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CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

M & V Patel Department of Electrical Engineering

Analysis Report of Feedback Received from different Stack Holders

For the AY 2017-18

Students:

All of the students gave the positive feedback about the curriculum. Most of the students had tick mark on either Great or Good column. Only 2% Students tick mark on satisfactory Column. 1 % of the student goes for poor or very poor column.

Most of students like the inclusion of Advanced level subject, more practical knowledge, communication subjects in curriculum. They are satisfied and happy with the educational goals included in curriculum. Major number of students wanted the increase in placement activity.

Parents:

From the feedback of parents, It is observed that parents are very happy with curriculum. They found the good career opportunity from well-designed curriculum. Parents want continuous evaluation process.

Alumni:

The conclusion of alumni feed back is to incorporate the recent trends and give more weightage and time to final year project in curriculum.

Experts from Academia:

Expert from other institutes and own institute tick in great column in feedback form. All aspects to develop technical skill are taken care. Very well developed curriculum but still there is scope of improvement.

Industry / Employer:

The industry people had appreciated the inclusion of Software simulation and communication course in curriculum. They gave feedback on Great column.

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Chandubhai S. Patel Institute of Technology
At. & Po. Changa-388421., Ta. Petlad,
Dist. : Anand. (Gujarat)

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M & V Patel Department of Electrical Engineering

Action taken report on the feedbacks received from different Stack Holders

For the AY 2017-18

The summary of the feedback and suggestions received from the stakeholder and corresponding action taken for AY 2017-18 is as below.

Sr. No.	Suggestion Received	Action Taken	Annexure Page No.
1	Include Project work	"Minor Project I" and "Minor Project II" introduced from AY 2018-19	28,29,36
2	Include Industrial Training	"Summer Internship I" introduced in Third Year from AY 2018-19, and "Summer Internship II" introduced in Fourth Year from AY 2019-20	28,36,53,62
3	Introduce Internship after 2nd year.	Taken care as per serial No. 2	28,36,53,62
4	It is good to see a specific course on " Renewable Energy Sources"	A course on "Modelling and Control of Renewable Energy Sources" Introduce from AY 2019-20 in Final Year	53,62
5.	Latest trends and technological developments can be included.	A course on "Advanced Microcontrollers" is revised and Introduce from AY 2018-19 in Third Year as elective course. A course on "Communication Engineering" is Introduce from AY 2019-20 in Final Year as elective course. A course on "Internet of Things" is Introduce from AY 2019-20 in Final Year as elective course.	28,38,53,63
6	Introduce some industry oriented courses	Taken care as per serial No. 2	28,36,53,62
7	Some courses should be merged to give the place for project	Courses were merged and introduced in Third Year (From AY 2018-19) and Final Year (From AY 2019-20) to give more space for Project. More Time and Credit given to Project from AY 2019-20	3,26
8	Include some skill based subjects	Every course has some skill development components either in technical side of in life skill. Dedicated skill development courses were introduced as elective form AY 2019-20 in Final year.	27,35,36,52,53,62,63

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9.	To reduce no. of subjects in final year.	Form AY year 2019-20, final semester courses were reduced. Also, it is planned to offer only one course " Industrial Project" in final semester from AY 2022-23.	3,26
10.	More Lab hours and more software knowledge should be given.	A course on Electrical Machine is revised and offered with 4 hours/week practical time from AY 2018-19 in Third Year. A course on Programmable Logic Controller is revised and offered with 4 Hours/week practical time from AY 2018-19 in Third Year. Earlier both course was offered with scheme of 2 Hours/week practical time. A course on Software simulation is revised and offered with 4 hours/week practical time from AY 2019-20 in Final Year.	27,29,36,52,62

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Minutes –12th Board of Studies Meeting
M&V Patel Department of Electrical Engineering
Faculty of Technology & Engineering, CHARUSAT

Date : September 3, 2016, Saturday
Time : 10:00 am onwards
Venue: Room No: 102, HOD (EE), CSPIT, CHARUSAT Campus

The 12th meeting of Board of Studies, M & V Patel Department of Electrical Engineering, Faculty of Technology and Engineering (FTE), Charotar University of Science and Technology (CHARUSAT) was held on 3/9/2016 at 10:00 a.m. at M & V Patel Department of Electrical Engineering, CSPIT, CHARUSAT Campus. Following members were present:

1	Dr. Praghnesh Bhatt	**Chairman;**	Professor & Head, Department of Electrical Engineering,	
2	Dr. Kartik Pandya	**Member;**	Professor, Department of Electrical Engineering,	
3	Dr. Bhinal Mehta	**Member;**	Assistant Professor Department of Electrical Engineering,	
4	Mr. Nilay Patel	**Member;**	Assistant Professor Department of Electrical Engineering,	
5	Ms. Pankita Mehta	**Member;**	Assistant Professor Department of Electrical Engineering,	
6	Mr. Jivanadhar Joshi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
7	Dr. Sanjay R. Joshi	**External Member;**	Principal Government Engineering College, Valsad	
8	Dr. Bhavik Suthar	**External Member;**	Associate Professor Government Engineering College, Modasa	
9	Dr. Santosh Vora	**External Member;**	Professor Department of Electrical Engineering Nirma University, Ahmedabad	
10	Dr. Vijay Shah	**External Member;**	R&D Specialist, BU-PPMV, Vadodara	
11	Mr. Kirat Pandya	**External Member;**	AGM, Schneider Electricals Ltd, Vadodara	
12	Mr. Sanjay Mahagaokar	**External Member;**	Dy General Manager Engineering and Technology Rotomag Power Drives Ltd	

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Initiation:

Dr. Praghnesh Bhatt welcomed all the members of Board of Studies.

Agenda Proceedings & Resolutions:-

Item 12.01:	To approve teaching and examination scheme of B. Tech program under Choice Based Credit System (CBCS) for 3rd to 8th Semester effective from ACY 2017-2018.
	Proceedings 12.01: The teaching and examination scheme of B. Tech program under Choice Based Credit System (CBCS) for 3rd to 8th Semester effective from ACY 2017-2018 has been discussed in details. **Suggestions Received:** ▪ The proposed structure of CBCS has been discussed in detail along with core and different elective courses. ▪ The courses are appropriately distributed among the major areas of electrical engineering such as power system, electrical machines, power electronics, microprocessors & microcontrollers along with required supplementary courses. ▪ It is appreciated to keep the more weightage to practical hours. ▪ The students must know the fundamental of the subjects and they must have knowledge about the various electrical products available in the market along with its specifications and prices. ▪ The students should have the opportunities to develop hardware based projects to learn the theoretical concepts more effectively. The preparation of the complete project report enhances their writing, presentation and communication skills. ▪ Power generation by renewable energy sources and its modeling concepts needs to be imparted as they are the present day demand. ▪ The operating paradigm of the distribution system has changed drastically and its concepts can be covered by offering the courses on smart grid, micro grid and distributed generation. ▪ Early exposure to practical/industrial training makes the students familiar with industrial developments and practices. The projects/training ▪ The department has purchased good number of licensed software. The knowledge of these licensed software will add values for industrial jobs as well as for the further studies.

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	[redacted] ▪ Handbooks, catalogs and IS & IEC standards, product manuals should be included for the course on Commissioning and Testing of Electrical Equipments. ▪ The curriculum structure of other universities such as GTU, Nirma, Amity, IITs, NIT, NUS, University of Illinois are also referred and discussed. The goal of designing curriculum structure is to prepare the students for GATE, other competitive exams and for further studies. ▪ The university core and elective courses are also reviewed and they are found suitable to inculcate values & ethics, to enhance critical thinking & logic, to improve communication skills and to increase basic analytical ability among the students. ▪ The vision and mission of the department, POs and PEOs are reviewed and redefined. For 2nd year courses effective from ACY 2017-2018, the individual course objectives and their outcomes are defined. **Resolution 12.01:** • Based on the extensive discussion and suggestion received from the BoS members, the teaching and examination scheme of B. Tech Program under CBCS is finalized and attached in **Annexure 12.I.**
Item 12.02:	To review and approve the detailed syllabus of 1st and 2nd year B. Tech program under CBCS which will be effective from ACY 2017-2018.
	Proceedings 12.02: The detailed syllabus of the courses for B Tech – 2nd Year (3rd and 4th Semesters) effective from 2017-2018 are reviewed. **Suggestions Received:** ▪ The depths of contents of different courses are discussed at length. ▪ The contact hours required to cover the proposed topics are verified and required changes are suggested. ▪ For **EE281** (Electrical Engineering Materials) (University Elective I): The concepts of different conducting, insulating, magnetics and semiconductor material will be given. This will help students in later stage at designing of machines. ▪ For **EE282** (Electrical Power Utilization and Traction) (University Elective II): Electric heating, welding, Fundamentals of illumination and traction can be covered in this course. ▪ For **EE241**: Analog and Digital Electronics, course contents are discussed and finalized.

	For this course, more useful and fundamental book "Design with Operational Amplifier and analog Integrated Circuits, Sergio Franco, McGraw Hill" is suggested. In addition to existing test kits in analog and digital electronics lab, "Analog Discovery Kit" is suggested. ▪ For **EE242**: Circuit Theory, the contents are found suitable. Following new books for circuit theory are proposed. 1. Electric Circuit Analysis, K.S. Sureshkumar, Pearson Education, India 2. Basic Circuit Theory, Charles A. Desoer and Ernest S. Kuh, McGraw Hill ▪ For **EE243**: Electrical Measurements and Industrial Instrumentation, the conventional topics on measurement such as resistance measurement, different AC bridges, shunts and multipliers should be incorporated. The digital methods for power measurement should be discussed. ▪ For **EE244**: Electrical Power Generation and its Economics, the contents are found suitable. ▪ For **EE245**: Control System, state space methods should be limited as compared to other methods. The methods for designing controller structure and compensator designs are suggested to include. ▪ For **EE246** Microprocessor & Microcontrollers, the syllabus is well designed. ▪ For **EE247**: Transformers and Induction Machines, the combination of two AC machines will work well; the portion of the commissioning of transformer and motors need not to be discussed at 4th semester. ▪ Revised course of MA241 Engineering Mathematics III, which is passed in respective BoS will be introduced in third semester of AY 2017-18 **Resolution 12.02:** ▪ The suggestions received from BoS members are incorporated and detailed syllabi for B Tech – 2nd Year (3rd and 4th Semesters) effective from 2017-2018 is approved and is attached in **Annexure – 12.II.**
Item 12.03	To approve the teaching and examination scheme of M. Tech program under Choice Based Credit System (CBCS) effective from ACY: 2016-2017
	Proceedings 12.03: The teaching and examination scheme of M. Tech program under Choice Based Credit System (CBCS) effective from ACY: 2016-2017 is reviewed. **Suggestions Received:** ▪ The different core and elective courses offered at university level are reviewed. The courses under program core, program electives and cluster electives are also reviewed. **Resolution 12.03:**

