

UNDERGRADUATE DEGREE PROGRAMME

B.Sc. Aeronautical Science

Three Years

/

B.Sc. (Hons). Aeronautical Science

Four Years

CURRICULUM & SYLLABUS

REGULATION 2024

Choice Based Credit System (CBCS)

&

Learning Outcomes Based Curriculum Framework (LOCF)

Effective from the Academic Year

2024 -2025

Department of Aviation



DEPARTMENT OF AVIATION

VISION OF THE DEPARTMENT

To be forefront in the aviation field by contributing to the intellectual, social and economic development of the aviation industry and the citizens of our nation. It is served through precept, research fueled by the advanced curriculum to endeavour the highest standards to excel in their Aviation profession.

MISSION OF THE DEPARTMENT

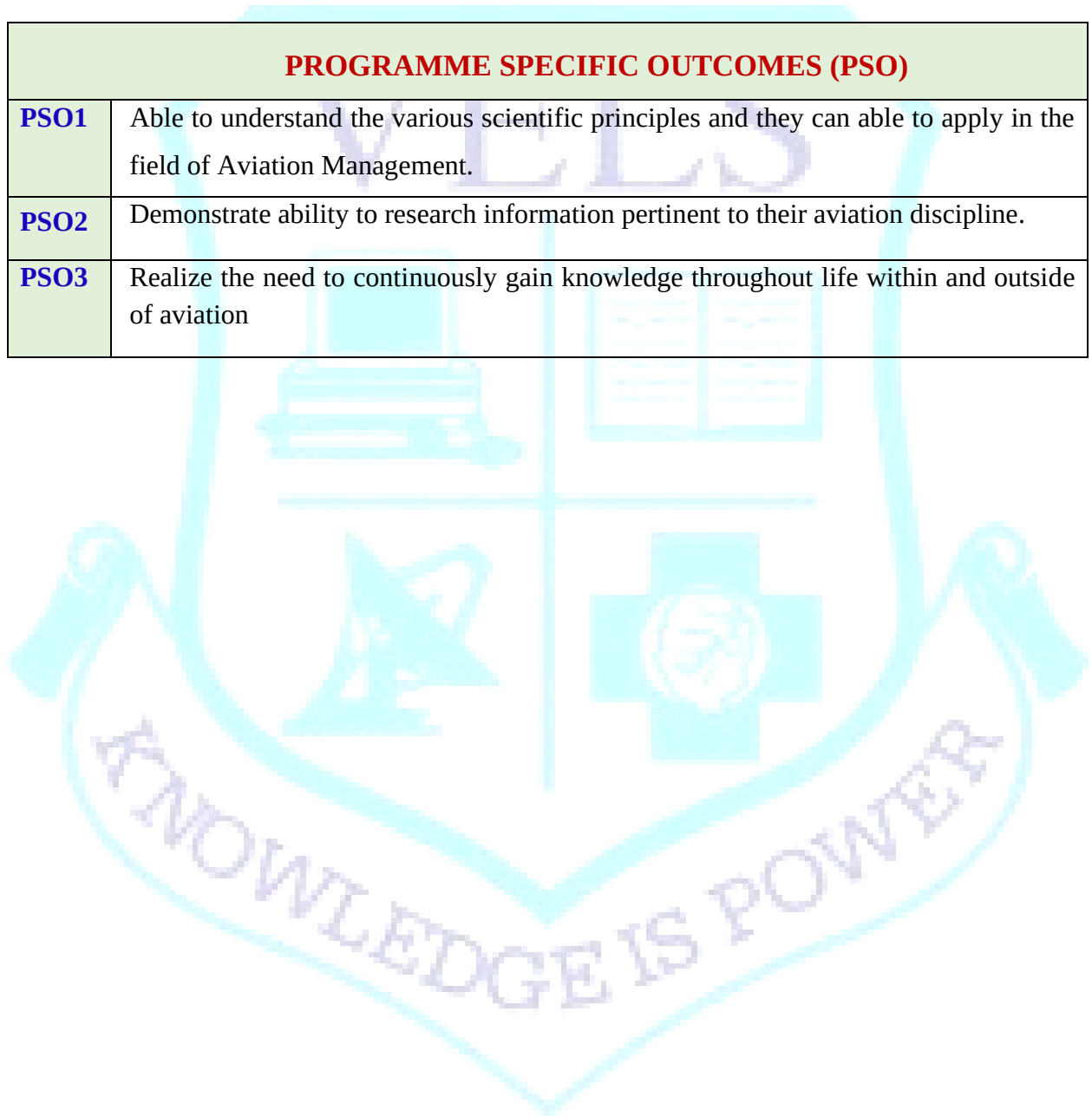
M1	To empower and encourage the students with the knowledge and practical skills required in the field of Aviation
M2	To impart quality education through the technologically advanced curriculum which would be delivered by the industry experts.
M3	To train the students to have in-depth knowledge of the subjects in the field of aviation and groom them in soft skills & survival skills.

PROGRAMME EDUCATIONAL OUTCOMES (PEO)	
PEO1	To Produce Graduates demonstrating their critical thinking, communication, team work and situational awareness skills on daily basis
PEO2	To produce graduates who can meet the diversified needs of the aviation industry.
PEO3	To gain an understanding of professional and ethical behaviour in the aviation field.
PEO4	The Aeronautical graduates will continue to learn and upgrade their knowledge to become entrepreneurs in the current competitive world of aviation and also contribute to society.

PROGRAMME OUTCOMES (PO)	
PO1	Problem-solving: Students can build the capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real-life situations.
PO2	Scientific reasoning: Students can analyze, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective.
PO3	Lifelong learning: Students can acquire knowledge and skills, including "learning how to learn", that is necessary for participating in learning activities throughout life.
PO4	Moral and ethical awareness/reasoning: Students can embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstrating the ability to identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting an objective, unbiased and truthful actions in all aspects of work.
PO5	Information/digital literacy: Students can use ICT in a variety of learning situations, demonstrate the ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.
PO6	Multicultural competence: Students can get knowledge of the values and beliefs of multiple cultures and a global perspective, and the capability to effectively engage in a multicultural society and interact respectfully with diverse groups.
PO7	Leadership readiness/qualities: Students can develop the ability to mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring

	vision, building a team that can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, smoothly and efficiently.
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PROGRAMME SPECIFIC OUTCOMES (PSO)	
PSO1	Able to understand the various scientific principles and they can able to apply in the field of Aviation Management.
PSO2	Demonstrate ability to research information pertinent to their aviation discipline.
PSO3	Realize the need to continuously gain knowledge throughout life within and outside of aviation



BOARD OF STUDIES

List of Members

Department of Aviation

S. No	Name & Designation	Address	Role
1.	Dr. S. Ramasubramanian Associate Professor & Head	Department of Aviation VISTAS, Chennai– 600117 Mob: 98407 17534 Email ID: hodaviation@velsuniv.ac.in	Chairman
2.	Dr. A. Muthuram, Associate Professor	Department of Aerospace Engineering, SRM Institute of Science and Technology. Mob: 9884566821 Email ID: muthuraa@srmist.edu.in	Academic Expert (External Member)
3.	Capt. Dinesh Balasubramanian Flight Instructor	Akasa Air, Bengaluru Ph: 9008583737 Email ID: dinesh.rb@outlook.com	Industrial Expert (External Member)
4.	Ms. Sana Fatima, Customer Executive	Air India, Chennai. Ph: 6374922761 Email ID: sanafatima0228@gmail.com	Alumni Member (External Member)
5.	Dr. M.Chandrasekaran Professor and Dean Academic Courses,	VISTAS, Chennai. – 600117 Mob: 9790857137 Email ID: Dean.academiccourses@vistas.ac.in	Internal Member
6.	Mr. V.Vinoth, Assistant Professor	Department of Aviation VISTAS, Chennai. – 600117 Mob:8939650177 Email ID: space.aero99@gmail.com	Internal Member
7.	Mr. G. Maheshkumar, Assistant Professor	Department of Aviation VISTAS, Chennai. – 600117 Mob.8072919278 Email ID: maheshkhokho99@gmail.com	Internal Member

CREDIT DISTRIBUTION

B.Sc., (Hons) Aeronautical Science

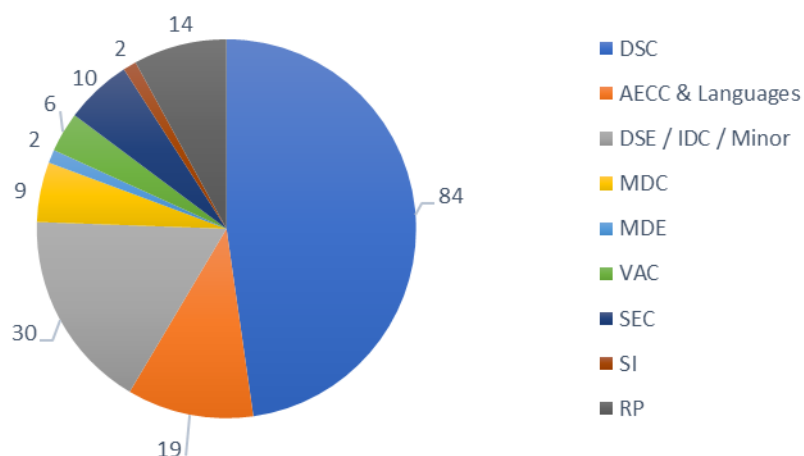
Minimum credits to be earned: 176

B.Sc., Aeronautical Science

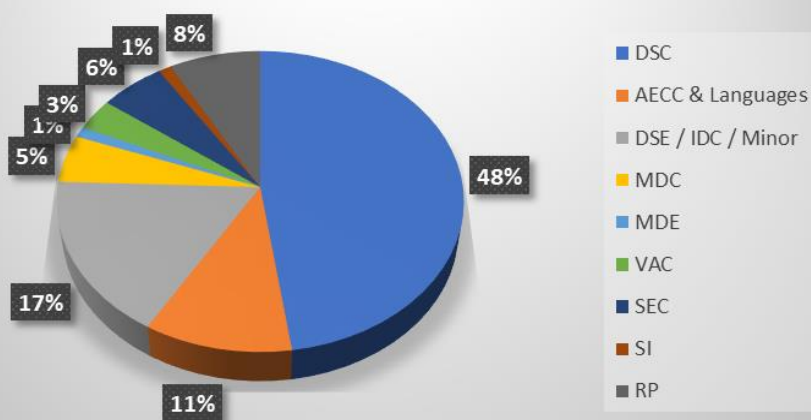
Minimum credits to be earned: 132

Component	I Sem	II Sem	III Sem	IV Sem	V Sem	VI Sem	3 Yrs. Total Credits	VII Sem	VIII Sem	4 Yrs Total Credits
DSC	8	8	8	8	12	16	60	12	12	84
AECC & Languages	4	4	4	7	-	-	19	-	-	19
DSE / IDC / Minor	4	4	3	4	3	4	22	4	4	30
MDC	3	3	3	-	-	-	9	-	-	9
MDE	-	-	2	-	-	-	2	-	-	2
VAC	2	1	-	1	2	-	6	-	-	6
SEC	2	2	2	2	2	-	10	-	-	10
SI	-	-	1	-	1	-	2	-	-	2
RP	-	-	-	-	-	2	2	6	6	14
Total Credits	23	22	23	22	20	22	132	22	22	176

CREDIT DISTRIBUTION



CREDIT DISTRIBUTION PERCENTAGE



ABBREVIATIONS

DSC	Disciplinary Specific Core
AECC	Ability Enhancement Compulsory Courses
DSE	Disciplinary Specific Elective
IDC	Interdisciplinary / Minor Courses
MDC	Multidisciplinary Courses
MDE	Multidisciplinary Elective
VAC	Value Added Courses
SEC	Skill Enhancement Courses
SI	Summer Internship
RP	Research Project

CURRICULUM STURCTURE

B.Sc., Aeronautical Science
Three Years

/

BSc., (Hons) Aeronautical Science
Four Years

Total number of Credits: 176

	B.Sc., Aeronautical Science (Hons) Minimum Credits to be earned :176									
	B.Sc., Aeronautical Science Minimum Credits to be earned: 132									
	Hours/Week					Maximum Marks				
SEMESTER 1										
Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
LANG 1	24LTAM11/ 24LH1N11/ 24LFRE11	Tamil I / Hindi I/ French I	2	0	0	1	2	40	60	100
ENG 1	24LENG11	English I	2	0	0	1	2	40	60	100
DSC 1	24CBAR11	Elements of Aviation	3	0	0	2	3	40	60	100
DSC 2	24CBAR12	Fundamentals of Physics	4	0	0	2	4	40	60	100
MDC 1	24MBAR11	Mathematics	3	0	0	2	3	40	60	100
DSE 1/ IDC 1 / Minor 1	24DBAR11 / 24DBAR12	Discipline specific Elective-I	4	0	0	2	4	40	60	100
DSC 1	24PBAR11	Practical I- Physics Lab	0	0	2	1	1	40	60	100
VAC 1	24CSKU11	Communication Skills	2	0	0	1	2	-	100	100
SEC 1	24SSKU11	Soft Skills 1	2	0	0	1	2	40	60	100
SEC 2		Orientation programme / Industrial Visit	-	-	-	-	-	-	-	-
			22	-	2	-	23	-	-	-

CIA - Continuous Internal Assessment

SEE - Semester End Examination

***L – Lecture, *T- Tutorial, *P- Practical, *O - Outside the class effort / self-study**

SEMESTER 2

Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
LANG 2	24LTAM21/ 24LH1N21/ 24LFRE21	Tamil II / Hindi II / French II	2	0	0	2	2	40	60	100
ENG 2	24LENG21	English II	2	0	0	2	2	40	60	100
DSC 3	24CBAR21	Aviation meteorology	3	0	0	2	3	40	60	100
DSC 4	24CBAR22	Familiarization of ATC and Airspace	3	0	0	2	3	40	60	100
MDC 2	24MBAR21	Principle of Management	3	0	0	2	3	40	60	100
DSE 2 / IDC 2 / Minor 2	24DBAR21 / 24DBAR22	Discipline specific Elective-II	4	0	0	2	4	40	60	100
DSC 3	24PBAR21	Practical II- Workshop Practices Lab	0	0	2	1	1	40	60	100
DSC 4	24PBAR22	Practical III- Aerodynamics Lab	0	0	2	1	1	40	60	100
VAC 2	24DVAC22	Universal Human Values	1	0	0	1	1	40	60	100
SEC 3	24SSKU21	Soft Skills 2	2	0	0	1	2	40	60	100
			21	-	4	-	22	-	-	-

SEMESTER 3

Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
LANG 3	24LTAM31/ 24LHIN31 /24LFRE31	Tamil III / Hindi III / French III	2	0	0	2	2	40	60	100
ENG 3	24LENG31	English III	2	0	0	2	2	40	60	100
DSC 5	24CBAR31	Radio Telephony Restricted	3	0	0	2	3	40	60	100
DSC 6	24CBAR32	General Navigation	3	0	0	2	3	40	60	100
MDC 3	24MBAR31	Artificial Intelligence in Aviation	3	0	0	2	3	40	60	100
DSE 3 / IDC 3 / Minor 3	24DBAR31 / 24DBAR32	Discipline specific Elective-III	3	0	0	2	3	40	60	100
DSC 5	24PBAR31	Practical IV- Aircraft Component Drawing Lab	0	0	2	2	1	40	60	100
DSC 6	24PBAR32	Practical V- Aircraft Structures Lab	0	0	2	2	1	40	60	100
MDE 1		Indian Knowledge System	2	0	0	0	2	40	60	100
SEC 4	24SSKU31	Soft Skills 3	2	0	0	2	2	40	60	100
SI 1	24IBAR31	Internship I	0	0	2	1	1	-	100	100
			20	-	6	-	23	-	-	-

