School of Engineering and Technology
Department of Electronics and Communication Engineering
### Curriculum Feedback Analysis 2020-21

The Department of Electronics and Communication Engineering revises its curriculum for the programmes offered every year based on the relevant trends in industry and emerging technologies by considering the feedback provided by all its stakeholders on the curriculum. This report is a analysis of the feedback collected from the various stakeholders like students, alumni and faculty members and this report shall be forwarded to the Department Curriculum Design and Development Cell (CDC) for consideration while revising the curriculum.

This academic year feedback was collected from a total of 103 students, 20 faculty members and 25 alumni students. This feedback was analyzed and this report contains the analysis and recommendations to CDC based on the analysis carried out.

Student Feedback on Curriculum

A total of 103 students took the curriculum feedback survey. The questionnaire and the number of responses for each year of study was as follows

All Years of Study — Total Number of Students Participated in the Survey : 103					
Question	Excellent	Good	Satisfactory	Average	Need to Improve
Does the content of the syllabus satisfy the stated objectives and learning outcomes?	19	49	17	8	10
Does the syllabus cover advanced topics	20	47	22	8	6
Does the syllabus enhance your knowledge and skills in the relevant domain?	22	51	22	6	2
Is the syllabus effective in developing critical/analytical thinking?	22	44	23	7	7
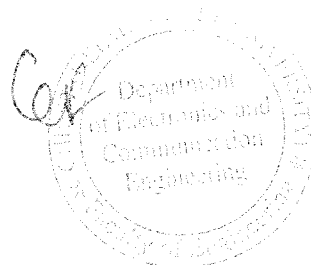
|					
Are the text books and reference materials relevant to the content of the syllabus	19	48	20	10	6
Does the content of the syllabus orient you towards higher education?	19	49	19	11	5
Does the syllabus enable the students to apply their knowledge in real life problem solving?	19	49	22	10	3
Is employability given weightage in the design and development of syllabus?	22	51	17	11	2
Does the syllabus promote self-study and attitude of research?	24	45	19	10	5
Does the syllabus meet your overall expectations?	21	51	18	10	3

The graph given below depicts the overall expectation meeting of the students from all years as far as syllabus is concerned. From the graph it can be seen that the students have given a feedback where 85% of the students are satisfied with the curriculum being offered. However, when the general comments and suggestions were analysed, the following were the main points given by the students

1. The overall balance of the curriculum was appreciated
2. Few students want programming language to be introduced as part of the curriculum from second year of study.
3. More focus on practical aspects

