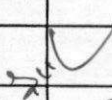Program Name : B.Tech. in Electronics and Communication Engineering

Syllabus Revision for the Academic Year 2020-21

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
1	I	201HS1T01	Communicative English	0
2	I	201BS1T01	Differential Equations and Linear Algebra	0
3	I	201BS1T04	Engineering Chemistry	0
4	I	201ES1T02	Programming for Problem Solving using C	0
5	I	201ES1I01	Engineering Graphics and Design	55
6	I	201HS1L01	Communicative English Lab	0
7	I	201BS1L03	Engineering Chemistry Lab	0
8	I	201ES1L02	Programming for Problem Solving using C Lab	0
9	I	201MC1T01	Environmental Science	0
10	II	201BS2T06	Transform Techniques	0
11	II	201BS2T09	Applied Physics	0
12	II	201ES2I03	Object Oriented Programming through JAVA	100
13	II	201ES2T10	Basic Electrical Engineering	3
14	II	201ES2T14	Network Analysis	0
15	II	201ES2L08	Electronics Engineering Workshop	0
16	II	201BS2L04	Applied Physics Lab	0
17	II	201ES2L13	Basic Electrical Engineering Lab	0
18	II	201MC2L01	Professional Communication Skills Lab	0
19	II	201MC2T02	Constitution of India	0
20	III	191BS3T13	Numerical Methods & Vector Calculus	40
21	III	191ES3T12	Random Variables and Stochastic Processes	10
22	III	191HS3T02	Managerial Economics and Financial Analysis	0
23	III	191EC3T01	Electronic Devices and Circuits	40
24	III	191EC3T02	Digital Electronics and Logic Design	0
25	III	191EC3T03	Signals and Systems	20
26	III	191EC3L01	Electronic Devices and Circuits Lab	20.4

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S.No	Semester	Course Code	Course Name	% of content revised for the existing year
27	III	191ES3L16	Digital Electronics and Logic Design Lab	100
28	III	191MC3A03	Employability Skills – I	0
29	III	191MC3A04	Essence of Indian Traditional Knowledge	100
30	IV	191ES4T16	Data Structures	0
31	IV	191ES4T17	Control Systems	20
32	IV	191EC4T04	Analog Electronic Circuits	10
33	IV	191EC4T05	Electromagnetic Waves and Transmission Lines	0
34	IV	191EC4T06	Microprocessors & Micro Controllers	10
35	IV	191EC4T07	Analog Communications	0
36	IV	191EC4L02	Analog Electronic Circuits – Lab	23.5
37	IV	191EC4L03	Microprocessors & Micro Controllers Lab	0
38	IV	191EC4L04	Analog Communications Lab	18.75
39	IV	191MC4A05	Employability Skills – II	0
40	IV	191MC4A06	Biology for Engineers	100
41	V	171EC5T09	Linear IC Applications	0
42	V	171EC5T10	Digital IC Applications	0
43	V	171EC5T11	Digital Communications	0
44	V	171EC5T12	Antennas and Wave Propagation	0
45	V	171EC5E01	Computer Architecture and Organization	0
46	V	171EC5E02	OOPS through JAVA	0
47	V	171EC5E03	Electronic Switching Systems	0
48	V	171HS5T06	Employability Skills - III	0
49	V	171EC5L04	Linear IC Applications Lab	0
50	V	171EC5L05	Digital IC Applications Lab	0
51	V	171EC5L06	Pulse and Digital Circuits Lab	0
52	VI	171EC6T13	Micro Processors and MicroControllers	0
53	VI	171EC6T14	VLSI Design	0
54	VI	171EC6T15	Digital Signal Processing	0
55	VI	171EC6E04	CPLD and FPGA Architectures	0
56	VI	171EC6E05	Operating Systems	0
57	VI	171EC6E06	Computer Networks	
58	VI	171EC6E07	Digital Design Through Verilog	
59	VI	171EC6E08	Biomedical Engineering	0

