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Department of
MECHANICAL ENGINEERING



Programme Structure
of
B. Tech- Mechanical Engineering
(Artificial Intelligence & Robotics)



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Summary Table

Distribution of Category / Type of Courses and Credits

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Category / Type of Courses		Semester wise Credits								Course wise Total Credits
		I	II	III	IV	V	VI	VII	VIII	
BSC/ESC	Basic Science Courses	9	3	3						15
	Engineering Science Courses	9	14			4				27
Program Courses	Programme Core Courses (PCC)			12	20	8	11	4		55
	Programme Elective Courses (PEC)					4	8	8		20
Multidisciplinary Courses	Multidisciplinary Minor (MDM)					3	3	6	2	14
	Open /Generic Electives (OE/GE)(other than a particular Program)				3	3				6
Skill Courses	Vocational and Skill Enhancement Courses (VSEC)		1	3	2	2	2			10
MD Holistic Development Courses- Humanities, Social Science and Management (HSSM)+ Liberal Learning(LL)	Ability Enhancement courses (AEC)	2								2
	Indian Knowledge System (IKS)	1	1							2
	Value Education/Value Addition/Professional Ethics/Life skills Courses (VEC/VAC/EVLSC)		2							2
	Co-curricular Courses (CC)			1						1
	Entrepreneurship/Economics /Management Courses						2	2		4
Experiential Learning Courses	Research Methodology						2			2
	Mini Projects/ Field Project (MP/FP)			1	1	2				4
	Project							4		4
	Project / Internship								8	8
Total Credits (Semester/Programme)		21	21	20	26	26	28	24	10	176

MAJOR PROGRAMME COURSES	TOTAL CREDITS	145
MULTIDISCIPLINARY COURSES	TOTAL CREDITS	20
HOLISTIC DEVELOPMENT COURSES INCL LL+HSSM	TOTAL CREDITS	11



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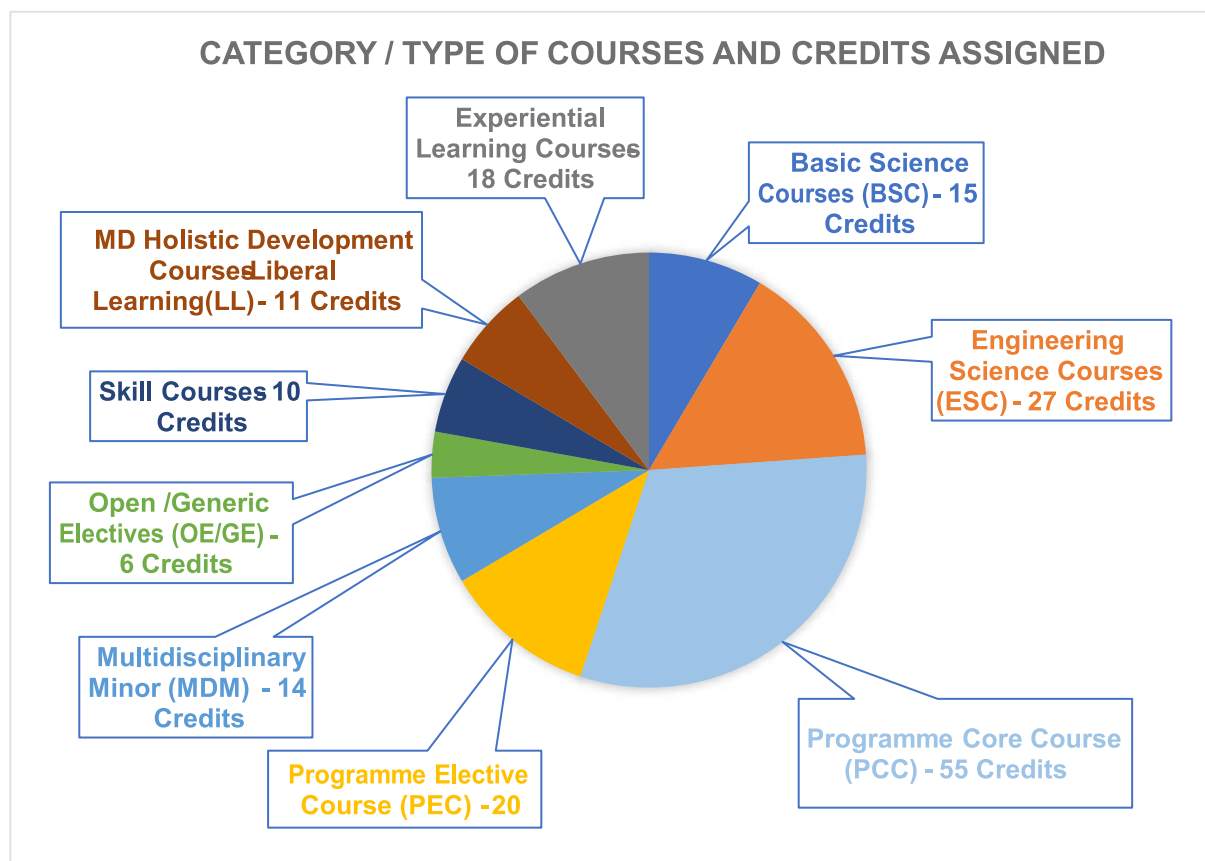


