

Dr. Ambedkar Institute of Technology  
Department of Electrical and Electronics Engineering

The NAAC documents enclosed are verified and approved.

Jayaramulu G  
HOD  
Department of Electrical and Electronics Engg.  
Dr. Ambedkar Institute of Technology  
Bangalore-560056  
5/11/22

## 1.2.1-EEE

Name of the Course	Course Code	Activities/Content with direct bearing on Employability/ Entrepreneurship/ Skill development	Nature of Employment
Artificial Intelligence to Electrical Engineering	18EE643	Employability	Software Development
Electrical Vehicle Technology	18EE644	Entrepreneurship & Employability	Design Engineer
Smart Grid Technology	18EE645	Employability	Tendering Manager/ Smart Grid Operations
OOPS with C++	18EE646	Employability	Software Development
Fuzzy Logic	18EE731	Employability	Software Development

Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY, BANGALORE  
(An Autonomous Institution Affiliated to VTU, Belgaum)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Minutes of BOS meeting

Chairman welcomed all the members of the Board of Studies in Electrical and Electronics Engineering. The meeting was convened on 01.06.2019 at 10.00 a.m in Research Laboratory.

To make the courses more relevant, the BOS shall incorporate necessary changes and to upgrade the courses/training programmes proposed by the Course Coordinators. In addition, BOS will also explore the possibilities for conducting few courses in collaborative manner with industries. BOS may offer suggestions for identifying thrust areas for conduction of workshop /seminar/technical seminars during 11th Plan period. A pre-BOS meeting were conducted and suggestions from Student Representatives where incorporated.

**Agenda:**

1. Finalizing the Scheme of UG for 2018 and 2019 batch.
2. Reviewing the Syllabus of existing batches.
3. Approval of Panel of examiners, Paper Setters, Practical Examination and Theory Valuation.
4. Finalizing the Scheme and Syllabus of PG (Power Electronics) for 2019 and 2020 batch.

**Minutes:**

- Chairperson gave introduction about the EEE Dept. and Academic Autonomy.
- The preliminary BOS meetings, along with students of UG and PG programs were put forth before the members and the relevant suggestions were included in the draft syllabus to be approved by the members, BOS.
- The members unanimously approved the following academic reforms :

**RESOLUTIONS: UG**

The following are the suggestions given by the BOS members,

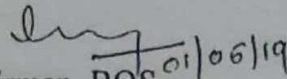
1. Dr. Puttaswamy PS suggested to retain the courses and reduce the credits keeping the contents intact at least for the 3<sup>rd</sup> and 4<sup>th</sup> semester.
2. Mr. Guruswamy expert from industry pointed out that an engineer should be able to replicate the basics what he/she has learnt effectively.
3. Focus should be good in basics or fundamental subjects for industry requirements.
4. Members mentioned to have theories and corresponding labs if any in same semester.
5. Mr. Ramachandra suggested to add Sensors and actuators to be one of the open elective.
6. Discussion on the curriculum design and the percentage of core and elective subjects were verified.

7. Power system planning which is at present in 6<sup>th</sup> semester should be shifted to higher semesters.
8. 3<sup>rd</sup> and 4<sup>th</sup> semester syllabus were discussed in detail.
9. Topic Saturation of Transformer to be include in the subject Transformer and Induction Machine.
10. Include self-study in all the modules of the courses; evaluation of such topics is not there for SEE.
11. Dr. Sathish and Dr. Sumathi S suggested not to have more than two books as textbooks, other books can be given as reference books.
12. Mr. Arun Kumar advised us to carry out simulation study for assignments of some subjects and the results can be submitted by the students. He also advised us to add simulation experiments along with the practical lab wherever possible.
13. The criteria for equivalence/credits for a particular subject has to be decided by the mentor coordinator with BOS coordinator & chairman.
14. The chairman of the BOS can decide as and when required the equivalent subjects to be offered to the backlog/readmission/change of college students.

#### RESOLUTIONS: PG

1. Mr. Guruswamy expert from industry pointed out that Snubber circuit to be included in SMPC (18EPE22) but it is already covered in PSDC (18EPE12).
2. Mr. Guruswamy also suggested that thermal design to be included in SMPC (18EPE22) but it is already covered in PSDC (18EPE12).
3. Mr. Ramachandra has suggested to incorporate Communication modules in DSP and applications.
4. Mr. Arun Kumar has insisted to include Grid connected inverters in uninterruptible power supply.
5. Dr. Puttaswamy PS advised us to add advance topics in each course as self-study component.
6. Mr. Arun Kumar has advised to include Programming in DSP course.

