SCHOOL OF ENGINEERING & TECHNOLOGY (SOET)

BACHELOR OF TECHNOLOGY (B.Tech.)
PROGRAMME STRUCTURE-2023

B.Tech. ECE

I Semester (Physics Cycle)

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Engineering Mathematics I	Foundation	FC	BSC	BS	4	3-1-0-4
Engineering Physics	Foundation	FC	BSC	BS	5	3-0-1-4
Elements of Electrical & Electronics Engineering	Foundation	FC	ESC	ECE	4	3-1-0-4
Elements of Computer Engineering	Foundation	FC	ESC	CSE	3	3-0-0-3
Computer Aided Engineering Drawing	Foundation	FC	ESC	ME	5	1-0-2-3
Common Core						
Design Thinking-1	PS	-	HSMC	DCCC	(30)	0-0-2-2
Oral and Written Communication	PS	-	HSMC	DCCC	4	4-0-0-4
Community Service -I (COS - I) *	CS	-	SDC	DCCC	(30)	0-0-1-1*
TOTAL					**29**	**24 + 1***
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: Nil						

The Community Service-I (COS-I) of 30 hours has to be carried out in the I Semester. The corresponding 1 credit and the CIE will be reflected in the VIII Semester.

II Semester (Physics Cycle)

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Engineering Mathematics II	Foundation	FC	BSC	BS	4	3-1-0-4
Engineering Chemistry	Foundation	FC	BSC	BS	3	1-0-1-2
Elements of Mechanical Engineering and Workshop	Foundation	FC	ESC	ME	4	2-0-1-3
Elements of Civil Engineering	Foundation	FC	ESC	CE	3	2-1-0-3
Problem solving using Python (MOOC)	Foundation	FC	ESC	CSE	4	2-0-1-3
Common Core						
Design Thinking -2	PS	-	HSMC	DCCC	(30)	0-0-2-2
Kan/Eng/Hin/FL	PS	-	HSMC	DCCC	2	2-0-0-2
Community Service - II (COS - II) *	CS	-	SDC	DCCC	(30)	0-0-1-1*
TOTAL					**24**	**19 + 1***
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: **GPSDR1081: Personal Effectiveness**						

† Internship- I of 3 credits to be carried out between II and III Semester break. The corresponding 3 credits will be reflected in the VIII Semester.

*The Community Service-II (COS-II) of 30 hours has to be carried out in the II Semester. The corresponding 1 credit and the CIE will be reflected in the VIII Semester.

I Semester (Chemistry Cycle)

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Engineering Mathematics I	Foundation	FC	BSC	BS	4	3-1-0-4
Engineering Chemistry	Foundation	FC	BSC	BS	3	1-0-1-2
Elements of Mechanical Engineering and Workshop	Foundation	FC	ESC	ME	4	2-0-1-3
Elements of Civil Engineering	Foundation	FC	ESC	CE	3	2-1-0-3
Problem solving using Python (MOOC)	Foundation	FC	ESC	CSE	4	2-0-1-3
Common Core						
Design Thinking -1	PS	-	HSMC	DCCC	(30)	0-0-2-2
Kan/Eng/Hin/FL	PS	-	HSMC	DCCC	2	2-0-0-2
Community Service -I (COS - I) *	CS	-	SDC	DCCC	(30)	0-0-1-1*
TOTAL					26	19 + 1*
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: Nil						

II Semester (Chemistry Cycle)

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Engineering Mathematics II	Foundation	FC	BSC	BS	4	3-1-0-4
Engineering Physics	Foundation	FC	BSC	BS	5	3-0-1-4
Elements of Electrical & Electronics Engineering	Foundation	FC	ESC	EE	4	3-1-0-4
Elements of Computer Engineering	Foundation	FC	ESC	CSE	3	3-0-0-3
Computer Aided Engineering Drawing	Foundation	FC	ESC	ME	5	1-0-2-3
Common Core						
Design Thinking-2	PS	-	HSMC	DCCC	(30)	0-0-2-2
Community Service -II (COS - II) *	CS	-	SDC	DCCC	(30)	0-0-1-1*
Oral and Written Communication	PS	-	HSMC	DCCC	4	4-0-0-4
TOTAL					**27**	**24 + 1***
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: **GPSDR1081: Personal Effectiveness**						

† Internship- I of 3 credits to be carried out between II and III Semester break. The corresponding 3 credits will be reflected in the VIII Semester.

*The Community Service-II (COS-II) of 30 hours has to be carried out in the II Semester. The corresponding 1 credit and the CIE will be reflected in the VIII Semester.

