

School of Engineering and Technology

Bachelor of Technology

Electronics and Communication Engineering

Scheme of Teaching and Evaluation (STE) Batch [2023-27]

STE 2023-27

School of Engineering & Technology B.Tech. ECE

I Semester (Physics Cycle)

Course Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4MATH1012	Engineering Mathematics with Python Lab - I	Foundation	FC	BSC	BS	5	3-0-1-4
4PHYS1013	Engineering Physics	Foundation	FC	BSC	BS	5	3-0-1-4
4ENEE1012	Fundamentals of Electrical Engineering	Foundation	FC	ESC	ECE	3	3-0-0-3
4CSGC1012	Elements of Computer Engineering	Foundation	FC	ESC	CSE	2	2-0-0-2
4CSPL1113	Programming in C	Foundation	FC	ESC	ME	6	2-0-2-4
Common Core							
CPSAL1061/71/81	Hindi/Kannada/English	PS	-	HSMC	DCCC	2	2-0-0-2
CPSAL1121	Active Communication	PS	-	HSMC	DCCC	3	3-0-0-3
CPSSD1061	Creating with Gen AI	PS	-	HSMC	DCCC	1	1-0-0-1
CCSCD1011	Community Service Programme - I	CPC	-	SDC	SOET	2	0-0-1-1*
TOTAL						27	23 + 1*

*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 Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4MATH1022	Engineering Mathematics with Python Lab - II	Foundation	FC	BSC	BS	5	3-0-1-4
4CHEM1014	Engineering Chemistry	Foundation	FC	BSC	BS	3	1-0-1-2
4ENCE1012	Fundamentals of Electronics Engineering	Foundation	FC	ESC	ME	4	3-1-0-4
4ENCV1072	Engineering Mechanics	Foundation	FC	ESC	CE	2	2-0-0-2
4CSPL1012	Problem solving using Python	Foundation	FC	ESC	CSE	6	2-0-2-4
Common Core							
CPSAD1013	Design Thinking Process	PS	-	HSMC	DCCC	2	2-0-0-2
CPSDB1011	Career Preparedness Program - I	PS	-	HSMC	DCCC	2	0-0-1-1
GCSCD1021	Community Service -II (COS - II)	CS	-	SDC	SOET	2	0-0-1-1*
TOTAL						24	19 + 1*

† 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 Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4MATH1012	Engineering Mathematics with Python Lab - I	Foundation	FC	BSC	BS	5	3-0-1-4
4CHEM1014	Engineering Chemistry	Foundation	FC	BSC	BS	3	1-0-1-2
4ENCE1012	Fundamentals of Electronics Engineering	Foundation	FC	ESC	ME	4	3-1-0-4
4ENCV1072	Engineering Mechanics	Foundation	FC	ESC	CE	2	2-0-0-2
4CSPL1012	Problem solving using Python	Foundation	FC	ESC	CSE	6	2-0-2-4
Common Core							
CPSAD1013	Design Thinking Process	PS	-	HSMC	DCCC	2	2-0-0-2
CPSSD1061	Creating with Gen AI	PS	-	HSMC	DCCC	1	1-0-0-1
GCSCD1011	Community Service -I (COS - I)	CS	-	SDC	SOET	2	0-0-1-1*
TOTAL						23	19 + 1*

*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 (Chemistry Cycle)

Course Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4MATH1022	Engineering Mathematics with Python Lab - II	Foundation	FC	BSC	BS	5	3-0-1-4
4PHYS1013	Engineering Physics	Foundation	FC	BSC	BS	5	3-0-1-4
4ENEE1012	Fundamentals of Electrical Engineering	Foundation	FC	ESC	ECE	3	3-0-0-3
4CSGC1012	Elements of Computer Engineering	Foundation	FC	ESC	CSE	2	2-0-0-2
4CSPL1113	Programming in C	Foundation	FC	ESC	ME	6	2-0-2-4
Common Core							
CPSAL1061/71/81	Hindi/Kannada/English	PS	-	HSMC	DCCC	2	2-0-0-2
CPSAL1121	Active communication	PS	-	HSMC	DCCC	3	3-0-0-3
CPSDB1011	Career Preparedness Program - I	PS	-	HSMC	DCCC	2	0-0-1-1
CCSCD1021	Community Service Programme - II	CPC	-	SDC	DCCC	2	0-0-1-1*
TOTAL						28	23+ 1*

† 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.

† **Internship** - I credits are reflected in the VIII Semester.

