

SDM College of Engineering and Technology, Dharwad
Department of Electronics and Communication Engineering

Scheme and Credits Design

2015 Scheme

Credits :200

Scheme for III Semester B. E. (E&CE)

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/ Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
15UMAC300	Engineering Mathematics-III	4-0-0	4	50	100	03	-	-
15UECC300	Analog Electronic Circuits	4-0-0	4	50	100	03	-	-
15UECC301	Network Analysis	3-2-0	4	50	100	03	-	-
15UECC302	Digital Circuit Design	4-0-0	4	50	100	03	-	-
15UECC303	Signals & Systems	4-0-0	4	50	100	03	-	-
15UECC304	Electromagnetic Theory	3-2-0	4	50	100	03	-	-
15UECL305	Analog Electronics Laboratory	0-0-2	1	50	-	-	50	03
15UECL306	Digital Circuit Design Laboratory	0-0-2	1	50	-	-	50	03
Total		22-4-4	26	400	600		100	

CIE: Continuous Internal Evaluation **SEE:** Semester End Examination

L: Lecture **T:** Tutorials **P:** Practical **S:** Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

Scheme for IV Semester B. E. (E&CE)

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/ Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
15UMAC400	Engineering Mathematics-IV	4-0-0	4	50	100	03	-	-
15UECC400	Analog Communication	4-0-0	4	50	100	03	-	-
15UECC401	Control Systems	3-2-0	4	50	100	03	-	-
15UECC402	Linear ICs and Applications	4-0-0	4	50	100	03	-	-
15UECC403	Microcontrollers	3-2-0	4	50	100	03	-	-
15UECC404	HDL Programming Using Verilog	4-0-0	4	50	100	03	-	-
15UECL405	LIC & Communication Laboratory	0-0-2	1	50	-	-	50	03
15UECL406	HDL Programming Laboratory	0-0-2	1	50	-	-	50	03
Total		22-4-4	26	400	600		100	

CIE: Continuous Internal Evaluation **SEE:** Semester End Examination

L: Lecture **T:** Tutorials **P:** Practical **S:** Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

Total number of credits offered for the Second year: 52

Scheme for V Semester B. E. (E&CE)

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
15UECC500	Information Theory & Coding	4-0-0	4	50	100	03	-	-
15UECC501	Digital Signal Processing	4-0-0	4	50	100	03	-	-
15UECC502	Digital Communication	4-0-0	4	50	100	03	-	-
15UECC503	CMOS VLSI Design	4-0-0	4	50	100	03	-	-
15UECL504	Microcontroller & VLSI Laboratory	0-0-2	1	50	-	-	50	03
15UECL505	DSP Laboratory	0-0-2	1	50	-	-	50	03
15UECE51X	Elective –I	4-0-0	3	50	100	03	-	-
15UECE52X	Elective -II	4-0-0	3	50	100	03	-	-
Total		24-0-4	24	400	600		100	
Elective –I								
15UECE510	Object Oriented Programming using C++	4-0-0	3	50	100	03	-	-
15UECE511	Advanced Digital System Design	4-0-0	3	50	100	03	-	-
15UECE512	Digital Switching Systems	4-0-0	3	50	100	03	-	-
15UECE513	Speech Processing	4-0-0	3	50	100	03	-	-
Elective –II								
15UECE520	System Verilog	4-0-0	3	50	100	03	-	-
15UECE521	Operating System	4-0-0	3	50	100	03	-	-
15UECE522	Digital Signal Compression	4-0-0	3	50	100	03	-	-
15UECE523	IC Fabrication Technology	4-0-0	3	50	100	03	-	-

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

Scheme for VI-Semester B. E. (E&CE)

Course Code	Course Title	Teaching		Examination				
		L-T-P-S (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
15UECC600	Management, Entrepreneurship and Intellectual Property Rights	4-0-0	4	50	100	03		
15UECC601	ARM Processor	4-0-0	4	50	100	03	-	-
15UECC602	Analog & Mixed Mode VLSI Design	4-0-0	4	50	100	03	-	-
15UECC603	Microwave & Radar Engineering	4-0-0	4	50	100	03	-	-
15UECL604	ARM Processor Laboratory	0-0-2	1	50	-	-	50	03
15UECL605	Mini project	0-0-8	4	50	-	-	50	03
15UECE63X	Elective –III	4-0-0	3	50	100	03	-	-
15UECE64X	Elective –IV	4-0-0	3	50	100	03	-	-
Total		24-0-10	27	400	600		100	
Elective -III								
15UECE630	DSP Architecture	4-0-0	3	50	100	03		
15UECE632	Cryptography & Network Security	4-0-0	3	50	100	03		
15UECE633	VLSI & DSP Systems	4-0-0	3	50	100	03		
15UECE634	Fuzzy Logic	4-0-0	3	50	100	03		
Elective -IV								
15UECE640	Wireless Sensor Networks	4-0-0	3	50	100	03		
15UECE641	Data structures using C++	4-0-0	3	50	100	03		
15UECE642	Digital Image Processing	4-0-0	3	50	100	03		
15UECE643	Artificial Neural Networks	4-0-0	3	50	100	03		

