DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

30/03/2019

Board of studies (BoS) Minutes of the Meeting

The following External members attended the BoS meeting on 30/03/2019

1. Dr. S. Salivahanan, Principal, SSN College of Engineering, Kalavakkam, Tamilanadu. *S.S ahв 30/3/19*

2. Dr. M. Mallikarjuna Rao, Scientist-F, RCI, Hyderabad.

3. Mr. D. Haribabu, Scientist, CDAC, Bangalore.

4. Mr. S. Uma Mahesh, CEO, Indrion Technologies, Bangalore. *S Uma Mahesh*

Dr. T. Pitchaiah HoD, ECE invited the BoS members for the meeting and explained the importance of R-19 Curriculum.

Mr. D. Haribabu rises few points, without knowledge of DCCN can a student understand the IoT. HoD sir replied DCCN and IOT courses are incorporated in seventh semester the students can learn these courses parallel without losing the connectivity, external members are satisfied with the reply.

The courses CAO and RF&MWE can come into Core category but internal members replied in is not possible to read all the courses in Core category these two students can opt in elective category.

Dr. Salivahanan asked how a student can lean the PCB design. HoD sir replied during summer the dept. of ECE is going to conduct workshops and add-on courses in those workshops students can learn the PCB Design.

Mr. Uma Mahesh suggested to add the power electronics course. HoD sir replied if the student is interested to read those courses he can opt in open elective courses offered by the other departments.

The external members suggested the following points on core courses.

- In the course Network theory the fourth outcome includes, other signal excitations like step, impulse with sinusoidal excitation.
- In the course Electronics Devices and Circuits (EDC) Experts are suggested to add some more experiments on Oscillators and Amplifiers.
- In the course Signals and Systems unit –II title should be changed as Transforms.
- In Digital System Design experts suggested to add the realization of logic gates using the CMOS instead of unit-5, but internal members are suggested the course will be heavy if we add CMOS Design.
- The course contents in Probability Theory and stochastic process is heavy try to reduce and emphasize more on solving real time problems while teaching this course.
- The course contents of analog circuits are ok.
- In Analog communication course verification of sampling theorem experiment should move to the Digital communication Course.
- In the course micro controllers give more preference to Data sheets than Text books.
- In the Elective course Microprocessors foe embedded systems instead of LPC controllers concentrate on M3 and M4 processors.
- Control systems course once check the UNIT-5 heading.
- The course Electromagnetic and Transmission Lines (EMTL) suggested to add the Jhon. D. Rider textbook and to check the title of second reference book.
- In the Digital Communications (DC) course suggested to add the shanon theorem in unit-1 after the entropy and include the Verification of sampling theorem experiment.
- Concepts of monopole antenna add in the Antennas and Wave Propagation (AWP) course.
- Train the students on FPGA and SDR kits in the DSP laboratory instead of DSP processors.
- In the course Data Communications and Computer Networks (DCCN) include subtopics for Network hardware and software also suggested to include James F. Kurose and Keith W. Ross book in the references.
- Include Image Sensors and MEMS in Sensors and Transducers(S&T) course.
- In the course Internet of Things (IoT) include the Bluetooth, Sora and Narrowband concepts.
- The following changes should in corporate in Mathematics-3
- Addition of Bessel functions, concept of residues covered first, and units 4 and 5 changed as unit1and 2, and 1, 2 and 3 changed as 4 and 5 units.
- In the course physics unit-4 title should change as electrostatics and electromagnetic.
- In chemistry course dielectric material concepts should be required.

The following modifications are suggested by external members in professional elective courses.

- ➤ Python should be a full length course instead of PERL and Python.
- ➤ In the course wireless sensor networks introduction to IP Routing and MAC IEEE 802.11 and 802.15.4 concepts are required to add.
- ➤ In the course information theory and coding add the K.Sam Shanmugam book in references.
- ➤ RF and Microwave circuits course change the title of unit-1 to RF Amplifier.
- ➤ In digital image and video course add the image recognition instead of image compression in UNIT-3
- ➤ Include mobile app development as a new course.