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THE PIE CHART

Distribution of Category / Type of Courses and Credits

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)





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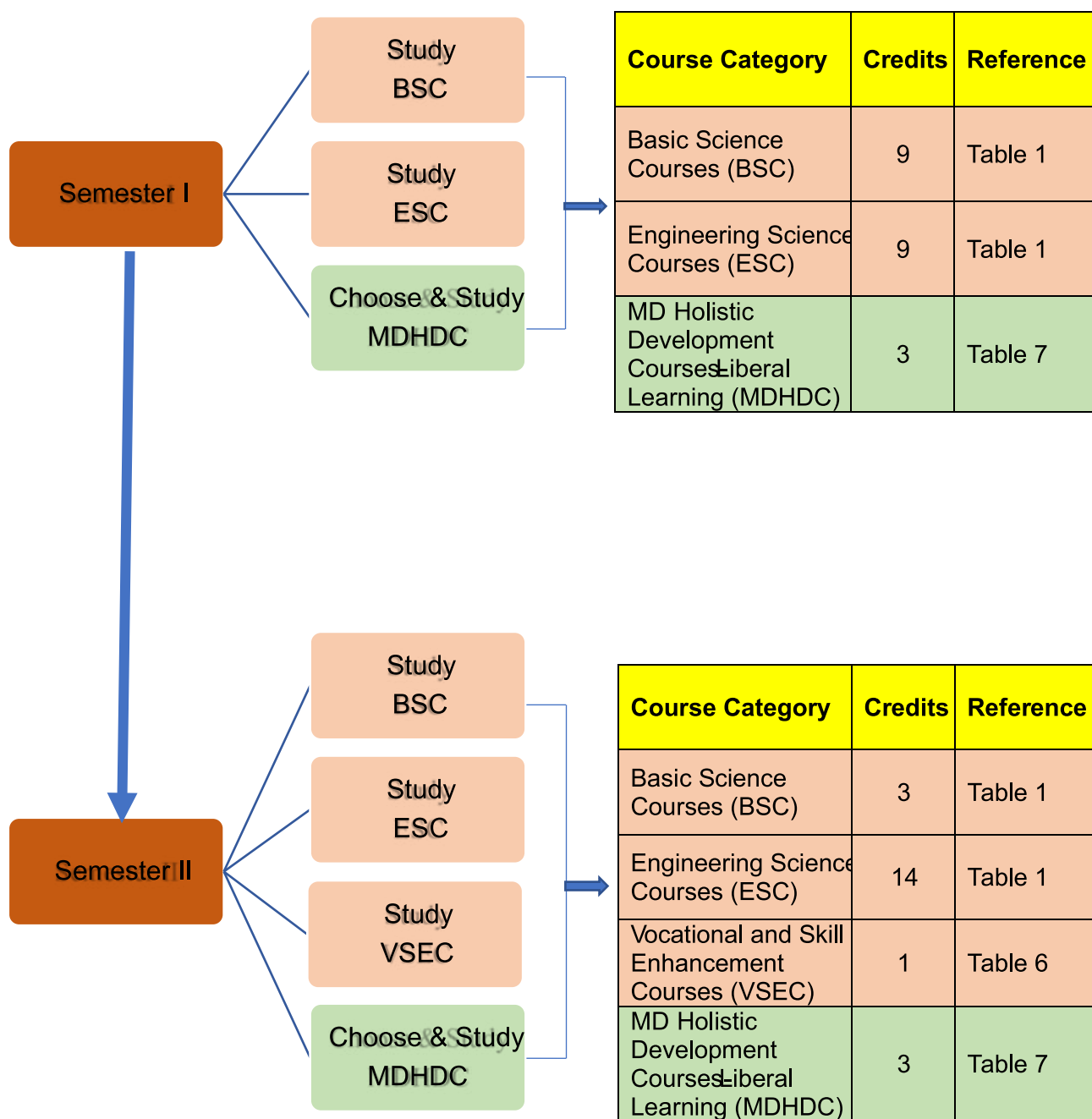
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Flow Diagram to Navigate students through availability of various types of courses and options during the Programme duration