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

Total number of credits offered for the Third year: 51

Scheme for VII Semester B. E. (E&CE)

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/ Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
15UECC700	Real Time Operating Systems	4-0-0	4	50	100	03	-	-
15UECC701	ASIC Design	4-0-0	4	50	100	03	-	-
15UECC702	Antenna & Wave Propagation	4-0-0	4	50	100	03	-	-
15UECC703	Computer Communication Networks	4-0-0	4	50	100	03	-	-
15UECL704	Project Phase 1	0-0-8	4	50	-	-	50	03
15UECL705	CCN & Embedded System Laboratory	0-0-2	1	50	-	-	50	03
15UECE75X	Elective –V	4-0-0	4	50	100	03	-	-
15UECE76X	Elective –VI	4-0-0	3	50	100	03	-	-
		24-0-10	28	400	600		100	
*Elective –V								
15UECE753	Multimedia Communication	4-0-0	4	50	100	03	-	-
15UECE754	Simulation, Modeling & Analysis.	4-0-0	4	50	100	03	-	-
15UECE755	Operation Research	4-0-0	4	50	100	03	-	-
15UECE756	Automotive Electronics	4-0-0	4	50	100	03	-	-
Elective –VI								
15UECE761	Optical Fiber Communication	4-0-0	3	50	100	03	-	-
15UECE763	Adaptive Signal Processing	4-0-0	3	50	100	03	-	-
15UECE764	Design for Testability	4-0-0	3	50	100	03	-	-
15UECE765	Pattern Recognition	4-0-0	3	50	100	03	-	-

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

*Inter disciplinary elective for E&E, E&C, CSE & ISE Departments.

Scheme for VIII Semester B.E. (E&CE)

Course Code	Course Title	Teaching		Examination				
		L-T-P-S (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max.Marks	*Max.Marks	Duration in hours	Max.Marks	Duration in hours
15UECC800	Wireless Communication	4-0-0	4	50	100	03	-	-
15UECE87X	Elective – VII*	4-0-0	4	50	100	03	-	-
15UECE88X	Elective - VIII	4-0-0	3	50	100	03	-	-
15UECL801	Seminar	0-0-2	2	50	--	-	-	-
15UECL802	Project Phase 2	0-0-16	10	50	-	-	50	03
		12-0-18	23	250	300		50	
Elective –VII								
15UECE870	Re-configurable Computing	4-0-0	4	50	100	03	50	03
15UECE871	Adhoc Wireless Networks	4-0-0	4	50	100	03	-	-
15UECE872	GPU Computing	4-0-0	4	50	100	03	-	-
15UECE874	Satellite Communication	4-0-0	4	50	100	03	-	-
Elective –VIII								
15UECE880	Low Power VLSI Design	4-0-0	3	50	100	03	-	-
15UECE884	High speed system design	4-0-0	3	50	100	03	-	-
15UECE885	MEMS	4-0-0	3	50	100	03	-	-
15UECE883	Error Control Coding	4-0-0	3	50	100	03	-	-

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

*Inter disciplinary elective for E&E, E&C, CSE & ISE Departments.

2018 Scheme Credits:175

III Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration in Hrs.
18UMAC300	BS	Engg. Mathematics-III	3 - 0 - 0	3	50	100	3	-	-
18UECC300	PC	Electromagnetic Theory	3 - 2 - 0	4	50	100	3	-	-
18UECC301	PC	Digital Circuit Design	3 - 0 - 0	3	50	100	3	-	-
18UECC302	PC	Network Analysis	3 - 2 - 0	4	50	100	3	-	-
18UECC303	PC	Analog Electronic Devices and Circuits	4 - 0 - 0	4	50	100	3	--	--
18UECC304	PC	Signals & Systems	3 - 0 - 0	3	50	100	3	--	--
18UECL305	PC	Analog Electronic Devices and Circuits Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL306	PC	Digital Circuit Design Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
Total			19 - 4 - 6	24	400	600		100	

BS- Basic Science, PC- Program Core

CIE: Continuous Internal Evaluation **SEE:** Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

