

Department of Electrical and Electronics Engineering

**MINUTES 17th Meeting of the Board of studies held on
20th July 2022 at 10.00 AM**

Meeting Mode: Hybrid Mode

Venue: Conference Hall, National Engineering College

Cisco Webex Meet Link: <https://nec4962.webex.com/nec4962/j.php?MTID=m22a5e55f8c03cee07ebea81c1800b422>

National Engineering College, K.R.Nagar, Kovilpatti – 628 503

(An Autonomous Institution - Affiliated to Anna University, Chennai)

www.nec.edu.in

Department of Electrical and Electronics Engineering

National Engineering College, K.R.Nagar, Kovilpatti- 628503

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17th Board of studies Meeting in the Department of Electrical and Electronics Engineering

Meeting Mode: Hybrid Mode

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Date & Time: 20.07.2022 & 10.00 AM

AGENDA

- BoS / EEE 17.1 : Welcome address and Opening Remarks by Chairman, Board of studies in the Department of Electrical and Electronics Engineering
- BoS / EEE 17.2 : Confirmation of the Minutes of the 16th meeting of Board of Studies in the Department of Electrical and Electronics Engineering held on 29th November 2021, and Action Taken report of 16th meeting of Board of studies
- BoS / EEE 17.3 : Business brought forward by the Chairman, Board of studies
- 17.3.1 Syllabus for Programme Elective Courses - UG B.E. (EEE) under Regulation R2019
- 17.3.2 Syllabus for One Credit Elective Courses - UG B.E. (EEE) under Regulation R2019
- 17.3.3 Any other items
- BoS / EEE 17.4 : Any other items
- BoS / EEE 17.5 : Suggestions given by the BoS Members

Department of Electrical and Electronics Engineering
National Engineering College, K.R.Nagar, Kovilpatti – 628 503
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F. No. 1-1/NEC/EEE.

20th July, 2022

Dear Sir/Madam,

Sub: Minutes of the 17th Meeting of the Board of studies in the EEE-Reg.

Kindly find attached herewith the Minutes of the 17th Meeting of Board of studies of the Electrical and Electronics Engineering of the National Engineering College, K.R.Nagar, Kovilpatti – 628503 held on 20th July, 2022 at 10.00 AM in National Engineering college, through hybrid mode. Hard copy of the Minutes is also being sent to you by speed post.

It is requested that comments on the Minutes, if any, may please be sent by email at hodeee@nec.edu.in or by post, at the earliest. If no comments are received, within ten days, the Minutes shall be taken as confirmed. With Kind Regards,

Yours Sincerely


Dr. M. Willjuice Iruthayarajan

Dr. M. WILLJUICE IRUTHAYARAJAN, ME., Ph.D.
Professor & Head
Department of Electrical & Electronics Engg.
National Engineering College
Kovilpatti - 628 503

Department of Electrical and Electronics Engineering

MINUTES OF THE MEETING

The 17th Meeting of the Board of studies of the Electrical and Electronics Engineering was held on 20th July, 2022 at 10.00 AM in National Engineering College, through hybrid mode.

Venue: Conference Hall, National Engineering College

Cisco Webex Meet Link: <https://nec4962.webex.com/nec4962/j.php?MTID=m22a5e55f8c03cee07e8ea81c1800b422>

The following members were present:

1.	Dr.M.Willjuice Iruthayarajan Professor and Head/ EEE	Chairman
2.	Dr.L.Kalaivani Professor/ EEE	Internal Members
3.	Dr.R.V.Maheswari Professor/ EEE	
4.	Dr.M.Ravindran Associate Professor (S.G) / EEE	
5.	Dr.N.B.Prakash Associate Professor / EEE	
6.	Dr.M.P.E.Rajamani Assistant Professor(S.G) / EEE	
7.	Dr.S.Dharmalingam, Adjunct Faculty/EEE	Academic Expert
8.	Dr. V. Suresh Kumar, Professor, Department of Electrical and Electronics Engineering, Thiagarajar College of Engineering, Madurai, Tamilnadu.	
9.	Dr. Rajesh Joseph Abraham Associate Professor, Department of Avionics, Indian Institute of Space Science and Technology, Valiamala P.O., Thiruvananthapuram, Kerala.	Industrial Expert
10.	Dr. Santosh Kumar Annadurai GE T&D Ltd., GIS R&D Centre, Unit R&D Head, Padappai, Chennai.	
11.	Dr. Hariram Satheesh, Principal Scientist, ABB Global Industries and Services Ltd, Bangalore.	
12.	Mr. M. Ramesh Senior Technical Engineer,	