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S.No	Semester	Course Code	Course Name	% of content revised for the existing year
60	VI	171EC6E09	Information Theory and Coding	0
61	VI	171HS6T07	Employability Skills - IV	0
62	VI	171EC6L07	Micro Processor and Micro Controllers Lab	0
63	VI	171EC6L08	VLSI lab	0
64	VI	171EC6L09	Digital Communications Lab	0
65	VII	171EC7T16	Microwave Engineering	0
66	VII	171EC7T17	Digital Image Processing	0
67	VII	171EC7T18	Electronic Measurements And Instrumentation	0
68	VII	171EC7T19	Optical Communications	4.1
69	VII	171EC7E10	Digital Signal Processors	100
70	VII	171EC7E11	Embedded Systems	8
71	VII	171EC7E12	Cellular and Mobile Communications	10
72	VII	171EC7E13	Analog IC Design	18
73	VII	171EC7E14	Cryptography and Network Security	0
74	VII	171EC7E15	Radar Systems	0
75	VII	171EC7L10	Microwave Engineering and Optical Communications Lab	13.3
76	VII	171EC7L11	Digital Signal and Image Processing Lab	16.6
77	VII	171EC7P01	Industry Oriented (Internship) Minor Project	100
78	VIII	171EC8E16	Mixed Signal IC Design	100
79	VIII	171EC8E17	Wireless Sensors and Networks	5.5
80	VIII	171EC8E18	Satellite Communications	8.3
81	VIII	171EC8O01	Basic Concrete Technology	100
82	VIII	171CE8O04	Waste Water Management	100
83	VIII	171EE8O05	Robotics	0
84	VIII	171EC8O02	Disaster Management	100
85	VIII	171EE8O07	Internet of Things	100
86	VIII	171EC8O03	Neural Networks	100
87	VIII	171CE8O03	Alternative Energy Sources	100
88	VIII	171CE8O02	Database Management Systems	100
89	VIII	171EC8O04	Web Technologies	100
90	VIII	171CE8O06	Green Fuel Technologies	100
91	VIII	171EC8P02	Major Project	
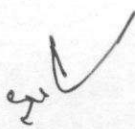
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Total number of courses in the academic year 2020-21	= 91
Number of courses having revision in syllabus content >/= 20% in the academic year 2020-21	= 23
Percentage of syllabus revision carried out in the academic year 2020-21 = (23/91)100	= 25.27%

A Kaul

Program Coordinator

Head of the Department

Head of the Department
Department of E.C.E.
Aditya Engineering College (A𝟢)

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Department of Electronics and Communication Engineering

Date: 22-10-2020

Minutes of the VI Meeting of BOS Scheduled on 10-10-2020

The VI meeting of Board of studies of Electronics and Communication Engineering Department was held on 10-10-2020 at 09.30 AM through online in Microsoft Teams. The Members discussed the agenda items and made the following resolutions.

Agenda 6.1: **Welcome address by Chairperson- BOS.**

Dr. G. Sridevi, BOS Chairperson invited the distinguished members of BOS to the VI BOS Meeting.

Agenda 6.2: **Discussion and ratification of the Vision and Mission of the department and Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the Programs under the Department.**

The BOS members have ratified the Vision and Mission of the department and Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the Programs under the Department.

Agenda 6.3: **Discussion on proposed AR19 B.Tech (ECE) Program – IV & V semester syllabus and ratification of the same.**

After long discussions with the BOS members on the proposed program the following suggestions are made and ratified the same:

Electromagnetic Waves and Transmission Lines:
- Loading topics may be removed.
- Examples on Electrostatics may be addressed with rectangular, cylindrical and spherical coordinate systems.
- Electrostatic and magneto statics can be grouped into one unit.
- In electrostatics, relaxation time concept can be removed.
- Maxwell's equations can be kept in Unit - 4, in order to stress more on Maxwell's equations.
- Uniform plane waves can also be included in Unit - 4.

Microprocessors and Micro-controllers

Microcontroller basic building blocks may be introduced in Unit-1.

Analog Communications

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- In text books, Sanjay Sharma text book can be made as reference.
- BP Lathi will be the best suited text book for this syllabus.
- MATLAB or any simulation based books may be included.

Analog Electronic Circuits Lab

- Measurement of output impedance of amplifiers based experiments is to be included.
- It is better to re-frame the experiments based on the given specifications like Q-point, gain, and bandwidth with a more stress on "specific Q-point".

MPMC Lab

Elevator and 7 segment display experiments can be included.

