A Seminar

On

"Analog and Mixed Signal ASIC design"

Introduction:

It is important to know more about the applicability and the role of application-specific integrated circuits (ASICs) through their historical origins. This can also be used to differentiate analog and mixed-signal ASIC design. Since analog applications would typically involve higher voltages, such ICs would require their own unique set of manufacturing processes. In fact, a merger between analog and digital functionality onto a single silicon chip has increased market demands for a smaller size, lower power consumption, and higher speeds.

The significance of mixed-signal integrated circuits is that it has both analog and digital circuits on just the same chip. Mixed-signal ASIC design offers engineers the potential to reduce complex, multiple-integrated circuit designs to a single IC.

Objectives:

This seminar discusses about the differences and similarities of analog and mixed signal ASIC design. It also focuses the application of design while combining analog and digital circuits. The key points are

- Analog-to-digital conversion via all methods, such as sigma-delta modulation
- Circuit design with linear circuits as well as switched capacitor circuit techniques
- Design of low power circuits & Mixed-signal ASIC design and modeling

Speaker's Details : Dr.K.Rasadurai, Associate Professor, Kuppam Engineering College, Kuppam

Date : 05.12.2019

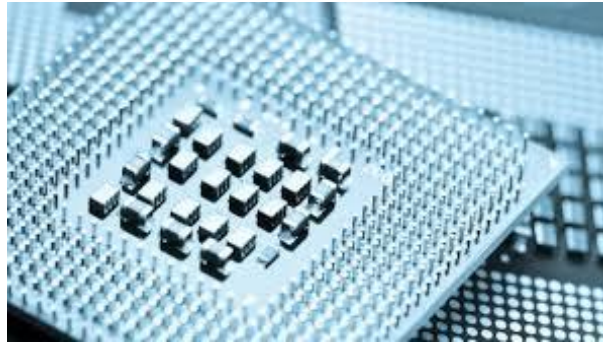**Target Audience** : Students of ECE, SITAMS.

Organised by : Department of ECE, SITAMS.

A Seminar
On
"**Introduction to FPGA Design for Embedded Systems**"

Introduction:

Programmable Logic has become more and more common as a core technology used to build electronic systems. By integrating soft-core or hardcore processors, these devices have become complete systems on a chip, steadily displacing general purpose processors and ASICs. In particular, high performance systems are now almost always implemented with FPGAs.

This seminar will give you the foundation for FPGA design in Embedded Systems along with practical design skills. You will learn what an FPGA is and how this technology was developed, how to select the best FPGA architecture for a given application, how to use state of the art software tools for FPGA development, and solve critical digital design problems using FPGAs.
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Objectives:

This seminar is focused on FPGA development tools to complete several example designs, including a custom processor. The key areas discussed in the seminar are

- Primality Test
- Verilog
- Digital Design
- Static Timing Analysis

Speaker's Details :Mr.K.Ramachandra Reddy, St. Joseph's College of Engineering, Chennai

Date : 16.03.2020

Target Audience : Students of ECE SITAMS.

Organised by : Department of ECE, SITAMS.

A Seminar
On
"Open Radio Access Network and Learning Algorithms for Next-Generation Massive MIMO Applications"

Introduction:

The radio access network (RAN) is moving towards open interfaces that offer wireless applications rich opportunities for customization and optimization. In 5G and beyond, the use of a large number of antenna elements, referred to as Massive MIMO, is envisioned to be the key physical layer enabling technology to transform wireless access into a high-throughput, low-latency multi-user medium where interference can be mitigated based on beamforming techniques. When the control of these large number of antenna elements are exposed via open interfaces, the RAN becomes a platform for the next-generation learning-based intelligent algorithms to deliver self-optimizing network access and connectivity.

Objectives:

To cater to the ever-increasing data traffic demand expected in 5G, as well as to the higher speeds, mid- and high-band spectrum availability. The key points discussed in this seminar are

- To overcome coverage issues associated with high-frequencies
- Secure the best spectrum efficiency to maximize the value of the spectrum investment.
- minimizing the radio size, weight and power consumption of radios, so that we can enable faster and affordable roll-out for communication service providers (CSP).

Speaker's Details	: Dr.C.Kumar, Associate Professor, ECE, GTEC, Vellore
Date	: 10.02.2020
Target Audience	: Students of SITAMS.
Organised by	: Department of ECE, SITAMS.

