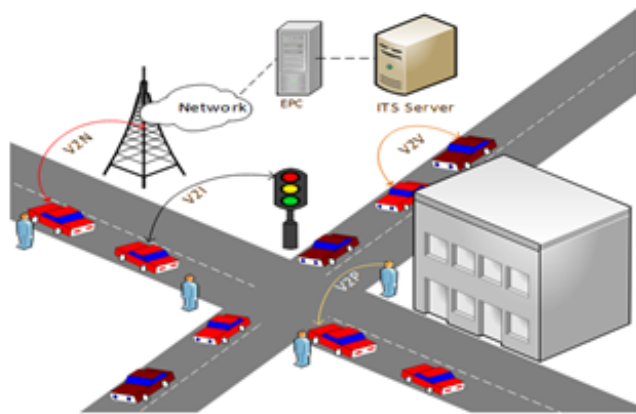




## What You'll Learn?

- Wireless and Optical Telecom
- 5G/6G and Future Systems
- Security of Mobile Networks
- IoT & Smart Connectivity
- Satellite & Radar Systems
- Vehicular networks
- Signal & Data Processing
- AI & Data communication
- Cloud telecom Infrastructure

## Program Features

- State-of-the-art labs** for wireless & satellite systems
- Industry-linked Final Year projects**
- Internship opportunities** with Local Industry/Tech leaders
- Rich set of electives** for next-gen systems
- Many professional software and FOSS Tools**

## OVERVIEW

The Telecommunications and Wireless Systems (**TWS**) specialization helps the students understand how the world communicates from mobile networks and internet systems to satellites and smart devices (IoT). Students learn the basics and build up to advanced topics, with a mix of classroom learning, hands-on labs and industrial training. This program provides the skills to design and improve modern wireless and mobile systems and prepares students for real-world projects in one of the fastest-growing areas of engineering.

## Why Choose TWS?

Learn the technology behind how the world stays connected like 5G, satellites, and smart wireless systems. In this program, students combine classroom knowledge with real-world skills and exciting projects. It's the perfect path when aiming for a future career in one of the fastest-growing tech fields.

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## Career Pathways

- ✓ Computer Engineers
- ✓ Data Science & Engineering
- ✓ Embedded Systems Engineer
- ✓ Network Security Engineer
- ✓ IoT Solutions Architect
- ✓ FPGA / ASIC Design Engineer
- ✓ Network Engineer
- ✓ Entrepreneur in Embedded Domains
- ✓ Research & Development Roles

## TWS Graduates are everywhere:

- ✓ Telecom Operators & ISPs: Omantel, Ooredoo, Awasr, Huawei, Ericsson, Cisco, ...
- ✓ Oil, Gas, and Energy Industries: PDO, OQ, ...
- ✓ Government & Regulatory Bodies: TRA, ITHCA, ...
- ✓ Defense & Aerospace: Royal Oman Armed Forces, Royal Oman Police.
- ✓ IT & Cloud Service Co.,
- ✓ Startups & Tech Firms & others.

# TWS FOCUSES

## Telecom Technologies

Covers modern telecom networks operate, including mobile systems, secure data transmission, and wireless protocols. Students learn basics of advanced concepts such as MIMO and OFDM. In additions, strong foundation of communication system quality. These courses build a foundation in how real-world communication systems like IoT, 5G and Wi-Fi function and evolve.

## Security of Mobile Networks

This area covers cybersecurity threats in telecom, such as DDoS attacks, SIM jacking, and rogue base stations. Students learn encryption protocols (AES, TLS), authentication mechanisms for 4G/5G cores in addition to Exploring V2X (Vehicle-to-Everything) communication with 5G autonomous vehicles. Hands-on training includes OmNet++ / INET simulations

## Satellite & Radar Systems

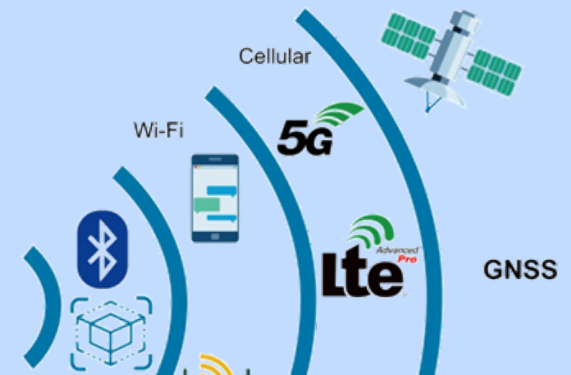
Covers orbital mechanics, GEO/LEO satellites, and radar signal processing. Students learn about VSAT, GPS technologies, and Doppler radar systems, with simulations in link budget analysis and satellite ground station design. Emerging topics may include Starlink-like LEO constellations and anti-jamming techniques.

## Optical Communications

Courses cover how light is used to transmit data over long distances with high bandwidth. Students understand fiber optic networks, modulation techniques, and system design for ultra-fast and reliable communication.

## Embedded Electronics & Hardware Design

Develops skills in analyzing, designing and testing electronic systems (hardware & software) that support wireless devices, embedded systems and IoT, such as microcontrollers, DSP boards and more.



# Telecommunications and Wireless Systems (TWS)