Department of Computer Science (SF)

Value Added Course - (2020-2021)

19UCSV02-Embedded System for Daily Life

Course Objective

To introduce students to the modern embedded systems and to show how to understand and use them in daily life, such systems using a concrete platform built around.

Course Outcomes (CO)

At the end of this course, students should be able to:

1) Describe the differences between the general computing system and the embedded system
2) Different design platforms used for an embedded systems application
3) Understand the concepts of sensors used in various fields
4) Foster ability to understand the role of embedded systems in industry.
5) Foster ability to understand the design concept of embedded systems.

Syllabus

Unit I **(10 Hours)**

Introduction to embedded systems, embedded computer, Examples of embedded systems-digital camera, automotive embedded system, home security system, automatic washing machine, personal digital assistant ,Industrial robots, Automated teller machine, calculator.

Unit II **(10 Hours)**

Embedded system in biomedical field- Preventive care through biomedical sensors, Telemedicine, Biomedical sensors, Pacemakers, Glucose monitoring, Fitness trackers, clinical care through embedded system, smart hospital beds, clinical monitoring, Remote patient monitoring

Unit III **(10 Hours)**

Embedded system in Defence - Intelligence gathering operations, embedded computing, cyber security, vehicle electronics, Futures of embedded system-Machine learning, UI design, board bring up, Data mining, Embedded systems with IOT.

Text Books:

1) "Embedded Systems: A Contemporary Design Tool – James K. Peckol", John Wiley India Pvt. Ltd, 2009.
2) "Embedded system architecture, Programming and design", Raj Kamal, 2nd Edition, Tata Mc'Graw Hill, 2011.
3) "Embedded Systems Architecture A Comprehensive Guide for Engineers and Programmers", Tammy Noergaard, Elsevier, 2nd edition, 2013.

Reference Books:

1)K.V. Shibu, Introduction To Embedded Systems, Tata McGraw, 2017.
2)Peter Barry and Patric Crowley, Modern Embedded Computing: Designing Connected, Pervasive, Media-Rich Systems, publisher: Morgan Kaufmann, 2012.

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