IV Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration in Hrs.
18UMAC400	BS	Engg. Mathematics-IV	3 - 0 - 0	3	50	100	3	-	-
18UECC400	PC	Communication Systems - I	4 - 0 - 0	4	50	100	3	-	-
18UECC401	PC	Control Systems	3 - 2 - 0	4	50	100	3	-	-
18UECC402	PC	Microcontroller	3 - 2 - 0	4	50	100	3	-	-
18UECC403	PC	HDL Programming Using Verilog	3 - 0 - 0	3	50	100	3	--	--
18UECC404	PC	Linear ICs and Applications	3 - 0 - 0	3	50	100	3	--	--
18UECL405	PC	HDL Programming Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL406	PC	Linear Integrated Circuits Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL407	PC	Introductory Project	0 - 0 - 2	1	50	--	--	--	--
Total			19 - 4 - 8	25	450	600		100	

BS- Basic Science, PC- Program Core

CIE: Continuous Internal Evaluation **SEE:** Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

V Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration in Hrs.
18UHUC500	HU	Management, Entrepreneurship and IPR	4 - 0 - 0	4	50	100	3	-	-
18UECC500	PC	CMOS VLSI Design	4 - 0 - 0	4	50	100	3	-	-
18UECC501	PC	Communication Systems -II	4 - 0 - 0	4	50	100	3	-	-
18UECC502	PC	Digital Signal Processing	3 - 0 - 0	3	50	100	3	-	-
18UECC503	PC	Information Theory & Coding	3 - 0 - 0	3	50	100	3	--	--
18UECE5XX	PE	Program Elective-I	3 - 0 - 0	3	50	100	3	--	--
18UECL504	PC	Communication Systems Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL505	PC	DSP Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL506	PC	Minor Project-1	0 - 0 - 2	1	50	--	--	--	--
18UHUL507	HU	Soft skills/Aptitude	0 - 0 - 2	1	50	--	--	--	--
Total			21 - 0 - 10	26	500	600		100	

Program Elective-I

18UECE510	PE	Object Oriented Programming using C++	3 - 0 - 0	3	50	100	3	--	--
18UECE511	PE	Telecommunication Networks	3 - 0 - 0	3	50	100	3	--	--
18UECE512	PE	Scientific Computing using Python	3 - 0 - 0	3	50	100	3	--	--
18UECE513	PE	Sensors and Transducers	3 - 0 - 0	3	50	100	3	--	--

HU- Humanities, PC- Program Core

CIE: Continuous Internal Evaluation **SEE:** Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

VI Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UECC600	PC	Analog & Mixed Mode VLSI Design	4 - 0 - 0	4	50	100	3	-	-
18UECC601	PC	IOT & Embedded System Design	4 - 0 - 0	4	50	100	3	-	-
18UECE6XX	PE	Program Elective-II	3 - 0 - 0	3	50	100	3	-	-
18UECE6XX	PE	Program Elective-III	3 - 0 - 0	3	50	100	3	-	-
18UECE6XX	OE	Open Elective	3 - 0 - 0	3	50	100	3	-	-
18UECL602	PC	Embedded Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL603	PC	VLSI Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
18UECL604	PC	Minor Project-2	0 - 0 - 4	2	50	--	--	50	3
18UHUL605	HU	Soft skills/Aptitude	0 - 0 - 2	1	50	--	--	--	--
Total			17 - 0 - 12	23	450	500		150	

Program Elective-II

18UECE610	PE	System Verilog	3 - 0 - 0	3	50	100	3	-	-
18UECE611	PE	Advanced Digital System Design	3 - 0 - 0	3	50	100	3	-	-
18UECE612	PE	Image Processing & Computer Vision	3 - 0 - 0	3	50	100	3	-	-
18UECE613	PE	Operating System	3 - 0 - 0	3	50	100	3	-	-

Program Elective-III

18UECE620	PE	Speech Processing	3 - 0 - 0	3	50	100	3	-	-
18UECE621	PE	Robotics	3 - 0 - 0	3	50	100	3	-	-
18UECE622	PE	Data structure using C++	3 - 0 - 0	3	50	100	3	-	-
18UECE623	PE	Artificial Intelligence	3 - 0 - 0	3	50	100	3	-	-

Open Elective

18UECE630	OE	Cryptography	3 - 0 - 0	3	50	100	3	--	--
18UECE631	OE	Soft Computing	3 - 0 - 0	3	50	100	3	--	--
18UECE632	OE	Automotive Electronics	3 - 0 - 0	3	50	100	3	--	--
18UECE633	OE	Multimedia Communication	3 - 0 - 0	3	50	100	3	--	--

