INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)
PALLAVARAM - CHENNAI
ACCREDITED BY NAAC WITH 'A' GRADE
Marching Beyond 30 Years Successfully
INSTITUTION WITH UGC 12B STATUS

UNDERGRADUATE DEGREE PROGRAMME

B.Sc. Aviation

Three Years

/

B.Sc. (Hons). Aviation

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

INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
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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	To produce graduates who function effectively in a corporate environment and individually

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.

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

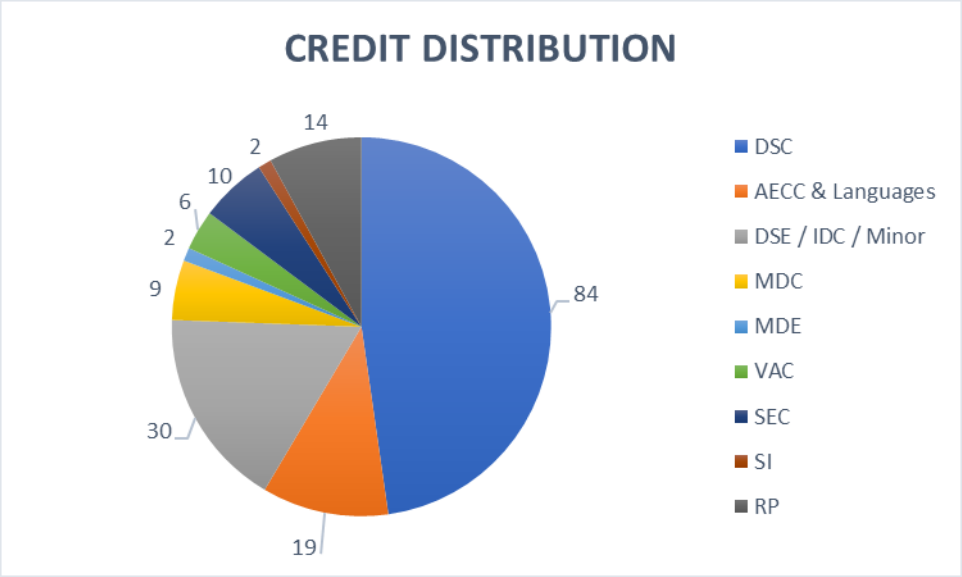
Department of Aviation

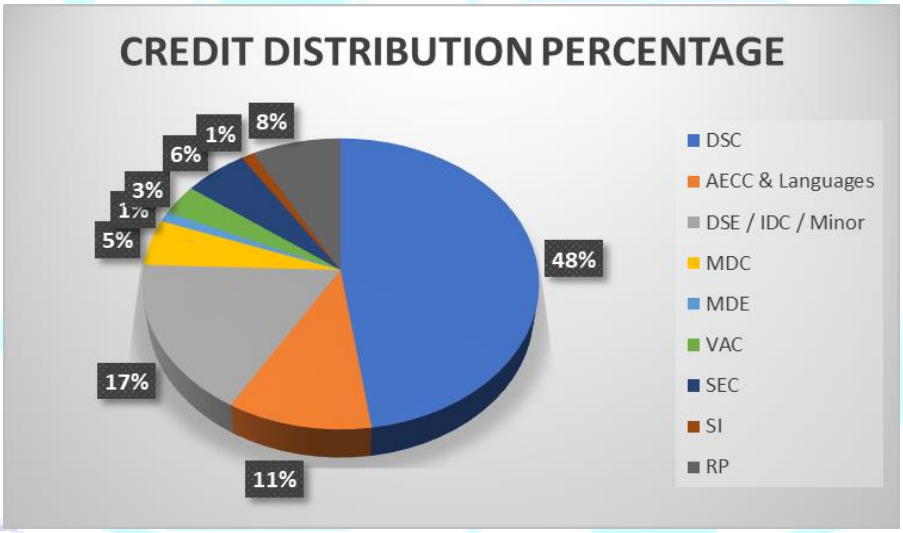
S. No	Name & Designation	Address	Role
1.	**Dr. S. Ramasubramanian** Associate Professor & Head	Department of Aviation VISTAS, Chennai– 600117 Mob: 98407 17534 Email ID: hodaviation@velsuniv.ac.in	Chairman
2.	**Dr. A. Muthuram**, Associate Professor	Department of Aerospace Engineering, SRM Institute of 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) Aviation
Minimum credits to be earned: 176
B.Sc., Aviation
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