III Semester

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Engineering Mathematics III	Foundation	FC	BSC	BS	3	3-0-0-3
Problem solving and programming using C	Foundation	IC	PCC	CSE	3	1-0-1-2
Analog Digital Electronics	Foundation	IC	PCC	ECE	5	3-0-1-4
Network Analysis	Foundation	FC	PCC	ECE	3	3-0-0-3
Web Development using Python and Django(P)	Foundation	IC	PCC	CSE	4	2-0-1-3
	Foundation	Internship-I*	PROJ	ECE		
Common Core						
Indian Constitution	KSC	-	MC	DCCC	2	2-0-0-2
Arts & Philosophy					1	1-0-0-1
Community Service - III (COS- III) *	CS	-	SDC	DCCC	(30)	0-0-1-1*
TOTAL					**23**	**18 + 1***
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: GPSBD1171- GPSBA1081 - Career Preparedness Program-I (Career essentials + Prepare for Aptitude Tests-I)						

IV Semester

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Engineering Mathematics	Foundation	FC	BSC	BS	3	3-0-0-3
Principles of Communication	Foundation	IC	PCC	ECE	4	2-0-1-3
Signals and Systems Analysis	Foundation	FC	PCC	ECE	3	3-0-0-3
VLSI	Foundation	FC	PCC	ECE	5	3-0-1-4
Python for Data Science(P)	Foundation	IC	PCC	ECE	4	2-0-1-3
Making with Electronics(P)	PS	-	ESC	ECE	5	1-0-2-3
Common Core						
Community Service Programme–IV	CPC		MC	DCCC	(30)	
Critical Inquiry				DCCC	1	1-0-0-1
TOTAL					**25**	**20**
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: GPSBD1191 - GPSBA1091 - Career Preparedness Program-II (Career Readiness + Prepare for Aptitude Tests-II)						

V Semester

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Digital Signal Processing	Foundation	FC	PCC	ECE	5	3-0-1-4
Embedded system and ARM processor	Foundation	IC	PCC	ECE	4	2-0-1-3
Power Electronics and Control (P)	Foundation	FC	PCC	ECE	4	2-0-1-3
Open Elective 1	Elective	IC	OEC	N/A	3	3-0-0-3
Professional Elective 1	Elective	IC	PEC	ECE	3	3-0-0-3
	Interdisciplinary Elective1	IDE	OEC		3	x-x-x-3
	Foundation	Internship-II* (4th - 5th Break)	PROJ	ECE		
Common Core						
Environment and Sustainability	KSC	-	HSMC	Civil	2	2-0-0-2
TOTAL					**24**	**21**
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: **GPSBA1101 - Prepare for Aptitude Tests - III**						

† Internship - II credits are reflected in the VIII Semester.

PROFESSIONAL ELECTIVE–1: EMBEDDED SYSTEM	
4ENCE1181	Real Time Embedded system and Linux (ONLINE)
4ENCE1191	Sensors and Robotics (IFC)
4ENCE1201	Automotive Electronics (MOOC)
4ENCE1211	Micro Electronics (MOOC)

PROFESSIONAL ELECTIVE–1: VLSI	
4ENVL2011	Digital VLSI design (ONLINE)
4ENVL1021	ASIC(IFC)
4ENVL1031	Nano Electronics (MOOC)

PROFESSIONAL ELECTIVE–1: ADVANCED COMMUNICATION AND NETWORKING	
4ENCC1041	Optical communication (IFC)
4ENCC1061	Satellite Communication (MOOC)
4ENCC1251	Adaptive Signal processing (ONLINE)

PROFESSIONAL ELECTIVE–1: SOFTWARE APPLICATION DEVELOPMENT	
4CSPL3021	Advanced Python for AI(ONLINE)
4CSGC3051	Data Mining (MOOC)
4CSGC3041	Cryptography (IFC)
4CSPL3051	Scripting Languages (IFC)
4CSPL3041	Advanced java (MOOC)
4CSPL3061	Kotlin (Object oriented + Functional) (MOOC)

OPEN ELECTIVE–1	
4ENEE1041	Measuring Instruments (MOOC)
4ENCC1021	Introduction to Digital Image Processing (IFC)
4ENCC1031	Basics of Digital Communication (ONLINE)

VI Semester

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Computer Communication Networks	Foundation	FC	PCC	ECE	5	3-0-1-4
Advanced Digital Communication (P)	Foundation	IC	PCC	ECE	5	3-0-1-4
Open Elective 2	Elective	IC	OEC		3	3-0-0-3
Professional Elective 2	Elective	IC	PEC	ECE	3	3-0-0-3
	Interdisciplinary Elective 2	IDE	OEC		3	x-x-x-3
Common Core						
Sociology of Globalization & Sustainable Development				DCCC	2	2-0-0-2
TOTAL					**21**	**19**
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: **GPSBA1111 - GPSBD1201 - Career Preparedness Program-III (Career Insights + Prepare for Aptitude Tests-IV)**						

† Internship- III of 3 credits to be carried out between VI and VII Semester break. The corresponding 3 credits will be reflected in the VIII Semester.