Syllabus meeting overall expectations of students 2020-21
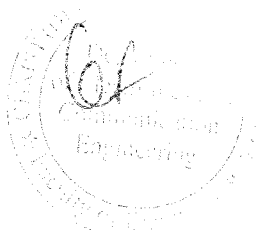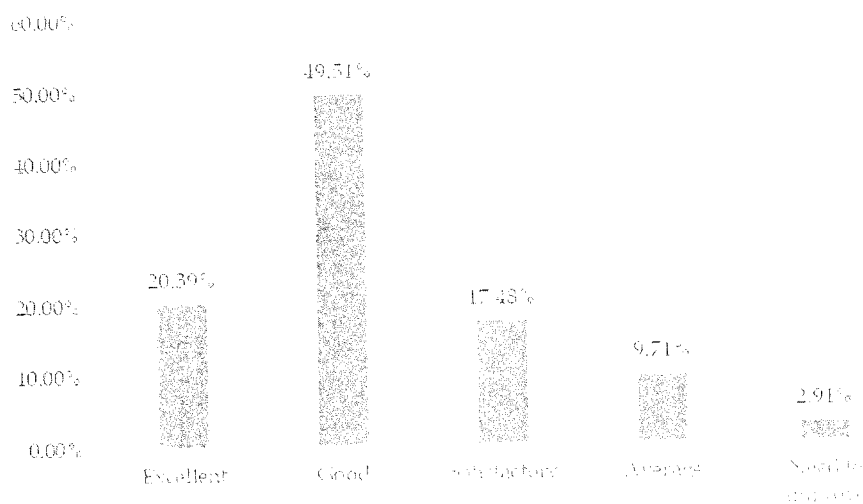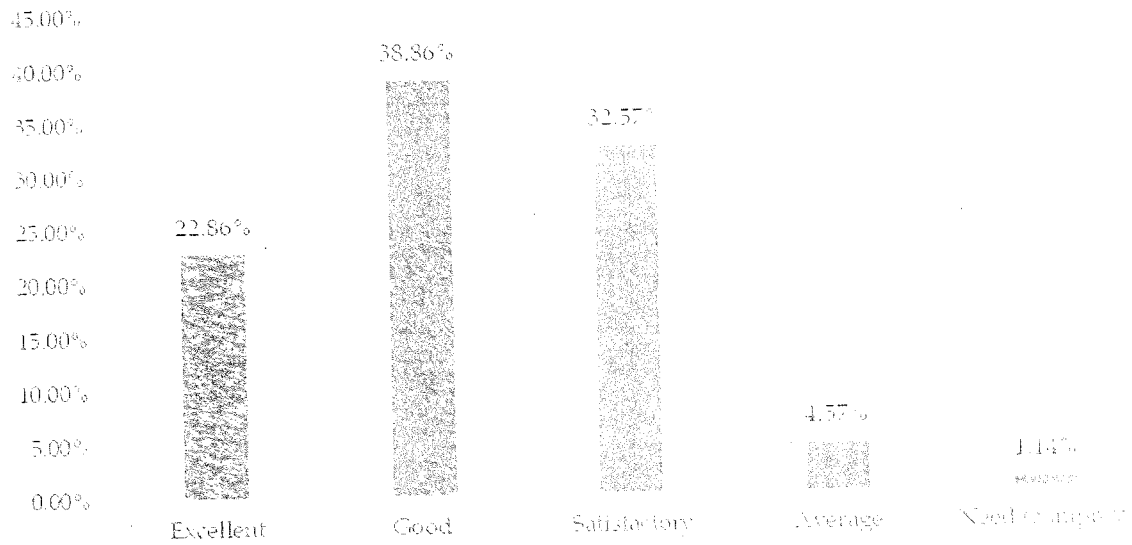
Alumni Feedback on Curriculum

Department of Electronics and Communication Engineering has made it mandatory to collect feedback from alumni on curriculum and analyse their response in order to achieve relevancy as far as the industry requirements are concerned. As part of this feedback, a survey was done among 25 alumni members and the following table gives a glimpse of their responses

Total Number of Alumni Participated in the Survey : 25					
Question	Excellent	Good	Satisfactory	Average	Need to Improve
Is the syllabus updated on a regular basis depending on the current trends and advanced topics?	6	12	6	1	0
Does the content of the syllabus orient you towards higher education?	10	9	5	1	0
Does the syllabus provide employability weightage?	6	10	8	1	0
Does the syllabus meet the expectations of the industry?	4	6	14	1	0
Does the syllabus enable the student to connect the knowledge to real life applications?	4	12	7	1	1
Does the syllabus encourage entrepreneurship?	4	8	12	1	0
Do you think that the syllabus motivates the students for research and development?	6	11	5	2	1

The graph below shows a percentage of around 92% to be either satisfied or above for the surveyed parameters. This shows that there is no serious concern as far as the alumni are concerned with respect t the syllabus. This validates the point that our framed syllabus is as per industry requirements and trends. With the vision of the department in mind, the syllabus is also catering to the development of research and higher studies among students. As per this analysis, there are no major points that needs to be considered for the syllabus change for the academic year of 2021-22.

Alumni Feedback Analysis on Syllabus 2020-21

Teacher Feedback on Curriculum

Faculty members are the backbone of any higher education institution and their feedback is very important to analyse the curriculum and to update it as per the necessity. As a practice, the department takes feedback from every course handling faculty member and the below section is an analysis of the same.