The Outcomes of BoS meeting are as follows:

1. Propose and approve course structure for all 4- years of B. Tech Programme in Electronics and Communication Engineering (ECE).
2. The 4 years of B.Tech programme is approved with effect from the academic year 2019-20. The proposed structure and syllabus is applicable for 2019 admitted batch onwards.
3. The curriculum follows the choice based credit system (CBCS).
4. Major restructuring has taken place in the curriculum which is oriented towards project based learning with inclusion of Interdisciplinary, Inter-departmental and Societal centric and industry related projects.
5. Approved Course Structure is shown in Appendix 1.
6. The Curriculum is encompassing the courses that enable employability or entrepreneurship or skill development Appendix II.
7. In all the courses of the revised curriculum (R16) substantial changes are made in the content. The percentage of revision from R16 to R19 is 45%. The list of new courses provided in Appendix III.
8. Stakeholder's feedback analysed in CDMC is place before the BoS and given utmost priority while designing the curriculum and their suggestions are implemented.

Chairman BoS

HOD, ECE
VFSTR

APPENDIX - I

Course Structure

I Year I Semester

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

I Year II Semester

	Course Title	L	T	P	C
	Engineering Mathematics - II (E)	3	-	2	4
	Engineering Chemistry (C)	2	-	2	3
	Network Theory	3	1	-	4
	English Proficiency and Communication Skills	-	-	2	1
	Technical English Communication	2	-	2	3
	Constitution of India	1	-	-	1
	Basic Engineering Products	2	-	2	3
	Workshop	1	-	2	2
	Physical Fitness, Sports & Games - II	-	-	3	1
	Total	**14**	**1**	**15**	**22**

L : Lecture Hours/week ; T : Tutorial Hours/week ;
P : Practical Hours/week ; C : Credits of the Course.

II Year I Semester

Course Code	Course Title	L	T	P	C
	Transforms & Complex Variables	3	1	-	4
	Electronic Devices and Circuits	3	-	2	4
	Signals and Systems	3	-	2	4
	Digital System Design	3	-	2	4
	PCB Lab	-	-	2	1
	Environmental Studies	1	-	-	1
	Life Skills - I	-	-	2	-
	Technical Seminar - I	-	-	2	1
	Intra-Disciplinary Projects - I	-	-	3	1
	Physical Fitness, Sports & Games - III	-	-	2	1
	Total	**13**	**1**	**17**	**21**

II Year II Semester

Course Code	Course Title	L	T	P	C
	Analog Communications	2	-	2	3
	Analog Circuits	3	-	2	4
	Microcontrollers	3	-	2	4
	Probability Theory and Stochastic Processes	3	1	-	4
	Control Systems	3	-	-	3
	Life Skills - II	-	-	2	1
	Technical Seminar - II	-	-	2	1
	Intra-Disciplinary Projects - II	-	-	2	1
	Open Elective - I	3	-	-	3
	Total	**17**	**1**	**12**	**24**

III Year I Semester

Course Code	Course Title	L	T	P	C
	Digital Communications	3	-	2	4
	Electromagnetic Waves and Transmission Lines	3	1	-	4
	Sensors and Instrumentation	2	-	2	3
	Data Communications and Computer Networks	3	-	2	4
	Human Values, Professional Ethics & Gender Equity	2	-	-	2
	Soft Skills Laboratory	-	-	2	1
	Employability Skills - I	-	-	2	-
	Inter-Departmental Projects - I	-	-	4	2
	Department Elective - I	3	-	-	3
	Open Elective - II	3	-	-	3
	Total	**19**	**1**	**14**	**26**