SEMESTER 4

Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
LANG 4	24LTAM41/ 24LHIN41 /24LFRE41	Tamil IV / Hindi IV / French IV	2	0	0	1	2	40	60	100
ENG 4	24LENG41	English IV	2	0	0	1	2	40	60	100
AECC 1	24EVS041	Environmental Studies	3	0	0	2	3	40	60	100
DSC 7	24CBAR41	Aircraft Instruments	3	0	0	2	3	40	60	100
DSC 8	24CBAR42	Air Regulation	3	0	0	2	3	40	60	100
DSE 4 / IDC 4 / Minor 4	24DBAR41 / 24DBAR42	Discipline specific Elective-IV	4	0	0	2	4	40	60	100
DSC 7	24PBAR41	Practical VI- Aircraft Maintenance Lab	0	0	2	1	1	40	60	100
DSC 8	24PBAR42	Practical VII- Propulsion Lab	0	0	2	1	1	40	60	100
SEC 5	24SBAR41	Industry Oriented Employability skills	1	0	2	1	2	40	60	100
VAC 3	24SNSS41	Yoga Education	0	0	2	1	1	-	100	100
SEC 6	24SBAR42	In-plant Training/ Industrial Tour/ Summer Term	-	-	-	-	-	-	-	-
			18	-	8	-	22	-	-	-

SEMESTER 5

Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
DSC 9	24CBAR51	Non-Destructive testing	3	0	0	2	3	40	60	100
DSC 10	24CBAR52	Aircraft and Engine systems	3	0	0	2	3	40	60	100
DSC 11	24CBAR53	Airport and Airline passenger Management	4	0	0	2	4	40	60	100
DSE 5 / IDC 5 / Minor 5	24DBAR51 / 24DBAR52	Discipline specific Elective-V	3	0	0	2	3	40	60	100
DSC 9	24PBAR51	Practical VIII – Technical Seminar	0	0	2	2	1	40	60	100
DSC 10	24PBAR52	Practical IX-Aircraft simulator Lab	0	0	2	2	1	40	60	100
SEC 7	24SBAR51	Entrepreneurial Development	2	0	0	1	2	40	60	100
VAC 4	24DVAC51	Drone training	2	0	0	1	2	40	60	100
SI 2	24IBAR51	Internship II	0	0	2	1	1	-	100	100
SEC 8	24SBAR52	Skill Enhancement Training / Student Club Activities/ Institution Innovation Council Activities	-	-	-	-	-	-	-	-
			17	-	6	-	20	-	-	-

SEMESTER 6

Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
DSC 12	24CBAR61	Civil Aviation Requirements	3	0	0	2	3	40	60	100
DSC 13	24CBAR62	Flight Planning and Monitoring	4	0	0	2	4	40	60	100
DSC 14	24CBAR63	Aircraft loads and control	4	0	0	2	4	40	60	100
DSC 15	24CBAR64	Aircraft Structures and Composite Materials	4	0	0	2	4	40	60	100
DSE 6 / IDC 6 / Minor 6	24DBAR61 / 24DBAR62	Discipline specific Elective-VI	4	0	0	2	4	40	60	100
DSC 12	24PBAR61	Practical X – Flight planning Lab	0	0	2	2	1	40	60	100
SEC 9	24RBAR61	Mini Project	0	0	4	1	2	-	100	100
SEC 10		On Job Training / Apprenticeship / Startup	-	-	-	-	-	-	-	-
			21	-	2	-	22	-	-	-

SEMESTER 7										
Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
DSC 16	24CBAR71	Aircraft Design	3	0	0	2	3	40	60	100
DSC 17	24CBAR72	Aviation Legislation	4	0	0	2	4	40	60	100
DSC 18	24CBAR73	Aircraft Maintenance Practices	4	0	0	2	4	40	60	100
DSE 7 / IDC 7 / Minor 7	24DBAR71 / 24DBAR72	Discipline specific Elective-VII	4	0	0	2	4	40	60	100
DSC 16	24PBAR71	Practical X- Aircraft Design Project I	0	0	2	2	1	40	60	100
RP 1	24RBAR71	Research Project I	0	0	12	2	6	40	60	100
			15	-	14	-	22	-	-	-

SEMESTER 8										
Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
DSC 19	24CBAR81	Avionics	3	0	0	2	3	40	60	100
DSC 20	24CBAR82	Air Route Planning and Fleet Planning	3	0	0	2	3	40	60	100
DSC 21	24CBAR83	Airport /Airline Ground Operations	4	0	0	2	4	40	60	100
DSE 8 / IDC 8 / Minor 8	24DBAR81 / 24DBAR82	Discipline specific Elective-VIII	4	0	0	2	4	40	60	100
DSC 19	24PBAR81	Practical XI – Avionics Lab	0	0	2	2	1	40	60	100
DSC 20	24PBAR82	Practical XII – Aircraft Design Project II	0	0	2	2	1	40	60	100
RP 2	24RBAR81	Research Project II	0	0	12	2	6	-	60	100
			14	-	14	-	22	-	-	-

DISCIPLINE SPECIFIC CORE COURSES

Category	Code	Course	L	T	P	O	C
DSC 1	24CBAR11	Elements of Aviation	3	0	0	2	3
DSC 2	24CBAR12	Fundamentals of Physics	4	0	0	2	4
DSC 1 (Lab)	24PBAR11	Physics Lab	0	0	2	1	1
DSC 3	24CBAR21	Aviation Meteorology	3	0	0	2	3
DSC 4	24CBAR22	Familiarization Of ATC and Airspace	3	0	0	2	3
DSC 2 (Lab)	24PBAR21	Workshop Practices-Lab	0	0	2	2	1
DSC 3 (Lab)	24PBAR22	Aerodynamics Lab	0	0	2	1	1
DSC 5	24CBAR31	Radio Telephony Restricted	3	0	0	2	3
DSC 6	24CBAR32	General Navigation	3	0	0	2	3
DSC 4 (Lab)	24PBAR31	Aircraft Component Drawing Lab	0	0	2	2	1
DSC 5 (Lab)	24PBAR32	Aircraft Structures Lab	0	0	2	2	1
DSC 7	24CBAR41	Aircraft Instruments	3	0	0	2	3
DSC 8	24CBAR42	Air Regulation	3	0	0	2	3
DSC 6 (Lab)	24PBAR41	Aircraft Maintenance Lab	0	0	2	1	1
DSC 7 (Lab)	24PBAR42	Propulsion Lab	0	0	2	1	1
DSC 9	24CBAR51	Non-Destructive Testing	3	0	0	2	3
DSC 10	24CBAR52	Aircraft and Engine Systems	3	0	0	2	3
DSC 11	24CBAR53	Airport and Airline Passenger Management	4	0	0	2	4

DSC 8 (Lab)	24PBAR51	Technical Seminar	0	0	2	2	1
DSC 9 (Lab)	24PBAR52	Aircraft Simulator Lab	0	0	2	2	1
DSC 12	24CBAR61	Civil Aviation Requirements	3	0	0	2	3
DSC 13	24CBAR62	Flight Planning and Monitoring	4	0	0	2	4
DSC 14	24CBAR63	Aircraft Loads and Control	4	0	0	2	4
DSC 15	24CBAR64	Aircraft Structures and Composite Materials	4	0	0	2	4
DSC 10 (Lab)	24PBAR61	Flight Planning Lab	0	0	2	2	1
DSC 16	24CBAR71	Aircraft Design	3	0	0	2	3
DSC 17	24CBAR72	Aviation Legislation	4	0	0	2	4
DSC 18	24CBAR73	Aircraft Maintenance Practices	4	0	0	2	4
DSC 11 (Lab)	24PBAR71	Aircraft Design Project I	0	0	2	2	1
DSC 19	24CBAR81	Avionics	3	0	0	2	3
DSC 20	24CBAR82	Air Route Planning and Fleet Planning	3	0	0	2	3
DSC 21	24CBAR83	Airport /Airline Ground Operations	4	0	0	2	4
DSC 12 (Lab)	24PBAR81	Avionics Lab	0	0	2	2	1
DSC 12 (Lab)	24PBAR82	Aircraft Design Project II	0	0	2	2	1

DISCIPLINE SPECIFIC ELECTIVE COURSES

Category	Code	Course	L	T	P	O	C
DSE 1	24DBAR11	Basic Electrical Fundamentals	4	0	0	2	4
	24DBAR12	Air Traffic Control	4	0	0	2	4
DSE 2	24DBAR21	Principle of Flight	4	0	0	2	4
	24DBAR22	Industrial Aerodynamics	4	0	0	2	4
DSE 3	24DBAR31	Radio Navigation	3	0	0	2	3
	24DBAR32	Aerodynamics of Drones	3	0	0	2	3
DSE 4	24DBAR41	Aerospace Propulsion	4	0	0	2	4
	24DBAR42	Design Of UAV Systems	4	0	0	2	4
DSE 5	24DBAR51	Aircraft Performance and Stability	3	0	0	2	3
	24DBAR52	Wind Tunnel Techniques	3	0	0	2	3
DSE 6	24DBAR61	Aero Engine Maintenance and Repair	4	0	0	2	4
	24DBAR62	Aerospace Materials	4	0	0	2	4
DSE 7	24DBAR71	Dangerous Goods and Cargo	4	0	0	2	4
	24DBAR72	Airframe Maintenance and Repair	4	0	0	2	4
DSE 8	24DBAR81	Airline Operations Control Centre	4	0	0	2	4
	24DBAR82	Piston Engine and Propellor	4	0	0	2	4

AECC & LANGUAGES

Category	Code	Course	L	T	P	O	C
LANG 1	24LTAM11/ 24LHIN11/ 24LFRE11	Tamil I / Hindi I/ French I	2	0	0	1	2
ENG 1	24LENG11	English I	2	0	0	1	2
LANG 2	24LTAM21/ 24LHIN21/ 24LFRE21	Tamil II / Hindi II / French II	2	0	0	2	2
ENG 2	24LENG21	English II	2	0	0	2	2
LANG 3	24LTAM31/ 24LHIN31/ 24LFRE31	Tamil III / Hindi III / French III	2	0	0	2	2
ENG 3	24LENG31	English III	2	0	0	2	2
LANG 4	24LTAM41/ 24LH1N41/ 24LFRE41	Tamil IV/Hindi IV/French IV	2	0	0	2	2
ENG 4	24LENG41	English-IV	2	0	0	2	2
AECC 1	24EVS031	Environmental Studies	3	0	0	2	3

MULTIDISCIPLINARY COURSES

Category	Code	Course	L	T	P	O	C
MDC 1	24MBAR11	Mathematics	3	0	0	2	3
MDC 2	24MBAR21	Principle of Management	3	0	0	2	3
MDC 3	24MBAR31	Artificial Intelligence in Aviation	3	0	0	2	3

MULTIDISCIPLINARY COURSES

Category	Code	Course	L	T	P	O	C
MDE 1		Indian Knowledge System	2	0	0	2	2

VALUE ADDED COURSES

Category	Code	Course	L	T	P	O	C
VAC 1	24DVAC11	Communication Skills	2	0	0	1	2
VAC 2	24DVAC21	Universal Human Values	1	0	0	1	1
VAC 3	24SNSS41	Yoga Education	0	0	2	1	1
VAC 4	24DVAC51	Drone Training	2	0	0	1	2

SKILL ENHANCEMENT COURSES

Category	Code	Course	L	T	P	O	C
SEC 1	24SSKU11	Soft Skills I	2	0	0	1	2
SEC 2	24SBAR11	Orientation Programme / Industrial Visit	-	-	-	-	-
SEC 3	24SSKU21	Soft Skills II	2	0	0	1	2
SEC 4	24SSKU31	Soft Skills III	2	0	0	2	2
SEC 5	24SBAR41	Industry Oriented Employability skills	1	0	2	1	2
SEC 6	24SBAR42	In-plant Training/ Industrial Tour/ Summer Term	-	-	-	-	-
SEC 7	24SBAR51	Entrepreneurial Development	2	0	0	1	2
SEC 8	24SBAR52	Skill Enhancement Training / Student Club Activities/	-	-	-	-	-

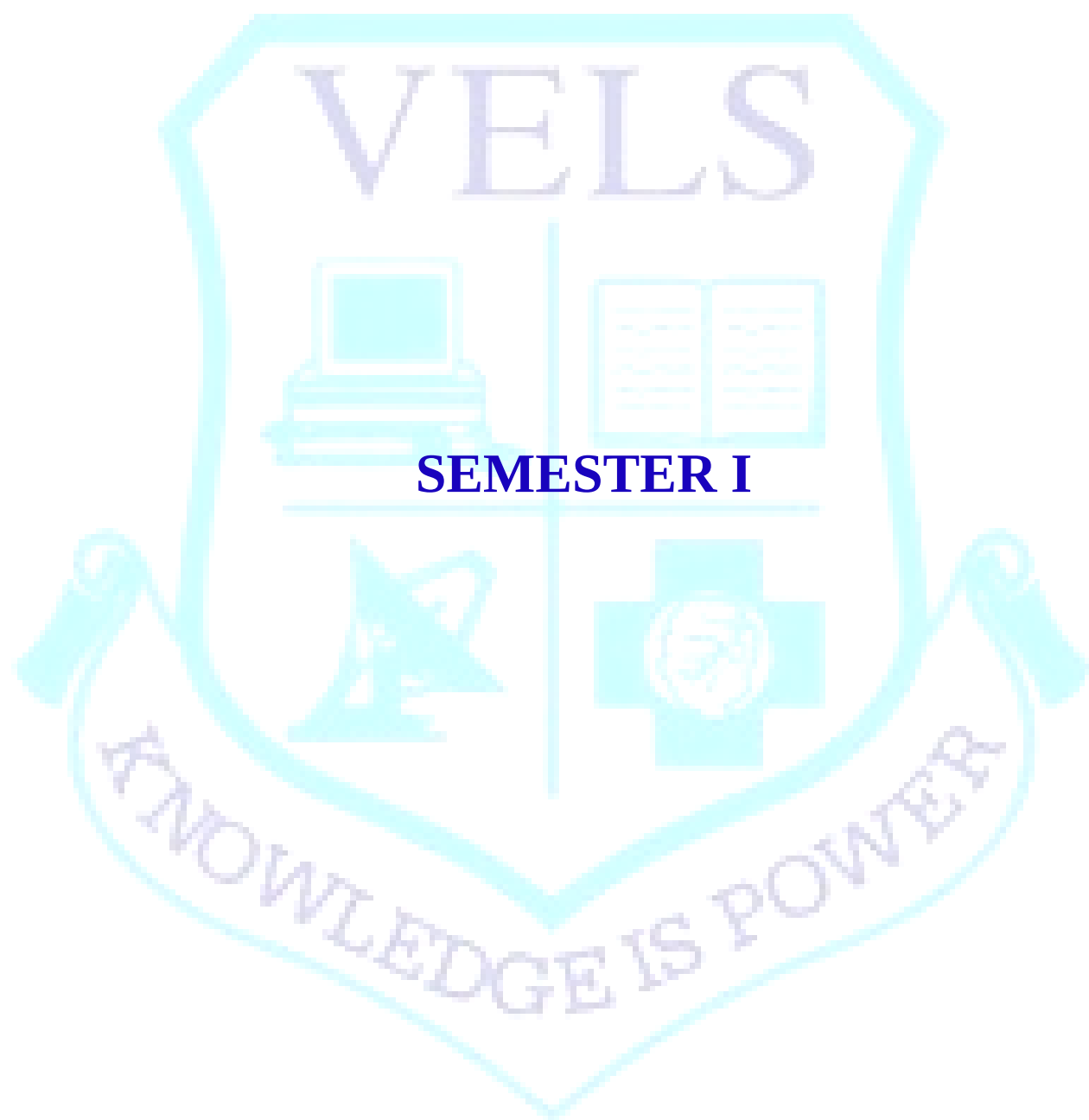
		Institution Innovation Council Activities					
SEC 9	24RBAR61	Mini Project	2	0	0	2	2
SEC 10	24SBAR62	On Job Training / Apprenticeship / Startup	-	-	-	-	-

