

B. Tech (ME) –CURRICULUM (KITSW-URR24)
SEMESTER-WISE CURRICULUM WITH SCHEME OF INSTRUCTIONS

Abbreviations

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

I SEMESTER

Stream - II

Sl. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	C
-	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	U24CY102A	Engineering Chemistry	2	1	2	5	10	4
3	PCC	U24ME103	Thermodynamics	2	1	-	4	7	3
4	ESC	U24ME104	Programming for Problem Solving with C	2	1	2	5	10	4
5	HSMC	U24MH105	English Communication and Report Writing	2	-	-	3	5	2
6	VAC	U24VA106	Sports & Yoga	-	-	2	2	4	1
7	ESC	U24ME107	Engineering Graphics & CAD	1	-	4	4	9	3
8	ELC	U24EL108	Practicum-I	-	-	-	4	4	1
9	VAC	U24VA109	SEA - I / SAA-I	-	-	-	2	2	1
10	AEC	U24AE110	Expert Talk Series-1	-	-	-	1	1	1
Total:				11	4	10	36	61	23
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)		
Sr. No.	Course Code	Course Title
1.	U24CY102A	Engineering Chemistry (for Mechanical Engineering)
2.	U24CY102B	Engineering Chemistry (Common to CSM, CSD, CSN, CSO & IT)

Stream-II

Sl. 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	U24PY202A	Engineering Physics	2	1	2	5	10	4
3	PCC	U24ME203	Engineering Materials and Metallurgy	2	1	-	4	7	3
4	ESC	U24ME204	Data Structures through C	2	1	2	5	10	4
5	ESC	U24EE205A	Basic Electrical & Electronics Engineering from Pool - II	2	1	2	5	10	4
6	VAC	U24CY206	Environmental Studies	2	-	-	2	4	-
7	AEC	U24AE207	IDEA Lab Makerspace	-	-	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	U24VA210	SEA-2 / SAA -2	-	-	-	2	2	1
11	AEC	U24AE211	Expert Talk Series-2	-	-	-	1	1	1
Total:				12	5	10	38	65	23
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)		
Sr. No.	Course Code	Course Title
1.	U24PY202A	Engineering Physics (for Mechanical Engineering)
2.	U24PY202B	Engineering Physics (Common to CSM, CSD, CSN, CSO & IT)

Pool - II (Basic Electrical & Electronics Engineering)		
S. No.	Course Code	Course Title
1.	U24EE205A	Basic Electrical and Electronics Engineering (for Mechanical Engineering)
2.	U24EE205B	Basic Electrical Engineering (Common to CSM, CSD, CSN, CSO & IT)

Sl. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	C
1	BSC	U24MH301B	Applied Mathematics	2	1	-	6	9	3
2	PCC	U24ME302	Mechanics of Materials	2	1	2	5	10	4
3	PCC	U24ME303	Manufacturing Technology	2	1	2	5	10	4
4	PCC	U24ME304	Heat Power Engineering	2	1	-	4	7	3
5	ESC	U24ME305	Python Programming	2	1	2	5	10	4
6	VAC	U24VA306B	Soft & Interpersonal Skills*			2	2	4	1
7	SEC	U24SE307	PSD LAB-02	-	-	2	2	4	1
8	ELC	U24EL308	Practicum-3	-	-	-	4	4	1
9	VAC	U24VA309	SEA-3 / SAA -3	-	-	-	2	2	1
10	AEC	U24AE310	Expert Talk Series-3	-	-	-	1	1	1
Total:				12	5	8	36	61	23
Additional Learning@:Maximum credits allowed for Honours/Minor				-	-	-	-	-	05
Total credits for Honours/Minor students:				-	-	-	-	-	28
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)				-	-	-	-	-	-

* Branch Specific Mathematics:

Branch Specific Mathematics (Pool-IV)		
S. No.	Course Code	Course Title
1.	U24MH301A	Numerical and Statistical Methods (for Civil Engineering)
2.	U24MH301B	Applied Mathematics (for Mechanical Engineering)
3.	U24MH301C	Mathematical foundations for Signal Processing (for ECI)
4.	U24MH301D	Discrete Mathematics and Probability Statistics (Common to CSE, CSN, CSO & IT)
5.	U24MH301E	Essential Mathematics and Statistics for Machine learning (for CSM)
6.	U24MH301F	Essential Mathematics and Statistics for Data science (for CSD)

@U24VA306 T & P Basket		
S. No.	Course Code	Course Title
1.	U24VA306A	Quantitative Aptitude and Logical Reasoning (for Stream I)
2.	U24VA306B	Soft and Interpersonal Skills Lab (for Stream II)

IV SEMESTER

Sl. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	PCC	U24ME401	Heat Transfer	2	1	-	4	7	3
2	PCC	U24ME402	Machine Drawing	2	1	2	5	10	4
3	PCC	U24ME403	Fluid Mechanics and Hydraulic Machines	2	1	2	5	10	4
4	PCC	U24ME404	Design of Machine Elements	2	1	-	4	7	3
5	PCC	U24ME405	Machine Tools & Metrology	2	1	2	5	10	4
6	VAC	U24VA406A	Quantitative Aptitude & Logical Reasoning	2	-	-	2	4	2
7	SEC	U24SE407	PSD LAB -03	-	-	2	2	4	1
8	ELC	U24EL408	Practicum-4	-	-	-	4	4	1
9	VAC	U24VA409	SEA - 4 / SAA - 4	-	-	-	2	2	1
10	AEC	U24AE410	Expert Talk Series-4	-	-	-	1	1	1
11	VAC*	U24CY411*	Environmental Studies*	2*	-	-	3*	5*	-
Total:				12	5	8	34	59	24
Additional Learning@:Maximum credits allowed for Honours/Minor				-	-	-	-	-	05
Total credits for Honours/Minor students:				-	-	-	-	-	29
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)				-	-	-	-	-	-

