



SATHYABAMA UNIVERSITY

(Established under Section 3 of the UGC Act, 1956)

Declared as Category 'A' University by MHRD, Govt. of India
Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai – 600 119, Tamil Nadu. India..



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Minutes of BOS meeting

DATE: 05.04.2017

TIME: 10AM TO 12.30PM

VENUE: VLSI LAB

- Dr.E.Logashanmugam, Faculty Head of school of electrical and electronics greeted all the members of the board. Dr.G.Sundari, Professor and Head of the ECE department welcomed the external and internal members of the board of studies. The guidelines of the syllabus given by the management were explained by HOD to all the members of the BOS. The external members also ratified the decision to revise the syllabus under the mentioned guidelines. The HODs of ECE, EEE, E&I, E&C and ETCE under the Faculty of Electrical and Electronics, Staff members from the faculty attended the meeting to have an effective interaction with the members as and when required.
- Dr.G.Sundari, Prof. & Head Department of Electronics and Communication started the meeting by welcoming both the external and the internal numbers to the Board of Studies meeting. The guidelines of the syllabus given by the management were explained by HOD to all the members of the BOS. The external members also ratified the decision to revise the syllabus under the mentioned guidelines.
- Dr.T.Ravi, proposed syllabus revision in 'Nano Electronics' Dr.M. Madhavi Latha, Professor, JNTU College of Engineering, Hyderabad accepted the changes.
- Dr.P.Chitra suggested the inclusion of topic synchronization in 'Digital Communication' subject. Dr.Ram Bilas Pachori, Professor, IIT Indore suggested to add the topics such as Tracking and acquisition, application of spread spectrum techniques and types of sampling.
- Dr. M. Madhavi Latha accepted the changes incorporated in the subject 'Advanced Electronic Test Engineering' suggested by Dr.P.kavipriya. The new courses introduced are Computer Architecture and operating systems, Professional Training-2 and Project Work (Phase 1).
- Dr.T.Ravi also presented the new course introduced for PG courses are Pervasive Computing, Fundamentals of IoT, Microcontrollers, Network Programming, Design of Embedded Systems, Advanced Digital Signal Processing and Microcontrollers and IoT Lab. The Syllabus Revision carried out in PG courses is RF Circuit Design and MEMS technology
- Dr.Sivakumaran accepted the changes made in the subject 'Discrete Electronic circuits' by adding the oscillators as suggested by Mrs. Sujatha.



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- Dr.V.Sivachidambaranathan, Prof.& Head, Dept. of Electrical and Electronics Engineering requested Dr.Sundarsingh, Faculty/EEE to present the curriculum revisions before the board.
- He presented the old and new syllabus for Power System Analysis before the board and discussed the valid additions made in the syllabus.
- Dr.V.Sivachidambaranathan put forth the syllabus of the new courses, 'Electrical Power Quality' for the approval of the board. Dr. A.Amalin Prince approved the Syllabus for this new course.

The next BOS meeting may be scheduled on Oct 2017 to review and finalize the syllabus revision process.

The following internal and external members were present in the meeting.

INTERNAL MEMBERS	SIGNATURE
1. Dr.E.Logashanmugam	
2. Dr.G.Sundari	
3. Dr.N.M.Nandhitha	
4. Dr.V.Sivachidambaranathan	
5. Dr.V.Vijaya Baskar	
6. Dr.S.Lakshmi	
7. Dr.T.Ravi	
8. Dr.V.G.Sivakumar	
9. Dr. P. Kavipriya	
10. Dr.P.Chitra	