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

First Year

(All Specializations)





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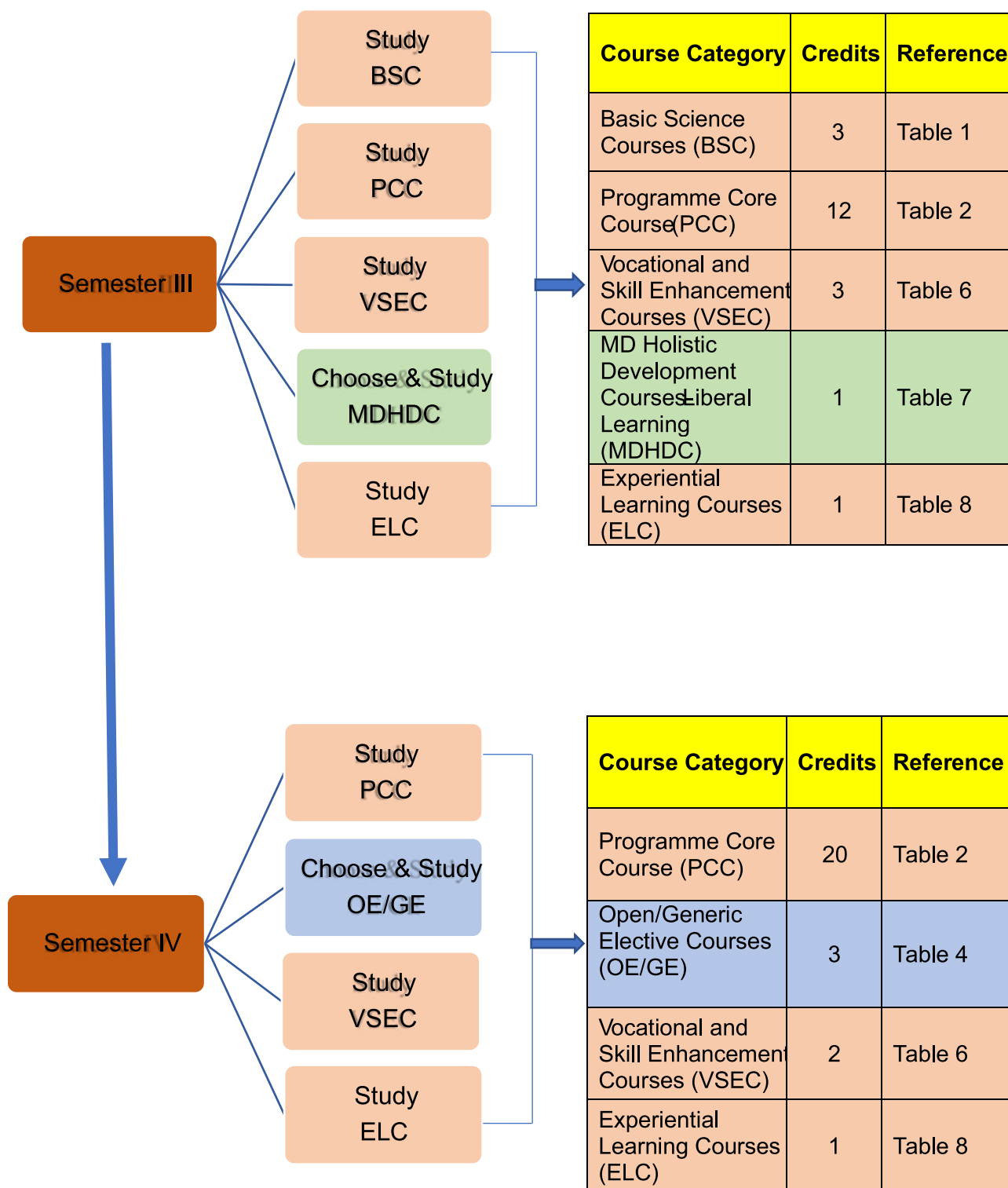


