DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

9th Board of Studies Meeting

Date & Time: 30.04.2025 & 09.30 AM

Meeting Link: Zoom Meeting ID:

https://us06web.zoom.us/j/81498337482?pwd=gujIOmaSbPVSU1JaW3G0bc2CYv7zLv.1

ERODE SENGUNTHAR ENGINEERING COLLEGE
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PERUNDURAI -638 057, TAMILNADU, INDIA.

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AGENDA

The 9th Board of Studies Meeting is convened on 18.10.2024 at 10.00 AM. The agenda for the meeting is as follows.

BoS /ECE 9.1	:	Welcoming Board of Studies members and opening remarks by the Chairman, Board of Studies, Department of Electronics and Communication Engineering.
BoS /ECE 9.2	:	Confirmation of the Minutes of 8th Meeting of Board of Studies in the Department of Electronics and Communication Engineering held on 10.07.2024 and Action taken report of 8th meeting of Board of Studies meeting.
BoS /ECE 9.3	:	Inclusion of industry oriented course in the field of Electric Vehicle Technology in the 6th semester B.E. Electronics and Communication Engineering programme offered under Regulations 2023.
BoS /ECE 9.4	:	Replacing the course "Problem Solving and Python Programming" with "Python Programming with AI" for the students admitted in the year 2025-26 for the B.E. Electronics and Communication Engineering programme offered under Regulations 2023.
BoS /ECE 9.5	:	Adding Video link of NPTEL course in reference of all the courses under regulations 2023
BoS /ECE 9.6	:	Approval of seventh and eight semester syllabus for the B.E. Electronics and Communication Engineering programme offered under Regulations 2023.
BoS /ECE 9.7	:	Approval of one credit courses offered for the students admitted under Regulations 2023
BoS /ECE 9.8	:	Approval of identified equivalent subjects to be included/exempted for the students readmitted from regulations R-2019 to regulations R-2023
BoS /ECE 9.9	:	Approval of list of external examiners for the valuation.
BoS /ECE 9.10	:	Any other items

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BOARD OF STUDIES – ECE

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

9th Board of Studies Members

1.	**Dr.S.BHARATHIDASAN,** Associate Professor & Head / ECE, ESEC	Chairman
2.	**Dr.G.THIRUGNANAM** Associate Professor (CAS) Department of Electronics and Communication Engineering, Govt College of Technology, Coimbatore – 641 013.	UniversityNominee
3.	**Dr.S.Sivanantham** Associate Professor Sr- & Asst- Dean-AR Department of Micro and Nano Electronics VIT University, Vellore, Email::ssivanantham@vit.ac.in	AcademicExperts
4.	**Mr.S.Sundaramoorthy,** CEO ,Sunshiv Electronic Solution , Coimbatore.	Industrial Expert Related to Placement
5.	**Dr.K.Thiyagarajan,** Assistant Professor (Sl.Gr) Department of Electronics and Communication Engineering, PSG College of Technology, Peelamedu, Coimbatore – 641 004.	Meritorious Alumnus nominated by the Principal
6.	**Dr.R.Kalaivani,** Professor / ECE	Internal Members
7.	**Dr.R.Brindha** Associate Professor / ECE	
8.	**Dr.V.Thamizharasan,,** Assistant Professor / ECE	
9.	**Mr.S.Gladson,** Assistant Professor / ECE	
10.	**Mr. M. Karthikkumar,** Assistant Professor / ECE	
11.	**Ms. K. R. Priya Dharshini,** Assistant Professor / ECE	

12.	**Ms.V.Gayathiri,** Assistant Professor / ECE	
13.	**Ms.V.Savitha** Assistant Professor / ECE	
14.	**Ms.R.Savitha** Assistant Professor / ECE	
15.	**Mr.Sakthivel** Assistant Professor / ECE	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
ANNEXURE –I

9th Board of Studies Meeting

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1.	**Dr.S.BHARATHIDASAN,** Associate Professor & Head / ECE, ESEC	
2.	**Dr.G.THIRUGNANAM** Associate Professor (CAS) Department of Electronics and Communication Engineering, Govt College of Technology, Coimbatore – 641 013.	UniversityNominee
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10.	**Mr. M. Karthikkumar,** Assistant Professor / ECE	
11.	**Ms. K. R. Priya Dharshini,** Assistant Professor / ECE	
12.	**Ms.V.Savitha** Assistant Professor / ECE	
13.	**Mr.N.Sakthivel** Assistant Professor / ECE	
14.	**Ms.Amsaveni** Assistant Professor / ECE	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