ABBREVIATIONS

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

CURRICULUM STURCTURE

B.Sc., Aviation Three Years
/
BSc., (Hons) in Aviation Four Years

Total number of Credits: 176

	B.Sc., Aviation (Hons) Minimum Credits to be earned :176 **B.Sc., Aviation 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	24CBAV11	Introduction To Airline Industry	3	0	0	2	3	40	60	100
DSC 2	24CBAV12	Fundamentals of Physics	4	0	0	2	4	40	60	100
MDC 1	24MBAV11	Mathematics	3	0	0	2	3	40	60	100
DSE 1/ IDC 1 / Minor 1	24DBAV11	Discipline Specific Elective I	4	0	0	2	4	40	60	100
DSC 1	24PBAV11	Practical I – Physics Lab	0	0	2	1	1	40	60	100
VAC 1	24DVAC11	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	24SBAV11	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	24CBAV21	Aviation Meteorology	3	0	0	2	3	40	60	100
DSC 4	24CBAV22	Radio Telephony Restricted	3	0	0	2	3	40	60	100
MDC 2	24MBAV21	Principle of Management	3	0	0	2	3	40	60	100
DSE 2 / IDC 2 / Minor 2	24DBAV21	Discipline Specific Elective II	4	0	0	2	4	40	60	100
DSC 3	24PBAV21	Practical II- Radio Telephony Restricted lab	0	0	2	1	1	40	60	100
DSC 4	24PBAV22	Practical III- Workshop Practices 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	24CBAV31	Air Regulation	3	0	0	2	3	40	60	100
DSC 6	24CBAV32	General Navigation	3	0	0	2	3	40	60	100
MDC 3	24MBAV31	Non-Destructive Testing	3	0	0	2	3	40	60	100
DSE 3 / IDC 3 / Minor 3	24DBAV31 / 24DBAV32	Discipline Specific Elective III	3	0	0	2	3	40	60	100
DSC 5	24PBAV31	Practical IV- Flight Simulator lab	0	0	2	2	1	40	60	100
DSC 6	24PBAV32	Practical V- Technical Drawing Lab	0	0	2	2	1	40	60	100
MDE 1		Indian Knowledge System	2	0	0	2	2	40	60	100
SEC 4	24SSKU31	Soft Skills 3	2	0	0	2	2	40	60	100
SI 1	24IBAV31	Internship I	0	0	2	1	1	-	100	100
			20	**-**	**4**	**-**	**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	24EVS031	Environmental Studies	3	0	0	2	3	40	60	100
DSC 7	24CBAV41	Flight planning and Monitoring	3	0	0	2	3	40	60	100
DSC 8	24CBAV42	Mass and Balance	3	0	0	2	3	40	60	100
DSE 4 / IDC 4 / Minor 4	24DBAV41 / 24DBAV42	Discipline Specific Elective IV	4	0	0	2	4	40	60	100
DSC 7	24PBAV41	Practical VI- Aerodynamics Lab	0	0	2	1	1	40	60	100
DSC 8	24PBAV42	Practical VII- Flight Planning Lab	0	0	2	1	1	40	60	100
SEC 5	24SBAV41	Industry Oriented Employability skills	1	0	2	1	2	40	60	100
VAC 3	24DVAC41	Yoga Education / NSS / NCC	0	0	2	1	1	-	100	100
SEC 6	24SBAV42	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	24CBAV51	Flight Instruments	3	0	0	2	3	40	60	100
DSC 10	24CBAV52	Operational Control Centre	3	0	0	2	3	40	60	100
DSC 11	24CBAV53	Gas Turbine Engine Module	4	0	0	2	4	40	60	100
DSE 5 / IDC 5 / Minor 5	24DBAV51 / 24DBAV52	Discipline Specific Elective V	3	0	0	2	3	40	60	100
DSC 9	24PBAV51	Practical VIII- Aircraft structures Lab	0	0	2	2	1	40	60	100
DSC 10	24PBAV52	Practical IX- Technical Seminar	0	0	2	2	1	40	60	100
SEC 7	24SBAV51	Entrepreneurial Development	2	0	0	1	2	40	60	100
VAC 4	24DVAC51	AI & Its Application	2	0	0	1	2	40	60	100
SI 2	24IBAV51	Internship II	0	0	2	1	1	-	100	100
SEC 8	24SBAV52	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	24CBAV61	Airport and Airline passenger Management	3	0	0	2	3	40	60	100
DSC 13	24CBAV62	CAR and SMS	4	0	0	2	4	40	60	100
DSC 14	24CBAV63	Aviation Security	4	0	0	2	4	40	60	100
DSC 15	24CBAV64	Human factors	4	0	0	2	4	40	60	100
DSE 6 / IDC 6 / Minor 6	24DBAV61 / 24DBAV62	Discipline Specific Elective VI	4	0	0	2	4	40	60	100
DSC 12	24PBAV61	Practical X - Aero Engine Lab	0	0	2	2	1	40	60	100
SEC 9	24SBAV61	Mini Project	0	0	4	1	2	-	100	100
SEC 10	24SBAV62	On Job Training / Apprenticeship / Startup	-	-	-	-	-	-	-	-
			21	**-**	**2**	**-**	**22**	**-**	**-**	**-**

SEMESTER 7										
Category	**Code**	**Course**	**L**	**T**	**P**	**O**	**C**	**CIA**	**SEE**	**Total**
DSC 16	24CBAV71	Aircraft Design	3	0	0	2	3	40	60	100
DSC 17	24CBAV72	Aviation Legislation	4	0	0	2	4	40	60	100
DSC 18	24CBAV73	Aircraft Maintenance Practices	4	0	0	2	4	40	60	100
DSE 7 / IDC 7 / Minor 7	24DBAV71 / 24DBAV72	Discipline Specific Elective VII	4	0	0	2	4	40	60	100
DSC 16	24PBAV71	Practical X- Aircraft Design Project I	0	0	2	2	1	40	60	100
RP 1	24RBAV71	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	24CBAV81	Avionics	3	0	0	2	3	40	60	100
DSC 20	24CBAV82	Air Route Planning and Fleet Planning	3	0	0	2	3	40	60	100
DSC 21	24CBAV83	Airport and Airline Ground Operations	4	0	0	2	4	40	60	100
DSE 8 / IDC 8 / Minor 8	24DBAV81 / 24DBAV82	Discipline Specific Elective VIII	4	0	0	2	4	40	60	100
DSC 19	24PBAV81	Practical XI – Avionics Lab	0	0	2	2	1	40	60	100
DSC 20	24PBAV82	Practical XII – Aircraft Design Project II	0	0	2	2	1	40	60	100
RP 2	24RBAV81	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	24CBAV11	Introduction to Airline Industry	3	0	0	2	3
DSC 2	24CBAV12	Mathematics	4	0	0	2	4
DSC 1 (Lab)	24PBCY11	Practical I - physics lab	0	0	2	1	1
DSC 3	24CBAV21	Aviation Meteorology	3	0	0	2	3
DSC 4	24CBAV22	Radio Telephony Restricted	3	0	0	2	3
DSC 2 (Lab)	24PBAV21	Practical II- Radio Telephony Restricted lab	0	0	2	2	1
DSC 3 (Lab)	24PBAV22	Practical III- workshop practices lab	0	0	2	1	1
DSC 5	24CBAV31	Air Regulation	3	0	0	2	3
DSC 6	24CBAV32	General Navigation	3	0	0	2	3
DSC 4 (Lab)	24PBAV31	Practical IV- Flight Simulator Lab	0	0	2	2	1
DSC 5 (Lab)	24PBAV32	Practical V- Technical Drawing Lab	0	0	2	2	1
DSC 7	24CBAV41	Flight Planning and Monitoring	3	0	0	2	3
DSC 8	24CBAV42	Mass and Balance	3	0	0	2	3
DSC 6 (Lab)	24PBAV41	Practical VI- Aerodynamics Lab	0	0	2	1	1
DSC 7 (Lab)	24PBAV42	Practical VII- Flight Planning Lab	0	0	2	1	1
DSC 9	24CBAV51	Flight Instruments	3	0	0	2	3
DSC 10	24CBAV52	Operational Control Centre	3	0	0	2	3
DSC 11	24CBAV53	Gas Turbine Engine Module	4	0	0	2	4