The questionnaire floated with 18 faculty members concentrated on the below questions and also on suggestions/ recommendations for the courses handled by them in the even semester of 2019-20 and odd semester of 2020-21. The synopsis of the same is given below

Total Number of Teachers Participated in the Survey : 20					
Question	Excellent	Good	Satisfactory	Average	Need to Improve
Does the content of the syllabus satisfy the stated objectives and learning outcomes?	14	4	2	0	0
Do you have continuous processes to propose, modify, suggest and incorporate new topics in the syllabus?	20	0	0	0	0
Is the syllabus effective in developing independent thinking?	13	4	2	1	0
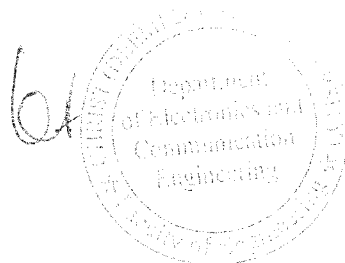
Does the departmental level expert committee meet to review the syllabus?	20	0	0	0	0
Does the syllabus enhance your knowledge in the subject area?	15	4	1	0	0
Does the syllabus enable the students apply their knowledge in real life?	17	3	0	0	0
Does the syllabus demand the teachers for research inclusive teaching?	14	4	2	0	0

Teacher Feedback Analysis on Syllabus 2020-21
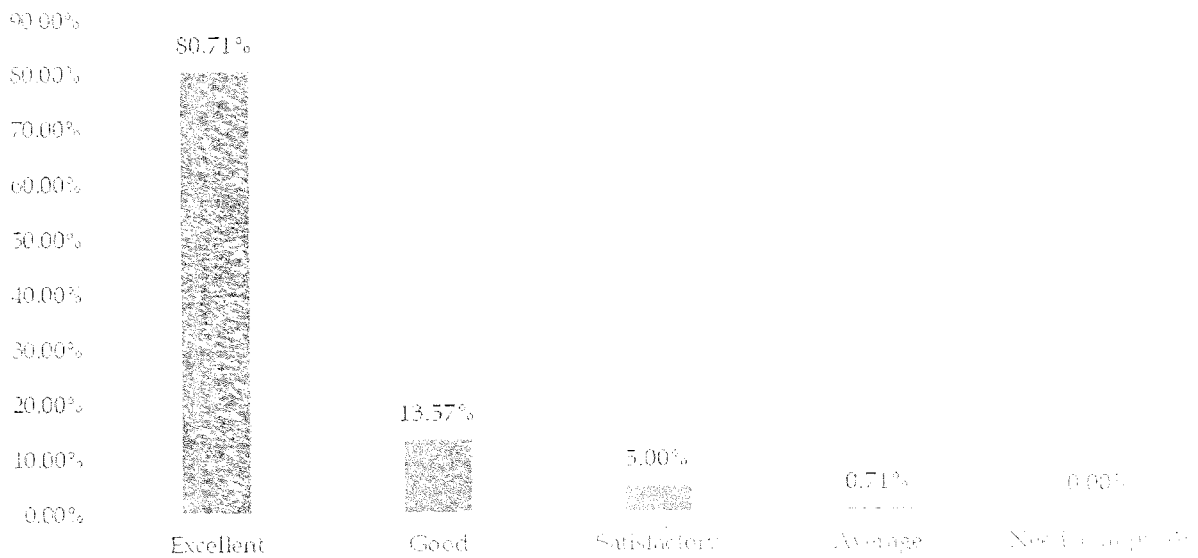
Few of the suggestions by the course handling faculty members is as given below

Sl No	UG/PG	Course Name	Course Code	Recommendations	Recommended By
1	UG	Antennas and Wave Propagation	EC633	Minor change (unit 3 content titles), CO	Dr.Suganthi.S
2	UG	Analog Communication	EC533	Swapping of Units (1 & 3), addition of text book, CO	
3	UG	Microwave Engineering	EC734	Rearrangement of contents in unit 1 and unit 3, CO	
4	UG	Transmission Lines and Waveguides	EC535	Topics merged and one new unit included (unit 5)	Dr.Inbanila.K

5	UG	Electronic Devices and Circuits	EC333P	Minor Changes and reordering in all units	Dr.Aswathakumara.M
6	UG	Mathematics for Intelligent Systems	ECHO5411S	Changes needed since the syllabus is lengthy to be completed within the allotted time	Anu Antony
7	UG	Microcontroller and Real Time Embedded System	EC534P	Removal of microprocessor based experiments since the name of the course is not focused on processors	Chandra Mukherjee
8	PG	Digital Design using Verilog	MTEC133	Inclusion of lab component	Dr.Sudhi Sudharman
9	UG	Medical Electronics	Elective	Include more topics under unit 5 (electrical safety) and discuss on rules and regulations with a case study approach	Dr.Harimurthy
10	UG	Internet and Java	Elective	Include more programming sessions	Neelima
11	UG	Basic Electronics	EC133/EC233	Removal of Sampling theorem and K-maps	Partha.R