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	University elective courses are introduced. The teaching and examination scheme of M. Tech program under Choice Based Credit System (CBCS) effective from ACY: 2016-2017 is approved and attached in **Annexure – 12.III.**
Item 12.04	To review and approve the detailed syllabus of 1st and 2nd year M. Tech program under CBCS effective from ACY 2016-2017.
	Proceedings 10.04: The detailed syllabus of 1st and 2nd year M. Tech program under CBCS effective from ACY 2016-2017 is reviewed. **Suggestions Received:** **EE781 Optimization Techniques and EE782** The contents of all the course of 1st and 2nd semester of M. Tech are discussed at length. The courses under program electives and cluster electives are good and syllabus contents are well designed. Very good university electives are constructed by various BoS and listed in annexure IV. **Resolution 12.04:** The detailed syllabus of 1st and 2nd year M. Tech program under CBCS effective from ACY 2016-2017 is approved and attached in **Annexure – 12.IV**.
Item 12.05	To review and approve (a) T&E scheme and the detailed syllabus of 3rd year B. Tech program for a batch of 2015 entry and (b) T&E scheme and detailed syllabus of 4th year B. Tech program for a batch of 2014 entry
	Resolution 10.05: (a) T&E scheme and the detailed syllabus of 3rd year B. Tech program for a batch of 2015 entry and (b) T&E scheme and detailed syllabus of 4th year B. Tech program for a batch of 2014 entry are approved and attached in **Annexure 12.V and Annexure 12.VI.**
Item 12.06	Discussion on effective implementation of Outcome Based Education (OBE) and ICT based Teaching-Learning
	Suggestions Received: ▪ All faculty members must aware about each criteria defined by NBA. ▪ The proper understanding of mapping of POs, PEOs, COs and their assessment tools is required. ▪ Faculty contribution should be increased for publication, funded projects and consultancy. ▪ The usage of open course ware from NPTEL, MIT and BISAC must be increased.
Item 12.07	Introducing the new PG program in Electrical Engineering
	Suggestions Received: Following PG programs in Electrical Engineering are proposed. (1) Power Electronics and Drives (2) Renewable Energy (3) Automation and Control
Item 12.08	Suggestion regarding new UG programs in new Institute of Technology of Faculty of

	Technology and Engineering, CHARUSAT
	Suggestions Received: Following new UG programs in can be proposed along with CE, IT, ICT. (1) Mechanical Engineering (2) Instrumentation and Control (3) Bio Informatics
Item 12.09	Discussion regarding recent approval from NBA and scope for the improvement
	All invited BoS members congratulated the University, Institute and Department for getting "A" graded from NAAC and KCG as well as for getting NBA for three departments
Item 12.10	Approval of Examiners' Panel
	The examiners panels for B. Tech and M. Tech have been reviewed and approved. The approved examiner panel is attached in **Annexure 12.VII.**

Additional Items

Sr. No	Agenda	Discussion/Suggestions
1	Review of Exam Question Papers	Question papers of internal and university examination have been reviewed. The briefings about the continuous evaluation, freedom for pedagogy selection for faculty and execution of the practical sessions have been given to external BoS members. The quality of question papers are found satisfactory, but it is suggested to increase the weighatge on the questions that can increase the analytical and logical thinking ability of students.
2	Review of Result Analysis	The records of result analysis of both internal and university exam are maintained. The results of both the exams are generally discussed and analyzed in the department meeting as soon as the exam gets over and the necessary actions are decided. The YoY comparisons of the results are also discussed and the figures are acceptable. The efforts should be given to again improve the results at all levels. The conduction of the remedial coaching for weaker students has been appreciated by the members.
3	Review of Placement Records	The campus placement of the student needs to be increased. More efforts are required to invite the companies for placement. The aptitude sessions organized for the students are appreciated. It is advised to keep extra technical session to prepare the students for technical skills.
4	Review of B. Tech and M. Tech Projects works	The project titles for B. Tech and M. Tech are reviewed and found satisfactory. It is suggested to give more emphasis on hardware based projects at B. Tech level. For M. Tech, the extensive use of licenses software may help the students to solve/reproduce the IEEE journal papers. Paper presentation for M. Tech students should be made compulsory.
5	Review of Feedback from Students, Identification of slow learners, Counseling	Review pattern for the students feedback and actions after the feedback have been explained. It is an useful component to improve the performance of teacher and T-L practices. The student counseling activities are very appreciated by all the members.

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	activities	

Dr. Praghnesh Bhatt
Chairman
Board of Studies (EE)

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Annexure 12.I & II: TEACHING & EXAMINATION SCHEME FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING (CBCS) Entry Year: 2016

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY (CHARUSAT)

TEACHING & EXAMINATION SCHEME FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING (CBCS) Entry Year: 2016

Level	Course Code	Course Title	Teaching Scheme				Examination Scheme				
			Contact Hours			Credit	Theory		Practical		Total
			Theory	Practical/Tutorial	Total		Internal	External	Internal	External	
Level 1	HS101A- HS106A	A Course on Liberal Arts	2		2	2			50	50	100
	MA141	Engineering Mathematics I	4	1	5	4	30	70	0	0	100
	ME141	Engineering Graphics	2	4	6	4	30	70	50	50	200
	PY141	Engineering Physics	3	2	5	4	30	70	25	25	150
	CL141	Engineering Mechanics	4	2	6	5	30	70	25	25	150
	ME142	Workshop Practices	0	2	2	1			25	25	50
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			10						
			15	11	36	20	120	280	175	175	750
	HS 121A	English Language & Literature	2		2	2	25	25	25	25	100
	MA142	Engineering Mathematics II	4	1	5	4	30	70			100
	CL142	Environmental Science	2	0	2	2	30	70			100
	IT141	Fundamentals of Computer Programming	3	2	5	4	30	70	25	25	150
	ME143	Basics of Civil & Mechanical Engineering	4	2	6	5	30	70	25	25	150
	EE141	Basics of Electronics & Electrical Engineering	4	2	6	5	30	70	25	25	150
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			10						
			19	7	36	22	175	375	100	100	750

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	HS122A/HS131A	Values and Ethics/Philosophy	2		2	2	30	70			100
	MA241	Engineering Mathematics III	4	0	4	4	30	70			100
	EE241	Analog and Digital Electronics	4	2	6	5	30	70	25	25	150
	EE242	Circuit Theory	4	2	6	5	30	70	25	25	150
	EE243	Electrical Measurements and Industrial Instrumentation	4	2	6	5	30	70	25	25	150
	XXXXX	University Elective- I	2	0	2	2	30	70			100
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			10						
Level 2			**20**	**6**	**36**	**23**	**180**	**420**	**75**	**75**	**750**
	HS127.01A/HS133A/ HS123.01A	Communication Skills-2/ Creativity, problem Solving and Innovation/ Critical Thinking and Logic	2		2	2	50	50			100
	EE244	Electrical Power Generation and its Economics	4	0	4	4	30	70			100
	EE245	Control Systems	4	2	6	5	30	70	25	25	150
	EE246	Microprocessor & Microcontrollers	4	2	6	5	30	70	25	25	150
	EE247	Transformers and Induction Machines	4	4	8	6	30	70	50	50	200
	XXXXX	University Elective- II	2	0	2	2	30	70			100
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			7						
			20	**8**	**35**	**24**	**200**	**400**	**100**	**100**	**800**

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	HS124.01A	Professional Communication I	2		2	2			30	70	**100**
	EE341	Electrical Power Transmission and Distribution	4	2	6	5	30	70	25	25	**150**
	EE342	Synchronous and DC Machines	4	4	8	6	30	70	50	50	**200**
	EE343	Power Electronics & Drives I	4	2	6	5	30	70	25	25	**150**
	EE344	Minor Project I	0	4	4	2			50	50	**100**
	EE345	Electrical Product Survey				2			50	50	**100**
	EE350	Summer Internship I		.3	3	3			75	75	**150**
	EE371-EE372	Programme Elective I	3	2	5	4	30	70	25	25	**150**
Level 3		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			6						
			17	**14**	**37**	**26**	**120**	**280**	**255**	**295**	**950**
	HS125A	**Society, Governance and International Studies**	2		2	2	25	25	25	25	**100**
	EE346	Digital Signal Processing	3	2	5	4	30	70	25	25	**150**
	EE347	Programmable Logic Controllers and Industrial Automation	3	2	5	4	30	70	25	25	**150**
	EE348	Power Electronics & Drives II	3	2	5	4	30	70	25	25	**150**
	EE349	Fault Analysis and Switchgear	4	2	6	5	30	70	25	25	**150**
	EE360	Minor Project II	0	4	4	2	0	0	50	50	**100**
	EE376-EE377	Programme Elective II	3	2	5	4	30	70	25	25	**150**

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		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			4						
			18	**14**	**36**	**25**	**175**	**375**	**200**	**200**	**950**
Level 4	EE441	Power System Operations and Control	4	2	6	5	30	70	25	25	**150**
	EE442	Power System Protection	4	2	6	5	30	70	25	25	**150**
	EE443	Electrical Machine Design	4	4	8	6	30	70	25	25	**150**
	EE444	Simulation Lab	0	2	2	1			50	50	**100**
	EE445	Summer Practical Training				3			50	50	**100**
	EE471-EE472	Programme Elective III	4	2	6	5	30	70	25	25	**150**
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			2						
			16	**12**	**30**	**25**	**120**	**280**	**200**	**200**	**800**
	EE446	Commissioning and Testing of Electrical Equipment	4	2	6	5	30	70	25	25	**150**
	EE447	Modeling and Control of Renewable Energy Sources	4	2	6	5	30	70	25	25	**150**
	EE448	Major Project				9			250	250	**500**
	EE473-EE474	Programme Elective IV	4	2	6	5	30	70	25	25	**150**
			12	**6**	**18**	**27**	**90**	**210**	**325**	**325**	**950**

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		Hours				Credits	Marks				
			Theory	Practical	Total						
			137	78	264	192	1180	2620	1430	1470	6700