PC- Program Core, PE-Program Elective, OE- Open Elective and HU- Humanities

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

VII Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UECC700	PC	Antenna & Wave Propagation	4 - 0 - 0	4	50	100	3	-	-
18UECC701	PC	Computer Communication Networks	4 - 0 - 0	4	50	100	3	-	-
18UECE7XX	PE	Program Elective-IV	3 - 0 - 0	3	50	100	3	-	-
18UECO7XX	OE	Open Elective	3 - 0 - 0	3	50	100	3	-	-
18UECL702	PC	CCN Laboratory	0 - 0 - 2	1	50	--	--	50	3
18UECL703	PC	Major Project Phase-1	0 - 0 - 4	2	50	--	--	50	3
18UECL704	PC	Internship	4 weeks	2	50	--	--	50	3
Total			14 - 0 - 6	19	350	400		150	

18UECE7XX	PE	Program Elective-IV
18UECE710		MEMS
18UECE711		ASIC Design
18UECE712		VLSI DSP Systems
18UECE713		Optical Fiber Communication
18UECO7XX	OE	Open Elective
18UECO720		Machine Learning
18UECO721		Pattern Recognition
18UECO722		Multi Core Programming
18UECO723		Mobile Computing

PC- Program Core, PE-Program Elective, OE- Open Elective

VIII Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UECC800	PC	Wireless Communication	4 - 0 - 0	4	50	100	3	-	-
18UECE8XX	PE	Program Elective-V	3 - 0 - 0	3	50	100	3	-	-
18UECO8XX	OE	Open Elective	3 - 0 - 0	3	50	100	3	--	--
18UECL801	PC	Technical Seminar	0 - 0 - 2	1	50	--	--	--	--
18UECL802	PC	Major Project Phase-2	0-0 -12	7	50	--	--	50	3
Total			10- 0 - 14	18	250	300	--	50	--

18UECE8XX	PE	Program Elective-V
18UECE810		Adhoc Wireless Networks
18UECE811		Re-configurable Design
18UECE812		Low Power VLSI Design
18UECE813		Digital Signal Compression
18UECO8XX	OE	Open Elective
18UECO820		DSP Architecture
18UECO821		CAD for VLSI
18UECO822		Operation Research
18UECO823		Advanced Computer Architecture

PC- Program Core, PE-Program Elective and OE- Open Elective

III Semester Scheme

Course Code	*Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	**Max. Marks	Duration in Hrs.	Max. Marks	Duration in Hrs.
21UECM300	BS	Engineering Mathematics-III	2 - 2 - 0	3	50	100	3	-	-
21UECC300	PC	Analog Electronic Circuits	3 - 0 - 0	3	50	100	3	-	-
21UECC301	PC	Digital Circuit Design	3 - 0 - 0	3	50	100	3	-	-
21UECC302	PC	Network Analysis	3 - 0 - 0	3	50	100	3	-	-
21UECC303	PC	Control Systems	3 - 0 - 0	3	50	100	3	-	-
21UAEE3-X	AE	Ability Enhancement course	2 - 0 - 0	2	50	50	2	-	-
21UAEE350	AE	Basics of Data Science							
21UAEE351	AE	Linear ICs and Applications							
21UHUC300	HU	Universal Human Values-I	2 - 0 - 0	2	50	50	2	-	-
21UECL305	PC	Analog Electronic Circuits Laboratory	0 - 0 - 3	1.5	50	--	-	50	3
21UECL306	PC	Digital Circuits Design Laboratory	0 - 0 - 3	1.5	50	-	-	50	3
21UHUC301	***HU	Kannada	2 - 0 - 0	1	50	50	2	-	-
21UMBA301	****BS	Mathematics	3 - 0 - 0	Audit	50	-	-	-	-
Total			20/23 - 2 - 6	23	550	650		100	

* BS- Basic science ES- Engineering Science HU- Humanities, languages and Management AE- Ability enhancement course PC- Program core

** Semester End Examination conducted for 100 marks will be reduced to 50 marks

*** Students of all branches will be divided into 2 groups, and each group will take either CIPE or Kannada in 3rd and 4th semester respectively.

**** Bridge course on Mathematics for Lateral entry students.

21UAEE3 - X : “- “ is the number assigned to the department. 1- CV, 2-CSE, 3-CH, 4-EE, 5-EC, 6-ISE and 7-ME (Assuming departments offer different Ability Enhancement course for their students).