In addition to the above feedback collected from faculty members, the vertical heads met along with their members and have suggested few recommendations with respect to their vertical/domain. The Department of Electronics and Communication Engineering has 4 verticals/domains namely

1. RF and Communication
2. Signal Processing
3. VLSI and Embedded Systems
4. Devices and Circuits

The suggestions received by each of the verticals is given below

RF and Communication Vertical

In addition to the changes suggested by the RF and Communication vertical teachers, few other suggestions were recommended by the team. The following are the recommendations:

1. Proposal of two new elective courses for UG (Syllabus is attached in Annexure-A)
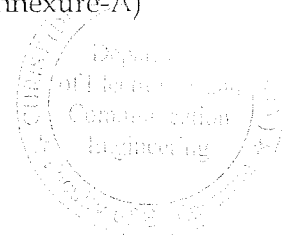
a. OFDM and MIMO systems
b. Advanced Microstrip Antennas

Signal Processing Vertical

The following were the suggestions recommended by the Signal Processing Vertical
1. Introduction of Digital Image Processing as a course in 6th semester
2. Introduction of Computer Vision as a new elective course for UG (Syllabus is Attached in Annexure-A)

VLSI and Embedded Systems Vertical

The suggestions by VLSI and Embedded System vertical are the changes already mentioned by the individual course handling faculty members through their feedback. In addition few spelling mistakes in their respective domain have been highlighted.

Devices and Circuits Vertical

The recommendations by the Devices and Circuits vertical in addition to the changes proposed by the individual course handling faculty members is as follows:
1. Proposal of one new elective course for UG – Nano Engineered Devices (Syllabus is attached in Annexure-A)

This analysis report on all the feedbacks collected from the students, faculty members, alumni and verticals shall be presented to the Department CDC for discussion and deliberation to be recommended to the Department Board of Studies for the academic year 2021-22 to be held in the month of January/February 2021.
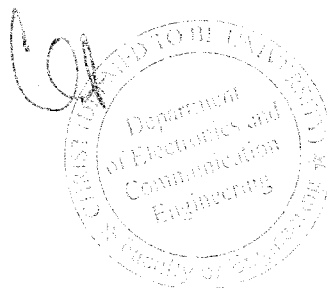
School of Engineering and Technology
Department of Electronics and Communication Engineering
Action Taken Report on Syllabus 2020-21

Department of Electronics and Communication Engineering has made it mandatory to collect feedback from all the stakeholders for revision of curriculum. This feedback is later analyzed and discussed in the Curriculum Design and Development Cell (CDC) at the department to ensure that the feedback is taken positively and implemented for the next academic year. This academic year of 2020-21, feedback were collected from various stakeholders like students, teachers, alumni and industry experts along with parents. These feedback were then analyzed and deliberated in meetings within the department. Through these discussions and deliberations, a feasibility analysis was performed and the following are the actions taken based on the same. This will be implemented for the academic year of 2021-22.

Action Taken

The following courses have been changed as per the recommendations/suggestions by the stakeholders including students, teachers, alumni, industry and parents for the year 2021-22.

| Sl No	UG/PG	Course Name	Course Code	Recommendations	Recommended By
1	UG	Antennas and Wave Propagation	EC633	Minor change (unit 3 content titles), CO	Dr.Suganthi.S
2	UG	Analog Communication	EC533	Swapping of Units (1 & 3), addition of text book, CO	
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				completed within the allotted time	
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10	UG	Internet and Java	Elective	Include more programming sessions	Neelima
11	UG	Basic Electronics	EC133/EC233	Removal of Sampling theorem and K-maps	Partha.R