<u>**9th Board of Studies Meeting**</u>

ACTION TAKEN REPORT FOR BOS MEETING CONDUCTED ON 18.10.2024

Meeting Link: Zoom Meeting ID:

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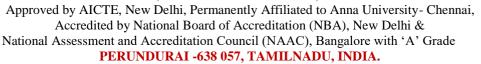|		
BoS / ECE/ 9.1	:	WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES
		The Chairman of the Board of Studies welcomed all the members to the meeting for discussing proposed B.E. – Electronics and Communication Engineering and M.E. Applied Electronics curriculum of all semesters and syllabus of VII to VIII semesters under the Regulations 2023. The members who were present in the Board of Studies Meeting are given in Annexure I.
BoS / ECE 9.2	:	CONFIRMATION OF THE 8th BOARD OF STUDIES MEETING MINUTES AND ACTION TAKEN REPORT
		Discussion The Chairman, presented the Minutes of 8th Board of Studies Meeting which was held on 10.07.24 and action taken report of the same. Resolution It is resolved to recommend the Minutes of 8th Board of Studies Meeting and action taken report of the same is submitted to the Academic Council for approval.
BoS / ECE 9.3	:	INCLUSION OF INDUSTRY ORIENTED COURSE IN THE FIELD OF ELECTRIC VEHICLE TECHNOLOGY
		Discussion The Board discussed the need to include an industry-oriented course on Electric Vehicle Technology in the sixth semester of the B.E. Electronics and Communication Engineering programme to align with current industry trends and employment opportunities . Resolution It is resolved to include an industry-oriented course on Electric Vehicle Technology in the sixth semester of the B.E. Electronics and Communication Engineering programme offered under Regulations 2023.

BoS / ECE 9.4	:	**REPLACEMENT OF "PROBLEM SOLVING AND PYTHON PROGRAMMING" WITH "PYTHON PROGRAMMING WITH AI"**
		Discussion
		The members deliberated on the relevance of integrating artificial intelligence with Python Programming to enhance students' employability. It was proposed to replace the course "Problem Solving and Python Programming" with "Python Programming with AI" for students admitted in 2025-26.
		Resolution
		It is resolved to replace the course "Problem Solving and Python Programming" with "Python Programming with AI" from the academic year 2025-26 for the B.E. Electronics and Communication Engineering Programme under Regulations 2023.
BoS / ECE 9.5	:	**INCLUSION OF NPTEL VIDEO LINKS IN COURSE REFERENCES**
		Discussion
		The Board emphasized the usefulness of incorporating NPTEL video content as reference material for various subjects. It was proposed to add video links of relevant NPTEL courses as references in all course syllabi.
		Resolution
		It is resolved to include NPTEL video course links as part of the reference materials for all subjects under Regulations 2023.
BoS / ECE 9.6	:	**APPROVAL OF SEVENTH AND EIGHTH SEMESTER SYLLABUS**
		Discussion
		The proposed syllabi for the seventh and eighth semesters of the B.E. Electronics and Communication Engineering programme were presented and reviewed by the members.
		Resolution
		It is resolved to approve the syllabi of the seventh and eighth semesters for the B.E. Electronics and Communication Engineering programme under Regulations 2023.
BoS / ECE 9.7	:	**APPROVAL OF ONE CREDIT COURSES**
		Discussion
		The list of proposed one credit courses for students admitted under Regulations 2023 was discussed, considering current trends and skill enhancement.
		Resolution
		It is resolved to approve the list of one credit courses for the B.E. Electronics and Communication Engineering programme under Regulations 2023.

BoS / ECE 9.8	:	**APPROVAL OF EQUIVALENT SUBJECTS FOR READMITTED STUDENTS (R-2019 TO R-2023)**
		Discussion
		The committee examined the mapping of equivalent subjects for students readmitted from Regulation 2019 to Regulation 2023.
		Resolution
		It is resolved to approve the list of identified equivalent subjects to be included/exempted for the students readmitted from Regulations R-2019 to R-2023.
BoS / ECE 9.9	:	**APPROVAL OF EXTERNAL EXAMINERS FOR VALUATION**
		Discussion
		The proposed panel of external examiners for end-semester evaluation was presented for review and finalization.
		Resolution
		It is resolved to approve the list of external examiners for valuation.
BoS / ECE/9.10	:	**ANY OTHER ITEMS**
		Common points suggested by the members as concluding remark
		Suggested to update the text and reference book with latest edition and include on-line resources.
		The Chairman of Board of Studies agreed and assured to incorporate the changes suggested by the members wherever possible.
		The Chairman of Board of Studies thanked all the members for their valuable suggestions and coordination.

