

**B. Tech (ECE) -CURRICULUM (KITSW-URR24)**  
**SEMESTER-WISE CURRICULUM WITH SCHEME OF INSTRUCTIONS**

**Abbreviations**

L	Lecture Hours	O	Outside the Class Work (Self Study) Hours
T	Tutorial Hours	E	Total Engagement in Hours
P	Practical Hours	C	Credit Assigned

**I SEMESTER**

**Stream – I**

S. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
-	IKSC	U24IK100	AICTE Mandated Student Induction Programme (Universal Human Values - I)						-
1	BSC	U24MH101	Differential Calculus and Ordinary Differential Equations	2	1	-	6	9	3
2	BSC	U24PY102E	Engineering Physics (for ECE)	2	1	2	5	10	4
3	PCC	U24EC103	Switching Theory and Logic Design	2	1	-	4	7	3
4	ESC	U24EC104	Programming for Problem Solving with C	2	1	2	5	10	4
5	ESC	U24EE105B	Basic Electrical Engineering (Common to ECE and ECIE)	2	1	2	5	10	4
6	VAC	U24CY106	Environmental Studies	2	-	-	3	5	-
7	AEC	U24AE107	IDEA Lab Makerspace	-	-	2	2	4	1
8	ELC	U24EL108	Practicum-1	-	-	-	4	4	1
9	VAC	U24VA109X XXXX	SEA - I / SAA-1	-	-	-	2	2	1
10	AEC	U24AE110	Expert Talk Series-1	-	-	-	1	1	1
Total:				12	5	8	37	62	22
Summer/ Inter-Sem Bridge Courses (Approved by BoS and Dean, AA): 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

Pool - I (Physics)		
S. No.	Course Code	Course Title
1.	U24PY102A	Engineering Physics (for Civil Engineering)
2.	U24PY102B	Engineering Physics (for ECIE)
3.	U24PY102C	Engineering Physics (for CSE)
4.	U24PY102D	Engineering Physics (for EEE)
5.	U24PY102E	Engineering Physics (for ECE)

## II SEMESTER

### Stream – I

S. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	BSC	U24MH201	Matrix Theory and Vector Calculus	2	1	-	6	9	3
2	BSC	U24CY202E	Engineering Chemistry <i>(for ECE)</i>	2	1	2	5	10	4
3	PCC	U24EC203	Electronic Circuits	2	1	-	4	7	3
4	ESC	U24EC204	Data Structures through C	2	1	2	5	10	4
5	HSMC	U24MH205	English Communication and Report Writing	2	-	-	3	5	2
6	VAC	U24VA206	Sports and Yoga	-	-	2	2	4	1
7	ESC	U24ME207	Engineering Graphics through CAD	-	-	2	2	4	1
8	SEC	U24SE208	Programming Skill Development (PSD) Lab – 1	-	-	2	2	4	1
9	ELC	U24EL209	Practicum-2	-	-	-	4	4	1
10	VAC	U24VA210X XXXX	SEA-2 / SAA -2	-	-	-	2	2	1
11	AEC	U24AE211	Expert Talk Series-2	-	-	-	1	1	1
Total:				10	4	10	36	60	22
Summer/ Inter-Sem Bridge Courses (Approved by BoS and Dean, AA): 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

Pool – III (Chemistry)		
S. No.	Course Code	Course Title
1.	U24CY202A	Engineering Chemistry <i>(for Civil Engineering)</i>
2.	U24CY202B	Engineering Chemistry <i>(for ECIE)</i>
3.	U24CY202C	Engineering Chemistry <i>(for CSE)</i>
4.	U24CY202D	Engineering Chemistry <i>(for EEE)</i>
5.	U24CY202E	Engineering Chemistry <i>(for ECE)</i>

### Bridge Courses for exit:

Successful completion of two subjects (6-Credits) during 2-months internship at the institute  
OR

Successful completion of two suitable skill based courses (external) to qualify for Certification

#### A. After First Year: (UG Certificate in ECE)

(i) The candidate should pass any two of the following additional courses (ITI Level) during the 2-Months internship at institute

**III SEMESTER**

S. No	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	BSC	U24MH301D	Applied Mathematics (for ECE)	2	1	-	6	9	3
2	PCC	U24EC302	Electronic Circuits Analysis and Design	2	1	2	5	10	4
3	PCC	U24EC303	Digital Design	2	1	2	5	10	4
4	PCC	U24EC304	Signals and Systems	2	1	-	4	7	3
5	ESC	U24EC305	OOP through Java <sup>#</sup>	2	1	2	5	10	4
6	VAC	U24VA306A	Quantitative Aptitude and Logical Reasoning <sup>@</sup>	2	-	-	2	4	2
7	SEC	U24SE307	Programming Skill Development Lab - 2	-	-	2	2	4	1
8	ELC	U24EL308	Practicum-3	-	-	-	4	4	1
9	VAC	U24VA309XX XXX	SEA-3 / SAA -3	-	-	-	2	2	1
10	AEC	U24AE310	Expert Talk Series-3	-	-	-	1	1	1
Total:				12	5	8	36	61	24
Summer/ Inter-Sem Mandatory Bridge Courses: 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