In addition to the above few new courses have been suggested and they are given below:
Proposal of two new elective courses for UG
1. OFDM and MIMO systems
2. Advanced Microstrip Antennas
3. Introduction of Digital Image Processing as a course in 6th semester
4. Introduction of Computer Vision as a new elective course for UG
5. Nano Engineered Devices
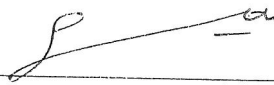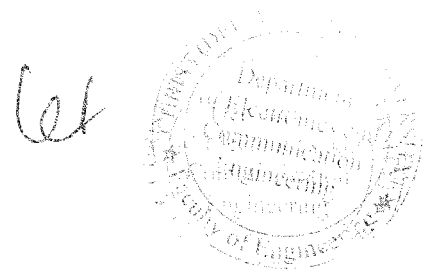
CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

School of Engineering and Technology
Christ (Deemed to be University)

Department of Electronics and Communication Engineering
Board of Studies
01, February, 2020
Attendance Sheet

Sl.No	NAME OF THE MEMBER	SIGNATURE
	CHAIRPERSON	
1	Dr.Iven Jose, Dean, School of Engineering and Technology	
	EXTERNAL MEMBERS	
1	Dr. Raghunandan Srinath Professor, Department of Electronics & Communication Engineering, Nitte Meenakshi Institute of Technology, Bangalore	
2	Mr.Sambarto Kishore De, Vice President, HSBC, Bangalore	
	INTERNAL MEMBERS	
1	Inbanila K	
2	Dr.Suganthi.S	
3	Dr.Aswathakumara.M	
4	Dr.H.L.Viswanath	
5	Dr.Aneesh.V	
6	Partha.R	

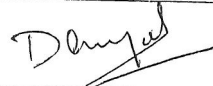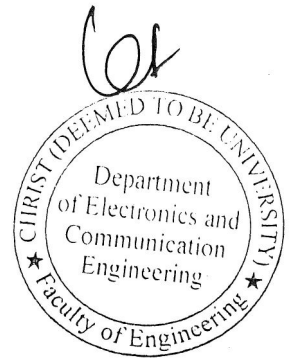| 7	Sushanth.G	
8	Chandra Mukherjee	

ALUMNI REPRESENTATIVE

1	Hemanth Akash.D, Data Programmer, Epsilon India, Bangalore	01/02/2020

STUDENT REPRESENTATIVE

1	Dhrupad.D, 8BTEC	

CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

Minutes of the 12ᵗʰMeeting of the Board of Studies of Electronics and Communication Engineering held on 01 February 2020 at 12.00pm at the Conference Room, First Block, Bangalore Kengeri Campus, CHRIST (Deemed to be University)

In the Chair: Dr.Iven Jose, Dean, School of Engineering and Technology
Secretary: Inbanila.K, Head of the Department, Electronics and Communication Engineering

Members Present
All the members as per the attendance list (Annexure A) were present.

Leave of Absence
There was no leave of absence.

Declaration of Quorum and Calling the Meeting to Order
The Chairperson declared the validity of the quorum and called the Meeting to Order.

Matters on the Agenda
1. **To confirm the Minutes of the previous meeting held on 05 February, 2019**
The minutes of the previous meeting of the Board of Studies as per Annexure B (BOS Book) to the Notice was duly reviewed and approved by the Board. It was noted that there were no matters arising out of the Minutes.

2. **To consider and recommend the change in curriculum for B.Tech in Electronics and Communication Programme**
The Board of Studies reviewed the proposed changes in curriculum for courses BS136/236 and of B.Techas prepared and presented at the meeting along with the reduction of total credits from the existing 160 to 155 credits which is achieved by compensating two open electives as presented in the course structure as shown in Annexure C. (BOS Book) Details of Honours offered for the students of Electronics and Communication Engineeringand Minors offered by the department of Electronics and Communication Engineering to the students of other departmentswas presented at the Meeting and discussed in detail.
The honours programme offered to the students of Electronics and Communication Engineering are
 • Intelligent Systems
 • Advanced Communication Technology
 • IC Design

The Minors programme offered by the department of Electronics and Communication Engineering to the students of other departments is
 ◦ Internet of Things (IoT)