IV Semester Scheme

Course Code	*Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	**Max. Marks	Duration in Hrs.	Max. Marks	Duration in Hrs.
21UECM400	BS	Engineering Mathematics-IV	3 - 0 - 0	3	50	100	3	-	-
21UECC400	PC	Communication Theory	3 - 0 - 0	3	50	100	3	-	-
21UECC401	PC	Digital Signal Processing	3 - 0 - 0	3	50	100	3	-	-
21UECC402	PC	HDL Programming	3 - 0 - 0	3	50	100	3	-	-
21UECC403	PC	ARM Processor	3 - 0 - 0	3	50	100	3	--	--
21 UHUA400	***HU	Constitution of India and Professional Ethics	2-0-0	Audit	50	--	--	--	--
21UHUC402	HU	Universal Human Values-II	2 - 0 - 0	2	50	50	2	--	--
21UECL404	PC	Digital Signal Processing Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
21UECL405	PC	HDL Programming Laboratory	0 - 0 - 3	1.5	50	--	--	50	3
21UECL406	PC	Introductory Project	0 - 0 - 2	1	50	--	--	--	--
21UMBA401	****BS	Mathematics	3-0- 0	Audit	50	-	-	-	-
Total			18/21 -2 -8	21	550	550		100	

* BS- Basic science ES- Engineering Science HU- Humanities, languages and Management AE- Ability enhancement course PC- Program core

** Semester End Examination conducted for 100 marks will be reduced to 50 marks

*** Students of all branches will be divided into 2 groups, and each group will take either CIPE or Kannada in 3rd and 4th semester respectively.

**** Bridge course on Mathematics for Lateral entry students.

V Semester

Course Code	Course Category	Course Title	Teaching	Credits
			L-T-P (Hrs/Week)	
21UHUC5-X	HU	Management, Entrepreneurship and IPR	3-0-0	3
21UECC500	PC	CMOS VLSI Design	3-0-0	3
21UECC501	PC	Microwave and Antennas	2-2-0	3
21UECC502	PC	OOPs using C++ [Computer Language to augment placement]	3-0-0	3
21U--O5XX	OE	Open elective - 1		
		Operating Systems	3-0-0	3
		IoT and Applications	3-0-0	3
		Automotive Electronics	3-0-0	3
			3-0-0	3
21UECL503	PC	Communication Systems Laboratory	0-0-2	1
21UECL504	PC	Model Based Design Laboratory	0-0-2	1
21UAEE5-X	AE	Ability Enhancement course		
		System Verilog	2-0-0	2
		Python Programming	2-0-0	2
			2-0-0	2
			2-0-0	2
21UECL505	PC	Minor Project-1	0-0-2	1
21UECL506	PC	Internship-I	Minimum 2 weeks	1
		Total	16- 2 -6	21

VI Semester

Course Code	Course Category	Course Title	Teaching	
			L-T-P (Hrs/Week)	Credits
21UECC600	PC	Analog and Mixed Mode VLSI	3-0-0	3
21UECC601	PC	Embedded Systems	2-2-0	3
21UECC602	PC	Computer Communication Networks	3-0-0	3
21UECE6XX	PE	Program Elective-1		
		Digital Image Processing	3-0-0	3
		Satellite Communication	3-0-0	3
		Reconfigurable Design	3-0-0	3
			3-0-0	3
21UECE6XX	PE	Program Elective-2		
		Digital Signal Compression	3-0-0	3
		Coding Theory	3-0-0	3
		Nano Electronics	3-0-0	3
			3-0-0	3
21UECO6XX	OE	Open Elective-2		
		Artificial Intelligence and Machine Learning	3-0-0	3
		Cryptography and Network security	3-0-0	3
		Data Structures using C++	3-0-0	3
			3-0-0	3
21UECL603	PC	VLSI Labarotary	0-0-2	1
21UECL604	PC	Embedded Systems Laboratory	0-0-2	1
21UCL605	PC	Minor Project-2	0-0-3	1
21UHUL606	HU	Soft skills and Aptitude	0-0-2	1
		Total	17- 2 -9	22

VII Semester

Course Code	Course Category	Course Title	Teaching	Credits
			L-T-P (Hrs/Week)	
21UECC700	PC	Wireless and Optic Fibre Communication	2-2-0	3
21UECC701	PE	Program Elective-3		
		DSP Architecture	3-0-0	3
		Multimedia Communication	3-0-0	3
		Low Power VLSI	3-0-0	3
			3-0-0	3
21UECE7XX	PE	Program Elective-4		
		Biomedical Signal Processing	3-0-0	3
		Mobile Computing	3-0-0	3
		DSP & VLSI Systems	3-0-0	3
			3-0-0	3
21UECE7XX	PE	Program Elective -5		
		MEMS	3-0-0	3
		Adhoc Networks	3-0-0	3
		Advances in VLSI Design and Testing	3-0-0	3
			3-0-0	3
21UECO7XX	OE	Open Elective-3		
		Deep Learning and Computer Vision	3-0-0	3
		Operation Research	3-0-0	3
		Parallel Computing	3-0-0	3
			3-0-0	3
21UHUC700	HU	Research Methodology	2-0-0	2
21UECL702	PC	Communication Networks Laboratory	0-0-2	1
21UECL703	PC	Major Project Phase-1	0-0-4	2
21UECL704	PC	Internship – II	4-6weeks	3
		Total	16 - 2 - 6	23