**For Lateral Entry Students Only*

@U24VA306 T & P Basket		
S. No.	Course Code	Course Title
1.	U24VA406A	Quantitative Aptitude and Logical Reasoning <i>(for Stream II)</i>
2.	U24VA406B	Soft and Interpersonal Skills Lab <i>(for Stream I)</i>

Sl. 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	U24ME502	Refrigeration & Air Conditioning	2	1	2	5	10	4
3	PCC	U24ME503	Mechanism and Machines	2	1	-	4	7	3
4	PCC	U24ME504	Artificial Intelligence and Machine Learning	2	1	2	5	10	4
5	HSMC	U24MB505X	Management Course Basket	2	1	-	2	5	3
6	IKSC	U24IK506B	Universal Human Values-II	2	-	-	2	4	2
7	PCC	U24ME507	Computer Aided Engineering LAB	-	-	2	2	4	1
8	HSMC	U24MH508	Technical English	-	-	2	2	4	1
9	ELC	U24ME509	Seminar	-	-	-	2	2	1
10	AEC	U24AE510	Expert Talk Series-5	-	-	-	1	1	1
Total:				12	5	8	28	53	23
Additional Learning@:Maximum credits allowed for Honors/Minor				-	-	-	-	-	05
Total credits for Honors/Minor students:				-	-	-	-	-	28
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)				-	-	-	-	-	-

#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 Honors/Minor in Engineering shall be prescribed by the department under Honors/ Minor Curricula

Management Courses Basket		
Sr. 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

Indian Knowledge System Courses (IKSC)		
Sr. No.	Course Code	Course Title
1.	U24IK506A	Essence of Indian Traditional Knowledge
2.	U24IK506B	Universal Human Values-II

VI SEMESTER

Sl. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	PEC	U24ME601	Program Elective -I / MOOCs-I	2	1	-	4	7	3
2	PCC	U24ME602	Metal Machining & Automation	2	1	2	5	10	4
3	PCC	U24ME603	Dynamics of Machinery	2	1	-	4	7	3
4	PCC	U24ME604	Computational Fluid Dynamics	2	1	2	5	10	4
5	STE	U24ST605X	Startups & Entrepreneurship Basket	2	1	-	2	5	3
6	IKSC	U24IK606A	Essence of Indian Traditional Knowledge	2	-	-	2	4	2
7	PCC	U24ME607	AI & ML core application LAB	-	-	2	2	4	1
8	ELC	U24ME608	Mini Project	-	-	2	2	4	1
9	AEC	U24AE609	Expert Talk Series-6	-	-	-	1	1	1
Total:				12	5	8	27	52	22
Additional Learning@:Maximum credits allowed for Honors/Minor				-	-	-	-	-	05
Total credits for Honors/Minor students:				-	-	-	-	-	27
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)				-	-	-	-	-	-

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B. Tech Honors with Research:

Students opting for B. Tech Honors 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		
Sr. 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

Indian Knowledge System Courses (IKSC)		
Sr. No.	Course Code	Course Title
1.	U24IK606A	Essence of Indian Traditional Knowledge
2.	U24IK606B	Universal Human Values-II

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	U24ME702	Program Elective - II/ MOOCs-II	2	1	-	4	7	3
3	PCC	U24ME703	Finite Element Methods	2	1	2	4	9	4
4	PCC	U24ME704	Additive Manufacturing	2	1	-	4	7	3
5	PCC	U24ME705	Production and Operations Management	2	1	-	4	7	3
6	ELC	U24ME706	Internship Evaluation*	-	-	2	-	2	1
7	ELC	U24ME707	Major Project, Phase-1 / Industrial Internship - 1	-	-	8	6	14	4
Total:				10	5	12	25	52	21
Additional Learning@:Maximum credits allowed for Honors/Minor				-	-	-	-	-	04
Total credits for Honors/Minor students:				-	-	-	-	-	25

#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.

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B. Tech Honors with Research

Students opting for B. Tech Honors 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 Honors with Research, will be done on the 2-Month Research internship-II.

VIII SEMESTER

Sl. No.	Category	Course Code	Course Title	Lectures / week					Credits
				L	T	P	O	E	
1	MOPEC	U24OE801YYX	MOPEC Elective -III	2	1	-	3	6	3
2	PEC	U24ME802	Program Elective - III / MOOCs-IV	2	1	-	4	7	3
3	PEC	U24ME803	Program Elective - IV / MOOCs-V	2	1	-	4	7	3
4	ELC	U24ME804	Major Project, Phase - 2 / Industrial Internship - 2	-	-	12	4	16	6
Total:				6	3	12	15	36	15
Additional Learning@:Maximum credits allowed for Honors/Minor				-	-	-	-	-	04
Total credits for Honors/Minor students:				-	-	-	-	-	19

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B. Tech Honors with Research

Students opting for B. Tech Honors 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	23	23	23	24	23	22	21	15	174