

Category Wise Credit Distribution			
Course Sub-category	Subcategory Credits	Category Credits	Learning Hours
Ability Enhancement Courses (AEC)		8	240
University AEC	4		
School AEC	4		
Value Added Courses (VAC)		8	240
University VAC	6		
School VAC	2		
Skill Enhancement Courses (SEC)		17	510
School SEC	4		
Department SEC	7		
SEC Elective	6		
Foundation/ Interdisciplinary courses (FIC)		18	540
School FIC	15		
Department FIC	3		
Core + Core Elective including Specialization (CC)		78	2340
Core	60		
Core Elective (Inc Specialization)	18		
Minor (MC) + Open Elective (OE)		12	360
Research / Design / Internship/ Project (RDIP)		19	570
Internship / Design Project / Startup / NGO	7		
Internship / Research / Thesis	12		
Total		160	4800

Semester wise Course Credit Distribution Under Various Categories										
Category	Semester									
	I	II	III	IV	V	VI	VII	VII I	Total	%
Ability Enhancement Courses - AEC	2	2	2	2	0	0	0	0	8	5.00
Value Added Courses - VAC	2	2	0	0	0	4	0	0	8	5.00
Skill Enhancement Courses - SEC	2	2	3	4	3	3	0	0	17	10.63
Foundation / Interdisciplinary Courses - FIC	9	6	3	0	0	0	0	0	18	11.25
CC / SE / CE / TE / DE / HSS	4	11	9	14	16	12	9	3	78	48.75
Minor / Open Elective - OE	0	0	3	3	3	0	3	0	12	7.50
(Research/ Design/ Industrial Practice/Project/Thesis/Internship) -RDIP	0	0	0	0	0	3	4	12	19	11.88
Grand Total	19	23	20	23	22	22	16	15	160	100.00

Note: L-T/D-P/Pr and the class allocation is as follows.

- a)** Learning Hours : 30 learning hours are equal to 1 credit.
- b)** Lecture/Tutorial : 15 contact hours (60 minutes each) per semester are equal to 1 credit.
- c)** Discussion : 30 contact hours (60 minutes each) per semester are equal to 1 credit.
- d)** Practical : 30 contact hours (60 minutes each) per semester are equal to 1 credit.
- e)** Project : 30 project hours (60 minutes each) per semester are equal to 1 credit.

SEMESTER - I								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	AEC	U AEC	AEC 101	Art of Listening, Speaking and Reading Skills	1	0	1	2
2	VAC	U VAC	VAC 101	Environmental Science	2	0	0	2
3	SEC	S SEC	SEC 101	Analytical Reasoning and Aptitude Skills I	1	1	0	2
4	FIC	S FIC	FIC 10x	Applied Calculus for Engineers	2	1	0	3
5	FIC	S FIC	FIC 10x	Fundamentals of Computing using Python	1	0	2	3
6	FIC	S FIC	FIC 10x	Engineering Physics for Defence Systems	2	0	1	3
7	Core	CC	DSE 101	Material Science and High Energy Materials	3	1	0	4
Semester Total					13	3	4	19

SEMESTER - II								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	AEC	U AEC	AEC 107	Effective Writing and Presentation Skills	1	0	1	2
2	VAC	U VAC	VAC 103	Universal Human values and Ethics	2	0	0	2
3	SEC	S SEC	SEC 102	Analytical Reasoning and Aptitude Skills II	0	0	2	2
4	FIC	S FIC	FIC 1XX	Mechanics of Materials	3	0	0	3
5	FIC	S FIC	FIC 1XX	Linear Algebra and Differential Equations	2	1	0	3
6	Core	CC	DSE 102	Introduction to Electronics and Mechatronics Systems	3	0	1	4
7	Core	CC	DSE 103	Computer Aided Drawing and Graphics	1	0	2	3
8	Core	CC	DSE 104	Introduction to Defence Systems	3	0	1	4
9	VC**	VC	VC 101	Vocational Skill Course I	1**	0**	3**	4**
Semester Total					14	1	5	23

**** Vocational courses shall be applicable for students who opt to exit the programme after the first year and seek the award of a certificate.**

SEMESTER - III								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	AEC	S AEC	AEC 20X	Problem Solving Skills	1	0	1	2
2	VAC	U VAC	VAC 20X	Co-curricular activities	2*	0	0	2*
3	VAC	S VAC	VAC 20X	Defence Strategy Analysis	2*	0	0	2*
4	SEC	D SEC	SEC 20X	Systems Engineering for Defense Technologies	3	0	0	3
5	FIC	D FIC	FIC 20X	Introduction to MATLAB	1	0	2	3
6	CC	CC	DSE 20X	Signals and Systems	2	0	1	3
7	CC	CC	DSE 20X	Control Systems Engineering	2	0	1	3
8	CC	CC	DSE 20X	Thermodynamics	3	0	0	3
9	Elective	MC/OE	DSE 20X	Open elective I	3	0	0	3
Semester Total					15	0	5	20