VIII Semester

Course Code	Course Category	Course Title	Teaching	Credits
			L-T-P (Hrs/Week)	
21UECL800	PC	Technical Seminar/Independent study	0-0-2	1
21UECL801	PC	Major Project Phase-2 (In Industry/college/ through internship)	0-0 -18	9
		Total	0- 0 - 20	10

PG Scheme

2016 Scheme Credits:

Scheme of Teaching & Examination for M.Tech Digital Electronics

Scheme for I Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P-S (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
16PMAC100	Mathematics	4-0-0-0	4	50	100	3		
16PDEC100	Digital VLSI Design	4-0-0-0	4	50	100	3		
16PDEC101	Digital Circuits and Logic Design	4-0-0-0	4	50	100	3		
16PDEE15X	Elective-I	4-0-0-0	4	50	100	3		
16PDEE15X	Elective -II	4-0-0-0	4	50	100	3		
16PDEL102	Digital Electronics Laboratory-I	0-0-3-0	2	50		.	50	3
16PDES103	Seminar**	0-0-0-2	2	50				.
Total		20-0-3-2	24	350	500		50	

***Elective I & II

16PDEE150	Digital System Design Using Verilog	4-0-0-0	4	50	100	03	-	-
16PDEE151	Automotive Electronics	4-0-0-0	4	50	100	03	-	-
16PDEE152	Nano Electronics	4-0-0-0	4	50	100	03	-	-
16PDEE153	ASIC Design	4-0-0-0	4	50	100	03	-	-
16PDEE154	Simulation, Modeling & Analysis	4-0-0-0	4	50	100	03	-	-
16PDEE155	Advanced Embedded System Design	4-0-0-0	4	50	100	03	-	-

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** Seminar topics should be from emerging areas in Digital Electronics, preferably the contents not studied in their regular courses.

***Select any two electives from the list.

Scheme for II Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P-S (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
16PDEC200	Modern DSP	4-0-0-0	4	50	100	3.		
16PDEC201	Coding Theory	4-0-0-0	4	50	100	3.		
16PDEE25X	Elective-III	4-0-0-0	4	50	100	3.		
16PDEE25X	Elective-IV	4-0-0-0	4	50	100	3		
16PDEE25X	Elective-V	4-0-0-0	4	50	100	3		
16PDEPL202	Digital Electronics Laboratory-II	0-0-3-0	2	50		.	50	3.
16PDES203	Seminar**	0-0-0-2	2	50				.
Total		20-0-3-2	24	350	500		50	

Elective III to V

16PDEE250	Advanced Reconfigurable Computing	4-0-0-0	4	50	100	3.		
16PDEE251	System on Chip Design	4-0-0-0	4	50	100	3.		
16PDEE252	Low Power VLSI	4-0-0-0	4	50	100	3		
16PDEE253	Digital Signal Compression	4-0-0-0	4	50	100	3.		
16PDEE254	Image & Video Processing	4-0-0-0	4	50	100	3.		
16PDEE255	Wavelet Transforms	4-0-0-0	4	50	100	3		
16PDEE256	Multimedia Communication	4-0-0-0	4	50	100	3		
16PDEE257	MEMS	4-0-0-0	4	50	100	3		

CIE: Continuous Internal Evaluation

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T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** Seminar topics should be from emerging areas in Digital Electronics, preferably the contents not studied in their regular courses.

***Select any three electives from the list.

Total Credits offered for the first year: 48

Scheme for III Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P-S (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
16PDEC35X	Internship ^{***} /Elective-VI	4-0-0-0	4	50	100	3		
16PDEE35X	Internship ^{***} /Elective VII	4-0-0-0	4	50	100	3.		
16PDEE35X	Internship ^{***} /Elective VIII	4-0-0-0	4	50	100	3		
16PDEP300	Project Phase-I ^{**}	0-0-10-0	8	50		.	50	3
Total		12-0-10-0	20	200	300		50	

Elective VI to VIII

16PDEE350	Advances in VLSI Design	4-0-0-0	4	50	100	3		
16PDEE351	Advanced Computer Architecture	4-0-0-0	4	50	100	3		
16PDEE352	Artificial Neural Networks	4-0-0-0	4	50	100	3		
16PDEE353	Cryptographic System	4-0-0-0	4	50	100	3		
16PDEE354	VLSI & DSP Systems	4-0-0-0	4	50	100	3		
16PDEE355	IC Fabrication Technology	4-0-0-0	4	50	100	3		
16PDEE356	Speech Processing	4-0-0-0	4	50	100	3		
16PDEE357	Wireless Sensor Network	4-0-0-0	4	50	100	3		

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** Project phase-I: The students are expected to formulate the problem and carry out the intensive literature survey

along with preliminary investigations supporting the project phase-II in IV semester.