III Year II Semester

Course Code	Course Title	L	T	P	C
	Data Structures and Algorithms	3	-	2	4
	Antennas and Wave Propagation	3	-	-	3
	Digital Signal Processing	3	-	2	4
	Internet of Things	3	-	2	4
	Professional Communication Laboratory	-	-	2	1
	Modular Course	-	-	-	1
	Employability Skills - II	-	-	2	1
	Inter-Departmental Projects - II	-	-	4	2
	Department Elective - II	3	-	-	3
	Open Elective - III	3	-	-	3
	Total	**18**	**0**	**14**	**26**

IV Year I Semester

Course Code	Course Title	L	T	P	C
	Principles of Management and Organizational Behavior	3	-	-	3
	VSLI Design	3	-	2	4
	Societal - Centric and Industry Related Projects	-	-	2	3
	Department Elective - III	3	-	-	3
	Department Elective - IV	3	-	-	3
	Department Elective - V	3	-	-	3
	Total	**15**	-	**4**	**19**

IV Year II Semester

Course Code	Course Title	L	T	P	C
	Internship / Project Work	-	-	24	12
	Total	-	-	**24**	**12**

DEPARTMENT ELECTIVE COURSES

		Course Title	L	T	P	C
		Digital Design through Verilog	3	-	-	3
		PYTHON Programming	3	-	-	3
		Computer Architecture and Organization	3	-	-	3
		Optical Communication	3	-	-	3
		Information Theory and Coding	3	-	-	3
		Digital TV and Broadcasting	3	-	-	3
		Embedded Systems	3	-	-	3
		Cellular and Mobile Communications	3	-	-	3
		Mobile OS and Application Development	3	-	-	3
		RF and MW Engineering	3	-	-	3
		Wireless Sensor Networks	3	-	-	3
		Machine Learning	3	-	-	3
		Satellite Communications	3	-	-	3
		Radar Systems	3	-	-	3
		Digital Image and Video Processing	3	-	-	3
		Software Defined Radio	3	-	-	3

OPEN ELECTIVE COURSES

	Course Title	L	T	P	C
	Embedded Linux	3	-	-	3
	Embedded Systems and RTOS	3	-	-	3
	Micro Controllers for embedded Systems	3	-	-	3
	Design of IoT Systems	3	-	-	3

Note: The courses that are highlighted denotes the implementation of "Choice Based Credit System (CBCS)"

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APPENDIX - II

List of courses that enable employability or entrepreneurship or skill development in the R-19 B.Tech – Electronics & Communication Engineering

S. No	Year/ Semester	Course Name	Employability/Entrepreneurship/ Skill development
1	Semester I/ First Year	ENGINEERING MATHEMATICS - I (E) LINEAR ALGEBRA & VECTOR CALCULUS	Skill Development
2	Semester I/ First Year	Engineering Physics 1(A)	Skill Development
3	Semester I/ First Year	Basics of Electrical & Electronics Engineering	Skill Development
4	Semester I/ First Year	Engineering Graphics & Design	Skill Development
5	Semester I/ First Year	Programming for Problem Solving - I	Employability
6	Semester I/ First Year	Physical fitness, Sports & Games-1	Skill Development
7	Semester II/ First Year	ENGINEERING MATHEMATICS-II E DIFFERENTIAL EQUATIONS & FOURIER SERIES	Skill Development
8	Semester II/ First Year	Engineering Chemistry	Skill Development
9	Semester II/ First Year	NETWORK THEORY	Skill Development
10	Semester II/ First Year	English Proficiency and communication skills	Skill Development
11	Semester II/ First Year	Constitution of India	Skill Development
12	Semester II/ First Year	Workshop	Skill Development
13	Semester II/ First Year	Technical English Communication	Employability
14	Semester II/ First Year	Physical fitness, Sports & Games-2	Skill Development

