

ALAGAPPA UNIVERSITY

(Accredited with A+Grade by NAAC (CGPA:3.64) in the Third Cycle), Graded as Category-I University and granted autonomy by MHRD-UGC)

DIRECTORATE OF COLLABORATIVE PROGRAMMES



B.Sc.Aviation

Regulations and Syllabus

[For those who join the Course in July 2023 and after]

CHOICE BASED CREDIT SYSTEM

ALAGAPPA UNIVERSITY

MOTTO

Excellence in Action

VISION

Achieving Excellence in all spheres of Education, with particular emphasis on Pedagogy, Extension, Administration, Research and Learning (PEARL).

MISSION

Affording a High Quality Higher Education to the learners so that they are transformed into intellectually competent human resources that will help in the uplift of the nation to Educational, Social, Technological, Environmental and Economic Magnificence (ESTEEM).

QUALITY POLICY

Attaining benchmark quality in every domain of PEARL to assure the stakeholders delight through professionalism exhibited in terms of strong purpose, sincere efforts, steadfast direction and skilful execution.

COURSE OBJECTIVES

Providing instructions and training in such branches so that learning, as the University may determine. Fostering research for the advancement and dissemination of knowledge.

QUALITY QUOTE

Quality Unleashes Opportunities Towards Excellence (QUOTE).

GENERAL INSTRUCTIONS AND REGULATIONS

B.Sc. Aviation (Semester Pattern) is conducted by Alagappa University, Karaikudi, Tamil Nadu through its Collaborative Institutions.

Applicable to all the candidates admitted from the academic year **2023** onwards.

1. Eligibility:

A pass in the Higher Secondary Examination (HSC) or an examination accepted as equivalent there to by the Syndicate. Candidate for admission to B.Sc Aviation shall be required to have passed qualifying examination with Physics, Chemistry and Mathematics (PCM) or Computer / Biology.

LateralEntry Eligibility:

- A pass in SSLC + 3yrs Diploma in related subject shall be admitted directly in 2nd year of B.Sc. (Aviation) programme.
- A pass in SSLC + HSC + 2 / 3 yrs Diploma in related subject shall be admitted directly in 2nd year of B.Sc. (Aviation) Programme.

2. FortheDegree:

The candidates shall have subsequently undergone the prescribed programme of study in a institute for not less than three academic years, passed the examination prescribed and fulfil such conditions as have been prescribed therefore.

3. Admission:

Admission is based on the marks in the qualifying examination.

4. DurationoftheCourse:

The course shall extend over a period of Three years under SEMESTER pattern accounting to six SEMESTERs.

5. Minimum Duration of Programme

The programme is for two years. Each year shall consist of two semesters' viz. Odd and Even semesters. Odd semesters shall be from June / July to October / November and even semesters shall be from November / December to April/ May. Each semester there shall be 90 working days consisting of 6 teaching Hours per working day (5 days/week).

6. Medium of Instruction

The medium of instruction is English/ Tamil.

7. TeachingMethods

The classroom teaching would be through conventional lectures, the use of OHP, PowerPoint presentation, and novel innovative teaching ideas like television, smart board, and computer-aided instructions. Periodic field visit enables the student for gathering practical experience and up-to-date industrial scenario. Student seminars would be arranged to improve their communicative skills. In the laboratory, safety measures instruction would be given for the safe handling of chemicals and instruments. The lab experiments shall be conducted with special efforts to teach scientific knowledge to students. The students shall be trained to handle advanced instrumental facilities and shall be allowed to do experiments independently. The periodic test will be conducted for students to assess their knowledge. Slow learners would be identified and will be given special attention by remedial coaching. Major and electives would be held in the Department and for Non-major electives students have to undertake other subjects offered by other departments.

8. Standard of Passing and Award of Division:

1. Students shall have a minimum of 40% of total marks of the University examinations in each subject. The overall passing minimum is 40% both in aggregate of Continuous Internal Assessment and external in each subject.
2. The minimum marks for passing in each theory /Lab course shall be 40% of the marks prescribed for the paper / lab.
3. A candidate who secures 40% or more marks but less than 50% of the aggregate marks prescribed for three years taken together, shall be awarded THIRD CLASS.
4. A candidate who secures 50% or more marks but less than 60% of the aggregate marks prescribed for three years taken together, shall be awarded SECOND CLASS.
5. A candidate who secures 60% or more of the aggregate marks prescribed for three years taken together, shall be awarded FIRST CLASS.
6. Only Part-III subjects were considered for the ranking.
7. The Practical / Project shall be assessed by the two examiners, by an internal examiner and an external examiner.

9. Continuous internal Assessment:

1. Continuous Internal Assessment for each paper shall be by means of Written Tests, Assignments, Class tests and Seminars
2. 25 marks allotted for the Continuous Internal assessment is distributed for Written Test, Assignment, Class test and Seminars.
3. Two Internal Tests of 2 Hours duration may be conducted during the SEMESTER for each course / subject and the best marks may be considered and one Model Examination will be conducted at the end of the SEMESTER prior to University examination. Students may be asked to submit at least five assignments in each subject. They should also participate in Seminars conducted for each subject and marks allocated accordingly.
4. Conduct of the continuous internal assessment shall be the responsibility of the concerned faculty.
5. The continuous internal assessment marks are to be submitted to the University at the end of every year.
6. The valued answer papers / assignments should be given to the students after the valuation is over and they should be asked to check up and satisfy themselves about the marks they have scored.
7. All mark lists and other records connected with the continuous internal assessments should be in the safe custody of the institution for at least one year after the assessment.

10. Attendance:

Students must have earned 75% of attendance in each course for appearing on the examination. Students who have earned 74% to 70% of attendance need to apply for condonation in the prescribed form with the prescribed fee.

Students who have earned 69% to 60% of attendance need to apply for condonation in the prescribed form with the prescribed fee along with the Medical Certificate.

Students who have below 60% of attendance are not eligible to appear for the End Semester Examination (ESE). They shall re-do the semester(s) after completion of the programme.

11. Examination:

The examinations shall be conducted separately for theory and practical to assess (remembering, understanding, applying, analysing, evaluating, and creating) the knowledge required during the study. There shall be two systems of examinations viz., internal and external examinations. The internal examinations shall be conducted as Continuous Internal Assessment tests I and II (CIA Test I & II).

A. Internal Assessment

The internal assessment shall comprise a maximum of 25 marks for each course. The following procedure shall be followed for awarding internal marks.

Theory-25marks

Sr.No.	Content	Marks
1	Average mark of two CIA tests	15
2	Seminar / group discussion / quiz, etc.,	5
3	Assignment / field trip report / case study reports	5
	Total	25

Practical-25marks

Sr.No.	Content	Marks
1	Average marks of two CIA tests (Practical) Experiments–Major, Minor, and Spotter	15
2	Observation note book	10
	Total	25
Internship -25Marks (assess by Guide/Incharge/HOD/Supervisor)		
1	Presentation	15 Marks
2	Progress report	10 Marks
	Total	25 Marks
Dissertation–50Marks (Guide/HOD)		
1	Two presentations (mid-term)	30 Marks
2	Progress report	20 Marks
	Total	50 Marks

B. External Examination

- There shall be examinations at the end of each semester, for odd semesters in October / November; for even semesters in April / May.
- A candidate who does not pass the examination in any course(s) may be permitted to appear in such failed course(s) in the subsequent examinations to be held in October / November or April/ May. However, candidates who have arrears in practical shall be permitted to take their arrear Practical examination only along with regular practical examination in the respective semester.
- A candidate should get registered for the first-semester examination. If registration is not possible owing to a shortage of attendance beyond the condonation limit / regulation prescribed OR belated joining OR on medical grounds, the candidates are permitted to move to the next semester. Such candidates shall re-do the missed semester after completion of the programme.
- For the Dissertation Work, the maximum marks will be 100 marks for thesis evaluation and the Viva-Voce 50 marks.
- For the internship, the maximum mark will be 50 marks for project report evaluation and for the Viva-Voce it is 25 marks
- **Viva-Voce:** Each candidate shall be required to appear for the Viva-Voce Examination (in defence of the Dissertation Work / internship).

Practical(Science)-Maximum 75 marks

Section A	Major experiment	15 Marks
Section B	Minor experiment	10 Marks
Section C	Experimental setup	5 Marks
Section D	Spotters-(5 spotters x 5 marks)	25 Marks
Section E	Record Note	10 Marks
Section F	Viva-voce	10 Marks

Dissertation

Dissertation Thesis	100 Marks
Viva voce	50 Marks

Internship Report

Internship Report	50 Marks
Viva voce	25 Marks

Passing Minimum

- A candidate shall be declared to have passed each course if he/she secures not less than 40% marks in the End Semester Examinations and 40% marks in the Internal Assessment and not less than 40% for UG and PG 50% in the

aggregate, taking Continuous assessment and End Semester Examinations marks together.

- The candidates not obtained 40% for UG and PG 50% in the Internal Assessment are permitted to improve their Internal Assessment marks in the subsequent semesters (2 chances will be given) by writing the CIA tests and by submitting assignments.
- Candidates, who have secured the passmarks in the End-Semester Examination and the CIA but failed to secure the aggregate minimum pass mark (E.S.E + C I.A), are permitted to improve their Internal Assessment mark in the following semester and/or in

University Examinations.

- A candidate shall be declared to have passed the Project Work if he /she gets not less than 40% in each of the Project Report and Viva-Voce and not less than 40 % UG and in PG 50% in the aggregate of both the marks for Project Report and Viva-Voce.
- A candidate who gets less than 40% for UG and PG 50% in the Project Report must resubmit the Project Report. Such candidates need to take again the Viva-Voce on the resubmitted Project.
- Each student should have taken ---- credits as a core course, Internship course (core), credits as a major elective; ---credits as a non-major elective, credits as dissertation work, in addition, MOOCs courses as extra credits, thus to tallying least+ extra credits required to complete **Degree Course**.

12. Fee structure

Course fee shall be as prescribed by the University and 50% of the course fee should be disbursed to University. Special fees and other fees shall be as prescribed by the Institution and the fees structure must be intimated to the University. Course fees should be only by Demand draft / NEFT and AU has right to revise the fees accordingly.

Semester Pattern

Course Fee payment deadline
Fee must be paid before 10 th September of the academic year

13. Other Regulations:

Besides the above, the common regulation of the University shall also be applicable to this programme.

Course Structure

Part No	Subject	Credits
Part I	Language (LC)	4x2=12
Part II	English Language Course (ELC)	4x2=12
Part III	Core Course	62
	Allied Course	5x4 Semesters = 20

	Professional English(Additional Credit)	16 (I & I V Semesters) 4x4 Semesters
	Discipline Specific Elective(DSE) (or) Project	4x4=16 Project 8 credits
PartIV	SEC-I Value Education	2x1=2 (for one semester only)
	SEC-II Environmental Studies	2x1=2 (for one semester only)
	SEC-III Entrepreneurship Course	2x1=2
	SEC-IV&VNMEI&II/MOOC's	2x2=4
	Library / Yoga/ Counselling/ Field Trip/Self-learningcourse (SLC)	May be included in the time table
Total		140+16Additional Credit

- MIL-Modern Indian Language, E-English
- CC-Core course – Core competency, critical thinking, analytical reasoning, research skill & team work
- Allied/GEC-Exposure beyond the discipline
- AECC- -Ability Enhancement Compulsory Course (Professional English & Environmental Studies) - Additional academic knowledge, psychology and problem solving etc.,
- SEC-Skill Enhancement Course - Exposure beyond the discipline (Value Education, Entrepreneurship Course, Computer application for Science, etc.,
- NME-Non Major Elective – Exposure beyond the discipline
- Student not opted for Tamil as Language I, II, III and IV, should complete Adipadai Tamil compulsorily in NME-I and II.
- DSE – Discipline specific elective – Additional academic knowledge, critical thinking, and analytical reasoning-Student choice - either Internship or Theory papers or Project + 2 theory paper. If internship – Marks = Internal (150 (75+75) two midterm evaluation through Viva voce + Report 150+ External Viva voce 100 = 400, If Project Marks = Internal -25 + Thesis -+ Viva voce = 75=100 and + 3 theory paper = 300 = 400
- Extension activity & MOOCs – Voluntary basis

14. Miscellaneous

1. Each student possess the prescribed text books for the subject and the workshop tools as required for theory and practical classes.
2. Each student is issued with an identity card by the University to identify his / her admission to the course
3. Students are provided library and internet facilities for development of their studies.
4. Students are to maintain the record of practical conducted in the respective laboratory in a separate Practical Record Book and the same will have to be presented for review by the University examiner.
5. Students who successful complete the course within the stipulated period will be awarded the degree by the University.

DEPARTMENT OF AVIATION

VISION

To be the exemplar in the field of Aviation by producing graduates who ensure to develop and strengthen the Aviation Industry contributing to the intellectual, social and economic development of the industry which is served through unique learning management, fuelled by the advanced curriculum to endeavour the highest standards to excel in their Aviation Profession.

MISSION

- To impart quality education through advanced curriculum, which would be delivered by the industry experts.
- To train the students to have updated knowledge of the subjects in the field of aviation and groom them in Intrapersonal & Interpersonal skills.
- To prepare the students for the current industry standards by providing In-plant training in the updated procedures being followed in the industry
- To create awareness and working knowledge about different platforms in the Aviation Industry and mould the students to be fit for all platforms of the industry

PROGRAMME EDUCATION COURSE OBJECTIVES-(PEO):

PEO-1	To Produce Graduates demonstrating their critical thinking, communication, team work and situational awareness skills in the professional life.
PEO-2	To produce graduates who can fulfill the requirements of the aviation industry.
PEO-3	To produce graduates who shall develop the aviation industry in administration, process, communication and technological factors
PEO-4	To assume global careers and leadership responsibilities through consistent learning with idealistic managerial practices
PEO-5	To prepare the graduates to compete and excel through the updated methodology being implemented in the Aviation Industry

PROGRAM OUTCOMES(POs)

PO-1	Students shall understand and practice the discipline being followed in the Aviation Industry.
PO-2	Students shall be able to read, write and communicate in the professional manner which is highly required for the students in the working atmosphere.
PO-3	Students shall be able to develop their task management skills either as an individual or subordinate to a superior focusing on completing the task efficiently with maximum performance on time.
PO-4	Students shall be able to acquire the knowledge about aircraft and area related to the parts of aircraft and its operation procedure.
PO-5	Students shall get to know about airports, types of airports and several teams and operations being handled by professional staff inside and outside the airport.
PO-6	Students shall understand Commercial Aviation and operational procedures related to Commercial processes in the Aviation Industry.
PO-7	Students shall practice the activities and tasks related to several technical operations and professional communication procedures which connects operations of different platforms.
PO-8	Self-directed learning Students can work independently, identify any type of appropriate resources required for knowledge source that helps to manage a project, mini project, soft skill programs and placement training programs.
PO-9	Students shall develop knowledge and get exposure in different platforms of Aviation Industry which helps them in pursuing higher studies in various fields.
PO-10	Students shall understand the value of professional ethics and management principles which guides them in their professional life to cope up with in the working environment so that shall avoid unethical behavior and adopting an objective, unbiased and truthful actions in all aspects of work.
PO-11	Students can develop their leadership skills by involving in several activities like seminar, survey, presentations, internships, training programs and undertaking responsibilities to work as a team or an individual, and setting direction, formulating an inspiring vision by using the management skills.
PO-12	Students shall go for Life long learning related to technological and process based updates through out their life time

PROGRAMME SPECIFIC OUTCOME(PSOs)

At the end of the program, the students are

PSO-1	Able to understand the various scientific principles and they can able to apply in the field of Aviation.
PSO-2	Demonstrate ability to research information pertinent to their aviation discipline.
PSO-3	Realize the need to continuously gain knowledge throughout life within and outside of aviation.
PSO-4	To function as the solution provider so entrepreneurs, who are able to manage, innovate, communicate, train and lead a team for continuous improvement.
PSO-5	Graduate will be able to work as a team member which will be a main requirement in industry or in any business enterprise which will pave the way for successful career for the graduate and also play a role for the success of the organization in which the graduate is employed.

B.Sc. Aviation

Sem	Course Code	Part	Courses	Name	T/P	Credits	Hours	Int. Marks	Ext.Marks	Total
I	97211T/11H/11F	I	T/OL	Tamil/Other Languages-I	T	3	3	25	75	100
	97212	II	E	General English-I	T	3	3	25	75	100
	97213	III	CC	Introduction to Aviation Industry	T	5	5	25	75	100
	97214		CC	Aero Hangar Practices Lab	P	4	8	25	75	100
	97215		ALLIED-1A	Basics of Aircraft Electricals and Electronics	T	3	3	25	75	100
	97216		ALLIED-1A	Aircraft Electrical and Electronics Lab	P	2	4	25	75	100
	97217	IV	SEC -I	Value Education	T	2	2	25	75	100
				Library			2			
				Total		22	30	175	525	700
II	97221T/H/F/M/TU/A/S	I	Tamil/OL	Tamil/Other Languages-II	T	3	3	25	75	100
	97222	II	E	General English-II	T	3	3	25	75	100
	97223	III	CC	Basics of Aircraft	T	5	5	25	75	100
	97224		CC	Aero Engine Lab	P	4	8	25	75	100
	97225		ALLIED-1B	Aviation Physics	T	3	3	25	75	100
	97226		ALLIED-1B	Aviation Physics Lab	P	2	4	25	75	100
	97227	IV	SEC -II	Environmental Studies	T	2	2	25	75	100
				Library			2			
				Total		22	30	175	525	700
III	97231T/H/F/M/TU/A/S	I	T/OL	Tamil/Other Languages-III	T	3	3	25	75	100
	97232	II	E	General English-III	T	3	3	25	75	100
	97233	III	CC	Aviation Weather & Meteorology	T	3	4	25	75	100
	97234		CC	Weather Meteorology Lab	P	3	6	25	75	100
	97235		CC	Flight Safety and Support Systems	T	3	3	25	75	100
	97236		ALLIED-2A	Basic Mathematics	T	3	3	25	75	100
	97237	IV	ALLIED-2A	Computer Application Lab	P	2	4	25	75	100
	97238		SEC -III	Entrepreneurship	T	2	2	25	75	100
	97239A		NME –I	1.Adipadai Tamil(Compulsory for non tamil students)	P	2	2	25	75	100
	97239B			2.Advance Tamil	T					
	97239C			3.IT Skills for Employment	T					
			Optional	Self Learning Course-MOOC'S	T	Extra Credit				
				Total		24	30	225	675	900

IV	97241T/H/F/ M/TU/A/S	I	T/OL	Tamil/Other Languages-IV	T	3	3	25	75	100
	97242	II	E	General English-IV	T	3	3	25	75	100
	97243	III	CC	Industrial Drawing Practices	T	4	4	25	75	100
	97244		CC	Aircraft Safety and Support Systems Lab-Practical	P	4	8	25	75	100
	97245		CC	Aviation Communication and Radio Aids	T	3	3	25	75	100
	97246		ALLIED- 2B	Physical and Health Education	T	3	3	25	75	100
	97247		ALLIED- 2B	Physical and Health Education Lab	P	2	4	25	75	100
	97248A	IV	NME–II	1. Adipadai Tamil(Compulsory for non tamil students)	P	2	2	25	75	100
	97248B			2. Advance Tamil	T					
	97248C			3.Small Business Management	T					
			Optional	Self Learning Course-MOOC'S	T	Extra Credit				
				Total		24	30	200	600	800
V	97251	III	CC	Air Navigation(General)	T	4	4	25	75	100
	97252		CC	Aircraft Systems	T	4	4	25	75	100
	97253A 97253B 97253C		DSE	Elective-1 1. Airport & Flight Operation 2. Air Regulations 3. Air Traffic Control	T	4	4	25	75	100
	97254A 97254B 97254C		DSE	Elective-2 1. Public Relationship in the Aviation Industry 2. Logistics &Air Cargo Management 3. Airport Planning	T	4	4	25	75	100
	97255A 97255B 97255C		DSE	Elective-3 1. Principles of Rotor craft. 2. Piston Engine and Propeller 3. Turbine Engine	T	4	4	25	75	100
	97256		CC	Computer Aided Design Lab	P	4	8	25	75	100
				Carrier Development and Employability			2			
						Total		24	30	150
VI	97261	III	CC	Aviation Security &Safety	T	4	4	25	75	100
	97262		CC	Aircraft Instruments	T	4	4	25	75	100
	97263A 97263B 97263C		DSE	Elective-4 1. Total Quality Management 2. Professional Ethics 3. Principles of Management	T	4	4	25	75	100
	97264		CC	Practical-6 Radio Aids and Communication Lab	P	4	6	25	75	100
	97265			Project Work	PR	8	12	25	75	100
						Total		24	30	125
				Grand Total		140	180	1050	3150	4200

