VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956 NAAC 'A'

Department of Electrical and Electronics Engineering

Date: 02.04.2019

Minutes of the Board of Studies (BoS) Meeting held on 02/04/19 at 09.00 A.M. in Chancellors Chamber (B.Tech- Electrical and Electronics Engineering)

The following are the members presented for the meeting.

1) Dr. V. T. Somasekhar - Professor, Dept. of Electrical Engineering, NIT Warangal
2) Dr. K. Siva Kumar - Associate Professor, Dept. of Electrical Engineering, IIT Hyderabad
3) Dr. Venkateswarlu Manne - AGM, R&D, Technology Centre Amararaja Batteries Ltd., Tirupathi
4) Dr. G. Srinivasa Rao - Head, Dept. of EEE, VFSTR
5) Mr. P. V. S. Sobhan - Assoc. Prof., EEE, VFSTR
6) Dr. K. Mercy Rosalina - Assoc. Prof., EEE, VFSTR
7) Mr. M. Subba Rao - Asst. Prof., EEE, VFSTR
8) Dr. K. Suresh -Asst. Prof., EEE, VFSTR
9) Dr. Y. Srinivasa Rao - Asst. Prof., EEE, VFSTR

The following are the views expressed by the external members

1) Dr. G. SrinivasaRao briefed the changes from R16 to R19 to the external members.
2) External BoS members appreciated credited based intra, inter and societal projects.
3) Dr. K.Sivakumar appreciated the reduction of credits from 195 to 170 and suggested for further reduction.
4) Dr. V. T. Somasekhar suggested that department elective should start from 3-1 instead of 2-2.
5) Dr. V. T. Somasekhar suggested that separate BEEE course to be offered for circuit branches.
6) Dr. V. T. Somasekhar suggested to remove the subject BEEE for B.Tech. EEE students and introduce networks to make room for one more core subject in the curriculum.
7) Dr. K.Sivakumar suggested that in Power Electronics Laboratory, instruct the students to perform sophisticated simulation by connecting RLE, Capacitive load, DC motor instead of R, RL loads.
8) Dr. K.Sivakumar suggested that in MPMC course, instead of two units on Interfacing, introduce any advanced controllers like ARM processors, Arduino etc., as one unit.

9) Dr.Venkateswarlu Manne suggested the removal of the concepts like incandescent lamps, some concepts in traction and introduces basics of wireless power transfer in the utilization of electrical energy course.

10) The members advised to incorporate the Green Energy Technologies as compulsory course.

11) Dr. K.Sivakumar suggested that chemistry/ physics course can be brought to 2-1 and keep ECA course in 1-2, if possible to reduce burden on the students.

12) Discussion on intra, inter and societal Project was made, and finally concluded that it has to be more strengthened, both faculty and students are to be made responsible.

13) The concept about intra, inter and societal projects are appreciable, but implementation and evaluation should be done seriously.

14) More number of modular courses offered by industry (1 credit courses) has to be introduced into the curriculum.

15) Credits for the NPTEL courses are appreciable, but faculty has to advise the students to choose advanced courses which are relevant to industry.

Department Elective - I:

16) The preferable courses as the Department Elective-I are as:

1 Electrical Engineering Materials
2 Utilization of Electrical Energy
3 Energy Audit, Conservation and Management

Department Elective - II:

17) The preferable courses as the Department Elective-II are as:

1 Electrical Machine Design
2 Switch mode Power Conversion
3 Advanced Power Electronics
4 High Voltage Engineering

18) The Content suggested for the new course Advanced Power Electronics (3) proposed by BoS members are

i. Introduction to Multilevel Inverters.
ii. Introduction to PWM Techniques for Inverters (SPWM, SVM, SHE)
iii. Introduction to Soft Switching Converters
iv. Introduction to Active Filters (Qualitative only)
v. Introduction to Design Aspects of Power Electronics Converters (Heat Sink, Inductor / Transformers, Snubber, Gate Driver)

Department Elective - III:

19) The preferable courses as the Department Elective-III are as:

1 HVDC Transmission Systems
2 Smart Grid Technologies
3 Power Quality and FACTS
4 Energy System Economics

Department Elective - IV:

20) The preferable courses as the Department Elective-IV are as:

1 Energy Storage Technologies
2 High Voltage Engineering
3 Computer Controlled Systems
4 Industrial Automation & Robotics

5 SCADA Systems and Applications

OPEN ELECTIVES offered by EEE department for other branches

21) The preferable courses EEE department offered to other departments are as:

1. Solar PV Technologies
2. Solar Thermal Conversion Systems
3. Design & Economics of PV plants
4. Renewable Energy Sources
5. Energy Efficient Lighting & Utilities
6. Energy Management & Audit

Outcomes of the BoS Meeting:

1. BoS members approved the revised curriculum (Structure, Syllabus and regulations) of B. Tech, Electrical and Electronics Engineering and it follows Choice Based Credit System. Structure is provided in Appendix A.
2. Major restructuring has taken place in the curriculum which is oriented towards Project based learning with inclusion of Intra disciplinary, Inter-departmental and Societal centric and industry related projects.
3. All the Courses in the Curriculum are designed to fall under either of the domains of employability or skill development. The mapping of the courses with employability or skill development is provided in Appendix B.
4. In all the courses of the revised curriculum (R19) substantial changes are made in the content. The percentage of change in the curriculum from R16 to R19 is 52%.The list of new courses provided in Appendix C.
5. Stakeholders feedback analyzed in CDMC is placed before the BoS and given utmost priority while designing the curriculum and their suggestions are implemented.

BOS Members

External Members:

1. **Dr. V.T. Somasekhar**
   Professor
   Dept. of EEE, NIT, Warangal

2. **Dr. Venkateswarlu Manne**
   AGM, R&D, Technology Centre
   Amararaja Batteries Ltd.. TIRUPATHI

3. **Dr. K. Siva Kumar**
   Assoc. Professor
   Dept. of EEE, IIT, Hyderabad

Internal Members :

1. **Dr. G. Srinivasa Rao**
   Professor & HOD, EEE

2. **Mr. P.V.S. Sobhan**
   Assoc. Professor

3. **Dr. K. Mercy Rosalina**
   Assoc. Professor

4. **Mr. M. Subba Rao**
   Asst. Professor

5. **Dr. K. Suresh**
   Asst. Professor

6. **Dr. Y. Srinivasa Rao**
   Asst. Professor

APPENDIX A

B.Tech-Electrical & Electronics Engineering
Course Structure-2019 Regulation

Semester - I **(1st Year)**

Sl.	Course Title	L	T	P	Credits
1	Engineering Mathematics - I (E)	3	-	2	4
2	Engineering Physics (A)	3	-	2	4
3	Basic Electrical and Electronics Engineering	3	-	2	4
4	Engineering Graphics & Design	2	-	2	3
5	C Programming for Problem Solving - I	3	-	2	4
6	Physical Fitness, Sports & Games - I	-	-	3	1
	Total	**14**	**-**	**13**	**20**

Semester - II **(1st Year)**

Sl.	Course Title	L	T	P	Credits
1	Engineering Mathematics - II (E)	3	-	2	4
2	Engineering Chemistry (C)	2	-	2	3
3	C Programming for Problem Solving - II	3	-	2	4
4	English Proficiency and Communication Skills	-	-	2	1
5	Technical English Communication	2	-	2	3
6	Constitution of India	1	-	-	1
7	Basic Engineering Products	2	-	2	3
8	Workshop	1	-	2	2
9	Physical Fitness, Sports & Games - II	-	-	3	1
	Total	**15**	**-**	**17**	**22**

Semester - I **(2nd Year)**

Sl.	Course Title	L	T	P	C
1	Data Structures	**3**	**-**	**2**	4
2	Electrical Circuit Analysis	3	-	2	4
3	Electromagnetic Fields	3	1	-	4
4	Digital Electronic Circuits	3	1	-	4
5	Analog Electronics	3	-	2	4
6	Life Skills - I	-	-	2	-
7	Technical Seminar - I	-	-	2	1
8	Intra-Disciplinary Projects - I	-	-	2	1
9	Physical Fitness, Sports & Games - III	-	-	2	1
	Total	**15**	**2**	**14**	**23**