15	Semester II/ First Year	BASIC ENGINEERING PRODUCTS	Skill Development
16	Semester I/ Second Year	Transforms & Complex Variables	Skill Development
17	Semester I/ Second Year	Electronic Devices and Circuits	Skill Development
18	Semester I/ Second Year	Signals and Systems	Skill Development
19	Semester I/ Second Year	Digital System Design	Employability
20	Semester I/ Second Year	PCB Lab	Employability
21	Semester I/ Second Year	Environmental Studies	Skill Development
22	Semester I/ Second Year	Life Skills - I	Skill Development
23	Semester I/ Second Year	Technical Seminar - I	Skill Development
24	Semester I/ Second Year	Intra-Disciplinary Projects - I	Employability
25	Semester I/ Second Year	Physical Fitness, Sports & Games - III	Skill Development
26	Semester II/ Second Year	Analog Communications	Skill Development
27	Semester II/ Second Year	Analog Circuits	Skill Development
28	Semester II/ Second Year	Microcontrollers	Employability
29	Semester II/ Second Year	Probability Theory and Stochastic Processes	Skill Development
30	Semester II/ Second Year	Control Systems	Skill Development
31	Semester II/ Second Year	Life Skills - II	Skill Development
32	Semester II/ Second Year	Technical Seminar - II	Skill Development
33	Semester II/ Second Year	Intra-Disciplinary Projects - II	Employability
34	Semester I/ Third Year	Digital Communications	Skill Development
35	Semester I/ Third Year	Electromagnetic Waves and Transmission Lines	Skill Development

36	Semester I/ Third Year	Sensors and Instrumentation	Employability
37	Semester I/ Third Year	Data Communications and Computer Networks	Skill Development
38	Semester I/ Third Year	Human Values, Professional Ethics & Gender Equity	Skill Development
39	Semester I/ Third Year	Soft Skills Laboratory	Employability
40	Semester I/ Third Year	Employability Skills - I	Employability
41	Semester I/ Third Year	Inter-Departmental Projects - I	Employability
42	Semester I/ Third Year	Digital Design through Verilog	Employability
43	Semester I/ Third Year	PYTHON Programming	Employability
44	Semester I/ Third Year	Computer Architecture and Organization	Skill Development
45	Semester I/ Third Year	Optical Communication	Skill Development
46	Semester II/ Third Year	Data Structures and Algorithms	Employability
47	Semester II/ Third Year	Antennas and Wave Propagation	Skill Development
48	Semester II/ Third Year	Digital Signal Processing	Skill Development
49	Semester II/ Third Year	Internet of Things	Employability
50	Semester II/ Third Year	Professional Communication Laboratory	Skill Development
51	Semester II/ Third Year	Modular Course	Employability
52	Semester II/ Third Year	Employability Skills - II	Employability
53	Semester II/ Third Year	Inter-Departmental Projects - II	Employability
54	Semester II/ Third Year	Information Theory and Coding	Skill Development
55	Semester II/ Third Year	Digital TV and Broadcasting	Employability
56	Semester II/ Third Year	Embedded Systems	Employability

57	Semester II/ Third Year	Embedded Linux	Employability
58	Semester I/ Fourth Year	Principles of Management and Organizational Behavior	Entrepreneurship
59	Semester I/ Fourth Year	VSLI Design	Skill Development
60	Semester I/ Fourth Year	Societal - Centric and Industry Related Projects	Employability
61	Semester I/ Fourth Year	Cellular and Mobile Communications	Skill Development
62	Semester I/ Fourth Year	Mobile OS and Application Development	Employability
63	Semester I/ Fourth Year	RF and MW Engineering	Skill Development
64	Semester I/ Fourth Year	Wireless Sensor Networks	Skill Development
65	Semester I/ Fourth Year	Machine Learning	Employability
66	Semester I/ Fourth Year	Satellite Communications	Skill Development
67	Semester I/ Fourth Year	Radar Systems	Skill Development
68	Semester I/ Fourth Year	Digital Image and Video Processing	Skill Development
69	Semester I/ Fourth Year	Software Defined Radio	Employability
70	Semester I/ Fourth Year	Embedded Systems and RTOS	Employability
71	Semester I/ Fourth Year	Micro Controllers for embedded Systems	Employability
72	Semester I/ Fourth Year	Design of IoT Systems	Employability
73	Semester II/ Fourth Year	Internship / Project Work	Employability