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11. Dr.S.Karthikeyan

Signature

12. Ms.K.Srilatha

13. Dr.R.Ramadevi

R.R. Ramadevi

14. Mrs.K.Sujatha

15. Dr.Susitra

Susitra

EXTERNAL MEMBERS

Dr. M. Madhavi Latha
Professor, JNTU College of Engineering
Hyderabad

MML
5/4/17

Dr.Ram Bilas Pachori
Professor, IIT Indore

Comp.
5/4/17

Dr.Sivakumaran,
Professor, NIT, Thiruchirapaali

AGL
5/4/17



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Minutes of BOS meeting

DATE:03.10. 2017

TIME: 10AM TO 12.30PM

VENUE: VLSI LAB

- Dr.N.M.Nandhitha ,Dean and Head, School of Electrical and Electronics Engineering greeted all the internal members of the board of studies. The HODs of ECE, EEE, E&I, E&C and ETCE under the Faculty of Electrical and Electronics, Staff members from the faculty attended the meeting to have an effective interaction with the members as and when required.
- Dr.T.Ravi, proposed syllabus revision in 'MEMS and its applications. Dr.M. Madhavi Latha, Professor, JNTU College of Engineering, Hyderabad accepted the changes. Dr.S.Karthikeyan presented the changes made in 'Pattern Recognition and Image vision'. Dr.Ram Bilas Pachori, Professor, IIT Indore accepted the changes.
- Dr.P.Chitra suggested the inclusion of topic synchronization in 'Digital Signal processing' subject. Dr.Ram Bilas Pachori, Professor, IIT Indore suggested to add the topics such as Applications of Multirate signal processing, Speech compression, Adaptive filter, Musical sound processing.
- Dr S Lakshmi, proposed syllabus revision in 'Analog integrated circuit'. Dr.M. Madhavi Latha, Professor, JNTU College of Engineering, Hyderabad accepted the changes. The new courses introduced are Telecommunication Systems and Services, Microprocessors and Microcontrollers and Embedded Systems.
- Dr.T.Ravi also presented the new course introduced for PG courses are Software Modeling For Embedded System, Wireless Sensor Networks for IoT, Embedded OS and Device Drivers, Embedded OS and device drivers lab, Industry 4.0, and Mobile Application Development. The Syllabus Revision carried out in PG courses is Robotics and Computer Vision.
- Dr.R.Ramadevi proposed the introduction of new subject 'Soft Computing techniques'. Dr.Sivakumaran suggested to add an unit on Genetic algorithm.



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- Dr.V.Sivachidambaranathan, Prof.& Head, Dept. of Electrical and Electronics Engineering requested Dr.Radhika.S, Faculty/EEE to put forth the feedback collected from Staff and 2014 – 2016 Batch Students and requested the board members to approve for the shift in the course titled “Digital Signal Processing & its Applications” (SEC1315) to Semester 6 in 2015 Regulations. With respect to this change the course titled “Principles of Embedded System” (SEC1317) is suggested to shift to Semester 7 in 2015 Regulations.
- Dr.V.Sivachidambaranathan, presented the old and new syllabus for Special Electrical Machines and Power Generation and Utilization before the board and discussed the valid additions made in the syllabus.
- Dr. V. Sivachidambaranathan requested Dr.Vanitha, Faculty /EEE to present the syllabus of the new course, ‘Energy Storage Systems’ for the approval of the board. Dr. A.Amalin Prince approved the Syllabus for this new course.

The next BOS meeting may be scheduled on April 2018 to review and finalize the syllabus revision process.

The following internal members were present in the meeting.

INTERNAL MEMBERS

SIGNATURE

1. Dr.N.M.Nandhitha 
2. Dr.V.Sivachidambaranathan 
3. Dr.V.Vijaya Baskar 
4. Dr.S.Lakshmi 
5. Dr.T.Ravi 
6. Dr.V.G.Sivakumar 
7. Dr. P. Kavipriya 



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8. Dr.P.Chitra

P. Chitra

9. Dr.S.Karthikeyan

S. Karthikeyan

10. Mrs.K.Srilatha

K. Srilatha

11. Mrs.L.Magthelin Therase

L. Magthelin Therase

12. Mrs.I.Rexiline Sheeba

I. Rexiline Sheeba

13. Dr.Susitra

Susitra

14. Dr.Ramadevi

R. Ramadevi

15. Mrs. Sujatha

S. Sujatha

EXTERNAL MEMBERS

Dr. M. Madhavi Latha

Professor

JNTU College of Engineering

Hyderabad

MML
30/10/17

Dr.Ram Bilas Pachori

Professor, IIT Indore

R. Pachori
31/10/17

Dr.Sivakumaran,

Professor, NIIT, Thiruchirappalli

S. Sivakumaran
30/10/17

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NEW COURSES(2017-2018)

SL.NO	COURSE CODE	COURSE NAME
1.	SCS1315	Computer Architecture and Operating Systems
2.	S13PT2	Professional Training-2
3.	S13PROJ	Project Work (Phase 1)
4.	SEC1321	Telecommunication Systems and Services
5.	SEC1201	Microprocessors and Microcontrollers
6.	SEC1320	Embedded Systems

SCS1315	COMPUTER ARCHITECTURE AND OPERATING SYSTEM	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION 9 hrs