SUMMER INTERNSHIP

Category	Code	Course	L	T	P	O	C
SI 1	24IBAR31	INTERNSHIP-I	0	0	2	1	1
SI 2	24IBAR51	INTERNSHIP-II	0	0	2	1	1

RESEARCH PROJECT

Category	Code	Course	L	T	P	O	C
RP 1	24RBAR71	Research Project I	0	0	12	2	6
RP 2	24RBAR81	Research Project II	0	0	12	2	6



L	T	P	O	C
2	0	0	1	2

மொழிவரலாறு – சங்க இலக்கியம் – அற இலக்கியம் – மொழித்திறன்
பாடத்திட்ட நோக்கம்:

மாணவர்களின் இலக்கிய நாட்டத்தை மேம்படுத்துதல், தற்கால தமிழ் இலக்கிய வகைமைகளான மரபுக்கவிதை, புதுக்கவிதை, உரைநடை ஆகியவற்றை அறிமுகப்படுத்துதல், தமிழர்தம் வாழ்வியல் நெறிகளையும் பண்பாட்டுச் செழுமைகளையும் இன்றைய தலைமுறையினர் அறியச் செய்தல், மாணவர்களுக்குத் தமிழைத் தவறின்றி எழுதுவதற்குத் தேவையான பயிற்சி அளித்து அவர்களின் மொழித்திறனை மேம்படுத்துதல், செய்யுளின் நலத்தைப் பாராட்டும் முறைமையை அறியச் செய்து அதன்வழி சிந்தனை வளத்தைப் பெருகச் செய்தல் என்பனவும் மேற்கண்டவழி மாணவர்களை ஆளுமை மிக்கவர்களாக உருவாக்கி, போட்டித்தேர்வுகளுக்குத் தயார் செய்து அவர்களுக்கு வேலைவாய்ப்பை உருவாக்குவதும் இந்தப் பாடத்திட்டத்தின் முக்கிய நோக்கமாகும்.

அலகு- 1: தமிழ் மொழி வரலாறு

8மணி நேரம்

மொழிக்குடும்பம் - இந்திய மொழிக்குடும்பங்கள் - இந்திய ஆட்சி மொழிகள் - திராவிட மொழிக்குடும்பங்கள் - திராவிட மொழிகளின் வகைகள் -திராவிட மொழிகளின் சிறப்புகள் - திராவிட மொழிகளின் வழங்கிடங்கள் - திராவிட மொழிகளுள் தமிழின் இடம் - தமிழ்மொழியின் சிறப்புகள் - தமிழ் பிறமொழித் தொடர்புகள்.

அலகு -2

8 மணி நேரம்

புறநானூறு- பாடல் எண்: , 182, 183, - இரண்டு பாடல்கள்.

குறுந்தொகை- பாடல் எண்: 2, 167, - இரண்டு பாடல்கள்

பரிபாடல் - முருகன். வையை - இரண்டு பாடல்கள்

அலகு - 3 அற இலக்கியங்கள்

திருக்குறள்- வான்சிறப்பு (அறம்), பெருமை (பொருள்), பிரிவாற்றாமை (இன்பம்),..
மூன்று அதிகாரங்கள் முழுமையும்

1. நாலடியார் - இரண்டு பாடல்கள். (2, 3)
2. முதுரை - இரண்டு பாடல்கள். (2, 8)

அலகு 4 மொழி

07 மணி நேரம்

பிழை நீக்கி எழுதுதல் - ஒற்றுப்பிழை நீக்கி எழுதுதல் - தொடர்பிழை நீக்கி எழுதுதல் - ஒற்று மிகும் இடங்கள் - ஒற்று மிகா இடங்கள் - பிற மொழிச் சொற்களை நீக்கி எழுதுதல் - பயிற்சிகள்.

மொத்தம்: 30 மணி நேரம்

பார்வை நூல்கள்

1. தமிழர் நாகரிகமும் பண்பாடும், டாக்டர் அ. தட்சிணாமூர்த்தி, ஐந்திணைப் பதிப்பகம், 2001.
2. தவறின்றித் தமிழ் எழுதுவோம், மா. நன்னன், ஏகம் பதிப்பகம், 1999.
3. தவறின்றித் தமிழ் எழுத - மருதூர் அரங்கராசன், ஐந்திணைப் பதிப்பகம், 2003.
4. தமிழ் இலக்கிய வரலாறு, வரதராசன், மு., புது தில்லி : சாகித்திய அக்காடெமி, 2002.
5. புதிய தமிழ் இலக்கிய வரலாறு, நீல. பத்மநாபன், சிற்பி பாலசுப்ரமணியம், சாகித்திய அக்காடெமி, 2007.
6. செம்மொழி தமிழின் சிறப்பியல்புகள் - முனைவர் மறைமலை இலக்குவனார்; <https://www.youtube.com/watch?v=HHZnmJb4jSY>
7. பாடநூல் தேடலுக்கான இணையம் - <https://archive.org/>



L	T	P	O	C
2	0	0	1	2

Course Objectives :

- To understand the rural life style, social responsibilities and social values
- To create awareness about the importance of varied culture
- To enable the students to develop communication skill in Hindi and to use Azhagi, Azhagi+ fonts

UNIT I : पं.श्रीराम शर्मा कृत 'स्मृति' (कहानी)

'Smruti' (Kahani) by Pandit Sriram Sharma.

6hrs.

UNIT II : शरद जोशी कृत 'अतिथि तुम कब जावोगे' (व्यंग्य)

'Athiti tum kab jaaoge' (Vyangy) by Sharad Joshi.

6hrs.

UNIT III: राहुल सांस्कृतयायन कृत 'अथातो घुमक्कड़ जिज्ञासा' (यात्रा वृत्तान्त)

'Atatho Ghumakkad Jigyasa' (Yatra Vruthanth) by
Rahul Sanskritayan.

6hrs.

UNIT IV: व्यावहारिक हिन्दी- पत्र लेखन में प्रयुक्त वाक्यांश, कौशल विकास

– भाव एक भाषा अनेक

6hrs.

Functional Hindi-Phrases used in Letter Writing.

Skill development - Bhav Ek Bhasha Anek

UNIT V : पत्र लेखन – परिचय व प्रकार, 3 अनौपचारिक पत्र

अलगी, अलगी + फ्रॉन्ट का परिचय

Letter Writing- Intro. & Types & 3 Personal Letters

6hrs.

Introduction to Azhagi, Azhagi + fonts

Total: 30hrs.

Course Outcome:

At the end of this course Students will be able to

CO1 Gain knowledge about the rural life style

CO2 Understand social values

CO3 Understand importance of varied culture

CO4 Journalise in Functional Hindi

CO5 Use Azhagi, Azhagi+ fonts

Text Books:

Pandit Shriram Sharma, Shikaar, Sahitya Sadan, 1932.

Sharad Joshi, Yatha Sambhav, Bharatiya Gyanpeet, 2014.

Rahul Sanskritayan, Ghumakkad Shastra, Rajkamal Prakashan, 1949.

Reference Book:

Kendriya Hindi Sansthan, Banking Hindi Patyakram, 2012.

NCERT, Sparsh, Class 9.

Main Aur Mera Vyakaran, New Saraswati House, New Delhi.

Govind Ballabh Sharma, Hindi Vyavaharik Tanka Kala Evam Tanka Abhyas, Neelkanth Publishers Pvt. Ltd., 2022.

Weblinks :

Pandit Sriram Sharma ka kahani: <https://www.evidyarthi.in>

Harishankar parasayi ka Vyangy: <http://gadyakosh.org>

Rahul Sanskritayan ka yatravrutant: <https://www.hindwi.org>

Prayojanmoolak Hindi: <https://hi.m.wikipedia.org>

<https://www.azhagi.com/hnd/helphtml/Introduction.html>



L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

The lessons are being chosen:

- To greet, to express excuse and to introduce oneself
- To introduce another person
- To express his/her ideas, opinions and weekend projects
- To request someone to do something, polite manners
- To accept, refuse, enquire and indicate the time and date
- To express himself / herself in positive and negative manner

UNIT I SALUT**4 HOURS**

- les nombres, Les jours de la semaine et du mois, La nationalité

UNIT II ENCHANTÉ**6 HOURS**

- Les verbes Etre, Avoir, Aller, Regular ER verbes, Present tense

UNIT III J'ADORE**4 HOURS**

- La negation, l'adjectif possessif, le futur proche

UNIT IV TU VEUX BIEN**7 HOURS**

- Les articles de finis/indéfinis, Les pronoms après une préposition (avec lui, chez moi), Le passé composé

UNIT V ON SE VOIT QUAND**5 HOURS**

- Les pronoms compléments directs me, te, nous, vous, L'interrogation avec est-ce que, L'heure et la date.

UNIT VI BONNE IDÉE**4 HOURS**

- Les articles partitifs, Le masculin et le féminin des adjectifs, Les pronoms compléments directs le, la, les, La négation : ne... pas de.

TOTAL 30 HOURS**COURSE OUTCOMES:**

- 1) The students would be able to greet, to excuse and to introduce himself
- 2) The students would be able to introduce someone
- 3) The students would be able to express his ideas, opinions and weekend projects
- 4) The students would be able to ask someone to do something, polite manner
- 5) The students would be able to accept, refuse enquire and indicate the time and date
- 6) The students would be able to express himself in positive and negative manner

REFERENCES:

1. LATITUDES 1 (A1/A2) MÉTHODE DE FRANÇAIS - Régine Mérieux and Yves Loiseau
2. SAISON A1 - MÉTHODE DE FRANÇAIS - Marie-Noëlle Cocton, Élodie Heu, Catherine Houssa, Émilie Kasazian



L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

- To enable students to develop their communication skills effectively.
- To make students familiar with usage skills in the English Language.
- To enrich their vocabulary in English.
- To develop communicative competence.

UNIT I PROSE**6 HOURS**

- Dangers of drug abuse - Hardin B.Jones
- Tight corners - E.V.Lucas

UNIT II POETRY**6 HOURS**

- Ecology - A.K.Ramanujan
- The owl and the chimpanzee - Jo Camacho

UNIT III SHORT STORY**6 HOURS**

- The Dear Departed - Stanley Houghton
- The Fool's Paradise- Isaac Bashevis Singer

UNIT IV GRAMMAR**6 HOURS**

- Parts of speech, Articles

UNIT V GRAMMAR**6 HOURS**

- One-word substitution, prefix, suffix, synonym, antonym

TOTAL 30 HOURS**COURSE OUTCOMES:**

Upon completion of this course, the students will be able to

CO1: Understand the characteristic features of the language used in the text.

CO2: Strengthen their knowledge of basic grammar

CO3: Improve narrative skills after studying diverse prose and play.

CO4: Understand to classify parts of speech and articles.

CO5: Develop critical writing skills in the textual content of the syllabus.

REFERENCES:

1. English for Communication Enrichment: by Jeya Santhi June 2015.
2. Dr. M. Narayana Rao and Dr. B. G.Barki-Anu's Current English for Communication (AnuChitra). June 2012.
3. Dr. Ananthan, R. Effective Communication. Ed. Chennai: Anu Chithra Pub.2010.

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

To acquire the knowledge on the Historical evolution of aviation and to learn the various stake holders in civil aviation

UNIT I**HISTORY OF AVIATION****9 HOURS**

Evolution of Aviation – Early stage and Later stage - International conventions: Paris Convention - Chicago Convention – International Civil Aviation Organization and Annexures –Freedom of air – Phonetic Alphabet & Terminology – Introduction to World Time zone - Development of Air transportation in India

UNIT II**INTRODUCTION TO AIRCRAFT SCIENCE****9 HOURS**

History of Aircraft – Difference between Aircraft and Airplane – Aircraft Manufacturers – Classification of Airplanes – Classification and Parts of an Aircraft – definitions – Basic Science behind the Flight – Mechanics of the Flight.

UNIT III**STAKE HOLDERS IN CIVIL AVIATION****9 HOURS**

Airport – Classification: Organizational structure and functions – Airline industry: Air Operator Certificate, Non-scheduled Operator's Permit, classification, Permits and approval, Basic operation models, Hub and Spoke, Commercial Airlines, Military aviation, General Aviation – Aerospace Company: Design, Manufacturing and Maintenance – Maintenance, repair and overhaul: Aircraft Maintenance - Organization Structure – Air Traffic Control: organizational structure - Roles, Air Traffic Control units, Functions, Controlled Aerodrome – Ground Handling Agent: Roles and Functions

UNIT IV**REGULATORY BODIES IN AVIATION****9 HOURS**

International Civil Aviation Organization – International Air Transport Association – Ministry of Civil Aviation – Directorate General of Civil Aviation – Aircraft Accident Investigation Bureau – Bureau of Civil Aviation Security and Central Industrial Security Force – Airport Authority of India. – Other regulatory bodies European Union Aviation Safety Agency, Federal Aviation Administration - Introduction, Responsibility and Functions.