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B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Second Year

(All Specializations)





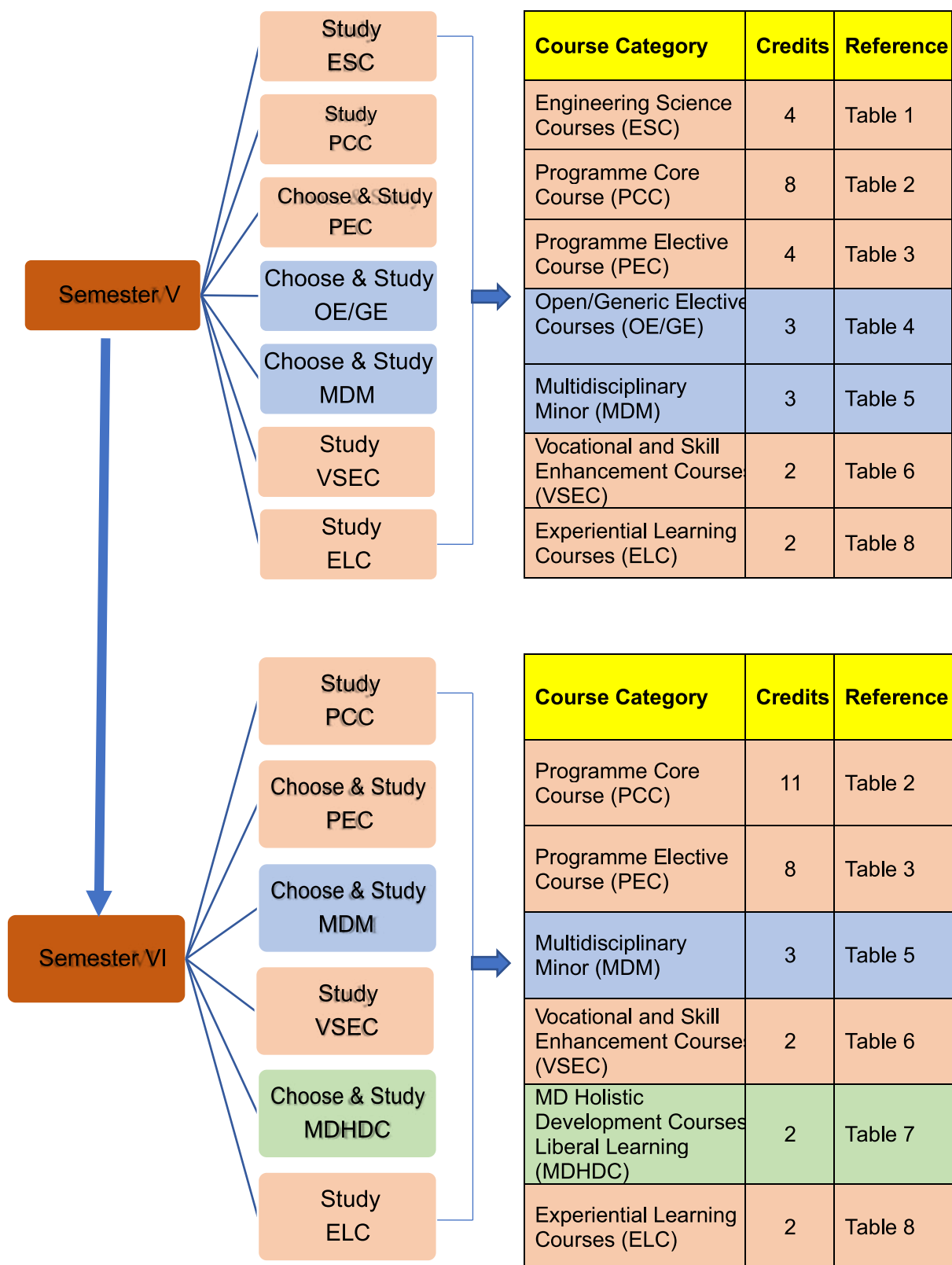
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B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