DSC 8 (Lab)	24PBAV51	Practical VIII- Aircraft structures Lab	0	0	2	2	1
DSC 9 (Lab)	24PBAV52	Practical IX- Technical Seminar	0	0	2	2	1
DSC 12	24CBAV61	Airport and airline passenger management	3	0	0	2	3
DSC 13	24CBAV62	CAR and SMS	4	0	0	2	4
DSC 14	24CBAV63	Aviation Security	4	0	0	2	4
DSC 15	24CBAV64	Human Factors	4	0	0	2	4
DSC 10 (Lab)	24PBAV61	Practical X - Aero Engine Lab	0	0	2	2	1
DSC 16	24CBAV71	Aircraft Design	3	0	0	2	3
DSC 17	24CBAV72	Aviation legislation	4	0	0	2	4
DSC 18	24CBAV73	Aircraft maintenance practices	4	0	0	2	4
DSC 11 (Lab)	24PBCY71	Practical X- Aircraft Design Project I	0	0	2	2	1
DSC 19	24CBAV81	Avionics	3	0	0	2	3
DSC 20	24CBAV82	Air route planning and fleet planning	3	0	0	2	3
DSC 21	24CBAV83	Airport /airline ground operations	4	0	0	2	4
DSC 12 (Lab)	24PBAV81	Practical XII – Avionics Lab	0	0	2	2	1
DSC 13 (Lab)	24PBAV82	Practical XIII – Aircraft Design Project II	0	0	2	2	1

DISCIPLINE SPECIFIC ELECTIVE COURSES

Category	Code	Course	L	T	P	O	C
DSE 1	24DBAV11	Principle of flight	4	0	0	2	4
	24DBAV12	Air Traffic Control	4	0	0	2	4
DSE 2	24DBAV21	Aircraft Structures	4	0	0	2	4
	24DBAV22	Industrial Aerodynamics	4	0	0	2	4
DSE 3	24DBAV31	Radio Navigation	4	0	0	2	4
	24DBAV32	Aerodynamics Of Drones	4	0	0	2	4
DSE 4	24DBAV41	Piston Engine and Propellor	4	0	0	2	4
	24DBAV42	Design Of UAV Systems	4	0	0	2	4
DSE 5	24DBAV51	Aircraft Performance	4	0	0	2	4
	24DBAV52	Airframe Maintenance and Repair	4	0	0	2	4
DSE 6	24DBAV61	Airframe Construction & Maintenance Procedures	4	0	0	2	4
	24DBAV62	Wind Tunnel Techniques	4	0	0	2	4
DSE 7	24DBAV71	Dangerous Goods and Cargo	4	0	0	2	4
	24DBAV72	Airline and Airport Operation	4	0	0	2	4
DSE 8	24DBAV81	Airline Operations Control Centre	4	0	0	2	4
	24DBAV82	Aerospace Materials	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	24MBAV12	Mathematics	3	0	0	2	3
MDC 2	24MBAV21	Principle of Management	3	0	0	2	3
MDC 3	24MBAV31	Non-Destructive Testing	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	0	0	2	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	AI And Its Application	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	24SBAV11	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	24SBAV41	Industry Oriented Employability skills	1	0	2	1	2
SEC 6	24SBAV42	In-plant Training/ Industrial Tour/ Summer Term	-	-	-	-	-
SEC 7	24SBAV51	Entrepreneurial Development	2	0	0	1	2
SEC 8	24SBAV52	Skill Enhancement Training / Student Club Activities/ Institution Innovation	-	-	-	-	-