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

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

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

V Semester

Course Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4ENCC1012	Digital Signal Processing	Foundation	FC	PCC	ECE	5	3-0-1-4
4ENCE1031	Microprocessor and Microcontroller	Foundation	IC	PCC	ECE	4	2-0-1-3
4ENCS1011	Control Systems	Foundation	FC	PCC	ECE	3	3-0-0-3
4XXX3XX1	Open Elective 1	Elective	IC	OEC		3	x-x-x-3
4ENXX3XX1	Professional Elective 1	Elective	IC	PEC	ECE	3	x-x-x-3
XIDS1XX1	IDE	Interdisciplinary Elective1	IDE	OEC		3	x-x-x-3
4INTS3020	Internship-II	Foundation		PROJ	ECE	6	0-0-3-3†
Common Core							
CKSHM1011	Environment and Sustainability	KSC	-	HSMC	Civil	2	2-0-0-2
TOTAL						26	21
Common Core (Non-Credit) - Graduate Requirement: Career Preparedness Courses [†] + Community Service ^{††}							
GPSBA1031	Career Preparedness Program-III	PS	-	AECC	DCCC	2	GR

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

PROFESSIONAL ELECTIVE-1: EMBEDDED SYSTEM

4ENCE1181	Real Time Embedded system and Linux
4ENCE1191	Sensors and Robotics
4ENCE1201	Automotive Electronics
4ENCE1211	Micro Electronics (MOOC)

PROFESSIONAL ELECTIVE-1: VLSI

4ENVL2011	CMOS VLSI design
4ENVL1021	ASIC
4ENVL1031	Nano Electronics (MOOC)
4ENVL2041	Analog and Mixed Signal IC Design (MOOC)

PROFESSIONAL ELECTIVE–1: ADVANCED COMMUNICATION AND NETWORKING	
4ENCC1041	Optical communication
4ENCC1061	Satellite Communication
4ENCC2101	Information Theory and Coding (MOOC)

PROFESSIONAL ELECTIVE–1: SOFTWARE APPLICATION DEVELOPMENT	
4CSPL3021	Advanced Python for AI
4CSGC2092	Computer Organization and Architecture

OPEN ELECTIVE–1	
4ENCC1021	Introduction to Digital Image Processing
4ENME2131	Fundamentals of Robotics and Applications
4ENCV2101	Remote Sensing and Application

VI Semester

Course Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours / Week	Credit Distribution L-T-P-C
Program Core							
4ENCE2033	Embedded System and ARM Processor	Foundation	FC	PCC	ECE	5	3-0-1-4
4ENCC2022	Advanced Digital Communication (P)	Foundation	IC	PCC	ECE	5	3-0-1-4
4ENXX3XX1	Open Elective 2	Elective	IC	OEC		3	3-0-0-3
4ENXX3XX1	Professional Elective 2	Elective	IC	PEC	ECE	3	3-0-0-3
XIDSS1XX1	IDE	Interdisciplinary Elective 2	IDE	OEC		3	x-x-x-3
Common Core							
CCSHS1011	Sociology of Globalization & Sustainable Development				DCCC	2	2-0-0-2
TOTAL						21	19
Audit Course:							
Common Core (Non-Credit) - Graduate Requirement:							
GPSBD1201	Career Insights	PS	-	AECC	DCCC	2	GR
GPSLA1011	Career Preparedness Program-IV	PS	-	AECC	DCCC	1	GR

† 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)
4ENCE1222	Internet of Things (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)
4ENCC1032	Data Communication and Networking (MOOC)

PROFESSIONAL ELECTIVE–2: SOFTWARE APPLICATION DEVELOPMENT	
4CSPL3111	Object Oriented Analysis Design (ONLINE)
4CSPL3121	Web Technology Frameworks (IFC)
4CSPLXXXX	Cryptography
4CSPLXXXX	Ethical Hacking

OPEN ELECTIVE–2	
4ENME2141	Advanced Robotics Integration of control, Programming and AI
4ENCC1022	Advanced Digital Image Processing
4ENCV2111	Geographic information System and Applications

VII Semester

Course Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4ENCC1241	Wireless Communication	Foundation	IC	PCC	ECE	3	3-0-0-3
4ENCC1171	Microwave and Antenna	Foundation	IC	PCC	ECE	4	3-0-1-4
CPSAE1011	Business Management for Engineers	PS	-	HSMC	Management	1	1-0-0-1
4ENXX3XX1	Professional Elective 3	Elective	AC	PEC	ECE	3	3-0-0-3
4ENXX3XX1	Professional Elective 4	Elective	IC	PEC	ECE	3	3-0-0-3
XIDSS1XX1	IDE	Interdisciplinary Elective 3	IDE	OEC		3	x-x-x-3
4DISS4011	Capstone Project Phase I	Foundation	Capstone Project Phase I	PROJ	ECE		
	Internship-III*	Foundation	Internship-III* (6th - 7th Break)	PROJ	ECE		
Common Core							
CKSHM1021	Ethics & Values	KSC	-	HSMC	DCCC	2	2-0-0-2
TOTAL						19	19
Audit Course							

Common Core (Non-Credit) - Graduate Requirement:

GPSDL1061 Career Advancement DCCC

*Credits acquired in internship-III are credited in the 8th Semester.

