

## **Minutes of Internal BOS meeting**

### **Department of Electronics and Communication Engineering**

The internal BOS meeting of ECE department was held on 12-01-2021 and 20-01-2021 to finalize the R20 curriculum for ECE branch. The main objective curriculum setup is to equip ECE students with necessary core competency to succeed long-term in engineering/ entrepreneurship careers after completing their B.Tech, and are preparing to undertake PG studies and research as career options. As a discipline, ECE focuses on the design of underlying hardware systems.

The R20 curriculum is directed to applications in major areas such as telecommunications, energy and electronics sectors, while encouraging development of necessary skills for integration of hardware and software components.

We, the department of ECE believe that this curriculum may create opportunities exist at the boundaries of traditional CSE and ECE, and have accordingly planned for cross-training of students across disciplinary boundaries.

At the beginning of meeting, the BOS chair has circulated the AICTE and APSHE proposed curriculum have been circulated among the members and discussed the agenda accordingly. The internal BOS members have finalized a curriculum which is to be ratified. The following are key items that have been discussed during the meeting.

As the curriculum structures of APSHE and AICTE are well versed in core training and cross-training, the BOS designed the curriculum of ECE at VVIT that reflects the above structures.

- The curriculum for ECE therefore has many courses in common with the programs initially during semester 1 and 2.
- Skill Oriented Course is introduced in each semester from semester 3 to semester 7 in order to enhance the multi-platform job opportunities.
- In view of campus selections, both theory and lab courses of OOPS through JAVA are introduced in 4 semester.

**Agenda-1:** To discuss the Correlation between proposed VVIT curriculum with APSCHE and AICTE structures

**Resolution-1:** BOS members have resolved to make some changes in the proposed curriculum to match the APSCHE and AICTE criteria.

**Item-2:** To discuss the details of proposed II ECE SEM-I and Sem-II courses for UG is presented for discussion.

**Resolution-2:** Apart from having thorough discussion on ECE core subjects, the BOS members team strongly recommended to incorporate theory and lab for OOPS through JAVA to aid students to fare better in campus placements.

**Item-3:** To discuss the details of proposed III ECE courses for UG.

**Resolution-3:** As semesters 3 and 4 essential concentrates on Core Courses, Thereafter, the committee resolved that the program in year 3 & 4 is structured to allow customization by individual students based on their own personal preferences along with core courses.

**Item-4:** To discuss the details of proposed Professional Electives courses for UG.

**Resolution-4:** After due deliberations the members proposed the following professional elective structure.

- Semesters 3 and 4 essential concentrates on Core Courses Thereafter, the program in year 3 & 4 is structured to allow customization by individual students based on their own personal preferences. In year 3 & 4, students are required to select Elective Courses according to their choices. Most courses in Sem 5-8 are electives (an elective course is one which is not compulsory, and a student may have choices from which to select the courses he/she wants to do).
- Currently we offer elective courses in 4 streams; Circuits and VLSI, Communication Engineering, Signal & Image Processing and Control & Embedded Systems. Streams allow a student to focus on some areas of ECE. It helps a student to gain a deeper knowledge and skills in the selected areas.

- Out of 5 Professional Electives, PE-1 and PE-2 are placed in semesters 5 and 6 and remaining 3 professional electives are placed in semester 7.
- A student can complete one stream by doing at least 3 courses in that particular stream. A student will be strongly encouraged to ensure that at least one stream is completed, though is not required to do so. The list of Programme Electives are given below

#### Programme electives-I

1. Antenna and Wave Propagation
2. Speech Fundamentals
3. Embedded C
4. Power Management Integrated Circuits

#### Programme electives-II

1. Computer System Architecture
2. Radars and Optical Fiber Systems
3. Speech Processing
4. Analog IC design

#### Programme electives-III

1. Image Processing
2. Satellite Communications
3. Speech Processing
4. Digital IC design

#### Programme electives-IV

1. Computer Networks
2. Electromagnetic Interference and Compatibility
3. Advanced Digital Signal Processing
4. Low Power VLSI Design

#### Programme electives - V

1. Cellular and Mobile Communications

2. Pattern Recognition
3. Digital Signal Processors & Architectures
4. Electronic Measurements & Instrumentation

**Item-5:** To discuss the Open Electives (OE) structure and to discuss importance and impact of proper open electives on students.