Semester - II **(2nd Year)**

Sl.	Course Title	L	T	P	C
1	Electrical Machines - I	3	-	2	4
2	Control Systems	3	-	2	4
3	Power Transmission and Distribution	3	1	-	4
4	Environmental Studies	1	-	-	1
5	Programming with Python	**2**	**-**	**2**	3
6	Management Science	3	-	-	3
7	Open Elective - I	3	-	-	3
8	Life Skills - II	-	-	2	1
9	Technical Seminar - II	-	-	2	1
10	Intra-Disciplinary Projects - II	-	-	2	1
	Total	**18**	**1**	**12**	**25**

Semester - I **(3rd Year)**

Sl.	Course Title	L	T	P	C
1	Power Electronics	3	-	2	4
2	Statistics & Data Analytics	3	1	-	4
3	Electrical Machines - II	3	-	2	4
4	Department Elective - I	3	-	-	3
5	Open Elective - II	3	-	-	3
6	Soft Skills Laboratory	-	-	2	1
7	Employability Skills - I	-	-	2	-
8	Inter-Departmental Projects - I	-	-	4	2
9	Modular Course	-	-	-	1
	Total	**15**	**1**	**12**	**22**

Semester - II **(3rd Year)**

Sl.	Course Title	L	T	P	C
1	Soft Computing Techniques	2	-	-	2
2	Machine Learning	3	-	2	4
3	Microprocessors & Microcontrollers	3	-	2	4
4	Professional Communication Laboratory	-	-	2	1
5	Human Values, Professional Ethics & Gender Equity	2	-	-	2
6	Department Elective - II	3	-	-	3
7	Department Elective - III	3	-	-	3
8	Open Elective - III	3	-	-	3
9	Employability Skills - II	-	-	2	1
10	Inter-Departmental Projects - II	-	-	4	2
	Total	**19**	**-**	**12**	**25**

Semester - I **(4th Year)**

Sl.	Course Title	L	T	P	C
1	Analysis and Operation of Power Systems	3	-	2	4
2	Deep Learning	3	-	-	3
3	Reinforcement Learning	3	-	-	3
4	Digital Signal Processing	3	-	-	3
5	Department Elective - IV	3	-	-	3
6	Electrical Measurements Laboratory	-	-	4	2
7	Societal-Centric and Industry Related Projects	-	-	6	3
	Total	**15**	**-**	**12**	**21**

Semester - II **(4th Year)**

Sl.	Course Title	L	T	P	C
1	Internship / Project work	-	-	24	12
	Total	**-**	**-**	**24**	**12**

The courses that are highlighted denote implementation of 'ChoiceBased Credit System (CBCS)'

Department Electives

1 Energy Storage Technologies
2 Energy System Economics
3 High Voltage Engineering
4 Industrial Automation & Robotics
5 Smart Grid Technologies
6 Computer Controlled Systems
7 Advanced Power Electronics
8 Switch mode Power Conversion
9 Energy Audit, Conservation and Management
10 Electric Vehicles
11 SCADA Systems and Applications
12 VLSI Design and technology

Open Electives

1. Solar PV Technologies-I
2. Solar PV Technologies-II
3. Design and Economics of PV systems
4. Solar Thermal Systems

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APPENDIX – B

List of courses that enable employability or entrepreneurship or skill development in the R-19