Central Processing Unit - Introduction - General Register Organization - Stack organization -- Basic computer Organization - Computer Registers - Computer Instructions - Instruction Cycle. Arithmetic, Logic, Shift, Micro operations- Arithmetic Logic Shift Unit -Example Architectures: MIPS, Power PC, RISC, CISC

UNIT 2 CONTROL UNIT DESIGN AND MULTI PROCESSORS 9 hrs

Micro programmed Control: Control memory - address sequencing - Micro program Example- Design of Control unit -Example Processor design Multiprocessors: Characteristics- Interprocessor Arbitration- Interprocessor Communication

UNIT 3 MEMORY AND I/O SYSTEM 9 hrs

Memory Organization: Memory Hierarchy - Main memory - auxiliary Memory - Associative Memory - Cache Memory - Virtual memory Input - Output Organization: Peripheral Devices - I/O Interface, Modes of transfer – Priority Interrupt - DMA -IOP - Serial Communication

UNIT 4 INTRODUCTION 9 hrs

Introduction - Operating system structures - System components - OS services - Process Management: Processes – Process concepts - Process scheduling-- CPU scheduling- Scheduling algorithms - Preemptive strategies - Non-preemptive strategies

UNIT 5 PREPARING FOR FUTURE 9 hrs

The critical section problem - Semaphores - Deadlocks - Deadlock characterization - Prevention – Avoidance – Detection - Recovery. Storage Management Strategies - Contiguous vs. non-contiguous storage allocation- Paging - Segmentation - Paging/Segmentation systems - Page replacement strategies

Max: 45 hrs

COURSE OUTCOMES:

On completion of this course, students are able to

CO1	Describe the micro level dataflow in various units of computer
CO2	Demonstrate the impact of control memory operations and multi-processor characteristics
CO3	Examine the different types of memory and experimenting the mapping techniques
CO4	Select the suitable process scheduling technique for optimized function of operating systems
CO5	Critically appraise the deadlock in CPU and other memory management techniques
CO6	Develop an optimized architecture for stand-alone applications

TEXT / REFERENCE BOOKS:

1. M.Morris Mano, "Computer System Architecture", Prentice-Hall Publishers, Third Edition,2007
2. John P Hayes, 'Computer Architecture and Organization', McGraw Hill international edition, Third Edition,2007
3. Kai Hwang and Faye A Briggs, 'Computer Architecture and Parallel Processing', McGraw Hill International edition.
4. Abraham Silberschatz,Peter Galvin and Gagne, "Operating System Concepts", 6th Edition, Addison Wesley, 2002
5. Harvey M.Deitel, "Operating System", 2nd Edition, Addison Wesley, 2000

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100****Duration: 3 hrs****Exam****Part A:** 10 questions of 2 marks each - No choice**20 Marks****Part B:** 5 questions from each unit with internal choice, each carrying 16 marks**80 Marks**

SEC1321	TELECOMMUNICATION SYSTEMS AND SERVICES (For ECE and ETCE)	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 BASICS OF TELECOMMUNICATION

9 hrs

End users, nodes and connectivities, telephone numbering and Routing, use of Tandem switches in Local area connectivity, Busy Hour and Grade of Service, Simple, Half duplex and full duplex, One-way and two-way circuits, Network topologies, variations in traffic flow, quality of service, Standardization in telecommunication.

UNIT 2 SIGNALLING IN TELECOMMUNICATION SYSTEMS

9 hrs

Introduction, purpose of signaling, Defining the functional areas-supervisory signaling, address signaling and Call Progress-audio and visual. Signaling techniques - conveying signaling information, evolution of signaling subscriber call progress tones and push button codes, compelled signaling, concepts of Link-by-link and end-to-end signaling, effects of numbering on signaling, associated and disassociated channel signaling, signaling in the subscriber loop-background and purpose, metallic trunk signaling - basic loop signaling, reverse-battery signaling, stimulus signaling, functional signaling, Object-oriented signaling.

UNIT 3 TELECOMMUNICATION TRAFFIC

9 hrs

Unit of Traffic, traffic measurement, a mathematical model, Lost-call systems: Theory, traffic performance, loss systems in tandem. Queuing systems - Erlang Distribution, probability of delay, Finite queue capacity, systems with a single server, Queues in tandem, delay tables and application of Delay formulae. Traffic Characteristics - arrival distributions, Holding time distribution. Loss Systems - Lost calls cleared, lost calls returning, lost calls Held, lost calls cleared. Overflow Traffic.