Further the members authorized the chair person to make appropriate changes whenever required. Chairperson concluded the meeting with vote of thanks.

  
Chairman, BOS 01/06/19  
Dr. Jyoti P Koujalagi  
Professor and Head  
Department of Electrical Electronics Engg.  
Dr. AIT, Bengaluru



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

LIST OF BOARD OF STUDIES-EEE MEMBERS ATTENDED

Date: 1<sup>st</sup> June 2019

Sl.No	Name	Signature
1.	Dr. Jyoti P Koujalagi, Chair Person, BOE, EEE	
2.	Dr. Suryanarayana doolla, Professor, IIT Mumbai	
3.	Dr. Satish-IISc, Professor, Bengaluru	
4.	Dr. Pradip Kumar Dixit, Professor, MSRIT, Bengaluru	
5.	Dr. Puttaswamy PS, Professor, PESCE, Mandya	
6.	Dr. Sumathi, Professor, RNSIT, Bengaluru	
7.	Mr. Ramachandra, MD, Green Automation, Bengaluru	
8.	Mr. Arun Kumar, Director, Electrono Solutions, Bengaluru	
9.	Mr. Guruswamy, GM, IE Power technology, Bengaluru	
10.	Mr. Srinivas BT, Software Engineer, IBM, Bengaluru	
11.	Samarendra Prathap Singh, Asst. Prof, IET, Ayodhya, UP	
12.	Dr. B.V. Sumangala, Professor, Dr. AIT	
13.	Dr. Shankarlingappa. C.B, Professor, Dr. AIT	
14.	Dr. Eranna, Associate Professor, Dr. AIT	
15.	Mr. Dayananda T.B, Associate Professor, Dr. AIT	
16.	Dr. Govindaraju H.V, Associate Professor, Dr. AIT	
17.	Dr. Vasudevamurthy S, Associate Professor, Dr. AIT	
18.	Ms. Nalini S, Associate Professor, Dr. AIT	
19.	Ms. Arpitha Raju, Assistant Professor, Dr. AIT	
20.	Mr. Keshava Murthy, Visiting Professor, Dr. AIT	
21.	Mr. Mukunda Swamy, Assistant Professor, Dr. AIT	
22.	Mrs. Harini Vaikund, Assistant Professor, Dr. AIT	
23.	Mr. Rajesh LV, Asst. Prof.	



Department of Electrical & Electronics Engineering

**Agenda 3:** To frame, discuss and approve the syllabus of Basic Electrical Engineering and Basic Electrical Lab for the I/II Semester for the academic year 2020-21.

The Chairman presented the Syllabus of the Basic Electrical Engineering and Basic Electrical Lab for the I/II Semester students of all the branches of Engineering for the academic year 2020-21. Accordingly, a syllabus for the I/II Semesters was presented and placed before the Board Of Studies Members for their opinion and approval.

**Resolution:** The BOS members went through the Syllabus of Basic Electrical Engineering and Basic Electrical Lab is discussed in length about the various aspects of the syllabus. After incorporation of the changes as suggested by the members of BOS, the **Basic Electrical Engineering and Basic Electrical Lab syllabus** for I/II Semesters was approved for the academic year 2020-21.

**Agenda 4:** To frame, discuss and approve the Scheme for III and IV Semester under Choice Based Credit System and Outcome Based Education System for 4 Years Course in Electrical and Electronics Engineering for the academic year 2020-21.

The BOS Chairman presented the Scheme and Syllabus for the III and IV Semester under Choice Based Credit System and Outcome Based Education System for 4 Years Course in Electrical and Electronics Engineering for the academic year 2020-21 and placed before the Board Of Studies Members for their opinion and approval.

**Resolution:** The BOS members went through the draft Schemes thoroughly for the III to IV Semester and discussed in length about various aspects of the scheme and syllabus. BoS members were suggested to incorporate the syllabus for virtual lab, inclusion of open source/Licensed software tools for the theory/laboratory. They also suggested to change in the syllabus with the mapping of Programme specific outcomes and course outcomes, the BOS members were approved the **Scheme and syllabus** for the III and IV Semesters for the academic year 2020-21 under Outcome Based Education System and Choice Based Credit System.

**Agenda 5:** To frame, discuss and approve the Scheme and Syllabus for V to VIII Semester under Choice Based Credit System and Outcome Based Education System for 4 Years Course in Electrical and Electronics Engineering for the academic year 2020-21 and syllabus of the Institute electives offered to the other department students of the college. The List of subjects for the Honours degree course were also placed before the committee members and also the rules and regulations of the Honour's degree were placed



Department of Electrical & Electronics Engineering

before the committee members.