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

EMBEDDED SYSTEM			
PROFESSIONAL ELECTIVE-3		PROFESSIONAL ELECTIVE-4	
4ENCE1101	Bio Medical Electronics (MOOC)	4ENCE1401	Embedded C Programming
4ENCE1111	Virtual Instrumentation (ONLINE)		
4ENCE2051	Advanced Control System (IFC)		
4ENCE1121	CAN Protocol and controller (MOOC)		

VLSI			
PROFESSIONAL ELECTIVE-3		PROFESSIONAL ELECTIVE-4	
4ENVL1061	CMOS RF design(IFC)	4ENVL2101	Microelectronic Circuits
4ENVL1072	VLSI Technology (ONLINE)	4ENVL1102	Digital Integrated Circuits
4ENVL1081	VLSI Testing(MOOC)		
4ENVL2091	System Verilog Design (IFC)		

ADVANCED COMMUNICATION AND NETWORKING			
PROFESSIONAL ELECTIVE-3		PROFESSIONAL ELECTIVE-4	
4ENCC1141	Multimedia communication (ONLINE)	4ENCC1121	LTE & 5G Communication (MOOC)
4ENCC1151	MIMO communication (MOOC)	4ENCC1051	IOT and Wireless sensor Network
4ENCC1161	vehicular communication (MOOC)	4ENCC1131	Image and Video Processing

SOFTWARE APPLICATION DEVELOPMENT			
PROFESSIONAL ELECTIVE-3		PROFESSIONAL ELECTIVE-4	
4CSPL4101	J2EE Technologies(MOOC)		
4CSPL4121	Javascript (IFC)		
4CSPL4131	Micro Services(ONLINE)		

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

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

VIII Semester

Course Code	Course	CMRU Category	CMRU Subcategory	AICTE Category	School/ Department	Contact Hours/ Week	Credit Distribution L-T-P-C
Program Core							
4DISS4021	Capstone Project Phase II	Foundation	Capstone	PCC	ECE	-	0-0-0-8
4DISS3011	Internship -I	Foundation	Internship	PCC	ECE	-	0-0-0-3
4DISS3021	Internship -II	Foundation	Internship	PCC	ECE	-	0-0-0-3
4DISS3031	Internship -III	Foundation	Internship	PCC	ECE	-	0-0-0-3
GCSCD1011	Community Service - I (COS - I)*	CS	-	SDC	SOET	-	0-0-1-1
GCSCD1021	Community Service - II (COS - II)*	CS	-	SDC	SOET	-	0-0-1-1
GCSCD1031	Community Service - III (COS - III)*	CS	-	SDC	SOET	-	0-0-1-1

GCSCD104 1	Community Service - IV (COS - IV)*	CS	-	SDC	SOET	-	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.

INTERDISCIPLINARY ELECTIVE (IDE) COURSES:

Course Code	School	Course Name	Semester
6IDSS1011	SOM	Introduction to Financial Management	Odd
6IDSS1031	SOM	Basics of Entrepreneurship	Odd
6IDSS1051	SOM	Finance for Non-Finance Students	Odd
6IDSS1071	SOM	Marketing - For the Uninitiated	Odd
3IDSS1011	SOEC	Accounting for Beginners	Odd
3IDSS1031	SOEC	Introduction to Taxation	Odd
3IDSS1051	SOEC	Personal Income Tax	Odd
3IDSS1071	SOEC	Financial Markets and Personal Investment	Odd
8IDSS1011	SOSS	Web designing	Odd
8IDSS1031	SOSS	Python Programming Basics	Odd
8IDSS1051	SOSS	Introduction to Media	Odd
8IDSS1061	SOSS	Media Technology	Odd
5IDSS1011	SOLS	Essentials of Human Rights and Public Interest Law	Odd
7IDSS1021	SOSSH	Personality & Development	Odd
7IDSS1031	SOSSH	Media & Cultural Studies	Odd
7IDSS1051	SOSSH	Mental Health at workplace	Odd
7IDSS1071	SOSSH	Positive Psychology	Odd
2IDSS1011	SOA	Exploration in Printmaking and Digital Fabrication	Odd
NIDSS1021		NCC I -2	Odd
NIDSS1041		NCC I -4	Odd
6IDSS1021	SOM	Human Resource Management - How it Really Works	Even
6IDSS1041	SOM	Introduction to Digital Marketing	Even
6IDSS1061	SOM	Entrepreneurship - A Primer	Even
3IDSS1021	SOEC	Fundamentals of Banking	Even
3IDSS1041	SOEC	Stock Market Operations	Even
3IDSS1061	SOEC	Financial Management	Even
8IDSS1021	SOSS	Structured Query Language (SQL)	Even
8IDSS1041	SOSS	Mobile App development	Even
8IDSS1071	SOSS	Media Psychology	Even
8IDSS1081	SOSS	Web Technology	Even
5IDSS1021	SOLS	Essential Laws for Business Enterprise	Even