UNIT 4 TELECOMMUNICATION SERVICES ENGINEERING

9 hrs

Introduction, Definition For Service And Service Engineering. Telecommunication Services Engineering- Telecommunication Services On Broad Band Networks - Basics of ATM, Connection Oriented And Connectionless Services.

UNIT 5 QUALITY OF SERVICE AND TELECOMMUNICATION IMPAIRMENTS

9 hrs

QoS (voice, data and image) - signal-to-noise ratio, voice transmission, data circuits, video. Basic impairments - amplitude distortion, phase distortion and noise. Level - typical levels, echo and ringing. QoS issues in video transmission - problems and solutions. Protocols for QoS support for audio and video applications - RSVP applications, Real-Time Streaming Protocol Applications and Active Streaming Format, Internet stream protocol (version 2), IP Multicast

Max: 45 hrs

COURSE OUTCOMES:

On completion of this course, students are able to

CO1	Describe the various types of connectivity, topology and standardization in telecommunication
CO2	Explain the types of signaling
CO3	Demonstrate the traffic and delay performance
CO4	Analyze the various services of communication under critical conditions
CO5	Evaluate data transmission impairment techniques in telecommunications
CO6	Examine various protocols for data transmission

TEXT / REFERENCE BOOKS:

1. Roger L. Freeman, "Fundamentals of Telecommunications", John Wiley & Sons, 2008.
2. Kornel Terplan, Patricia Morreale Boca Raton, "The Telecommunications Handbook", CRC Press LLC, 2000.
3. Flood. J.E., Telecommunication switching, Traffic and Networks, Pearson Education Ltd, New Delhi, 2006
4. Viswanathan T, Telecommunication switching systems and networks, PHI 2006
5. Marin Cole, "Introduction to Telecommunications –Voice, Data and Internet", Pearson Education, 2001
6. Louis.E.Frenzel, Communication Electronics – Principles and Application", 3rd Edition, Tata McGraw-Hill, 2002

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100****Duration: 3 hrs****Exam****Part A:** 10 questions of 2 marks each - No choice**20 Marks****Part B:** 5 questions from each unit with internal choice, each carrying 16 marks**80 Marks**

SEC1201	MICROPROCESSORS AND MICROCONTROLLERS (For ECE, ETCE, E&C, CSE and IT)	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION TO MICROPROCESSORS 9 hrs

Introduction, 8085 Architecture, Pin Diagram and signals, Addressing Modes, Timing Diagram- Memory read, Memory write, I/O cycle, Interrupts and its types, Introduction to 8086 microprocessors and its operation.

UNIT 2 PROGRAMMING 8085 MICROPROCESSOR 9 hrs

8085 assembly language programming, addressing modes, 8085 instruction set, Instruction formats, Instruction Classification: data transfer, arithmetic operations, logical operations, branching operations, machine control —Stack and subroutines, Example Programs

UNIT 3 PERIPHERALS AND INTERFACING 9 hrs

Introduction, memory and I/O interfacing, data transfer schemes, Interface ICs'- USART (8251), programmable peripheral interface (8255), programmable interrupt controller (8259), programmable counter/interval timer (8254), Analog to Digital Converter (ADC), and Digital to Analog Converter (DAC).

UNIT 4 INTRODUCTION TO MICROCONTROLLERS 9 hrs

Introduction To Microcontrollers, Difference Between Microprocessors And Microcontrollers, Architectural Features of 8051, I/O Ports, Interrupts, Addressing Modes And Instruction Set Of 8051, Programming Examples.

UNIT 5 APPLICATIONS BASED ON 8085 AND 8051 9 hrs

Interfacing Basic Concepts, Interfacing LED, 7 Segment LED, Stepper Motor Control System, Temperature Control System, Traffic Light Control System, Motor Speed Control System, Waveform Generation, Interfacing LCD.