Internship^{***}: Internship should be from the reputed industries. Duration of internship is about 4 weeks during 2nd to 3rd semester break period. Students who undergo Internship are to be exempted for one elective course in III semester.

Scheme for IV Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P-S (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
16PDEP400	Project phase-II	4-0-0	32	100			100	3
Total		4-0-0	32	50			100	

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

S: Self-study

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** Project phase-II: The students are expected to work on a project for the full semester in an industry or in reputed organization with recognized R&D center

Total Credits offered for the Second year: 52

Credits distribution:		
	Proposed	As per guidelines
Program core course	20	20
Program Electives	28/32	30
Laboratory course	04	00
Project	40	40
Seminar	04	05
Internship/training	04/00	05
Total	100	100

2018 Scheme Credits :88

Teaching & Examination for M.Tech Digital Electronics

Scheme for I Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/ Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
18PMAC100	Advanced Mathematics	4-0-0	4	50	100	3		
18PDEC100	Digital Circuits and Logic Design	4-0-0	4	50	100	3		
18PDEE15X	Elective-I	4-0-0	4	50	100	3		
18PDEE15X	Elective –II	4-0-0	4	50	100	3		
18PDEE15X	Elective –III	4-0-0	4	50	100	3		
18PDEL101	Digital Electronics Laboratory-I	0-0-3	2	50			50	3
18PDES103	Seminar**	0-0-3	1	100				
Total		20-0-6	23	400	500		50	

Elective I tolll

18PDEE150	Digital VLSI Design
18PDEE151	Machine Learning
18PDEE152	Digital System Design Using Verilog
18PDEE153	Automotive Electronics
18PDEE154	Nano Electronics
18PDEE155	ASIC Design
18PDEE156	Simulation, Modeling & Analysis
18PDEE157	Advanced Embedded System Design

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorials

SEE: Semester End Examination

P: Practical

* Select any three electives from the list.

** SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

*** Seminar topics should be from emerging areas in Digital Electronics, preferably the contents not studied in their regular courses.

Scheme for II Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
18PDEC200	Modern DSP	4-0-0	4	50	100	3		
18PDEC201	Coding Theory	4-0-0	4	50	100	3		
18PDEE25X	Elective- IV	4-0-0	4	50	100	3		
18PDEE25X	Elective- V	4-0-0	4	50	100	3		
18PDEE25X	Elective-VI	4-0-0	4	50	100	3		
18PDEPL202	Digital Electronics Laboratory-II	0-0-3	2	50			50	3
18PDEP203	Mini Project	0-0-3	1	100				
Total		20-0-6	23	400	500		50	

Elective IV to VI

18PDEE250	Advanced Reconfigurable Computing
18PDEE251	System on Chip Design
18PDEE252	Low Power VLSI
18PDEE253	Digital Signal Compression
18PDEE254	Image & Video Processing
18PDEE255	Wavelet Transforms
18PDEE256	Multimedia Communication
18PDEE257	Micro Electro-Mechanical Systems

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** Seminar topics should be from emerging areas in Digital Electronics, preferably the contents not studied in their regular courses.

***Select any three electives from the list.

Total Credits offered for first year: 46

Scheme for III Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE Max. Marks	Theory (SEE)		Practical (SEE)	
					*Max. Marks	Duration in hours	Max. Marks	Duration In hours
18PDEC300	Advances in VLSI Design	4-0-0	4	50	100	3		
18PDEE35X	Elective VII	4-0-0	4	50	100	3		
18PDEE35X	Elective VIII / Internship***	4-0-0/ 4 weeks	4	50	100	3		
18PDEP300	Project Phase-I**	0-0-10	8	50			50	3
Total		12-0-10	20	200	300		50	

Elective VII to VIII

18PDEE350	Advanced Computer Architecture	4-0-0	4	50	100	3
18PDEE351	Artificial Neural Networks	4-0-0	4	50	100	3
18PDEE352	Cryptographic Systems	4-0-0	4	50	100	3
18PDEE353	VLSI Digital Signal Processing	4-0-0	4	50	100	3
18PDEE354	IC Fabrication Technology	4-0-0	4	50	100	3
18PDEE355	Speech Processing	4-0-0	4	50	100	3
18PDEE356	Wireless Sensor Networks	4-0-0	4	50	100	3

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** **Project phase-I:** The students are expected to formulate the problem and carry out the intensive literature survey along with preliminary investigations supporting the project phase-II in IV semester.

*** **Internship:** should be from the reputed industries. Duration of internship is about 4 weeks during 2nd to 3rd semester break period. Students who undergo Internship are to be exempted for one elective course in III semester.