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S.No.	Name of the Expert	Suggestions Given	Action Taken	Remarks
1	**Dr.G.THIRUGNANAM** Associate Professor (CAS) Department of Electronics and Communication Engineering, Govt College of Technology, Coimbatore – 641 013..	• Suggested adding a topic on 5G in **23ECX48 Mobile Communication and Microwave**.	• The suggestion has been recorded and included in the syllabus.	
2	**Dr. S. Sivanantham** Associate Professor Sr - & Asst- Dean-AR Department of Micro and Nano Electronics, VIT University, Vellore,	• Suggested changing the title of 23ECX34 Chip on Design to Architecture of Chip on Design. • Suggested adding an antenna experiment in 23EC704 Optical and Microwave Laboratory.	• The suggestions have been recorded and included in the syllabus.	
3	**Mr. S. Sundaramoorthy,** CEO & Managing Director, Sunshiv Electronic Solutions, Coimbatore.	• Suggested including software-related topics in all professional elective courses.	• Inluded as recommended	
4	**Dr. K. Thiyagarajan,** Assistant Professor (Sl.Gr) Department of Electronics and Communication Engineering, PSG College of Technology, Peelamedu, Coimbatore – 641 004.	• Suggested promoting increased industrial project opportunities for undergraduate students.	The recommendation has been followed by incorporating more industrial projects for undergraduate students	

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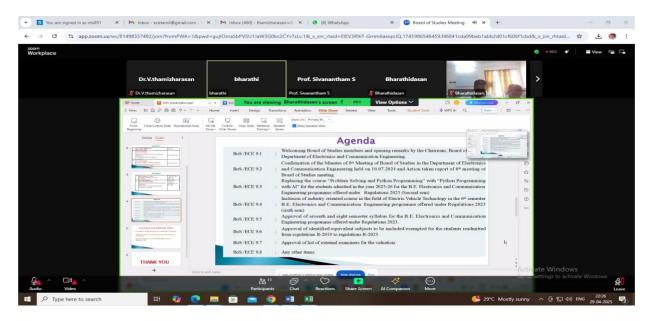
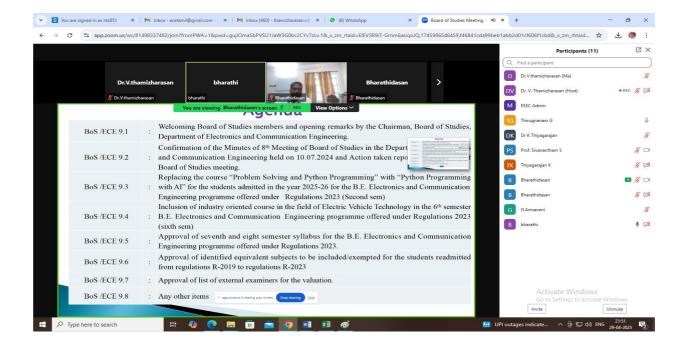### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
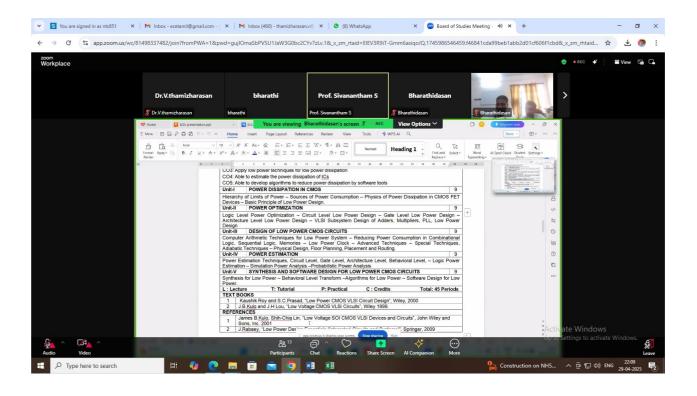
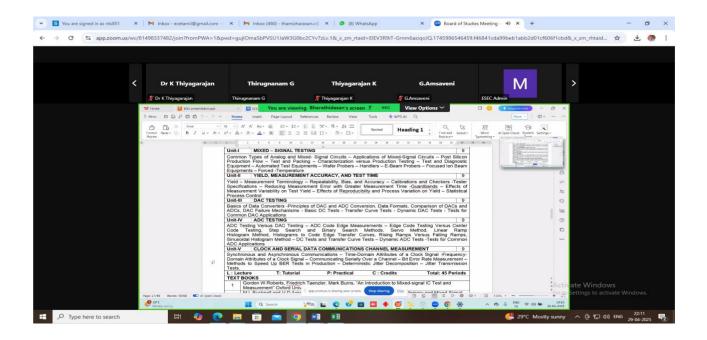### 9th Board of Studies Meeting

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POWER DISSIPATION / LOW POWER VLSI

CO3: Apply low power techniques for low power dissipation
CO4: Able to estimate the power dissipation of ICs
CO5: Able to develop algorithms to reduce power dissipation by software tools

Unit-I	POWER DISSIPATION IN CMOS	9

Hierarchy of Limits of Power – Sources of Power Consumption – Physics of Power Dissipation in CMOS FET Devices – Basic Principle of Low Power Design.