Analog Communications Lab

- Tracking characteristics of mixer may be added as regular experiment instead of augmented experiment.
- Receiver characteristics experiment can be included with selectivity and sensitivity.
- The student can make the screen shot of CRO/DSO output and the same to be added in lab record.
- In FM experiment, the FDM may be added in order to understand the concept of multiplexing with FM.

IC Applications

Everything is planned well for this subject

IC Applications lab

- Compare the RZ and NRZ outputs w.r.t to 555 timer output.
- Design a Schmitt trigger can be introduced as A/D converter.

Digital Communications

- The basics of mobile communication course should be covered in this subject.
- BP Lathi book can be made as text book because the same book was kept as text book in analog communications in order to favor the student in text book point of view.
- W.r.t to 2nd unit, qualitative and quantitative analysis will take more time hence it can be restricted to qualitative treatment only.
- Concept on matched filter may be introduced.
- R P Singh and Sapre book can be kept as reference book instead of text book.

Digital Communications lab

- TDM should be named as multiplexing and demultiplexing using TDM technique.

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- PCM experiments can be renamed as characteristics of PCM including band width calculation.
- Coding technique based experiments should be analyzed in time as well as frequency domain.

Antennas and Wave Propagation
- In text books, K D Prasad can be made as reference book
- Instead of introducing reciprocity theorem in 1st unit, it can be kept during antenna measurements.
- Reactance and EIRP topics may be included.
- During pattern multiplication, effect of earth should be included.
- Helical antenna design may not be required.
- In antenna measurements, antenna impedance measurement should be included.
- In propagation, sky wave propagation topic can be removed.
- Wireless communication topics like MIMO, multipath reflection topics can be included

EMI EMC: (Professional Elective-I)
No modifications are suggested.

Digital System Design - 1 (Professional Elective-I)
The practical orientation should be introduced in any suitable lab in order to have practical experience for the students who have taken up this theory course.

Signals and Systems (Open Elective-I)
- Title like "Fundamentals of signals and systems" may be considered
- Unit -1 name should be changed as "Introduction to signals"
- In order to reduce the complexity, z-transform can be replaced with Laplace transform.

Digital Electronics Logic Design (Open Elective-I)
- More importance should be given on combinational logic design rather than sequential logic design.
- Morris Mano and Anand Kumar books can be made as text books.

Semiconductor devices (Open Elective-I)
- SCR topic may be introduced.
- BJT and JFET topics may be separated into 2 units.

Agenda 6.4: **Discussion on proposed AR20 B.Tech (ECE) First Year Program structure and ratification of the same.**

After long discussions, the BOS members ratified the proposed AR20 B.Tech (ECE) First Year Program structure.

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Agenda 6.5: Discussion on proposed AR20 B.Tech (ECE) Program II semester syllabus and ratification of the same.

The BOS members ratified the proposed syllabus of Network Analysis course and Electronics Engineering Workshop course in AR20 B.Tech (ECE) II semester.

Agenda 6.6: Discussion on proposed AR19 M.Tech (VLSI Design) Program – III & IV semesters syllabus and ratification of the same.

The BOS members ratified the proposed syllabus of AR19 M.Tech (VLSI Design) Program III & IV semesters.

Agenda 6.7: Discussion on the courses having focus on employability/ entrepreneurship/ skill development in the program of B.Tech (ECE) and M.Tech (VLSI Design) programs and ratification of the same.

After long discussion, the BOS members suggested the list of the courses having focus on employability/ entrepreneurship/ skill development in the program of B.Tech (ECE) and M.Tech (VLSI Design) programs and ratified the same.

Agenda 6.8: Discussion on the new courses offered in the B.Tech (ECE) and M.Tech (VLSI Design) and ratification of the same.

The members of BOS ratified the list of new courses offered in the B.Tech (ECE) and M.Tech (VLSI Design) programs. Percentage of new courses introduced in the academic year 2020-2021 for B.Tech (ECE) is 11.49 % and M.Tech (VLSI Design) is 15.00 %. The list of new courses is enclosed as Annexure-I.

Agenda 6.9: Discussion on the B.Tech (ECE) and M.Tech (VLSI Design) programs in which Choice Based Credit System (CBCS)/Elective Course system is being implemented and ratification of the same.