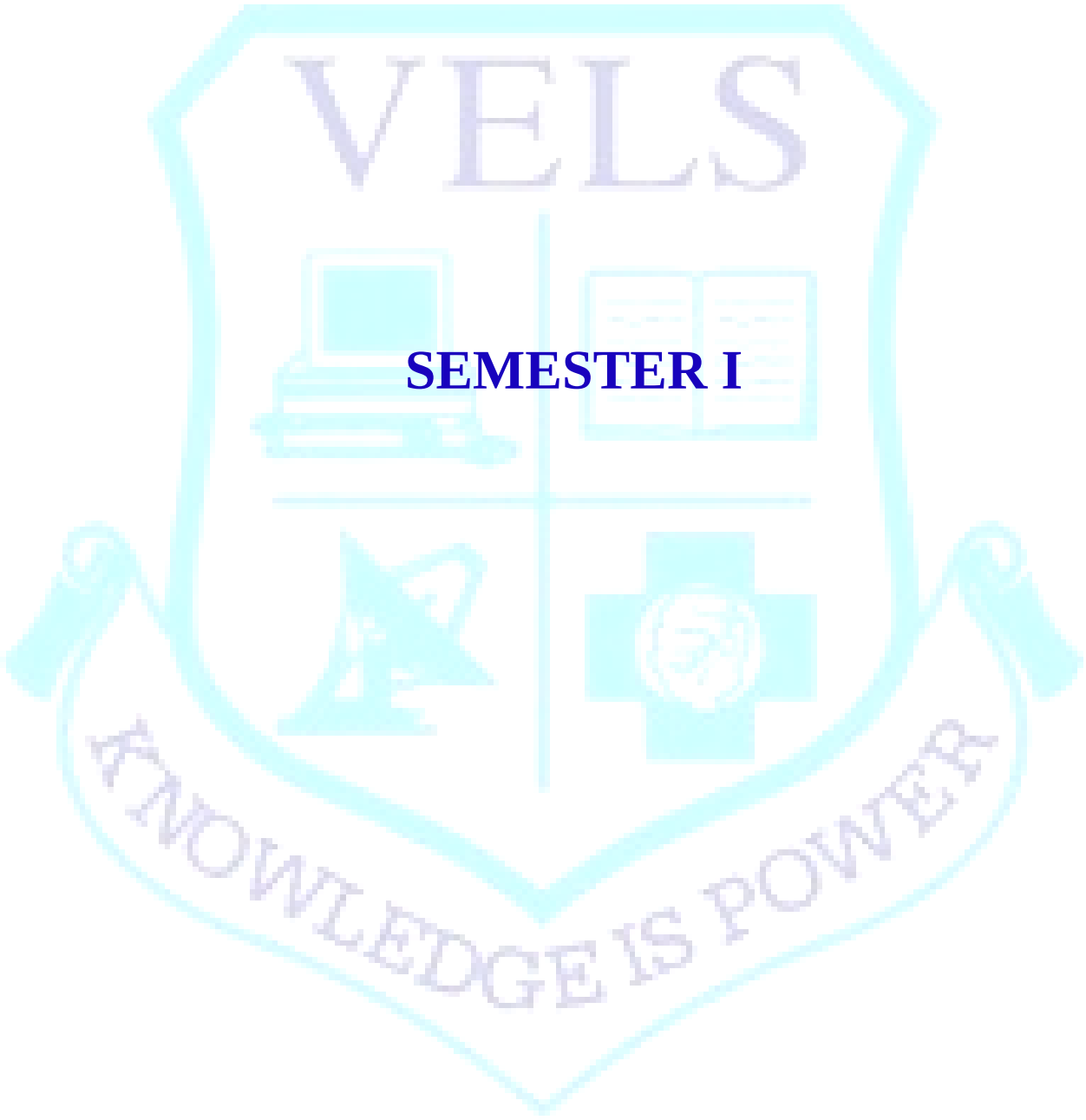
		Council Activities					
SEC 9	24RBAV61	Mini Project	2	0	0	2	2
SEC 10	24SBAV62	On Job Training / Apprenticeship / Startup	-	-	-	-	-

SUMMER INTERNSHIP

Category	Code	Course	L	T	P	O	C
SI 1	24IBAV31	INTERNSHIP-I	0	0	2	1	1
SI 2	24IBAV51	INTERNSHIP-II	0	0	2	1	1

RESEARCH PROJECT

Category	Code	Course	L	T	P	O	C
RP 1	24RBAV71	Research Project I	0	0	12	2	6
RP 2	24RBAV81	Research Project II	0	0	12	2	6



SEMESTER I

24LTAM11 **TAMIL-I**

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. மூதுரை - 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 அக்காதெமி, 2002.
5. புதிய தமிழ் இலக்கிய வரலாறு, நீல. பத்மநாபன், சிற்பி பாலசுப்ரமணியம், சாகித்திய அகாடெமி, 2007.
6. செம்மொழி தமிழின் சிறப்பியல்புகள் - முனைவர் மறைமலை இலக்குவனார்; https://www.youtube.com/watch?v=HHZnmJb4jSY
7. பாடநூல் தேடலுக்கான இணையம் - https://archive.org/

24LHIN11 **HINDI-I**

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 Sanskrityayan. 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 अनोपचारिक पत्र
अलगी, अलगी + फ़ॉन्ट 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 Sanskrityayan, 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 Tankan Kala Evam Tankan Abhyas, Neelkanth Publishers Pvt. Ltd., 2022.

Weblinks :

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

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

Rahul Sanskrityayan ka yatravruttant: https://www.hindwi.org

Prayojanmoolak Hindi:https://hi.mwikipedia.org

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

24LFRE11 **FRENCH-I**

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

24LENG11 **ENGLISH-I**

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.

24CBAV11 **INTRODUCTION TO AIRLINE INDUSTRY**

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

- To acquire the basic knowledge of aviation from its historical evolution to its significance at present covering the basics about aircraft to airplane, various stake holders in aviation. Importantly the regulatory aspect and regulatory bodies involved and the importance of safety and security in 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 – Aircraft characteristics & dimension – its relevance to airfield - definitions – Basic Science behind the Flight – Mechanics of the Flight.

UNIT III STAKE HOLDERS IN AVIATION 9 HOURS

Airport – Classification: Organizational structure and functions – Airline industry: various types, AOP, NSOP, Business models - Military aviation - General Aviation – Aerospace Company: Design, Manufacturing and Maintenance – MRO: Definition. Need, Organization structure, roles and function– Air Traffic Control: Structure, Roles, Functions and regulatory requirement– GHA: 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 and Federal Aviation Administration

UNIT V RELEVANCE OF SAFETY AND SECURITY 9 HOURS

Definition, Importance – Basic difference between safety and security – Related International Convention- Airline Safety and Airport safety - Types of Security Checks in Airports - Incidents and Accidents - Case Studies on lapse – Role and functions of Investigative agency – Outcome of Investigation.

TOTAL: 45 HOURS

COURSE OUTCOMES:

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

CO-1: Students will gain strong fundamental knowledge on basics of aviation and its genesis.

