1. **ECE 315, Introductory Microprocessor Laboratory**
2. **Credits :** 1  **Contact Hours :** 3.0
3. **Textbook and Materials :**
   ECE 315 Course Notes

   - **Other Supplemental Materials :** None

   - **Specific Course Information :**
     a. **Brief description of the content of the course (Course Catalog Description) :** Software and hardware experiments with a microcomputer system. Assembly language programming, simple input/output interfacing, and interrupt processing in microcomputer systems. Concurrent registration in 353 is allowed if 315 is taken second half of semester.
     b. **Pre-requisites or Co-requisites :** ECE 353
     c. **Selected Elective :**

   - **Specific Goals for the Course :**
     a. **Course Outcomes :**
        1. Students will learn the basics of firmware development on an ARM based microprocessor
        2. Students will learn how to configure key components of a microprocessor
        3. Students will develop assembly programs to interface an ARM CPU with external devices
        4. Students will learn how to handle asynchronous events using interrupt service routines
        5. Students will learn how to read schematics and datasheets.
• **ABET Student Learning Outcomes:**

  (a) Ability to apply mathematics, science and engineering principles.
  (b) Ability to design and conduct experiments, analyze and interpret data.
  (c) Ability to design a system, component, or process to meet desired needs.
  (e) Ability to identify, formulate and solve engineering problems.
  (j) Knowledge of contemporary issues.
  (k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

• **Brief List of Topics to be Covered:**
  1. ARM7 Assembly Language
  2. Firmware Development
  3. Interfacing with Basic Peripheral Devices
  4. External Memory Timing
  5. Interrupts
  6. Timers