The members of BOS ratified that in B.Tech (ECE) and M.Tech (VLSI Design) programs, the Choice Based Credit System (CBCS)/Elective Course system is being implemented.

Agenda 6.10: Discussion on the value-added courses offered for the students and ratification of the same.

After discussion with the BOS members, the list of value-added courses to be offered for the students is ratified.

Agenda 6.11: Discussion on the percentage of syllabus revision done in the B.Tech (ECE) and M.Tech (VLSI Design) programs and ratification of the same.

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The percentage of syllabus revision done in the BTech (ECE) and M.Tech (VLSI Design) programs is explained by the BOS chairperson and the syllabus revision is ratified by the BOS members. The percentage of courses revised in the academic year 2020-2021 for the B.Tech (ECE) is

25.27% and M.Tech (VLSI Design) is 48.4%. The list of courses revised during the academic year 2020-2021 is enclosed as Annexure-II.

Agenda 6.12: **Analysis of results.**
Results of previous semesters are presented by the BOS chairperson to the BOS members. The BOS members noted the same.

Agenda 6.13: **Analysis of Students feedback and action taken report.**
Students feedback and actions taken report is presented by the BOS Chairperson to the BOS members and BOS members approved the same.

Agenda 6.14: **Analysis of Stakeholder's Feedback on Curriculum.**
Analysis of Stakeholder's Feedback on Curriculum is presented by the BOS, chairperson to the BOS members and BOS members noted the same and the Action Taken Report is enclosed as Annexure-III.

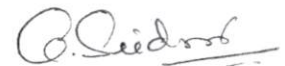**Agenda 6.15:** **Any other item/s with the approval of Chairperson.**
-Nil-

Agenda 6.16: **Scheduling of next Board of Studies meeting.**
After discussion with the BOS members, the next BOS meeting will be planned in the month of May or June, 2021.

Agenda 6.17: Vote of Thanks
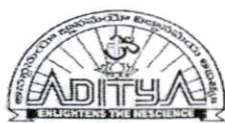Dr. G. Sridevi, BOS Chairperson presented the Vote of thanks.

BOS Chairperson

Head of the Department
Department of E.C.E.
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Annexure-I

List of New Courses in the Academic Year 2020-2021

S. No	Program	Semester	Course Code	Course Name
1	B. Tech (ECE)	III	191MC3A04	Essence of Indian Traditional Knowledge
2	B. Tech (ECE)	IV	191MC4A06	Biology for Engineers
3	B. Tech (ECE)	III	191ES3L16	Digital Electronics and Logic Design Lab
4	B. Tech (ECE)	VII	171EC7E10	Digital Signal Processors
5	B. Tech (ECE)	VII	171EC7P01	Industry Oriented (Internship) Minor Project
6	B. Tech (ECE)	VIII	171EC8E16	Mixed Signal IC Design
7	B. Tech (ECE)	VIII	171EC8O01	Basic Concrete Technology
8	B. Tech (ECE)	VIII	171EC8O02	Disaster Management
9	B. Tech (ECE)	VIII	171EC8O03	Neural Networks
10	B. Tech (ECE)	VIII	171EC8O04	Web Technologies
11	M.Tech (VLSID)	III	192VD3E12	Scripting Languages for VLSI
12	M.Tech (VLSID)	III	192VD3E13	Digital System Design & Verification
13	M.Tech (VLSID)	III	192ES3O02	Digital System Design
14	M.Tech (VLSID)	III	192VD3O01	Physical Design Automation
15	M.Tech (VLSID)	III	192VD3O02	VLSI Technology
16	M.Tech (VLSID)	III	192VD3O03	Nano-electronics

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BOS Chairperson
Head of the Department
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Department of Electronics and Communications Engineering

Annexure-II

List of Courses Revised in the Academic Year 2020-2021

S. No	Program	Semester	Course Code	Course Name
1	B. Tech (ECE)	I	201ES1I01	Engineering Graphics and Design
2	B. Tech (ECE)	III	191BS3T13	Numerical Methods & Vector Calculus
3	B. Tech (ECE)	III	191EC3T01	Electronic Devices and Circuits
4	B. Tech (ECE)	III	191EC3T03	Signals and Systems
5	B. Tech (ECE)	III	191EC3L01	Electronic Devices and Circuits Lab
6	B. Tech (ECE)	IV	191ES4T17	Control Systems
7	B. Tech (ECE)	IV	191EC4L02	Analog Electronic Circuits – Lab