Scheme for IV Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration In hours
18PDEP400	Project phase-II	0-0-20	22	100			100	3
Total		0-0-20	22	100			100	

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

** Project phase-II: The students are expected to work on the project for the full semester in the institute/ in an industry / in reputed organization with recognized R&D center

Total Credits offered for the Second year: 42

Total Credits offered for the course: 46+42=88

2020 Scheme Credits : 88

**Teaching & Examination for M.Tech Digital Electronics
Scheme for I Semester**

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
20PRMIC100	Research Methodology and IPR	2-0-0	2	50	50	2		
20PMECC100	Applied Mathematics	4-0-0	4	50	100	3		
20PDEC100	Digital Circuits and Logic Design	4-0-0	4	50	100	3		
20PDEC101	Digital System Design Using Verilog	4-0-0	4	50	100	3		
20PDEE15X	Elective 1	4-0-0	4	50	100	3		
20PDEL101	Digital Circuits Simulation Laboratory	0-0-3	2	50			50	3
20PDEL102	Seminar	0-0-2	1	50				
Total		18-0-5	21	350	450		50	

Elective 1 to 3

20PDEE150	Introduction to Artificial Intelligence & Machine Learning
20PDEE151	Digital Control Systems
20PDEE152	Automotive Electronics
20PDEE153	Nano Electronics

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

Seminar is to be conducted every week and 2-3 students/week will present a topic from emerging areas in respective PG program preferably the contents not studied in their regular courses. The seminar shall be evaluated by 3 faculty members having specialization in respective program and allied areas.

Scheme for II Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
20PDEC200	Digital VLSI Design	4-0-0	4	50	100	3		
20PDEC201	Advanced Embedded System Design	4-0-0	4	50	100	3		
20PDEE25X	Elective 2	4-0-0	4	50	100	3		
20PDEE25X	Elective 3	4-0-0	4	50	100	3		
20PDEE25X	Elective 4	4-0-0	4	50	100	3		
20PDEL201	VLSI and Embedded Systems Laboratory	0-0-3	2	50			50	3
20PDEL202	Seminar	0-0-2	1	50				
Total		20-0-5	23	350	500		50	

20PDEE250	Parallel Computing
20PDEE251	Low Power Circuits and Systems
20PDEE252	Digital Signal Compression
20PDEE253	Artificial Neural Networks and Deep Learning
20PDEE254	IoT Applications
20PDEE255	Coding Theory
20PDEE256	Advanced Mobile Networks
20PDEE257	Software Defined Radio

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for **100 marks** and reduced to **50 marks**.

Seminar is to be conducted every week and 2-3 students/week will present a topic from emerging areas in respective PG program preferably the contents not studied in their regular courses. The seminar shall be evaluated by 3 faculty members having specialization in respective program and allied areas.

Scheme for III Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/ Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
20PDEC300	VLSI for Signal Processing	4-0-0	4	50	100	3		
20PDEE35X	Elective 5	3-0-0	3	50	100	3		
20PDEE35X	Elective 6	3-0-0	3	50	100	3		
20PDEE35X	Elective 7	3-0-0	3	50	100	3	--	--
OR								
20PDEL300	**Internship in Industry or R&D organization	Min 4 weeks during vacation after 2 nd sem	3	50	--	--	100	3
20PDEL301	***Project Phase-I	0-0-15	9	50			50	3
Total		13-0-15 /10- 4 weeks-15)	22	250	400/ 300		50/150	

20PDEE350	Advances in VLSI Design
20PDEE351	System on Chip Design
20PDEE352	Cryptographic Systems
20PDEE353	Image and Video Processing
20PDEE354	Modern DSP
20PDEE355	Wireless Sensor Networks
20PDEE356	Advanced FPGA Design
20PDEE357	MEMS

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

*SEE for theory courses is conducted for 100 marks and reduced to 50 marks.

** Internship: The students are expected to undergo training in industry for a period of *four weeks* during the vacation immediately after completion of II Semester examination. A faculty is to be allotted to guide the student. A committee consisting of three faculty members shall evaluate the work carried out and the knowledge the students have acquired. **OR The students can take one elective course if they do not undergo internship.**

***Project phase-I: The students are expected to formulate the problem and carry out the intensive literature survey along with preliminary investigations supporting the project phase-II in IV semester.

Scheme for IV Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/ Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
20PDEL400	Project Phase-II	0-0-20	22	100	--	--	100	3
Total		0-0-20	22	100	--	--	100	

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorials

P: Practical

Project Phase-II: The students are expected to work on a project for the full semester in an industry or an institution

Total Credits offered for the first year: 44

Total Credits offered for the Second year: 44