YEAR-I

SEMESTER-I
PART -I

Subject Code:97211T	LANGUAGE-TAMIL -I	LTPC 3003
------------------------	-------------------	--------------

பொதுத்தமிழ்-1

தமிழ் இலக்கிய வரலாறு -1

முதலாம் ஆண்டு - முதற் பருவம்

Course Code	Course Name	Category	L	T	P	S	Credits	Ins.Hrs	CIA	Externa	Total
	பொதுத்தமிழ் -1 தமிழ் இலக்கிய வரலாறு -1	Supportive	Y	-	-	-	3	6	25	75	100
Pre-Requisite		பன்னிரெண்டாம் வகுப்பில் தமிழை ஒரு பாடமாகப் பயின்றிருக்க வேண்டும்							SV 2023		

Learning Objectives

- முதலாமாண்டுப் பட்ட வகுப்பு மாணவர்களுக்குத் தமிழ் மொழி இலக்கியங்களை அறிமுகம் செய்தல்
- தமிழ் இலக்கியப் போக்குகளையும், இலக்கணங்களையும் மாணவர் அறியுமாறு செய்து அவர்களின் படைப்பாற்றலைத் தூண்டுதல்
- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்

Expected Course Outcomes

On the Successful completion of the Course, Students will be able to

இப்பாடத்தைக் கற்பதால் பின்வரும் பயன்களை மாணவர் அடைவர்

CO 1	சங்க இலக்கியத்தில் காணப்பெறும் வாழ்வியல் சிந்தனைகளை அறிந்து கொள்வர்	K4
CO 2	அற இலக்கியம் மற்றும் தமிழ் காப்பியங்களின்வழி வாழ்வியல் சிந்தனையைப் பெறுவர்	K5, K6
CO 3	பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினையும், பகுத்தறிவு இலக்கியங்களைக் கற்பதன் வழி நல்லிணக்கத்தையும் தெரிந்து பின்பற்றுவர்	K3
CO 4	மொழியறிவோடு சிந்தனைத்திறனைப் பெறுவர்	K3
CO 5	மொழிப்பயிற்சிக்குத் தேவையான இலக்கணங்களைக் கற்பர்.	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

அலகு-1	தமிழ் இலக்கிய, இலக்கண வரலாறு அறிமுகம்.
1. இலக்கணம்; அ.தொல்காப்பியம், இறையனார் களவியல் உரை , நம்பியகப் பொருள், புறப்பொருள் வெண்பா மாலை, நன்னூல், தண்டியலங்காரம், யாப்பருங்கலக்காரிகை- நூல்கள் ஆ.மொழிப் பயிற்சி- ஒற்றுப்பிழை தவிர்த்தல் • வல்லினம் மிகும் இடங்கள் • வல்லினம் மிகா இடங்கள் • ஈரொற்று வரும் இடங்கள் • ஒரு, ஓர் வரும் இடங்கள் • அது, அஃது வரும் இடங்கள் • தான், தாம் வரும் இடங்கள் பயிற்சி : வல்லினம் மிகும் இடங்கள், மிகா இடங்கள் தவறாக வரும்வகையில் ஒரு பத்தி கொடுத்து ஒற்றுப் பிழை திருத்தி எழுதச் செய்தல். 2. சங்க இலக்கியம் - எட்டுத்தொகை, பத்துப்பாட்டு 3. அற இலக்கியம்-பதினெண்கீழ்க்கணக்கு நூல்கள் 4. காப்பிய இலக்கியம் - ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், சமயக் காப்பியங்கள் 5. பக்தி இலக்கியமும் (பன்னிரு திருமுறைகள், நாலாயிர திவ்வியப் பிரபந்தம் -- பகுத்தறிவு இலக்கியமும் (சித்தர் இலக்கியங்கள், புலவர் குழந்தையின் இராவண காவியம்)	
அலகு-2	சங்க இலக்கியம்
எட்டுத்தொகை ;எ 1. நற்றிணை-முதல் பாடல் -நின்ற சொல்லர் 2. குறுந்தொகை 3 ஆம் பாடல் -நிலத்தினும் பெரிதே 3. ஐங்குறுநூறு -நெல் பல பொலிக! பொன் பெரிது சிறக்க!' (முதல் பாடல்)-வேட்கைப் பத்து 4. கலித்தொகை- 51 - சுடர்த்தொடிக் கேளாய் -குறிஞ்சிக் கலி 5. புறநானூறு -189 தென்கடல் வளாகம் பொதுமையின்றி, நாடா கொன்றோ -187 பத்துப்பாட்டு; 1. முல்லைப்பாட்டு (முழுவதும்)	
அலகு-3	அற இலக்கியம்
1.திருக்குறள் -அறன் வலியுறுத்தல் அதிகாரம் 2.நாலடியார்-பாடல்: 131 (குஞ்சியழகும்) 3.நான்மணிக்கடிகை-நிலத்துக்கு அணியென்ப 4.பழமொழி நானூறு- தம் நடை நோக்கார்	
5.இனியவை நாற்பது- 37. இளமையை மூப்பு என்று	

அலகு-4	காப்பிய இலக்கியம்
1. சிலப்பதிகாரம் – வழக்குரைகாதை 2. மணிமேகலை- பாத்திரம் பெற்ற காதை 3. பெரியபுராணம் - பூசலார் நாயனார்புராணம் 4. கம்பராமாயணம்- குகப் படலம் 5. சீறாப்புராணம் – மானுக்குப் பிணை நின்ற படலம் 6. இயேசு காவியம் -ஊதாரிப்பிள்ளை	
அலகு-5	பக்தி இலக்கியமும், பகுத்தறிவு இலக்கியமும்
பக்தி இலக்கியம்; 1. திருநாவுக்கரசர் தேவாரம் - நாமார்க்கும் குடியல்லேம் எனத் தொடங்கும் பாடல் மட்டும் 2. மாணிக்கவாசகர் திருவாசகம் - நமச்சிவாய வாஅழக நாதன்தான் வாழ்க முதல் சிரம்குவிவார் ஓங்குவிக்கும் சீரோன் கழல் வெல்க வரை 3. பொய்கையாழ்வார்-வையந் தகளியா வர்கடலே 4. பூதத்தாழ்வார்-அன்பே தகளியா 5. பேயாழ்வார்-திருக்கண்டேன் பொன்மேனி கண்டேன் 6. ஆண்டாள் – திருப்பாவை மார்கழித் திங்கள் (முதல் பாடல்) பகுத்தறிவு இலக்கியம்; • திருமூலர் – திருமந்திரம் (270,271, 274, 275-285) • பட்டினத்தார் -திருவிடை மருதூர் (காடே திரிந்து – எனத் தொடங்கும் பாடல் பா.எண் ;.279, 280) • கடுவெளி சித்தர் - பாபஞ்செய் யாதிரு மணமே (பாடல் முழுவதும்) • இராவண காவியம் – தாய்மொழிப் படலம்- 18. ஏடுகை யில்லா ரில்லை முதல் - 22. செந்தமிழ் வளர்த்தார். வரை	
Text books	
•	.
Reference Books	
• மு. வரதராசன், தமிழ் இலக்கிய வரலாறு, சாகித்ய அக்காதெமி, புதுடெல்லி. • மது. ச. விமலானந்தன், தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை. • தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை. • தமிழ் இலக்கிய வரலாறு –முனைவர்.சிற்பி பாலசுப்ரமணியம், முனைவர்.சொ.சேதுபதி • புதிய தமிழ் இலக்கிய வரலாறு– முனைவர்.சிற்பி பாலசுப்ரமணியம்,நீல.பத்மநாபன்	
• தமிழ் இலக்கிய வரலாறு = டாக்டர்.அ.கா.பெருமாள் • தமிழ் இலக்கிய வரலாறு –முனைவர். ப.ச.ஏசுதாசன் • தமிழ் இலக்கிய வரலாறு – ஸ்ரீ குமார் • வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு–பாக்கியமேரி • தமிழ் பயிற்றும் முறை, பேராசிரியர் த. சுப்புரெட்டியார் - மணிவாசகர் பதிப்பகம், சிதம்பரம்	

Web Sources

- <https://www.chennailibrary.com/>
- <https://www.sirukathaigal.com>
- <https://www.tamilvirtualuniversity.org>
- <https://www.noolulagam.com>
- <https://www.katuraitamilblogspot.com>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	1	1	-	1	1	2
CO2	1	3	2	-	-	-	1	1	-	1	1	2
CO3	1	3	2	-	-	-	1	1	-	1	1	2
CO4	1	3	2	-	-	-	1	1	-	1	1	2
CO5	1	3	2	-	-	-	1	1	-	1	1	2
W.AV	1	3	2	-	-	-	1	1	-	1	1	2

S-Strong(3),M-Medium(2),L -Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	1	1
CO2	-	1	2	1	1
CO3	-	1	2	1	1
CO4	-	1	2	1	1
CO5	-	1	2	1	1
W.AV	-	1	2	1	1

S-Strong(3),M-Medium(2),L -Low (1)

PART I

PAPER I

Subject Code:97211F	LANGUAGE Foundation Course: French- I	LTPC 3003
--------------------------------------	--	----------------------------

COURSE OBJECTIVES:

- Identify the basic French sentence structure
- Define and describe the various grammatical tenses and use them to communicate in French
- Examine the various documents presented and discuss and reply to the questions asked on it
- Analyze and interpret expressions used to convey the cause, the effect, the purpose, and the opposition in French
- Evaluate the grammatical nature present in passages

UNIT I

9 Hours

Salut!
Enchanté

UNIT II

9 Hours

J'adore

UNIT III

9 Hours

Tu veux bien?

UNIT IV

9 Hours

On se voit quand?

UNIT V

9 Hours

Bonne idée

Total: 45 Hours

TEXT BOOKS AND REFERENCE BOOKS:

Reading List (Print and Online)

1. Régine Mérieux & Yves Loiseau, Latitudes-1-(A1/A2), méthode de français, Didier, 2017 (units 1-6 only)

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Recall and remember the usage of grammatical tenses in constructing sentences in adialogue.	L2
CO2	Apply the learn tgrammarrules in practice exercises to improve their understanding	L3
CO3	Explain the nuances in the usage of various grammatical tenses and their aspects	L2&L3
CO4	Demon strate knowledge of various expressions used to express opinions, emotions, cause, effect, purpose, and hypo thesis in French	L2
CO5	Communicate in French and summarizea given text	L3

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	1	1	-	1	1	2
CO2	1	3	2	-	-	-	1	1	-	1	1	2
CO3	1	3	2	-	-	-	1	1	-	1	1	2
CO4	1	3	2	-	-	-	1	1	-	1	1	2
CO5	1	3	2	-	-	-	1	1	-	1	1	2
W.AV	1	3	2	-	-	-	1	1	-	1	1	2

S–Strong(3), M–Medium(2), L–Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	1	1
CO2	-	1	2	1	1
CO3	-	1	2	1	1
CO4	-	1	2	1	1
CO5	-	1	2	1	1
W.AV	-	1	2	1	1

S–Strong(3),M–Medium(2),L –Low (1)

PART– I
PAPER – I
(Hindika Samanya Gyan,VyakaranaurNibandh)

Subject Code:97211H	LANGUAGE – GENERALHINDI-I	LTPC 3003
--------------------------------------	--	----------------------------

COURSEOBJECTIVES:

1. Training in Hindi pronunciation along with basic knowledge of Hindi
2. Syntax
3. Reading the passage

UnitI	Buniyadi Hindi	9Hours
	➤ Swar ➤ Vyanjan ➤ BarahKhadi ➤ Shabdaur ➤ VakyaRachna	
UnitII	HindiShabdavali	9Hours
	➤ RishtokeNaam ➤ GharelupadarthokeNaam	
UnitIII	Vyakaran5	9Hours
	➤ SadharanVakyaaur Sangya ➤ Sarvanam ➤ Visheshan ➤ Kriyaaadishabdokaprayog	
UnitIV	ChoteGadyanshkaPathan	9Hours
	➤ BachokiKahaniya ➤ Patra-PatrikaomeinprakashitGadyanshokaPathan	
UnitV	Nibandh	9Hours
	➤ ☐ SantTiruvalluvar ➤ ☐ E.V.RThandaiPeriyar ➤ ☐ NaariSashaktikaran ➤ ☐ ParyavaranSanrakshan ➤ ☐ Vibhinna pratiyogi parikshao ke bare mein jaankari dena Pratiyogiprikshaparadharitnibandhodwarabhashaki kshamtabadhanevaleprashikshankary.	

Total:45Hours

TEXTBOOKS AND REFERENCE BOOKS:

1. Hindi ke Avyay Vakyansh – Chaturbhuj Sahay
2. Subodh Hindi Vyakaran – Phoolchand Jain
3. Sankshipt Hindi Vyakaran – Kamta Prasad
4. Vyavaharik Hindi – Nagappa
5. Abhinav Hindi Vyakaran – Nagappa
6. Saral Hindi Vyakaran – Shyamchandra Kapur
7. Vyakaran Pradeep – Ramdev
8. Laghu Bal Kathaye – Ramashankar
9. Manoranjan Kahaniya – Premchand
10. CONCISE GRAMMAR OF THE HINDI LANGUAGE – H.C Scholberg
11. Hindi Grammar – Edwin Greaves

COURSE OUTCOMES:

CO1	Introduction to Hindi sounds	K2
CO2	Sentence formation in Hindi	K3
CO3	Acquisition of Hindi Vocabulary	K2
CO4	Reading of stories and other passages	K4
CO5	Modules to increase language ability through general essays based on competitive exams	K5; K6
K1-Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6- Create		

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	-	-	-	-	2	1	1	3	2
CO2	1	1	2	-	-	-	-	2	1	1	3	2
CO3	1	1	3	-	-	-	-	3	1	1	3	2
CO4	1	1	2	-	-	-	-	2	1	1	3	2
CO5	1	1	3	-	-	-	-	3	1	1	3	2
W.AV	1	1	2.4	-	-	-	-	2.4	1	1	3	2

S–Strong(3), M–Medium(2), L–Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	2	2
CO2	-	1	2	2	2
CO3	-	1	2	2	2
CO4	-	1	2	2	2
CO5	-	1	2	2	2
W.AV	-	1	2	2	2

S–Strong(3),M-Medium(2),L-Low(1)

Related Online Contents(MOOCs,SWAYAM,NPTEL,YouTube,Websites,etc.)

1. fr#oYyqoj%

[https://bharatdiscovery.org/india/%E0%A4%A4%E0%A4%BF%E0%A4%B0%E0%A5%81%E0%A4%B5%E0%A4%B2%E0%A5%8D%E0%A4%B2%E0%A5%81%E0%A4%B5%E0%A4%B0#:~:text=%E0%A4%A4%E0%A4%BF%E0%A4%B0%E0%A5%81%E0%A4%B5%E0%A4%B2%E0%A5%8D%E0%A4%B2%E0%A5%81%E0%A4%B5%E0%A4%B0%20\(%E0%A4%85%E0%A4%82%E0%A4%97%E0%A5%8D%E0%A4%B0%E0%A5%87%E0%A4%9C%E0%A4%BC%E0%A5%80%3A%20Thiruvalluvar\)%20%E0%A4%A6%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%BF%E0%A4%A3,%E0%A4%AA%E0%A4%BF%E0%A4%A4%E0%A4%BE%20%E0%A4%AE%E0%A5%87%E0%A4%82%20%E0%A4%B5%E0%A4%BF%E0%A4%B6%E0%A5%8D%E0%A4%B5%E0%A4%BE%E0%A4%B8%20%E0%A4%B0%E0%A4%96%E0%A4%A4%E0%A5%87%20%E0%A4%A5%E0%A5%87%E0%A5%A4](https://bharatdiscovery.org/india/%E0%A4%A4%E0%A4%BF%E0%A4%B0%E0%A5%81%E0%A4%B5%E0%A4%B2%E0%A5%8D%E0%A4%B2%E0%A5%81%E0%A4%B5%E0%A4%B0#:~:text=%E0%A4%A4%E0%A4%BF%E0%A4%B0%E0%A5%81%E0%A4%B5%E0%A4%B2%E0%A5%8D%E0%A4%B2%E0%A5%81%E0%A4%B5%E0%A4%B0%20(%E0%A4%85%E0%A4%82%E0%A4%97%E0%A5%8D%E0%A4%B0%E0%A5%87%E0%A4%9C%E0%A4%BC%E0%A5%80%3A%20Thiruvalluvar)%20%E0%A4%A6%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%BF%E0%A4%A3,%E0%A4%AA%E0%A4%BF%E0%A4%A4%E0%A4%BE%20%E0%A4%AE%E0%A5%87%E0%A4%82%20%E0%A4%B5%E0%A4%BF%E0%A4%B6%E0%A5%8D%E0%A4%B5%E0%A4%BE%E0%A4%B8%20%E0%A4%B0%E0%A4%96%E0%A4%A4%E0%A5%87%20%E0%A4%A5%E0%A5%87%E0%A5%A4)

2. bZ-os-jkelkeh

[https://hi.wikipedia.org/wiki/%E0%A4%AA%E0%A5%87%E0%A4%B0%E0%A4%BF%E0%A4%AF%E0%A4%BE%E0%A4%B0#:~:text=%E0%A4%87%E0%A4%B0%E0%A5%8B%E0%A4%A1%20%E0%A4%B5%E0%A5%87%E0%A4%82%E0%A4%95%E0%A4%9F%20%E0%A4%A8%E0%A4%BE%E0%A4%AF%E0%A4%95%E0%A4%B0%20%E0%A4%B0%E0%A4%BE%E0%A4%AE%E0%A4%BE%E0%A4%B8%E0%A4%BE%E0%A4%AE%E0%A5%80%20\(17,%E0%A4%B5%E0%A4%BE%E0%A4%B2%E0%A5%87%20%E0%A4%B9%E0%A4%BF%E0%A4%A8%E0%A5%8D%E0%A4%A6%E0%A5%81%E0%A4%A4%E0%A5%8D%E0%A4%B5%20%E0%A4%95%E0%A4%BE%20%E0%A4%B5%E0%A4%BF%E0%A4%B0%E0%A5%8B%E0%A4%A7%20%E0%A4%A5%E0%A4%BE%E0%A5%A4](https://hi.wikipedia.org/wiki/%E0%A4%AA%E0%A5%87%E0%A4%B0%E0%A4%BF%E0%A4%AF%E0%A4%BE%E0%A4%B0#:~:text=%E0%A4%87%E0%A4%B0%E0%A5%8B%E0%A4%A1%20%E0%A4%B5%E0%A5%87%E0%A4%82%E0%A4%95%E0%A4%9F%20%E0%A4%A8%E0%A4%BE%E0%A4%AF%E0%A4%95%E0%A4%B0%20%E0%A4%B0%E0%A4%BE%E0%A4%AE%E0%A4%BE%E0%A4%B8%E0%A4%BE%E0%A4%AE%E0%A5%80%20(17,%E0%A4%B5%E0%A4%BE%E0%A4%B2%E0%A5%87%20%E0%A4%B9%E0%A4%BF%E0%A4%A8%E0%A5%8D%E0%A4%A6%E0%A5%81%E0%A4%A4%E0%A5%8D%E0%A4%B5%20%E0%A4%95%E0%A4%BE%20%E0%A4%B5%E0%A4%BF%E0%A4%B0%E0%A5%8B%E0%A4%A7%20%E0%A4%A5%E0%A4%BE%E0%A5%A4)