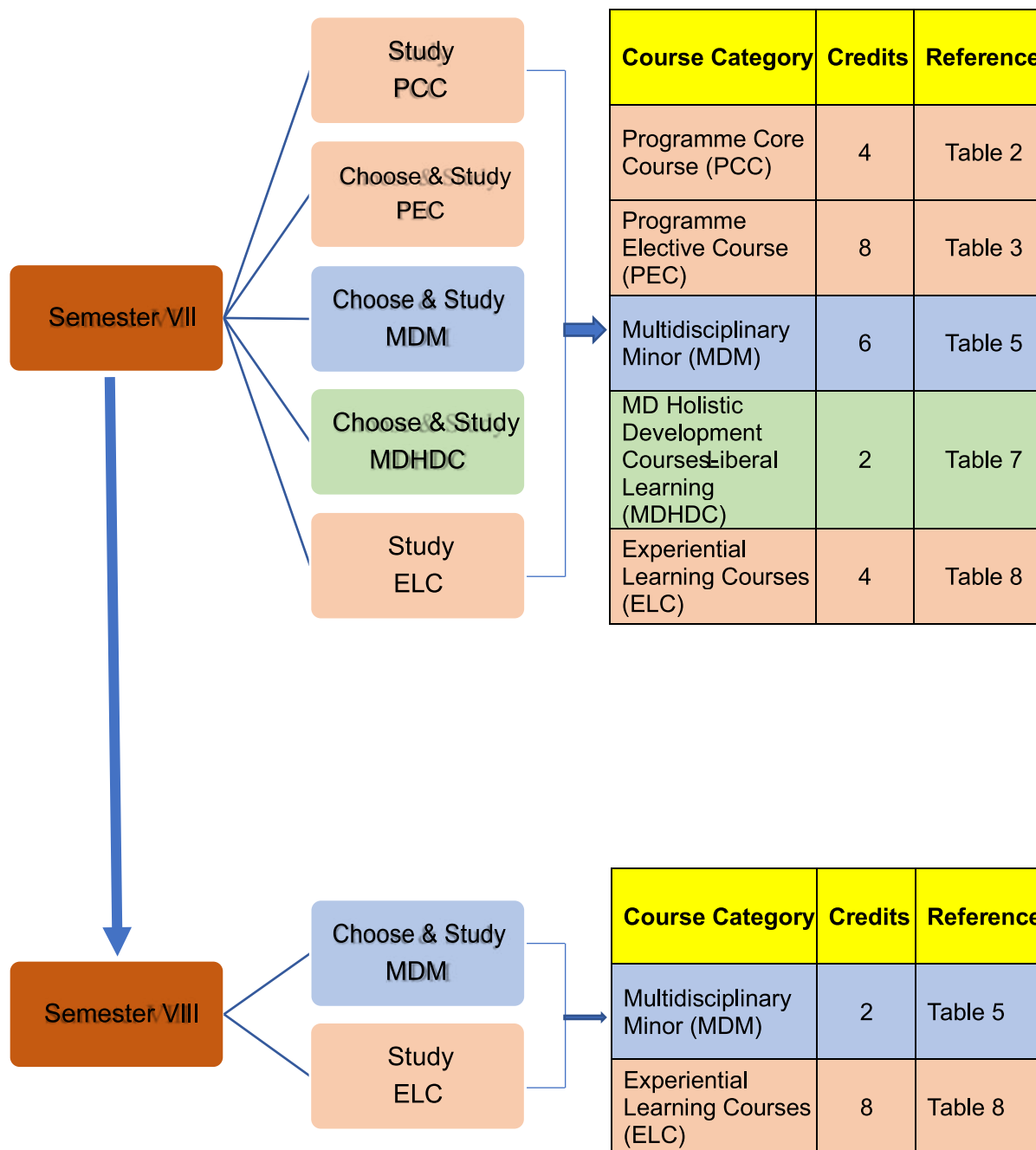
Third Year





B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Fourth Year





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Table 1
Basic Sciences & Engineering Sciences Courses