**IV SEMESTER**

S. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	PCC	U24EC401	Integrated Circuits Applications	2	1	2	5	10	4
2	PCC	U24EC402	Communication Systems	2	1	2	5	10	4
3	PCC	U24EC403	Electromagnetic Waves and Transmission Lines	2	1	-	4	7	3
4	PCC	U24EC404	Computer Organization and Microprocessors	2	1	-	4	7	3
5	ESC	U24EC405	Python Programming	2	1	2	5	5	4
6	VAC	U24VA406B	Soft and Interpersonal Skills®	-	-	2	2	4	1
7	SEC	U24SE407	Programming Skill Development Lab - 3	-	-	2	2	4	1
8	ELC	U24EL408	Practicum-4	-	-	-	4	4	1
9	VAC	U24VA409X XXXX	SEA - 4 / SAA - 4	-	-	-	2	2	1
10	AEC	U24AE410	Expert Talk Series-4	-	-	-	1	1	1
11	VAC*	U24CY411*	Environmental Sciences*	2*	-	-	3*	5*	-
Total:				10	5	10	34	54	23
Summer/ Inter-Sem Mandatory Bridge Courses: 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

\*For Lateral Entry Students Only

**Bridge Courses for exit:**

Successful completion of two subjects (6-Credits) during 2-months internship at the institute  
OR

Successful completion of two suitable skill based courses (external) to qualify for Certification

**B. After Second Year: (UG Diploma in ECE)**

- (i) The candidate should pass any two of the following additional courses (Diploma Level) during the 2-Months internship at institute

<b>Exit Option to Qualify UG Diploma in ECE: Any Two (02) Courses during the 2 - Months internship</b>							
S. No.	Category	Course Code	Course Title	L	T	P	C
1	PCC	U24EC412X	Basic Embedded Systems	2	-	2	4
2	PCC	U24EC413X	Fundamentals of IoT (Internet of Things)	2	-	2	4
3	PCC	U24EC414X	VLSI Design, Tools & Technology	2	-	2	4
4	PCC	U24EC415X	Any other course approved by BoS Chair and Dean AA	2	-	2	4

S. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	MOPEC	U24OE501YYX	MOPEC Elective -I#	2	1	-	3	6	3
2	PCC	U24EC502	Microcontrollers Based Embedded System with ARM processor	2	1	2	5	10	4
3	PCC	U24EC503	Antennas and Wave Propagation	2	1	-	4	7	3
4	ESC	U24EC504	AI and ML	2	1	2	5	10	4
5	STE	U24ST505X	S&E Basket *	2	1	-	2	5	3
6	IKSC	U24IK506A	Essence of Indian Traditional Knowledge	2	-	-	2	4	2
7	SEC	U24SE507	Programming Skill Development Lab - 4	-	-	2	2	4	1
8	HSMC	U24MH508	Technical English	-	-	2	2	4	1
9	ELC	U24EC509	Seminar	-	-	-	2	2	1
10	AEC	U24AE510	Expert Talk Series-5	-	-	-	1	1	1
Total:				12	5	8	28	53	23
Additional Learning <sup>@</sup> :Maximum credits allowed for Honours/Minor				-	-	-	-	-	5
Total credits for Honours/Minor students:				-	-	-	-	-	28
Summer/ Inter-sem Mandatory Bridge Courses : 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

#MULTIDISCIPLINARY OPEN ELECTIVES: Student has to select one course as multidisciplinary open elective from any of the MOPEC Basket of courses offered by other departments.

<sup>@</sup> List of courses for additional learning through MOOCs towards Honours/Minor in Engineering shall be prescribed by the department under Honours/ Minor Curricula

Startups & Entrepreneurship Basket		
S. No.	Course Code	Course Title
1.	U24ST505A / U24ST605A	Design Thinking
2.	U24ST505B / U24ST605B	Innovative Product Design and Development
3.	U24ST505C / U24ST605C	Entrepreneurship
4.	U24ST505D / U24ST605D	Design Studio
5.	U24ST505Z / U24ST605E	Any other course approved by BoS Chair and Dean AA

Management Courses Basket		
S. No.	Course Code	Course Title
1.	U24MB505A / U24MB605A	Management Economics and Accountancy
2.	U24MB505B / U24MB605B	Industrial Psychology
3.	U24MB505C / U24MB605C	E-Commerce and Digital Marketing
4.	U24MB505D / U24MB605D	Organizational Behaviour
5.	U24MB505E / U24MB605Z	Any other course approved by BoS Chair and Dean AA