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APPENDIX - III

List of new courses in the R-19

B.Tech – Electronics & Communication Engineering Curriculum

S. No	Year/ Semester	Course Name
1	Semester II/ First Year	NETWORK THEORY
2	Semester I/ Second Year	Electronic Devices and Circuits
3	Semester I/ Second Year	Signals and Systems
4	Semester I/ Second Year	Digital System Design
5	Semester I/ Second Year	PCB Lab
6	Semester I/ Second Year	Environmental Studies
7	Semester I/ Second Year	Life Skills - I
8	Semester I/ Second Year	Technical Seminar - I
9	Semester I/ Second Year	Intra-Disciplinary Projects - I
10	Semester I/ Second Year	Physical Fitness, Sports & Games - III
11	Semester II/ Second Year	Analog Communications
12	Semester II/ Second Year	Analog Circuits
13	Semester II/ Second Year	Microcontrollers
14	Semester II/ Second Year	Probability Theory and Stochastic Processes
15	Semester II/ Second Year	Control Systems
16	Semester II/ Second Year	Life Skills - II
17	Semester II/ Second Year	Technical Seminar - II
18	Semester II/ Second Year	Intra-Disciplinary Projects - II

19	Semester I/ Third Year	Digital Communications
20	Semester I/ Third Year	Electromagnetic Waves and Transmission Lines
21	Semester I/ Third Year	Sensors and Instrumentation
22	Semester I/ Third Year	Data Communications and Computer Networks
23	Semester I/ Third Year	Human Values, Professional Ethics & Gender Equity
24	Semester I/ Third Year	Soft Skills Laboratory
25	Semester I/ Third Year	Employability Skills - I
26	Semester I/ Third Year	Inter-Departmental Projects - I
27	Semester I/ Third Year	Digital Design through Verilog
28	Semester I/ Third Year	PYTHON Programming
29	Semester I/ Third Year	Computer Architecture and Organization
30	Semester I/ Third Year	Optical Communication
31	Semester II/ Third Year	Data Structures and Algorithms
32	Semester II/ Third Year	Antennas and Wave Propagation
33	Semester II/ Third Year	Digital Signal Processing
34	Semester II/ Third Year	Internet of Things
35	Semester II/ Third Year	Professional Communication Laboratory
36	Semester II/ Third Year	Modular Course
37	Semester II/ Third Year	Employability Skills - II
38	Semester II/ Third Year	Inter-Departmental Projects - II
39	Semester II/ Third Year	Information Theory and Coding

40	Semester II/ Third Year	Digital TV and Broadcasting
41	Semester II/ Third Year	Embedded Systems
42	Semester II/ Third Year	Embedded Linux
43	Semester I/ Fourth Year	Principles of Management and Organizational Behavior
44	Semester I/ Fourth Year	VSLI Design
45	Semester I/ Fourth Year	Societal - Centric and Industry Related Projects
46	Semester I/ Fourth Year	Cellular and Mobile Communications
47	Semester I/ Fourth Year	Mobile OS and Application Development
48	Semester I/ Fourth Year	RF and MW Engineering
49	Semester I/ Fourth Year	Wireless Sensor Networks
50	Semester I/ Fourth Year	Machine Learning
51	Semester I/ Fourth Year	Satellite Communications
52	Semester I/ Fourth Year	Radar Systems
53	Semester I/ Fourth Year	Digital Image and Video Processing
54	Semester I/ Fourth Year	Software Defined Radio
55	Semester I/ Fourth Year	Embedded Systems and RTOS
56	Semester I/ Fourth Year	Micro Controllers for embedded Systems
57	Semester I/ Fourth Year	Design of IoT Systems
58	Semester II/ Fourth Year	Internship / Project Work

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