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Course Title	No. of Credits	Name of the Department /Institute/School	Semester in which Course is offered	Remarks
1.	Linear Algebra and Calculus	4	Applied Sciences & Humanities	I	
2.	Applied Science	5	Applied Sciences & Humanities	I	
3.	Basics of Mechanical Engineering (Branch Specific)	4	Mechanical Engineering	I	
4.	Engineering Workshop (Manufacturing Practice)	2	Mechanical Engineering	I	
5.	Programming for Problem Solving (Lab)	3	Electronics & Communication Engineering	I	
6.	Ordinary Differential Equations and Advanced Calculus	3	Applied Sciences & Humanities	II	
7.	Engineering Graphics & Design	3	Mechanical Engineering	II	
8.	Basics of Electrical and Electronics Engineering	4	Mechanical Engineering	II	
9.	Engineering Mechanics (Branch Specific)	3	Mechanical Engineering	II	
10.	Engineering Mechanics (Branch Specific Lab)	1	Mechanical Engineering	II	
11.	Object Oriented Programming (Lab)	3	Electronics & Communication Engineering	II	
12.	Differential Equations and Transform Techniques	3	Applied Sciences & Humanities	III	
13.	Computational Science and Data Analytics	4	Mechanical Engineering	V	
	Total Credits	42			



Table 2

Programme Core Courses

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Course Title	No. of Credits	Semester in which Course is offered	Sr. No.	Course Title	No. of Credits	Semester in which Course is offered
1.	Applied Thermodynamics	3	III	14.	Kinematics and Dynamics of Machines Lab	1	IV
2.	Mechanics of Solids	3	III	15.	Machine Element & System Design	3	V
3.	Manufacturing Processes	4	III	16.	Mechatronics	4	V
4.	Applied Thermodynamics-Lab	1	III	17.	Machine Element & System DesignLab	1	V
5.	Mechanics of Solids- Lab	1	III	18.	Heat Transfer & Thermal Machines	3	VI
6.	Fluid Mechanics and Hydraulic Machines	3	IV	19.	Computer Aided Design & Analysis	3	VI
7.	Kinematics and Dynamics of Machines	3	IV	20.	Production Management	3	VI
8.	Engineering Materials and Applications	4	IV	21.	Heat Transfer & Thermal Machines Lab	1	VI
9.	Measurement & Metrology	4	IV	22.	Computer Aided Design & Analysis-Lab	1	VI
10.	Electric Machines	4	IV	23.	Industrial Automation	3	VII
11.	Fluid Mechanics and Hydraulic Machines Lab	1	IV	24.	Industrial Automation - Lab	1	VII
	Total Credits	31			Total Credits	24	
Grand Total: 55							



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Table 3
Programme / Specialization Elective Courses

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Course Title	No. of Credits	Specialization Title	Semestem Which Course Is Offered
1.	Artificial Intelligence	3	AI & Robotics	V
2.	Artificial Intelligence Lab	1	AI & Robotics	V
3.	Basics of Robotics	3	AI & Robotics	VI
4.	Machine Learning	3	AI & Robotics	VI
5.	Basics of Robotics Lab	1	AI & Robotics	VI
6.	Machine Learning Lab	1	AI & Robotics	VI
7.	Internet of Things	3	AI & Robotics	VII
8.	Robotics Vision System	4	AI & Robotics	VII
9.	Internet ofThings Lab	1	AI & Robotics	VII
	Total Credits	20		



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Table 4
Open/Generic Electives

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Elective Basket No.	Course Title	No. of Credits	Name of the Department /Institute/School	Semester in which Course is offered
1	1	Database Management System	3	School of Computing	IV
		Operating System	3	School of Computing	
		Introduction to Aerospace Engineering	3	Aerospace Engineering	
		Basic Electronics	3	Electronics & Communication Engineering	
		Creative Writing	3	School of Humanities	
		Digital Painting	3	School of Fine Arts	
		Interactive Multimedia	3	School of Education & Research	
		Bhagavad Gita for Management	3	School of Vedic Sciences	
		Incubation in Entrepreneurship	3	School of Indian Civil Services	
2	2	Python for Data Science	3	School of Computing	V
		Software Project Management	3	School of Computing	
		Introduction to Unmanned Aerial Vehicle	3	Aerospace Engineering	
		Sensors and Actuators	3	Electronics & Communication Engineering	
		Business English	3	School of Humanities	
		Photography	3	School of Fine Arts	
		Business Psychology	3	School of Vedic Sciences	
		Social Media & Governance	3	School of Indian Civil Services	
		E Content Production	3	International School of Broadcasting & Journalism	
		Total Credits	6		



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Table 5
Multidisciplinary Minors (MDM)