UNIT V**AIRCRAFT INCIDENTS AND ACCIDENTS
INVESTIGATION****9 HOURS**

Case studies and practical exercises on Air crash investigation – Introduction to Accident Investigation – Investigation techniques and methodology – Human factors in Accident investigation - Technical aspects of air crash investigation – Legal and ethical aspects

TOTAL: 45 HOURS**COURSE OUTCOMES:**

Upon completion of this course, the students will be able to

CO1: Illustrate the history of aviation & developments over the years

CO2: Gain knowledge on aircraft basic science

CO3: Explain the various stake holders in aviation

CO4: Explain the various regulatory bodies in aviation

CO5: Illustrate the air crash investigation

TEXT BOOKS:

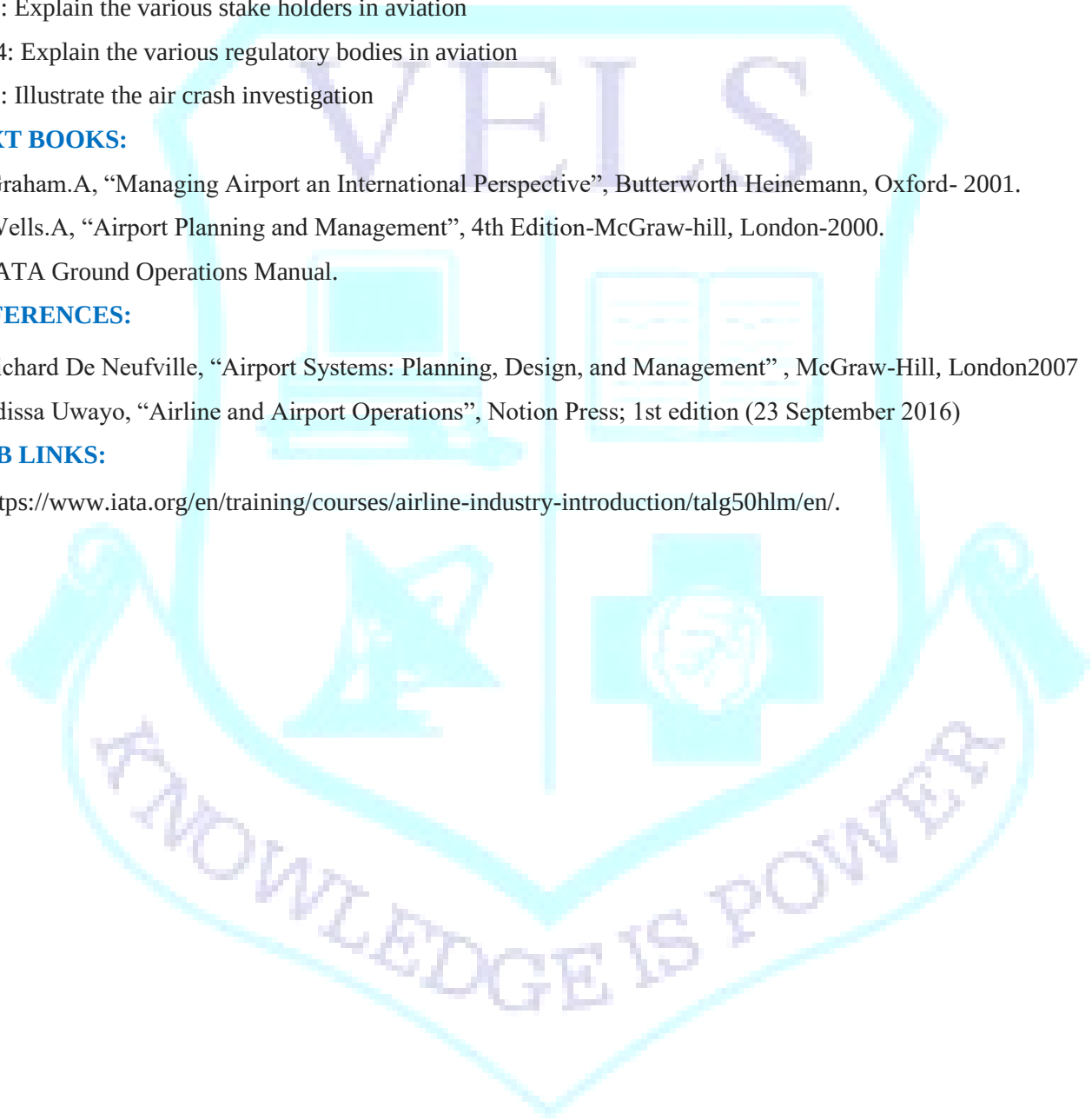
1. Graham.A, “Managing Airport an International Perspective”, Butterworth Heinemann, Oxford- 2001.
2. Wells.A, “Airport Planning and Management”, 4th Edition-McGraw-hill, London-2000.
3. IATA Ground Operations Manual.

REFERENCES:

1. Richard De Neufville, “Airport Systems: Planning, Design, and Management” , McGraw-Hill, London2007
2. Edissa Uwayo, “Airline and Airport Operations”, Notion Press; 1st edition (23 September 2016)

WEB LINKS:

1. <https://www.iata.org/en/training/courses/airline-industry-introduction/talg50hlm/en/>.



L	T	P	O	C
4	0	0	2	4

COURSE OBJECTIVES:

To make the students to understand, the elasticity of a material and different kinds of moduli; surface tension and viscosity of fluids; transmission of heat via Conduction, Radiation process involved in thermal physics; properties of sound using experimental methods and principles of electricity and its conversion into ammeter and voltmeter.

UNIT I ELASTICITY AND BENDING MOMENT**12 HOURS**

Hooke's law - Elastic moduli - Work done in stretching and work done in twisting a wire - Twisting couple on a wire - Determination of rigidity modulus of a wire using torsion pendulum - Expression for bending moment - Uniform bending - Experiment to determine young's modulus using pin and microscope method.

UNIT II FLUIDS**12 HOURS**

Surface Tension: Definitions - Expression for surface tension of a liquid by capillary rise method - Viscosity: Poiseuille's formula for rate of flow of liquid in a capillary tube by dimensions - Analogy between current flow and liquid flow - streamlined motion – Stoke's formula.

UNIT III THERMAL PHYSICS**12 HOURS**

Conduction in solids: Thermal conductivity - Lee's disc method - Wiedemann-Franz law - Convection: Newton's law of cooling – Radiation: Distribution of energy in the spectrum of a black body – Planck's law of radiation (no derivation) and its deduction.

UNIT IV SOUND**12 HOURS**

Simple harmonic motion: free, damped, forced vibrations and resonance - Intensity and loudness of sound - Decibels – Melde's string experiment – Determination of frequency of tuning fork - Acoustics of buildings: Reverberation time - Sabine's formula.

UNIT V ELECTRICITY**12 HOURS**

Current and Current density – Ohm's law - Resistors - I-V characteristics - color coding- conversion of galvanometer into an ammeter and voltmeter – Kirchhoff's laws – Balance condition of Wheatstone's bridge

- Potentiometer – Measurement of potential difference and current.

TOTAL: 60 HOURS

COURSE OUTCOMES:

At the end of this course the students will be able to,

CO1: Understand the bending of beams under different loading conditions.

CO2: Demonstrate the rate of flow of liquid in a capillary tube.

CO3: Identify the good and bad conductors and concepts of blackbody radiation and their applications.CO4:

Analyze acoustic properties of typically used materials for design consideration.

CO5: Illustrate Kirchhoff's law and analyze circuit diagram.

TEXT BOOKS:

1. Properties of Matter: R. Murugesan, S Chand & Co. Pvt. Ltd., New Delhi
2. Heat and thermodynamics: D S Mathur, S Chand & Co., New Delhi.
3. Text book of Sound by M N Srinivasan – Himalaya Publications, 1991.
4. Electricity & Magnetism by K K Tewari, S Chand & Co., 3rd Edition, 2001

REFERENCE BOOKS:

1. Fundamentals of Physics, 6th Edition by D Halliday, R Resnick and J Walker, Wiley NY 2001.
2. C. J. Smith - General Properties of Matter, Orient & Longman Publishers, 1960.

WEB LINKS:

1. <https://www.youtube.com/watch?v=74pm8A0RJ-0>
2. <https://www.youtube.com/watch?v=fa0zHI6nLUo&list=PLbMVogVj5nJTZJHsH6uLCO00I-ffGyBEm>
3. <https://www.youtube.com/watch?v=Lzrjqy4PImE>
4. [Gm0yRYwTgNH_J_73OAyrskU659k64I](https://www.youtube.com/watch?v=Gm0yRYwTgNH_J_73OAyrskU659k64I)

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

- To learn various concept in matrix.
- To apply the concept of Sets to promote critical thinking, problem-solving technique and interdisciplinary connections.
- To analyse the relationships, decisions making and modeling complex systems using Partial Order Relations

UNIT I MATRICES & DETERMINANTS**9 HOURS**

Matrices: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramer's Rule, Rank of Matrix Dependence of Vectors. **Determinants:** Definition, Minors, Cofactors, Properties of Determinants

UNIT II SETS**9 HOURS**

Sets: Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets, Operation on Sets, Union, Intersection and Complements of Sets, Cartesian Product, Cardinality of Set, Simple Applications.

UNIT III RELATIONS & FUNCTIONS**9 HOURS**

Relations: Properties of Relations, Equivalence Relation. **Functions:** Partial Order Relation Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions,

UNIT IV PARTIAL ORDER RELATIONS**9 HOURS**

Partial Order Sets, Representation of POSETS using Hasse diagram, Chains, Maximal and Minimal Point, GLB, LUB.

UNIT V NUMBER SYSTEM AND CONVERSIONS**9 HOURS**

Number Systems: Binary Numbers, Octal Numbers, Decimal numbers, Hexa Decimal numbers. **Number base conversions:** Octal and Hexa Decimal Numbers - Complements - Signed Binary Numbers - Binary Arithmetic - Binary Codes - Decimal Code

TOTAL: 45 HOURS

COURSE OUTCOMES:

At the end of this course the students will be able to,

CO1: Apply the concept of Matrix and solving simultaneous equations

CO2: Understand the ideas of Sets and its applications.

CO3: Identify the relations for various functions .

CO4: Apply the concept of partial order relation for various sets.

CO5: Understand the conversion of various number system.

TEXT BOOKS:

1. Kolman, Busby, Ross and Rehman, Discrete Mathematical Structures for Computer Science, Pearson Education, 5th Edition, 2003.

REFERENCE BOOKS:

1. D.S. Malik and M.K. Sen, Discrete Mathematical Structures: Theory and Applications, Thomson, 2004.
2. Goodaire&Parmenter : Discrete Mathematics & Graph Theory, Pearson Education, 2000.
3. Kenneth H. Rosen, Discrete Mathematics and its Applications, Tata McGraw Hill, 5th Ed., 2004.
4. C.L. Liu, Elements of Discrete Mathematics, 2nd Edition, McGraw Hill, 1986..

WEB LINKS:

1. <https://www.geeksforgeeks.org/mathematics-partial-orders-lattices/>
2. <https://www.ipsgwalior.org/download/number%20system.pdf>

L	T	P	O	C
0	0	2	1	1

COURSE OBJECTIVES:

- To enable the student to explore the field of properties of matter and electricity.
- To gain knowledge in the scientific methods and learn the process of measuring different Physical variables.

Exp no	EXPERIMENTS	Number Of Hours
1	Young's modulus by uniform bending - Pin and Microscope.	3
2	Young's modulus by non-uniform bending - Pin and Microscope.	3
3	Rigidity modulus - torsion pendulum	3
4	Coefficient of viscosity of a liquid – Poiseuille's method	3
5	Thermal conductivity of a bad conductor - Lee's disc method.	3
6	Coefficient of viscosity of a liquid – Stoke's method	3
7	Surface tension of water - capillary rise method	3
8	Ultrasonic Interferometer	3
9	Sonometer-Frequency of Tuning Fork	3
10	Compound Pendulum.	3

COURSE OUTCOMES:

At the end of this course the students will be able to,

CO1: Calculate the Young's modulus of the material.

CO2: Estimate the parameters associated with torsional oscillation.

CO3: Analyze the coefficient of viscosity at different pressure head.

CO4: Measure the acceleration due to gravity.

CO5: Determine the velocity and compressibility of the given liquid.

REFERENCES:

1. C. C. Ouseph, U. J. Rao, V. Vjiayendran, Practical Physics, 1st Edition, 2015.

L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

- To develop effective verbal and non-verbal communication techniques for various contexts.
- To enhance listening skills for better comprehension and engagement in conversations.
- To improve written communication abilities, focusing on clarity, coherence, and style.
- To build confidence in public speaking through practice and constructive feedback.
- To cultivate interpersonal skills for successful collaboration and professional interactions.

UNIT I INTRODUCTION TO COMMUNICATION SKILLS**6 HOURS**

- Fundamentals of Communications
- Elements of Communication, Types of Communication

UNIT II PRACTICAL ENGLISH**6 HOURS**

- Importance of the language - Word Usage and Jargon
- Tenses and the effectiveness - Basics of grammar (Noun/Verb/Adverb/Conjunction)

UNIT III EFFECTIVE COMMUNICATION**6 HOURS**

- LSRW (Listening, Speaking, Reading & Writing)
- Pronunciation - Vocabulary Building
- Intonations & its importance

UNIT IV WORKPLACE COMMUNICATION**6 HOURS**

- Basics of telephone etiquette
- E-Mail writing
- Presentation Skills
- Interpersonal Skills
- Business English

UNIT V QUANTITATIVE ABILITY**6 HOURS**

- Verbal Ability - Verbal Analogy
- Debating Skills - Public Speaking

TOTAL 30 HOURS

COURSE OUTCOMES:

Upon completion of this course, the students will be able to

- CO1 Demonstrate basic etiquette in various personal and professional settings.
- CO2 Effectively manage stress using learned techniques.
- CO3 Show increased self-awareness and make informed decisions.
- CO4 Understand and articulate key 21st-century skills.
- CO5 Apply creativity and critical thinking to solve problems innovatively.

REFERENCES:

1. Alex, Dr. K. (2014). Soft Skills (1st edition) S Chand & Company
2. Taylor. Grant English Conversation Practice. Tata McGraw Hill Education Pvt. Ltd 2005
3. Tiko, Champa& Jaya Sasikumar. Writing with a purpose. OUP New Delhi 1979
4. Nelson-Jones, R. (1992). Life skills, a handbook, Trowbridge, Wilts: Detesios Ltd.
5. Tuhovsky, Ian (2019). Communication Skills Training (2nd edition) Rupa Publication India.

24SSKU11

SOFT SKILLS -I

L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

- To learn and apply basic etiquette for personal and professional interactions.
- To develop effective stress management techniques for maintaining mental and emotional well-being.
- To enhance self-awareness for personal growth and informed decision-making.
- To gain an overview of essential 21st-century skills necessary for success in a rapidly changing world.
- To foster creativity and critical thinking skills for innovative problem-solving and adaptability.

UNIT I INTRODUCTION TO SOFT SKILLS

6 HOURS

- Soft Skills vs Hard Skills
- 15 important Soft Skills
- Communication Skills, Time Management, Leadership Skills

UNIT II OVERVIEW OF 21ST CENTURY SKILLS.