3. ukjh l'kfDrdj.k%

95%E0%A5%8B%20%E0%A4%AC%E0%A5%87%E0%A4%B9%E0%A4%A6%20%E0%A4%86%E0%A4%B8%E0%A4%BE%E0%A4%A8,%E0%A4%B8%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%AE%20%E0%A4%AC%E0%A4%A8%E0%A4%BE%E0%A4%A8%E0%A4%BE%20%E0%A4%AE%E0%A4%B9%E0%A4%BF%E0%A4%B2%E0%A4%BE%20%E0%A4%B8%E0%A4%B6%E0%A4%95%E0%A5%8D%E0%A4%A4%E0%A4%BF%E0%A4%95%E0%A4%B0%E0%A4%A3%20%E0%A4%B9%E0%A5%88%E0%A5%A4

4. i;kZoj.klaj{k.k%

a.

https://hi.wikipedia.org/wiki/%E0%A4%AA%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B5%E0%A4%B0%E0%A4%A3_%E0%A4%B8%E0%A4%88%E0%A4%B0%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%A3#:~:text=%E0%A4%AA%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B5%E0%A4%B0%E0%A4%A3%20%E0%A4%B8%E0%A4%82%E0%A4%B0%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%A3%20%E0%A4%95%E0%A4%BE%20%E0%A4%B8%E0%A4%AE%E0%A4%B8%E0%A5%8D%E0%A4%A4%20%E0%A4%AA%E0%A5%8D%E0%A4%B0%E0%A4%BE%E0%A4%A3%E0%A4%BF%E0%A4%AF%E0%A5%8B%E0%A4%82,%E0%A4%AA%E0%A5%83%E0%A4%A5%E0%A5%8D%E0%A4%B5%E0%A5%80%20%E0%A4%B8%E0%A4%AE%E0%A5%8D%E0%A4%AE%E0%A5%87%E0%A4%B2%E0%A4%A8%20%E0%A4%86%E0%A4%AF%E0%A5%8B%E0%A4%9C%E0%A4%BF%E0%A4%A4%20%E0%A4%95%E0%A4%BF%E0%A4%AF%E0%A4%BE%20%E0%A4%97%E0%A4%AF%E0%A4%BE%E0%A5%A4

b.

http://gadyakosh.org/gk/%E0%A4%86%E0%A4%88%E0%A4%AF%E0%A5%87!_%E0%A4%AA%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B5%E0%A4%B0%E0%A4%A3_%E0%A4%AC%E0%A4%9A%E0%A4%BE%E0%A4%8F%E0%A4%81/_/%E0%A4%85%E0%A4%A8%E0%A5%8D%E0%A4%A4%E0%A4%B0%E0%A4%BE_%E0%A4%95%E0%A4%B0%E0%A4%B5%E0%A4%A1%E0%A4%BC%E0%A5%87

PART – I
PAPER-I
OTHER LANGUAGES
ARE 97211M -
MALAYALAM-I
97211A-ARABIC –I
97211TU -TELUGU -I

Subject Code	LANGUAGE– OTHER LANGUAGES-I	LTPC 3003
---------------------	--	----------------------------

PART II

Subject Code:97212	PAPER II–GENERAL ENGLISH-I	LTPC 3003
-------------------------------------	-----------------------------------	----------------------------

COURSE OBJECTIVE:

- To enable learners to acquire self-awareness and positive thinking required in various life situations.
- To help the learner acquire the attribute of empathy
- To assist the learner in acquiring creative and critical thinking abilities
- To enable them to learn the basic grammar
- To assist them in developing LSRW skills

UNIT I SELF-AWARENESS (WHO) & POSITIVE THINKING (UNICEF) 20 Hours

Life Story

Chapter 1 from Malala Yousafzai, I am Malala

An Auto biography or The Story of My Experiments with Truth (Chapters 1, 2 & 3)

M.K. Gandhi

Poem

Where the Mind is Without Fear – Gitanjali 35 – Rabindranath Tagore

Love Cycle – Chinua Achebe

UNIT II EMPATHY 20 Hours

Poem

2.1 Nine Gold Medals – David Roth

Alice Fellor poverty – William Wordsworth

Short Story

The School for Sympathy – E.V. Lucas

Barn Burning – William Faulkner

UNIT III CRITICAL & CREATIVE THINKING**20 Hours****Poem**

The Things That Haven't Been Done Before –Edgar Guest

Stopping by the Woods on a Snowy Evening –Robert Frost

Readers Theatre

The Magic Brocade – A Tale of China

Stories on Stage – Aaron Shepard (Three Side way Stories from Wayside

School" by Louis Sachar

UNIT IV PART OF SPEECH**15 Hours**

- 4.1 Articles
- 4.2 Noun
- 4.3 Pronoun
- 4.4 Verb
- 4.5 Adverb
- 4.6 Adjective
- 4.7 Preposition

UNIT V PARAGRAPH AND ESSAY WRITING**15 Hours**

Descriptive

Expository

Persuasive

Narrative

TOTAL: 90 Hours**COURSE OUTCOMES:**

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Acquire self-awareness and positive thinking required in various life situations	L2
CO2	Acquire the attribute of empathy.	L3
CO3	Acquire creative and critical thinking abilities.	L2
CO4	Learn basic grammar	L1
CO5	Develop and integrate the use of four language skills i.e., listening, speaking, reading and writing.	L3

TEXT BOOKS:

1. MalalaYousafzai.IamMalala,Little,BrownandCompany,2013.
2. M.K.Gandhi. AnAutobiographyor The StoryofMyExperimentswithTruth(Chapter –I),Rupa Publications, 2011.
3. Rabindranath Tagore. "Gitanjali35"from Gitanjali (Song Of ferings):A Collection of Prose Translations Made by the Author from the Original Bengali. MacMillan, 1913.
4. N.Krishnasamy. Modern English:A Book of Grammar,Usageand Composition Macmillan, 1975.
5. AaronShepard. Storieson Stage,Shepard Publications,2017.
6. J.C.Nesfield. English Grammar Composition and Usage, Macmillan,2019.

WEBLINK:

1. MalalaYousafzai.IamMalala(Chapter1)<https://archive.org/details/i-am-malala>
2. M.K Gandhi. An Autobiography or The Story of My Experiments with Truth(Chapter-1)- Rupa Publication, 2011[https://www.indiastudychannel.com/resources/146521-Book-Review-An-Autobiography-or-The-story-of-my-experiments-with- Truth.aspx](https://www.indiastudychannel.com/resources/146521-Book-Review-An-Autobiography-or-The-story-of-my-experiments-with-Truth.aspx)
3. Rabindranath Tagore. "Gitanjali 35" from Gitanjali (Song Offerings)<https://www.poetryfoundation.org/poems/45668/gitanjali-35>
4. AaronShepard.StoriesonStage,ShepardPublications,2017<https://amzn.eu/d/9rVzINv>
5. JCNesfield.ManualofEnglishGrammarandComposition.
<https://archive.org/details/in.ernet.dli.2015.44179>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	1	1	-	1	1	2
CO2	1	3	2	-	-	-	1	1	-	1	1	2
CO3	1	3	2	-	-	-	1	1	-	1	1	2
CO4	1	3	2	-	-	-	1	1	-	1	1	2
CO5	1	3	2	-	-	-	1	1	-	1	1	2
W.AV	1	3	2	-	-	-	1	1	-	1	1	2

S–Strong(3), M-Medium(2), L -Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	1	1
CO2	-	1	2	1	1
CO3	-	1	2	1	1
CO4	-	1	2	1	1
CO5	-	1	2	1	1
W.AV	-	1	2	1	1

S–Strong(3),M-Medium(2),L -Low (1)

PARTIII
CORECOURSE –THEORY–I

Subject Code:97213	INTRODUCTION TO AVIATION INDUSTRY	L T P C 5005
-------------------------------------	--	-------------------------------

COURSE OBJECTIVES:

On successful completion of this paper, the student should have

- Understood the basics of Aviation.
- Known the History and importance of Aviation Industry.
- Understood the Governing Authorities of Aviation Industry.
- Understood the infrastructure of airport.
- Understood the current status of Aviation Industry.

UNITI HISTORY OF AVIATION 15 Hours

Introduction to the Aviation Industry- Types of Aviation- Airlines, Types of Charters – Low Cost Carrier – Evolution of Aviation – Revolution – Aviation Organisations – IATA, ICAO , FAA – Freedom of Air – Bi-lateral Agreement – Conventions – About Airlines & Airports – Aviation Phonetics – Airlines and Airport Codes

UNITII INDIAN AVIATION 15 Hours

Introduction to the Indian Aviation Industry – Ministry of Civil Aviation – DGCA – CISF – BCAS – Low Cost Carrier in India – Future of Indian Civil Aviation.

UNITIII AIR TRAVEL TERMINOLOGY 15 Hours

Commercial aviation Terminology – Special Service Requirement codes – Miscellaneous Abbreviations – Traffic Conference Areas – PAT, TACT Reference - Terms & Definitions.

UNITIV AIRPORT INFRASTRUCTURE & PLANNING 15 Hours

Airport management-Airport planning- Operational area and Terminal planning, design, and operation- Airport operations-Airport functions- Organization structure of Airports sectors Airport Authorities- Global and Indian scenario of Airport management

UNITV AIR TRANSPORTATION**15 Hours**

Aviation organization, Global, Social, and Ethical environment –Major players in Airline Industry – Market potential on Indian Airline Industry – Current Challenges in Airline Industry – Completion in Airline Industry.

TOTAL: 75 Hours**COURSE****OUTCOMES:**

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Familiarize with the basics and the history of Aviation Industry	L2
CO2	Understand Indian Aviation and their futures copeon civilaviation	L2
CO3	Understand Air Travel Terminology for easy understanding of Aviation Languages and fares Calculations for both Passen gerand Cargo	L2
CO4	Understand Airport Infrastructure & Planning for easy handling of passengers in the terminal	L2
CO5	Understand the Importance of Air Transport ation Industry in the Current Scenarios	L2

TEXTBOOKS:

1. The Rise of Aviation, Arsalan Zahoor Mir, Notion Press, 2022
2. Introduction to the Airline Industry, IATA,1stedition, 2011.

REFERENCE BOOKS:

1. Introduction to Aviation, Fred Mabonga, Author house, 2015.
2. The Global Airline Industry, Peter Balobaba,2009.
3. Indian Aircraft Industry, Vivek Kapoor, KW Publisher spvtltd, 2018.
4. Airline and Airport Operations, Edissa Uwayo, Gsmart Aviation Ltd.,2016.

WEBLINK:

1. <https://en.wikipedia.org/wiki/Aviation>
2. https://en.wikipedia.org/wiki/NATO_phonetic_alphabet
3. <https://www.aircharterservice.com/about-us/news-features/blog/an-a-z-of-aviation-definitions>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	1	1	1	1	1	1	1	1	2
CO2	1	2	2	1	3	3	1	1	3	2	1	3
CO3	3	3	3	3	2	2	2	2	2	2	1	3
CO4	3	2	3	3	3	2	2	2	2	2	1	3
CO5	2	2	2	1	1	1	1	1	2	1	1	2
W.AV	2	2	2.2	1.8	2	1.8	1.4	1.4	2	1.6	1	2.6

S–Strong (3),M-Medium(2),L -Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	1	2
CO2	2	3	3	1	2
CO3	3	3	3	2	2
CO4	3	3	3	2	2
CO5	2	2	2	3	3
W.AV	2.2	2.4	2.6	1.8	2.2

S–Strong(3),M-Medium(2),L -Low (1)

PARTIII
CORECOURSE –PRACTICAL–I

Subject Code:97214	AERO HANGAR PRACTICES LAB	LTPC 0084
-------------------------------------	----------------------------------	----------------------------

COURSE OBJECTIVES:

- To Familiarize with the aircraft and their systems.

LIST OF EQUIPMENT

Hand Tools	–1no.(Eachset)	Exp. No.1,3
Fire Extinguishers	– 5nos.	Exp.No.2
Piston Engine	– 2nos.	Exp.No.4
Gas Turbine Engine	–1no.	Exp.No.4
Basic Electrical Circuit Kit	– 20nos.	Exp.No.5
Basic Hydraulic System UNIT	– 1nos.	Exp.No.6

LIST OF EXPERIMENTS

- 1) Familiarization of general hand tools
- 2) Fire Training.
Different Types & class of fire.
Different type of fire-extinguishers.
Procedure of use of fire extinguishers, fire alarm bell
- 3) Familiarization of Airframe
- 4) Familiarization of Engine
- 5) Familiarization of Aircraft Electrical system
- 6) Familiarization of Aircraft Hydraulic system

TOTAL:60Hours

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Identify various hand tools used in workshop	L3
CO2	Classify Types and class of fire	L3
CO3	Inspect the piston engine performance	L3
CO4	Identify the Name and function of various Electrical instruments	L3
CO5	Check the working condition of Hydraulic and Landing gear system	L3

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	1	1	1	1	1	1	1	1	2
CO2	1	2	2	1	3	3	1	1	3	2	1	3
CO3	3	3	3	3	2	2	2	2	2	2	1	3
CO4	3	2	3	3	3	2	2	2	2	2	1	3
CO5	2	2	2	1	1	1	1	1	2	1	1	2
W.AV	2	2	2.2	1.8	2	1.8	1.4	1.4	2	1.6	1	2.6

S–Strong(3),M-Medium(2),L -Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	1	1
CO2	2	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	2	2	2	1	1
W.AV	2.2	2.4	2.6	1	1

S–Strong(3),M-Medium(2),L-Low (1)

PART- III

ALLIED COURSE –THEORY –IA

Subject Code:97215	BASICS OF AIRCRAFT ELECTRICALS AND ELECTRONICS	LTPC 3003
-------------------------------------	---	----------------------------

COURSEOBJECTIVES:

- To impart basic knowledge of electrical quantities.
- To provide knowledge for the analysis of DC and AC circuits.
- To facilitate understanding of basic electrical machines and electronic devices.
- To provide knowledge about electronic & electrical measuring devices.

UNITI	ELECTRICAL CIRCUITS	9Hours
--------------	----------------------------	---------------

DC Circuits: Circuit Components: Conductor, Resistor, Inductor, Capacitor – Ohm's Law - Kirchhoff's Laws –Independent and Dependent Sources – Simple problems- Nodal Analysis, Mesh analysis with Independent sources only (Steady state) - voltage and current division - Introduction to AC Circuits- star & delta connection- balanced and unbalanced system - Parameters: Waveforms, Average value, RMS Value, Instantaneous power, real power, reactive power and apparent power, power factor – Steadystate analysis of RLC circuits (Simple problems only)

UNITII	ELECTRICAL MACHINES	9Hours
---------------	----------------------------	---------------

Construction and Working principle- DC Separately and Self-excited Generators, EMF equation, Types and Applications. Working Principle of DC motors, Torque Equation, Types and Applications. Construction, Working principle and Applications of Transformer, Three phase Alternator -Three Phase and single phase Induction Motor. Applications of Electrical Machines in aircraft.

UNITIII	ELECTRONIC DEVICES	9 Hours
----------------	---------------------------	----------------

Semiconductor Materials: P type and N type – PN Junction Diodes, Zener Diode – Characteristics & Applications – Bipolar Junction Transistor- Biasing, JFET, SCR, MOSFET, IGBT – Types, I-V Characteristics and Applications, Rectifier - Half and full wave - Inverters

UNITIV**DIGITAL ELECTRONICS****9 Hours**

Review of number systems, binary codes, error detection and correction codes, Combinational logic - representation of logic functions-SOP and POS forms, K-map representations - minimization using K maps (Simple Problems only) - Logic gates - Adders & Subtractors.

UNITV**MEASUREMENTS AND INSTRUMENTATION****9 Hours**

Functional elements of an instrument, Standards and calibration, Operating Principle, types - Moving Coil and Moving Iron meters, Measurement of three phase power, Energy Meter, Instrument Transformers-CT and PT, DSO- Block diagram- Data acquisition.

TOTAL: 45Hours**COURSE OUTCOMES:**

After completing this course, the students will be able to		Knowledge Level
CO1	Use basic electrical concepts and laws to compute the electric circuit parameters for DC and AC	L3
CO2	Understand the working principle and application so felectrical machines	L2
CO3	Understand the semiconduct or physics and analyze the characteristics of various electronic devices	L2
CO4	Apply the knowledge of number system and Boole an algebra to analyse and design logiccircuits.	L3
CO5	Explain the operating principle so fmeasuring instruments.	L3

TEXTBOOKS:

1. Kothari DPandI.JNagrath,“Basic Electrical and Electronics Engineering”,Second Edition, McGraw Hill Education, 2020.
2. S.K.Bhattacharya“Basic Electrical and Electronics Engineering” ,Pearson Education, Second Edition, 2017.

REFERENCEBOOKS:

1. KothariDPandI.JNagrath,“BasicElectrical Engineering”,Fourth Edition, McGraw Hill Education, 2019.
2. Thomas L.Floyd,‘Digital Fundamentals’,11th Edition, Pearson Education, 2017.

3. Albert Malvino, David Bates, 'Electronic Principles, McGraw Hill Education; 7th edition, 2017.
4. James A. Svoboda, Richard C. Dorf, "Dorf's Introduction to Electric Circuits", Wiley, 2018.
5. A.K. Sawhney, Puneet Sawhney, "A Course in Electrical & Electronic Measurements & Instrumentation", Dhanpat Rai and Co, 2015.