Max: 45 hrs

COURSE OUTCOMES:

On completion of this course, students are able to

CO1	Describe the fundamentals of 8085 and 8086
CO2	Apply addressing mode and instruction set to program 8085 microprocessor
CO3	Develop the interfacing concepts of Peripheral IC's
CO4	Create assembly language programs using 8051 microcontroller
CO5	Examine the applications of microprocessor and microcontroller
CO6	Design and develop microprocessor and microcontroller based systems

TEXT / REFERENCE BOOKS:

1. Ramesh Gaonkar, "Microprocessor Architecture, Programming and applications with 8085", 5th Edition, Penram International Publishing Pvt Ltd, 2010
2. Kenneth J Ayala, "The 8051 Microcontroller", 2nd Edition, Thomson, 2005
3. N.Senthil Kumar, M.Saravanan, S.Jeevananthan, 'Microprocessors and Microcontrollers', Oxford,2013
4. Mohamed Ali Mazidi, Janice Gillispie Mazidi, Rolin McKinlay, "The 8051 Microcontroller and Embedded Systems: Using Assembly and C", Second Edition, Pearson education, 2011

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100

Duration: 3 hrs

Exam

Part A: 10 questions of 2 marks each - No choice

20 Marks

Part B: 5 questions from each unit with internal choice, each carrying 16 marks

80 Marks

SEC1320	EMBEDDED SYSTEMS (For ECE, ETCE, E&C, CSE and IT)	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION TO EMBEDDED SYSTEMS 9 hrs

Embedded system- characteristics of embedded system- categories of embedded system- requirements of embedded systems- challenges and design issues of embedded system- trends in embedded system- system integration- hardware and software partition- applications of embedded system- control system and industrial automation-biomedical-data communication system-network information appliances- IVR systems- GPS systems

UNIT 2 EMBEDDED SOFTWARE DEVELOPMENT AND TOOLS 9 hrs

Software architectures, Round - Robin, Round-Robin with Interrupts, Function Queue Scheduling architecture, Introduction to assembler - Compiler -Cross compilers and Integrated Development Environment IDE, Linker/ Locators, Simulators, Getting Embedded software into target System- Debugging Strategies

UNIT 3 EMBEDDED NETWORKING 9 hrs

Embedded Networking: Introduction, I/O Device Ports - Serial Bus communication protocols- RS232 standard - RS485 - CAN Bus - RS485 - Serial Peripheral Interface (SPI) - Inter-Integrated Circuits (I2C) - PC Parallel port communication Protocols -Bluetooth-network using ISA, PCI- Wireless and Mobile System Protocols

UNIT 4 EMBEDDED PROGRAMMING 9 hrs

Programming in assembly language (ALP) vs. High Level Language - C Program Elements:- Macros and functions, Use of Date Types, Structure, Pointers, Function Calls - Concepts of Embedded Programming in C++- Objected Oriented Programming, Embedded Programming in C++, 'C' Program compilers - Cross compiler - Optimization of memory needs-Java programming advantages, disadvantages and J2ME concept

UNIT 5 EMBEDDED SYSTEM TESTING AND APPLICATION 9 hrs

Introduction to embedded system testing - Types of testing: Unit testing, Regression testing, Functional testing, Coverage tests, Gray box test and performance testing - Embedded applications: Case study of Smart card, Interfacing stepper motor, RFID-system, Application, Tag Reader - Handheld Device - Washing Machine

Max: 45 hrs

COURSE OUTCOMES:

On completion of this course, students are able to

CO1	Describe the basics principles of Embedded system and its application
CO2	Describe development tools used to design embedded systems
CO3	Compare the performance of various communication protocols for embedded systems
CO4	Analyze the various programming strategies in embedded system
CO5	Apply the programming concepts of C,C++,J2ME
CO6	Estimate the performance of Embedded system using various testing methodologies

TEXT / REFERENCE BOOKS:

1. Raj Kamal, 'Embedded system-Architecture, Programming, Design', Tata McGraw Hill,2011
2. KVKK Prasad, "Embedded / Real Time Systems", Dreamtech Press, 2005
3. David Simon, "An Embedded Software Primer", Pearson Education Asia, First Indian Reprint 2000
4. Arnold Berger, "Embedded system design", CMP books, 1st Edition, 2005
5. Wayne Wolf, "Computers as components", Morgan Kaufmann publishers, 2nd Edition, 2008
6. Tammy Noergaard, "Embedded Systems Architecture", Elsevier, 2006
7. Steve Heath, "Embedded Systems Design", Second Edition, Elsevier India Pvt.Ltd., 2007
8. Ayla, "Embedded System", Pearson Education,2nd Edition 2013
9. Qing Li, "Real Time Concepts for Embedded Systems",Elsevier,2011

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100****Duration: 3 hrs****Exam****Part A:** 10 questions of 2 marks each - No choice**20 Marks****Part B:** 5 questions from each unit with internal choice, each carrying 16 marks**80 Marks**