	Hardware Design and Development, Data Patterns India Pvt. Ltd., Chennai.	
13.	Mr. J. S. Jekhan, Third Year / EEE	Student Members
14.	Ms. J. Joyslin Janet, Third Year / EEE	

The University Nominee Dr.S.Usa, Professor, Department of EEE, CEG Campus, Anna University Chennai, Industrial Experts Dr.S.Paramasivam, R&D Head, Electrical Drives, Danfoss Industries Ltd, Chennai, Mr.R. Jayakumar, Engineering Leader, Altimetrik Pvt, Ltd., Chennai & Mr.S.Subramanian, Senior Maintenance Engineering (I), Kudankulam Nuclear Power Project, Kudankulam, could not attend the meeting due to their prior commitments and unavoidable reasons and were granted leave of absence.

BoS / EEE 17.1	:	WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES IN THE DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
		The Chairman, BOS of the Electrical and Electronics Engineering welcomed and introduced the members of 16 th Board of Studies and thanked each one of them for sparing their valuable time to attend the meeting.
BoS / EEE 17.2	:	TO CONFIRM THE MINUTES OF SIXTEENTH BOS MEETING HELD ON 29 th NOVEMBER 2021
		The minutes of the Sixteenth Board of Studies meeting held on 29 th November 2021 were communicated to the members vide letter No. F. No. 1-1/NEC/EEE, Dated 29.11.2021. The comments received have been incorporated and placed for confirmation. The same was approved by the 15 th Academic council. <u>Action Taken Report</u> (Enclosed in Annexure I)
BoS / EEE 17.3.1	:	TO CONFIRM AND APPROVE THE SYLLABUS OF PROGRAMME ELECTIVE COURSES FOR UG (B.E. – EEE) PROGRAMME UNDER R-2019
		RESOLVED TO approve the syllabus of programme elective

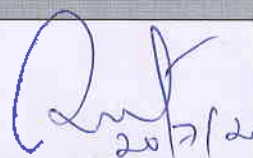
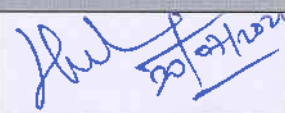
		courses for UG (B.E. – EEE) PROGRAMME under R–2019.
Bos/EEE 17.3.2	:	TO CONFIRM AND APPROVE THE SYLLABUS OF ONE CREDIT ELECTIVE COURSE FOR UG (B.E. – EEE) PROGRAMME UNDER R–2019
		RESOLVED TO approve the syllabus of One Credit Elective courses for UG (B.E. – EEE) PROGRAMME under R–2019.
Bos/EEE 17.4	:	ANY OTHER ITEMS, IF ANY, WITH THE PERMISSION OF THE CHAIRMAN OF THE BOS
17.4.1	:	The BoS members insisted the BoS EEE chairman to include immediate or near passed out alumni for BoS meeting. They told that alumni's are the most important evaluators of an outcome-based curriculum because only they can match their experience of the curriculum against the demands of their current roles.
Bos/EEE 17.5	:	SUGGESTIONS GIVEN BY THE BOS MEMBERS
17.5.1	:	In the course, "Industrial Electrical Systems" content related to hybrid lighting, and light pollution may be included. Diesel Generator may be included in Unit-V.
17.5.2	:	In the course, "Switched Mode Power Conversion", performance parameters may be included in Unit – II & III.
17.5.3	:	In the course, "Electrical Energy Conservation and Auditing" Unit- II & III titles may be modified. Lighting applications related to domestic loads may be included.
17.5.4	:	In the course, "Solar Photovoltaic Fundamentals and Applications" the title of the course may be changed. Design

		and implementation of solar photovoltaic in domestic applications, agriculture etc, may be included.
17.5.5	:	In the course, "Smart Grid" Unit-V title may be changed. Standards of protocols may be included. Contents such as IP based Protocols, basics of web service, cloud computing - and cyber security issues may be included in syllabus.
17.5.6	:	In the course, "Power Generation Systems", case study in Unit-V may be given. Content related to hydrogen fuel cell, onshore and offshore power generation can be included.
17.5.7	:	In the course, "Electrical Safety", Contents like Personal Protective Equipment, recent surge protection scheme for generator may be included.
17.5.8	:	In the course, "Advanced Control Theory", H_{∞} Control may be included in Unit – IV.
17.5.9	:	In the Course, "VLSI Design", FPGA applications may be given in Unit-V.
17.5.10		In the Course, "Electronics Design and Technology" Unit-III title may be renamed as OP-AMP Applications.