CO-2: Students will gain knowledge on elements of aircraft

CO-3: Students will understand various stake holder in aviation domain and their contribution.

CO-4: Students will gain knowledge on regulatory bodies

CO-5: Students will gain knowledge on significance of safety and security in aviation.

TEXT BOOKS:

1. Pilot's Handbook of Aeronautical Knowledge - FAA
2. Aircraft basic science - Michael J Kross
3. Introduction to Airline Industry - Dr. Sumeet Suseelan - Himalaya publishing house

REFERENCES:

1. IATA books on Aviation programme 'Introduction to Airline Industry' – 1st edition.
2. The Global Airline Industry, Amedeo Odoni , Wiley 2nd Edition
3. The Airline Industry - Alessandro Cento - Physica-Verlag, 2008

WEB LINKS:

1. https://www.slideshare.net/vivianmeril/introduction-to-airline-industry.
2. https://www.iata.org/en/training/courses/airline-industry-introduction/talg50hlm/en/

24CBAV12 FUNDAMENTALS OF PHYSICS

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. Murugeshan, 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

24MBAV11 **MATHEMATICS**

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

- To learn various concept in matrix.
- To apply the concept of Sets topromote 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

24PBAV11 **PHYSICS LAB**

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 differentPhysical 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

TOTAL: 30 HOURS

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.

24DVAC11 **COMMUNICATION SKILLS**

L	T	P	O	C
2	0	0	1	2

COURSE OBJECTIVES:

- To develop effective verbal and non-verbal communication techniques for variouscontexts.
- 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 Enhance Participants' Business Communication Skills

CO2 Enhance lsrw skills (Lsrw – listening, speaking, reading & writing)

CO3 Express opinions at free will in social/ personal gathering.

CO4 Impact leadership qualities among participants

CO5 Engage in conversation with others to exchange ideas

REFERENCES:

1. Basic communication skills for Technology, Andreja. J. Ruther Ford, 2nd Edition,Pearson Education, 2011
2. Personality development and soft skills, Barun K Mitra, 1 stEdition, Oxford Press,2011
3. Elizabeth Harren, 7 April 2022, last updated: 16 November, 2023
4. Kerry Patterson, Joseph Grenny, Ron McMillan, Al Switzler (McGraw-Hill)
5. Ethan Beute and Stephen Pacinelli (Greenleaf)
6. Soft skills and professional communication, Francis Peters SJ, 1stEdition, McGraw Hill Education, 2011

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 professionalinteractions.
- To develop effective stress management techniques for maintaining mental and emotionalwell-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 rapidlychanging world.
- To foster creativity and critical thinking skills for innovative problem-solving andadaptability.

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.

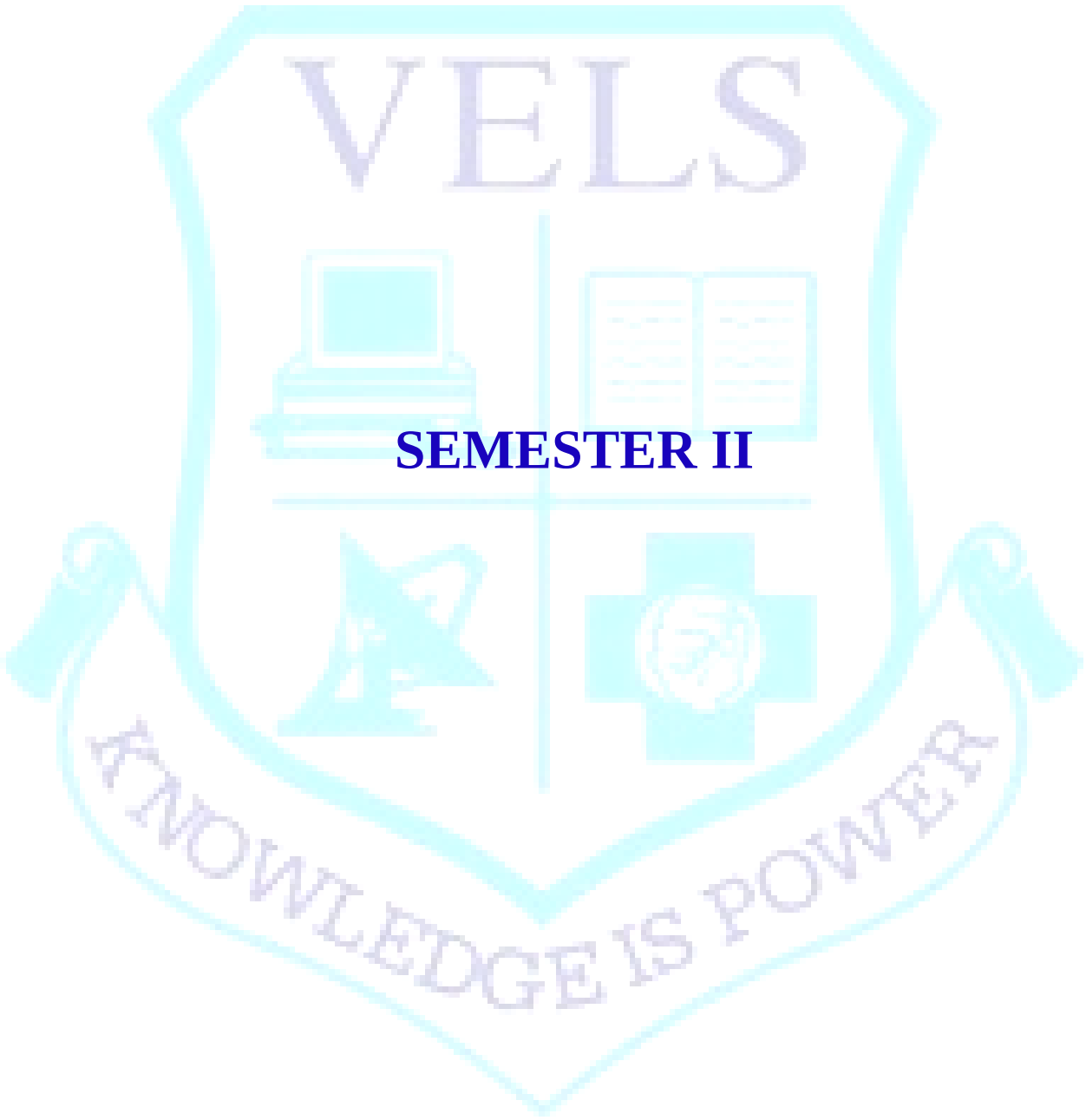
CO3 Show increased self-awareness and make informed decisions.