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7IDSS1011	SOSSH	Environmental Psychology	Even
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7IDSS1041	SOSSH	Women Studies	Even
7IDSS1061	SOSSH	Community Psychology	Even
7IDSS1081	SOSSH	Youth Development	Even
NIDSS1011		NCC I - 1	Even
NIDSS1031		NCC I - 3	Even

COMMON CORE - ARTS AND PHILOSOPHY COURSES:

Course Code	Course Name
CKSMA1011	History, Theory and Ideas of Western Philosophy
CKSMA1021	Ideas and Practices of India's Folk Arts and Crafts
CKSMA1031	Introduction to Philosophical Thought
CKSMA1041	India's Classical Performing Arts

COMMON CORE - SKILL ENHANCEMENT COURSES (SEC):

Course Code	Course Name	Semester
CPSSF1011	Foreign Language-French L1	Odd
CPSSF2011	Foreign Language-French L2	Even
CPSSF3011	Foreign Language-French L3	Odd
CPSSF1021	Foreign Language-German L1	Odd
CPSSF2021	Foreign Language-German L2	Even
CPSSF3021	Foreign Language-German L3	Odd
CPSSF1031	Foreign Language-Korean L1	Odd
CPSSF2031	Foreign Language-Korean L2	Even
CPSSF3031	Foreign Language-Korean L3	Odd
CPSSF1041	Foreign Language-Spanish L1	Odd
CPSSF2041	Foreign Language-Spanish L2	Even
CPSSF3041	Foreign Language-Spanish L3	Odd
CPSSN1011	NCC S -1	Odd
CPSSN1021	NCC S -2	Even
CPSSN1031	NCC S -3	Odd
CPSSN1041	NCC S -4	Odd
CPSSD1011	Problem Solving through Programming	Odd/Even
CPSSD1021	Project Management Fundamentals	Odd/Even
CPSSD1031	Qualitative Research	Odd/Even
CPSSD1041	Quantitative Research	Odd/Even

COMMON CORE (NON-CREDIT): GRADUATE REQUIREMENT

*** Career Preparedness: Discover-Build-Deliver (DBD) Modules**

Career Preparedness Courses	Semester	Career Preparedness Courses	Semester
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Discover - Know myself (AI/assessment tests)	I	Build (common) - Understand your digital footprints	IV
Discover - Explore career options in the current landscape	II	Build (common) - Preparing for internship (b)	IV
Discover - Explore 21st century skills	II	Build (work track) - Prepare for case studies	IV
Discover - Understand the industry/sector	II	Build (common) - Finding the right internship	V
Discover - Map career goals	II	Build (higher-ed track)	V
Discover - Growth mindset	II	Build (work track) - Prepare for interviews and GDs	VI
Discover - Develop habits for lifelong learning	II	Build (entrepreneurship track)	VI
Discover - Reflective Paper	II	Build (research track)	VI
Build (common) - Create a resume	III	Build (work track) - Prepare for career fair	VII
Build (common) - Preparing for internship (a)	III	Deliver - Build your resume and cover letter	VII
Build (common) - Develop social and emotional intelligence	III	Deliver - Establish your personal brand	VII
Build (common) - Choose the right mentors	III	Deliver - Develop financial literacy	VII
Build (common) - prepare for aptitude tests (only training)	III-IV	Deliver - Manage your personal and professional growth	VII
Build (common) - prepare for Coding tests (only training)	III-IV	Deliver - Placement / Final Internship	VIII

*Community Service

Mandatory Community Service	Semester
Social Impact Leadership Summit	I Semester
Community Service Activities	I to VI Semester
Reflective Conclave	VI Semester
Total hours of Community Service : 150 hours (25 hours per Semester) Deficit of Community Service Hours in a particular semester has to be completed in the subsequent semester on obtaining prior permission from the Dean/Director of the School	