WEBLINK:

1. https://www.skktariaandsons.com/view_book.aspx?productid=8095&book=Industrial%20Electronics%20&%20Instrumentation
2. https://www.skktariaandsons.com/view_book.aspx?productid=7854&book=Elements%20of%20Electronic%20Devices%20and%20Circuits

Mapping Course Outcomes Vs Programme Outcomes

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	1	2	3	2	3	3	3	3	1	2	2
CO2	1	1	2	3	2	3	3	2	2	1	1	2
CO3	1	1	2	3	2	3	3	3	2	1	2	2
CO4	1	1	1	3	2	3	3	3	2	1	2	2
CO5	1	1	1	3	2	3	3	3	2	1	2	2
W.AV	1.2	1	1.6	3	2	3	3	2.8	2.2	1	1.8	2

S–Strong(3), M–Medium(2), L –Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	1	1
CO2	3	2	2	1	1
CO3	3	2	2	1	1
CO4	3	2	2	1	1
CO5	3	2	2	1	1
W.AV	3	3	3	1	1

S–Strong(3), M–Medium(2), L –Low (1)

PARTIII
ALLIED COURSE–PRACTICAL–IA

Subject Code:97216	AIRCRAFT ELECTRICAL & ELECTRONICS LAB	LTPC 0042
-------------------------------	--	----------------------

COURSE OBJECTIVES:

- To provides apractical exposure in verifying the basic laws
- To study the characteristics of various devices and machines
 - To analyse and design the logiccircuits

LIST OF EQUIPMENT

S.No	Components	Quantity	Experiment
1	Bread board kit	10	6,7
2	Voltmeter (0-5)V,(0-10)V,(0-30)V	5noseach	1,6,7,8
3	Voltmeter (0-300)V,(0-150)V,(0-15)V	5noseach	2,3,4,5
4	Ammeter (0-1)A,(0-5)A,(0-20)A	3noseach	1,6,7,7
5	Ammeter (0-200)mA,(0-500)mA,(0-10)mA	3noseach	3,4,5
6	Powersupply (0-30)V	5	1,6,7,8,9,10
7	Wattmeter 300V,10A,UPF 150V,10A,UPF 300V,5A,LPF	2each	2,3,4,5
8	Digital Multimeter	10	1,6,7,8
9	Rheostat100ohm,5A	20	1,2,3,4,5,6,7
10	Tachometer	5	2,3,4,5
11	Stop watch	2	2,3,4,5
13	Resistiveload 110ohm/5A	2	2,3,4,5
14	Single strand connecting wites	1 smallbundle	1,6,7,8,9,10,11
15	Double strand wires	30 meters	2,3,4,5
16	CRO	1	6,7,8
17	DSO	1	11
18	Pndiode, zener diode,BJT,SCR,MOSFET	10noseach	6,7,8
19	Logicgatekit and logicgates	10	9,10
20	Single phaseau to trans former	1	4

COURSE OUTCOMES:

On completion of the course students will be able		Knowledge Level
CO1	To verify the Ohm's and Kirchhoff's Laws.	L4
CO2	To gain practical experience in characterizing electronic devices	L3
CO3	To analyse experimentally the load characteristics of electrical machines	L4
CO4	To use DSO for measurements.	L3
CO5	To understand the basic digital circuits and to verify their operation.	L4

Mapping Course Outcomes Vs Programme Outcomes

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	3	1	2	3	2	3	1	1	1
CO2	1	1	1	3	1	2	3	2	3	1	1	1
CO3	1	1	1	3	1	2	3	2	3	1	1	1
CO4	1	1	1	3	1	2	3	2	3	1	1	1
CO5	1	1	1	3	1	2	3	2	3	1	1	1
W.AV	1	1	1	3	1	2	3	2	3	1	1	1

S–Strong(3),M-Medium(2),L -Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	1	1	1
CO2	3	2	1	1	1
CO3	3	2	1	1	1
CO4	3	2	1	1	1
CO5	3	2	1	1	1
W.AV	3	2	1	1	1

S–Strong(3),M-Medium(2),L -Low (1)

PART-IV

SEC-I: SKILL BASED SUBJECT

Subject Code:97217	VALUE EDUCATION	LTPC 0022
-------------------------------------	------------------------	----------------------------

COURSE OBJECTIVES:

- To impart humanism values among the student under various religious thoughts
- To make them awareness of ethics and civilrights
- To familiarities the students with basic features of extracurricular activities such as NSS and NCC and relevance of Abdul Kalam and Mother Teresa efforts to teach values
- To impart skills by preparing project works such as writing poems and stories

UNIT	VALUE EDUCATION	6 Hours
------	-----------------	---------

Definition – Need for Value Education – How Important Human Values are – Humanism and Humanistic Movement in the World and in India–Literature on the Teaching of Values Under Various Religions Like Hinduism, Buddhism, Christianity, Jainism, Islam, Etc. Agencies for Teaching Value Education in India –National Resource Centre for Value Education–NCERT– IITS and IGNOU.

UNITII	VEDICPERIOD	6 Hours
--------	-------------	---------

Vedic Period –Influence of Buddhismand Jainism –Hindu Dynasties–IslamInvasion–Moghul Invasion
– British Rule – Culture Clash – Bhakti Cult – Social Reformers – Gandhi –Swami Vivekananda –
Tagore – Their Role in Value Education.

UNITIII VALUECRISIS –AFTER INDEPENDENCE 6Hours

Independence – Democracy – Equality – Fundamental Duties – Fall of Standards in All Fields – Social, Economic, Political, Religious and Environmental – Corruption in Society. Politics Without Principle – Commerce Without Ethics – Education Without Character – Science Without Humanism – Wealth Without Work – Pleasure Without Conscience – Prayer Without Sacrifice – Steps Taken by The Governments – Central and State – To Remove Disparities on the Basis of Class, Creed, Gender.

UNITIV	VALUEEDUCATIONONCOLLEGE	CAMPUS	6 Hours
---------------	--------------------------------	---------------	----------------

Transition from School to College – Problems – Control – Free Atmosphere – Freedom Mistaken
for License–Need for Value Education–Ways of Inculcating It–Teaching of Etiquettes – Extra-

Curricular Activities – N.S.S.,N.C.C.,Club Activities– Relevance of Dr.A.P.J.Abdul Kalam’s Efforts to Teach Values – Mother Teresa.

UNITV

PROJECTWORK

6 Hours

1. Collecting Details about Value Education from News papers, Journals and Magazines.
2. Writing Poems, Skits, Stories Centering on Value – Erosionin Society.
3. Presenting Personal Experience inTeachingValues.
4. Suggesting Solutions to Value–Based Problems on the Campus.

TOTAL:30Hours

COURSE OUTCOME:

After studied, the student will be able to		Knowledge Level
CO1	Knowledge about Humanism and Humanistic Movement in the World and inIndia.	L2
CO2	Understand the Social Reformers and Their RoleinValue Education	L2
CO3	Explore the theories of Fundamental Duties, Ethics, Extra -Curricular Activities–N.S.S.,N.C.C	L2
CO4	Knowthe concept of Value Education on College Campus,	L3
CO5	Know the concept of project work regarding Writing Poems, Skits, Stories Centeringon Value – Erosionin Society	L4

TEXT BOOKS:

REFERENCE BOOKS:

1. Chakraborti,Mohit(1997)“Value Education:Changing Perspectives”NewDelhi:Kanishka Publications.
2. Satchidananda.M.K.(1991),“Ethics, Education, Indian Unity and Culture”–Delhi,Ajantha publications.
3. Saraswathi.T.S.(ed)1999.Culture”,Socialisation and Human Development:Theory, Research and Application in India” – New Delhi Sage publications.
4. KarabiKakoti,“Value Education–Need of the hour”Talk delivered in the HTED Seminar–Govt.of Maharashtra, Mumbai on 1-11-2001 by N.Vittal, Central Vigilance Commissioner.
5. Eknath Ranade(1991).“SwamiVivekananda’s Rousing call to HinduNation”:Centenary Publication
6. Radhakrishnan,S.“Religion and culture”(1968),Orient Paper backs, New Delhi.
7. Venkataiah.N(ed)1998,“Value Education”New DelhiPh. Publishing Corporation

Mapping Course Outcomes Vs Programme Outcomes

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	3	3	3	-	-	-	1	3	1	2	3	3
CO2	3	3	3	-	-	-	1	3	1	2	3	3
CO3	3	3	3	-	-	-	1	3	1	2	3	3
CO4	3	3	3	-	-	-	1	3	1	2	3	3
CO5	3	3	3	-	-	-	1	3	1	2	3	3
W.AV	3	3	3	-	-	-	1	3	1	2	3	3

S-Strong(3),M-Medium(2),L -Low (1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	1	1
CO2	1	1	1	1	1
CO3	3	3	3	3	3
CO4	2	2	2	2	2
CO5	1	1	1	1	1
W.AV	1.8	1.8	1.8	1.8	1.8

S-Strong(3),M-Medium(2),L -Low (1)

SEMESTER II

PART – I

SubjectCode 97221T	LANGUAGE TAMIL – II	LTPC 3003
------------------------------	----------------------------	---------------------

பொதுத்தமிழ்- 2

தமிழ் இலக்கிய வரலாறு -2

முதலாம் ஆண்டு – இரண்டாம் பருவம்

Course Code	Course Name	Category	L	T	P	S	Credits	Ins.Hrs	CIA	Externa	Total
	பொதுத்தமிழ் -2 தமிழ் இலக்கிய வரலாறு -2	Supportive	Y	-	-	-	3	6	25	75	100
Pre-Requisite		பன்னிரெண்டாம் வகுப்பில் தமிழை ஒரு பாடமாகப் பயின்றிருக்க வேண்டும்							SV 2023		

Learning Objectives

- முதலாமாண்டுப் பட்ட வகுப்பு மாணவர்களுக்குத் தமிழ் மொழி இலக்கியங்களை அறிமுகம் செய்தல்
- தமிழ் இலக்கியப் போக்குகளையும், இலக்கணங்களையும் மாணவர் அறியுமாறு செய்து அவர்களின் படைப்பாற்றலைத் தூண்டுதல்
- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்

Expected Course Outcomes

On the Successful completion of the Course, Students will be able to

இப்பாடத்தைக் கற்பதால் பின்வரும் பயன்களை மாணவர் அடைவர்

CO 1	சிறிலக்கியங்களின்வழி இலக்கியச் சுவையினையும் பண்பாட்டு அறிவினையும் பெறுவர்	K4
CO 2	புதுக்கவிதை வரலாற்றினை அறிந்து கொள்வர்	K5, K6
CO 3	திராவிட இயக்க இலக்கியங்களைக் கற்பதன் மூலம் மொழி உணர்வு , இன உணர்வு, சமத்துவம் சார்ந்த சிந்தனைகளைப் பெறுவர்	K3
CO 4	தமிழ்மொழியைப் பிழையின்றி எழுதவும், புதிய கலைச்சொற்களை உருவாக்கவும் அறிந்து கொள்வர்	K3
CO 5	போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்குத் தமிழ்ப் பாடத்தினைப் பயன்கொள்ளும் வகையில் பயிற்சி பெறுவர்.	K2

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

அலகு-1	தமிழ் இலக்கிய வரலாறு அறிமுகம்.
1. சிற்றிலக்கியம்; குறவஞ்சி, கலம்பகம், உலா, பரணி, பள்ளு, பிள்ளைத்தமிழ், தூது, அந்தாதி. 2. தனிப்பாடல் அறிமுகம் 3. இக்கால இலக்கியம் ;கவிதை, சிறுகதை,நாடகம், உரைநடை., திராவிட இயக்கம் வளர்த்த தமிழ்.	

அலகு-2	சிற்றிலக்கியக்கமும்,தனிப்பாடலும்
சிற்றிலக்கியம்; • கலிங்கத்து பரணி- விருந்தினரும் வறியவரு நெருங்கி யுண்ணரும் - முதல் - கேட்பாரைக் காண்மின் காண்மின் - வரை • திருக்குறறாலக் குறவஞ்சி - வானரங்கள் கனிகொடுத்து • முக்கூடற் பள்ளு - ஆற்று வெள்ளம் நாளை வரத் • அபிராமி அந்தாதி- கலையாத கல்வியும் குறையாத வயதும் (பதினாறு செல்வங்கள்) • திருவரங்கக் கலம்பகம் – மறம் -பிள்ளைப் பெருமாள் ஐயங்கார்-பேசுவந்த தூத செல்லரித்த ஓலை செல்லுமோ • தமிழ்விடு தூது முதல் பத்து கண்ணிகள் தனிப்பாடல்; • வான்குருவி யின்கூடு -ஒளவையார் • ஆமணக்குக்கும் யானைக்கும் சிலேடை ;முத்திருக்கும் கொம்பசைக்கும் மூரித்தண்டே - காளமேகப் புலவர் • இம்பர் வான் எல்லை இராமனையே பாடி -வீரராகவர் • நாராய் நாராய் -சத்தி முத்தப் புலவர்	

அலகு-3	இக்கால இலக்கியம்- 1
1. பாரதியார் பாரத சமுதாயம் வாழ்கவே 2. பாரதிதாசன் - சிறுத்தையே வெளியில் வா 3. நாமக்கல் கவிஞர்-கத்தியின்றி 4. தமிழ் ஒளி – மீன்கள் (அந்தி நிலா பார்க்க வா) 5. ஈரோடு தமிழன்பன் – எட்டாவது சீர் (வணக்கம் வள்ளுவ) சிறுகதைகள்; 1. புதுமைப்பித்தன் - கடிதம் 2. ஜெயகாந்தன் -வாய்ச் சொற்கள் (மாலை மயக்கம் தொகுப்பு) 3. ஆர். சூடாமணி - அந்நியர்கள் உரைநடை ; 1. மு வ கடிதங்கள் - தம்பிக்கு நூலில் முதல் இரண்டு கடிதங்கள்	
அலகு-4	இக்கால இலக்கியம்- 2
1. தந்தை பெரியார் – திருக்குறள்(மாநாட்டு) உரை 2. பேரறிஞர் அண்ணா – இரண்டாம் உலகத் தமிழ் மாநாட்டு உரை 3. கலைஞர் மு. கருணாநிதி – தொல்காப்பிய பூங்கா -எழுத்து -முதல் நூற்பா கட்டுரை நாடகம் / திரைத்தமிழ் : 1. வேலைக்காரி -திரைப்படம்	

2. ராஜா ராணி -சாக்ரடஸ் -ஓரங்க நாடகம்	
இதழியல் தமிழ் ; முரசொலி கடிதம்	
1. செம்மொழி வரலாற்றில் சில செப்பேடுகள்	
அலகு-5	மொழிப் பயிற்சி
<u>சொல் வேறுபாடு / பிழை தவிர்த்தல்</u>	
• வாசிப்பது – வாசிப்பவர் • சுவர்- சுவரில் • வயிறு - வயிற்றில் • கோயில்- கோவில் • கறுப்பு – கருப்பு • இயக்குநர்-இயக்குனர் • சில்லறை-சில்லரை • முறித்தல் – முரித்தல் • மனம்-மனசு- மனது • அருகில்-அருகாமையில் • அக்கரை- அக்கறை • மங்கலம்- மங்களம்.	
பயிற்சி :	
• பிழையான சொற்களை ஒரு பத்தியில் கொடுத்து அந்தப் பிழையான சொற்களைச் சரியாக எழுதச் செய்தல் • சிறிய பத்தி ஒன்றை ஆங்கிலத்தில் கொடுத்து அதனைத் தமிழில் மொழிபெயர்க்க வைத்தல்.	

Text books	
•	.
Reference Books	
• மு. வரதராசன், தமிழ் இலக்கிய வரலாறு, சாகித்ய அக்காதெமி, புதுடெல்லி. • மது. ச. விமலானந்தன், தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை. • தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை. • தமிழ் இலக்கிய வரலாறு –முனைவர்.சிற்பி பாலசுப்ரமணியம், முனைவர்.சொ.சேதுபதி • புதிய தமிழ் இலக்கிய வரலாறு– முனைவர்.சிற்பி பாலசுப்ரமணியம்,நீல.பத்மநாபன் • தமிழ் இலக்கிய வரலாறு - டாக்டர்.அ.கா.பெருமாள் • தமிழ் இலக்கிய வரலாறு –முனைவர். ப.ச.ஏசுதாசன் • தமிழ் இலக்கிய வரலாறு - ஸ்ரீ குமார்	

• வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு–பாக்கியமேரி • தமிழ் பயிற்றும் முறை, பேராசிரியர் ந. சுப்புரெட்டியார் - மணிவாசகர் பதிப்பகம், சிதம்பரம்
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

Web Sources												
• https://www.chennaiibrary.com/ • https://www.sirukathaigal.com • https://www.tamilvirtualuniversity.org • https://www.noolulagam.com • https://www.katuraitamilblogspot.com												

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	-	-	-	-	2	1	1	3	2
CO2	1	1	2	-	-	-	-	2	1	1	3	2
CO3	1	1	3	-	-	-	-	3	1	1	3	2
CO4	1	1	2	-	-	-	-	2	1	1	3	2
CO5	1	1	3	-	-	-	-	3	1	1	3	2
W.AV	1	1	2.4	-	-	-	-	2.4	1	1	3	2

S-Strong(3),M-Medium(2),L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	2	2
CO2	-	1	2	2	2
CO3	-	1	2	2	2
CO4	-	1	2	2	2
CO5	-	1	2	2	2
W.AV	-	1	2	2	2

S-Strong(3), M-Medium(2), L-Low(1)

PART – I

PAPER-I

SubjectCode	LANGUAGE –	LTPC
97221F	FOUNDATION COURSE:FRENCH-II	3003

COURSE OBJECTIVES:

- Understand and apply the grammatical concepts in drafting sentences and paragraphs
- Apply the rules and regulations to effectively employ past tense
- Practice exercises and identify errors
- Explain and summarize a French document such as posters, bulletins, infographics, etc.
- Demonstrate knowledge of various expressions used to convey opinion, emotions, cause, effect, purpose, and hypothesis in French
- Build upon acquired writing and communication skills to develop them

UNIT I

C'est où?

UNIT II

N'oubliez pas

UNIT III

Bellevue sur la mer

UNIT IV

Quel beau voyage

UNIT V

Oh joli

Et après

TEXTBOOKS AND REFERENCE BOOKS:

Reading List (Print and Online)

1. Régine Mérieux & Yves Loiseau, *Latitudes-1-(A1/A2)*, méthode de français, Didier, 2017 (units 7-12 only)

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Revise and recall the French sentence structure	L2
CO2	Enumerate the various grammatical tenses and use them to communicate better in French	L3
CO3	Summarize and develop ideas from the document after discussing it in detail	L2&L3
CO4	Analyze and interpret verbal expressions of cause, effect, purpose, and opposition in French	L4
CO5	Evaluate and comprehend text passages	L5

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	-	-	-	-	2	1	1	3	2
CO2	1	1	2	-	-	-	-	2	1	1	3	2
CO3	1	1	3	-	-	-	-	3	1	1	3	2
CO4	1	1	2	-	-	-	-	2	1	1	3	2
CO5	1	1	3	-	-	-	-	3	1	1	3	2
W.AV	1	1	2.4	-	-	-	-	2.4	1	1	3	2

S–Strong(3),M–Medium(2),L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	2	2
CO2	-	1	2	2	2
CO3	-	1	2	2	2
CO4	-	1	2	2	2
CO5	-	1	2	2	2
W.AV	-	1	2	2	2

S–Strong(3),M–Medium(2),L–Low(1)

PART – I
PAPER-I
(Kahani, Ekanki aur Vyakran)

Subject Code 97221H	LANGUAGE – GENERAL HINDI-II	LTPC 3003
-------------------------------	--	----------------------------

COURSE OBJECTIVES:

1. Introduction to Hindifiction
2. Teaching of social values through stories and skits
3. Practical application of grammar

UnitI Hindi Katha-Sahitya:Parichay 9 Hours

- KahanikeTatva
- Hindi kePramukhkahanikarokaParichay
- EkankikeTattva
- Hindike Pramukh EkankikarokaParichay

UnitII Hindi Kahaniya 9 Hours

- Premchand–Bade Gharki Beti
- MalathiJoshi–VoTeraGharYahMeraGhar
- Pita- Gyanranjan

UnitIII Hindi Ekanki 9 Hours

- LakshmikaSwagat–Upendr anathAshk
- Vibhajan–Vishnu Prabhakar
- MaaBaap–SriVishnu

UnitIV Vyakaran 9 Hours

- Kriya Visheshan
- Sambandh Bodhak
- Samuchay Bodhak
- Vismayadi Bodhakaadishabdokaprayog

Unit V Pratiyogi Pariksha paraadharit Nimnalikhit Vishayosesamb and hit Prashikshan Karya 9 Hours

- Tamil Bhasha: Mahakavi Bharatiyar
- Sanket Vikas dwara Lekhankala aur Kahani Lekhanka Vikas
- Gadyansh dekh karsahi Shirshak chunna
- Pathit Vyakaran paraadharit Vakya rachna
- Vibhinna Pratiyogi pariksha oke bare mein suchna pradandena

Total: 45 Hours

TEXT BOOK AND REFERENCE BOOKS:

1. Aath Ekanki Natak – Ed. Dr. Ram Kumar Verma
2. Das Ekanki

COURSE OUTCOMES:

CO1	Getan introduction to Hindifiction.	K2
CO2	Social values are taught through stories.	K3;K4
CO3	Development of critical ability through	K5
CO4	Getan introduction to Hindifiction.	K2;K3
CO5	Social values are taught through stories.	K3;K4
K1-Remember;K2-Understand;K3-Apply;K4-Analyze;K5-Evaluate;K6- Create		

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	-	-	-	-	2	1	1	3	2
CO2	1	1	2	-	-	-	-	2	1	1	3	2
CO3	1	1	3	-	-	-	-	3	1	1	3	2
CO4	1	1	2	-	-	-	-	2	1	1	3	2
CO5	1	1	3	-	-	-	-	3	1	1	3	2
W.AV	1	1	2.4	-	-	-	-	2.4	1	1	3	2

S–Strong(3),M-Medium(2),L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	2	2
CO2	-	1	2	2	2
CO3	-	1	2	2	2
CO4	-	1	2	2	2
CO5	-	1	2	2	2
W.AV	-	1	2	2	2

S–Strong(3),M-Medium(2),L-Low(1)

Related Online Contents (MOOCs, SWAYAM, NPTEL, YouTube, Websites,etc.)