6 HOURS

- Lateral Thinking – Left Brain/Right Brain Functionality
- Problem solving skills

UNIT III SELF AWARENESS

6 HOURS

- Human Values
- Mindfulness
- SWOT Analysis
- PDCA Approach

UNIT IV CREATIVITY/CRITICAL THINKING

6 HOURS

- Six Thinking Traits
- Creative writing exercises
- Open mindedness

UNIT V PERSONAL HYGIENE AND STRESS MANAGEMENT

6 HOURS

- Basic Etiquettes
- Health and Personal Grooming
- Stress-meaning and nature, Eustress, Distress
- Stress management strategies

TOTAL 30 HOURS

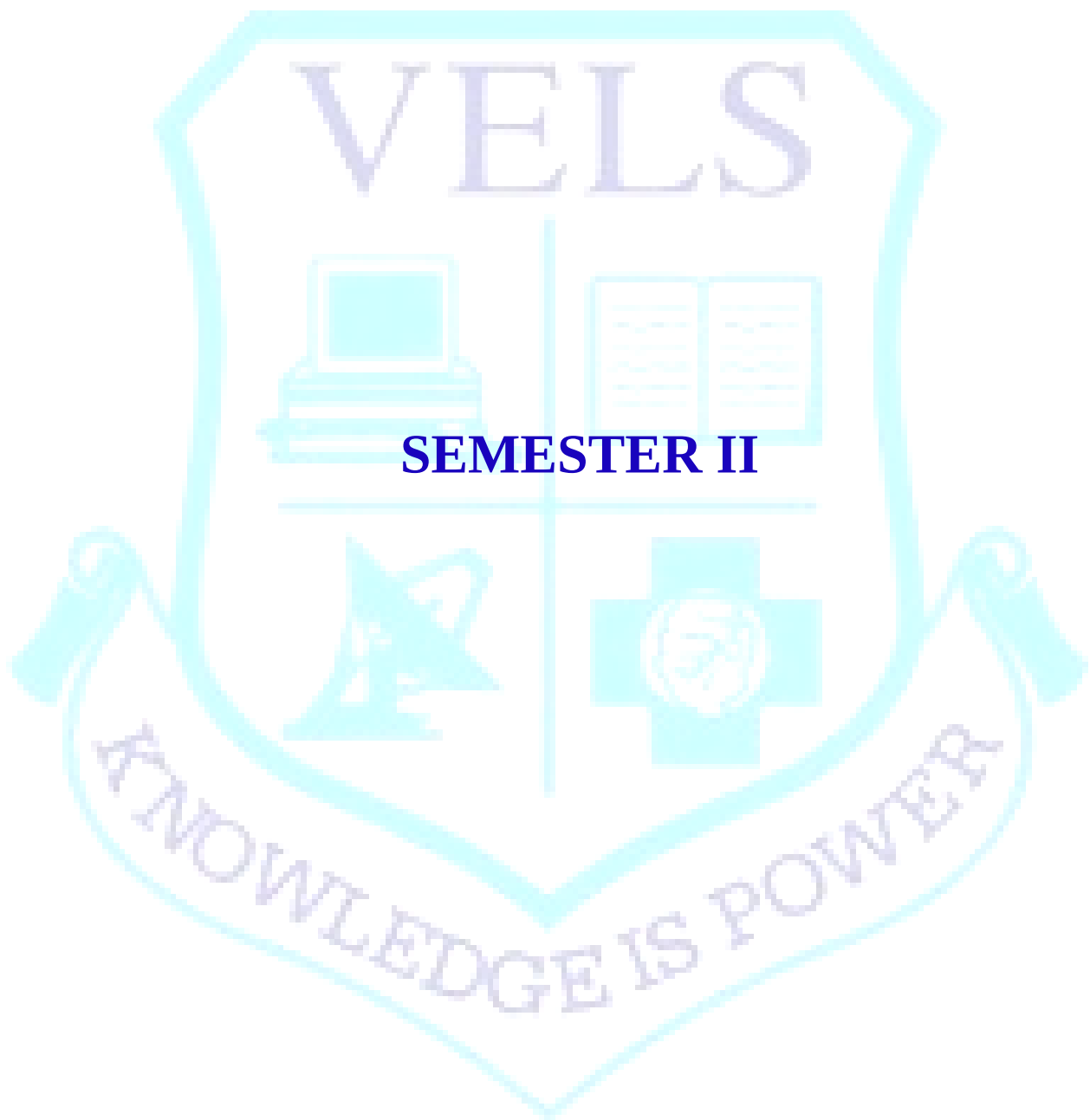
COURSE OUTCOMES:

Upon completion of this course, the students will be able to

- CO1 Demonstrate basic etiquette in various personal and professional settings.
- CO2 Effectively manage stress using learned techniques.
- CO3 Show increased self-awareness and make informed decisions.
- CO4 Understand and articulate key 21st-century skills.
- CO5 Apply creativity and critical thinking to solve problems innovatively.

REFERENCES:

1. Alex, Dr. K. (2014). Soft Skills (1st edition) S Chand & Company
2. Taylor. Grant English Conversation Practice. Tata McGraw Hill Education Pvt. Ltd 2005
3. Tiko, Champa& Jaya Sasikumar. Writing with a purpose. OUP New Delhi 1979
4. Nelson-Jones, R. (1992). Life skills, a handbook, Trowbridge, Wilts: Detesios Ltd.
5. Tuhovsky, Ian (2019). Communication Skills Training (2nd edition) Rupa Publication India.



SEMESTER II

L	T	P	O	C
2	0	0	1	2

காப்பியம், பக்தி இலக்கியம், கலைகள், நாகரிகம்-பண்பாடு
பாடத்திட்ட நோக்கம்:

மாணவர்களின் இலக்கிய நாட்டத்தை மேம்படுத்துதல், அற இலக்கியங்கள், சிற்றிலக்கியம், சிறுகதை ஆகியவற்றை அறிமுகப்படுத்துதல், தற்காலப் பேச்சுத் தமிழ் எழுத்துத்தமிழ் ஆகியவற்றின் வளர்நிலைகளை மாணவர்களை அறியச் செய்தல், அதன்வழி சிந்தனை வளத்தைப் பெருகச் செய்தல் என்பனவும் மேற்கண்டவழி மாணவர்களை ஆளுமை மிக்கவர்களாக உருவாக்கி, போட்டித்தேர்வுகளுக்குத் தயார் செய்து அவர்களின் மொழித் திறனை மேம்படுத்த அவர்களுக்குக் கடிதம் எழுதும் கலையைக் கற்றுக்கொடுத்தல், அணி இலக்கணத்தை அறியச் செய்தல் என்பன இந்தப் பாடத்திட்டத்தின் முக்கிய நோக்கமாகும்.

அலகு 1 காப்பியங்கள் 8மணி நேரம்

சிலப்பதிகாரம்- கனாத்திறம் உரைத்தக் காதை முழுவதும்.

மணிமேகலை- மலர்வனம் புக்க காதை முழுவதும்.

கம்பராமாயணம் - குகப் படலம் (தேர்ந்தெடுக்கப்பட்ட ஒன்பது பாடல்கள்)

அலகு 1: பக்தி இலக்கியம் 8 மணி நேரம்

1. மாணிக்கவாசகர் - திருவாசகம் – மூன்று பாடல்கள்
 - ✓ புல்லாகி பூடாகி (சிவபுராணம்)
 - ✓ எல்லாப் பிறப்பும் (சிவபுராணம்)
 - ✓ உற்றாரை யான் வேண்டேன் (திருப்புலம்பல்)
2. ஆண்டாள் - திருப்பாவை – மூன்று பாடல்கள் (1, 3, 4)
 - ✓ மார்கழித் திங்கள் ... (பாசரம் 1)
 - ✓ ஓங்கி உலகளந்த... (பாசரம் 3)
 - ✓ ஆழிமழைக் கண்ணா... (பாசரம் 4)
3. வீரமாமுனிவர் - தேம்பாவணி – வளன் செனித்தப் படலம்
4. சீறாப்புராணம்- மானுக்கு பிணை நின்ற படலம்

அலகு 3 கலைகள் 07 மணி நேரம்

சிற்பம் - ஓவியம் - இசை - கூத்து - ஒப்பனை - ஆடை அணிகலன்கள்.

அலகு 4 நாகரிகம், பண்பாடு

7மணி நேரம்

சொற்பொருள் விளக்கம் - பண்டைத் தமிழர் வாழ்வியல் - அகம் - களவு - கற்பு - குடும்பம் - விருந்தோம்பல் - உறவு முறைகள் - சடங்குகள் - நம்பிக்கைகள் - பொழுதுபோக்கு - புறம் - போர் முறைகள் - நடுகல் வழிபாடு - கொடைப்பண்பு.

மொத்தம்: 30 மணி நேரம்

பார்வை நூல்கள்

8. தமிழர் நாகரிகமும் பண்பாடும், டாக்டர் அ. தட்சிணாமூர்த்தி, ஐந்திணைப் பதிப்பகம், 2001.
9. தவறின்றித் தமிழ் எழுதுவோம், மா. நன்னன், ஏகம் பதிப்பகம், 1999.
10. தவறின்றித் தமிழ் எழுத - மருதூர் அரங்கராசன், ஐந்திணைப் பதிப்பகம், 2003.
11. தமிழ் இலக்கிய வரலாறு, வரதராசன், மு., புது தில்லி : சாகித்திய அக்காடெமி, 2002.
12. புதிய தமிழ் இலக்கிய வரலாறு, நீல. பத்மநாபன், சிற்பி பாலசுப்ரமணியம், சாகித்திய அக்காடெமி, 2007.
13. செம்மொழி தமிழின் சிறப்பியல்புகள் - முனைவர் மறைமலை இலக்குவனார்; <https://www.youtube.com/watch?v=HHZnmJb4jSY>
14. பாடநூல் தேடலுக்கான இணையம் - <https://archive.org/>

L	T	P	O	C
2	0	0	1	2

Course Objectives :

- To inculcate the human values, importance of patriotism and hard work
- To train students in functional Hindi
- To introduce the usage of Inscript keyboard

UNIT I : मुंशी प्रेमचंद कृत 'बूढ़ी काकी' (कहानी)

'Boodee kaki' (Kahani) by Munshi Premchand

6hrs.

UNIT II : जयशंकर प्रसाद कृत 'पुरस्कार' (कहानी)

'Puraskar' (Kahani) by Jaishankar Prasad

6hrs.

UNIT III: हरिशंकर परसाई कृत 'मैं नरक से बोल रहा हूँ' (व्यंग्य)

'Main Narak Se Bhol Raha Hun' (Vyangy) by
Harishankar Parsayi,

6hrs.

UNIT IV: व्यावहारिक हिन्दी 1 – 50 – तकनीकी शब्द, 50 – पदनाम व

विभागीय नाम, भाव एक भाषा अनेक

6hrs.

Functional Hindi 1 - 50-Technical Words, 50-Designation &
Department Names, Bhav Ek Bhasha Anek

UNIT V : व्यावहारिक हिन्दी 2 – पत्र लेखन – 3 औपचारिक पत्र,

इन्स्क्रिप्ट कीबोर्ड का परिचय

6hrs.

Functional Hindi 2 -Letter Writing- 3 Official Letters.
Introduction to Inscript Keyboard

Total: 30hrs

Course Outcome:

At the end of this course Students will be able to

CO1 Know to the human values

CO2 Know the importance of patriotism

CO3 Know the value of hardwork in human life

CO4 Journalise in Functional Hindi

CO5 Use inscript keyboard

Text Book:

Ed. Subhash chandar, Boodi Kaki by Premchand, Natioonal Book Trust, 2012.

Jaishankar Prasad, Pratinidhi Kahaniyan, Raj Kamal Prakashan, 2015.

Harishankar Parsai, Pratinidhi vyangy, Rajkamal, 2007.

Kendriya Hindi Prashikshan Sansthan, Parangat, Bharat Sarkar, 2015.

Reference book:

Kendriya Hindi Sansthan, Banking Hindi Patyakram, 2012.

Weblink:

Munshi Premchand, Manasarovar, 2007, <http://gadyakosh.org>

Jaishankar Prasad/ <http://gadyakosh.org>

Harishankar Parsai/ <https://hindikahani.hindi-kavita.com>

Prayojanmoolak Hindi: <https://hi.m.wikipedia.org>

<https://rajbhasha.gov.in/en/introduction>



L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

The lessons are being chosen:

- To express his / her where abouts and to ask seek direction
- To express obligation and restriction
- To describe a place
- To narrate and to question
- To describe someone
- To express his desire and to speak about the futur

UNIT I C'est où**5 HOURS**

- L'impératif, Les articles contractés au, à la..., Le passé composé et l'accord du participe passé avec être.

UNIT II N'oubliez pas**5 HOURS**

- Le pronom relatif Qui, que, où, Les pronoms compléments indirects (me, te, lui, leur...)

UNIT III Belle vue sur la mer --**4 HOURS**

- Les adjectifs démonstratifs, Y- pronom complément

UNIT IV Quel beau voyage!**4 HOURS**

- Les verbes pronominaux, En- pronom complément

UNIT V Oh ! joli**5 HOURS**

- L'imparfait, L'imparfait ou le passé composé

UNIT VI Et après ?**7 HOURS**

- Le futur simple, Le subjonctif présent

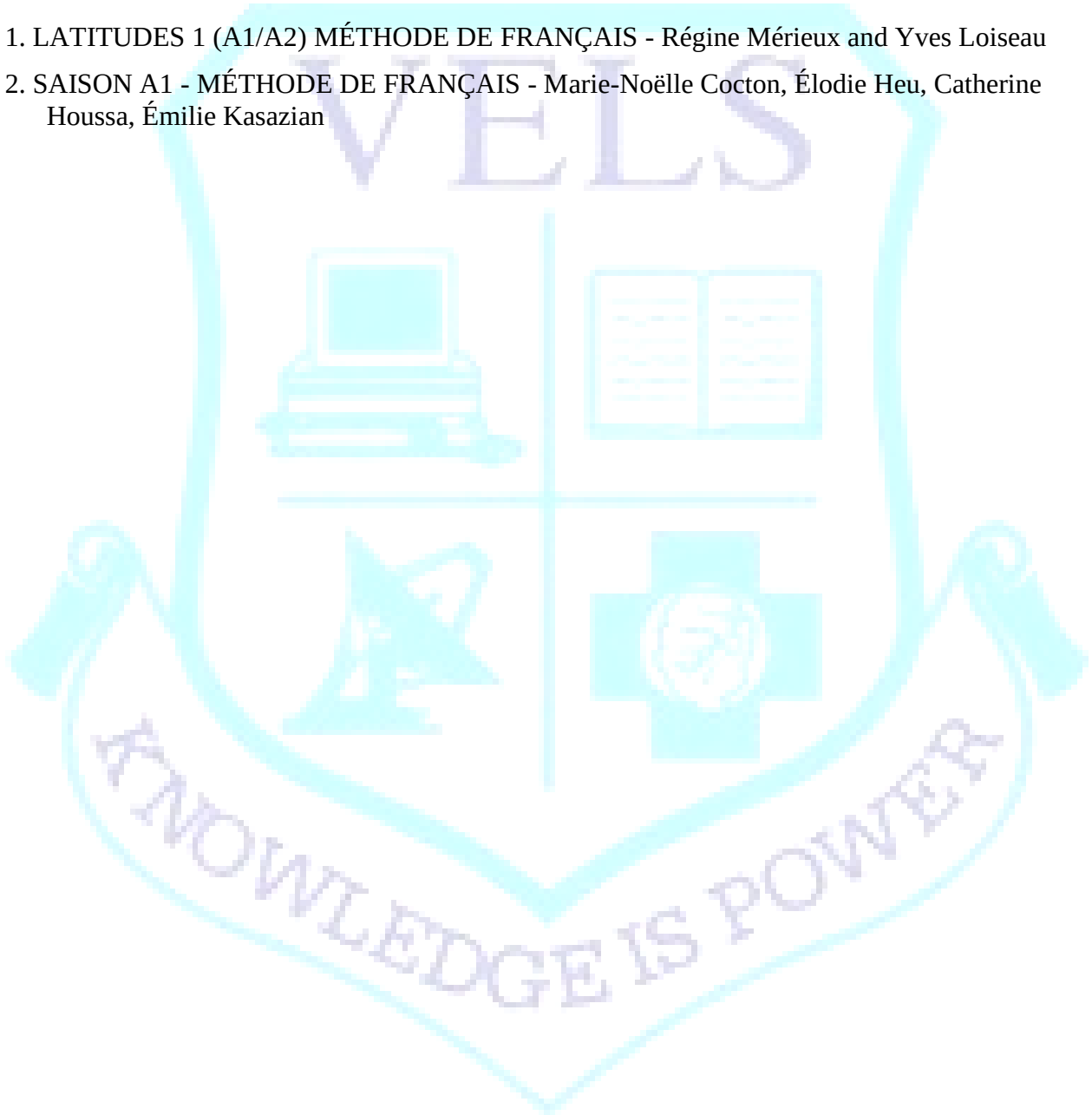
TOTAL 30 HOURS**COURSE OUTCOMES:**

- 1) The students would be able to express his/her where about and to ask direction
- 2) The students would be able to express obligation and restriction
- 3) The students would be able to describe a place
- 4) The students would be able to narrate and to question
- 5) The students would be able to describe someone

6) The students would be able to express his desire and to speak about the futur

REFERENCES:

1. LATITUDES 1 (A1/A2) MÉTHODE DE FRANÇAIS - Régine Mérieux and Yves Loiseau
2. SAISON A1 - MÉTHODE DE FRANÇAIS - Marie-Noëlle Cocton, Élodie Heu, Catherine Houssa, Émilie Kasazian



L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

- To read and understand different types of prose, poetry, and fiction.
- To think critically about texts and express ideas clearly.
- To recognize and discuss key themes and styles in literary works.
- To learn and use grammar rules correctly in writing and speaking.
- To write more effectively by applying grammar and literary techniques

UNIT I PROSE**6 HOURS**

- If you are wrong, admit it- Dale Carnegie
- Words of Wisdom- Chetan Bhaghat

UNIT II POETRY**6 HOURS**

- La Belle Dame Sans Merci - John Keats
- Ozymandias- P.B.Shelley

UNIT III FICTION**6 HOURS**

- The School for Empathy - E.V. Lucas
- The Lamb to the Slaughter-Roald Dahl

UNIT IV GRAMMAR**6 HOURS**

- Types of sentences, Concord

UNIT V GRAMMAR**6 HOURS**

- Tenses, Voices

TOTAL 30 HOURS**COURSE OUTCOMES:**

Upon completion of this course, the students will be able to

- CO1 Identify poetic expressions in the course of daily speech
- CO2 Students will develop skills that enable them to communicate effectively in writing.
- CO3 Students will develop skills that enable them to communicate effectively in writing.
- CO4 Discriminate against different sensibilities in approaching life.
- CO5 Strengthen the ability to solve life's problems, as highlighted in the selections.