Unit-II	POWER OPTIMIZATION	9

Logic Level Power Optimization – Circuit Level Low Power Design – Gate Level Low Power Design – Architecture Level Low Power Design – VLSI Subsystem Design of Adders, Multipliers, PLL, Low Power Design

Unit-III	DESIGN OF LOW POWER CMOS CIRCUITS	9

Computer Arithmetic Techniques for Low Power System – Reducing Power Consumption in Combinational Logic, Sequential Logic, Memories – Low Power Clock – Advanced Techniques – Special Techniques, Adiabatic Techniques – Physical Design, Floor Planning, Placement and Routing.

Unit-IV	POWER ESTIMATION	9

Power Estimation Techniques, Circuit Level, Gate Level, Architecture Level, Behavioral Level, – Logic Power Estimation – Simulation Power Analysis –Probabilistic Power Analysis

Unit-V	SYNTHESIS AND SOFTWARE DESIGN FOR LOW POWER CMOS CIRCUITS	9

Synthesis for Low Power – Behavioral Level Transform –Algorithms for Low Power – Software Design for Low Power.

L : Lecture   T: Tutorial   P: Practical   C : Credits   Total: 45 Periods

TEXT BOOKS
1. Kaushik Roy and S.C.Prasad, "Low Power CMOS VLSI Circuit Design", Wiley, 2000
2. J.B.Kulo and J.H Lou, "Low Voltage CMOS VLSI Circuits", Wiley 1999.

REFERENCES
1. James B.Kulo, Shih-Chia Lin, "Low Voltage SOI CMOS VLSI Devices and Circuits", John Wiley and Sons, Inc. 2001
2. J.Rabaey, "Low Power Design Essentials Integrated Circuits and Systems", Springer, 2009

Unit-I	MIXED – SIGNAL TESTING	9

Common Types of Analog and Mixed- Signal Circuits – Applications of Mixed-Signal Circuits – Post Silicon Production Flow – Test and Packing – Characterization versus Production Testing – Test and Diagnostic Equipment – Automated Test Equipments – Wafer Probers – Handlers – E-Beam Probers – Focused Ion Beam Equipments – Forced -Temperature

Unit-II	YIELD, MEASUREMENT ACCURACY, AND TEST TIME	9

Yield – Measurement Terminology – Repeatability, Bias, and Accuracy – Calibrations and Checkers -Tester Specifications – Reducing Measurement Error with Greater Measurement Time -Guardbands – Effects of Measurement Variability on Test Yield – Effects of Reproducibility and Process Variation on Yield – Statistical Process Control

Unit-III	DAC TESTING	9

Basics of Data Converters -Principles of DAC and ADC Conversion, Data Formats, Comparison of DACs and ADCs, DAC Failure Mechanisms - Basic DC Tests - Transfer Curve Tests - Dynamic DAC Tests - Tests for Common DAC Applications

Unit-IV	ADC TESTING	9

ADC Testing Versus DAC Testing – ADC Code Edge Measurements – Edge Code Testing Versus Center Code Testing, Step Search and Binary Search Methods, Servo Method, Linear Ramp Histogram Method, Histograms to Code Edge Transfer Curves, Rising Ramps Versus Falling Ramps, Sinusoidal Histogram Method – DC Tests and Transfer Curve Tests – Dynamic ADC Tests -Tests for Common ADC Applications

Unit-V	CLOCK AND SERIAL DATA COMMUNICATIONS CHANNEL MEASUREMENT	9

Synchronous and Asynchronous Communications – Time-Domain Attributes of a Clock Signal -Frequency-Domain Attributes of a Clock Signal – Communicating Serially Over a Channel – Bit Error Rate Measurement – Methods to Speed Up BER Tests in Production – Deterministic Jitter Decomposition – Jitter Transmission Tests.

L : Lecture   T: Tutorial   P: Practical   C : Credits   Total: 45 Periods

TEXT BOOKS
1. Gordon W.Roberts, Friedrich Taenzler, Mark Burns, "An Introduction to Mixed-signal IC Test and Measurement" Oxford Univ...

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