The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the Curriculum and Syllabi. Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

Dr. M. Bakruthen, Assistant Professor (Senior Grade)/EEE thanked all the members for their kind cooperation and the meeting came to an end.

Members Present

CHAIRMAN		
1.	Dr.M.WiljuiceIruthayarajan Professor and Head/ EEE	Board Chairman
INDUSTRIAL EXPERT		
2.	Dr. Santosh Kumar Annadurai GE T&D Ltd., GIS R&D Centre, Unit R&D Head, Padappai, Chennai.	 20/7/2022
INTERNAL MEMBERS		
3.	Dr.L.Kalaivani Professor/ EEE	 20/07/2022
4.	Dr.R.V.Maheswari Professor/ EEE	R.V.Maheswari
5.	Dr.M.Ravindran Associate Professor (S.G) / EEE	M.Ravindran
6.	Dr.N.B.Prakash Associate Professor / EEE	
7.	Dr.M.P.E.Rajamani Assistant Professor(S.G) / EEE	M.P.E.Rajamani
STUDENT MEMBERS		
8.	Mr. J. S. Jekhan, Third Year / EEE	Jekhan
EXPERT MEMBERS ATTENDED THE MEETING BY ONLINE		
9.	Dr. V. Suresh Kumar, Professor, Department of Electrical and Electronics Engineering, Thiagarajar College of Engineering, Madurai, Tamilnadu.	Academic Expert

10.	Dr. Rajesh Joseph Abraham Associate Professor, Department of Avionics, Indian Institute of Space Science and Technology, Valiamala P.O., Thiruvananthapuram, Kerala.	Academic Expert
11.	Dr. Santosh Kumar Annadurai GE T&D Ltd., GIS R&D Centre, Unit R&D Head, Padappai, Chennai.	Industrial Expert
12.	Dr. Hariram Satheesh, Principal Scientist, ABB Global Industries and Services Ltd, Bangalore.	
13.	Mr. M. Ramesh Senior Technical Engineer, Hardware Design and Development, Data Patterns India Pvt. Ltd., Chennai.	
INTERNAL MEMBER ATTENDED THE MEETING BY ONLINE		
14.	Dr.S.Dharmalingam, Adjunct Faculty/EEE	Internal member
STUDENT MEMBER ATTENDED THE MEETING BY ONLINE		
15.	Ms. J. Joyslin Janet, Third Year / EEE	Student Member


CHAIRMAN
BOARD OF STUDIES

Dr. M. WILLJUICE IRUTHAYARAJAN, ME., Ph.D.
 Professor & Head
 Department of Electrical & Electronics Engg.
 National Engineering College
 Kovilpatti - 626 503

Annexure – I

Action Taken on Suggestions from 16th BOS Meeting

Suggestions	Action Taken
The course “Electrical Drives”, Unit-III Title may be modified as Design of Controllers for DC Drives and manual for drives may be given in reference.	Unit-III title has been modified in syllabus
In the course “Power System Dynamics and Control”, reference book may be updated.	Corrections are incorporated in the Syllabus
The course “Power Electronics for Renewable Energy Systems”, generators content may be reduced in the syllabus.	
The course “EHV Power Transmission”, syllabus may be reframed to include FACTS, HVDC, Electromagnetic Fields, online condition Monitoring, etc.	
The courses “Soft Computing for Electrical Engineering” and “MEMS and NEMS, updated versions of books may be included in text and reference books.	Updated version of books has been included in syllabus
In the course “Embedded Systems”, course content may be expanded with overview of latest smart storage memories, and industry related approaches in embedded systems	The content has been included in the syllabus.
In the course “DSP Based System Design”, the contents such as Application related to signal processing, video and image processing may be included.	Application content has been included in the syllabus.
In the course, “Electric Vehicle Machines and Drive Systems”, conventional vehicle drive system and its issues may be included in Unit I. In Unit II and III, content related with motors may be given as overview.	
In the course, “Battery Management System and	

modeling”, basics of batteries may be given in Unit-I. Content related with battery charging, discharging and its performance on EV applications may be added in Unit II. EV charging station, Battery disposal and recycling techniques may be included in Unit V.