REFERENCES:

1. Dr. M. Narayana Rao and Dr. B. G. Barki–Anu’s Current English for Communication
(AnuChitra). June 2012.

2. General English for competitive examinations by V.Rajagopalan (Mcgraw Hill Education) -2010



24CBAR21

AVIATION METEOROLOGY

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

To provide an understanding of the physical properties of the atmosphere and how they affect the weather, with an emphasis on the factors affecting aviation and Observation and reporting of weather for Aviation services.

UNIT I

THE ATMOSPHERE

9 HOURS

The Atmosphere, Atmospheric Pressure, Temperature, Air Density, Humidity, Winds.

UNIT II

VISIBILITY AND PRECIPITATION PHENOMENA

9 HOURS

Visibility and Fog, Vertical Motion and Clouds, Stability and Instability of Atmosphere, Optical Phenomena, Precipitation, Ice Accretion, Thunderstorm

UNIT III

AIR MASSES, FRONTS AND WESTERN DISTURBANCES

9 HOURS

Air Masses, Fronts and Western Disturbances, Jet Streams, CAT, Mountain Waves

UNIT IV

CLIMATOLOGY AND CIRCULATION

9 HOURS

Tropical Systems, Climatology of India, General Circulation

UNIT V

AVIATION WEATHER FORECAST & BRIEFING

9 HOURS

Meteorological Services, Weather Radar and Met Satellites, Met Instruments, Station Model, Reports: METAR & SPECI, TREND, TAF, ARFOR, Symbols, ROFOR, RAREP, SIGMET, Met Documentation and Briefing, Flight and Cross Section Forecast of Route Conditions

TOTAL: 45 HOURS

COURSE OUTCOMES:

Upon completion of this course, the students will be able to

CO1: Examine the effect of weather elements on aircraft operation..

CO2: Predict the weather hazards and explain its effect on aircraft operation.

CO3: Classify different climate types.

CO4: Decode the METAR/ SPECI code for different weather conditions

CO5: Produce TREND forecasts in a centralized forecasting environment

TEXT BOOKS:

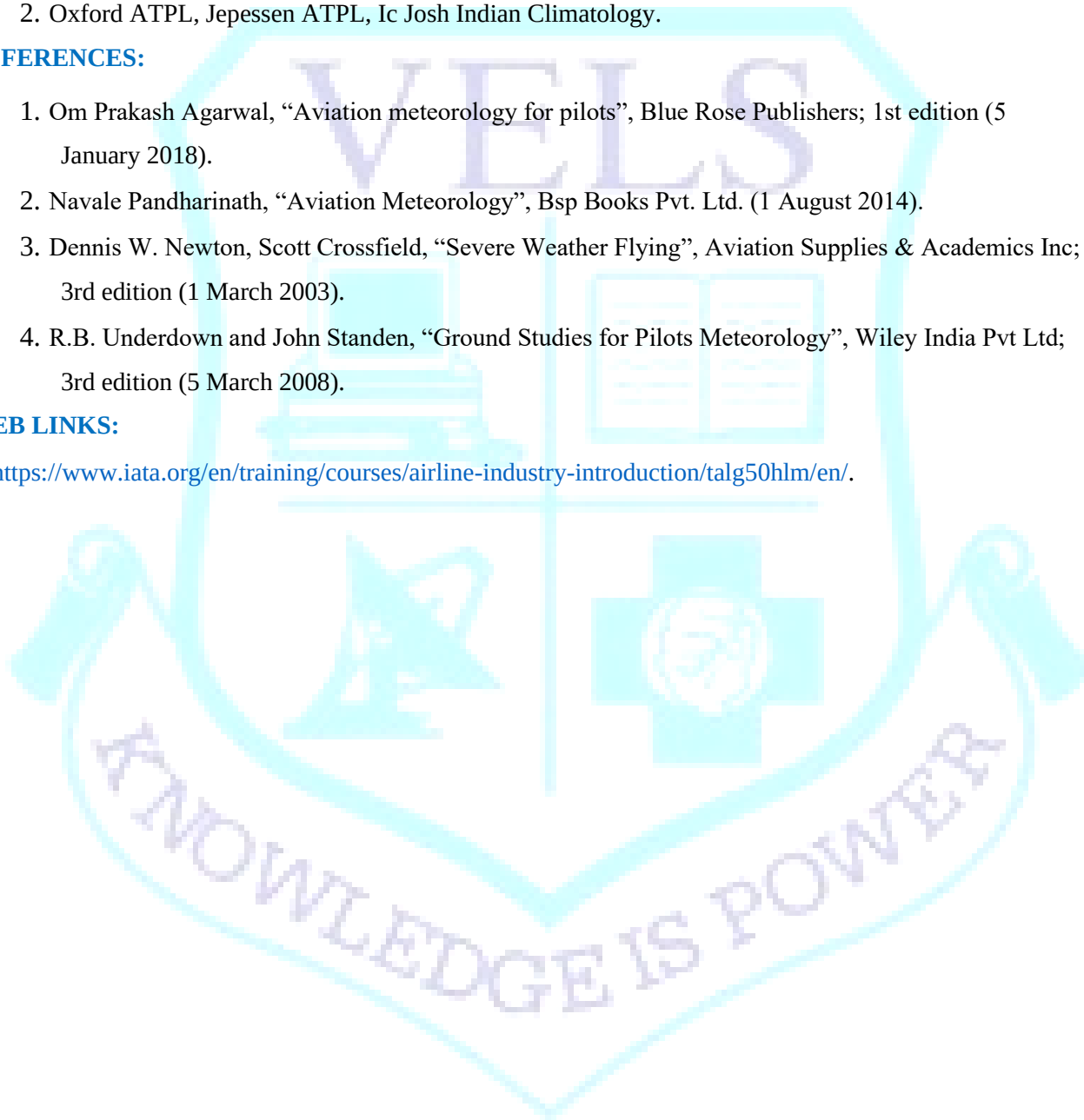
1. IC Joshi, “Ground Subjects CPL/ATPL Aviation Meteorology”, Himalayan Books; Sixth Edition (1 January 2019).
2. Oxford ATPL, Jeppesen ATPL, Ic Josh Indian Climatology.

REFERENCES:

1. Om Prakash Agarwal, “Aviation meteorology for pilots”, Blue Rose Publishers; 1st edition (5 January 2018).
2. Navale Pandharinath, “Aviation Meteorology”, Bsp Books Pvt. Ltd. (1 August 2014).
3. Dennis W. Newton, Scott Crossfield, “Severe Weather Flying”, Aviation Supplies & Academics Inc; 3rd edition (1 March 2003).
4. R.B. Underdown and John Standen, “Ground Studies for Pilots Meteorology”, Wiley India Pvt Ltd; 3rd edition (5 March 2008).

WEB LINKS:

1. <https://www.iata.org/en/training/courses/airline-industry-introduction/talg50hlm/en/>.



24MBAR22

**FAMILIARIZATION OF ATC AND
AIRSPACE**

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

To provide the participants with a good knowledge on Air Traffic services, its units and types of services and understanding the regulatory aspects pertaining to ATC.

UNIT I INTRODUCTION TO ATC 9 Hours

Overview of ATC systems and services, Roles and responsibilities of ATC Controllers, ATC communication procedure and phraseology, introduction to radar and surveillance systems.

UNIT II AIRSPACE CLASSIFICATION AND STRUCTURE 9 Hours

Classification of airspace (Class A to class G) and their characteristics, understanding special use airspace (SUA) such as restricted areas, military operations areas, Airspace design and its relationship to Air traffic management.

UNIT III AIR TRAFFIC CONTROL PROCEDURES 9 Hours

Separation standard and rules (vertical, lateral, longitudinal), clearances and instruction given by ATC, traffic flow management and sequences techniques.

UNIT IV NAVIGATION SYSTEMS AND WEATHER IMPACTS 9 Hours

Principles of navigation aids (VOR, NDB, GPS, GNSS) -Instrument flight rules procedures and approaches- Weather phenomena affecting air traffic operations, Meteorological information services provided to pilot and ATC, Decision making based on weather conditions.

**UNIT V GROUND CONTROL AND AIR TRAFFIC
MANAGEMENT SYSTEMS 9 Hours**

Ground movement control and apron management-airport layout and taxiway procedures, -Aircraft handling services and ground support equipment, future concepts and technology in air traffic management, Compliance and enforcement procedure.

TOTAL: 45 HOURS

COURSE OUTCOMES:

After the course the students are expected to be able to

CO-1: Gain knowledge about ATC phraseology & communication

CO-2: Gain knowledge in understanding of introduction to Air Traffic services.

CO-3: Gain knowledge on airspace classification

CO-4: Gain knowledge on insights of FIS & Alerting service

CO-5: Gain knowledge on regulatory aspects of ATC and case study.

TEXT BOOKS:

1. Manual of Air Traffic Services, Part-1 Edition 6.2
2. Aeronautical Information Publication - AIP
3. ATFM Operations Handbook
4. Michael S Nolan, "Fundamentals of Air Traffic Control", Thomson Delmar Learning, Division of Thomson Learning; 5th Revised ed. edition (28 January 2010).

REFERENCE BOOKS

1. CIVIL AVIATION REQUIREMENTS, section 9 – air space and air navigation standards
2. ICAO Annex 11, 15th Edition, 2018.
3. ICAO Doc 8126, Seventh Edition, 2021

WEB LINKS:

1. <https://slideplayer.com/amp/1705721/>
2. <https://www.icao.int/safety/Pages/atm.aspx>
3. <https://aaai.aero>

L	T	P	O	C
3	0	0	2	3

To enable the students to study the evolution of Management, to study the functions and principles of management and to learn the application of the principles in an organization

Definition of Management – Science or Art – Manager Vs Entrepreneur - types of managers - managerial roles and skills – Evolution of Management – Scientific, human relations , system and contingency approaches – Types of Business organization - Sole proprietorship, partnership, company-public and private sector enterprises - Organization culture and Environment – Current trends and issues in Management.

Nature and purpose of planning – planning process – types of planning – objectives – setting objectives – policies – Planning premises – Strategic Management – Planning Tools and Techniques – Decision making steps and process.

Nature and purpose – Formal and informal organization – organization chart – organization structure – types – Line and staff authority – departmentalization – delegation of authority – centralization and decentralization – Job Design - Human Resource Management – HR Planning, Recruitment, selection, Training and Development, Performance Management , Career planning and management.

Foundations of individual and group behaviour – motivation – motivation theories – motivational techniques – job satisfaction – job enrichment – leadership – types and theories of leadership – communication – process of communication – barrier in communication – effective communication – communication and IT.

System and process of controlling – budgetary and non-budgetary control techniques – use of computers and IT in Management control – Productivity problems and management – control and performance – direct and preventive control – reporting

TOTAL-45 HOURS

COURSE OUTCOMES:

Upon completion of this course, the students will be able to

CO1: Understanding basic knowledge on international aspect of management.

CO2: Understanding of managerial functions like planning.

CO3: Understanding of managerial functions like organizing.

CO4: Understanding of managerial functions like staffing

CO5: Understanding of managerial functions like leading & controlling

TEXT BOOKS:

1. Stephen P. Robbins & Mary Coulter, "Management", 10th Edition, Prentice Hall (India) Pvt. Ltd., 2009.
2. JAF Stoner, Freeman R.E and Daniel R Gilbert "Management", 6th Edition, Pearson Education, 2004

REFERENCES:

1. Stephen A. Robbins & David A. Decenzo & Mary Coulter, "Fundamentals of Management" 7th Edition, Pearson Education, 2011.
2. Robert Kreitner & Mamata Mohapatra, "Management", Biztantra, 2008.
3. Harold Koontz & Heinz Weihrich "Essentials of management" Tata Mc Graw Hill, 1998.
4. Tripathy PC & Reddy PN, "Principles of Management", Tata McGraw Hill, 1999.

L	T	P	O	C
0	0	2	1	1

COURSE OBJECTIVES:

- To provide exposure to the students with hands on experience on various basic engineering practices.
- To Study and practice the various operations that can be performed in lathe, shaper, drilling, milling machines etc. and to equip with the practical knowledge required in the core industries.
- To Study and acquire knowledge on various basic machining operations in special purpose machines and its applications in real time manufacturing of components in the industries.

Exp. no.	EXPERIMENTS	Number of Hours
1	Sheet metal marking, cutting, sheet metal structural defects	2
2	Practice of 1st model. Butt Joint and inspect	2
3	Practice of 2nd model. Lap Joint and inspect	2
4	Practice of 3rd model. V-Joint and inspect	2
5	Practice of 3rd model. T-Joint and inspect	2
6	Demonstration of 1st model Dovetail	3
7	Demonstration of 2nd model- Radius Gauge	3
8	Inspection of various welded samples with / without defects and record	3
9	Observation Soldering Exercises, inspection and defects	3
10	Cable splicing and swaging	3
11	Pipe bending and inspection of pipe assembly	3
12	Taps and dies, thread cutting and inspection	2

COURSE OUTCOMES

Upon the completion of this course the students will be able to

1. Use sheet metal fabrication tools and make simple models as per the given diagram.
2. Fabricate carpentry components and pipe connections including plumbing works.
3. Use welding equipment to join the structures.

