



# ELE101-1

# Introduction

Murat Sever  
[ytregitim@gmail.com](mailto:ytregitim@gmail.com)



# Outline

Getting started

Survey

About Me

Curriculum

Schedule

Motivations

Tech. Part

# Getting Started Survey

- No personal information is collected
- Think before answering
- Help us prepare better course content



# About me

BSc, METU, 1998



MSc, AYBU, 2015



PhD, TOBB ETU, ...



**TOBB ETÜ**  
Ekonomi ve Teknoloji Üniversitesi

# Certificates

Certified Instructor and University  
Ambassador at NVIDIA



GitHub Teacher



# Work Experience

- ASELSAN
  - Türkiye's leading defence company
  - Aselsan 47. Rank in "Defense News' Top 100 list"
  - ~15 years
  - March '23





# About Me

- 25 years in software development
- 15+ years in telecom field
- PhD thesis student @ TOBB ETÜ
- Lecturer @ TOBB ETÜ
- ELE361L (Telecom Lab)
  - 2021-2022 Summer
  - ...
  - 2025-2026 Fall ELE361L - marks the 7th time
- ELE468 Software Defined Radio (SDR)
- ELE476 Applied Digital Signal Processing
- ELE495 Senior Project

# Embedded Experience - Monitoring Receivers

TI 8-core DSP/SysBIOS

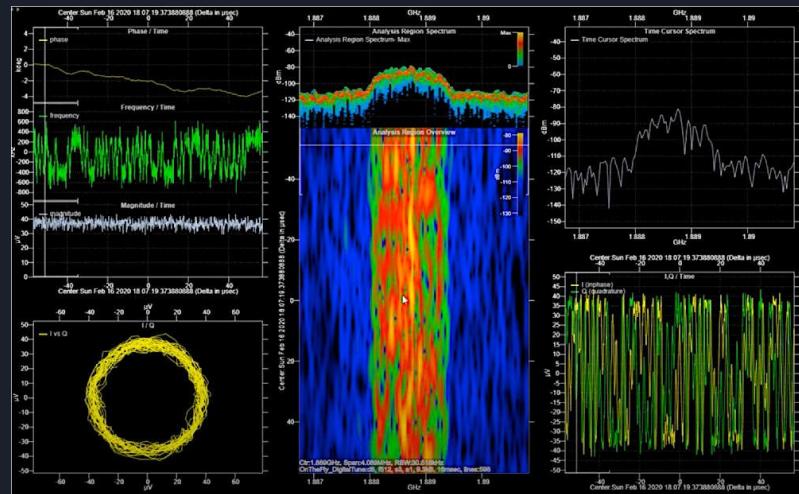


Intel i7/VxWorks



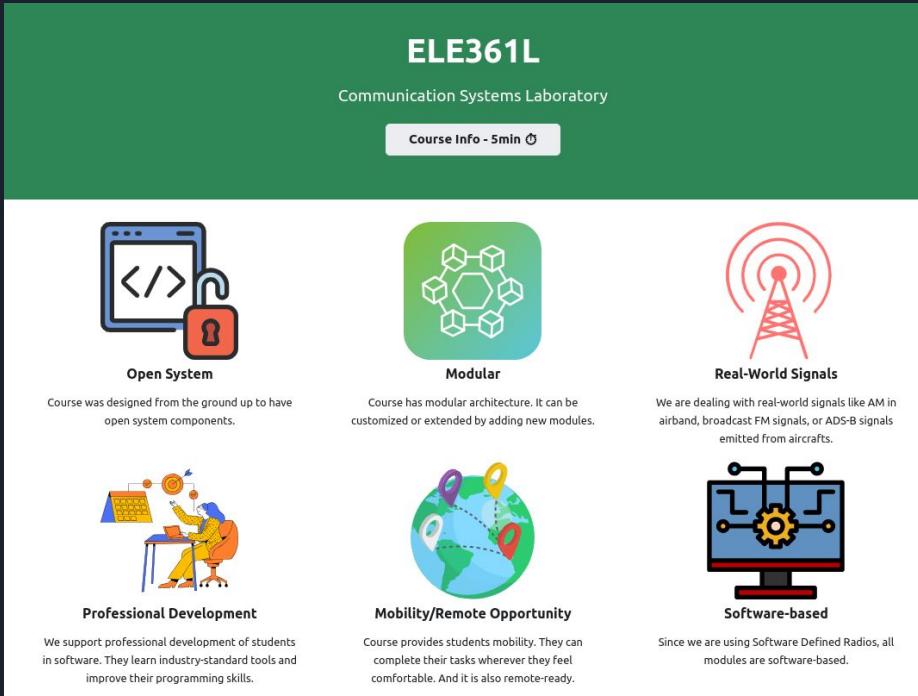
# SIGINT: Signal Analysis Project

- Offline/Online Analysis
- Demodulation/Decoding
- Parameters
  - Center Freq
  - Modulation Type
  - Baud Rate