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

24LTAM21 **TAMIL-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 ... (பாசுரம் 1)
   - ✓ ஓங்கி உலகளந்த... (பாசுரம் 3)
   - ✓ ஆழிமழைக் கண்ணா... (பாசுரம் 4)
3. வீரமாமுனிவர் - தேம்பாவணி – வளன் சினைத்தப் 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 அக்காதெமி, 2002.
12. புதிய தமிழ் இலக்கிய வரலாறு, நீல. பத்மநாபன், சிற்பி பாலசுப்ரமணியம், சாகித்திய அகாடெமி, 2007.
13. செம்மொழி தமிழின் சிறப்பியல்புகள் - முனைவர் மறைமலை இலக்குவனார்; https://www.youtube.com/watch?v=HHZnmJb4jSY
14. பாடநூல் தேடலுக்கான இணையம் - https://archive.org/

24LHIN21 **HINDI-II**

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 'बूढी 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 – तकनीकि 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.mwikipedia.org

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

24LFRE21 **FRENCH-II**

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 complement

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

24LENG21 **ENGLISH-II**

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 Garnegie
- 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

24CBAV21 **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. 1. IC Joshi, “Ground Subjects CPL/ATPL Aviation Meteorology”, Himalayan Books; Sixth Edition (1 January 2019).
2. Oxford ATPL, Jepessen ATPL, Ic Josh Indian Climatology.

REFERENCES:

1. 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/.

24CBAV22 RADIO TELEPHONY RESTRICTED

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

To understand various aviation terminologies, Standard Universal Communication Procedures followed bydifferent departments of Aviation.

UNIT I REGULATIONS & PROCEDURES 9 HOURS

Duties of ITU, ICAO, AAI, WPC, ICAO Annexure, Spelling of Alphabets and Transmission of numerical, Aircraft Identification, Location Indicators, Flight Information Regions, Identification of Ground Services.

UNIT II RADIO PROPAGATION 9 HOURS

(a) Relationship between wavelength, frequency and speed of light
(b) Frequency bands and ranges
(c) Ionosphere layers during day and night
(d) Mode of Propagation MF, HF and VHF & above
(e) Operation of Geostationary Satellites
(f) Operation of Polar orbiting Satellites
(g) Diving
(h) Skip Distance

Choice of Frequencies during Day & Night

UNIT III PHRASEOLOGY 9 HOURS

Phraseology used in Aeronautical Communication Services Abbreviation used in aeronautical communication services.

1. Emergency
2. Emergency Relay
3. Urgency
4. Urgency relay
5. Blind transmission
6. Weather deviation

UNIT IV 'Q'CODES 9 HOURS

'Q' Codes used in Aeronautical Communication Services, QNH, QFE, Height, Elevation, Altitude, Flight Level, ISA Conditions, Lapse Rate , ISA Deviation problems.

UNIT V COMMUNICATION 9 HOURS

Terminal Communication & En-route Communication, METAR, NOTAM and SNOWTAM, Need of Primary and Secondary Frequencies

TOTAL: 45 HOURS

COURSE OUTCOMES:

After the course the students are expected to be able to

CO1: Explain the basic regulations of Radiocommunications.

CO2: Describe the principles of Radio waves and its Propagation

CO3: Illustrate the Phraseologies used in Aviation sector.

CO4: Decode the aviation code communication.

CO5: Demonstrate the Notices to Airmen

TEXT BOOKS:

1. K.D. Tuli, "Guide To Flight Radiotelephony Radio Aids & Avionics Vol I & II", Himalayan Books,11TH Edition, 2018.
2. R. B. Underdown and David Cockburn, "Ground Studies for Pilots: Radio Aids", Wiley India Pvt Ltd;Sixth edition (7 July 2008).
3. Trevor Thom, "Radio Navigation and Instrument Flying: Air Pilot's Manual", Airlife Pub Ltd (1 July 2002).

REFERENCE BOOKS:

1. Keith Williams, "Radio Navigation 1000 questions and answers with explanation", The English BookStore (The Aviation People) (1 January 2013).
2. Alan E. Bramson, Neville Birch and Alan Branson, "Radio Navigation for Pilots", Gardners Books 3rd edition (June 30, 1996).

WEB LINKS:

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

24MBAV21 PRINCIPLES OF MANAGEMENT

L	T	P	O	C
3	0	0	2	3

COURSE OBJECTIVES:

- 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

UNIT I INTRODUCTION TO MANAGEMENT AND ORGANIZATIONS 9 HOURS

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.

UNIT II PLANNING 9 HOURS

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.

UNIT III ORGANISING 9 HOURS

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.

UNIT IV DIRECTING 9 HOURS

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.

UNIT V CONTROLLING 9 HOURS

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.

24PBAV21 **WORKSHOP PRACTICES LAB**

L	T	P	O	C
0	0	2	1	1

COURSE OBJECTIVES:

1. To provide exposure to the students with hands on experience on various basic engineering practices.
2. 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.
3. 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 Observation	3
9	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

TOTAL: 30 HOURS

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.