BOS Chairperson

Head of the Department
Department of E.C.E.
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Department of Electronics and Communication Engineering

Annexure III

Action Taken Report on Stakeholders Feedback

S. No	Agenda Item No.	Stakeholders Recommended	Action Taken
1	6.14	Students need to have an insight in solving real world problems and a course should be introduced in the early semesters of their graduation so that the students can have an idea on the topics they take up for internships.	Biology for Engineers Course is included in the III semester which gives an introduction and insight to real world problems related to biomedical engineering
2	6.14	Effective Soft-skill training to be provided	Industry Oriented exclusive Soft-skill trainer is appointed as a trainer. Professional Communication Skills Lab is included in the Syllabus in the early semesters. The students are encouraged to present in seminar session.
3	6.14	Multidisciplinary work nature is to be inculcated among students.	As the employers' demand for the students with multi - disciplinary functionalities, emphasis is given to IT specific courses and skill-oriented courses are increased in AR-20 regulation.
4	6.14	It will be very helpful to the students if a coding or programming related course is introduced in the early semesters.	Object oriented Programming through JAVA is introduced in the second semester to provide an exposure about coding to the students to fulfil the need.
5	6.14	There is a need to create awareness about available energy sources and its utilization among students.	Renewable energy sources course provides an insight of variously available energy sources and its utilization.
6	6.14	Entrepreneur skills should be inculcated among students	Entrepreneurship development and incubation is a course which helps the students in this aspect.

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7	6.14	Increasing industrial tours will benefit students.	Internship is made mandatory and thereby the students should take the industry training and to implement a project as part of Internship.
8	6.14	The construction and working principle of ohm meters should be known to the students when dealing with electronic measurements and instrumentation course. Advised to include in the syllabus of the course.	Will be discussed about inclusion of the particular topic with proper suggestion by the committee.
9	6.14	There should be a continuation of course to Signals and Systems, which is very important to electronics and communication engineering domain.	Principles of Signals and Systems is made a part of open elective-1. Which appears in V semester.
10	6.13	Signals processing is an important course for Electronics and Communication Engineering branch. provide in-detailed information of the course theoretically and practically.	Signals and Systems lab is introduced in III semester to provide hands-on and practical experience on the course and it is made sure that the theory and lab courses are included in the same semester.
11	6.13	Need industrial visits and internships as a part of curriculum.	Summer Internship for 2 Months is made mandatory after second year which will be evaluated during V semester.
12	6.13	Encourage students for taking part in socially relevant projects.	Socially Relevant Project is made a part of curriculum and also given a credit.
13	6.14	Computer vision and related field is still a challenging and has wide opportunities if students choose their career in related fields. Courses close to this domain will help the students if included in the curriculum	Internet of Things, Machine Learning, Artificial Intelligence, Deep Learning courses helps the student as suggested by the employer.
14	6.14	fundamental concepts of Physical design like CMOS, Digital design and fabrication Course involves multiple hands-on projects using Synopsys tools (DC, ICC II, Star RC, PT, ICV). Learning these courses will help the student to easily get into chip design industry. Facilitate these.	Will be discussed in the BOS meeting about facilitating these courses.

15	6.14	Need few courses which are more domain specific.	Scripting Languages for VLSI, Digital System Design & Verification included in the III semester which helps the students to be technically strong in the domain
16	6.14	A course paving a bridge for IOT would help students to a great extent.	Sensors & Actuators course in III semester facilitates an insight to IOT real time applications.
17	6.13	Introducing domain specific course related to programming will help students.	Programming Languages for Embedded Systems,Scripting Languages for VLSI,Hardware Software co-design will facilitate the suggestion given by the students.
18	6.13	Niche and high-in-demand chip design technology along with Advance VLSI Design and Verification courses should be a part of curriculum.	Will be discussed in the board meeting and will be facilitated according to the expert's suggestions.

BOS Chairperson
Head of the Department
Department of E.C.E.
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