# ELE361L

**ELE361L**  
Communication Systems Laboratory  
[Course Info - 5min Ø](#)



The screenshot shows the ELE361L website homepage. At the top, there's a green header with the course name and a 'Course Info' button. Below the header, there are six cards arranged in a grid:

- Open System**: An icon of a blue monitor with code symbols and a red padlock. Description: Course was designed from the ground up to have open system components.
- Modular**: An icon of a green hexagonal network of interconnected nodes. Description: Course has modular architecture. It can be customized or extended by adding new modules.
- Real-World Signals**: An icon of a red antenna tower emitting concentric circles. Description: We are dealing with real-world signals like AM in airband, broadcast FM signals, or ADS-B signals emitted from aircrafts.
- Professional Development**: An icon of a person sitting at a desk with a computer, surrounded by books and papers. Description: We support professional development of students in software. They learn industry-standard tools and improve their programming skills.
- Mobility/Remote Opportunity**: An icon of a globe with location pins and dashed lines indicating movement. Description: Course provides students mobility. They can complete their tasks wherever they feel comfortable. And it is also remote-ready.
- Software-based**: An icon of a computer monitor with a gear and circuit lines. Description: Since we are using Software Defined Radios, all modules are software-based.

<https://ele361l.github.io/>

# Awards: 9. Başakşehir Innovation Contest

BASAŞEHİR  
LIVING  
LAB  
İSTANBUL



# Awards: 3. AOSB R&D and Innovation Contest



# Events: SDR Academy Friedrichshafen, Germany



# Events: GNU Radio Conference 2023



5-9 September 2023

Talk & Workshop



# Events: GNU Radio Conference 2025

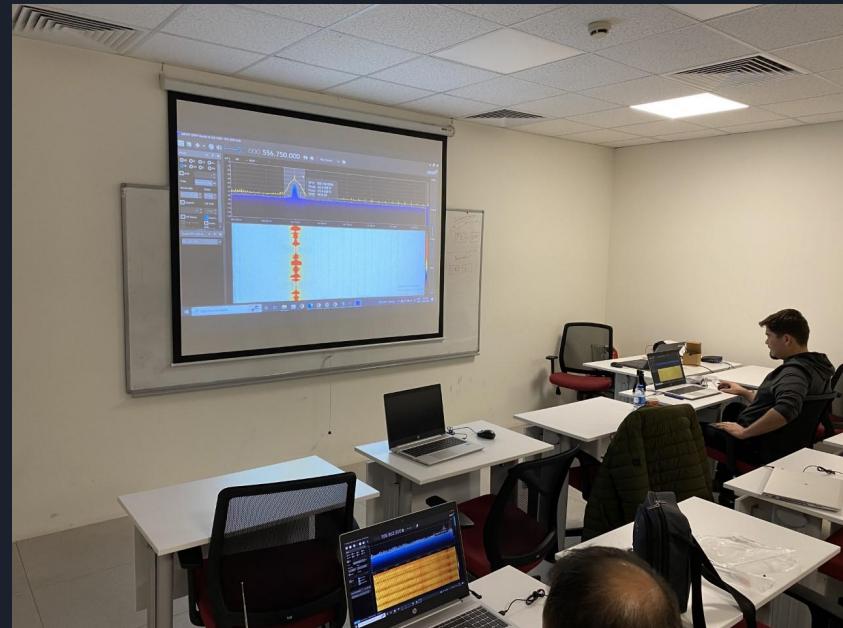


8-12 September 2025

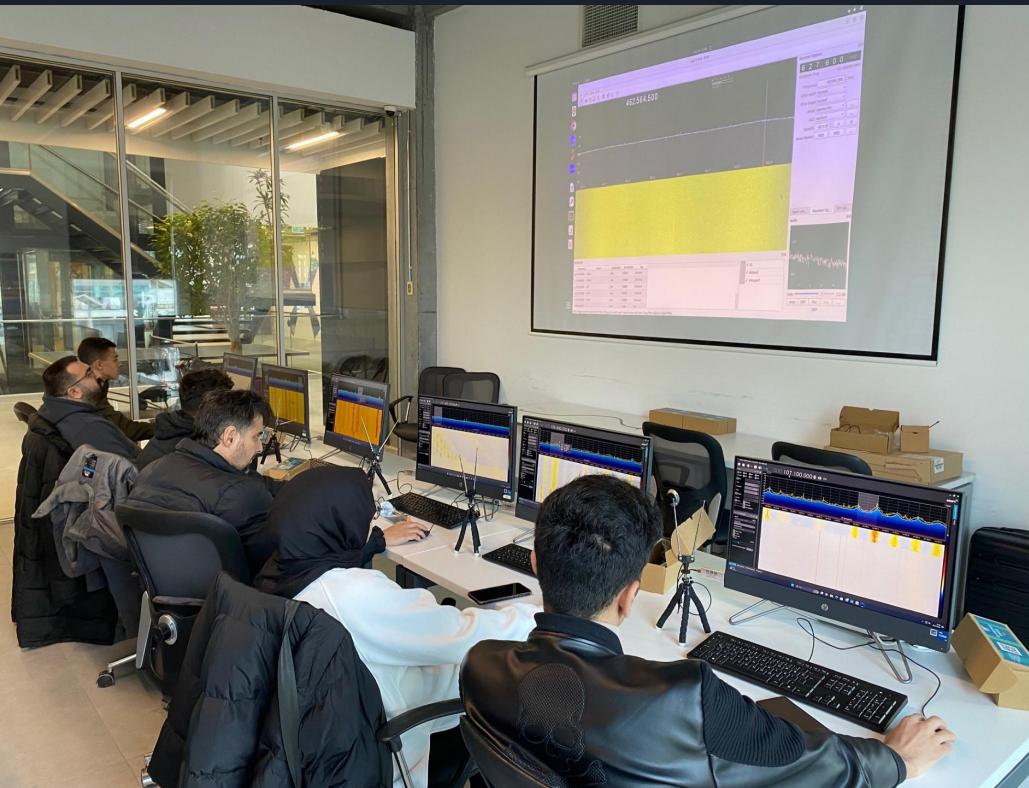
