

Department of Electronics and Communication Engineering

JUIT Wajnaghat

A meeting of Board of Studies of the Department of Electronics and Communication Engineering was held on 21.04.2018 at 10:00 AM in the Board Room.

The following members were present

1.	Prof. Samir Dev Gupta	Chairman
2.	Prof. C.C.Tripathi	External Member
3.	Dr. Balwinder Singh	External Member
4.	Dr. Rajiv Kumar	Member
5.	Dr. Shruti Jain	Member
6.	Dr. Meenakshi Sood	Member
7.	Dr. Neeru Sharma	Member
8.	Dr. Shweta Pandit	Member
9.	Dr. Ashwani Sharma	Member

Leave of absence

Leave of absence was granted to the following members by the Chairman Board of Studies:

1. Prof. D.T. Shahani (External Member)
2. Dr. Vikas Baghel (Member)

The Chairman welcomed all the members who were present for the meeting. The Chairman further appreciated and thanked the contribution made by Prof. R.C. Jain (HoD ECE, JIIT Noida, former External member), Prof. S.V. Bhooshan (former HoD and Chairman), and Prof. Ghanshyam Singh for their generous support for the growth of ECE Department as a Board of Studies member. The meeting thereafter deliberated on agenda items as had been approved by the Chairman.

Item No. 1 : Confirmation of minutes of Last Meeting of the Board of Studies held on 22.11.2017.

Confirmed

Item No. 2: Approval of new structure for courses starting from Academic Session 2018-19 of 160 credit scheme as per AICTE guidelines.

The following changes in the course structure for B.Tech. 2018-19 has been proposed:

- (i) In conformation with AICTE guidelines, External members of BoS stated Engineering Graphics and Workshop Practices are the backbone of engineering courses. All were of the view that the same should be introduced in the first year B-Tech course curriculum. In view of large number of batches, Engineering Graphics and Workshop Practices may be conducted in batches either in first or second semester, considering constraint of space for both the courses.
- (ii) External members were of the opinion that Chemistry and Chemistry Lab course may be included in the first year under Basic Science courses.
- (iii) In view of inclusion of Chemistry and Chemistry Lab courses, the syllabus of Physics-I, Physics-II and Material Science courses were discussed. External members observed that there is an overlapping in the topics of Material Science course with Physics-I and Physics-II. Therefore, it was suggested to merge the syllabus of Physics-I, Physics-II and Material Science and convert them into two core courses under Basic Sciences.
- (iv) In view of topics covered under fourth course in Mathematics, BoS suggested that Engineering Mathematics 4 should be renamed as Probability and Stochastic Processes.
- (v) After going through the syllabus of Project Management external members felt that the course should be revised as Entrepreneurship and Project Management. To bestow the information about the entrepreneurship, Prof. C.C. Tripathi said that the contents of this course should include risk management, government funding schemes for entrepreneurs and other support provided by the Government.
- (vi) Different HSS core subjects were proposed by the experts keeping AICTE model curriculum in mind: Business Economy and Organisational Behaviour. External members have suggested that IPR, Laws of Engineering and Engineering Ethics subject should be taught to the students as an elective subject.
- (vii) Currently there is a need to have knowledge for design problems, it was suggested by the BoS that some Design workshop should be introduced in the structure.
- (viii) BoS members have suggested that final year should have minimum academic load (in terms of credits) because of Placement activities, GATE, GRE and other competitive examinations.

The revised B Tech course structure with 160 credits is prepared as provided in **Appendix I**.

Revised changes as proposed by BoS were reviewed by the Vice Chancellor, Chairman Academic Council and following amendments for the batch seeking first year admission (2018) were approved:

- (i) Workshop Practices as introduced in first semester with 2 credits instead of 3 credits.
- (ii) Chemistry and Chemistry Lab course were replaced with Programming I and Programming I Lab course.
- (iii) The credits of Engineering Graphics course were reduced to 2 from 3 credits.
- (iv) Electronics Devices and Circuits were structured as 3-0-0 (L-T-P) in place of 3-1-0 (L-T-P) and Physics Lab II was done away with.

The revised B Tech course structure for First year is prepared as provided in **Appendix II**.

Item No. 3 : New Core / Lab courses for B.Tech-2018-19

Board has suggested revising the syllabus of Electrical Sciences as per AICTE syllabus.

Rest recommended was approved

Item No. 4 : Modification in Lab courses for B.Tech-2016-17 and 2017-18

As recommended was approved

Item No. 5 : Modification in courses for B.Tech-2016-17 and 2017-18

External Members suggested revision of the syllabus of the existing course of Microprocessor and Controllers. It was suggested to include Introduction to 8085 microprocessor, RISC and ARM topics and reduce 8086 portion from the syllabus.