Chairman presented the Scheme and Syllabus for V to VIII Semester for 4 Years Course Electrical and Electronics Engineering for the academic year 2020-21 and the list of subjects for the Honours degree from V semester onwards were placed before the Board Of Studies Members for their opinion and approval.

**Resolution:** The BOS members went through the draft Schemes and Syllabus thoroughly for the V to VIII Semester applicable to 2018-2019 Batch and 2017-18 Batch respectively and discussed in length about various aspects of the syllabus of theory and laboratory. After incorporating the following subjects: Smart Grid Technology, and Electrical Vehicle subjects as suggested by the committee members of BOS the Scheme and Syllabus for V to VIII Semesters was approved for the academic year 2020-21. The committee have also approved the syllabus of the Institute/Open electives for the academic year 2020-21. The BOS members were approved the inclusion of subjects for the Honours degree courses from V semester onwards as per the regulations laid down by the Dr AIT and VTU

**Agenda 6:** To prepare the panel for the Board of Examiners of the Electrical and Electronics Engineering to scrutinize the Question papers of the Semester End Examination for the AY: 2020-21

The BOS Chairman presented the list of Examiners to scrutinize the question papers for the Semester Examination for the academic year 2020-21

**Resolution:** The list of the Board of Examiners were approved for the AY 2020-21.

**Agenda 7:** To prepare the panel of Board of examiners for the evaluation and scrutinizing the Question papers in the department for the academic year 2020-21.

The Chairman of the BOS in E & EE department was presented the proposed the list panel of Examiners pertaining to UG in Electrical and Electronics Engineering department for the academic year 2020-21.

**Resolution:** The List of Panel of Examiners were approved based on the recommendation of internal members and the Chairman of BOS for the academic year 2020-21.

**Agenda 8:** To frame the list of subject equivalence for the academic year 2020-21.



Department of Electrical & Electronics Engineering

**Resolution:** The members of the BOS approved the subject equivalence for the students joined before the AY 2018-19, the BOS members were discussed in length about various aspects of the subject equivalence and approve the same.

**Agenda 9:** Inclusion of Virtual Lab for the academic year 2020-21.

The Chairman of the BOS in Electrical and Electronics Engineering presented the proposed subjects of Virtual Lab to UG in Electrical and Electronics Engineering for the academic year 2020-21.

**Resolution:** The members of the BOS approved the subjects of Virtual Lab for the academic year 2020-21 onwards after discussing in length about various aspects of the virtual lab. External BOS members expressed their opinion and appreciated the inclusion of the Virtual lab for UG courses

**Agenda 10:** Inclusion of Tools and Methods for ONLINE or Blended learning for the AY 2020-21

The External BOS members suggested to introduce, the Tools and Methods for ONLINE or Blended learning to UG in Electrical and Electronics Engineering for the academic year 2020-21.

**Resolution:** The members of the BOS approved the Tools for ONLINE/FLIPPED LEARNING ENVIRONMENT such as MICROSOFT TEAM, ZOOM, EDMODO, GOOGLE CLASS ROOM, EPILOGUE, CANVAS and CISCO WEBEX MEETING and also the members of BOS suggested to use the softwares like Sequel, Scilab, PSIM, Matlab, MiPower, PSCAD, Ansys, Open RTL for simulations for the academic year 2020-21 onwards. Also discussed in length about various aspects of the blended learning. External BOS members Expressed and apricated the inclusion of the blended learning for the UG courses

Finally, the meeting of Board of studies was concluded with the Chairman of the BOS in Electrical and Electronics Engineering (thanking to all the members (Internal and External) of the BOS and Co-opted members for their active participation in the deliberations of the meeting and giving inputs for the progress of the department.

The following BOS members were presented for the BOS Meeting on Saturday, the 8<sup>th</sup> August 2020.