In the Course, “Control of Hybrid Electric Vehicles” analysis of Hybrid EV system may be given in detail. Case studies related to energy storage system modeling may be added.

In the Course, “Autonomous Intelligent Vehicle”, sensors related to state estimation of vehicle may be included. Radar tracking system may be added.

Corrections are incorporated in the syllabus.

M. Willjuice Iruthayarajan
EEE Board Chairman

Dr. M. WILLJUICE IRUTHAYARAJAN, ME., Ph.D.
Professor & Head
Department of Electrical & Electronics Engg.
National Engineering College
Kavipatti - 628 503

Annexure – I

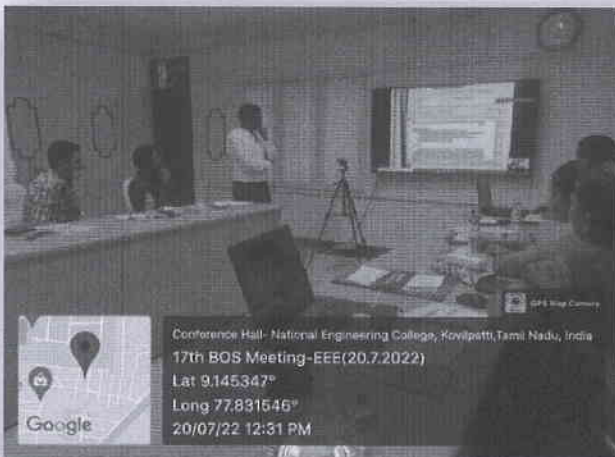
New Courses Intorduced UG (B.E. – EEE) under R 2019

The following new courses have been included in UG Curriculum of B.E. Electrical and Electronics Engineering under R2019.

1. 19EE59E - ELECTRONICS DESIGN AND TECHNOLOGY
2. 19EE27L - PYTHON PROGRAMMING IN RASPBERRY PI AND HARDWARE INTERFACING
3. 19EE28L - ARDUINO PROGRAMMING


EEE Board Chairman

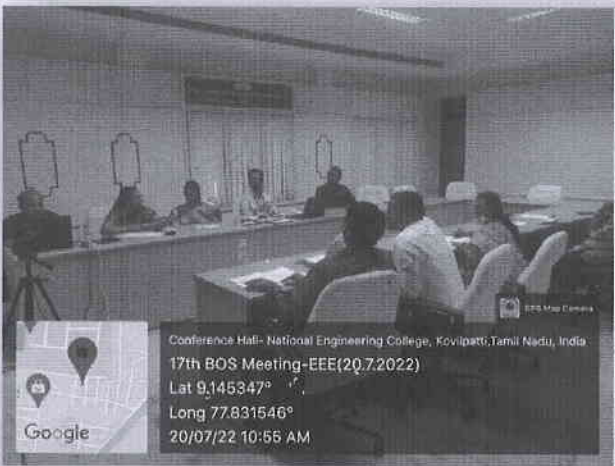
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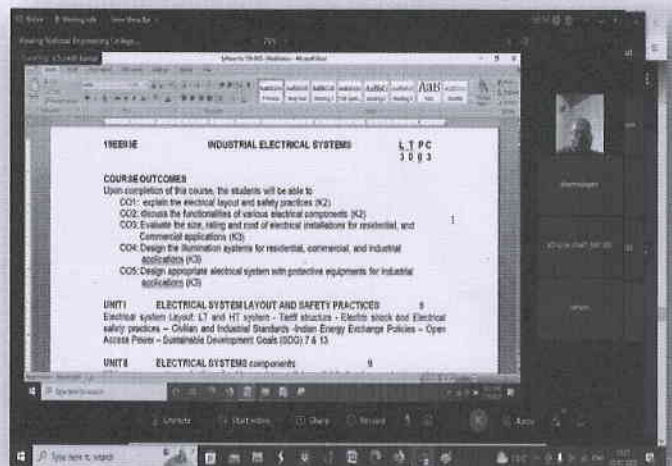
Conference Hall- National Engineering College, Kovilpatti, Tamil Nadu, India
 17th BOS Meeting-EEE(20.7.2022)
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 Long 77.831546°
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Conference Hall- National Engineering College, Kovilpatti, Tamil Nadu, India
 17th BOS Meeting-EEE(20.7.2022)
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 20/07/22 10:54 AM