1. LokpriyaKahaniya:<https://www.hindwi.org/sangrahaalay/100-best-stories-in-hindii>

2. VoTeraGharYeMeraGhar:

http://gadyakosh.org/gk/%E0%A4%B5%E0%A5%8B_%E0%A4%A4%E0%A5%87%E0%A4%B0%E0%A4%BE_%E0%A4%98%E0%A4%B0_%E0%A4%AF%E0%A5%87_%E0%A4%AE%E0%A5%87%E0%A4%B0%E0%A4%BE_%E0%A4%98%E0%A4%B0_%E0%A4%AE%E0%A4%BE%E0%A4%B2%E0%A4%A4%E0%A5%80_%E0%A4%9C%E0%A5%8B%E0%A4%B6%E0%A5%80

3. <https://hindistory.net/>

PART – I

PAPER-I

Subject Code	LANGUAGE– OTHER LANGUAGES-II	LTPC 3003
---------------------	---	----------------------

PART-II

SubjectCode 97222	PAPERII-GENERAL ENGLISH-II	LTPC 3003
-----------------------------	-----------------------------------	----------------------------

COURSE OBJECTIVES:

- To make students realize the importance of resilience
- To enable them to become good decision makers
- To enable them to imbibe problem – solving skills
- To enable them to use tensesa propriately
- To help them use English effectivelyat the work place

UNITI RESILIENCE

20 Hours

Poem

Don't Quit –Edgar A. Guest

StillHere–LangstonHughes

ShortStory

Engine Trouble–R.K. Narayan

RipVanWinkle –WashingtonIrving

UNIT II DECISIONMAKING

20 Hours

ShortStory

The Scribe–KristinHunter

The Ladyor theTiger-Frank Stockton

Poem

TheRoadnotTaken–RobertFrost

Snake – D. H Lawrence

UNIT III PROBLEMSOLVING

20 Hours

Proselife Story

How Itaught My Grand mother to Read– Sudha Murthy

Autobiography

HowfrogWentto Heaven– ATale of Angolo

WingsofFire (Chapters1,2,3)byA.P.JAbdulKalam

UNIT IV TENSES**15Hours**

Present

Past

Future

Concord

UNITV ENGLISH IN THE WORK PLACE**15Hours**

E-mail–Invitation, Enquiry, Seeking Clarification

Circular

Memo

Minutes of the Meeting

TOTAL:90Hours**COURSE OUTCOMES:**

On successful completion of this course, the student will be able to		Knowledge Level
C01	Realize the importance of resilience	L2
C02	Become good decision-makers	L4
C03	Imbibe problem-solving skills	L3
C04	Use tenses appropriately	L3
C05	Use English effectivelyat the workplace.	L3

TEXTBOOKS:

1. Martin Hewings. Advanced English Grammar.Cambridge University Press, 2000
2. SPB akshi, Richa Sharma. Descriptive English. Arihant Publications (India)Ltd.,2019.
3. Sheena Cameron,Louise Dempsey.The Reading Book:A Complete Guideto Teaching Reading. S & L. Publishing, 2019.
4. BarbaraSherman.Skimming and Scanning Techniques, Liberty University Press, 2014.
5. PhilChambers.BrilliantSpeedReading:Whatever you need to read, however. Pearson, 2013.
6. Communication Skills:Practical Approach Ed.ShaikhMoula

WEBLINK:

1. Langston Hughes. Still Here <https://poetryace.com/im-still-here>
2. R. K. Narayan. Engine Trouble
3. <http://www.sbioaschooltrichy.org/work/Work/images/new/8e.pdf>
4. Washington Irving. Rip Van Winkle <https://www.gutenberg.org/files/60976/60976-h/60976-h.htm>
5. Frank Stockton. The Lady or the Tiger <https://www.gutenberg.org/ebooks/396>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	-	-	-	-	2	1	1	3	2
CO2	1	1	2	-	-	-	-	2	1	1	3	2
CO3	1	1	3	-	-	-	-	3	1	1	3	2
CO4	1	1	2	-	-	-	-	2	1	1	3	2
CO5	1	1	3	-	-	-	-	3	1	1	3	2
W.AV	1	1	2.4	-	-	-	-	2.4	1	1	3	2

S–Strong(3),M-Medium(2),L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	1	2	2	2
CO2	-	1	2	2	2
CO3	-	1	2	2	2
CO4	-	1	2	2	2
CO5	-	1	2	2	2
W.AV	-	1	2	2	2

S–Strong(3),M-Medium(2),L-Low(1)

PART III

CORE COURSE – THEORY–II

Subject Code: 97223	BASICS OF AIRCRAFT	LTPC 5005
-------------------------------	---------------------------	----------------------------

COURSE OBJECTIVES:

- To understand the history of aircrafts
- To understand physics behind working of aircrafts
- To understand the aerodynamics behind flying of aircraft
- To know the parts of the aircrafts
- To understand the structure of aircraft

UNIT I HISTORY OF FLIGHT 15 Hours

Balloon flight -ornithopters-Early Airplanes by Wright Brothers, biplanes and monoplanes, Developments in aerodynamics, materials, structures and propulsion over the years.

UNIT II AIRCRAFT CONFIGURATIONS AND ITS CONTROLS 15 Hours

Different types of flight vehicles, classifications-Components of an airplane and their functions Conventional control, powered control- Basic instruments for flying-Typical systems for control actuation.

UNIT III BASICS OF AERODYNAMICS 15 Hours

Physical Properties and structures of the Atmosphere, Temperature, pressure and altitude relationships, Newton's Law of Motions applied to Aeronautics-Evolution of lift, drag and moment. Aerofoils, Mach number, Maneuvers.

UNIT IV BASICS OF ENGINES 15 Hours

Basic ideas about piston, turboprop and jet engines – use of propeller and jets for thrust production- Comparative merits, Principle of operation of rocket, types of rocket and typical applications, Exploration into space.

UNIT V BASICS OF AIRCRAFT STRUCTURES**15 Hours**

General types of construction, Monocoque, semi-monocoque and geodesic constructions, typical wing and fuselage structure. Metallic and non-metallic materials. Use of Aluminium alloy, titanium, stainless steel and composite materials. Stresses and strains-Hooke's law-stress-strain diagrams elastic constants-Factor of Safety

TOTAL:75Hours**COURSE OUTCOMES:**

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Learnt the history of aircraft & developments over the years	L2
CO2	Ability to identify the types & classifications of components and control systems	L2
CO3	Understand the basic concepts of flight & Physical properties of Atmosphere	L2
CO4	Ability to differentiate the types of fuselage and constructions	L2
CO5	Different types of Engines and principle of Rocket	L2

TEXTBOOKS:

1. Anderson, J.D., Introduction to Flight, McGraw-Hill; 8th edition, 2015
2. Aircraft Engine Design, Jack D. Mattingly, William H. Heiser, David T. Pratt, American Institute of Aeronautics & Astronautics, 2002.

REFERENCEBOOKS:

1. Kermode, A.C. Flight with out Formulae, Pearson Education; Eleven edition, 2011
2. Principles of Flight for pilots, P.J. Swatton, Wiley publisher, 2010.
3. Stephen. A. Brandt, Introduction to aeronautics: A design perspective, 2nd edition, AIAA Education Series, 2004.
4. Aircraft Engines and Gas Turbines, Jack L. Kerrebrock, The MIT press, 1992.

WEBLINK:

1. https://www.amazon.in/dp/1259064875/ref=as_sl_pc_tf_til?tag=sanfoundry-21&linkCode=w00&linkId=6ff208af8b105545897402a0576e88bf&creativeASIN=1259064875
2. <https://doi.org/10.1201/9781315156743>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	-	2	-	3	1	2	1	3	2	1	1	2
CO2	-	2	-	3	1	2	3	3	2	1	1	2
CO3	-	2	-	3	1	2	3	2	3	1	1	2
CO4	-	2	-	3	1	2	3	3	2	1	1	2
CO5	-	2	-	3	1	2	2	3	2	1	1	2
W.AV	-	2	-	3	1	2	1.8	2.8	1.6	1	1	2

S-Strong(3),M-Medium(2),L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	1
CO2	3	2	3	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	3	2	3	1	1

S-Strong(3),M-Medium(2),L-Low(1)

PART III
CORE COURSE–PRACTICAL– II

SubjectCode: 97224	AEROENGINE LAB	LTPC 0084
------------------------------	-----------------------	----------------------------

COURSE OBJECTIVES:

- To explore practically components of aircraft piston
- To explore practically components of aircraft gasturbineengines
- To know the working principle sof Aircraft Engines

LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS

S.No.	Items	Qty	ExperimentNo.
1.	Pistonengine	1	1,3,45,6,7,8,9,10,11,112
2.	Jetengine	1	2,5,6,7,8,10,11,12

LIST OF EXPERIMENTS

1. Study of aircraft pistonengine
2. Study of gasturbineengine
3. Study of Camshaft operation and firingorder
4. Study of magneto and valve timing
5. Studyo faeroengin elubrication system
6. Studyo faeroengine cooling system
7. Study of Aircraft Engine Auxiliary systems
8. Study of aeroen ginefuel pumps
9. Study of aircraftengine carburettor
10. Aircraft Ground Handling and Starting –up Procedure

TOTAL:60Hours

COURSE OUTCOMES:

After completion of this course, the students should be able to		KnowledgeLevel
CO1	Capable to identify components and information of pistonengine	L2
CO2	Understand the working of agasturbineengine	L2
CO3	Understand how to utilise the tools while undergoing Maintenance of Aircrafts	L2
CO4	Able to analyse behavior of flow through ducts and jetengine components	L4
CO5	Ability to understand the procedure involved in maintenance of various air frame systems	L2

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	3	2	2	1	3	2	1	1	2
CO2	1	1	2	3	2	2	3	3	2	1	1	2
CO3	1	1	2	3	2	2	3	2	3	1	1	2
CO4	1	1	2	3	2	2	3	3	2	1	1	2
CO5	1	1	2	3	2	2	2	3	2	1	1	2
W.AV	1	1	2	3	2	2	2.4	2.8	2.2	1	1	2

S–Strong(3),M–Medium(2),L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	1
CO2	3	2	3	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	3	2	3	1	1

S–Strong(3),M–Medium(2),L–Low(1)

PART III
ALLIED COURSE– THEORY – IB

Subject Code: 97225	AVIATION PHYSICS	LTPC 3003
-------------------------------	-------------------------	----------------------------

COURSE OBJECTIVES:

- To explore the working knowledge of things around us
- To understand the physics behind the working of Machines
- To understand heat and its effects
- To acquire knowledge about motion of materials

UNIT I BASIC PHYSICS 9 Hours

Matter – Characteristics & Properties of Matter – Energy – different forms of energy – Force – Work – Power – Torque – Friction – Stress – Strain – Relation between stress & strain – Types of Stress – Practical examples & Numerical Problems

UNIT II SIMPLE MACHINES 9 Hours

Machines – Mechanical Advantage – Ramp – Wedge – Screw – Lever & Types of Lever – Pulley & Types of Pulley – Gear & Types of Gear – Development of Simple Machines – Practical Examples

UNIT III MOTION 9 Hours

Force & Motion – Uniform motion – Circular Motion – Rectilinear Motion – Curvilinear Motion – Rotational Motion – Periodic Motion – Distance – Velocity – Acceleration – Time – Newton's 3 Laws of Motion – Numerical Problems

UNIT IV HEAT & PRESSURE 9 Hours

Heat Energy – Thermal Efficiency – Heat Transfer – Types of Heat Transfer – Thermal Conductivity – Temperature – Specific Heat – Thermal Expansion / Contraction – Pressure – Gauge Pressure – Absolute Pressure – Different Pressure – Numerical Problems

UNIT V BASIC FLUID MECHANICS 9 Hours

Buoyancy – Fluid Pressure – Pascal's Law – Bernoulli's Principle – Boyle's Law – Charles's Law – General Gas Law – Dalton's Law – Sound – Wave Motion – Speed of Sound – Mach Number – Frequency of Sound – Measurement of Sound Intensity – Doppler Effect – Resonance.

TOTAL: 45 Hours

COURSE OUTCOMES:

After completion of this course, the students should be able to		Knowledge Level
CO1	Understand the importance of energy	L2
CO2	Express their knowledge in working of basic machines	L2
CO3	Demonstrate strong foundational knowledge in motion of bodies	L2
CO4	Demonstrate strong foundational knowledge in heat and heat transfer	L2
CO5	Understand the importance of behaviour of fluid and the properties of sound	L2

TEXTBOOKS:

1. Karl F Khan, Basic Physics – A self teaching Guide 3RD edition John Wiley & Sons Inc. New York 2020.

REFERENCE BOOKS:

1. R. Wolfson. Essential University Physics. Volume 1 & 2. Pearson Education (Indian Edition), 2009.
2. K. Thyagarajan and A. Ghatak. Lasers: Fundamentals and Applications, Laxmi Publications, (Indian Edition), 2019.
3. Robert G Brown, Introductory Physics I – Elementary Mechanics, Duke University Physics Department, 2013

WEBLINK:

2. <https://www.perlego.com/book/1584658/understanding-physics-pdf>
3. <https://www.perlego.com/book/994236/physics-essentials-for-dummies-pdf>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	-	2	-	3	2	2	1	3	2	1	1	2
CO2	-	2	-	3	2	2	3	3	2	1	1	2
CO3	-	2	-	3	2	2	3	2	3	1	1	2
CO4	-	2	-	3	2	2	3	3	2	1	1	2
CO5	-	2	-	3	2	2	2	3	2	1	1	2
W.AV		2		3	2	2	2.4	2.8	2.2	1	1	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	1
CO2	3	2	3	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	3	2	3	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART III
ALLIED COURSE–PRACTICAL– IB

Subject Code: 97226	AVIATION PHYSICS LAB	LTPC 0042
-------------------------------	-----------------------------	----------------------------

COURSE OBJECTIVES:

- To make the students to perform tasks on their own to understand the physics required for working of aircraft directly and indirectly.

LIST OF EQUIPMENTS

- | | |
|--------------------------|------|
| 1. Pin and Microscope | –Ea1 |
| 2. Oscilloscope | –Ea1 |
| 3. Simply Supported Beam | –Ea3 |
| 4. Dial Gauge | –Ea4 |

LIST OF EXPERIMENTS

1. Calculation of Force requirement using Double Pulley setup
2. Calculation of Force requirement using Levers
3. Calculation of difference in forces with respect to the motion
4. Uniform bending – Determination of Young's modulus
5. Coefficient of viscosity of a liquid– Stoke's method
6. Surface tension of water–capillary rise method
7. Determination of Heat Transfer
8. Checking of Relationship between Pressure & Volume
9. Checking of Relationship between Temperature & Volume
10. Calculation of change in frequency

TOTAL: 30 Hours

COURSE OUTCOMES:

After completion of this course, the students should be able to		Knowledge Level
CO1	Understand the functioning of various physics laboratory equipment	L2
CO2	Use day today products to explain the physics behind everywork	L2
CO3	Use mathematical models as a medium for describing physical reality	L3
CO4	Access, processs and analyse scientific information	L4
CO5	Solve problems individually and collaboratively	L3

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	3	2	2	1	3	2	1	1	2
CO2	1	1	2	3	2	2	3	3	2	1	1	2
CO3	1	1	2	3	2	2	3	2	3	1	1	2
CO4	1	1	2	3	2	2	3	3	2	1	1	2
CO5	1	1	2	3	2	2	2	3	2	1	1	2
W.AV	1	1	2	3	2	2	2.4	2.8	2.2	1	1	2

S–Strong(3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	1
CO2	3	2	3	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	3	2	3	1	1

S–Strong(3), M–Medium(2), L–Low(1)

PART– III

SEC–II SKILL ENHANCEMENT COURSE

SubjectCode: 97227	ENVIRONMENTAL STUDIES	LTPC 0022
------------------------------	------------------------------	----------------------------

COURSE OBJECTIVES:

- To understand the multi disciplinary nature of environmental studies such as forest, water, mineral and energy and land resources.
- To portray the eco system bio diversity and its conservation.
- To impart the knowledge of environmental pollution
- To know the importance of field work to study common plants, insects and birds and visit local areas to document environmental assets.

UNIT I Multidisciplinary Nature of Environmental Studies 6 Hours

The Multidisciplinary Nature of Environmental Studies: Definition, Scope and importance
-Need for public awareness

UNIT II NaturalResources 6 Hours

Natural Resources: Renewable and non-renewable resources

A). **ForestResources:**Use and Over-Exploitation, Deforestation, Case Studies, Timber Extraction, Mining, Dams and Their Effect on Forests and Tribal People.

B). **Water Resources:** Useand Over-Utilization of Surface and GroundWater, Floods, Drought, Conflicts over Water, Dams- Benefits and Problems.

C). **MineralResources:** UseandExploitation, Experimental Effects of Extracting and Using Mineral Resources, Case Studies.

D). **Food Resources:**World Food Problems, Changes Caused by Agriculture and Overgrazing, Effects of Modern Agriculture, Fertilizer-Pesticide Problems, Water Logging, Salinity,Case Studies.

E). **Energy Resources:** Growing Energy Needs, Renewable and Non-Renewable Energy Sources, Use of Alternate Energy Resources, Case Studies.

F). **LandResources:** Land as a Resource, Land Degradation, Main Induced Landsides, Soil-Erosion and Desertification.

_ Role of Individualin Conservation of Natural Resources

_Equitable Use of Resources for Sustainable Lifestyle

UNIT III Ecosystems, Bio-Diversity And Its Conservation**6 Hours**

Ecosystems: Concept of an Eco system, Structure and Function of an Eco system, Energy Flow in The Ecosystem, Food Chains, Food Webs and Ecological Pyramids. Biodiversity and Its conservation: Introduction- Definition : Genetic, Species and Ecosystem Diversity, Bio-Geographical Classification of India, Value of Biodiversity: Consumptive Use, Productive Use, Social Ethical, Aesthetic and Option Values. Biodiversity at Global, National and Local Levels, India as a Mega-Diversity Nation, Hot Spots of Biodiversity, Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wildlife Conflicts, Endangered and Endemic Species of India, Conservation of Biodiversity: In-Situ And Ex-Situ Conservation of Biodiversity.

UNIT IV Environmental Pollution**6 Hours**

Environmental Pollution: Causes, Effects And Control Measures of: A). Air Pollution, B). Water Pollution, C). Soil Pollution, D). Marine Pollution, E). Noise Pollution, F). Thermal Pollution, G). Nuclear Hazards.