Rest recommended was approved

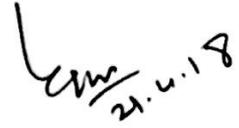
Item No. 6 : New Electives for B.Tech-2018-19

As recommended was approved

The meeting concluded at 13:40 hrs with a vote of thanks by **Prof. Samir Dev Gupta**, Head of Department, ECE.

Absent

(Prof. D.T. Shahani)


21.4.18

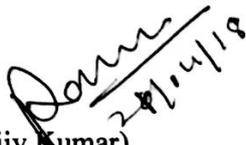
(Prof. C.C. Tripathi)


21/4/18

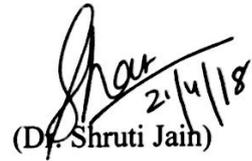
(Dr. Balwinder Singh)



(Prof. Samir DevGupta)


21/4/18

(Dr. Rajiv Kumar)


21/4/18

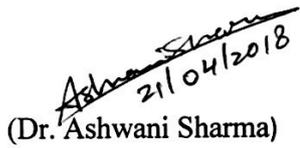
(Dr. Shruti Jain)


21/4/18

(Dr. Neeru Sharma)


21.4.18

(Dr. Meenakshi Sood)


21/04/2018

(Dr. Ashwani Sharma)


21/4/18

(Dr. Shweta Pandit)

Absent

(Dr. Vikas Baghel)

COURSE CURRICULUM OF ECE DEPARTMENT-160CREDITS						
B. TECH 1st SEMESTER						
S. No.	Name of the Subjects	Course Hours			Credits	Total Hours
		L	T	P		
1	English and Professional Communication	2	0	0	2	2
2	Engineering Mathematics -1	3	1	0	4	4
3	Physics-I	3	1	0	4	4
4	Electrical Sciences	3	1	0	4	4
5	Workshop Practices / Engineering Graphics	1	0	4	3	5
6	Physics Lab-I	0	0	2	1	2
7	Electrical Sciences Lab	0	0	2	1	2
8	Presentation and Communication Lab	0	0	2	1	2
9	Institutional Orientation	0	0	0	0	0
				Total	20	25
B. TECH 2nd SEMESTER						
S.No.	Subject Names	Course Hours			Credits	Total Hours
		L	T	P		
1	Electronics Device & Circuits	3	1	0	4	4
2	Chemistry	3	0	0	3	3
3	Engineering Mathematics -2	3	1	0	4	4
4	Physics-2	3	1	0	4	4
5	Workshop Practices / Engineering Graphics	1	0	4	3	5
6	Physics 2 Lab	0	0	2	1	2
7	Chemistry Lab	0	0	2	1	2
8	Electronics Device & Circuits Lab	0	0	2	1	2
				Total	21	26
B. TECH 3rd SEMESTER						
S. No.	Name of the Subjects	Course Hours			Credits	Total Hours
		L	T	P		
1	Engineering Mathematics -3	3	1	0	4	4
2	Electromagnetic Engineering	3	1	0	4	4
3	Digital Electronics & Logic Design	3	1	0	4	4
4	Analogue Electronics	3	1	0	4	4
5	Programming I	2	0	0	2	2
6	Programming I Lab	0	0	2	1	2
7	Digital Electronics & Logic Design Lab	0	0	2	1	2
8	Analogues Electronics Lab	0	0	2	1	2
				Total	21	24
B. TECH 4th SEMESTER						
S.No.	Subject Names	Course Hours			Credits	Total Hours
		L	T	P		
1	Entrepreneurship and Project Management	3	0	0	3	3
2	Probability and Stochastic Processes	3	0	0	3	3
3	Data Structures	3	0	0	3	3
4	Signals & Systems	3	1	0	4	4
5	Analogue and Digital Communications	3	1	0	4	4
6	Signals and Systems Lab	0	0	2	1	2
7	Analogue and Digital Communications Lab	0	0	2	1	2
8	Data Structures Lab	0	0	2	1	2
9	Environmental Studies	2	0	0	0	2
				Total	20	25