Workshop: Simple Replay Attack Demo with  
GNU Radio



# SSA: RF School Coordinator



# Reachout Project



# Linux Camps

- Winter
  - Eskişehir/Afyonkarahisar
- Summer
  - Bolu
- All FREE



- [Ağ Yönetimine Giriş](#)
- [Blokzincir'e Giriş ve Ethereum ile Akıllı Sözleşmeler](#)
- [C ve Assembly Programlama ile Linux Çekirdeğine Bir Bakış](#)
- [GNU/Linux Sistem Yönetimi 1. Düzey](#)
- [GNU/Linux Sistem Yönetimi 2. Düzey](#)
- [Linux İç Yapısı: \(e\)BPF'e Giriş](#)
- [PHP & Laravel & Vue.js ile Yapay Zeka Destekli Yazılım Geliştirme](#)
- [Python ile Programlamaya Giriş](#)
- [Python ile Yapay Zeka](#)
- [Sayısal Kriptografi ve TersKod Mühendisliğine Giriş](#)

# My Research Items

- <https://ele361l.github.io/blog>





## More on LinkedIn

- I am on LinkedIn
- Get connected to hear more from me!





# Office/Make-up Hours

- Office
  - Tuesday 15:00-16:30
  - Thursday 10:30-12:00
- Make-up
  - Saturday or Sunday?
  - Morning or Afternoon?



# Skills

- Technical Skills
- Soft Skills



# Technical Skills

- **Programming and Software Proficiency:**
  - Familiarity with programming languages (e.g., Python, C/C++, MATLAB) and industry-specific software (e.g., AutoCAD, SolidWorks, ANSYS).
- **Mathematics and Data Analysis:**
  - Proficiency in calculus, linear algebra, and statistical analysis to model systems and interpret data.
- **Design and CAD (Computer-Aided Design):**
  - Skills in creating and modifying 2D and 3D models for prototypes, simulations, and manufacturing processes.
- **Project Management and Planning:**
  - Competence in using tools like Microsoft Project or Primavera for managing timelines, resources, and budgets in engineering projects.
- **Electrical System Knowledge:**
  - Understanding of electrical components, circuits, and systems for interdisciplinary projects.
- **Testing and Quality Assurance:**
  - Ability to design, execute, and interpret tests to ensure that products meet safety, functionality, and reliability standards.