SEMESTER - IV								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	AEC	S AEC	AEC 20X	Creativity and Critical Thinking Skills	1	0	1	2
2	VAC	U VAC	VAC 20X	Co-curricular activities: CLUB	2	0	0	2*
3	VAC	S VAC	VAC 20X	Defence Strategy Analysis	2	0	0	2*
4	SEC	D SEC	SEC 20X	D SEC: Introduction to Robotics	3	0	1	4
5	CC	CC	DSE 20X	AI/ML for Defence Applications	1	0	2	3
6	CC	CC	DSE 20X	Embedded Systems and Processors	2	0	2	4
7	CC	CC	DSE 20X	Unmanned Aerial Vehicles	1	0	2	3
8	CC	CC	DSE 20X	Microwave Systems	3	0	1	4
9	OE	MC/OE	DSE 20X	Open elective II	3	0	0	3
10	VC**	VC**	VC 20X	Vocational Skill Course II	0	0	4**	4**
Semester Total					14	0	9	23

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SEMESTER - V								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	VAC	U VAC	VAC	Co-curricular Activities	1	0	1	2*
2	VAC	S VAC	VAC	Defence Strategy Analysis	2	0	0	2*
3	SEC	E SEC	SEC	Career Skill-I: Defence Simulation Studio	1	0	2	3
4	CC	CC	DSE	Introduction to Radar Systems	3	0	1	4
5	CC	CC	DSE	Control system: Aircraft, Missile, Guiding system	2	1	1	4
6	CC	CC	DSE	Cyber Security & Secure Communication Systems	2	1	1	4
7	CC	CC	DSE	Aerospace Propulsion	3	0	1	4
8	OE	OE	DSE 30X	Open Elective III	2	0	1	3
Semester Total					13	2	7	22

SEMESTER - VI								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	VAC	U VAC	VAC30X	Co-curricular activities	2	0	0	2
2	VAC	S VAC	VAC	Defence Strategy Analysis	0	0	2	2
3	SEC	E SEC	SEC	Career Skill-II: System Integration	2	0	1	3
4	Core	CC	DSE	Space Defence System	2	0	1	3
5	Core	CC	DSE	Multimodal Sensing	2	0	1	3
6	Elective	CE	DSE	Core Elective I : Advanced UAV	2	0	1	3
7	Elective	CE/OE	DSE	Core Elective-II	2	0	1	3
8	RDIP	RDIP	DSE	UROP	0	0	3	3
Semester Total					14	0	8	22

SEMESTER - VII								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	Core Elective	CE	DSE	Core Elective II: Advanced Defence Systems	2	0	1	3
2	Core Elective	CE	DSE	Core Elective III : Stealth and Camouflage Technologies	2	0	1	3
3	Core Elective	CE	DSE	Core Elective IV : Payload Systems	2	0	1	3
4	RDIP	RDIP	DSE	Mini Project	0	0	4	4
5	Elective	MC/OE	DSE	Open Elective -IV	2	0	1	3
Semester Total					8	0	8	16

SEMESTER - VIII								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	Core Elective	CE	DSE	Core Elective V :Digital Twins for Defence	3	0	0	3
2	RDIP	RDIP	DSE	Major Project/Capstone Project	0	0	12	12
Semester Total					3	0	12	15

Specialization : Radar and Sensing								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	Core Elective	CE	DSE 30X	Advanced Radar System Design	3	0	0	3
2	Core Elective	CE	DSE 30X	Advanced defence system	3	0	0	3
3	Core Elective	CE	DSE 30X	Stealth and Camouflage Technologies	3	0	0	3
4	Core Elective	CE	DSE 30X	Radar Signal Processing	3	0	0	3
5	Core Elective	CE	DSE 30X	Satellite Communication	3	0	0	3

Specialization : Drone Technology								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	Core Elective	CE	DSE 30X	Advanced UAV	3	0	0	3
2	Core Elective	CE	DSE 30X	Swarm Systems for Drones	3	0	0	3
3	Core Elective	CE	DSE 30X	Payload Systems	3	0	0	3
4	Core Elective	CE	DSE 30X	AI for Drone Perception and Navigation	3	0	0	3
5	Core Elective	CE	DSE 30X	Flight dynamics and control	3	0	0	3

Specialization : Cyber Security								
S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	Core Elective	CE	DSE 30X	Quantum Cryptography and Secure Systems	3	0	0	3
2	Core Elective	CE	DSE 30X	IoT Security and Edge Systems	3	0	0	3
3	Core Elective	CE	DSE 30X	Cyber Warfare and Electronic Defence	3	0	0	3
4	Core Elective	CE	DSE 30X	Ethical hacking and Penetration Testing	3	0	0	3
5	Core Elective	CE	DSE 30X	Cyber Physical Systems	3	0	0	3

Open Electives

S. No	Category	Sub-Category	Course Code	Course Title	L	T/D	P/P r	C
1	Open Elective	OE	DSE 40X	Intelligence, Surveillance and Reconnaissance Systems	3	0	0	3
2	Open Elective	OE	DSE 40X	Naval Engineering	3	0	0	3
3	Open Elective	OE	DSE 40X	Remote sensing and Image classification	3	0	0	3
4	Open Elective	OE	DSE 40X	Satellite communication (tentative)	3	0	0	3
5	Open Elective	OE	DSE 40X	Digital twins for defence (tentative)	3	0	0	3
6	Open Elective	OE	DSE 40X	Laser Guided Weapon System	3	0	0	3
7	Open Elective	OE	DSE 40X	Additive Manufacturing	3	0	0	3
8	Open Elective	OE	DSE 40X	Geospatial Intelligence and Defence Applications	3	0	0	3
9	Open Elective	OE	DSE 40X	Military Communications & Tactical Networks	3	0	0	3
10	Open Elective	OE	DSE 40X	Digital Forensics and Incident Response	3	0	0	3