1. Dr.G.V.Jayaramaiah, Professor and HOD, Chairman of BOS
2. Dr..Sumathi, Professor and HOD, EEE, RNSIT, Bengaluru and VTU Nominee
3. Dr. Suryanarayanadoolla, Professor, Energy systems Engineering, IIT Bombay and Subject Expert
4. Dr. Pradeep Kumar Dixit, Professor and Head, Electrical Engineering, MSRIT, Bengaluru-19 and Subject Expert





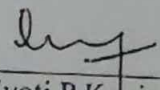
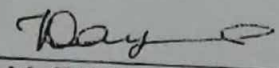
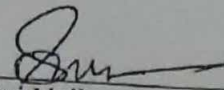
Department of Electrical & Electronics Engineering

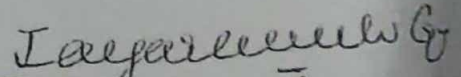
5. Dr.P.S. Puttaswamy, Professor and Head, Department of EEE, GSS, Mysore and Expert
6. Professor Dilip Kumar , HOD EEE at IET Ayodhya, UP and Subject Expert
7. Mr.Srinivas.B.T.,Software Engineer, IBM India, Bengaluru and Post Graduate Student Nominee
8. Mr. Ramachandra, Green Automation Pvt. Ltd, Bengaluru and Industry Representative
9. Mr. Arun Kumar, Electrono Solution Pvt Ltd.Bengaluru and Industry Representative
10. Dr.Eranna, Associate Professor and BOS Member
11. Dr.Jyoti P Koujalagi, Professor and BOS Member
12. Mr.T.B.Dayananda, Associate Professor and BOS Member
13. Dr.H.V.Govindaraju, Associate Professor and BOS Member
14. Dr S.Vasudevamurthy, Associate Professor and BOS Member
15. Ms.Nalini. S, Associate Professor and BOS Member
16. Dr. Shankaralingappa.C.B., Professor and BOS Member
17. Ms Arpitha Raju, Assistant Professor and BOS Member

**Members Absent:**

1. Mr. Guruswamy, General Manager, IE Power Technologies, Bengaluru and Industry Representative
2. Dr.Satish, Professor, IISc, Bengaluru and Subject Expert

Signature of Coordinators

1.   
Dr.Jyoti P Koujalagi
2.   
Mr.T.B.Dayananda
3.   
Harini Vaikund



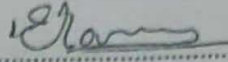
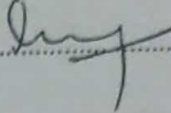
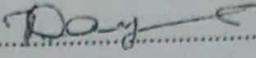
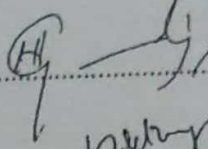
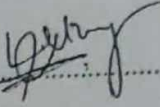
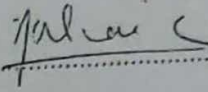
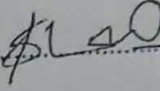
Signature of the BOS Chairman

Dr.G.V. Jayaramaiah



Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY, BEGALURU- 560056.  
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Department of Electrical & Electronics Engineering

Name of the BOS Member	Signature of the BOS Member with date
1. Dr.Eranna, Associate Professor	
2. Dr.Jyoti P Koujalagi, Professor	
3. Mr.T.B.Dayananda	
4. Dr.H.V.Govindaraju, Associate Professor	
5. Dr.S.Vasudevamurthy, Associate Professor	
6. Ms.Nalini.S, Associate Professor	
7. Dr.Shankarlingappa.C.B., Professor	
8. Arpitha Raju	

**Dr. Ambedkar Institute of Technology, Bengaluru-560 056**  
**SCHEME OF TEACHING AND EXAMINATION for Batch: 2018, Academic Year: 2021-22**  
**B.E Name of the programme: Electrical & Electronics Engineering**  
**Outcome Based Education (OBE) and Choice Based Credit System (CBCS)**  
**VII SEMESTER**

Sl. No.	Course and Course code	Course Title	Teaching Department	Teaching Hours /Week			Examination			Credits	
				Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks		Total Marks
				L	T	P					
		CMEP / OSHA	IM/CV	2	--	--	03	50	50	100	2
1	MC 18HS71/72	Power System Analysis -II		4	--	--	03	50	50	100	4
2	PC 18 EE 71	Modern Power System Protection		3	--	--	03	50	50	100	3
3	PC 18 EE 72	Professional Elective -3		3	--	--	03	50	50	100	3
4	PE 18 EE 73X	Professional Elective-4		3	--	--	03	50	50	100	3
5	PE 18 EE 74X	Open Elective -B		3	--	--	03	50	50	100	3
6	OE 18 EE 75X	Power System Simulation Lab		--	--	2	03	50	50	100	1
7	PC 18 EE L76	Relay & HV Lab		--	--	2	03	50	50	100	1
8	PC 18 EE L77	Project Work Phase - 1		--	--	2	03	50	50	100	2
9	Project 18 EE P78	Internship		(If not completed after VI semester, it has to be carried out during the intervening vacations of VII and VIII semesters)							
10	INT 18 EE 179										
<b>TOTAL</b>				<b>19</b>	<b>4</b>	<b>4</b>	<b>24</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>22</b>

**Note:** PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course

**Internship:** All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters. A SEE examination will be conducted during VIII semester and prescribed credits shall be added to VIII semester. Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent SEE examination after satisfy the internship requirements.