B. TECH 5 th SEMESTER						
S. No.	Name of the Subjects	Course Hours			Credits	Total Hours
		L	T	P		
1	Organisational Behaviour	3	0	0	3	3
2	Digital Signal Processing	3	1	0	4	4
3	Microprocessor and Microcontrollers	3	0	0	3	3
4	Wireless + Data Communication	3	0	0	3	3
5	Deptt Elective DE-I	3	0	0	3	3
6	Open Elective I	3	0	0	3	3
7	Microprocessor and Microcontrollers Lab	0	0	2	1	2
9	Python Lab	0	0	2	1	2
8	Digital Signal Processing Lab	0	0	2	1	2
				Total	22	25
B. TECH 6 th SEMESTER						
S.No.	Subject Names	Course Hours			Credits	Total Hours
		L	T	P		
1	Business Economy	3	0	0	3	3
2	VLSI Technology and Applications	3	0	0	3	3
3	Open Elective II	3	0	0	3	3
4	Deptt Elective DE-II	3	0	0	3	3
5	Deptt Elective DE-III	3	0	0	3	3
6	VLSI Lab	0	0	2	1	2
7	Mini Project/Electronic Design workshop	0	0	4	2	4
9	Adv Communication Lab	0	0	2	1	2
8	Java lab	0	0	2	1	2
9	Industrial Training	0	0	0	0	0
				Total	20	25
B. TECH 7 th SEMESTER						
S. No.	Name of the Subjects	Course Hours			Credits	Total Hours
		L	T	P		
1	Project Part-I	0	0	8	7	8
2	Indian Constitution	1	0	0	0	1
3	Open Elective III	3	0	0	3	3
4	Open Elective IV	3	0	0	3	3
5	Deptt Elective DE-IV	3	0	0	3	3
				Total	16	18
B. TECH 8 th SEMESTER						
S.No.	Subject Names	Course Hours			Credits	Total Hours
		L	T	P		
1	Open Elective V	3	0	0	3	3
6	Deptt Elective DE-V	3	0	0	3	3
2	Deptt Elective DE-VI	3	0	0	3	3
3	Deptt Elective DE-VII	3	0	0	3	3
4	Project Part II	0	0	8	8	9
				Total	20	21
	TOTAL CREDITS				160	
	TOTAL HOURS				189	
	HSS				12	
	Basic Sciences Courses				26	
	Basic Computing + Engineering Science Courses				23	
	Professional CORE				48	
	Professional Elective				21	
	OE				15	
	PROJECT				15	

COURSE CURRICULUM OF ECE DEPARTMENT-160CREDITS						
B. TECH 1st SEMESTER						
S. No.	Name of the Subjects	Course Hours			Credits	Total Hours
		L	T	P		
1	English and Technical Communication	2	0	0	2	2
2	Engineering Mathematics -1	3	1	0	4	4
3	Physics-I	3	1	0	4	4
4	Electrical Sciences	3	1	0	4	4
5	Workshop Practices / Engineering Graphics	1	0	2	2	3
6	Physics Lab-I	0	0	2	1	2
7	Electrical Sciences Lab	0	0	2	1	2
8	English and Technical Communication Lab	0	0	2	1	2
9	Institutional Orientation	0	0	0	0	0
				Total	19	23
B. TECH 2nd SEMESTER						
S.No.	Subject Names	Course Hours			Credits	Total Hours
		L	T	P		
1	Electronics Device & Circuits	3	0	0	3	3
2	Programming 1	3	0	0	3	3
3	Engineering Mathematics -2	3	1	0	4	4
4	Physics-2	3	1	0	4	4
5	Workshop Practices / Engineering Graphics	1	0	2	2	3
6	Programming Lab 1	0	0	2	1	2
7	Electronics Device & Circuits Lab	0	0	2	1	2
				Total	18	21

ELECTRICAL SCIENCES

DC Circuits Electrical circuit elements (R, L and C), voltage and current sources, series and parallel combination of elements, star and delta connections, Kirchhoff current and voltage laws, analysis of simple circuits with dc excitation using Node and Mesh analysis. Superposition, Thevenin and Norton Theorems. Time-domain analysis of first-order RL and RC circuits.

AC Circuits Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor. Analysis of single-phase AC circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance.

Sinusoidal steady state analysis – Representation of sine function, phasor diagrams, impedances and admittances, AC circuit analysis, effective or RMS values, average power and complex power.

Transformers

Magnetic materials, BH characteristics, ideal and practical transformer, equivalent circuit, losses in transformers, regulation and efficiency.

Electrical Installations

Types of Wires and Cables, Earthing. Types of Batteries, Important Characteristics for Batteries. Elementary calculations for energy consumption, power factor improvement and battery backup.

Electrical Machines

Introduction to Machines, Single-phase induction motor. Construction, working, Loss components and efficiency, starting and speed control of induction motor.