LIST OF ELECTIVES FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING

University Electives for Level 2

	UNIVERSITY ELECTIVE 1	UNIVERSITY ELECTIVE 2	
EE281	Electrical Engineering Materials	EE282	Electrical Power Utilization and Traction

Electives for Level 3

	PROGRAMME ELECTIVE 1	PROGRAMME ELECTIVE 2	
EE371	Advanced Microcontrollers	EE376	Special Electrical Machines and Applications
EE372	VLSI Technology and Design	EE377	Embedded System

Electives for Level 4

	PROGRAMME ELECTIVE 3	PROGRAMME ELECTIVE 4	
EE471	Power Electronics Applications in Power System	EE473	Smart Grid and Distribution Generation
EE472	Advances in Power System	EE474	Energy Auditing and Management

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University Elective I & II: (Will be available in a Common Slot)	**Occupational Health and Safety, IPR, Regulatory Affairs, Contract Management,** **Energy Management, Research Methodology, Entrepreneurship, Project Management, First AID and Life Support** **Risk Management, Disaster Management, Scientific Instrumentation & Measurement, Operation Research,** **Business Environment, Quality Assurance, Computer Programming, Numerical Analysis, Web Designing, Cyber Security etc**

Annexure 12.III & IV TEACHING AND EXAMINATION SCHEME FOR M Tech in Electrical Engineering (Electrical Power Systems)

Semester	Course Code	Course Title	Teaching Scheme				Examination Scheme				
			Theory	Practical/Tutorial	Total	Credit	Theory		Practical		Total
							Internal	External	Internal	External	
Sem 1	EE741	Modeling & Simulation of Electrical Machines (PC - 1)	4	2	6	5	30	70	25	25	150
	EE742	Modern Power System Operations (PC - 2)	3	2	5	4	30	70	25	25	150
	EE743	Advanced Power Electronics in Power Systems (PC - 3)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Elective-I (PE - 1)	3	2	5	4	30	70	25	25	150
	EE7XX	Program Cluster Elective - 1 (PCT - 1)	3	2	5	4	30	70	25	25	150
	HS701	Advanced Critical Thinking & Logic (UC - 1)	2	0	2	2	30	70	0	0	100
	XXXXX	University Elective 1 (UE - 1)	2	0	2	2	30	70	0	0	100
			20	**10**	**30**	**25**	**210**	**490**	**125**	**125**	**950**
Sem 2	EE744	Advanced Power System Dynamics & Stability (PC - 4)	4	2	6	5	30	70	25	25	150
	EE745	FACTS & HVDC Transmission (PC - 5)	3	2	5	4	30	70	25	25	150

	EE746	Advanced Power System Protection (PC - 6)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Elective - 2 (PE - 2)	3	2	5	4	30	70	25	25	150
	EE7XX	Program Cluster Elective – 2skills	3	2	5	4	30	70	25	25	150
	HS702	Academic Writing & communication (UC-2)	0	2	2	2	0	0	30	70	100
	XXXXX	University Elective 2 (UE - 2)	2	0	2	2	30	70	0	0	100
			18	**12**	**30**	**25**	**180**	**420**	**155**	**195**	**950**

Programme Electives of Semester 1 and 2

Programme Electives 1 (PE 1) for Semester 1			**Programme Electives 2 (PE 2) for Semester 2**	
EE761	Control System Engineering		EE763	Modeling and Simulation of Renewable Energy Sources
EE762	Engineering Optimization Techniques		EE764	Distributed Generation and Smart Grid

Cluster Electives of Semester 1 and 2

Program Cluster Electives 1 (CT 1) for Semester 1			**Program Cluster Electives 2 (CT 2) for Semester 2**	
EE771	Digital Signal Processing & its Application		EE772	Restructuring & Deregulation of Power Systems
IT767	Micro device Programming		IT768	Applied Cryptography
EC767	Embedded System Design		EC768	Digital Image & Speech Processing
CE767	Operating System Design & Concepts		CE768	Software Project Management & Quality Assurance

University Electives of Semester 1 and 2

University Electives (UE 1) for Semester 1			**University Electives (UE 2) for Semester 2**	
MA771	Reliability and Risk Analysis		EE782	Energy Audit and Management
EE781	Optimization Techniques		CE771	Project Management
ME781	Occupational Health and Safety		IT771	Cyber Security and Laws
CE772	Research Methodology		CA 842	Mobile Application Development
CA730	Internet & Web Designing		PT796	Fitness & Nutrition
PT795	Health & Physical Activity		NR 752	Epidemiology and Community Health
NR 751	Women's Health		OC733	Introduction to Polymer Science
RD701	Introduction to Analytical Techniques		MB651	Software based Statistical Analysis
RD702	Introduction to Nano science& Technology		PH826	Intellectual Property Rights

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MB650	Creative Leadership
PH825	Community Pharmacy Ownership

MA772	Design of Experiments

Semester	Course Code	Course Title	Credit	Examination Scheme					
				Internal		External			Total
				Progress Report	Progress Seminar	Report	Seminar	Viva	
Sem 3	EE811	Project Preliminaries	4	50	50	0	50	50	200
	EE812	Project Phase 1	18	100	100	100	100	100	500
			22	**150**	**150**	**100**	**150**	**150**	**700**
Sem 4	EE813	Project Phase 2	30	200	200	200	200	200	1000
			30	**200**	**200**	**200**	**200**	**200**	**1000**
		Grand Total	**102**						**3600**

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Annexure 12.V TEACHING AND EXAMINATION SCHEME FOR Final Year B Tech in Electrical Engineering Entry Year: 2014

Sem	Course Code	Course title	Teaching Scheme			Credits	Examination Scheme				Total
			Contact Hrs.				Theory		Practical		
			Theory	Practical	Total		Internal	External	Internal	External	
Final Sem-VII	EE 401.01	Electrical Machine Design - I	3	2	5	4	30	70	25	25	150
	EE 402	Electrical Power System - IV	3	2	5	4	30	70	25	25	150
	EE 403	Power Electronics & Drives - II	4	2	6	5	30	70	25	25	150
	EE 404	Energy Conservation and Management	3	0	3	3	30	70			100
	EE 405	Power System Protection	4	2	6	5	30	70	25	25	150
		Elective - I	4	2	6	5	30	70	25	25	150
			21	**10**	**31**	**26**	**180**	**420**	**125**	**125**	**850**
Final Sem-VIII	EE 406.01	Electrical Machine Design - II	3	2	5	4	30	70	25	25	150
	EE 407	Commissioning of Electrical Equipments	3	2	5	4	30	70	25	25	150
	EE 408	Power System Stability & Control	4	2	6	5	30	70	25	25	150
	EE 409	Digital Signal Processing	3	2	5	4	30	70	25	25	150
		Elective - II	4	2	6	5	30	70	25	25	150
	EE 410.01	Project	0	6	6	3	0	0	50	100	150
			17	16	33	25	150	350	175	175	900

Code	Elective - I		Code	Elective - II
EE 414	Power System Operations		EE 415	Advances in Power System
EE 418	Applications of Advanced Microcontrollers in Electrical Engineering-I		EE 419	Applications of Advanced Microcontrollers in Electrical Engineering-II

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Annexure 12.VI TEACHING AND EXAMINATION SCHEME FOR THIRD Year B Tech in Electrical Engineering Entry Year: 2015

Sem	Course Code	Course Title	Teaching Scheme					Examination Scheme				
			Contact Hours				Credit	Theory		Practical		Total
			Theory	Practical	Tutorial	Total		Internal	External	Internal	External	
TY Sem-V	EE301	Electrical Machines-II	4	2	0	6	5	30	70	25	25	150
	EE302.01	Electrical Power System-II	4	0	0	4	4	30	70	0	0	100
	EE303.01	Microcontrollers and Applications	3	2	0	5	4	30	70	25	25	150
	EE304.01	Industrial Instrumentation	3	2	0	5	4	30	70	25	25	150
	EE305	Power Electronics & Drives-I	4	2	0	6	5	30	70	25	25	150
	EE311	Simulation Lab-I	0	2	0	2	1	0	0	25	25	50
	HS124.01A	Professional Communication	**2**		**0**	**2**	**2**	**0**	**0**	**30**	**70**	**100**
			20	**10**		**30**	**25**	**150**	**350**	**155**	**195**	**850**
TY Sem-VI	EE306.01	Electrical Machines-III	4	2	0	6	5	30	70	25	25	150
	EE307	Electrical Power System-III	4	2	0	6	5	30	70	25	25	150
	EE308.01	High Voltage Engineering	3	2	0	5	4	30	70	25	25	150
	EE309.01	Electrical Power Utilisation & Traction	3	0	0	3	3	30	70			100
	EE310.01	Programmable Logic Controllers and Industrial Automation	4	2	0	6	5	30	70	25	25	150
	EE312	Simulation Lab-II	0	2	0	2	1	0	0	25	25	50
	HS125.01A/ HS130A/ HS134A	Society, Governance and International Studies/ Law and Justice/ Contributor Personality Development	2		0	2	2	25	25	25	25	100

			20	10		30	25	175	375	150	150	850

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Annexure 12.VII Examiner Panel List for B. Tech and M. Tech Examination

Examiner Panel for Electrical Engineering (External Examiners)

Sr.No.	Examiner Name	Institute	Contact No	Email id
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Minutes – 12th Board of Studies Meeting
M&V Patel Department of Electrical Engineering
Faculty of Technology & Engineering, CHARUSAT

Date : September 3, 2016, Saturday
Time : 10:00 am onwards
Venue: Room No: 102, HOD (EE), CSPIT, CHARUSAT Campus

The 12th meeting of Board of Studies, M&V Patel Department of Electrical Engineering, Faculty of Technology and Engineering (FTE), Charotar University of Science and Technology (CHARUSAT) was held on 3/9/2016 at 10:00 a.m. at Department of Electrical Engineering, CSPIT, CHARUSAT Campus. Following members were present:

1	Dr. Praghnesh Bhatt	Chairman;	Professor & Head, Department of Electrical Engineering,	
2	Dr. Kartik Pandya	Member;	Professor, Department of Electrical Engineering,	
3	Dr. Bhinal Mehta	Member;	Assistant Professor Department of Electrical Engineering,	
4	Mr. Nilay Patel	Member;	Assistant Professor Department of Electrical Engineering,	
5	Ms. Pankita Mehta	Member;	Assistant Professor Department of Electrical Engineering,	
6	Mr. Jeevanadhar Joshi	Member;	Assistant Professor, Department of Electrical Engineering,	
7	Dr. Sanjay R. Joshi	External Member;	Principal Government Engineering College, Valsad	
8	Dr. Bhavik Suthar	External Member;	Associate Professor Government Engineering College, Modasa	
9	Dr Santosh Vora	External Member;	Professor Department of Electrical Engineering Nirma University, Ahmedabad	
10	Dr Vijay Shah	External Member;	R&D Specialist, BU-PPMV, Vadodara	
11	Mr. Kirat Pandya	External Member;	AGM, Schneider Electricals Ltd, Vadodara	
12	Mr. Sanjay Mahagaokar	External Member;	Dy General Manager Engineering and Technology Rotomag Power Drives Ltd	