UNIT V Field Work**6 Hours**

Field Work

- i. Visit to a Local Area to Document Environmental Assets – River / Forest / Grassland / Hill / Mountain
- ii. Visit to a Local Polluted Site- Urban / Rural / Industrial / Agricultural
- iii. Study of Common Plants, Insects, Birds
- iv. Study of Simple Eco system- Pond, River, Hill Slopes, etc.,

TOTAL: 30 Hours**COURSE OUTCOME:**

On successful completion of the subject, the students acquired knowledge about		KNOWLEDGE LEVEL
CO1	Renewable and non-renewable resources.	L1
CO2	Species and Ecosystem Diversity, Bio-Geographical Classification of India, Value of Documentation of environmental assets	L2
CO3	Biodiversity: Causes, Effects and Control Measures of environmental pollution	L1
CO4	Field work knowledge of studying eco system pond, river, hill and common plants, insects and birds.	L2
CO5	Documentation of environmental assets	L3

TEXTBOOKS/REFERENCEBOOKS:

1. Agarwal,K.C.(2001).EnvironmentalBiology. NidiPublicationLtd.
2. Bharucha,E.(2002).TheBiodiversity of India(Vol.1).MapinPublishingPvtLtd, Ahamedabad, India.
3. Brunner,C.R.(1993).Hazardouswasteincineration. McGrawHillInc.
4. Clark, R. B., Frid, C., & Attrill, M. (2001). Marine pollution (Vol. 5). Oxford: Oxford universitypress.
5. Cunningham,W.P., Cooper, T.H., Gorham,E., & Hepworth,M.T. (1998). Environmental encyclopedia.
6. De,A.K. (1990).EnvironmentalChemistry.WileyEasternLtd.
7. Gleick, H.P.(1993). Water InCrisis, Pacific Institute For Studies In Dev, Environment & Security. Stockholm Env. Institute, Oxford University Press.
8. Goel, P. K., & Trivedi, R. K. (1998). An introduction to air pollution. Technoscience Publication, India.
9. Hawkins,R.E.EncyclopediaofIndianNaturalHistory.BombayNaturalHistory Society, Bombay.
10. Heywood, V.H., &Watson, R.T. (1995). Global biodiversityassessment (Vol. 1140). Cambridge: Cambridge university press.
11. Jadhav,H.V.,&Bhosale,V.M.(2006).EnvironmentalProtectionand laws.Himalaya Publishing House.
12. McKinney,M.L.,&Schoch,R.M.(1996).EnvironmentalScience:Systemsand Solutions (St. Paul, MN).
13. Mhaskar,A.K.MatterHazardous.Techno-SciencePublications.
14. Miller,T.G.(1989).EnvironmentalScience:Workingwiththeearth(2nd). Wadsworth Publicing Co. Down toEarth. Centre for Science and Environment.
15. Narain,S.,Mahapatra,R.,Das,S.,Misra,A.,Parrey,A.A.,Pandey,K.,&Banerjee, S.(2014).
16. Odum, E.P., & Barrett, G.W. (1971).Fundamental so fecology (Vol. 3, p. 5). Philadelphia: Saunders.
17. Rao, M.N.,&Datta, A.K. (1987).WasteWaterTreatment. Oxford & IbhPubl, Co.Pvt. Ltd.
18. Sharma,B.K.(2001).Environmental Chemistry–6th Revised Edition.
19. Town send, C.R., Begon, M., & Harper, J.L. (2008). Essentials of Ecology (3rd edition). Oxford: Black well Publishing.

20. Trivedi,R.K.(2010).Hand book of Environmental Laws, Rules, Guidelines, Compliances and Standards. Vol.
21. Wanger, K.D.(1998).Environmental Management. Saunders Co.Philadelphia,USA.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	1	1	1	1	1	2	1	1	2
CO2	1	1	2	1	1	1	1	1	2	1	1	2
CO3	1	1	2	1	1	1	1	1	3	1	1	2
CO4	1	1	2	1	1	1	1	1	2	1	1	2
CO5	1	1	2	1	1	1	1	1	2	1	1	2
W.AV	1	1	2	1	1	1	1	1	2.2	1	1	2

S–Strong(3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	1	1
CO2	1	1	1	1	1
CO3	1	1	1	1	1
CO4	1	1	1	1	1
CO5	1	1	1	1	1
W.AV	1	1	1	1	1

S–Strong(3), M–Medium(2), L–Low(1)

SECOND YEAR

SEMESTER-III

PART - I

Subject Code 97231T	LANGUAGE-TAMIL- III	LTPC 3003
-------------------------------	----------------------------	----------------------------

பொதுத்தமிழ் -3

தமிழக வரலாறும் பண்பாடும்

இரண்டாம் ஆண்டு - மூன்றாம் பருவம்

Course Code	Course Name	category	L	T	P	S	Credits	Ins.Hrs	CIA	Externa	Total
	பொதுத்தமிழ் -3 தமிழக வரலாறும் பண்பாடும்	Supportive	Y	-	-	-	3	6	25	75	100
Pre-Requisite		பன்னிரெண்டாம் வகுப்பில் தமிழை ஒரு பாடமாகப் பயின்றிருக்க வேண்டும்							SV 2023		
Learning Objectives											
- தமிழக வரலாற்றை அறிந்துகொள்ளுதல். - தமிழரின் வாழ்வியல் தொன்மையை அறிதல். - தமிழரின் பண்பாட்டினை அறிந்துகொள்ளல். - தமிழர்மேல் நிகழ்ந்த பிற பண்பாட்டுத் தாக்கங்களை அறிதல். - தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்											
Expected Course Outcomes											
On the Successful completion of the Course, Students will be able to											
இப்பாடத்தைக் கற்பதால் பின்வரும் பயன்களை மாணவர் அடைவர்											
CO 1	தமிழக வரலாற்றை அறிந்துகொள்வர்.										K4
CO 2	தமிழரின் வாழ்வியல் தொன்மையை அறிவர்.										K5, K6
CO 3	தமிழரின் பண்பாட்டுக் கூறுகளை அறிந்துகொள்வர்										K3
CO 4	பிற பண்பாட்டுத் தாக்கம் மற்றும் அனுகுமுறைகளை அறிவர்.										K3
CO 5	மொழிப்பயிற்சிக்குத் தேவையான இலக்கணங்களைக் கற்பர்.										K2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create											

அலகு-1	தொல் பழங்கால வரலாறும் சங்ககால வரலாறும்
	1. தொல் தமிழர் 2. பழைய கற்காலம் 3. புதிய கற்காலம் 4. உலோகக் காலம் 5. அகழ்வாராய்ச்சியில் தமிழும் தமிழரும் (கீழடி வரை) 6. திணை வாழ்வியல் (களவு வாழ்க்கை, கற்பு வாழ்க்கை, உணவு, அணிகலன்கள், வாணிகம், விளையாட்டுகள்) 7. கல்வியும், கலைகளும் 8. தமிழ் வளர்த்த சங்கம் 9. சங்க கால ஆட்சி முறை
	10 . அயல்நாட்டுத் தொடர்புகள்
அலகு-2	ஆட்சியர் வரலாறு
	1. மூவேந்தர் வரலாறு 2. பல்லவர் வரலாறு 3. நாயக்கர் ஆட்சி 4. முகம்மதியர் ஆட்சி 5. மராட்டியர் ஆட்சி
அலகு-3	ஐரோப்பியர் கால வரலாறு
	1. போர்த்துக்கீசியர் 2. டச்சுக்காரர்கள் 3. டேனிஸ்காரர்கள் 4. பிரெஞ்சுக்காரர்கள் 5. ஆங்கிலேயர்கள் 6. பாளையக்காரர்கள் 7. இந்திய விடுதலைப் போராட்டத்தில் தமிழ்நாடு
அலகு-4	விடுதலைக்குபின் தமிழ்நாட்டு வரலாறு
	7. மொழிப்போராட்டம் 8. சமூக மறுமலர்ச்சி 9. தொழில்நுட்ப வளர்ச்சி
அலகு-5	மொழிப்பயிற்சி
	• நிறுத்தக் குறிகள் • கலைச்சொற்கள் • மொழிபெயர்ப்பு பயிற்சி :ஆங்கிலக் கலைச் சொற்களைக் கொடுத்து அவற்றைத் தமிழில் மொழிபெயர்க்கச் செய்தல்.

Text books
- தமிழக வரலாறும் பண்பாடும் - கே.கே. பிள்ளை, உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை, - தமிழர் நாகரிகமும் பண்பாடும் - அ. தட்சிணாமூர்த்தி, யாழ் வெளியீடு, சென்னை, - தமிழக வரலாறும் பண்பாடும் - வே.தி. செல்லம், மணிவாசகர் பதிப்பகம், சென்னை, - ஆதிச்சநல்லூர் முதல் கீழடி வரை நுவேதா லுயிஸ், கிழக்குப் பதிப்பகம், சென்னை. - பண்பாட்டு மானிடவியல் - பக்தவத்சல பாரதி, அடையாளம் பதிப்பகம், திருச்சி. - தமிழர் மேல் நிகழ்ந்த பண்பாட்டுப் படையெடுப்புகள், க.ப. அறவாணன், தமிழக்கோட்டம், சென்னை.
Reference Books
- தமிழக சமுதாய பண்பாட்டு கலை வரலாறு - கு. சேதுராமன், என்.சி.பி.எச், சென்னை, - தமிழர் கலையும் பண்பாடும் - அ.கா. பெருமாள், என்.சி.பி.எச், சென்னை. - ஒரு பண்பாட்டின் பயணம்: சிந்து முதல் வைகை வரை - ஆர். பாலகிருஷ்ணன், ரோஜா முத்தையா ஆராய்ச்சி நூலகம், சென்னை. - தமிழும் பிற பண்பாடும் - தெ.பொ. மீனாட்சி சுந்தரனார், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை - தமிழர் வரலாறும் பண்பாடும் - நீலகண்ட சாஸ்திரி, ஸ்ரீசெண்பகா பதிப்பகம், சென்னை - தமிழர் வரலாறும் தமிழர் பண்பாடும் - மா.இராசமாணிக்கனார் - தமிழர் நாகரிக வரலாறு - க.த.திருநாவுக்கரசு, தொல்காப்பியர் நூலகம், சென்னை.
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
Web Sources
https://www.chennaiLibrary.com/ https://www.sirukathaigal.com https://www.tamilvirtualuniversity.org https://www.noolulagam.com https://www.katuraitamilblogspot.com

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	-	2	-	1	1	2
CO2	1	3	2	-	-	-	-	2	-	1	1	2
CO3	1	3	2	-	-	-	-	2	-	1	1	2
CO4	1	3	2	-	-	-	-	2	-	1	1	2
CO5	1	3	2	-	-	-	-	2	-	1	1	2
W.AV	1	3	2	-	-	-	-	2	-	1	1	2

S-Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	2	2
CO2	-	-	1	2	2
CO3	-	-	1	2	2
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2	2

S–Strong(3), M-Medium(2), L-Low(1)

PART – I

PAPER-I

Subject Code	LANGUAGE- FOUNDATION COURSE: FRENCH – III TRANSLATION, COMPREHENSION AND GRAMMAR –I	LTPC 3 0 0 3
97231F		

COURSE OBJECTIVES:

- Identify and appreciate the construction and the structure of different tenses and sentences
- Translates impletexts
- Draft and summarize literary texts
- Apply the grammatical rules to express one's idea using different tenses
- Analyze literary texts with respect to their structure and composition

UNIT I

Les feuilles mortes
Le Vrai Père
Les pronoms relatifs

UNIT II

Nos études
Demain dès l'aube
Le passé composé

UNIT III

Par une journée d'été
L'imparfait
Le Plus-que-parfait

UNIT IV

Une visite inattendue
Le subjonctif
Le conditionnel

UNIT V

L'hiver Le

libraire

La comparaison

TEXT BOOKS AND REFERENCE BOOKS:

Reading List (Print and Online)

1. K.Madanago balane & N.C. Mirakamal, Le français par le texte, Chennai, Samhita Publications – Goyal Publisher & Distributors Pvt Ltd, 2017

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Understand the structure and use of the different grammatical tenses	K2
CO2	Translate texts and examine them	K2 and K4
CO3	Draft summaries of literary texts	K2 and K6
CO4	Identify the requirement and employ the different grammatical tenses	K3
CO5	Analyze and critically assess the literary texts	K4 and K5

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	-	2	-	1	1	2
CO2	1	3	2	-	-	-	-	2	-	1	1	2
CO3	1	3	2	-	-	-	-	2	-	1	1	2
CO4	1	3	2	-	-	-	-	2	-	1	1	2
CO5	1	3	2	-	-	-	-	2	-	1	1	2
W.AV	1	3	2	-	-	-	-	2	-	1	1	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	2	2
CO2	-	-	1	2	2
CO3	-	-	1	2	2
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2	2

S–Strong(3), M-Medium(2), L-Low(1)

PART – I
PAPER-I
(Patra Lekhanaur Paribhashik Shabdavali)

Subject Code 97231H	LANGUAGE– GENERAL HINDI-III	LTPC 3003
-------------------------------	--	----------------------------

COURSEOBJECTIVES:

1. Getting knowledge regarding Personal letter writing in Hindi
2. Social letters in Hindi
3. Business letters in Hindi
4. Official Letters in Hindi
5. Know about Technical Words

UnitI Niji Patra Lekhan 9Hours

- NijiPatra–Arthaur Bhed
- Pitaji/ Matajikenampatra
- Mitra, Bhaiaadikenampatra
- Paribhashik Shabdawali-Prashasanik

UnitII Samajik Patra Lekhan 9 Hours

- Samajik Patra–Arthaur Bhed
- AavedanPatra–Noukri, Chuttiaadi
- DakAdhikarikenampatra
- Nagarpalikakenampatra
- Parivahanpradhikarankenampatra
- Paribhashikshabdawali-vidhi

UnitIII VyavasayikPatraLekhan 9 Hours

- Vyavasayik Patra–Arthaur Bhed
- Prakashakkenampatra
- Pooch-Taach
- Shikayathi
- Kshatipoorthiaadivishyo parpatralekhan
- Paribhashikshabdawali–Padnamvamantralayokenaam

UnitIV**SamanyaParichay****9 Hours**

- SamanyaParichay
- SarkariPatra
- Ardh-SarkariPatra
- Gyapan,Paripatra
- Anusmarak
- Adhisuchna
- Avedan
- ParibhashikShabdavali-Banking

Unit V**Pratiyogi Pariksha par adharit Patrachar se Sambandhit Prashikshan Karya****9Hours**

- PraroopbananakaPrashikshandena
- TippetlikhnekaPrashikshanDena
- Vibhinnapratyogiparikshaokbaremeinsuchnapradandena

Total:45Hours**TEXT BOOKS AND REFERENCE BOOKS:**

1. AlekhanaurTippet–Prof. Viraj
2. Alekhan-Kichlu

COURSE OUTCOMES:

CO1	Providing knowledge of Letter writing in Hindi.	K3
CO2	Telling about the rules of Official Correspondence	K2
CO3	Providing knowledge of Official language Hindi	K4
CO4	Providing practice on Drafting and noting	K5;K6
CO5	Knowing about the names of posts, names of sections and related terminology	K2
K1-Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6- Create		

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	-	2	-	1	1	2
CO2	1	3	2	-	-	-	-	2	-	1	1	2
CO3	1	3	2	-	-	-	-	2	-	1	1	2
CO4	1	3	2	-	-	-	-	2	-	1	1	2
CO5	1	3	2	-	-	-	-	2	-	1	1	2
W.AV	1	3	2	-	-	-	-	2	-	1	1	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	2	2
CO2	-	-	1	2	2
CO3	-	-	1	2	2
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2	2

S–Strong(3), M-Medium(2), L-Low(1)

Related Online Contents (MOOCs, SWAYAM, NPTEL, YouTube, Websites, etc.)

1. <https://youtu.be/-kUPGG0B4tU>
2. <https://www.youtube.com/watch?v=xk14MNb1r7k>

PART – I

PAPER-I

Subject Code	LANGUAGE– OTHER LANGUAGES-II	LTPC 3 00 3
---------------------	---	------------------------

PART-II

Subject Code: 97232	PAPER-II GENERAL ENGLISH -III	LTPC 3003
-------------------------------	--------------------------------------	----------------------------

COURSE OBJECTIVE:

- To make the mactive listeners
- To enhance the interpersonal relationship skills
- To embolden them to cope withstress
- To master grammar skills
- To help them to use English effectively in a business environment

UNIT1 ACTIVELISTENING 20 Hours

Short Story

In a Grove–Akutagawa Ryunosuke Translated from Japanese by TakashiKojima
The Gift of the Magi – O’ Henry

Prose

Listening–Robin Sharma
NobelPrize Acceptance Speech–Wangari Maathai

UNIT II INTERPERSONAL RELATION SHIPS 20 Hours

Prose

Telephone Conversation–Wole Soyinka
Of Friendship – Francis Bacon

Song on (Motivational / Narrative)

Ulysses–Alfred LordTenny son
And Still I Rise–MayaAngelou

UNIT III COPING WITH STRESS 20 Hours

Poem

Leisure–W.H.Davies
Anxiety Monster–RhonaMcFerran

Readers Theatre

The Forty Fortunes: A Tale of Iran
Where there is a Will–Mahesh Dattani

UNIT IV GRAMMAR 15 Hours

Phrasal Verbs & Idioms

Modals and Auxiliaries

Verb Phrases–Gerund, Participle, Infinitive

UNIT V COMPOSITION / WRITING SKILLS 15 Hours

Official Correspondence – Leave Letter, Letter of Application, Permission Letter

Drafting Invitations

Brochures for Programmes and Events

TOTAL:90Hours

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Listen actively	L2
CO2	Develop interpersonal relationship skills	L3
CO3	Acquire self – confidence to cope with stress	L4
CO4	Master grammar skills	L5
CO5	Carry out business communication effectively	L3

TEXT BOOKS:

1. Wangari Maathai–Nobel Lecture.Nobel Prize Outreach AB 2023.Jul 2023.
2. Mahesh Dattani, Where there is a Will.Penguin,2013.
3. Martin Hewings, Advanced English Grammar, Cambridge University Press, 2000
4. Essential English Grammar by Raymond Murphy

WEB LINK:

1. Wangari Maathai – Nobel Lecture. Nobel Prize Outreach AB 2023. Mon. 17 Jul 2023.
<https://www.nobelprize.org/prizes/peace/2004/maathai/lecture/>
2. Telephone Conversation - Wole Soyinka https://www.k-state.edu/english/westmank/spring_00/SOYINKA.html
3. Anxiety Monster-Rhona McFerran-www.poetrysoup.com

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	3	2	-	-	-	-	2	-	1	1	2
CO2	1	3	2	-	-	-	-	2	-	1	1	2
CO3	1	3	2	-	-	-	-	2	-	1	1	2
CO4	1	3	2	-	-	-	-	2	-	1	1	2
CO5	1	3	2	-	-	-	-	2	-	1	1	2
W.AV	1	3	2	-	-	-	-	2	-	1	1	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	2	2
CO2	-	-	1	2	2
CO3	-	-	1	2	2
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2	2

S–Strong(3), M-Medium (2), L-Low(1)

PART- III

CORE COURSE –THEORY–III

Subject Code: 97233	AVIATION WEATHER AND METEOROLOGY	LTPC 4003
-------------------------------	---	----------------------------

COURSE OBJECTIVES:

- To understand the importance of Meteorology
- To understand the Weather concepts in Aviation industry and how
- To learn to interpret various charts and pictures and
- To utilize weather information for the safe flight operations

UNITI	Atmosphere–Introduction	9 Hours
--------------	--------------------------------	----------------

Atmosphere – Description of Atmosphere-Troposphere – Stratosphere – Mesosphere – Thermosphere – Weather elements – pressure, Temperature, Humidity, Visibility, wind and clouds – ISOBARS, ISOTHERMS, ISOTACHS, Contours.

UNIT II	Causes of Weather Phenomena	9Hours
----------------	------------------------------------	---------------

International Standard Atmosphere, Standard Pressure Level, Lapse Rate, Environment Lapse Rate, Dry Adiabatic Lapse Rate, Stability and instability criteria, Pressure systems – Low - High – Trough – Ridge, variation of pressure. Surface winds – pressure gradients – Coriolis force.