Professional Electives - 3		Professional Electives - 4	
Course code	Course Title	Course code	Course Title
18 EE 731	Fuzzy Logic	18 EE 741	Power System Operation & Control
18 EE 732	Artificial Intelligence Applications to Power Systems	18 EE 742	Computer Control of Electrical Drives
18 EE 733	Insulation Engineering	18 EE 743	Electrical Design, Estimating and Costing
18 EE 734	Flexible AC Transmission Systems (FACTS)	18 EE 744	Energy Auditing & Demand Side Management
18 EE 735	High Voltage Power Transformers		

Sl. No.	Name	Signature	Sl. No.	Name	Signature
1	Dr. Jyoti P Koujalagi		11	Mr. Samarendra Prathap Singh	
2	Dr. Suryanarayana doolla		12	Dr. B.V. Sumangala,	
3	Dr. Satish L		13	Dr. Shankarlingappa.C.B	
4	Dr. Pradip Kumar Dixit		14	Dr. Eranna, Asso. Prof.	
5	Dr. Puttaswamy PS		15	Mr. Dayananda T.B,	
6	Dr. Sumathi, RNSIT		16	Dr. Govindaraju H.V,	
7	Mr. Ramachandra,		17	Dr. Vasudevamurthy S,	
8	Mr. Arun Kumar		18	Ms. Arpitha Raju	
9	Mr. Guruswamy		19	Mrs. Harini Vaikund	
			20	Mr. V. Keshavemurthy	

Dr. Ambedkar Institute of Technology, Bengaluru-560 056  
SCHEME OF TEACHING AND EXAMINATION from Academic Year 2021-22

B.E. in Electrical and Electronics Engineering  
Outcome Based Education (OBE) and Choice Based Credit System (CBCS) (Applicable to 2019-22 Batch)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical / Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks		
					L	T	P						
1	HS	18HS61/62	M & E /IPR	Hu	3	--	--	03	50	50	100	3	
2	PC	18EE61	Power System Analysis-I	EE	2	2	--	03	50	50	100	3	
3	PC	18EE62	High Voltage Engineering	EE	3	2	--	03	50	50	100	4	
4	PC	18EE63	Digital Signal Processing	EE	3	2	--	03	50	50	100	4	
5	PE	18EE4X	Professional Elective -2	EE	3	--	--	03	50	50	100	3	
6	OE	*18XX65X	Open Elective -B		3	--	--	03	50	50	100	3	
7	PC	18EEL66	Digital Signal Processing Lab	EE	--	--	2	03	50	50	100	1	
8	PC	18EEL67	Micro controller Lab	EE	--	--	2	03	50	50	100	1	
	MP	18EEM68	Mini-project					03	50	50	100	2	
0	INT	18EEI69	Industry Internship	(To be carried out during the intervening vacations of VI and VII semesters )				--	--	--	--	--	--
<b>TOTAL</b>					17	6	4	27	450	450	900	24	

HS	18HS66	Placement Training	Hu	02	--	--	03	50	-	50	PP/NP
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Note: PC: Professional core, PE: Professional Elective, OE: Open Elective, MP: Mini-Project, INT: Internship.  
\*keep the course code as it is and it shall be replaced with department code depending on the student's choice.

ernship: All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters. A University examination will be conducted during VIII semester and prescribed credit are added to VIII semester. Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent University examination after satisfy the internship requirements.

Electives		Open Elective -B
Course code	Professional Electives -2	Students can select any one of the open electives (Please refer to consolidated list of Dr AIT for open electives) offered by any Department. Selection of an open elective is not allowed provided, • The candidate has studied the same course during the previous semesters of the programme. • The syllabus content of open elective is similar to that of Departmental core courses or professional electives. • A similar course, under any category, is prescribed in the higher semesters of the programme. Registration to electives shall be documented under the guidance of Programme Coordinator/ Mentor.
EE641	Operating System	
EE642	Special Electrical Machines	
EE643	Artificial Intelligence to Electrical Engineering	
EE644	Electrical Vehicle Technology	
EE645	Smart Grid Technology	
EE646	OOPS with C++	
	Open Elective -B	
EE651	Electrical Vehicle Technology	

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