

Embedded Medical Devices

BME554L (Fall 2025)

Table of contents

| Module | Materials | Assessment |
|---|--|---|
| Zephyr & Nordic SoC Overview | Lecture Notes & Slides | Completion Survey (Due: TBD) Software Installs & Tutorials (Due: TBD) |
| Event-Driven State Machines | Lecture Notes & Slides | Wireless HRM Event-Driven State Machine Lab |
| Version Control (git) | Lecture Notes & Slides | Git Fundamentals Quiz Git Fundamentals Lab |
| C Programming | Lecture Notes & Slides | C Programming Quiz C Programming Lab C Programming Lab |
| Devicetree, GPIO & Callbacks | Lecture Notes & Slides Nordic DevAcademy Lesson 2: Reading Buttons & Controlling LEDs | DT/GPIO/CB Lab |
| Timers & Work Queues Threads & Kernel Events | Lecture Notes & Slides (Optional) Zephyr RTOS: Beyond the basics | Timers Lab Heartbeat & Kernel Events Refactor Lab |
| State Machine Framework | Lecture Notes & Slides | State Machine Framework Refactor Lab |
| Debugging | Debugging DevAcademy Module | None |
| Analog-to-Digital Conversion (ADC) | Lecture Notes & Slides Nordic DevAcademy: ADC | ADC Lab: Parts I & II |
| Pulse Width Modulation (PWM) | Lecture Notes & Slides Nordic DevAcademy: PWM | PWM Lab: Parts III & IV |

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|-------------------------------|---|---|
| UART/I2C/SPI & Sensors | UART DevAcademy Module & Serial Communication DevAcademy Module | None |
| Bluetooth Low Energy (BLE) | Lecture Notes & Slides DevAcademic: BLE (Lessons 1-4) | ECG & Temperature Sensing BLE Device |