MICROPROCESSORS AND CONTROLLERS

(Core Subject)

Course Code:	10B11CI401	Semester:	4 th Semester, B. Tech, CSE 5 th Semester, B. Tech, ECE
Credits:	4	Contact Hours:	L-3, T-1, P-0

Course Objectives

The objectives are:

1. To study the Standard Intel Architectures.
2. To gain proficiency in Assembler language.
3. To gain experience in programming peripheral I/O devices.
4. To acquire the background for understanding next-generation CPUs.
5. To learn concepts associated with interfacing a microprocessor to memory and to I/O devices.
6. To learn how to control components of a microprocessor based system though the use of interrupts.
7. To learn about Embedded Systems and micro controller architecture, I/O interfacing and programming.

Course Outcomes

After studying this course the students would gain enough knowledge on:

1. The Standard Architecture of Intel Microprocessors
2. Instruction set of Intel 80x86 processors and proficiency in assembly language programming
3. Concepts associated with interfacing a microprocessor to memory and to I/O devices and to learn the programming of peripheral I/O devices
4. Control components of a microprocessor based system though the use of interrupts
5. Background knowledge for understanding next-generation CPUs
6. Embedded system programming through 8051 architecture, I/O interfacing, programing and testing

Course Contents

Unit	Topics	References (chapter number, page no. etc)	Lectures
1	Introduction to Microprocessor 8085. Overview of the Intel Family of the Microprocessors	Berry Brey: Chapter 2	4
2	The 8086 microprocessor architecture ,Addressing Modes; Register Addressing; Immediate Addressing; Direct Data Addressing; Register Indirect Addressing; Base-Plus-Index Addressing; Register Relative Addressing; Base Relative-Plus-Index Addressing	Berry Brey: Chapter 3	2

3	8086 Instruction Set	Berry Brey: Chapters 4,5,6	3
4	Using assembly language with C/C++; Using Assembly Language with C++ for 16-Bit DOS Applications, Mixed Assembly and C++ Objects	Berry Brey: Chapter 7	2
5	Programming the 8086 microprocessor; Modular Programming, Using the Keyboard and Video Display, Disk Files	Berry Brey: Chapter 8	2
6	8086 Hardware specifications; Pin-Outs and the Pin Functions, Clock Generator (8284A), Bus Buffering and Latching, The 8288 Bus Controller	Berry Brey: Chapter 9	4
7	8086 Memory Interface; Memory Devices, Address Decoding, Memory Interface, Dynamic RAM	Berry Brey: Chapter 10	4
8	Basic I/O Interface; I/O Port Address Decoding, Programmable Peripheral Interface (8255), Programmable Interval Timer (8254), Programmable Communications Interface (16550), ADC(ADC804) and DAC (DAC830)	Berry Brey: Chapter 11	5
9	Interrupts; 8259A Interrupt controller	Berry Brey: Chapter 12	2
10	Direct memory access and DMA-controlled I/O; 8237 DMA controller	Berry Brey: Chapter 13	2
11	The arithmetic coprocessor; MMX, and SIMD technologies, 8087 arithmetic coprocessor	Berry Brey: Chapter 14	2
12	Bus interface; ISA Bus, PCI Bus, Parallel Printer Interface, Serial COM Ports, Universal Serial Bus (USB), Accelerated Graphics Port (AGP)	Berry Brey: Chapter 15	2
13	Intel Pentium and Core2 Processors	Berry Brey: Chapter 18	4
14	Embedded Systems and 8051 Architecture, Hardware specifications, Memory System, I/O interfacing, Programming	Kenneth Ayala: Chapters 3,5,6,7,8	3
15	RISC and ARM processors		3
Total Number of Lectures			44

Evaluation Scheme

1. Test 1: 15 marks
2. Test 2 : 25 marks
3. Test 3 : 35 marks
4. Internal Assessment : 25 marks
 - 10 Marks : Class performance, Tutorials & Assignments
 - 10 Marks : Quizzes
 - 5 marks : Attendance

Text Books

1. Berry B.Brey, "The Intel Microprocessors : Architecture, Programming, and Interfacing," Eighth Edition, Prentice Hall, 2009
2. Kenneth Ayala, "The 8051 microcontroller," Third Edition, Thomson, 2005

Reference Books

1. Douglas V Hall, "Microprocessors & Interfacing, Programming & Hardware," Second Edition, Tata McGraw Hill
2. Yu-Cheng Liu, Glenn A. Gibson , "The 8086/8088 Family Architecture, Programming & design", Second Edition, PHI.
3. Kenneth Ayala "The 8086 microprocessor programming and Interfacing the PC," Cengage Learning
4. Tom Shanley, "Protected Mode Software Architecture," Addison-Wesley, 1996