UNIT III	Geostrophic, Cyclostrophic winds & Clouds	9Hours
-----------------	--	---------------

Gradient winds – Thermal winds, Buys Ballots Law, Land & Sea Breezes, Katabatic and Anabatic wind – Fohn wind, Gust, Squall, and Gale winds. Mountain waves, Convergence, Divergence, and subsidence. CLOUDS – Types by appearance and Level – Process of formation – TCU, CB development & Hazard. Precipitation – Drizzle, Rain, Snow & Hail. Obscurity – Mist, Fog, Smog, & Haze. Types of Fog – Favourable conditions and impact of Radiation, Advection and Frontal Fog. TURBULANCE – Types and occurrence, CAT – Recognition and Avoidance – Wind Shear & Micro Burst. Jet Streams – Types, occurrence & seasonal variations – Impact on Route Planning.

UNIT IV**SYNOPTIC METEOROLOGY****9 Hours**

Air Mass & its type, Sources & movements of each frontal system - Types, occurrence, movements and associated weather. Inter-Tropical convergence zone – occurrence, associated weather & seasonal variations. Western Disturbances – occurrence, movement & associated weather. Tropical Revolving Storms, Cyclones, Typhoons –its origin – development – and tracks – associated weather hazards. Indian Climatology – Monsoon –various seasons, months associated weather conditions, Upper air wind, temperature of each season. Air Route climatology of major routes over Indian & neighbouring countries.

UNIT V**Meteorological Observations****9 Hours**

IMD & their functions. Aeronautical Met. Services, Legal aspects of Aviation Met, Services. Exchange of Data. Forecasting products - Weather Reports - METAR/ SPECI – TAF – Weather Codes – PIREP – SIGMET – Observation – Significant Weather charts – Surface Charts – Upper air charts – Symbols and Signs – Information for Flight Planning - Surface Weather Observations – Upper Air Observations – Balloon and radio sonde weather radar – Meteorological Satellite and Satellite Cloud Imageries - Synoptic Charts – Legends – Prognostic Charts – Pressure Charts – Satellite Weather Image for the flight operations

TOTAL:45Hours**COURSE OUTCOMES:**

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Understand the meteorology and weather concepts	L2
CO2	Understand the weather products and how it is forecasted	L2
CO3	Understand the weather warning in the weather reports and the remedial action taken in the flight and airport operations	L2
CO4	Understand to utilize weather reports for the safe flight operations	L2
CO5	Understand to interpret and analysis of various weather charts and satellite pictures	L2

TEXT BOOKS:

1. Aviation Weather for Pilots and Flight Operations Personnel, FAA, B/Willustrator, 2013.
2. Om Prakash Agarwal, Aviation Meteorology for pilots, Blue Rose Publisher, 2018.

REFERENCE BOOKS:

1. Navele Pandharinath, Aviation Meteorology, BSP Book, 2019.
2. I.C. Joshi, Aviation Meteorology, Himalayas Book House, 2019.
3. Aviation Weather (FAAH and book), FAA, Snow ball Publishing, 2012.
4. R.K. Kar, Comprehensive Study of Aviation Meteorology For DGCA, CPL/ATPL, Pilot Welfare and Charitable Trust, 2022

WEBLINK:

1. www.imd.gov.in

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	3	3	3	3	2	1	1	1	2
CO2	1	1	2	3	3	3	3	2	1	1	1	2
CO3	1	1	2	3	3	3	3	2	1	1	1	2
CO4	1	1	2	3	3	3	3	2	1	1	1	2
CO5	1	1	2	3	3	3	3	2	1	1	1	2
W.AV	1	1	2	3	3	3	3	2	1	1	1	2

S–Strong(3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	1
CO2	3	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	3	3	3	1	1
W.AV	3	3	3	1	1

S–Strong(3), M–Medium(2), L–Low(1)

PART– III
CORE COURSE–PRACTICAL– III

SubjectCode: 97234	WEATHER METEOROLOGY LAB	LTPC 0063
------------------------------	--------------------------------	----------------------------

COURSE OBJECTIVES:

- To understand the importance of Meteorology
- To understand the Weather concepts in Aviation industry and how
- To learn to interpret various charts and pictures and
- To utilize weather information for the safe flight operations

LIST OF EQUIPMENT

S.No.	Items	Quantity	ExperimentNo.
1.	Wetand Dry Bulb Ther mometer	05	4
2.	Stevens on Screen	01	4
3.	Aneroid Barometer	05	5
4.	WindVane	01	6
5.	RainGauge	01	7

LIST OF EXPERIMENTS

1. Study on Clouds
2. Study about Weather Warning Procedure
3. Study about Viability
4. Measurement of Maximum and Minimum Temperature
5. Measurement of Pressure
6. Measurement of Wind speed and Direction of flow
7. Measurement of Rain Fall
8. Study about Weather Chart and Symbol
9. Study about Weather Interpretation
10. Practice on Map Reading

TOTAL:45Hours

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		KNOWLEDGE LEVEL
CO1	Capable to identify about the clouds and Weather warning.	L2
CO2	Able to interpret weather data and read the Map.	L3
CO3	Able to measure the pressure distribution in the altitude	L3
CO4	Able to compute values from weather chart	L3
CO5	Able to read the map	L3

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	3	3	3	3	2	1	1	1	2
CO2	1	1	2	3	3	3	3	2	1	1	1	2
CO3	1	1	2	3	3	3	3	2	1	1	1	2
CO4	1	1	2	3	3	3	3	2	1	1	1	2
CO5	1	1	2	3	3	3	3	2	1	1	1	2
W.AV	1	1	2	3	3	3	3	2	1	1	1	2

S–Strong(3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	2
CO2	3	3	3	1	2
CO3	3	3	3	1	2
CO4	3	3	3	1	2
CO5	3	3	3	1	2
W.AV	3	3	3	1	2

S–Strong(3), M–Medium(2), L–Low(1)

PART- III
CORE COURSE –THEORY-IV

Subject Code: 97235	FLIGHT SAFETY AND SUPPORT SYSTEMS	LTPC 3003
-------------------------------	--	----------------------------

COURSE OBJECTIVES:

- To understand the flight safety standards
- To learn the working of support systems in the aviation
- To learn the air side safety procedures
- To understand the Ground Handling works connected to safety protocols

UNIT I General Knowledge of Aircraft Ground Handling 9Hours

Safety; Mooring, Jacking, Levelling, Hoisting of aircraft, Towing, Mooring of an a/c during adverse conditions. Aircraft cleaning and maintaining. Ground signaling /marshalling of aircraft in day & night time.

UNIT II	Airport and its Procedures	'9	Hours
----------------	-----------------------------------	-----------	--------------

Brief knowledge of airport and its procedures. Control tower, Dispersal areas, Aprons, Tarmac. Taxi track, Runway and its ends. Approach and clear zone layout. Brief knowledge of the signals given by the control tower. Knowledge of Airfield lighting system, Aircraft Rescue & Fire Fighting.

UNIT III	Maintenance & Handling of Ground Equipment	9	Hours
-----------------	---	----------	--------------

Maintenance and handling of ground equipment's used in maintenance of aircraft. Compressors, Portable hydraulic test stands, Electrical power supply equipment - GPU and FEP, charging trolley, Belt Freight Loaders, LDL, MDL, Potable Water, Lavatory, Air-conditioning and Heating UNIT, Ground support air start UNIT, Pressure oil UNIT, Fire extinguishers, jacks, Hoisting cranes/gantry, Ladders, Platforms, Trestles, and Chocks

UNIT IV	Rigging of Aircraft	9 Hours
----------------	----------------------------	----------------

Rigging of flight control surfaces and duplicate inspection; Rigging checks-Angular alignment checks and symmetry checks, Knowledge and use of Tensiometers, Protractor setc. Safety methods and procedures of Rigging.

UNIT V**Maintenance of Aircraft Equipment****9 Hours**

Maintenance of landing gear (L/G), Shock strut charging and bleeding, Maintenance of L/G brakes i.e., Dragging, Grabbing, Fading, Brakes and excessive brake pedal travel. Maintenance on wheels, tyres and tubes i.e., dismantling, inspection, assembling, inflating, inspection and installation Storage of Rotables

TOTAL:45Hours**COURSE OUTCOMES:**

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Knowledge on Aircraft Ground Handling	L2
CO2	Understand the flight safety standards and support systems in the aviation	L2
CO3	Understand the Airports and its procedures in terms of safety and support	L2
CO4	Knowledge on Maintenance of ground and airport equipment	L2
CO5	Understand the Handling of the ground equipment in both Operational and Technical Basis	L2

TEXT BOOKS:

1. Safety Management Systems in Aviation, Alan J. Stolzer, John J. Goglia, 2ND Edition, Routeledge Publications, 2015.
2. Aircraft Systems: Mechanical, Electrical and Avionics Sub systems Integration, Ian Moir, Allan Sea bridge, Wiley India Pvt Ltd, 2012.

REFERENCE BOOKS:

1. Aircraft Systems, David Lombardo, McGraw Hill Edition, 2009.
2. Stephen K. Cusack author. ; Antonio I. Cortes author. 6th edition, New York: McGraw-Hill Education, 2017.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	1	1	1	1	1	1	1	1	2
CO2	1	2	2	1	3	3	1	1	3	2	2	3
CO3	3	3	3	3	2	2	2	2	2	2	2	3
CO4	3	2	3	3	3	2	2	2	2	2	2	3
CO5	2	2	2	1	1	1	1	1	2	1	1	2
W.AV	2	2	2.2	1.8	2	1.8	1.4	1.4	2	1.6	1.6	2.6

S-Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	2	1	1
CO2	2	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	2	2	2	1	1
W.AV	2.2	2.4	2.6	1	1

S-Strong(3), M-Medium(2), L-Low(1)

PART– III
ALLIED COURSE–THEORY –IIA

Subject Code: 97236	BASIC MATHEMATICS	LTPC 3003
-------------------------------	--------------------------	----------------------------

COURSE OBJECTIVES:

- To do complex mathematical work and bring up solutions to the available problems
- To learn to apply Algebra, Trigonometry in various analysis works
- To learn to apply Differentiation & Integration in complex R&D works
- To learn to apply differential equation in complex R&D works

UNIT– I Algebra 9 Hours

Partial fractions – Resolution of rational fractions into partial fractions. Binomial Theorem – Expansions of rational fractions – Binomial Theorem for any rational Index – Approximation using Binomial series.

UNIT– II Trigonometry 9 Hours

Complex numbers – Modulus and Amplitude form – De – Moivre’s Theorem – Expansion of $\cos n\theta$ and $\sin n\theta$ in power of $\sin\theta$ and $\cos\theta$ - Expansion of $\sin n\theta$ and $\cos n\theta$ in terms of sines and cosines of multiple of θ – Expansion of $\tan\theta$ in ascending power of θ .

UNIT– III Differentiation 9 Hours

Successive Differentiation – nth derivative – Leibnitz’ theorem – Partial Differentiation – Homogeneous Functions.

UNIT– IV Integration 9 Hours

Integration – Method of substitution – Trigonometric substitution – Integrals of the form $\int f(x) dx$, $\int f'(x) dx$, $\int f[f(x)]f'(x) dx$, $\int ax + bx + c \sqrt{px + q} dx$ Integration of rational algebraic functions – $\int \frac{ax + bx + c}{dx^2} dx$, $\int \frac{ax + bx + c}{dx} dx$ integration by the method of partial fraction.

UNIT – V Differential Equations 9 Hours

Differential Equation of first order and Higher degree – Equation solvable for x & y – Clairaut’s Equation.

TOTAL: 45Hours

TEXT BOOKS:

1. Singaravelu.A, Allied Mathematics Edition, Meenakshi Traders (Complete).
2. J. Sureshkumar, S. Kavitha, Devakirubanithi, Allied Mathematics, Charulatha Publication, 2019, Edition.

REFERENCE BOOKS:

2. Kandasamy, Allied Mathematics, S. Chand and Company, 2013. 5th edition.
3. K. Thilagavathi, Allied Mathematics, S. Chand and Company, 2010. 2ND edition.
4. Dr. P. Duraipandian, Dr. Udayabhaskaran, Allied Mathematics, S. Chand and Company, 2016, Edition.
5. A. F. Buchan, R. Borthwick, William R Wadden, Aviation Mathematics, Kessinger Publishing, 2009 Edition.

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Understand the concept of partial fraction and binomial theorems	L2
CO2	Understand the concept of complex numbers and Trigonometric functions	L2
CO3	Understand the concept of the derivative	L2
CO4	Understand the concept of Integration with different forms	L2
CO5	Understand the concept of Differential equations	L2

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	-	-	1	2	1	1	1	2	2
CO2	1	1	1	-	-	1	2	1	1	1	2	2
CO3	1	1	1	-	-	1	2	1	1	1	2	2
CO4	1	1	1	-	-	1	2	1	1	1	2	2
CO5	1	1	1	-	-	1	2	1	1	1	2	2
W.AV	1	1	1			1	2	1	1	1	2	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	2	2	1	1
CO2	1	2	2	1	1
CO3	1	2	2	1	1
CO4	1	2	2	1	1
CO5	1	2	2	1	1
W.AV	1	2	2	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART– III
ALLIED COURSE–PRACTICAL–IIA

Subject Code: 97237	COMPUTER APPLICATIONS LAB	LTPC 0042
-------------------------------	----------------------------------	----------------------------

COURSE OBJECTIVES:

- The student should be familiar with the use of Office software and PC assembly with maintenance procedures.

LIST OF EQUIPMENTS

S.No.Items	Quantity	Experiment No.
1 Standal one desk tops with Windows07/10	30 Nos.	1to10
2 Printer (any configuration)	1No.	10

LIST OF EXPERIMENTS

1. Identifying the peripherals of a computer
2. Installation of WindowsXp,W'07
3. Web Browsers and Surfing theWeb
4. MS Word Orientation
5. Project abstract Features
6. Excel Orientation
7. Powerpoint Utilities
8. Study of Building and Assemblinga DesktopPC
9. Work group based Networkusing Windows 7 Professional OS
10. Local Printer sharinginWindows7 OS

TOTAL:30Hours

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Knowledge on Windows Operating Systems	L2
CO2	Know about how to prepare project work report	L2
CO3	Know about how to prepare PPT slides and Excel related works for data data analysis	L2
CO4	Familiar with the PC Maintenance and problems solving capability at Font of ficelevel	L2
CO5	Familiar with the basic concepts of Networking	L2

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	-	-	1	1	1	1	1	1	2
CO2	1	1	1	-	-	1	1	2	1	1	1	1
CO3	1	1	1	-	-	1	1	2	1	1	1	1
CO4	1	1	2	-	-	1	1	1	1	1	2	2
CO5	1	2	2	-	-	1	1	1	2	1	1	3
W.AV	1	1.2	1.4	-	-	1	2	1.4	1.2	1	1.2	1.8

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	1	1
CO2	1	2	1	1	1
CO3	1	1	1	1	1
CO4	1	1	1	1	1
CO5	1	1	2	1	1
W.AV	1	1.2	1.2	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART-IV
SEC -III

SubjectCode: 97238	ENTREPRENEURSHIP	LTPC 0022
------------------------------	-------------------------	----------------------------

COURSE OBJECTIVES:

- To enable the students to understand the concept of Entrepreneurship and to learn the professional behaviour about Entrepreneurship.
- To identify significant changes and trends which create new business opportunities?
- To analyse the institutional arrangement for potential business opportunities.
- To provide conceptual exposure on converting ideas to an women entrepreneurship

UNITI ENTREPRENEURSHIP 6 Hours

Entrepreneur – Meaning – Importance – Definition – Types – Functions – Qualities of an Entrepreneur – Entrepreneurship as a career.

UNIT II BUSINESS 6 Hours

Business Promotion–Product selection– Form of ownership –Plant location– land, building, water and power, raw material, machinery, power and other infrastructural facilities– Licensing, registration and local bye laws.

UNIT III BUSINESSPLANPREPARATION 6 Hours

Institutional arrangements for entrepreneurship development – DIC, SIDCO, NSIC, SISI – Institutional finance to entrepreneurs –TIIC, SIDBI, Commercial banks–Incentives to small scale industries.

UNIT IV	PROJECT	6 Hours
----------------	----------------	----------------

Project report – Meaning and importance – Project report – Format of a report (as per requirements of financial institutions) – Project appraisal – Market feasibility – Technical feasibility– Financial feasibility and economic feasibility – Break even analysis.

UNITV ENTREPRENEURSHIP DEVELOPMENT PROGRAMME 6 Hours

Entrepreneurship development in India – Women entrepreneurship in India – Sickness in small scale industries and their remedial measures.

TOTAL:30Hours

COURSE OUTCOMES:

Afterstudied, the student will be able to		Knowledge Level
CO1	To understand the significance of entrepreneurship and entrepreneur qualities.	L2
CO2	To know about the developing ideas and techniques of business.	L2
CO3	To understand about the procedures of start up.	L2
CO4	To identify the institutional support provided to entrepreneurs.	L2
CO5	To analyse the women entrepreneurship development	L4

TEXT BOOKS:

1. Joseph Paul, N. Ajit kumar and T.Mampilly. Entrepreneurship development. Himalayan Publishing House.
2. Khan, M.A. Entrepreneurship Development Programmes in India. Kanishka Publishing House, Delhi.

REFERENCE BOOKS:

1. Hisrich RD, Peters MP, "Entrepreneurship" 8th Edition, Tata McGraw-Hill, 2016
2. Khanka S.S., "Entrepreneurial Development" SCh and & Company; edition, 2016
3. Entrepreneurship and Management of Small business – Centre for Entrepreneurship Development, Madurai.
4. Saravanel, P. (1997). Entrepreneurial Development. Ess Peekay Publishing House, Chennai.
5. Vasant Desai. Dynamics of Entrepreneur Development and Management. Himalayan Publishing House.

WEB LINKS:

1. www.forentrepreneurs.com
2. www.allbusiness.com
3. www.forbes.com

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	-	-	1	1	1	1	3	1	1
CO2	1	1	1	-	-	1	1	1	2	2	1	1
CO3	1	1	1	-	-	1	1	1	1	2	2	2
CO4	1	1	1	-	-	1	1	1	2	2	2	2
CO5	1	1	1	-	-	1	1	1	1	1	1	1
W.AV	1	1	1			1	1	1	1.4	2	1.4	1.4

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	3	2
CO2	1	1	1	3	2
CO3	1	1	1	3	2
CO4	1	1	1	3	2
CO5	1	1	2	3	2
W.AV	1	1	1.2	3	2

S–Strong(3),M-Medium(2),L-Low(1)

PART-IV
NME –I

ADIPADAI TAMIL

Subject Code: 97239A		
--------------------------------	--	--

இரண்டாம் ஆண்டு - மூன்றாம் பருவம்				
பாடக்குறியீட்டு எண்:	பள்ளியில் தமிழ் பயிலாத மாணாக்கர்களுக்கான அடிப்படைத் தமிழ்ப் பாடங்கள்	T/P	C	H/W
	தமிழ் மொழியின் அடிப்படைகள்	P	2	2
நோக்கம் :	➤ இலக்கணம் அறிந்து கொள்ள வாய்ப்பினை ஏற்படுத்துதல். ➤ தமிழ் மொழியில் பிழையின்றி எழுத அறிந்துகொள்ள வாய்ப்பினை ஏற்படுத்துதல்.			
அலகு -1	எழுத்துக்கள் – உயிர் எழுத்துக்கள் – மெய்யெழுத்துக்கள் – உயிர்மெய்யெழுத்துக்கள்			
அலகு -2	சொற்களின் வகை அறிதல் – பெயர்ச்சொல் – வினைச்சொல் – இடைச்சொல் – உரிச்சொல்			
அலகு-3	எழுத்துக்களின் வேறுபாடு அறிதல்: ணகர, னகர எழுத்துக்கள் சொற்களில் பயின்று வருதல் லகர, முகர, ளகர வேறுபாடு அறிதல் ரகர, றகர வேறுபாடு அறிதல்.			
அலகு -4	எழுத்துக்களின் பிறப்பு – உச்சரிப்புப் பயிற்சி அளித்தல் – பிழையின்றிப் படிப்பதற்குப் பயிற்சி அளித்தல்.			
அலகு -5	பிறமொழிச் சொற்களைக் கண்டறிதல் – தமிழ் மாதங்கள் – கிழமைகள் – எண்கள் – சுவைகள் – உறவுப் பெயர்கள் ஆகியவற்றை அறிதல்			
பயன்கள்:	➤ அடிப்படை இலக்கணச் சூழலியல் கற்றால் தமிழ் மொழி இலக்கணங்களை பிறமொழிகளோடு ஒப்பிடும் ஆற்றல் பெறுவர். ➤ அழகியல் உணர்ச்சிகளைப் புரிந்து கொள்ள ஏதுவாக இலக்கணம் இருக்கிறது என்பதை உணர்ந்து தனித்துவம் வாய்ந்தவர்களாக தன்னம்பிக்கைப் பெற்றவர்களாக மாறலாம்.			