# Soft Skills

- Soft Skills
  - Critical Thinking
  - Teamwork
  - Leadership
  - Being Positive
  - Problem Solving
  - Communication
  - Awareness

# Savunma Sanayi Akademi

## 7 Temel Sosyal Yetkinlik

<https://ssa.gov.tr/katalog/?id=5#book1/2>

**1 ELEŞTİREL DÜŞÜNME**  
(Akıl yürütme, analiz ve değerlendirme gibi zihinsel süreçlerin tamamını kapsar.)

**2 TAKIM ÇALIŞMASI**  
(Ekip ruhunu anlayabilme, uyumlu çalışabilme, birbirini yönetebilme, başkalarının çalışmalarını planlamayı ve organize edebilmeyi kapsar.)

**3 LİDERLİK**  
(Liderlik, sadece istenileni yaptmak değil insanlara dokunabilmek ve ilham olabilmektir; özgür ve vizyon sahibi olabilmeyi kapsar.)

**4 POZİTİF YAKLAŞIM & DAYANIKLILIK**  
(Inış çıkışlarla dolu iş dünyasında karamsarlık girdabına kapılmamak büyük önem taşımaktadır. Pozitif yaklaşım, sorunları çözmemi, engelleri aşmayı ve başarıya giden yeni yollar yaratmayı kapsar.)

**5 PROBLEM ÇÖZME & VERİ YÖNETİMİ**  
(Yaratıcı olmayı, inovatif düşünmeyi, öğrenmeye ve araştırmaya açık olmayı ve pes etmemeye becerilerinin bütününe kapsar.)

**6 KÜLTÜREL FARKINDALIK & İFADE YETKİNLİĞİ**  
(Çeşitli kitle iletişim araçları kullanılarak görüş, deneyim ve duyguların yaratıcı bir şekilde ifade edilmesine yönelik becerileri kapsar.)

**7 SİBER FARKINDALIK**  
(Siber farkındalık, bireylerin ve kurumların çevrimiçi olarak karşılaşabilecekleri riskleri anlamalarını ve bunlara karşı korunmalarını sağlar. Siber tehditleri tanıma, önleme ve müdahale etme yeteneklerinin tümünü kapsar.)

Kaynak: EDSP - Vision on defence related skills for Europe today and tomorrow / 2019



# Content

1. Giriş ve Bölüm Hocalarının ve Program Sürecinin Tanıtımı (4 Saat – 2 hafta)
2. Mühendislik Tasarımı ve Mühendislik Etiği (4 Saat – 2 hafta)
3. Yazılı ve Sözlü Sunum Teknikleri (4 saat – 2 hafta)
4. Girişimcilik (2 saat – 1 hafta)
5. Python Dersleri (6 saat – 3 hafta)
6. Elektronik Mühendisliği Alt Alanlarından Sunumlar (4 saat – 2 hafta)



# Schedule

1. GitHub
2. MarkDown
3. CLI: Command Prompt/Bash Prompt
4. Linux
5. git
6. conda
7. JupyterLab
8. Python
  - a. Basics
  - b. numpy, matplotlib
  - c. hexadecimal, dB Calculation, complex numbers
9. ssh
10. docker



# Assessment

Attendance % 10

MidTerm (1) % 45

Assignments (5±1) % 45



# Key Points to Remember

Some important points about the course

- Always bring your laptop to class
- Every user must have an account on **GitHub**
- Make installments required for the course into your laptop ASAP
- Check your TOBB ETU e-mail for any updates!
- Do not forget to sign in the attendance list!
- Common time for compensation?



# Success Strategies

- Make time
- Assignments and Deadlines
- Understand the technology
- Do Your Work yourself
- Save Your Work!
- Start Early

# Motivations

- The Missing Semester of Your “EE” Education
- Engagement
- Professional Development





# The Missing Semester of Your “EE” Education

- Advanced EE Topics
  - Circuit Theory
  - Electronics
  - Electromagnetics
  - Control Systems
  - Communication Systems
- But, wait! What about the tools?
  - Version Control System - Git
  - Command Shell or terminal - Cmd or Bash
  - Python
  - Remote Machines - serial, ssh
  - Virtual machines or containers

[The Missing Semester of Your CS Education](#)



# How to use GitHub?

Web interface

<https://github.com/>

Create an account if not yet!

Do not forget your account info!



# Markdown Format

- <https://docs.github.com/en/get-started/writing-on-github/getting-started-with-writing-and-formatting-on-github/basic-writing-and-formatting-syntax>



# Create your repo

- Add README
- Add a photo
- Download as zip
- Clone



Thanks!  
[ytregitim@gmail.com](mailto:ytregitim@gmail.com)  
LinkedIn: murat-sever