L	T	P	O	C
0	0	2	1	1

COURSE OBJECTIVES:

To perform aerodynamic tasks to help students understand the basic principles of aerodynamics and improve their experimental skills.

Exp no	EXPERIMENTS	Number of Hours
01	Flow visualization – Hele Shaw apparatus	3
02	Flow around various objects in a 'Water Channel' - Square, Cylinder, Aerofoil, Understanding laminar flow, turbulent flow, stagnation point, flow separation, boundary layer	3
03	Water Channel – Study of boundary layer	3
04	Study of flow over streamlined bodies with different angle of attack by flow visualization technique	3
05	Identification of flight control surfaces and their effect on flight control - Aircraft Model	3
06	Identifying High lift devices and practical understanding of their effect on lift with respect to aircraft speed (Air flow)	3
07	Practical understanding of lift spoiling devices	3
08	Practical study of various factors affecting lift and drag on an aerofoil	3
09	Factors affecting flow of fluid over an aerofoil surface and demonstrate the Venturi effect	3
10	Identify various type of flap surfaces and their effect on high lift and high drag characteristic	3

TOTAL: 30 HOURS**COURSE OUTCOMES:**

On completion of the course students will be able to

CO1: Explain the nature of aerodynamic forces.

CO2: Define the aerodynamic center and the center of pressure for an airfoil.

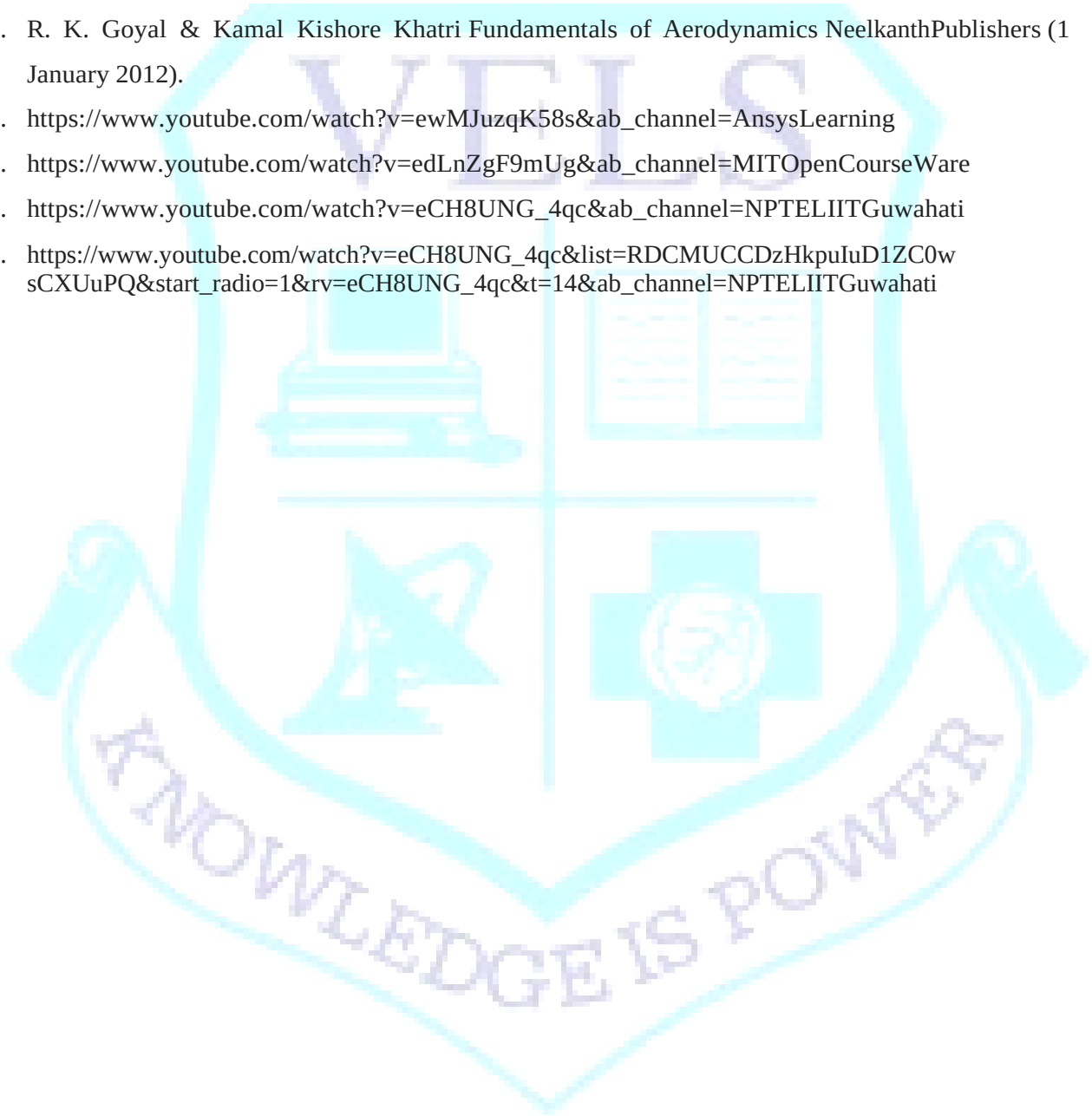
CO3: Calculate aerodynamic forces and moments on bodies.

CO4: Use flow similarity to design wind tunnel tests.

CO5: Describe and perform flow visualization tests to study the characteristics of the flow around aerodynamic bodies.

REFERENCES:

1. John Anderson Jr. Fundamentals of Aerodynamics McGraw Hill Education; 5th edition(6 July 2010).
2. R. K. Goyal & Kamal Kishore Khatri Fundamentals of Aerodynamics NeelkanthPublishers (1 January 2012).
3. https://www.youtube.com/watch?v=ewMJuzqK58s&ab_channel=AnsysLearning
4. https://www.youtube.com/watch?v=edLnZgF9mUg&ab_channel=MITOpenCourseWare
5. https://www.youtube.com/watch?v=eCH8UNG_4qc&ab_channel=NPTELIIITGuwahati
6. https://www.youtube.com/watch?v=eCH8UNG_4qc&list=RDCMUCCDzHkpuIuD1ZC0wsCXUuPQ&start_radio=1&rv=eCH8UNG_4qc&t=14&ab_channel=NPTELIIITGuwahati



24DVAC22

UNIVERSAL HUMAN VALUES

L	T	P	O	C
1	0	0	1	1

COURSE OBJECTIVES:

The candidates will be able to appreciate the complementarity between the values and skills for sustained happiness and prosperity. To influence the students to approach the life and profession with a holistic perspective towards a value-based living in a natural way. To highlight plausible implications of holistic understanding of ethical human conduct.

UNIT I INTRODUCTION TO VALUE EDUCATION

5 HOURS

Living a fulfilling life. Value education. Skill education. Complementarity of Values and Skills. Development of a holistic perspective. Right understanding, relationship and physical facility. Understanding the happiness and prosperity.

UNIT II HARMONY AT MULTIPLE LEVELS

5 HOURS

Human being as co-existence of the self and the human body. Understanding harmony in the self. Harmony in the family and understanding values in human-human relationships. Harmony in the society and understanding universal human order. Harmony in nature and understanding the interconnectedness, self-regulation and mutual fulfillment. Harmony in existence and understanding co-existence at various levels.

UNIT III IMPLICATIONS OF THE RIGHT UNDERSTANDING

5 HOURS

Ethical human conduct. Implications of value-based living. Right understanding of professional ethics. Humanistic education. Holistic technologies, production systems and management models. Strategies for transition towards value-based life and profession.

TOTAL: 15 HOURS

COURSE OUTCOMES:

At the end of the course learners will be able to:

CO1: Develop qualities like responsibility and the ability to handle problems with sustainable solutions.

CO2: Appraise human values and the harmony at various levels.

CO3: Perceive a better critical ability.

CO4: Develop qualities pertaining to value-based living.

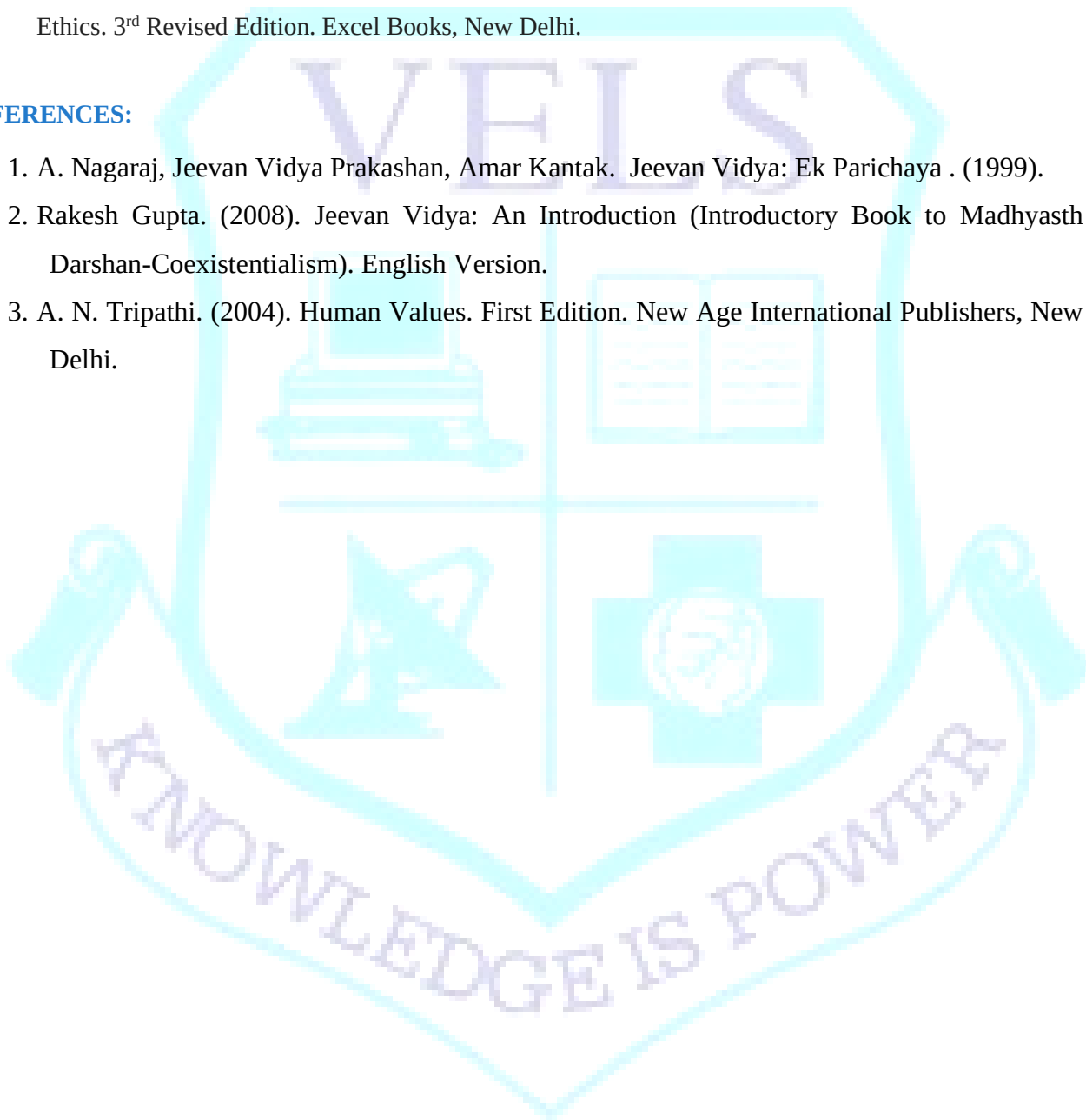
CO5: Apply what they have learnt to their own self in real life settings.

TEXT BOOKS:

1. R.R. Gaur, R. Asthana, G.P. Bagaria. (2023). A Foundation Course in Human Values and Professional Ethics. 3rd Revised Edition. Excel Books, New Delhi.

REFERENCES:

1. A. Nagaraj, Jeevan Vidya Prakashan, Amar Kantak. Jeevan Vidya: Ek Parichaya . (1999).
2. Rakesh Gupta. (2008). Jeevan Vidya: An Introduction (Introductory Book to Madhyasth Darshan-Coexistentialism). English Version.
3. A. N. Tripathi. (2004). Human Values. First Edition. New Age International Publishers, New Delhi.



24SSKU21

SOFT SKILLS -II

L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

- To develop strategies to enhance teamwork and collaboration in professional settings.
- To cultivate a positive attitude and mindset to foster constructive relationships and productivity.
- To develop leadership, decision-making and team bonding skills

UNIT I PROFESSIONAL BEHAVIOUR

6 HOURS

- Team Building – Team Bonding
- Inter-Personal Relationship– Intra-Personal Relationship

UNIT II PERSONALITY DEVELOPMENT.

6 HOURS

- Types of Personality
- Self-Confidence - Confidence Building
- Attitude (Positive/Negative)

UNIT III TELEPHONE ETIQUETTE

6 HOURS

- Basics of telephone etiquette
- Giving clear and concise information
- Tone & rate of speech
- Intonations & its Importance
- Whatsapp Communications

UNIT IV DECISION MAKING

6 HOURS

- Types of Decisions – planned-unplanned, individual-group, major-minor
- Types of Leadership styles – Autocratic, democratic, lesse-faire, participative, bureaucratic.