A Seminar
On
"Reconfigurable Intelligent Surfaces: A Signal Processing Perspective"
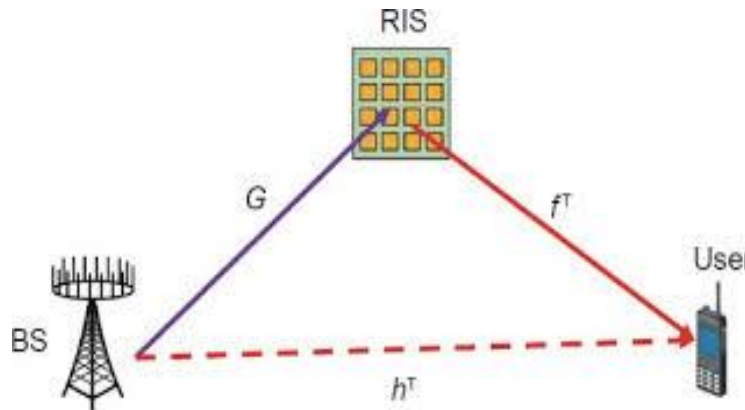
Introduction:

Wireless connectivity is becoming as essential as electricity in our modern world. Although we would like to deliver wireless broadband services everywhere, the underlying physics makes it inherently complicated: the signal power vanishes very quickly with the propagation distance and is absorbed or scattered when interacting with objects in the way. Even when we have a "strong" signal, only one in a million parts of the signal energy is being received, thus, there is a huge room for improvements!

Objectives:

In this seminar, the fundamentals of this new technology explained from a signal processing perspective. By deriving a signals-and-systems description, we can look beyond the initial hype and understand what is actually happening when using reconfigurable intelligent surfaces. It also covers the basic modeling and its practical limitations. This seminar will culminate in the description of two major challenges that need to be tackled by the research community.

Speaker's Details : Mr.S.Nagaraj, Associate Professor, Department of ECE, SVCET

Date : 08.11.2019

Target Audience : Students of ECE, SITAMS.

Organised by : Department of ECE, SITAMS.

A Seminar
On
"RFID TECHNOLOGY"

Introduction:

Radio-frequency identification (RFID) is a technology that uses communication via electromagnetic waves to exchange data between a terminal and an electronic tag attached to an object, for the purpose of identification and tracking. Some tags can be read from several meters away and beyond the line of sight of the reader. Radio-frequency identification involves interrogators (also known as readers), and tags (also known as labels). Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions. The other is an antenna for receiving and transmitting the signal.

Objectives:

RFID implementation is on the rise these days. It has been successful in several industries such as retail, manufacturing, logistics. Though not exactly a new technology, it has evolved appreciably. Today, RFID is a powerful technology for the business in data collection, tracking location and movement of assets and equipment. It is also used in sectors like supply chain management, inventory control, e-Passports. Besides, it is used by the authorities to keep track of prisoners and by farmers as well to keep track of animals.

Speaker's Details	: Mr.R.M.Sulthani, Professor, Department of ECE, SITAMS
Date	: 15.07.2019
Target Audience	: Students of ECE, SITAMS.
Organised by	: Department of ECE, SITAMS.

A Seminar
On
"Robotic Process Automation (RPA) Specialization"

Introduction:

The Robotic Process Automation (RPA) specialization offers comprehensive knowledge and professional-level skills focused on developing and deploying software robots. It starts with the basic concepts of Robotic Process Automation. It builds on these concepts and introduces key RPA Design and Development strategies and methodologies.
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Objectives:

A student attending this seminar shall develop the competence to design and develop automation solutions for business processes. The key areas discussed in the seminar are

- Learn the basic concepts of Robotic Process Automation
- Develop familiarity and deep understanding of UiPath Platform
- Develop the ability to independently design and create automation for business processes.

Speaker's Details   : Dr.K.V.Kavitha, Associate Professor from Vellore Institute of Technology, Vellore

Date   : 16.10.2019

Target Audience   : Students of ECE, SITAMS.

Organised by   : Department of ECE, SITAMS.