B.Tech – Electrical and Electronics Engineering

Sl.	Course Name	Employability / Skill Development/Entrepreneurship
1.	Basic Electrical and Electronics Engineering	Skill Development
2.	Basic Engineering Products	Skill Development
3.	Electrical Circuit Analysis	Skill Development
4.	Electromagnetic Fields	Skill Development
5.	Digital Electronic Circuits	Skill Development
6.	Analog Electronics	Skill Development
7.	Electrical Machines - I	Skill Development
8.	Control Systems	Skill Development
9.	Power Transmission and Distribution	Skill Development
10.	Programming with Python	Employability
11.	Power Electronics	Employability
12.	Statistics & Data Analytics	Employability
13.	Electrical Machines - II	Skill Development
14.	Soft Computing Techniques	Employability
15.	Machine Learning	Employability
16.	Microprocessors & Microcontrollers	Employability
17.	Analysis and Operation of Power Systems	Skill Development
18.	Deep Learning	Employability
19.	Reinforcement Learning	Employability
20.	Digital Signal Processing	Skill Development
21.	Electrical Measurements Laboratory	Skill Development
22.	Energy System Economics	Skill Development
23.	High Voltage Engineering	Skill Development
24.	Industrial Automation & Robotics	Employability
25.	Smart Grid Technologies	Employability
26.	Computer Controlled Systems	Entrepreneurship
27.	Advanced Power Electronics	Entrepreneurship
28.	Switch Mode Power Conversion	Entrepreneurship
29.	Energy Audit, Conservation and	Entrepreneurship

	Management	
30.	Electric Vehicles	Employability
31.	SCADA Systems and Applications	Employability
32.	VLSI Design and Technology	Employability
33.	Power System Protection	Skill Development
34.	Industrial Electric Drives	Skill Development
35.	Embedded Systems in Electrical Engineering	Employability
36.	Green Energy Technologies	Entrepreneurship
37.	Energy Storage Technologies	Entrepreneurship
38.	Solar PV Technologies-I	Entrepreneurship
39.	Solar PV Technologies-II	Entrepreneurship
40.	Design and Economics of PV systems	Entrepreneurship
41.	Solar Thermal Systems	Skill Development
42.	Technical Seminar - I	Skill Development
43.	Intra-Disciplinary Projects - I	Skill Development
44.	Technical Seminar - II	Skill Development
45.	Intra-Disciplinary Projects - II	Skill Development
46.	Inter-Departmental Projects - I	Skill Development
47.	Modular Course	Skill Development
48.	Inter-Departmental Projects - II	Skill Development
49.	Societal-Centric and Industry Related Projects	Employability
50.	Internship	Skill Development
51.	Project work	Employability

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APPENDIX – C

List of new courses in the R19 B.Tech –Electrical and Electronics Engineering

Sl.	Course Name
1	Basic Electrical and Electronics Engineering
2	Basic Engineering Products
3	Electrical Circuit Analysis
4	Electromagnetic Fields
5	Digital Electronic Circuits
6	Analog Electronics
7	Technical Seminar - I
8	Intra-Disciplinary Projects - I
9	Electrical Machines - I
10	Control Systems
11	Power Transmission and Distribution
12	Programming with Python
13	Technical Seminar - II
14	Intra-Disciplinary Projects - II
15	Power Electronics
16	Statistics & Data Analytics
17	Electrical Machines - II
18	Inter-Departmental Projects - I
19	Modular Course
20	Soft Computing Techniques
21	Machine Learning
22	Microprocessors & Microcontrollers
23	Inter-Departmental Projects - II
24	Analysis and Operation of Power Systems
25	Deep Learning
26	Reinforcement Learning
27	Digital Signal Processing
28	Electrical Measurements Laboratory
29	Societal-Centric and Industry Related Projects
30	Internship
31	Project work
32	Electrical Engineering Materials
33	Utilization of Electrical Energy
34	Energy Audit, Conservation and Management
35	Electrical Machine Design
36	Switch mode Power Conversion

37	Advanced Power Electronics
38	High Voltage Engineering
39	HVDC Transmission Systems
40	Smart Grid Technologies
41	Power Quality and FACTS
42	Energy System Economics
43	Energy Storage Technologies
44	High Voltage Engineering
45	Computer Controlled Systems
46	Industrial Automation & Robotics
47	SCADA Systems and Applications
48	Solar PV Technologies-I
49	Solar PV Technologies-II
50	Design and Economics of PV systems
51	Solar Thermal Systems

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