Conference Hall- National Engineering College, Kovilpatti, Tamil Nadu, India
 17th BOS Meeting-EEE(20.7.2022)
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INDUSTRIAL ELECTRICAL SYSTEMS LTPC
 30 g 3

COURSE OUTCOMES
 Upon completion of this course, the students will be able to:
 CO1: explain the electrical layout and safety practices (K2)
 CO2: identify the functionalities of various electrical components (K2)
 CO3: Evaluate the size, rating and cost of electrical installations for residential, and Commercial applications (K3)
 CO4: Design the illumination systems for residential, commercial, and industrial applications (K3)
 CO5: Design appropriate electrical system with protective equipments for industrial applications (K3)

UNIT I ELECTRICAL SYSTEM LAYOUT AND SAFETY PRACTICES 9
 Electrical system layout: LT and HT systems - Tardil structure - Electric shock and Electrical safety practices - Indian and International Standards - Indian Energy Exchange Policies - Open Access Power - Sustainable Development Goals (SDG) 7 & 13

UNIT II ELECTRICAL SYSTEMS components 9

M. Willjuice
EEE Board Chairman

Dr. M. WILLJUICE IRUTHAYARAJAN, ME., Ph.D.
Professor & Head
Department of Electrical & Electronics Engg.
National Engineering College
Kovilpatti - 628 503

17th BOARD OF STUDIES MEETING – Department of EEE on 20.07.2022

The screenshot shows a Webex meeting interface. The main content is a presentation slide titled "19EE222 SOLAR PHOTOVOLTAIC FUNDAMENTALS AND APPLICATIONS LTPC 3.003". The slide lists course outcomes and two units: "UNIT I SOLAR CELL FUNDAMENTALS" and "UNIT II SOLAR CELL FABRICATION". The meeting controls at the bottom include Unmute, Start video, Share, Record, and a red mute button. The system tray shows the date as 20-07-2022 and time as 11:01. A notification in the top right corner states "Hartram left the meeting."

Viewing National Engineering College... 53% +

Speaking: V.Suresh kumar, National Engineering Coll...

19EE222 SOLAR PHOTOVOLTAIC FUNDAMENTALS AND APPLICATIONS LTPC 3.003

COURSE OUTCOMES:
Upon completion of this course, the student will be able to
CO1: recognize the fundamentals of solar cells. (K2)
CO2: understand the various solar cell fabrication processes. (K2)
CO3: recognize the various solar PV system and their up gradations along with their benefits (K2)
CO4: design and analyze on-grid PV applications. (K3)
CO5: design off-grid PV systems and perform cost benefit analysis of PV installations. (K3)

UNIT I SOLAR CELL FUNDAMENTALS
Fundamentals of Semiconductors, energy band, doping; PN Junction, charge carriers, carrier motion, Photovoltaic effect, Device physics of solar cell-Principle of solar energy conversion, conversion efficiency – losses in solar cells, Solar radiation measurement: Pyranometer - Pyrheliometer.

UNIT II SOLAR CELL FABRICATION

V.Suresh kumar

National Engineering Colle... (Cohost)

Dr. Rajesh Joseph Abraham dharmalingam

JOYSLIN JANET_NEC_EEE ramesh

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The screenshot shows a Webex meeting interface. The main content is a presentation slide titled "Outline of the Presentation" with four bullet points. The meeting controls at the bottom include Unmute, Start video, Share, Record, and a red mute button. The system tray shows the date as 20-07-2022 and time as 10:18. A notification in the top right corner states "Hartram left the meeting."

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Outline of the Presentation

- Confirmation of the Minutes and Action Taken for the 16th meeting of Board of studies.
- Remaining Core courses and elective courses for UG degree programmes under R-2019.
- One credit courses and Open elective courses for UG degree programmes under R-2019.
- Any other matter

Dr. Rajesh Joseph Abrah... dharmalingam ramesh JOYSLIN JANET_NEC_EEE Hartram

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