**SIT409: EMBEDDED SYSTEMS**

**Credit Hours:** 3.5

**Pre-requisites: SCS100** Computer Architecture, SIT102 Operating Systems

**Purpose of the Course**

To equip the learner with knowledge, skills and attitudes that will enable him/her design and develop embedded systems.

**Expected Learning Outcomes of the Course**

By the end of this course unit, the learners should be able to:

1. *Design simple embedded systems.*
2. *Choose effective communication for embedded systems.*
3. *Analyze real-time scheduling algorithms.*
4. *Identify design flaws.*

**Course outline**

1. Introduction to embedded systems.
2. Specification and modeling of embedded systems.
3. Hardware components and platforms,
4. Software organization.
5. Embedded and real-time operating systems.
6. Interfacing with external environments using sensors and actuators.
7. Communication in distributed embedded systems.

**Mode of Delivery**

Lectures, tutorials, supervised laboratory exercises and seminars.

**Instructional Materials and/or Equipment**

Computers, Whiteboard markers, Textbooks, Flip Charts, Projectors

**Course Assessment**

Assignments - 10%; Continuous Assessment Test (CATS) - 20%; Examination - 70%; Total - 100%

**Recommended Core Textbooks**

1. Frank Vahid and Tony Givargis, 2001, Embedded System Design: A Unified Hardware/Software Introduction, John Wiley and Sons, ISBN No. 04711386782.

**Recommended Further Reading**

1. Stuart R. Ball, 2002, "Embedded Microprocessor Systems: Real World Design", Butterworth-Heinemann. ISBN 0-7506-9791-1. Third edition ISBN 0-7506-7534-9