**Resolution-5:** List of Open Electives courses has been proposed. Totally 3 open electives are provisioned in the curriculum in semesters 6 and 7.

**Item-6:** To discuss the list of skill oriented courses as the credit courses.

**Resolution-6:** As skill oriented courses enhance the chances of job opportunities as well as helps in career growth, the BOS team suggested to meet once again in near future before finalizing the structure. However following are the names and details of identified skill oriented related to ECE.

- CST
- LABVIEW
- IOT
- PLC/SCADA Communication
- PCB development
- Digital Designing
- Advanced Design Systems
- SQL
- Soft skills
- Networking courses such as CCNA and MCSE
- Real Time Operating Systems
- Embedded micro-controllers and processors
- Advanced Python

**Item-7:** To discuss the modalities and structure of semester 8.

**Resolution-7:** The BOS team has opined to make project internship mandatory during semester 8 to gain real work experience. The committee has agreed that internship will

facilitate future professional choices by allowing students to have a direct interaction with a working environment. Hence the committee has resolved to keep entire semester 8 class work free.

**Item-8:** To discuss the about non-credit mandatory courses.

**Resolution-8:** Indian Constitution, Environmental science, IPR& Patents and Indian Traditional Knowledge Courses are proposed as mandatory courses.

# ANNEXURE-1

## COURSE STRUCTURE

### ELECTRONICS AND COMMUNICATION ENGINEERING (ECE)

Subject Codes for S&H First Year Courses						
S. No.	Code	Course Name	L	T	P	C
1	HS01	Communicative English	3	0	0	3
2	HS02	Communicative English Lab	0	0	3	1.5
3	HS03	Indian Constitution	2	0	0	0
4	BS01	Mathematics-I	3	0	0	3
5	BS02	Mathematics-II	3	0	0	3
6	BS03	Engineering Physics	3	0	0	3
7	BS04	Engineering Physics & Virtual Lab	0	0	3	1.5
8	BS05	Applied Physics	3	0	0	3
9	BS06	Applied Physics & Virtual Lab	0	0	3	1.5
10	BS07	Engineering Chemistry	3	0	0	3
11	BS08	Engineering Chemistry Lab	0	0	3	1.5
12	BS09	Applied Chemistry	3	0	0	3
13	BS10	Applied Chemistry Lab	0	0	3	1.5
14	BS11	Environmental Studies	2	0	0	0

I Year I Semester						
S. No.	Code	Course Name	L	T	P	C
1	HS01	Communicative English	3	0	0	3
2	BS01	Mathematics-I	3	0	0	3
3	BS05	Applied Physics	3	0	0	3
4	ES01	Problem Solving using C	3	0	0	3
5	ES02	Engineering Graphics	1	0	4	3
6	HS02	Communicative English Lab	0	0	3	1.5
7	BS06	Applied Physics & Virtual Lab	0	0	3	1.5
8	ES03	Problem Solving using C Lab	0	0	3	1.5
<b>Total Credits</b>			<b>19.5</b>			

I Year II Semester						
S. No.	Code	Course Name	L	T	P	C
1	BS02	Mathematics-II	3	0	0	3
2	ES03	Basic Electrical Engineering	3	0	0	3
3	BS09	Applied Chemistry	3	0	0	3
4	ES04	Network Analysis	2	1	0	3
5	ES05	Problem Solving using Python	3	0	0	3
6	ES06	Basic Electrical Engineering Lab	0	0	3	1.5
7	BS10	Applied Chemistry Lab	0	0	3	1.5
8	ES07	Problem Solving using Python Lab	0	0	3	1.5
9	HS03	Indian Constitution	2	0	0	0
<b>Total Credits</b>			<b>19.5</b>			

II Year I Semester						
S.No.	Course Code	Course Title	L	T	P	C
1	BS 12	Mathematics-III	2	1	0	3
2	PC 01	Electronic Devices & Circuits	3	0	2	3
3	PC 02	Signals and Systems	2	1	0	3
4	PC 03	Digital Circuits and Logic Design	3	0	2	3
5	PC 04	Random Variables & Stochastic Processes	3	0	0	3
6	PC 05	Electronic Devices & Circuits Lab	0	0	3	1.5
7	PC 06	Signals and Systems Lab	0	0	3	1.5
8	PC 07	Digital Circuits and Logic Design Lab	0	0	3	1.5
9	SC 01	Version Control (Skill Oriented Course)	1	0	2	2
10	MC 01	Essence of Indian Traditional Knowledge	2	0	0	0
<b>Total Credits</b>					<b>21.5</b>	