PROFESSIONAL ELECTIVE–2: EMBEDDED SYSTEM	
4ENCE1061	RTOS(ONLINE)
4ENCE1221	Advanced Embedded Systems (MOOC)
4ENCE1081	Wearable Electronics (IFC)
4ENCE1231	Micro Electrical mechanical System (MEMS) (MOOC)

PROFESSIONAL ELECTIVE–2: VLSI	
4ENVL1041	Low power VLSI(IFC)
4ENVL2021	CMOS Analog Design (ONLINE)
4ENVL1051	System on Chip (SOC) (MOOC)

PROFESSIONAL ELECTIVE–2: ADVANCED COMMUNICATION AND NETWORKING	
4ENCC1101	Spread Spectrum Communication (MOOC)
4ENCC1111	RADAR(IFC)
4ENCC2031	Mobile Communication (ONLINE)
4ENCC1261	Pattern Recognition (MOOC)
4ENCC1271	Adhoc & Sensor Networks (MOOC)
4ENCC1281	Multi-rate Signal Processing and Filter Banks (IFC)
4ENCC1291	Opto Electronics (MOOC)

PROFESSIONAL ELECTIVE–2: SOFTWARE APPLICATION DEVELOPMENT	
4CSPL3111	Object Oriented Analysis Design (ONLINE)
4CSPL3121	Web Technology Frameworks (IFC)
4CSPL3131	Application Development using MEAN Stack (MOOC)

OPEN ELECTIVE–2	
4ENVL1131	Introduction to nanotechnology (MOOC)
4ENCE1241	8051 Microcontroller (ONLINE)
4ENCE1051	Basics of Embedded system (IFC)
4ENCE1251	Industrial Electronics (MOOC)
4ENCC1091	Basics of Satellite Communication (IFC)

VII Semester

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Wireless Communication	Foundation	IC	PCC	ECE	3	3-0-0-3
Image & Video Processing(P)	Foundation	IC	PCC	ECE	4	2-0-1-3
Business Management for Engineers	PS	-	HSMC	Management	1	1-0-0-1
Professional Elective 3	Elective	AC	PEC	ECE	3	3-0-0-3
Professional Elective 4	Elective	IC	PEC	ECE	3	3-0-0-3
	Interdisciplinary Elective 3	IDE	OEC		3	x-x-x-3
	Foundation	Capstone Project Phase I	PROJ	ECE		
	Foundation	Internship-III* (6th - 7th Break)	PROJ	ECE		
Common Core						
Ethics & Values	KSC	-	HSMC	DCCC	2	2-0-0-2
TOTAL					19	18
Audit Course						
		-				
Common Core (Non-Credit) - Graduate Requirement: **GPSDL1061 - Career Advancement**						

† Internship - III credits are reflected in the VIII Semester.

*Credits acquired in Capstone Project Phase I are credited in the 8th Semester

PROFESSIONAL ELECTIVE–3, 4: EMBEDDED SYSTEM	
4ENCE1101	Bio Medical Electronics (MOOC)
4ENCE1111	Virtual Instrumentation (ONLINE)
4ENCE2051	Advanced Control System (IFC)
4ENCE1121	CAN Protocol and controller (MOOC)

PROFESSIONAL ELECTIVE–3,4: VLSI	
4ENVL1061	CMOS RF design (IFC)
4ENVL1071	Mixed signal design (ONLINE)
4ENVL1081	VLSI Testing (MOOC)

PROFESSIONAL ELECTIVE–3,4: ADVANCED COMMUNICATION AND NETWORKING	
4ENCC1141	Multimedia communication (ONLINE)
4ENCC1151	MIMO communication (MOOC)
4ENCC1161	vehicular communication (MOOC)
4ENCC1171	Microwave and Antenna (IFC)
4ENCC1121	LTE & 5G Communication (MOOC)
4ENCC1051	IOT and Wireless sensor Network

PROFESSIONAL ELECTIVE–3,4: SOFTWARE APPLICATION DEVELOPMENT	
4CSPL4101	J2EE Technologies (MOOC)
4CSPL4121	JavaScript (IFC)
4CSPL4131	Micro Services (ONLINE)

VIII Semester

Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core						
Capstone Project Phase II	Foundation	Capstone	PCC	ECE	-	x-x-x-8
Internship-I	Foundation	Internship	PCC	ECE	-	x-x-x-3

Internship-II	Foundation	Internship	PCC	ECE	-	x-x-x-3
Internship-III	Foundation	Internship	PCC	ECE	-	x-x-x-3
Community Service -I (COS - I) *	CS	-	SDC	DCCC	(30)	0-0-1-1
Community Service -II (COS - II) *	CS	-	SDC	DCCC	(30)	0-0-1-1
Community Service -III (COS - III) *	CS	-	SDC	DCCC	(30)	0-0-1-1
Community Service -IV (COS - IV) *	CS	-	SDC	DCCC	(30)	0-0-1-1
TOTAL						21
Audit Course						
			-			
Common Core (Non-Credit) - Graduate Requirement: Career Preparedness Courses †						

† The credits of Internship - I taken up after the II Semester is reflected in the VIII Semester
†† The credits of Internship - II taken up after the IV Semester is reflected in the VIII Semester
††† The credits of Internship - III taken up after the VI Semester is reflected in the VIII Semester

* The credit of Community Service - I (COS-I) / Community Service - II (COS-II) / Community Service - III (COS-III) / Community Service - IV(COS-IV) of 30 hours each that was carried out in the I / II / III and IV Semesters respectively is reflected in the VIII Semester.