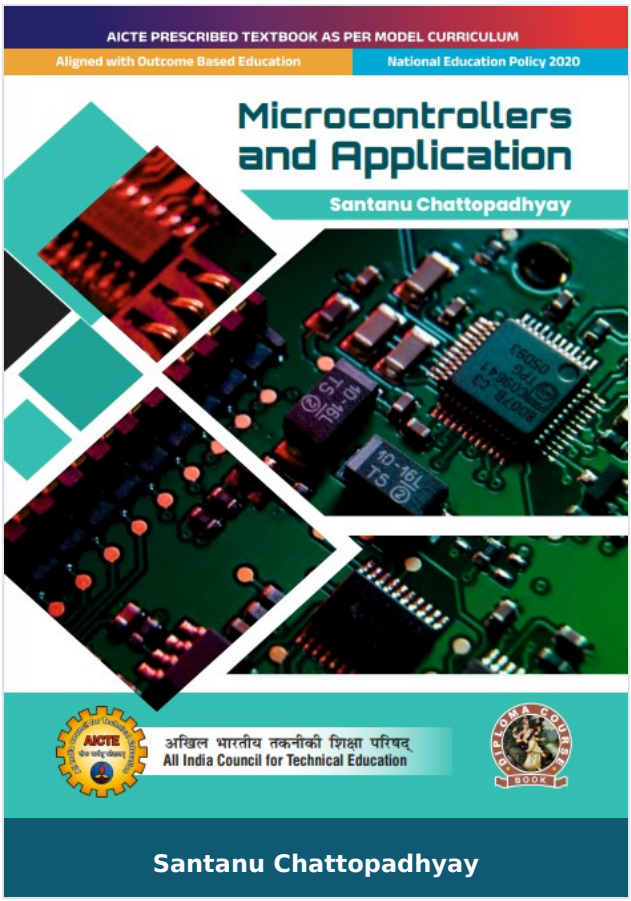


Microcontrollers and Applications

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Product Description

Microcontrollers and Applications

This book contains topics of Microcontrollers and Applications for the fourth semester students of diploma course strictly as per syllabus and model curriculum of AICTE and aligned with the theme of outcomes-based education according to National Education Policy 2020. This book comprises of fives units covering topics on fundamentals of microprocessors and microcontroller, The 8051 Architecture, instruction set and programming, I/O Interfacing and introduction to advanced Processors and Concepts.

Salient features:

- Content of the book aligned with the mapping course outcomes, programs and Units Outcomes.
- In the beginning of each unit learning outcomes are listed to make the student understand what is expected out of him/her after completing that unit.
- Book provides lots of recent information, interesting facts, QR code for E-resources, QR code for use of ICT, projects, group discussion etc.
- Student and teacher centric subject materials included in book with balanced and chronological matter.
- Figures, tables, inserted to improve clarity of topics.
- A ‘know more’ section in each unit to extends the learning beyond syllabus.
- MCQs, short-answer type, long-answer type, numerical q\and practical questions added for the units to help in self-checking of Knowledge.
- Answers have been provided for the MCQs and numerical questions. Hints have been given for solving the practical problems.

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- Instruction set and programming
- I/O interfacing
- Introduction to advanced processors and concepts
- CO and PO Attainment Table
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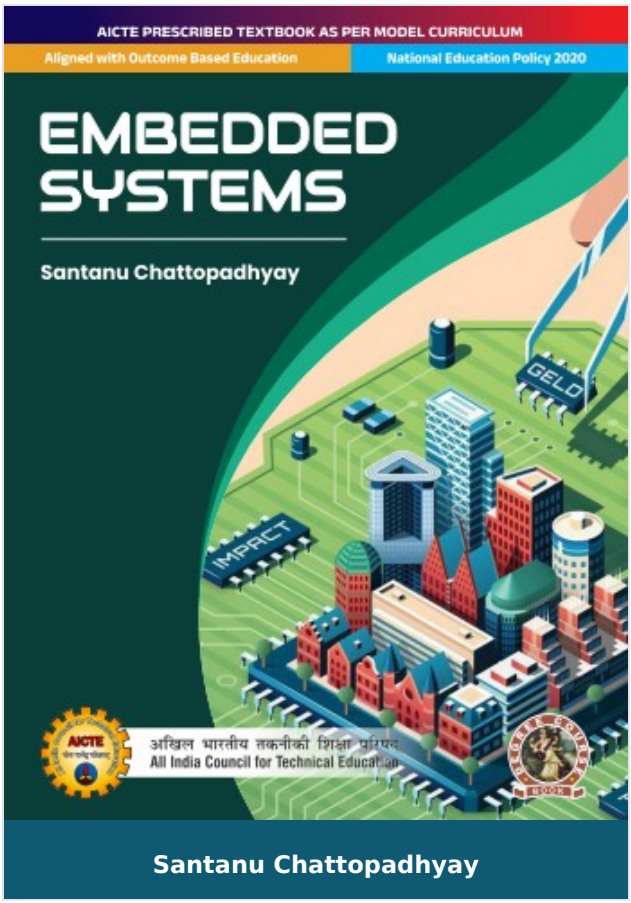
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Embedded Systems

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Product Description

Embedded Systems

This book is designed for the course on Embedded Systems. It begins with the discussion on basics of embedded system and its features. The host processors, generally used in an embedded system design have been enumerated. In the process, the ARM processor, Digital Signal Processor, FPGA and ASIC have been introduced. Special types of interfacing standards are employed to connect devices to the processor. Non-conventional interfacing standards used in embedded systems like SPI, I2C, RS-232, USB, IrDA, CAN and Bluetooth have been discussed. ADCs and DACs are used for interacting with the analog world. Buses like PCIe and AMBA are employed for developing a complete system. For larger embedded applications, Real-Time Operating Systems (RTOS) are used to realize and schedule the processes, along with their resource requirements. The language Embedded C has become the de facto standard for realizing embedded system programs. The language has been introduced with a large number of example programs. In order to keep the cost of an embedded system less while satisfying the area, performance and power constraints, it becomes necessary to partition an embedded application into set of modules which are realized either in software or in hardware. Hardware-software co-design and co-simulation techniques are employed to achieve the same. The book gives the readers a good understanding of all these topics. A good number of examples, exercises and references act as the starting point to the domain of Embedded Systems.

Salient features:

- Covers embedded processors – ARM, DSP, FPGA, ASIC.
- Discusses special interfacing standards for embedded systems – SPI, I2C, CAN, USB, Bluetooth.

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- Enumerates the essentials of RTOS and embedded programming.
- Presents hardware-software cosimulation and codesign techniques.

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