UNIT V PROFESSIONAL ETIQUETTE

6 HOURS

- Respect – Salutations
- Official Behaviour

TOTAL 30 HOURS

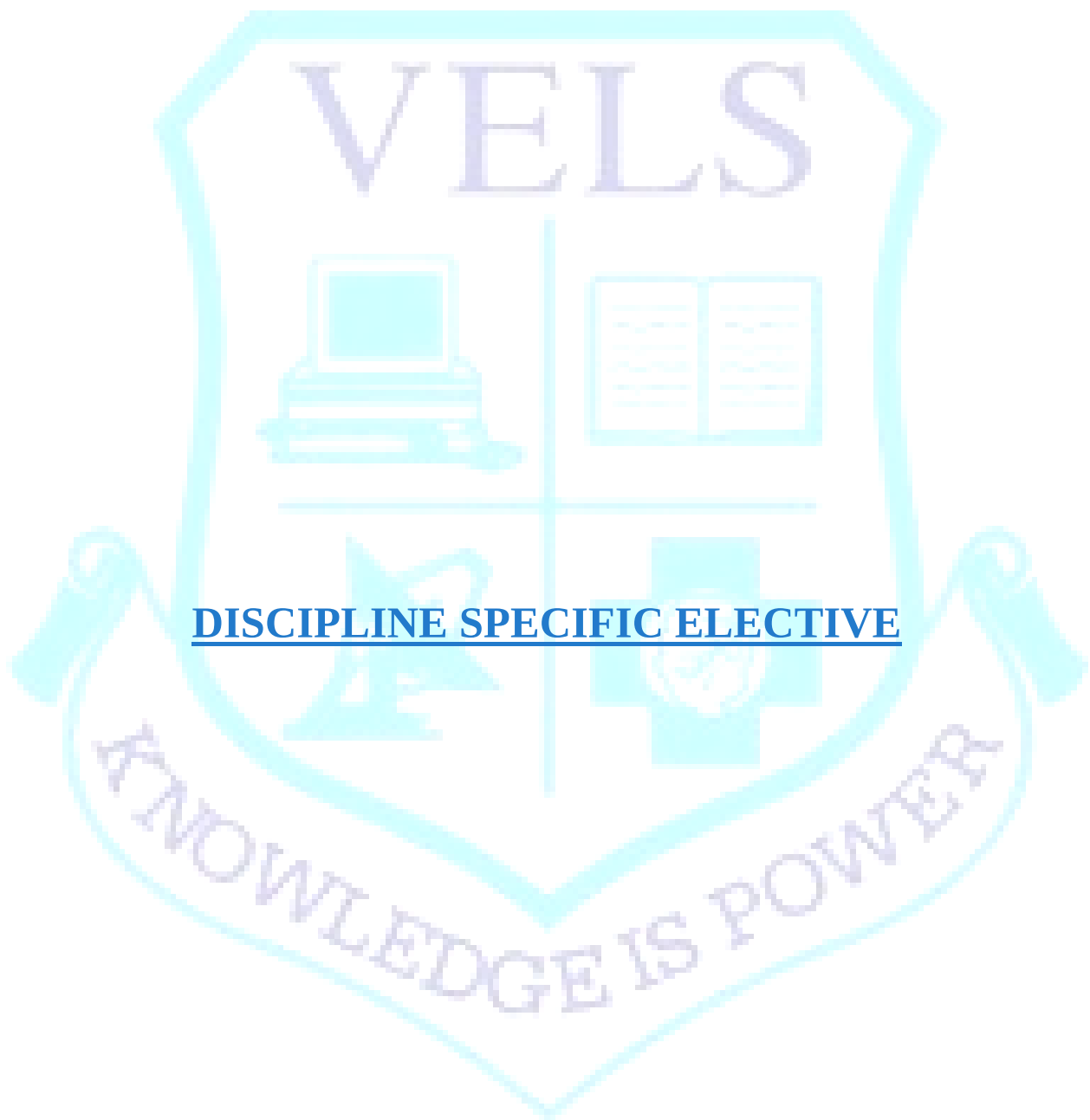
COURSE OUTCOMES:

Upon completion of this course, the students will be able to

- CO1 Understand the principles of effective team building and apply strategies to foster team bonding and cohesion in professional settings
- CO2 Become self-confident individuals by mastering interpersonal skills, team management skills, and leadership skills.
- CO3 Practice techniques for effective communication in telephone conversations.
- CO4 Evaluate decision-making processes and their implications in professional settings
- CO5 Exhibit professional conduct and demeanour in various professional situations

REFERENCES:

1. Language Service, University at Oberta de Catalunya
2. Taylor. Grant English Conversation Practice. Tata McGraw Hill Education Pvt. Ltd 2005
3. Tiko, Champa& Jaya Sasikumar. Writing with a purpose. OUP New Delhi 1979
4. Alex, Dr. K. (2014). Soft Skills (1st edition) S Chand & Company.
5. Nelson-Jones, R. (1992). Life skills, a handbook, Trowbridge, Wilts: Detesios Ltd.



DISCIPLINE SPECIFIC ELECTIVE

L	T	P	O	C
4	0	0	2	4

COURSE OBJECTIVES:

To understand the fundamental principles of electricity and concept of Aircraft electrical system.

UNIT I**ELECTRON THEORY, STATIC ELECTRICITY AND CONDUCTION AND DC CIRCUITS****12 Hours**

Structure and distribution of electrical charges within: An Atom, molecules, ions, compound's Molecular structure of conductors, semiconductors and insulators. Static Electricity and Conduction Static electricity and distribution of electrostatic charges; Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law; Conduction of electricity in solids, liquids, gases and a vacuum. Electrical Terminology The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow. DC Circuits Ohms Law, Kirchoff's Voltage and Current Laws; Calculation using the above laws to find resistance, voltage and current; Significance of the internal resistance of a supply.

UNIT II**RESISTANCE/RESISTOR, CAPACITANCE/CAPACITOR****12 Hours**

Resistance and affecting factors; Specific resistance; Resistor colour code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge. (b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermostats, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge; Capacitance/Capacitor Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor color coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.

UNIT III**MAGNETISM, INDUCTANCE/INDUCTOR****12 Hours**

Magnetism: Theory of magnetism; Properties of a magnet Action of a magnet suspended in the

Earth's magnetic field; Magnetization and demagnetization; Magnetic shielding; Various types of magnetic material; Electromagnet's construction and principles of operations: Hand clasp rules to determine: Magnetic field around current carrying conductor. Magneto motive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets. Inductance/Inductor: Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles; Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other; Lenz's Law and polarity determining rules; Back emf, self-induction; Saturation point; **Principle uses of inductors.**

UNIT IV

AC THEORY, RESISTIVE (R), CAPACITIVE (C) AND INDUCTIVE (L) CIRCUITS

12 Hours

AC Theory Sinusoidal waveform: phase, period, frequency, cycle; Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power Triangular/Square waves; Single/3 phase principles. Resistive (R), Capacitive (C) and Inductive (L) Circuits Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; Power dissipation in L, C and R circuits; Impedance, phase angle, power factor and current calculations; True power, apparent power and reactive power calculations.

UNIT V

TRANSFORMERS, FILTERS

12 Hours

Transformers: Transformer construction principles and operation; Transformer losses and methods for overcoming them; Transformer action under load and no-load conditions; Power transfer, efficiency, polarity markings; Calculation of line and phase voltages and currents; Calculation of power in a three-phase system; Primary and Secondary current, voltage, turns ratio, power, efficiency; Auto transformers. Filters: Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.

TOTAL: 60 HOURS

COURSE OUTCOMES:

After the course the students are expected to be able to

CO1: Explain the electron theory, electrical terminology and DC circuits.

CO2: Analyze the characteristics of resistor and capacitor.

CO3: Comprehend the characteristics & properties of magnetism and interrelation with electricity.

CO4: Design the AC circuits, comprehend the characteristics and the principle of each component.

CO5: Analyze the working of Transformers and Filters in electrical system.

TEXT BOOKS:

1. B L Theraja and AK Theraja, “A Textbook of Electrical Technology - Vol I”, S Chand; Twenty Third edition, 1959.

1. 2. E. H. J. Pallett, “Aircraft electrical systems”, Pearson Education, Third Edition, 2006.

REFERENCES:

1. Aircraft Technical Book Company LLC, “EASA Electrical Fundamentals Aviation Maintenance Technician Certification Series, Module 03”, 2016.

2. David Wyatt and Mike Tooley, “Aircraft Electrical and Electronic Systems”, Routledge; 2nd edition (29 May 2018).

3. Hughes, “Hughes Electrical and Electronic Technology”, Pearson Education India; 10th edition (1 January 2010).

WEB LINKS:

1. <https://soaneemrana.org/onewebmedia/COMPLETE%20MODULE%203%201.pdf>

2. http://eng.sut.ac.th/me/box/1_54/437306/ebooksclub.pdf

3. <https://www.ksu.lt/wp-content/uploads/2017/04/KSU-M3-Selected-pages.pdf>

L	T	P	O	C
4	0	0	2	4

COURSE OBJECTIVES:

- To introduce the basic of air traffic control.
- To impart knowledge about air traffic systems.
- To gain more knowledge on flight information systems.
- To learn about aerodrome data.
- To gain knowledge on navigation systems..

UNIT I BASIC CONCEPTS**12 Hours**

Objectives of air traffic control systems - Parts of ATC services – Scope and Provision of ATCs – VFR & IFR operations – Classification of ATS air spaces – Various kinds of separation – Altimeter setting procedures – Establishment, designation and identification of units providing ATS – Division of responsibility of control.

UNIT II AIR TRAFFIC SYSTEMS**12 Hours**

Area control service, assignment of cruising levels - minimum flight altitude - ATS routes and significant points – RNAV and RNP – Vertical, lateral and longitudinal separations based on time / distance –ATC clearances – Flight plans – position report

UNIT III FLIGHT INFORMATION SYSTEMS**12 Hours**

Radar service, Basic radar terminology – Identification procedures using primary / secondary radar – performance checks – use of radar in area and approach control services – assurance control and co-ordination between radar / non radar control – emergencies – Flight information and advisory service – Alerting service – Co-ordination and emergency procedures – Rules of the air

UNIT IV AERODROME DATA**12 Hours**

Aerodrome data - Basic terminology – Aerodrome reference code – Aerodrome reference point – Aerodrome elevation – Aerodrome reference temperature – Instrument runway, physical Characteristics; length of primary / secondary runway – Width of runways – Minimum distance between parallel runways etc. – obstacles restriction.

UNIT V NAVIGATION AND OTHER SERVICES

12 Hours

Visual aids for navigation Wind direction indicator – Landing direction indicator – Location and characteristics of signal area – Markings, general requirements – Various markings – Lights, general requirements – Aerodrome beacon, identification beacon – Simple approach lighting system and various lighting systems – VASI & PAPI - Visual aids for denoting obstacles; object to be marked and lighter – Emergency and other services.

TOTAL: 60 HOURS

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

CO1 Classify the requirement of air traffic control systems and types of air traffic control system.

CO2 Explain in flight information systems and rules of air traffic systems.

CO3 Explore the emergency procedure and air rules followed by air traffic control systems.

CO4 Describe the aerodrome data.

CO5 Gain the information of navigation and emergency procedures in the air traffic control systems.

TEXT BOOKS:

1. AIP (India) Vol. I & II, “The English Book Store”, 17-1, Connaught Place, New Delhi.
2. “Aircraft Manual (India) Volume I”, Latest Edition – The English Book Store, 17-1, Connaught Place, New Delhi.

REFERENCE BOOKS:

1. “PANS – RAC – ICAO DOC 4444”, Latest Edition, The English Book Store, 17-1, Connaught Place, New Delhi.
2. Michael S. Nolan., “Fundamentals of Air Traffic Control”, Cengage Learning.
3. Wells. A-Airport Planning and Management, 4th Edition- McGraw-Hill, London-2000

WEB LINKS:

24DBAR21

PRINCIPLE OF FLIGHT

L	T	P	O	C
4	0	0	2	4

COURSE OBJECTIVES:

To Understand the principles of flying, application of theory in subsonic and transonic operations.

UNIT I SUBSONIC AERODYNAMICS

12 HOURS

The Atmosphere – ISA, The Principle of Continuity, Bernoulli's Theorem, Streamlines and the Streamtube. Basics, laws and definitions. Two-dimensional airflow around an aerofoil Coefficients. Three-dimensional airflow around an aeroplane. Total drag

UNIT II GROUND EFFECT, C_{LMAX} & STALLING

12 HOURS

Ground effect C_{LMAX} augmentation. Means to reduce the CL–CD ratio. Aerodynamic degradation. Stall, shock stall, and upset prevention and recovery. The stall & Shock stall

UNIT III STABILITY & CONTROL

12 HOURS

STABILITY: Static and dynamic stability, Static and dynamic longitudinal stability, Static directional stability, Static lateral stability, Dynamic lateral/directional stability control: General, Pitch (longitudinal) control, Yaw (directional) control, Roll (lateral) control, means to reduce control forces. Trimming.

UNIT IV FLIGHT MECHANICS & HIGH-SPEED AERODYNAMICS

12 HOURS

Flight Mechanics: Forces acting on an aeroplane, Asymmetric thrust, Significant points on a polar curve Transonic Aerodynamics (HIGH SPEED AERODYNAMICS): Speeds Shock waves Effects of exceeding the critical Mach number (M_{CRIT}) Means to influence critical Mach number (M_{CRIT})

UNIT V LIMITATIONS, PROPELLERS & WINDSHEAR

12 HOURS

Limitations: Operating limitations, Maneuvering envelope, Gust Envelope. Propellers: Conversion of engine torque to thrust, Design features for power absorption, Secondary effects of propellers. Windshear

TOTAL: 60 HOURS

COURSE OUTCOMES:

Upon completion of this course, the students will be able to

CO1: Explain the geometric characteristics of airfoil and wing.

CO2: Analyze the forces and its effects on the aircraft when approaching extreme limits of the flight condition.

CO3: Demonstrate concept of stability and application to dynamic systems like Aircraft.

CO4: Relate basic aerodynamic principles and practices regarding flight controls.

CO5: Examine the factors affecting high-speed flight.

TEXT BOOKS:

1. CAE Oxford Aviation Academy, "PRINCIPLES OF FLIGHT", Singapore by KHL Printing Co. Pte Ltd, 2014.
2. A. C. KERMODE, "Mechanics of Flight", Pearson Education Limited, 11th Edition, 2006.
3. Steven Brandt, "Introduction to Aeronautics: A Design Perspective" 3rd edition, AIAA Education series, 2015.

REFERENCES:

1. Anderson, J.D., "Introduction to Flight", 8th edition, McGraw-Hill Higher Education, 2015.
2. Jeppesen, EASA ATPL Training, "Principles of Flight Aeroplanes", Jeppesen Gmbh (1 January 2014).
3. William Rees Sears, "Introduction to Theoretical Aerodynamics and Hydrodynamics" AIAA Education series, 2011.
4. Clancy, "Aerodynamics", Shroff (1 January 2006).

WEB LINKS:

1. <https://www.iata.org/en/training/courses/airline-industry-introduction/talg50hlm/en/>.

L	T	P	O	C
4	0	0	2	4

COURSE OBJECTIVES:

- To learn the concepts of non-aeronautical usages of aerodynamics
- To introduce the topic of wind energy collectors
- To impart concepts of analysing vibrations during flow
- To learn the concepts of Atmospheric boundary layer
- To introduce the basics of Flow induced vibrations.

UNIT I ATMOSPHERE**12 Hours**

Types of winds, Causes of variation of winds, Atmospheric boundary layer, Effect of terrain on gradient height, Structure of turbulent flows.

UNIT II WIND ENERGY COLLECTORS**12 Hours**

Horizontal axis and vertical axis machines, Power coefficient, Betz coefficient by momentum theory

UNIT III VEHICLE AERODYNAMICS**12 Hours**

Power requirements and drag coefficients of automobiles, Effects of cut back angle, Aerodynamics of trains and Hovercraft.

UNIT IV BUILDING AERODYNAMICS**12 Hours**

Pressure distribution on low rise buildings, wind forces on buildings. Environmental winds in city blocks, Special problems of tall buildings, building codes, Building ventilation and architectural aerodynamics.

UNIT V FLOW INDUCED VIBRATIONS**12 Hours**

Effects of Reynolds number on wake formation of bluff shapes, Vortex induced vibrations, Galloping and stall flutter.

TOTAL: 60 HOURS**COURSE OUTCOMES:**

At the end of the course, students will be able to

CO1: Use of aerodynamics for non- aerodynamics such as vehicle, building.

CO2: Solve the problems and able to analyze vibrations during flow

CO3 Identify the Atmospheric boundary layer and applications of wind energy collectors.

CO4 Analyse the aerodynamics of road vehicles and problems of flow induced vibrations.

CO5: Analyse the aerodynamics of buildings and problems of flow induced vibrations.

TEXT BOOKS:

1. M. Sovran (Ed), “Aerodynamics and drag mechanisms of bluff bodies and Road vehicles”, Plenum press, New York, 1978.
2. Sachs. P., “Winds forces in Engineering”, Pergamon Press, 1978.

REFERENCE BOOKS:

1. Blevins. R.D., “Flow Induced Vibrations”, Van Nostrand, 1990.
2. Calvent. N.G., “Wind Power Principles”, Charles Griffin & Co., London, 1979.