II Year II Semester						
S.No.	Course Code	Course Title	L	T	P	C
1	ES08	OOPS through Java	3	0	0	3
2	PC 08	Electromagnetic Fields & Waves	2	1	0	3
3	PC 09	Digital System Design with VHDL	3	0	2	3
4	PC 10	Analog Circuits	3	0	0	3
5	ES 09	Linear Control Systems	3	0	2	3
6	PC 11	Analog Circuits Lab	0	0	3	1.5
7	PC 12	Digital System Design with VHDL Lab	0	0	3	1.5
8	ES 10	OOPS through Java Lab	0	0	3	1.5
9	SC 02	Internet of Things(Skill Oriented Course)	1	0	2	2
<b>Total Credits</b>					<b>21.5</b>	



III Year I Semester						
S.No.	Course Code	Course Title	L	T	P	C
1	PC 13	Linear & Digital ICs	3	0	0	3
2	HS 04	MEFA	3	0	0	3
3	PE 01	PE-1	3	0	0	3
4	PC 14	Analog and Digital Communications	3	0	0	3
5	PC 15	VLSI Design	3	0	2	3
6	PC 16	Linear & Digital ICs Lab	0	0	3	1.5
7	PC 17	VLSI Design Lab	0	0	3	1.5
8	PC 18	Analog and Digital Communications Lab	0	0	3	1.5
9	SC 03	Advanced Python Programming(Skill Oriented Course)	1	0	2	2
<b>Total Credits</b>						<b>21.5</b>

III Year II Semester						
S.No.	Course Code	Course Title	L	T	P	C
1	PC 19	Digital Signal Processing	3	0	0	3
2	PC 20	Microprocessors and Microcontrollers	2	1	0	3
3	PC 21	Transmission Lines and Microwave Engineering	3	0	2	3
4	PE 02	PE-2	3	0	0	3
5	OE 01	OE-1	3	0	2	3
6	PC 22	Microprocessors and Microcontrollers Lab	0	0	3	1.5
7	PC 23	Microwave Engineering Lab	0	0	3	1.5
8	PC 24	Digital Signal Processing Lab	0	0	3	1.5
9	SC 01	SQL(Skill Oriented Course)	1	0	2	2
	MC 02	Universal Human Values	2	0	0	0
<b>Total Credits</b>						<b>21.5</b>

IV Year I Semester						
S.No.	Course Code	Course Title	L	T	P	C
1	HS 05	Management Science	3	0	0	3
2	PE 03	PE-3	3	0	0	3
3	PE 04	PE-4	3	0	0	3
4	PE 05	PE-5	3	0	0	3
5	OE 02	OE-2	3	0	0	3
6	OE 03	OE-3	3	0	0	3
7	SC05	Networking(CCNA)/SCADA(Skill)	1	0	2	2
8	PR 02	Industrial / Research internship	0	0	0	3
9	BS 11	Environmental Science	2	0	0	0
<b>Total Credits</b>						<b>23</b>

IV Year I Semester						
S.No.	Course Code	Course Title	L	T	P	C
1	PR 03	Project Work, Seminar and internship in industry	0	0	0	12
<b>Total Credits</b>						<b>12</b>

### PROFESSIONAL ELECTIVES

Professional Elective- I	Professional Elective- II	Professional Elective- III	Professional Elective- IV	Professional Elective- V
Antenna and Wave Propagation	Computer System Architecture	Image Processing	Computer Networks	Cellular and Mobile Communications
Information Theory and Coding	Radars and Optical Fiber Systems	Satellite Communications	Electromagnetic Interference and Compatibility	Pattern Recognition
Speech Fundamentals	Speech Processing	Speech Enhancement	Advanced Digital Signal Processing	Digital Signal Processors & Architectures
Power Management Integrated Circuits	Analog IC design	Digital IC design	Low Power VLSI Design	Electronic Measurements & Instrumentation

### OPEN ELECTIVES

Open Elective- I	Open Elective- II	Open Elective- III
Internet of Things	Artificial Intelligence	Operating Systems
Embedded C	Energy Auditing	DBMS
Total Quality management	Supply Chain management	Advanced Control Systems
Disaster Management	Advanced Java	Green Buildings
MATLAB for Engineering Applications	Disaster management	Entrepreneurship