A Seminar
On
"Recent Advances of Microwave Technology and Applications"

Introduction:

With the advantages of non-ionisation nature and relatively low cost and complexity, microwave is widely used in many engineering fields, such as target recognition, target location, tumor detection and therapy, wireless power transfer, regional confidential communication, structural health monitoring, etc. While some technical bottlenecks need to be addressed, including resolution and accuracy of recovering target, especially in complex media and in the environment where target's material is similar to the background material; the efficiency of long-distance wireless power transfer; the enhancement of quality of communication; the shaping and control of microwave field; the generation of arbitrary microwave field in a given limited region; the design of waveform and array for the aforementioned areas.

Objectives:

This seminar aims to gather the latest, state-of-the-art progress in the research of microwave technology, and find the solution to address the aforementioned problems. Potential topics include, but not limited to:

- Antenna and array: design and application in microwave systems.
- Imaging based on microwave: utilization in tumor detection, target location and recover in imaging map, structural health monitoring.
- Microwave field: field shaping, field control, transient field shaping, constant field shaping.
- Wireless power transfer based on microwave.
- Enhancement of any aspect of communication. And Wave design.

Speaker's Details : Mr.K.Yogaprasad, Associate Professor, ECE, SITAMS

Date : 12.08.2019
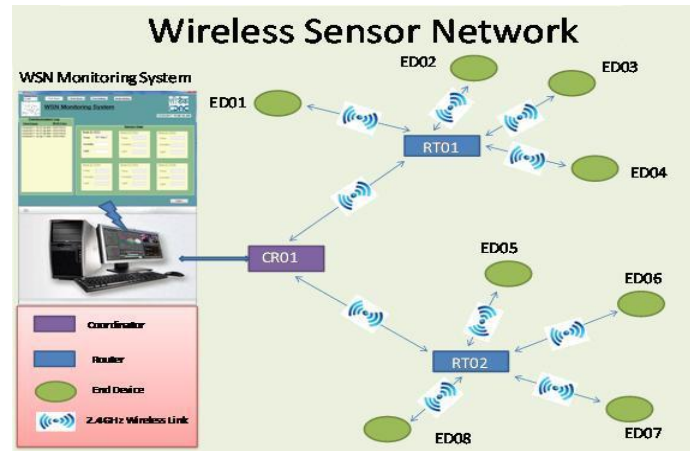
Target Audience : III year Students of ECE, SITAMS.

Organised by : Department of ECE, SITAMS.

A Seminar
On
"**Wireless Sensor Networks and it's Applications**"

Introduction:

Wireless sensor networks come with a reputation of being able to solve the toughest of tough problems due to their flexibility in solving problems in different application domains and hence have the potential to change the lives of many in different ways. hus it should come as no surprise that Wireless Sensor networks have been applied in many different domains for many different applications.

Objectives:

Wireless sensor networks are implemented as self-configured wireless networks to monitor many different conditions be it physical or environmental. These include monitoring the temperature, sound, vibration, motion, pollutants, pressure and many more factors as well.

Since they are wireless networks they are capable of passing the data gathered by the sensors to remote locations where the data is then observed and analysed. This seminar addresses several applications of WSN. They are

- Structural Monitoring, Industrial Monitoring
- Agricultural Sector
- Transportation and Health applications

Speaker's Details : Dr.K.C.Sriharipriya, VIT University, Vellore

Date : 09.01.2020

Target Audience : Students of ECE, SITAMS.

Organised by : Department of ECE, SITAMS.

A Seminar
On
"Wireless Technology for Embedded System"

Introduction:

It is undeniable wireless, and sensor powered assets are resonating deeper into daily life, whether in the home as a SMART system or in an industrial environment to innovate, business and home-based infrastructures continue to surge toward IoT built compositions that not only enhance productivity but aid economical action in an ecosphere that is progressively more fast-paced and demanding. Embedded systems provide capability to perform efficient automated tasks that yield value in the IoT business chain. In this climate Embedded Engineers are an increased demand in conjunction with the market value of Embedded Systems.

Objectives:

Wireless communication is vital for telecom equipment, IoT gadgets, multimedia electronics, and automotive devices. This seminar discusses how to design hardware in all these areas by using ZigBee, Bluetooth, Wi-Fi, IrDA, RFID, GSM, CDMA.

Speaker's Details : Mr.K.Malika Arjun Reddy, Associate Professor, Vemu Institute of Technology, Chittoor.

Date : 04.09.2019

Target Audience : Students of ECE, SITAMS.

Organised by : Department of ECE, SITAMS.