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Minutes –14th Board of Studies Meeting
M&V Patel Department of Electrical Engineering
Faculty of Technology & Engineering, CHARUSAT

Date : August 26, 2017, Saturday
Time : 10:00am onwards
Venue: Room No: 102, HOD (EE), CSPIT, CHARUSAT Campus

The 14thmeeting of Board of Studies, M&V Patel Department of Electrical Engineering, Faculty of Technology and Engineering (FTE), Charotar University of Science and Technology (CHARUSAT) was held on 26/8/2017 at 10:00 a.m. at M&V Patel Department of Electrical Engineering, CSPIT, CHARUSAT Campus. Following members were present:

1	Dr. Praghnesh Bhatt	**Chairman;**	Professor & Head, Department of Electrical Engineering,	
2	Dr. KartikPandya	**Member;**	Professor, Department of Electrical Engineering,	
3	Dr. Bhinal Mehta	**Member;**	Assistant Professor Department of Electrical Engineering,	
4	Mr. Nilay Patel	**Member;**	Assistant Professor Department of Electrical Engineering,	
5	Mr. Maulik Shah	**Member;**	Assistant Professor Department of Electrical Engineering,	
6	Mr. Mhir Bhatt	**Member;**	Assistant Professor Department of Electrical Engineering,	
7	Mr. Jivanadhar Joshi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
8	Mr. Pratik Mochi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
9	Dr. Sanjay R. Joshi	**External Member;**	Principal Government Engineering College, Valsad	
10	Dr. BhavikSuthar	**External Member;**	Associate Professor Government Engineering College, Modasa	
11	Dr. Santosh Vora	**External Member;**	Professor, Department of Electrical Engineering Nirma University, Ahmedabad	
12	Dr. Vijay Shah	**External Member;**	R&D Specialist, BU-PPMV, Vadodara	
13	Mr. Kirat Pandya	**External Member;**	AGM, Schneider Electricals Ltd, Vadodara	

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14	Mr. Sanjay Mahagaokar	**External Member;**	Dy General Manager Engineering and Technology, Rotomag Power Drives.	

Initiation:

Dr. Kartik Pandya welcomed all the members of Board of Studies.

Agenda Proceedings & Resolutions:-

Item 14.01:	To review the T & E scheme for entire B TECH and MTECH programs under CBCS. Suggestions are invited to change T & E scheme of 3rd -8th semester of BTECH
	Proceedings 14.01: The teaching and examination scheme of B. Tech and M. Tech. programs under Choice Based Credit System (CBCS) [redacted] effective from ACY 2017-2018 had been discussed in details. **Suggestions Received:** ▪ The proposed structure of CBCS has been discussed in detail along with core and different elective courses. [redacted] ▪ More program electives should be incorporated in the third year and final year of B. Tech. program. ▪ The students must know the fundamental of the subjects and they must have knowledge about the various electrical products available in the market along with its specifications and prices. ▪ The students should have the opportunities to develop hardware-based projects to learn the theoretical concepts more effectively. The preparation of the complete project report enhances their writing, presentation and communication skills. ▪ Power generation by renewable energy sources and its modeling concepts needs to be imparted, as they are the present day demand. ▪ The operating paradigm of the distribution system has changed drastically and its concepts can be covered by offering the courses on smart grid, micro grid and distributed generation. [redacted] ▪ The curriculum structure of other universities such as GTU, Nirma, Amity, IITs, NIT, NUS, and University of Illinois are also referred and discussed. The goal of designing curriculum structure is to prepare the students for GATE, other competitive exams and for further studies.

	The university core and elective courses are also reviewed and they are found suitable to inculcate values & aims, to enhance critical thinking & logic, to improve communication skills and to increase basic analytical ability among the students. New subjects of Humanities are incorporated in second year level from AY 2017-18 as the courses were discussed in respective BoS. The courses are listed as under: HS 113A Philosophy HS 122A Values and Ethics HS 133A Creativity, Problem Solving and Innovation HS 127 01 Communication Skills II HS 123 01 Critical Thinking and Logic **Resolution 14.01:** ▪ Based on the extensive discussion and suggestion received from the BoS members, the teaching and examination scheme of B. Tech Program under CBCS is finalized and attached in **Annexure 14.I.**
Item 14.02:	To prepare and review the detailed syllabus of 3rd year B.TECH program under CBCS. **Proceedings 14.02:** The detailed syllabus of the courses for B Tech – 3rdYear (5thand 6thSemesters) is reviewed. **Suggestions Received:** **EE341: Electrical Power Transmission and Distribution** 1 Role of vector group for design purpose should be included. 2 Before design of transmission line, transmission line geometry and type of field should be included. 3 Visit to sub-station should be reflected in syllabus. 4 Most of experiments are study experiments. 5 Study of cable should be included. 6 Restrict the transmission line parameters to lower values. [redacted] 1 Four hour of lab session is good decision. 2 Applications of machines should be included by case study. 3 DC machine should be covered first and then Synchronous machine later in the syllabus. 4 Chapter numbers should be changed accordingly. 5 Subject is too long. 6 Machine winding portion should be excluded from theory and should be included in lab. 7 [redacted]

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8	A small topic of machine materials and permanent magnet can be included.
9	Universal motor should be included in this course.
10	For visualization, a print or drawing sheet can be prepared for machine winding.
11	Machine re-winder can be demonstrated in lab.
12	Visit can be arranged for students to see winding process of machine.
	Transform theory should be included in this course so it can help in Drives.

EE343:Power Electronics & Drives I

1	Define subtopics of MOSFET and IGBTs.
2	Addition of datasheets of All devices.
3	Experiments should be hands on like Choppers, Controlled rectifier.
4	Addition of experiments based on driver circuits and SCR firing circuits.
5	Real time Application should be included.
6	AC-DC converter is for 10 hours which is very less.
7	Mention components in detail in syllabus. Define attributes.
8	comparative analysis of various component should be included.

EE344: Minor Project I

1	Students will be given minor project.
2	The level of project should be primary knowledge level.

EE345: Electrical Product Survey

1	Specification, market survey, identification of different products like wire, cable, switchgear can be done.
2	Electronic component and IC data sheets can be studied by students.
3	Student groups should be formed to understand above concepts and evaluated based on presentation.

EE350: Summer Internship I

1	This course can be added in 5th semester.
2	Summer break between 4th and 5th semester can be effectively utilized by students.

1	Embedded C Language Programming for Microcontroller and keil will be taught.
2	PCA and its application and communication protocol can be added in syllabus.

EE372: VLSI Technology and Design (Programme Elective I)

1	Introduction and fabrication of MOSFET must be covered.

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	2 MOS combination and sequential circuits can be added in this course. **EE346:Digital Signal Processing** 1 There should be a separate compulsory subject for learning science of ' Signals & System's' 2 Its not better idea to cover the above as a part of a chapter in course of Digital Signal Processing. 3 The Last chapter may be removed with more emphasis on first chapter. [redacted] 1 Syllabus should have Fulfillment/justification of course title. 2 It can be an Elective Course. 3 Ladder diagram portion can be reduced in terms of time. 4 Include SMI, graphical Language. **EE348:Power Electronics & Drives II** 1 Syllabus is very compressive. 2 Adding of Advanced Power Electronics in Elective courses. So multilevel inverters and other advanced topics can be include in this course. **EE349: Fault Analysis and Switchgear** 1 Symmetrical component should be given less hour. 2 Time can be increased for Types of CB. 3 More reference books can be added. **EE360: Minor Project II** 1 Students will be given minor project. 2 The level of project should be moderate knowledge level. 3 Arduino based/ microcontroller based project will enhance the skill of students. **EE376: Special Electrical Machines and Applications (Programme Elective II)** 1 Basics of magnetic theory and need of magnets should be included. 2 More text book to be included for Induction Generator. 3 More time should be given to permanent magnet materials and PM motors. 4 Schrage motor portion can be given less time. 5 Servo motor should be given more time regarding their characteristic, response time etc. 6 For special machine, a book entitled "Special Electrical Machine" by D. G. Miller can be included. 7 Stepper motor, servo-motor, PM motor should be in lab experiment. 8 Switched reluctance motor should be included as a topic in details.

	9 BLDC motor connected with solar power should be included. 10 Use of special machine with renewable energy can be included. **EE377: Embedded System (Programme Elective II)** 1 The syllabus is well organized and almost covering everything required in simpler manner. **Resolution 14.02:** ▪ The suggestions received from BoS members are incorporated and detailed syllabi for B Tech – 3rdYear (5thand 6thSemesters) effective from 2018-2019 is approved and is attached in **Annexure – 14.I.**
Item 14.03	To review the detailed syllabus of 1st year M.TECH program under CBCS for any necessary changes.
	Proceedings 14.03: The teaching and examination scheme of M. Tech program under Choice Based Credit System (CBCS) effective from ACY: 2016-2017 is reviewed. T & E scheme and courses of M. Tech. (PE) are discussed. This program may start from AY 2018-19. **Suggestions Received:** **EE751: Power Electronics Devices and Circuits** 1 Basics of all semiconductors must be included 2 Time can be increased for Design of magnetics circuits. 3 Resonant convertors should cover all convertors. 4. Driver circuits should be cover more topics. **EE766: Power Quality** 1 Harmonics should be given more weightage. 2 Power frequency and hogh frequency phenomena should be included 3 Importance of power quality issue should be introduced. **EE767: Digital Control Systems** 1 Time response and frequency response topic will be given more importance 2 State-space analysis should be given more weightage. 3 Controller design. **EE756: Control of Electric Drives**