24PBAV22 RADIO TELEPHONY RESTRICTED LAB

L	T	P	O	C
0	0	2	1	1

COURSE OBJECTIVES:

To understand various aviation terminologies, Standard Universal Communication Procedures followed by different departments of Aviation.

Exp. no.	EXPERIMENTS	Number of Hours
1	Aircraft Identification: VT-LMO Flight Rules: Y Wake Turb: L Type of Flight: N Type of A/C: ATR Equipment: S Departure Aerodrome: VEKJ. Time: 03:30 Level: F 210 Route: W40 LLK W 85 FL120 VFR. Destination Aerodrome: VIPT Alternate Aerodrome: VILK 1 a. You are taxing out cabin crew member informs that a PAX barriered herself in toilet and is simply refusing to come out. b. You get airborne 04:15. You are passing lvl 2500 that ATC calls you. Take action. 2. You reach you last clr level at 37 DME dist. from KKJ ATC informs you that VILK ATC has gone off the air. Arrange to continue your flt on route segment. 3. You reach VILK at cruising lvl . Announce your plan to comply to PLN 4. You reach VIPT at F50 5. Transmit the following phrases as per Radiotelephony procedure. (a) WAIT, I SHALL CALL YOU. (b) ESTABLISH RADIO CONTACT (c) MY TRANSMISSION IS ENDED AND I EXPECT RESPONSE FROMYOU (d) EXAMINE A SYSTEM OR PROCEDURE (e) CONTINUE IN ACCORDANCE WITH THE CONDITION SPECIFIED	6
2	Aircraft Identification: AI 292 Flight Rules - I Type of A/C: Airbus. Wake Turb:H Equipment: S Departure Aerodrome: VIDP. Time: 01:00 Level: F 330 Route: R 460 BBN W44 PPT G336. Destination Aerodrome: VNKT Alternate Aerodrome: VIBN Other Information. REG/ VT EDC 1. a While embarkation of pax in progress ATC calls you. Answer the call and take action in compliance to rules and inform ATC b. You are approaching Rwy hldg position. You sighted landing TFC Boeing on short finals. ATC permits you to line up after the TFC. Acknowledge the clearance. c. You are ready for take off	6

2. a. ATD 02:30 passing lvl 3500 you want to return to VIDP and hold due to technical reason.
   b. In compliance to the ATC clr received abv you reach DPN. You want to climb to F100
3. You reach KADAS. ATC calls you, answer the call and take action to continue the flight.
4. You have crossed KADAS take necessary action with appropriate ATC as per rules
5. Transmit the following phrases as per Radiotelephony procedure.
   i. THAT IS NOT CORRECT.
   ii. PERMISSION FOR PROPOSED ACTION GRANTED
   iii. I UNDERSTAND YOUR MESSAGE AND WILL COMPLY FOR IT.
   iv. REDUCE YOUR RATE OF SPEECH.
   v. LET ME KNOW THAT YOU HAVE RECEIVED AND UNDERSTOOD THIS MESSAGE

3. **6**

Aircraft callsign: VT APL
Type of A/C: Citation.
Departure Aerodrome: VAAU.
Route: G450 TAMID W20 BUSBO FL 270 IFR
Level: F 110
Flight Rules: Z
Wake Turbulence CAT: M.
Equipment: S
Type Of Flight: S
Time: 00:50
Destination Aerodrome: VOMM
Alternate Aerodrome: VOBG
Other Information. Charted Flight.

1. a. Time is 01:00:30 one VT-UIO Req you for time check.
   b. On approaching Rwy. ATC clears you for take-off, as you start rolling for T/O that Rwy incursion takes place by a vehicle take radio action and express consequences has you rolled on.
2. ATD 01:35 at 30 NM passing F70 you decide to change your route DCT BUSBO to avoid Wx, VAAU has no objection subject to clearance from next appropriate ATC seek permission.
3. You reach BUSBO
4. AT 70 DME to VOMM you contact ATC to report passing FL230 for FL 90 and RCF takes place. Your revised ETA is 03:40 EAT given is 03:55
5. Transmit the following phrases as per Radiotelephony procedure.
   i. A change has been made to your last clearance and supersedes your previous clearance.

ii. Reduce your rate of speech
iii. No
iv. I cannot comply with your request
v. Yes

4. **6**

Aircraft callsign: VT- AJI Flight Rules: Z Type of Flight: N
Type of A/C: ATR. Wake Turb: M Equipment: S
Departure Aerodrome: VABB Time: 08:30 Level: F 140
Route: W10N BPL A791 F180 IFR
Destination Aerodrome: VEJS
Alternate Aerodrome: VIDP

1. a. You are taxing for dep that on the adjoining taxing you see vultures gathered around dead body of a dog. Give detailed report and suggest an action.
   b. You are approaching Rwy hldg point that you decide to carry out ILS approach for practice before settings setting course.
2. ATD 08:50 you pass F70 report.
3. 15 NM from VABP at your cursing level you start experiencing severe turbulence, you decide to descend by 2000ft ATC channel is heavily occupied. To the clearance obtained show progressive radio compliance.
4. At 120 NM to VEJS Req descent to land.
5. Transmit the following phrases as per Radiotelephony procedure.
   i. Wind direction & speed 250 degrees 15 knots, 070 degrees 10 knots gusting to 20 knots.
   ii. Headings. 330 degrees, 080 degrees
   iii. Flight level 200, 310
   iv. Visibility 1000, 2000
   v. Runway Visual Range 500, 1200.