Department
of Electronics and
Communication
Engineering
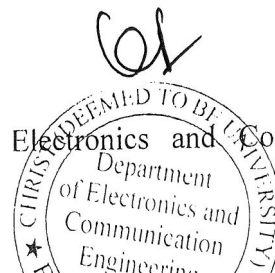
The students should earn extra 20 credits to be awarded with the degree of either Honours or Minors. The External experts shared their valuable suggestions on the present curriculum as follows:

- They suggested adding mathematical and statistical based subjects for providing theoretical background to Artificial Intelligence and Machine Learning.
- The experts recommended hands-on exercises on AI, ML and Data Analytics and the tools used in Industry.
- Experts asked to review the nomenclature of minor course Image Processing for System Design. The comment was deliberated and the nomenclature of the course was changed to Image Processing and its Applications.
- Both the experts appreciated the deployment of live projects in campus
- They also recommended organizing orientation program for the students before they select the electives.

Having considered the validity of the reasons for the suggested changes, the Board approved the same, subject to approval of the Academic Council.

3. To consider and recommend new UG Programme in ECE as per the Programme Document in Annexure I (BOS Book)
New program proposed are
*B.Tech Electronics and Computer Engineering with the intake of 30
*Subject to the approval of AICTE
Action: After due deliberations the recommendations are accepted

4. To consider and recommend the change in curriculum for M.Tech-Communication Systems (IC Design)Programme
The Board of Studies reviewed the proposed changes in curriculum for inclusion of elective courses with focus on IC design concepts as shown in Annexure C (BOS Book). Having considered the validity of the reasons for the suggested changes, the Board approved the same subject to approval of the Academic Council.

5. To consider and recommend the new Minor Program for ECE students offered by other discipline
Minor Degree proposed by other departments namely Architecture, Business Accounting, Computer Science, E-Mobility, Intelligent Traffic and Transportation System, Internet of Things, Management, Psychology, Robotics was presented and same is recommended for B.Tech ECE with effect from academic year 2020-2021, the same will be applicable for the previous batch of 2019-2020 B.Tech programme subject to approval of the Academic Council and the Board of Management.

6. To review the Results of the End Semester Exams (ESE) October2019 for B.Tech in Electronics and Communication
The Result Analysis of the End Semester Examinations for B.Tech in Electronics and Communication was reviewed by the BOS. There were no matters arising out of the result analysis.
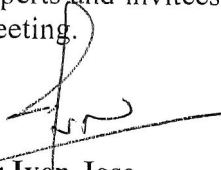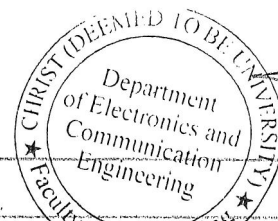
7. **To consider and approval of the panel of examiners and BOS Experts**
   The board discussed and approved a panel of 7external examiners as per Annexure D (BOS Book)

8. To consider any other matter with the permission of the Chair

The Board discussed on the number of publications, patent, innovative pedagogy, and the innovative projects of ECE department. Several research ideas for external funding and project work related to the internal faculty expertise were deliberated. The external experts appreciated the department work especially with respect to service learning and innovative projects.

With no other matters to discuss Chairperson thanked all the board of studies members including experts and invitees for their presence and valuable suggestions. The Chairperson adjourned the meeting.

Dr.Iven Jose
Chairperson
Board of Studies
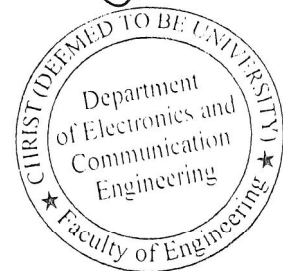
Revision and new courses are introduced as per the feedback given by the stakeholder

The Department after conducting a need analysis and incorporating suggestions from various stakeholders proposed the need for introduction/revision of courses and programs. The proposals were discussed in the Curriculum Design and Development Committee. After its due process and approval, the faculty members of the department framed the necessary content considering employability/entrepreneurship/skill development aspects and are submitted for the approval of the Board of Studies of Electronics and Communication Engineering. These changes will be incorporated from the academic year 2020-21.

List of courses that are revised and newly introduced are presented below
1. BS136/BS236 - Biology for Engineers
2. EC432 – Computer Organization and Processors
3. EC534P – Microcontroller based System Design