	1 Syllabus designed is fine **EE757: Advanced Power Electronic Convertors** 1 Syllabus designed is fine 2 More books can be suggested **EE768: Power Electronics for Renewable Energy Sources** 1 Power convertors for Solar and PV should be discussed in depth. 2 Reference theory concept must be included. **EE769: Control of Special Electrical Machines** 1 Syllabus designed is fine 2. More time can be spend for basic topics. ▪ New subjects of Humanities are incorporated from AY 2017-18 as the courses were discussed and approved in respective BoS. ▪ HS704A Academic Speaking ▪ HS705A Academic Writing **Resolution 14.03:** The suggestions received from BoS members are incorporated and the teaching and examination scheme of M. Tech (Electrical Power System) program under Choice Based Credit System (CBCS) effective from ACY: 2016-2017 is approved and attached in **Annexure – 14.II.** The teaching and examination scheme of M. Tech (Power Electronics) program under Choice Based Credit System (CBCS) effective from ACY: 2016-2017 is approved and attached in **Annexure – 14.III.**
Item 14.04	Discussion on effective implementation of Outcome Based Education (OBE) and ICT based Teaching-Learning
	Suggestions Received: ▪ All faculty members must aware about each criteria defined by NBA. ▪ The proper understanding of mapping of POs, PEOs, Cos and their assessment tools is required. ▪ Faculty contribution should be increased for publication, funded projects and consultancy. ▪ The usage of open course ware from NPTEL, MIT and BISAC must be increased.
Item	Introducing the new PG program in Electrical Engineering

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14.05	**Suggestions Received:** Following PG programs in Electrical Engineering are proposed. (1) Power Electronics and Drives (2) Renewable Energy (3) Automation and Control
Item 14.06	Discussion regarding recent approval from NBA and scope for the improvement
	All invited BoS members congratulated the University, Institute and Department for getting "A" graded from NAAC and KCG as well as for getting NBA for three departments
Item 14.07	Approval of Examiners' Panel
	The examiners panels for B. Tech and M. Tech have been reviewed and approved. The approved examiner panel is attached in **Annexure 14.VII.**

Additional Items

Sr. No	Agenda	Discussion/Suggestions
1	Review of Exam Question Papers	Question papers of internal and university examination have been reviewed. The briefings about the continuous evaluation, freedom for pedagogy selection for faculty and execution of the practical sessions have been given to external BoS members. The quality of question papers are found satisfactory, but it is suggested to increase the weighatge on the questions that can increase the analytical and logical thinking ability of students.
2	Review of Result Analysis	The records of result analysis of both internal and university exam are maintained. The results of both the exams are generally discussed and analyzed in the department meeting as soon as the exam gets over and the necessary actions are decided. The YoYcomparisons of the results are also discussed and the figures are acceptable. The efforts should be given to again improve the results at all levels. The conduction of the remedial coaching for weaker students has been appreciated by the members.
3	Review of Placement Records	The campus placement of the student needs to be increased. More efforts are required to invite the companies for placement. The aptitude sessions organized for the students are appreciated. It is advised to keep extra technical session to prepare the students for technical skills.
4	Review of B. Tech and M. Tech Projects works	The project titles for B. Tech and M. Tech are reviewed and found satisfactory. It is suggested to give more emphasis on hardware based projects at B. Tech level. For M. Tech, the extensive use of licenses software may help the students to solve/reproduce the IEEE journal papers. Paper presentation for M. Tech students should be made compulsory.
5	Review of	Review pattern for the students feedback and actions after the feedback have been

	Feedback from Students, Identification of slow learners, Counseling activities	explained. It is an useful component to improve the performance of teacher and T-L practices. The student counseling activities are very appreciated by all the members.

Dr. Praghnesh Bhatt
Chairman
Board of Studies (EE)

HEAD OF DEPARTMENT
Dept. of Electrical Engg.
Chandubhai S. Patel Institute of Technology
At. & Po. Changa-388421., Ta. Petlad,
Dist. : Anand. (Gujarat)

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Annexure 14.I: TEACHING & EXAMINATION SCHEME FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING (CBCS) Entry Year: 2016

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY (CHARUSAT)											
TEACHING & EXAMINATION SCHEME FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING (CBCS) Entry Year: 2016											
Level	Course Code	Course Title	Teaching Scheme				Examination Scheme				
			Contact Hours			Credit	Theory		Practical		Total
			Theory	Practical/Tutorial	Total		Internal	External	Internal	External	
Level I	HS101A-HS106A	A Course on Liberal Arts	2		2	2			50	50	100
	MA141	Engineering Mathematics I	4	1	5	4	30	70	0	0	100
	ME141	Engineering Graphics	2	4	6	4	30	70	50	50	200
	PY141	Engineering Physics	3	2	5	4	30	70	25	25	150
	CL141	Engineering Mechanics	4	2	6	5	30	70	25	25	150
	ME142	Workshop Practices	0	2	2	1			25	25	50
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular & co curricular			10						
			15	11	36	20	120	280	175	175	750
	HS 121A	English Language & Literature	2		2	2	25	25	25	25	100
	MA142	Engineering Mathematics II	4	1	5	4	30	70			100
	CL142	Environmental Science	2	0	2	2	30	70			100
	IT141	Fundamentals of Computer Programming	3	2	5	4	30	70	25	25	150
	ME143	Basics of Civil & Mechanical Engineering	4	2	6	5	30	70	25	25	150
	EE141	Basics of Electronics & Electrical Engineering	4	2	6	5	30	70	25	25	150
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular &co curricular			10						
			19	7	36	22	175	375	100	100	750

	HS122A/HS131A	Values and Ethics/Philosophy	2		2	2	30	70			100
	MA241	Engineering Mathematics III	4	0	4	4	30	70			100
	EE241	Analog and Digital Electronics	4	2	6	5	30	70	25	25	150
	EE242	Circuit Theory	4	2	6	5	30	70	25	25	150
	EE243	Electrical Measurements and Industrial Instrumentation	4	2	6	5	30	70	25	25	150
	XXXXX	University Elective- I	2	0	2	2	30	70			100
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular & co curricular			10						
			20	**6**	**36**	**23**	**180**	**420**	**75**	**75**	**750**
Level 2	HS123.01A/ HS127.01A/ HS133A	Critical Thinking and Logic/ Communication skill 2/ Creativity, Problem Solving and Innovation	2		2	2	50	50			100
	EE244	Electrical Power Generation and its Economics	4	0	4	4	30	70			100
	EE245	Control Systems	4	2	6	5	30	70	25	25	150
	EE246	Microprocessor & Microcontrollers	4	2	6	5	30	70	25	25	150
	EE247	Transformers and Induction Machines	4	4	8	6	30	70	50	50	200
	XXXXX	University Elective- II	2	0	2	2	30	70			100
		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular & co curricular			7						
			20	**8**	**35**	**24**	**200**	**400**	**100**	**100**	**800**

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	HS124.01A	Professional Communication	2		2	2			30	70	**100**
	EE341	Electrical Power Transmission and Distribution	4		4	4	30	70			**100**
	[redacted]	[redacted]	4	[redacted]	8	6	30	70	50	50	**200**
	EE343	Power Electronics & Drives I	4	2	6	5	30	70	25	25	**150**
	EE344	Minor Project I	0	4	4	2			50	50	**100**
	EE345	Electrical Product Survey				2			50	50	**100**
	EE350	Summer Internship I		3	3	3			75	75	**150**
	EE371-EE372	Programme Elective I	4	2	6	5	30	70	25	25	**150**
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra curricular & co curricular				3						
			17	**14**	**36**	**29**	**120**	**280**	**255**	**295**	**1050**
Level 3	HS134A	**Contributor Personality Development**	2		2	2			30	70	**100**
	EE346	Digital Signal Processing	3	2	5	4	30	70	25	25	**150**
	[redacted]	[redacted]	2	[redacted]	6	4	30	70	50	50	**200**
	EE348	Power Electronics & Drives II	3	2	5	4	30	70	25	25	**150**
	EE349	Fault Analysis and Switchgear	4	2	6	5	30	70	25	25	**150**
	EE360	Minor Project II	0	4	4	2	0	0	50	50	**100**
	EE376-EE377	Programme Elective II	3	2	5	4	30	70	25	25	**150**
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra curricular & co curricular				4						
			18	**14**	**36**	**25**	**175**	**375**	**200**	**200**	**950**

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	EE441	Power System Operations and Control	4	2	6	5	30	70	25	25	**150**
	EE442	Power System Protection	4	2	6	5	30	70	25	25	**150**
	EE443	Electrical Machine Design	4	4	8	6	30	70	25	25	**150**
	EE444	Simulation Lab	0	2	2	I			50	50	**100**
	EE450	Summer Internship II				3			75	75	**100**
	EE471-EE473	Programme Elective III	4	2	6	5	30	70	25	25	**150**
Level 4		Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra curricular & co curricular			2						
			16	**12**	**30**	**25**	**120**	**280**	**200**	**200**	**800**
	EE446	Commissioning and Testing of Electrical Equipment	4	2	6	5	30	70	25	25	**150**
	EE447	Modeling and Control of Renewable Energy Sources	4	2	6	5	30	70	25	25	**150**
	EE448	Major Project				9			250	250	**500**
	EE476-EE478	Programme Elective IV	4	2	6	5	30	70	25	25	**150**
			12	**6**	**18**	**24**	**90**	**210**	**325**	**325**	**950**

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		Hours				Credits	Marks				
			Theory	Practical	Total						
			137	78	264	192	1180	2620	1430	1470	6700

LIST OF ELECTIVES FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING

Electives for Level 2

	UNIVERSITY ELECTIVE 1	UNIVERSITY ELECTIVE 2	
EE281	Electrical Engineering Materials	EE282	Electrical Power Utilization and Traction

Electives for Level 3

	PROGRAMME ELECTIVE 1	PROGRAMME ELECTIVE 2	
[redacted]	[redacted]	EE376	Special Electrical Machines and Applications
EE372	VLSI Technology and Design	EE377	Embedded Systems

Electives for Level 4

	PROGRAMME ELECTIVE 3	PROGRAMME ELECTIVE 4	
EE471	Power Electronics Applications in Power System	EE476	Advances in power system
EE472	Communication Engineering	EE477	Internet of Things
EE473	High Voltage Engineering	EE478	Energy Conservation and Management

University Elective I & II:

(Will be available in a Common Slot)

Occupational Health and Safety, IPR, Regulatory Affairs, Contract Management,

Energy Management, Research Methodology, Entrepreneurship, Project Management, First AID and Life Support

Risk Management, Disaster Management, Scientific Instrumentation & Measurement, Operation Research,
Business Environment, Quality Assurance, Computer Programming, Numerical Analysis, Web Designing, Cyber Security etc