5. **6**

Aircraft Identification: VT YAB Flight Rules: Z Type of Flight: N
Type of A/C: ATR. Wake Turb: M Equipment: S
Departure Aerodrome: VEBS. Time: 01:30 Level: F 140
Route: W49 KKJ R594 F180 IFR
Destination Aerodrome: VIDP
Alternate Aerodrome: VILK
Other Information. Chartered flight

1. a. You are taxing out you see one aircraft parked on dis-used Rwy being hit by a vehicle damaging it's wing tips. Give full details of the incident to ATC.
   b. You are lined up and holding due another aircraft having taken off just in Front of you. Seek permission for take-off as you see the TFC.
2. ATD 02:25 you reach OTABA and experience turbulence. You decide to change your cruising level.
3. You have crossed VECC - VABB FIR boundary. Show compliance to the mandatory requirements.
4. a. You reach VILK. Seek permission to effect your PLN.
   b. You are 10 NM to SSB. Passing FL 60 for FL 50 that one PAX faints. You want to make direct ILS landing.
5. Transmit the following phrases as per Radiotelephony procedure.

i. IC 439
ii. VT ATT
iii. VISIBLITY 2000
iv. RUNWAY VISUAL RANGE 800, RUNWAY VISUAL RANGE 550 FL 250, FL 050

TOTAL: 30 HOURS

COURSE OUTCOMES

After the course the students are expected to be able to

CO1: Explain the basic regulations of Radio communications.

CO2: Describe the principles of Radio waves and its Propagation

CO3: Illustrate the Phraseologies used in Aviation sector.

CO4: Decode the aviation code communication.

CO5: Demonstrate the Notices to Airmen.

REFERENCES

1. K.D. Tuli, "Guide To Flight Radiotelephony Radio Aids & Avionics Vol I & II", Himalayan Books, 11TH Edition, 2018.
2. R. B. Underdown and David Cockburn, "Ground Studies for Pilots: Radio Aids", Wiley India Pvt Ltd; Sixth edition (7 July 2008).
3. Trevor Thom, "Radio Navigation and Instrument Flying: Air Pilot's Manual", Airlife Pub Ltd (1 July 2002).
4. Keith Williams, "Radio Navigation 1000 questions and answers with explanation", The English Book Store (The Aviation People) (1 January 2013).
5. Alan E. Bramson, Neville Birch and Alan Branson, "Radio Navigation for Pilots", Gardners Books; 3rd edition (June 30, 1996).
6. https://www.ealts.com/documents/ICAO%20Doc%209432%20Manual%20of%20Radiotelephony%20(4th%20ed.%202007).pdf
7. https://www.skybrary.aero/bookshelf/books/249.pdf
8. https://www.udemy.com/course/manual-of-radio-telephony-part-1/

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

24DBAV11 **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, CLMAX & 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 (MCRIT) Means to influence critical Mach number (MCRIT)

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

REFERENCES:

1. 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/.

24DBAV12 **AIR TRAFFIC CONTROL**

L	T	P	O	C
3	0	0	2	3

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

24DBAV21 **AIRCRAFT STRUCTURES**

L	T	P	O	C
4	0	0	2	4

COURSE OBJECTIVES:

- To understand the basics knowledge in stress and strains, familiarize in the materials properties
- To gain knowledge in analysis of aircraft structures and airframe loads.
- To study and have a clear idea about the sheet metal and inspection of components.

UNIT I BASICS OF STRENGTH OF MATERIALS 12 HOURS

Basic concepts; stress, strain, Hooke's law, types of stresses and strains, Poisson's ratio. Elastic constants- Young's modulus, Rigidity modulus & Bulk modulus. Material properties: toughness, hardness, brittleness, elasticity& plasticity- ductile & brittle materials. stress- strain curve, tensile properties- yield strength, allowable strength and factor of safety.

UNIT II BASICS OF ENGINEERING MECHANICS 12 HOURS.

Concurrent and non-con-current forces, Free body diagram, Support reactions, Types of beams, Types of supports, statically determinate structures, Indeterminate structures, moment of inertia, moment of inertia of different sections.

UNIT III ANALYSIS OF AIRCRAFT STRUCTURES 12 HOURS

Principles of stressed skin structures constructions-Materials Such as Aluminum alloys, Steel, Titanium, Plastics, Glass Composites. Structural components of Aircraft- Loads on structural components, functions of structural components and fabrication of structural components.

UNIT IV AIRWORTHINESS AND AIRFRAME LOADS 12 HOURS

Airworthiness- Factors of safety flight envelopes, loads factor determination. Airframe loads-Aircraft inertia loads, symmetric maneuvers load, normal accelerations associated with various types of maneuvers and Gust envelope. Fatigue- safe life, fail safe structures, fatigue strength of components, Prediction of aircraft fatigue life, crack propagation.

UNIT V SHEET METAL AND INSPECTION OF AIRCRAFT COMPONENTS 12 HOURS

Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work. Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes. Inspection and testing of springs. Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.

Transmissions, Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.

TOTAL -60 HOURS

COURSE OUTCOMES:

After the course the students are expected to be able to

CO-1: Explain the basics concepts of strength of materials

CO-2: Explain the basics mechanics defining the aircraft structures.

CO-3: Explain the structural loads on aircraft.

CO-4: Explain the Airworthiness of Aircraft structures.

CO-5: Examine the sheet metal and do the inspection of aircraft components.

TEXT BOOKS:

1. T. H. G. Megson, "Aircraft structures for engineering students", Butterworth Heinemann, 2011.
2. Federal Aviation Administration (FAA)/Aviation Supplies & Academics ", (ASA)Aviation Maintenance Technician Handbook – General: FAA-H-8083-30 (FAA Handbooks) Aviation Supplies & Academics Inc; 2013th edition (21 March 2013).
3. Aircraft handbook FAA (AC 65-15 A).

REFERENCE BOOKS:

1. Strength of materials by R.K.Bansal
2. Aircraft structure Ch. 01 (FAA)
3. AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair
4. EASA-part-66-module-13, Aircraft tech book co.

WEB LINKS:

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

24DBAV22 **INDUSTRIAL AERODYNAMICS**

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 the 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.

VELS
KNOWLEDGE IS POWER