# Mechatronics Lab – Experience Robotics Through Practice

Mechanical Engineering, Tel Aviv University

## Why join?

* Turn theory into action – wire sensors, program micro‑controllers, and 3‑D‑print custom parts in a single semester.
* Own the full product cycle – go from CAD concept to a data‑logging, Wi‑Fi‑enabled robot that competes autonomously.
* Prepare yourself for the capstone project – acquire practical skills that will elevate your graduation project to new heights.
* Stand out in job search – graduate with a portfolio that proves you can blend mechanics, electronics, and embedded code.

## What you'll master

* **Embedded systems basics —** Blink → sense → control on Arduino Uno & Alvik robot
* **Sensor & actuator integration —** Distance, color, IMU, motors, servos
* **Rapid 3‑D design & printing —** Model in SOLIDWORKS, iterate on FlashForge Adventurer 5 M Pro
* **Clean electrical schematics —** Capture & debug circuits with KiCad / EasyEDA
* **Wireless networking & logging —** Stream data over Wi‑Fi, remote‑control in real time
* **Autonomous Sumo challenge —** Build & battle your robot in a 2 m arena finale

## Signature project

Design, print, and bolt on a front‑loader attachment that lifts 100 g without tipping the Alvik. Iterate fast in the lab, refine at home, and deploy it in the Sumo showdown.

## Facilities at a glance

* 3× FlashForge Adventurer 5 M Pro high‑speed FDM printers
* Fleet of Arduino Alvik robots with IMU, LiDAR‑like ToF array, wheel encoders
* Dedicated Wi‑Fi arena for multi‑bot competitions & live telemetry
* Workstations pre‑loaded with SOLIDWORKS, KiCad, VS Code, and MicroPython tools

**Ready to build the smartest hardware on campus?**

**Seats are limited** – make sure to enroll for the upcoming semester.

**Contact**:

Lab: 364, Wolfson Mechanical Engineering Building