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Annexure:14. II TEACHING AND EXAMINATION SCHEME FOR M Tech in Electrical Engineering (Electrical Power Systems)
Entry year 2017

Sem	Course Code	Course Title	Teaching Scheme				Examination Scheme				
			Theory	Practical/Tutorial	Total	Credit	Theory		Practical		Total
							Internal	External	Internal	External	
Sem 1	EE741	Modeling & Simulation of Electrical Machines (PC - 1)	4	2	6	5	30	70	25	25	150
	EE742	Modern Power System Operations (PC - 2)	3	2	5	4	30	70	25	25	150
	EE743	Advanced Power Electronics in Power Systems (PC - 3)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Elective-1 (PE - 1)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Cluster Elective - 1 (CT - 1)	3	2	5	4	30	70	25	25	150
	XXXX	University Elective 1 (UE - 1)	2	0	2	2	30	70	0	0	100
	HSXXX	HSS Elective -I	2		2	2	30	70	0	0	100
			20	10	30	25	210	490	125	125	950

Sem	Course Code	Course Title	Teaching Scheme				Examination Scheme				
			Theory	Practical/Tutorial	Total	Credit	Theory		Practical		Total
Sem 2	EE744	Advanced Power System Dynamics & Stability (PC - 4)	4	2	6	5	30	70	25	25	150
	EE745	FACTS & HVDC Transmission (PC - 5)	3	2	5	4	30	70	25	25	150
	EE746	Advanced Power System Protection (PC - 6)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Elective - 2 (PE - 2)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Cluster Elective - 2 (CT - 2)	3	2	5	4	30	70	25	25	150
	HS705A	Academic Writing	0	2	2	2	0	0	30	70	100
	XXXX	University Elective 2 (UE - 2)	2	0	2	2	30	70	0	0	100
			18	12	30	25	180	420	155	195	950

Semester	Course Code	Course Title	Credit	Examination Scheme					
				Internal		External			Total
				Progress Report	Progress Seminar	Report	Seminar	Viva	
Sem 3	EE811	Project Preliminaries/Summer Industrial Training	4	50	50	0	50	50	200
	EE812	Project Phase 1	18	100	100	100	100	100	500
			22	**150**	**150**	**100**	**150**	**150**	**700**
Sem 4	EE813	Project Phase 2	30	200	200	200	200	200	1000
			30	**200**	**200**	**200**	**200**	**200**	**1000**
		Grand Total	**102**						**3600**

Programme Electives of Semester 1 and 2			
Programme Electives 1 (PE 1) for Semester 1		**Programme Electives 2 (PE 2) for Semester 2**	
EE761	Control System Engineering	EE763	Modeling and Simulation of Renewable Energy Sources
EE762	Engineering Optimization Techniques	EE764	Distributed Generation and Smart Grid

Cluster Electives of Semester 1 and 2			
Cluster Electives 1 (CT 1) for Semester 1		**Cluster Electives 2 (CT 2) for Semester 2**	
EE771	Digital Signal Processing & its Application	EE772	Restructuring & Deregulation of Power Systems
IT767	Micro device Programming	IT768	Applied Cryptography
EC767	Embedded System Design	EC768	Digital Image & Speech Processing
CE767	Operating System Design & Concepts	CE768	Software Project Management & Quality Assurance

University Electives of Semester 1 and 2

University Electives (UE 1) for Semester 1	
MA771	Reliability and Risk Analysis
EE781	Optimization Techniques
ME781	Occupational Health and Safety
CE772	Research Methodology
CA730	Internet & Web Designing
PT795	Health & Physical Activity
NR 751	Women's Health
RD701	Introduction to Analytical Techniques
RD702	Introduction to Nanoscience& Technology
MB650	Creative Leadership
PH825	Community Pharmacy Ownership

University Electives (UE 2) for Semester 2	
EE782	Energy Audit and Management
CE771	Project Management
IT771	Cyber Security and Laws
CA 842	Mobile Application Development
PT796	Fitness & Nutrition
NR 752	Epidemiology and Community Health
OC733	Introduction to Polymer Science
MB651	Software based Statistical Analysis
PH826	Intellectual Property Rights
MA772	Design of Experiments

HSS Elective for Semester 1	
HS701 A	Advance Critical Thinking and Logic
HS703.01 A	Languages (French/ German)
HS704 A	Academic Speaking

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Annexure:14 III TEACHING AND EXAMINATION SCHEME FOR M Tech in Electrical Engineering (Power Electronics)
Entry year July 2018

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

CHOICE BASED CREDIT SYSTEM SCHEME (July 2018)

Semester	Course Code	Course Title	Teaching Scheme				Examination Scheme				
							Theory		Practical		
			Theory	Practical/ Tutorial	Total	Credit	Internal	External	Internal	External	Total
Sem 1	EE741	Modeling & Simulation of Electrical Machines (PC - 1)	4	2	6	5	30	70	25	25	150
	EE743	Advanced Power Electronics in Power Systems (PC-2)	3	2	5	4	30	70	25	25	150
	EE751	Power Electronics Devices and Circuits (PC - 3)	3	2	5	4	30	70	25	25	150
	EE7XX	Programme Elective-1 (PE - 1)	3	2	5	4	30	70	25	25	150
	EE7XX	Cluster Elective - 1 (CT - 1)	3	2	5	4	30	70	25	25	150
	HSXXX	HSS Elective -I	2	0	2	2	30	70	0	0	100
	XXXXX	University Elective 1 (UE - 1)	0	2	2	2	30	70	0	0	100
					30	**25**					**950**
Sem 2	EE745	FACTS & HVDC Transmission (PC-4)	3	2	5	4	30	70	25	25	150
	EE756	Control of Electric Drives (PC - 5)	3	2	5	4	30	70	25	25	150
	EE757	Advanced Power Electronics Converters (PC-6)	4	2	6	5	30	70	25	25	150
	EE7XX	Programme Elective - 2 (PE - 2)	3	2	5	4	30	70	25	25	150
	EE7XX	Cluster Elective - 2 (CT - 2)	3	2	5	4	30	70	25	25	150
	HS705A	Academic Writing	0	2	2	2			30	70	100

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	XXXXX	University Elective 2 (UE - 2)	2	0	2	2	30	70	0	0	100
					30	**25**					**950**

Programme Electives of Semester 1 and 2				
Programme Electives 1 (PE 1) for Semester 1			**Programme Electives 2 (PE 2) for Semester 2**	
EE766	Power Quality		EE768	Power Electronics for Renewable Energy Sources
EE767	Digital Control Systems		EE769	Control of Special Electrical Machines

Cluster Electives of Semester 1 and 2				
Cluster Electives 1 (CT 1) for Semester 1			**Cluster Electives 2 (CT 2) for Semester 2**	
EE771	Digital Signal Processing & its Application		EE772	Restructuring & Deregulation of Power Systems
IT767	Micro device Programming		IT768	Applied Cryptography
EC767	Embedded System Design		EC768	Digital Image & Speech Processing
CE767	Operating System Design & Concepts		CE768	Software Project Management & Quality Assurance

University Electives of Semester 1 and 2				
University Electives (UE 1) for Semester 1			**University Electives (UE 2) for Semester 2**	
MA771.01	Reliability and Risk Analysis		EE782.01	Energy Audit and Management
EE781.01	Optimization Techniques		CE771.01	Project Management
ME781.01	Occupational Health and Safety		IT771.01	Cyber Security and Laws
CE772.01	Research Methodology		CA 842	Mobile Application Development
CA730	Internet & Web Designing		PT796.01	Fitness & Nutrition
PT795.01	Health & Physical Activity		NR 752.01	Epidemiology and Community Health
NR 755	First Aid and Life Support		CC733.01	Introduction to Polymer Science

RD701.01	Introduction to Analytical Techniques
RD702.01	Introduction to Nanoscience& Technology
MB650	Creative Leadership
PH891	Community Pharmacy Ownership

MB651	Software based Statistical Analysis
PH892	Intellectual Property Rights
MA772.01	Design of Experiments

HSS Elective for Semester 1	
HS701 A	Advance Critical Thinking and Logic
HS703.01 A	Languages (French/ German)
HS704 A	Academic Speaking

Semester	Course Code	Course Title	Credit	Examination Scheme					
				Internal		External			Total
				Progress Report	Progress Seminar	Report	Seminar	Viva	
Sem 3	EE811	Project Preliminaries	4	50	50	0	50	50	200
	EE812	Project Phase 1	18	100	100	100	100	100	500
			22	**150**	**150**	**100**	**150**	**150**	**700**
Sem 4	EE813	Project Phase 2	30	200	200	200	200	200	1000
			30	**200**	**200**	**200**	**200**	**200**	**1000**
		Grand Total	**102**						**3600**

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Annexure 14.VII Examiner Panel List for B. Tech and M. Tech Examination

Examiner Panel for Electrical Engineering (External Examiners)

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M&V Patel Department of Electrical Engineering
Faculty of Technology & Engineering, CHARUSAT
14th Board of Studies Meeting

Date : August 26, 2017, Saturday
Time : 10:00am onwards
Venue: Room No: 102, HOD (EE), CSPIT, CHARUSAT Campus

1	Dr. Praghnesh Bhatt	**Chairman;**	Professor & Head, Department of Electrical Engineering,	
2	Dr. KartikPandya	**Member;**	Professor, Department of Electrical Engineering,	
3	Dr. Bhinal Mehta	**Member;**	Assistant Professor Department of Electrical Engineering,	
4	Mr. Nilay Patel	**Member;**	Assistant Professor Department of Electrical Engineering,	
5	Mr. Maulik Shah	**Member;**	Assistant Professor Department of Electrical Engineering,	
6	Mr. Mhir Bhatt	**Member;**	Assistant Professor Department of Electrical Engineering,	
7	Mr. Jivanadhar Joshi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
8	Mr. Pratik Mochi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
9	Dr. Sanjay R. Joshi	**External Member;**	Principal Government Engineering College, Valsad	
10	Dr. BhavikSuthar	**External Member;**	Associate Professor Government Engineering College, Modasa	
11	Dr. Santosh Vora	**External Member;**	Professor, Department of Electrical Engineering Nirma University, Ahmedabad	
12	Dr. Vijay Shah	**External Member;**	R&D Specialist, BU-PPMV, Vadodara	
13	Mr. Kirat Pandya	**External Member;**	AGM, Schneider Electricals Ltd, Vadodara	
14	Mr. Sanjay Mahagaokar	**External Member;**	Dy General Manager Engineering and Technology, Rotomag Power Drives.	