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Minor Title	Course Title	No. of Credits	Semester in which Course is offered	Name of the Department /Institute/School
1.	Data Science	Introduction to Data science	3	V	Computer Science & Engineering
		Data Visualization Using Tableau	3	VI	
		Introduction to Computing	3	VII	
		Cloud Foundations	3	VII	
		Technical Seminar	2	VIII	
2.	Information Technology	Web Application Development	3	V	Information Technology
		Usability Engineering	3	VI	
		Software Engineering	3	VII	
		Augmented Reality	3	VII	
		Technical Seminar	2	VIII	
3.	Aerospace Engineering	Aerodynamics	3	V	Aerospace Engineering
		Gas dynamics	3	VI	
		Aircraft Performance	3	VII	
		Experimental Aerodynamics	3	VII	
		Technical Seminar	2	VIII	
4.	Electronics Engineering	Analog and Digital Communication	3	V	Electronics & Communication Engineering
		Power Electronics	3	VI	
		Embedded system	3	VII	
		Mobile Communication	3	VII	
		Technical Seminar	2	VIII	
		Total Credits	14		



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Table 6
Vocational and Skill Enhancement Courses

B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Course Title	No. Of Credits	Type of Courses	Name of the Department /Institute/School	Semester in Which Course Is Offered
1.	Design Thinking	1	SEC	Institute of Design	II
2.	Innovation, Entrepreneurship & Idea Lab	3	SEC	Institute of Design	III
3.	Aptitude & Professional Skills - Foundation	2	SEC	School of Corporate Innovation & Leadership	IV
4.	Aptitude & Professional Skills - Core	2	SEC	School of Corporate Innovation & Leadership	V
5.	Aptitude & Professional Skills - Industry Readiness	2	SEC	School of Corporate Innovation & Leadership	VI
	Total Credits	10			



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Table 7
**Multidisciplinary Holistic Development Courses – Humanities,
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B.Tech Mechanical Engineering (Artificial Intelligence & Robotics)

Sr. No.	Course Title	No. of Credits	Type of Courses	Name of the Department /Institute/School	Semester in Which Course Is Offered
1.	Environment Science	--	VEC	Mechanical Engineering	I
2.	Health Practice - I	1	IKS	School of Holistic Development	I
3.	Professional English Communication for Engineers	2	AEC	School of Holistic Development	I
4.	Health Practice – II	1	IKS	School of Holistic Development	II
5.	Cambridge English & Universal Human Values	2	VEC	School of Holistic Development	II
6.	Creative and Performance Arts	1	CC-LL	School of Holistic Development	III
7.	Finance Management	2	MC	Mechanical Engineering	VI
8.	Operations Research	2	MC	Mechanical Engineering	VII
	Total Credits	11			



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Table 6
Vocational and Skill Enhancement Courses

Sr. No.	Course Title	No. Of Credits	Type of Courses	Name of the Department /Institute/School	Semester in Which Course Is Offered
1.	Design Thinking	1	SEC	MIT Institute of Design	II
2.	Innovation, Entrepreneurship & Idea Lab	3	SEC	MIT Institute of Design	III
3.	Aptitude & Professional Skills - Foundation	2	SEC	School of Corporate Innovation & Leadership	IV
4.	Aptitude & Professional Skills - Core	2	SEC	School of Corporate Innovation & Leadership	V
5.	Aptitude & Professional Skills - Industry Readiness	2	SEC	School of Corporate Innovation & Leadership	VI
	Total Credits	10			



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Table 7
Multidisciplinary Holistic Development Courses – Humanities, Social Sciences, Management + Liberal Learning

B.Tech - Mechanical Engineering (Electric Vehicles)

Sr. No.	Course Title	No. of Credits	Type of Courses	Name of the Department /Institute/School	Semester in Which Course Is Offered
1.	Environment Science	--	VEC	Mechanical Engineering	I
2.	Health Practice - I	1	IKS	School of Holistic Development	I
3.	Professional English Communication for Engineers	2	AEC	School of Holistic Development	I
4.	Health Practice – II	1	IKS	School of Holistic Development	II
5.	Cambridge English & Universal Human Values	2	VEC	School of Holistic Development	II
6.	Creative and Performance Arts	1	CC-LL	School of Holistic Development	III
7.	Finance Management	2	MC	Mechanical Engineering	VI
8.	Operations Research	2	MC	Mechanical Engineering	VII
	Total Credits	11			