	10-Oct-2023 08:53	-	
 Antivirüs (Öğrenciler için değildir. Bilgi için bidb.yildiz.edu.tr/	26-Aug-2021 19:24	-	
 ArcGIS/	07-Oct-2020 12:32	-	
 Autodesk/	28-Nov-2022 07:46	-	
 Botshield_Setup.exe	20-Oct-2020 10:06	7.6M	
 Engineering Equation Solver (EES)/	26-Apr-2021 11:57	-	
 FirefoxPortable-with-Flash.zip	20-Oct-2022 12:13	61M	

Installing of Ansys Software

Index of /Distro/Utility/Ansys

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
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 2023/	28-Sep-2023 13:43	-	
 ANSYS_Client_Kurulum.pdf	10-Oct-2020 10:29	1.4M	
 Ansys Kurulum Video.mp4	14-Mar-2022 10:37	30M	
 ELECTRONICS_2023R2_WINX64.zip	28-Sep-2023 10:53	9.5G	
 LUMERICAL_2023R2.02_WINX64.zip	10-Oct-2023 08:45	1.6G	
 OPTICSTUDIO_2022R2.02_WINX64.zip	08-Aug-2023 09:48	1.7G	

Ansys
Software

Instructions for
installation steps

Installing of Ansys Software

Index of /Distro/Utility/Ansys/2023

	Name	Last modified	Size	Description
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	ANSYS2023R2_WINX64_DISK2.iso	28-Sep-2023 10:58	6.1G	
	ANSYS2023R2_WINX64_DISK3.iso	28-Sep-2023 11:07	5.7G	
	Linux/	18-May-2022 23:38	-	

Course Content

- Introduction to finite element method
- Introduction to Ansys Workbench
- 1D, 2D, and 3D analysis
- Introduction to modeling
- Mathematical modeling of structural systems
- Mesh structure of finite element model
- Contact properties between parts
- Material modeling
- Non-linear analysis
- Statical analysis
- Free-vibration and forced-vibration analysis
- Thermal analysis
- and other some additional information about Ansys

(topics may not be in sequence)