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Minutes –14-Ath Board of Studies Meeting
M&V Patel Department of Electrical Engineering
Faculty of Technology & Engineering, CHARUSAT

Date : July 28, 2018, Saturday
Time : 10:00 am onwards
Venue: Room No: 102, HOD (EE), CSPIT, CHARUSAT Campus

The 14th meeting of Board of Studies, M&V Patel Department of Electrical Engineering, Faculty of Technology and Engineering (FTE), Charotar University of Science and Technology (CHARUSAT) was held on 28/7/2018 at 10:00 am. at M&V Patel Department of Electrical Engineering, CSPIT, CHARUSAT Campus. Following members were present:

1	Mr. Nilay Patel	**Chairman;**	Assistant Professor & Head, Department of Electrical Engineering,	
2	Dr. Kartik Pandya	**Member;**	Professor, Department of Electrical Engineering,	
3	Mr. Maulik Shah	**Member;**	Assistant Professor Department of Electrical Engineering,	
4	Mr. Mhir Bhatt	**Member;**	Assistant Professor Department of Electrical Engineering,	
5	Mr. Jivanadhar Joshi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
6	Mr. Pratik Mochi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
7	Mr. Jigar S Sarda	**Member;**	Assistant Professor, Department of Electrical Engineering,	
8	Dr. Bhavik Suthar	**External Member;**	Professor, Government Engineering College, Bhuj	
9	Dr. Sanjay R. Joshi	**External Member;**	Principal Government Engineering College, Valsad	
10	Prof. P. K. Shah	**External Member;**	Professor LDRP, Modasa	
11	Dr. Santosh Vora	**External Member;**	Professor Department of Electrical Engineering Nirma University, Ahmedabad	

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CHARUSAT CAMPUS, CHANGA

Initiation:

Mr. Nilay Patel welcomed all the members of Board of Studies.

Agenda Proceedings & Resolutions:-

Item 14.01: To prepare and review the detailed syllabus of 4th year B.TECH program under CBCS.

Proceedings 14.01:

The detailed syllabus of the courses for B Tech – 4th Year (7thand 8thSemesters) is reviewed.

Suggestions Received:

EE441: Power System Operations and Control

1	Topics on State Estimation & Load forecasting should be incorporated.
2	Syllabus is lengthy.
3	Chapter of transients should be removed or modified
4	Text books and reference books should be swapped.
5	Year of the book can be removed as it seems to be old version of book.
6	Voltage stability part can be removed.
7	Add contingency analysis method
8	Use B.R..Gupta as a text book

EE442: Power System Protection

1	Chapter 9 should be removed.
2	16 hours of transmission can be reduced.
3	Add Earthing of power system

EE443: Electrical Machine Design

1	DC machine design part can be reduced/removed.

EE444: Simulation Lab

1	Hours distribution modify
2	20 hours are more.
3	Keep basic experiments.
4	Experiments of machine are tough for students.
5	[redacted]
6	Fault analysis experiments can be added.
7	[redacted]
8	[redacted]
9	It should be kept simple for students.
10	[redacted]

Certified By:

EE471: Power Electronics Applications in Power System (Programme Elective III)

1	Power quality can be removed. SSSC and UPFC can be removed.
2	Chapter 2 should be up to topic "converter transformer testing"
3	Problems in transmission line should be involved.

[redacted]

1	Syllabus designed is fine

EE473: High Voltage Engineering (Programme Elective III)

1	Contents of chapter 07 can be reduced.
2	Remove power quality problems & standard chapter

EE446: Commissioning and Testing of Electrical Equipment

1	Syllabus is lengthy.
2	Chapter of DC machine can be removed.
3	Commissioning part should be more rather than testing.

EE447: Modeling and Control of Renewable Energy Sources

1	Name of the subject should be modified as Renewable Energy Sources and offer as elective subject
2	Content of Solar and Wind should be more.
3	Chapter 5 can be removed.
4	Course can be offered as **programme elective.**

EE448: Major Project

1 Project should be in line with innovation or today's' need.

EE450: Summer Internship II

1 On the same line of summer Internship-I, this course will follow.

EE476: Advances in Power System (Programme Elective IV)

1	Remove probabilistic power flow chapter
2	Add Restructuring in power system

EE477: Internet of Things (Programme Elective IV)

1 Syllabus designed is fine.

EE478: Energy Conservation and Management (Programme Elective IV)

	1 No Comments **Resolution 14.01:** ▪ The suggestions received from BoS members are incorporated and detailed syllabi / T & E Scheme for B Tech – 4th Year (7th and 8th Semesters) effective from 2019-2020 is approved and is attached in **Annexure – I**
Item 14.02	To review and approve T&E scheme and syllabus for FY, SY and TY of B. Tech program for ACY 2018-2019 under Choice Based Credit System (CBCS).
	Proceedings 14.02: The teaching and examination scheme of FY, SY and TY of B. Tech program for ACY 2018-2019 under Choice Based Credit System (CBCS) is reviewed. **Suggestions Received:** The second year university electives offered by electrical engineering department should be more in line with current scenario and it must be changed. **EE283: Python for Electrical Engineering (University Elective I)** 1 Basics of python programming taught here. 2 Various problems can be solved using python programming. **EE286: Computer Programming for Electrical Engineering (University Elective I)** 1 MATLAB and other software introduced here to solve simple circuit. 2 Linear equations, non-linear equations, ODE and matrices should be solved by software. **Resolution 14.02:** Above two courses introduce from AY 2018-19, remaining electives can be kept as it is. For the 2018 entry students, the first year and second year syllabus is reviewed and approved. Physics course PY141.01 is approved in respective BoS and introduced in first year. The T & E scheme is approved for third year and fourth year. It is decided that the total credit must be equal to 192. The T & E scheme for 2018 entry student is attached in **Annexure – II**
Item 14.03	To review and approve T&E scheme of M. Tech in Power Electronics for ACY 2018-2019 under CBCS
	Proceedings 14.03: The teaching and examination scheme of M. Tech in Power Electronics for ACY 2018-2019 under CBCS is reviewed.

	Suggestions Received: ▪ No Suggestion. It is already draft one year back and approved. Attached in **Annexure – III**
Item 14.04	To review T&E Scheme for existing M. Tech program under CBCS for any necessary changes
	Proceedings 14.04: The teaching and examination scheme of M. Tech in EPS for ACY 2018-2019 under CBCS is reviewed. **Suggestions Received:** ▪ No Suggestion. It is already draft one year back and approved. Attached in **Annexure –IV**
Item 14.05	**Proceedings 14.05:** Discussion on effective implementation of Outcome Based Education (OBE) and ICT based Teaching-Learning
	Suggestions Received: ▪ All faculty members must aware about each criteria defined by NBA. ▪ The proper understanding of mapping of POs, PEOs, COs and their assessment tools is required. ▪ Faculty contribution should be increased for publication, funded projects and consultancy. ▪ The usage of open course ware from NPTEL, MIT and BISAC must be increased.
Item 14.06	**Proceedings 14.06:** Introducing the new UG program in Electrical Engineering
	Suggestions Received: Not needed right now.
Item 14.07	**Proceedings 14.07:** Discussion regarding approval from NBA and scope for the improvement
	All invited BoS members congratulated the University, Institute and Department for getting "A" graded from NAAC and KCG as well as for getting NBA for three departments. **Suggestion received:** Cadre ratio and student- teacher ratio along with research in department are most affected factors.
Item 14.08 14.09	**Proceedings 14.08 and 14.09:** To approve the syllabus of M Tech (Newly Introduced Programs) **Resolution** This agenda is duplicated as per agenda number 2 & 3
Item 14.10	**Proceedings 14.10:** To incorporate the revised syllabus of Mathematics and Physics in first year **Resolution**

	The syllabus is already designed and passed in the respective BoS and added to FY syllabus.
Item 14.11	**Proceedings 14.11:** To implement summer internship in 3rd semester of B Tech (Same Credit, same Marks) **Resolution** It is not possible due to D2D students.
	Other Agendas are discussed and listed in additional Items

Additional Items

Sr. No	Agenda	Discussion/Suggestions
1	Review of Exam Question Papers	Question papers of internal and university examination have been reviewed. The briefings about the continuous evaluation, freedom for pedagogy selection for faculty and execution of the practical sessions have been given to external BoS members. The quality of question papers are found satisfactory, but it is suggested to increase the weighatge on the questions that can increase the analytical and logical thinking ability of students. The question papers are as per blooms taxonomy. **Annexure –V and VIII**
2	Review of Result Analysis	The records of result analysis of both internal and university exam are maintained. The results of both the exams are generally discussed and analyzed in the department meeting as soon as the exam gets over and the necessary actions are decided. The YoY comparisons of the results are also discussed and the figures are acceptable. The efforts should be given to again improve the results at all levels. The conduction of the remedial coaching for weaker students has been appreciated by the members. **Annexure –IX**
3	Review of Placement Records	The campus placement of the student needs to be increased. More efforts are required to invite the companies for placement. The aptitude sessions organized for the students are appreciated. It is advised to keep extra technical session to prepare the students for technical skills. **Annexure –X**
4	Review of B. Tech and M. Tech Projects works	The project titles for B. Tech and M. Tech are reviewed and found satisfactory. It is suggested to give more emphasis on hardware based projects at B. Tech level. For M. Tech, the extensive use of licenses software may help the students to solve/reproduce the IEEE journal papers. Paper presentation for M. Tech students should be made compulsory.
5	Review of Feedback from Students, Identification of slow learners, Counseling activities	Review pattern for the students feedback and actions after the feedback have been explained. It is an useful component to improve the performance of teacher and T-L practices. The student counseling activities are very appreciated by all the members.
6	Approval of Examiners'	The examiners panels for B. Tech and M. Tech have been reviewed and approved. The approved examiner panel is attached in **Annexure VII.**

	Panel	
7	Admissions	As per the experts, the Electrical branch interest is not reduced, but the interest towards CE/IT branch is increased, Hence Electrical Branch has to suffer for a complete one cycle.
8.	Audit Course	Electrical students can be offered audit course from CE/IT on IoT. Also Electrical department should offer audit course on arduino. Apart from the regular teaching, by audit course, social activities and by taking parts in sports and co/extra-curricular activities, the holistic development of student will be possible.
9.	Sports, Cultural and Social activities.	The students are encouraged to take part in national and international level sports events. With social activities the bonding and trust with society and CHARUSAT will increase. At least one week cultural programme to be organized by institute.
10.	Quality of research in dissertation and PhD.	For PhD it is essential to publish at least to research papers in scopus indexed journals, hence Quality will be there in research work.
11.	Research Papers and Research funding	Each faculty must publish at least two papers in high impact factor journal. By this the CV of the faulty become strengthen, hence chances of getting grants will increase. More efforts will be put to fetch the research grants. All the faculties are aware about funding agencies.
12.	NPTEL Course	Now as pert AICTE, NPTEL Course will be considered as FDP and according to that API point given to faculty.
13.	Innovation in Pedagogy	The educational goal must be discussed by student and teacher and according to that, A common strategies for class must be made and according to individual student's knowledge, individual strategies should be explained to each student. Learning while doing is best pedagogy.
14	Quality in Education and World Class Universities	By quality consultancy work, more practical knowledge and time-on-task learning strategy accelerates the quality education and movement towards the world class universities.
15	Outcome Based Education and Road-map 2023	The outcome of each course and program must be monitored effectively. If required outcome doesn't achieve in students, more quality efforts must be made. The main focus of road-map 2013 is, placement of eligible students must be reach up to 100%. **Annexure –VI**
16.	Innovative Projects	The BoS members appreciated the department projects. The capacity of the department must be showcased to industry people.