## VI SEMESTER

S. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	PEC	U24EC601	Program Elective -I / MOOCs-I	2	1	-	4	7	3
2	PCC	U24EC602	Digital Signal Processing and Applications	2	1	2	5	10	4
3	PCC	U24EC603	VLSI Design	2	1	2	5	10	4
4	ESC	U24EC604	Data Communication and Computer Networks	2	1	-	4	7	3
5	HSMC	U24MB605X	Management Course Basket	2	1	-	2	5	3
6	IKSC	U24IK606B	Universal Human Values-II	2	-	-	2	4	2
7	SEC	U24SE607	AIML Applications Lab	-	-	2	2	4	1
8	ELC	U24EC608	Mini Project	-	-	2	2	4	1
9	AEC	U24AE609	Expert Talk Series-6	-	-	-	1	1	1
Total:				12	5	8	28	52	22
Additional Learning®:Maximum credits allowed for Honours/Minor				-	-	-	-	-	5
Total credits for Honours/Minor students:				-	-	-	-	-	27
Summer/ Inter-sem Mandatory Bridge Courses : 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

<sup>@</sup> List of courses for additional learning through MOOCs towards Honours/Minor in Engineering shall be prescribed by the department under Honours/ Minor Curricula

### B. Tech Honours with Research:

Students opting for B. Tech Honours with Research, shall undergo a 2-Month Mandatory Research Internship-II (5 Credits) at respective department during the summer vacation after VI Semester.

Startups & Entrepreneurship Basket		
S. No.	Course Code	Course Title
1.	U24ST505A / U24ST605A	Design Thinking
2.	U24ST505B / U24ST605B	Innovative Product Design and Development
3.	U24ST505C / U24ST605C	Entrepreneurship
4.	U24ST505D / U24ST605D	Design Studio
5.	U24ST505Z / U24ST605E	Any other course approved by BoS Chair and Dean AA

Management Courses Basket		
S. No.	Course Code	Course Title
1.	U24MB505A / U24MB605A	Management Economics and Accountancy
2.	U24MB505B / U24MB605B	Industrial Psychology
3.	U24MB505C / U24MB605C	E-Commerce and Digital Marketing

## VII SEMESTER

Sl. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	MOPEC	U24OE701YYX	MOPEC Elective -II	2	1	-	3	6	3
2	PEC	U24EC702	Program Elective - II/ MOOCs-II	2	1	-	4	7	3
3	PCC	U24EC703	System Verilog for Design and Verification	2	1	2	4	9	4
4	PCC	U24EC704	Microwave and Optical Fiber Communications	2	1	-	4	7	3
5	PCC	U24EC705	Wireless and Mobile Communications	2	1	-	4	7	3
6	ELC	U24EC706	Internship Evaluation*	-	-	2	-	2	1
7	ELC	U24EC707	Major Project, Phase-1 / Industrial Internship - 1	-	-	8	6	12	4
Total:				10	5	12	25	50	21
Additional Learning®:Maximum credits allowed for Honours/Minor				-	-	-	-	-	4
Total credits for Honours/Minor students:				-	-	-	-	-	25
Summer/ Inter-Sem Mandatory Bridge Courses: 1 week to 10 days: 1 credit to each Bridge course under additional learning (will be printed on grade sheet)				-	-	-	-	-	-

**#MULTIDISCIPLINARY OPEN ELECTIVES:** Student has to select one course as multidisciplinary open elective from any of the MOPEC Basket of courses offered by other departments.

@ List of courses for additional learning through MOOCs towards Honours/Minor in Engineering shall be prescribed by the department under Honours/ Minor Curricula

### B. Tech Honours with Research

Students opting for B. Tech Honours with Research, shall complete Research Methodology Course (4 Credits) through MOOCS (OR) a workshop / FDP of not less than one week on "Research Methodologies" (4 Credits).

Internship Evaluation for the students opting B. Tech Honours with Research, will be done on the 2-Month Research internship-II.

## VIII SEMESTER

S. No.	Category	Course Code	Course Title	Lectures / week					Credits <b>C</b>
				L	T	P	O	E	
1	MOPEC	U24OE801YYX	MOPEC Elective -III	2	1	-	3	6	3
2	PEC	U24EC802	Program Elective - III / MOOCs-III	2	1	-	4	7	3
3	PEC	U24EC803	Program Elective - IV / MOOCs-IV	2	1	-	4	7	3
4	ELC	U24EC804	Major Project, Phase - 2 / Industrial Internship - 2	-	-	12	4	16	6
Total:				6	3	12	15	36	15
Additional Learning®: Maximum credits allowed for Honours/Minor				-	-	-	-	-	4
Total credits for Honours/Minor students:				-	-	-	-	-	19

**#MULTIDISCIPLINARY OPEN ELECTIVES:** Student has to select one course as multidisciplinary open elective from any of the MOPEC Basket of courses offered by other departments.

@ List of courses for additional learning through MOOCs towards Honours/Minor in Engineering shall be prescribed by the department under Honours/ Minor Curricula

### B. Tech Honours with Research

Students opting for B. Tech Honours with Research, shall Publish a research paper in reputed journal indexed by SCI / SCOPUS/Web of Science (4 Credits).

## SUMMARY

SEMESTER	I	II	III	IV	V	VI	VII	VIII	TOTAL
CREDITS	22	22	24	23	23	22	21	15	172