Faculty Board Meeting:

Faculty board meeting was held at conference room, DEPSTAR College.

The inputs given by expert of electrical field are as under.

1. Right now the interest of students are towards the computer related branch, hence the number of students in the electrical or other branch are less.

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2. Day by day the students in A group of 12th standards are decreasing due to lack of interest in mathematics subject. So students must be motivated to take interest in maths subject right from school level.
3. Experts gave their opinion that, each branch has its cycle depending on market scenario. So within two years, again the interest f students towards the core branch will increase.

Mr. Nilay A. Patel
Chairman
Board of Studies (EE)

HEAD OF DEPARTMENT
Dept. of Electrical Engg.
Chandubhai S. Patel Institute of Technology
At. & Po. Changa-388421., Ta. Petlad,
Dist. : Anand. (Gujarat)

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14 A

Annexure I: TEACHING & EXAMINATION SCHEME FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING (CBCS) Entry Year: 2016

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TEACHING & EXAMINATION SCHEME FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING (CBCS) Entry Year: 2016

Level	Course Code	Course Title	Teaching Scheme				Examination Scheme				
			Contact Hours			Credit	Theory		Practical		Total
			Theory	Practical/Tutorial	Total		Internal	External	Internal	External	
Level 1	HS101A- HS106A	A Course on Liberal Arts		2	2	2			50	50	**100**
	MA141	Engineering Mathematics I	4	1 (T)	4	4	30	70			**100**
	ME141	Engineering Graphics	2	4	6	4	30	70	50	50	**200**
	PY141	Engineering Physics	3	2	5	4	30	70	25	25	**150**
	CL141	Engineering Mechanics	4	2	6	5	30	70	25	25	**150**
	ME142	Workshop Practices	0	2	2	1			25	25	**50**
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra- curricular &co curricular				11						
					36	**20**					**750**
	HS 121A	English Language and Literature	1	1	2	2	25	25	25	25	**100**
	MA142	Engineering Mathematics II	4	1 (T)	4	4	30	70			**100**
	CL142	Environmental Science	2		2	2	30	70			**100**
	IT141	Fundamentals of Computer Programming	3	2	5	4	30	70	25	25	**150**
	ME143	Basics of Civil & Mechanical Engineering	4	2	6	5	30	70	25	25	**150**
	EE141	Basics of Electronics & Electrical Engineering	4	2	6	5	30	70	25	25	**150**
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra- curricular & co curricular				11						
					36	**22**					**750**

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	HS122A/HS131A	Values and Ethics/Philosophy	2		2	2	30	70			100
	MA241	Engineering Mathematics III	4		4	4	30	70			100
	EE241	Analog and Digital Electronics	4	2	6	5	30	70	25	25	150
	EE242	Circuit Theory	4	2	6	5	30	70	25	25	150
	EE243	Electrical Measurements and Industrial Instrumentation	4	2	6	5	30	70	25	25	150
	XXXXX	University Elective- I	2		2	2	30-70				100
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra- curricular & co curricular				10						
					36	**23**					**750**
Level 2	HS123.01A/ HS 127.01A/ HS133A	Critical Thinking and Logic/ Communication skills 2/ Creativity, Problem Solving and Innovation	2		2	2	30-70				100
	EE244	Electrical Power Generation and its Economics	4		4	4	30	70			100
	EE245	Control Systems	4	2	6	5	30	70	25	25	150
	EE246	Microprocessor & Microcontrollers	4	2	6	5	30	70	25	25	150
	EE247	Transformers and Induction Machines	4	4	8	6	30	70	50	50	200
	XXXXX	University Elective- II	2		2	2	30-70				100
	Assignment Practices/Student counseling/Remedial classes/Library/Sports /Extra- curricular & co-curricular				8						
			Certified By:		**36**	**24**					**800**

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	HS124.01A	Professional Communication		2	2	2			30	70	**100**
	EE341	Electrical Power Transmission and Distribution	4		4	4	30	70			**100**
	EE342	Synchronous and DC Machines	4	4	8	6	30	70	50	50	**200**
	EE343	Power Electronics & Drives I	4	2	6	5	30	70	25	25	**150**
	EE344	Minor Project I	0	4	4	2			50	50	**100**
	EE345	Electrical Product Survey	0	2	2	2			50	50	**100**
	EE371-EE372	Programme Elective I	4	2	6	5	30	70	25	25	**150**
	EE350	Summer Internship I	0	0	0	3			75	75	**150**
	Assignment Practices/ Student counseling/ Remedial classes/ Library/ Sports/ Extra- curricular & co curricular				4						
Level 3					**36**	**29**					**1050**
	HS134A	Contributor Personality Development		2	2	2			30	70	**100**
	EE346	Digital Signal Processing	3	2	5	4	30	70	25	25	**150**
	EE347	Programmable Logic Controllers and Industrial Automation	2	4	6	4	30	70	50	50	**200**
	EE348	Power Electronics & Drives II	3	2	5	4	30	70	25	25	**150**
	EE349	Fault Analysis and Switchgear	4	2	6	5	30	70	25	25	**150**
	EE360	Minor Project II	0	4	4	2			50	50	**100**
	EE376-EE377	Programme Elective II	3	2	5	4	30	70	25	25	**150**
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra- curricular & co curricular				3						
			Certified By:		**36**	**25**					**1000**

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Level 4	EE441	Power System Operations and Control	4	2	6	5	30	70	25	25	**150**
	EE442	Power System Protection	4	2	6	5	30	70	25	25	**150**
	EE443	Electrical Machine Design	4	2	6	5	30	70	25	25	**150**
	EE444	Simulation Lab	0	[redacted]	4	2			50	50	**100**
	[redacted]	[redacted]				3			75	**75**	**150**
	EE471-EE473	Programme Elective III	4	2	6	5	30	70	25	25	**150**
	Assignment Practices/Student counseling/Remedial classes/Library/Sports/Extra-curricular & co curricular				8						
					36	**25**					**850**
	EE446	Commissioning and Testing of Electrical Equipment	4	2	6	5	30	70	25	25	**150**
	EE447	Modeling and Control of Renewable Energy Sources	4	2	6	5	30	70	25	25	**150**
	EE448	Major Project			18	9			250	250	**500**
	EE476-EE478	Programme Elective IV	4	2	6	5	30	70	25	25	**150**
					36	**27**	**90**	**210**	**325**	**325**	**950**

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		Hours				Credits	Marks					
			Theory	Practical	Total							
					288	192						6900

LIST OF ELECTIVES FOR B TECH PROGRAMME IN ELECTRICAL ENGINEERING

University Electives for Level 2

University Elective 1		University Elective 2	
EE281	Electrical Engineering Materials	EE282	Electrical Power Utilisation and Traction

Electives for Level 3

	PROGRAMME ELECTIVE 1	PROGRAMME ELECTIVE 2	
EE371	Advanced Microcontrollers	EE376	Special Electrical Machines and Applications
EE372	VLSI Technology & Design	EE377	Embedded Systems

Electives for Level 4

	PROGRAMME ELECTIVE 3	PROGRAMME ELECTIVE 4	
EE471	Power Electronics Applications in Power System	EE476	Advances in Power System
EE472	Communication Engineering	EE477	Internet of Things
EE473	High Voltage Engineering	EE478	Energy Conservation and Management

University Elective I & II:

(Will be available in a Common Slot)

Occupational Health and Safety, IPR, Regulatory Affairs, Contract Management,

Energy Management, Research Methodology, Entrepreneurship, Project Management, First AID and Life Support

Risk Management, Disaster Management, Scientific Instrumentation & Measurement, Operation Research,
Business Environment, Quality Assurance, Computer Programming, Numerical Analysis, Web Designing, Cyber Security etc

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M&V Patel Department of Electrical Engineering
Faculty of Technology & Engineering, CHARUSAT
14th Board of Studies Meeting

Date : July 28, 2018, Saturday
Time : 10:00 am onwards
Venue: Room No: 102, HOD (EE), CSPIT, CHARUSAT Campus

1	Mr. Nilay Patel	**Chairman;**	Assistant Professor & Head, Department of Electrical Engineering,	
2	Dr. Kartik Pandya	**Member;**	Professor, Department of Electrical Engineering,	
3	Mr. Maulik Shah	**Member;**	Assistant Professor Department of Electrical Engineering,	
4	Mr. Mhir Bhatt	**Member;**	Assistant Professor Department of Electrical Engineering,	
5	Mr. Jivanadhar Joshi	**Member;**	Assistant Professor Department of Electrical Engineering,	
6	Mr. Jigar Sarda	**Member;**	Assistant Professor Department of Electrical Engineering,	
7	Mr. Pratik Mochi	**Member;**	Assistant Professor, Department of Electrical Engineering,	
8	Dr. Sanjay R. Joshi	**External Member;**	Principal Government Engineering College, Valsad	
9	Dr. Bhavik Suthar	**External Member;**	~~Principal~~ Professor in EE Government Engineering College, bhuj	
10	Dr. Santosh Vora	**External Member;**	Professor Department of Electrical Engineering Nirma University, Ahmedabad	
11	Mr. Sanjay Mahagaokar	**External Member;**	Dy General Manager Engineering and Technology, Rotomag Power Drives. Napa Talpad.	
12	Prof. Prakash K. Shah	**External Member;**	Professor Department of Electrical Engineering LDRP, Ahmedabad	

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