PART-IV

NME -I

ADVANCETAMIL

Subject Code: 97239B	
--------------------------------	--

இரண்டாம் ஆண்டு - மூன்றாம் பருவம்				
பாடக்குறியீட்டு எண்:	பள்ளியில் மேல்நிலைப் படிப்பு வரை தமிழ் பயின்று கல்லூரியில் பகுதி 1- இல் தமிழ் பயிலாத மாணாக்கர்களுக்கான சிறப்புத் தமிழ்ப் பாடங்கள்	T/P	C	H/W
	இக்கால இலக்கியம்	T	2	2
நோக்கம் :	➤ கவிதை, சிறுகதை, புதினம், உரைநடை ஆகிய படைப்பியல் வகைகளைப் பற்றிய பரந்துபட்ட புலமையைப் பெருக்குதல். ➤ இக்காலத் தமிழ் இலக்கியங்களின் உள்ளடக்கம், வெளியீட்டு நெறி, படைப்பில் கொள்கை ஆகியவற்றை அறியச் செய்தல்			
அலகு -1	கவிதை இலக்கியம்			
அலகு -2	- பாரதியார் - சுதந்திரப் பாடல்கள்: 'சுதந்திரப் பெருமை' என்ற பாடல் முதல் 'சுதந்திரப் பள்ளி' என்ற பாடல் வரை உள்ள 06 பாடல்கள். - பாரதிதாசன் - தமிழ் (முதல்தொகுதி) 'தமிழின் இனிமை' என்ற பாடல் முதல் 'தமிழ்க்கனவு' என்ற பாடல் வரை உள்ள 10 பாடல்கள். - நாமக்கல் கவிஞர் - காந்தி மலர் : 'காந்தி அஞ்சலி' என்ற பாடல் முதல் 'இணையிலர் காந்தி' என்ற பாடல்வரை உள்ள 6 பாடல்கள். - கவிமணி - உடல் நலம் பேணல் 'உடலின் உறுதி உடையவரே' என்ற பாடல் முதல் 'அருமை உடலின் நலமெல்லாம்' என்ற பாடல் வரை உள்ள 8 பாடல்கள் - பட்டுக் கோட்டை கல்யாண சுந்தரம் - காடு வெளையட்டும் பொண்ணே - கண்ணதாசன் - மனிதரைப் பாட மாட்டேன் (கவிதைகள்) - ஜீவா - பெண் விடுதலை - அப்துல் ரகுமான் - வீட்டுக்கொரு மரம் (சூடு துறக்கும் பறவை) - சண்முகம் சரவணன் - இயல்பாய் நடந்தேறியது			

அலகு	இலக்கணம் முதல் எழுத்துக்கள் – சார்பெழுத்துக்கள் – மொழி முதல் எழுத்துக்கள் – மொழி இறுதி எழுத்துக்கள் – வல்லினம் மிகும் இடங்கள், மிகா இடங்கள்.
நியூ செஞ்சரி புக ஹவுஸ் பிரைவேட் லிமிடெட்.சென்னை - 98.	
பயன்கள்	➤ இலக்கியங்கள் வாயிலாக மாணவர்கள் பல்வகைப்பட்ட சமூகப் போக்குகளையும் மக்களின் பண்பு நலன்களையும் அறிந்து கொள்ள இயலும். ➤ பல வகையான இலக்கிய வாசிப்பின் வாயிலாக மாணவர்கள் தங்களின் படைப்பாற்றல் உள்ளிட்ட பணி நிலைகளுக்கு உயர்வதற்கான வாய்ப்பினைப் பெறுவர்.

PART-IV

Semester III				
CourseCode	N M E I	T/P	C	H/W
	IT Skills for Employment (Common to all UG programmes)	T	2	2
Objectives: ➤ Underst and the components of computer ➤ Understand Internet and its terminology ➤ Understand basiccyber safety and securitynorms				
Unit-1	Introduction to Computers–Types of Computer - Hardware–Mother board-Processor-RAM–ROM – SMPS – Graphics Card– Storage Devices – Hard Disc – SSD – DVD – CD – Pen drive- – Input/Output Devices – Keyboard – Mouse – Mic- Monitor-Camera-Types of Printer, Scanner, Projector. Basic of Computer network-Modem, Hub, Switch, Bridge, Routers-Wi-Fi – Bluetooth. Introduction to Free and Open Source Software(FOSS)–Need of Open Sources– Advantages of Open Sources–Copy rights-Software piracy.			
Unit-2	Basics of Operating System –Difference between various operating systems- User Interface of windows 10 OS - create , Copy ,Move and delete files and folders -Use of pen drive -CD- DVD Burning -Windows tools and features-Disk Space management-Disk Clean up- Managing Recycle Bin-Diskdefrag mentation-Add /removes of tware’s and programs.			
Unit-3	Basic operating of word processing - Creating, opening and closing documents- Use of shortcuts - Creating and Editing of Text - Formatting the text - Find and replace - Drawing Table -Page layout-Header / Footer - Setting page number- Creating simple applications like - resume - letter writing , job application ets- Printing document. Basics of Excel worksheet & its importance - creating simple worksheets- formulas- conditional formatting-sort-filter-chart. Introduction to Power Point-understand various views of presentation, animations, transitions, header, footer etc.			
Unit-4	Internet – ISP-Wordwideweb (www)-web browser-searchengine- creating& using an email account like gmail or any other- checking email and composing Email-Attaching documents- Usageof CC & BCC. Understanding IPaddress-Bandwidth -Storing and retrieving file through google drive –sharing files and folders-google docs - language translation -voice to text, text to voice application-Google Meet-Zoom-Social media merits and demerits. Online educational websites (Moocs-nptel - Swayam Central- spoken-tutorial.org)-Video tutorials-Step to use Government portals like aadhaar-Election commission website- Eservices (eservices.tn.gov.in) etc— Job Portals - Online Bill payment- Online fund transfer using UP Igateway.			
Unit-5	Internet Safety concerns: (Digital Footprints, Threats, Virus, Worm, Trojan Horse, Spam, Malware,Adware, Spyware, Snooping)-Security Measures :(Antivirus, Firewall)-CyberCrime:(Phishing,			
	Pharming, Spoofing, Hacking, Cracking, IdentityTheft) Cyber Safety(ITAct,CyberLaws).			

Reference Books:

VikasB.AgarwalJyotiP.Mirani, *ComputerFundamentals*-Publisher:NiraliPrakashan(1August2019) Lambert

Joan, Lambert Steve,*Windows 10 Step By Step*, Publisher :PHI Learning PvtLtd

MikeMcGrathandMichael, *Office2016InEasySteps*,PricePublisher:BPBPublications Adesh K.

Pandey, *Internet Fundamentals*

JamesKL,*TheInternet:AUUsersGuide*

JaagoTeens, *CyberSafetyForEveryone*-BPBPublications(October12,2019) Refer

website's and You tube tutorials .

Outcomes

- Skills to work efficiently with windows, word, excel, powerpoint presentation.
- Skills to use internet for various purpose with safe and secure.

SECONDYEAR
SEMESTER-IV
PART - I

SubjectCode 97241T	TAMIL-IV	LTPC 3003
------------------------------	-----------------	----------------------------

பொதுத்தமிழ் -4

தமிழும் அறிவியலும்

இரண்டாம் ஆண்டு – நான்காம் பருவம்

Course Code	Course Name	category	L	T	P	S	Credits	Ins.Hrs	CIA	Externa	Total
	பொதுத்தமிழ் -4 தமிழும் அறிவியலும்	Supportive	Y	-	-	-	3	6	25	75	100
Pre-Requisite		பன்னிரெண்டாம் வகுப்பில் தமிழை ஒரு பாடமாகப் பயின்றிருக்க வேண்டும்							SV 2023		
Learning Objectives											
- தாய்மொழி வழியாக அறிவியல் பற்றிய சிந்தனைகளை வளர்த்தல். - அறிவியல் கலைச் சொல்லாக்கம் பற்றிப் பயிற்றுவித்தல். - மாணவர்களுக்கு அறிவியல் பார்வையை ஏற்படுத்துதல். - தமிழில் அறிவியல் படைப்பிலக்கியங்களை உருவாக்கத் தூண்டுதல் - தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்											
Expected Course Outcomes											
On the Successful completion of the Course, Students will be able to											
இப்பாடத்தைக் கற்பதால் பின்வரும் பயன்களை மாணவர் அடைவர்											
CO 1	தாய்மொழி வழியாக அறிவியல் பற்றிச் சிந்திக்கும் திறன் பெற்றிருப்பர்.										K4
CO 2	அறிவியல் கலைச் சொல்லாக்கம் பற்றிய விதிகள், நுணுக்கங்களைத் தெரிந்திருப்பர்.										K5, K6
CO 3	அறிவியல் தமிழ் வளர்ச்சியில் மொழிபெயர்ப்பின் பங்கு குறித்து அறிந்திருப்பர்.										K3
CO 4	மொழியறிவோடு சிந்தனைத்திறனைப் பெறுவர்										K3
CO 5	மொழிப்பயிற்சிக்குத் தேவையான இலக்கணங்களைக் கற்பர்.										K2
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create											

அலகு-1	தமிழரின் அறிவியல் சிந்தனைகள்
	• அறிவியலும் மனித வாழ்வும் • ஐந்திணைப் பகுப்பும் சூழலியலும் • தொழில்நுட்ப மேலாண்மை • நீர் நில மேலாண்மை
அலகு-2	பழந்தமிழ் இலக்கியங்களில் அறிவியல் சிந்தனைகள்
	1. நிலவியல் 2. உலோகவியல் 3. வானவியல் 4. உயிரியல் 5. உளவியல்
அலகு-3	இடைக்கால இலக்கியங்களில் அறிவியல் சிந்தனைகள்
	1. காப்பியங்களில் அறிவியல் 2. சிற்றிலக்கியங்களில் அறிவியல் 3. உரைநூல்களில் அறிவியல்
அலகு-4	இணையத் தமிழ்
	1. இணையத் தமிழ் பயன்பாடு - அறிமுகம் 2. இணையத்தமிழ்க் கல்விக்கழகம் 3. இணைய நூலகம் 4. செயற்கை நுண்ணறிவியல் 5. தமிழ்நாட்டு அறிவியல் ஆளுமைகள்
அலகு-5	கடிதம் எழுதுதலும் கட்டுரை எழுதுதலும்
	• உறவு முறைக் கடிதப் பயிற்சி • அலுவலகக் கடிதப் பயிற்சி • விண்ணப்பப் படிவம் எழுதும் பயிற்சி • தன் விவரப் படிவம் எழுதும் பயிற்சி • கருத்து விளக்கக் கட்டுரைகள் எழுதும் பயிற்சி • பத்திரிகைகளுக்குக் கட்டுரை எழுதும் பயிற்சி
Text books	
	• அறிவியல் தமிழ் இன்றைய நிலை - இராதா செல்லப்பன், உலகத் தமிழாராய்ச்சி நிறுவனம், சென்னை. • மணவை முஸ்தபா, தமிழில் அறிவியல் படைப்பிலக்கியம், மணவை பப்ளிகேஷன், சென்னை. • கலைச்சொல்லாக்கம் - மங்கை, ரங்கராசபுரம், சென்னை . •
Reference Books	
	1.தமிழர் வேளாண்மை மரபுகள் - இல).செ.கந்தசாமி 2. சங்க இலக்கியத்தில் வேளாண் சமுதாயம், பெ.மாதையன், நியூ செஞ்சுரி புக் ஹவுஸ் 3. தமிழில் அறிவியல் இதழ்கள்சாமுவேல்- ரா.பார்வேந்தன் ஃபிஷ்கிறீன் பதிப்பகம், கோவை

4. அறிவியல் தமிழ் - பதிப்பாசிரியர் இராதா செல்லப்பன், பாரதிதாசன் பல்கலைக்கழகம், திருச்சிராப்பள்ளி.
5. இணையத் தமிழ் வரலாறு, மு.பொன்னவைக்கோ, பாரதிதாசன் பல்கலைக்கழகம்
6. இணையத் தமிழ், சந்திரிகா சுப்பிரமணியம் - சந்திரோதயம் பதிப்பகம்
7. இணையமும் இனிய தமிழும் - துரை. மணியரசன், இசை பதிப்பகம்
8. கணினித் தமிழ், இல. சுந்தரம் - விகடன் பிரசுரம்
9. மாண்புமிகு மண், பாமயன், வம்சி புக்ஸ்
10. தமிழ் இலக்கியத்தில் அறிவியல் சிந்தனைகள் வானதி பதிப்பகம், சென்னை
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]
Web Sources
• https://www.chennailibrary.com/ • https://www.sirukathaigal.com • https://www.tamilvirtualuniversity.org • https://www.noolulagam.com • https://www.katuraitamilblogspot.com

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	3	-	-	-	1	2	-	2	2	2
CO2	1	2	3	-	-	-	1	1	-	2	2	2
CO3	1	2	3	-	-	-	1	1	-	2	2	2
CO4	1	2	2	-	-	-	1	1	-	1	1	2
CO5	1	2	2	-	-	-	1	1	-	1	1	2
W.AV	1	2	2.6	-	-	-	1	1.2	-	1.6	1.6	2

S –Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	3	3
CO2	-	-	1	3	3
CO3	-	-	1	3	3
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2.6	2.6

S –Strong(3), M-Medium(2), L-Low(1)

PART – I

PAPER-I

SubjectCode 97241F	LANGUAGE- FOUNDATION COURSE: FRENCH – IV TRANSLATION, COMPREHENSION AND GRAMMAR –II	LTPC 3003
------------------------------	--	----------------------

COURSE OBJECTIVES:

1. Apply connecting words (cause, but, concession, condition, hypothèse, conséquence) to improve the spoken as well as written communication skills
2. Differentiate the various past tenses in “Les Temps du Passé” and their unique usage
3. Summarize the literary texts
4. Identify and apply the different grammatical tenses of “le temps du passé” in sample exercises to practice
5. Critically assess the literary texts through an analysis of its themes, narrative techniques, characters and its cultural significance

UNIT I

Décadent son grand-père Le

Petit chose

Le passé simple

UNIT II

L'égoïste puni

Estula

Temps du passé—Emplois (le passé composé, l'imparfait, le passé simple, le plus-que-parfait)

UNIT III

Une Saison dans la vie d'Emmanuel

L'expression de la cause

L'expression de la conséquence

UNIT IV

Une mauvaise nouvelle

L'expression du but

L'expression de la concession

UNIT V

La visite de la grand-mère

Horla

L'expression de la condition et de l'hypothèse

TEXT BOOKS AND REFERENCE BOOKS:

Reading List (Print and Online)

1. K. Madanagobalan & N.C. Mirakamal, *Le français par les textes*, Chennai, Samhita Publications – Goyal Publisher & Distributors Pvt Ltd, 2017

COURSE OUTCOMES:

On successful completion of this course, the student will be able to		Knowledge Level
CO1	Demonstrate the usage of connecting words in a given text	K2
CO2	Understand and differentiate the various types of past tenses in " <i>Les Temps du Passé</i> "	K2 and K4
CO3	Summarize the literary texts after a thorough analysis	K2 and K4
CO4	Identify and apply the different grammatical tenses of " <i>le temps du passé</i> "	K3
CO5	Analyze and critically assess the literary texts with regard to the themes and literary techniques	K4 and K5

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	3	-	-	-	1	2	-	2	2	2
CO2	1	2	3	-	-	-	1	1	-	2	2	2
CO3	1	2	3	-	-	-	1	1	-	2	2	2
CO4	1	2	2	-	-	-	1	1	-	1	1	2
CO5	1	2	2	-	-	-	1	1	-	1	1	2
W.AV	1	2	2.6	-	-	-	1	1.2	-	1.6	1.6	2

S –Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	3	3
CO2	-	-	1	3	3
CO3	-	-	1	3	3
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2.6	2.6

S –Strong(3), M-Medium(2), L-Low(1)

PART – I
PAPER-I
(Hindi Bhasha aur Computer)

Subject Code 97241H	LANGUAGE– GENERAL HINDI-IV	LTPC 3003
-------------------------------	---	----------------------------

COURSE OBJECTIVES:

1. Knowing about computer in Hindi
2. Understanding Technical Hindi
3. E-Learning and its aspects
4. Hindi application with the Technical tools

Unit I Computer aur Hindi 9 Hours

- Computer ka Parchay aur Vikas
- Computer mein Hindi ke Vividh Font

Unit II Pradyogiki aur Hindi 9 Hours

- Unicode
- Dewanagari Lipi
- Hindi ke Vibhinna Website–Ek Parichay

Unit III Computer ke madhyam se Hindi shiksha aur E-Learning 9 Hours

- Vibhinna E-Learning Sansadhan
- Sarkari aur gair sarkari sansthaon mein prayukt Hindi Bhasha

Unit IV Vividh Paksh 9 Hours

- Internet par Hindi patra-patrika ke
- Hindi SMS
- Hindi Tanka
- Hindi ke Vibhinna Key-board

Unit V Pratiyogik shiksha par adharit Computer sambandhit prashikshan Karya 9 Hours

- Hindi mein PowerPoint banana
- Hindi mein Google Document taiyarkarna
- Hindi mein Google for mail taiyarkarna
- Vibhinna pratiyogik shiksha ke bare mein kuch na pradan karna

Total: 45 Hours

TEXT BOOKS AND REFERENCE BOOKS:

1. Social Networking:NayeSamaykaSamvad–Ed.SanjayDwivedi
1. JansancharaurMaasCulture–Jagdeeshwar
2. Media:BhumandalikaraurSamaj–Ed.SanjayDwivedi
3. NayeJamanekiPatrakarita–SourabhShukla
4. PatrakaritaseMediatak–ManojKumar

COURSE OUTCOMES:

CO1	Providing knowledge of Letter writing inHindi.	K2
CO2	Knowing the difference between Devanagari Script and Unicode and its application	K4
CO3	Providing knowledge of usage of Hindiin different govt. offices	K5
CO4	Know about E-Patrikas	K3
CO5	Getting knowledge of Competitive exams through online	K4
K1-Remember;K2-Understand;K3-Apply;K4-Analyze;K5-Evaluate;K6- Create		

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	3	-	-	-	1	2	-	2	2	2
CO2	1	2	3	-	-	-	1	1	-	2	2	2
CO3	1	2	3	-	-	-	1	1	-	2	2	2
CO4	1	2	2	-	-	-	1	1	-	1	1	2
CO5	1	2	2	-	-	-	1	1	-	1	1	2
W.AV	1	2	2.6	-	-	-	1	1.2	-	1.6	1.6	2

S –Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	3	3
CO2	-	-	1	3	3
CO3	-	-	1	3	3
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2.6	2.6

S –Strong(3), M-Medium(2), L-Low(1)

Related Online Contents (MOOCs, SWAYAM, NPTEL, YouTube, Websites, etc.)

1. <https://techshindi.com/%E0%A4%AB%E0%A4%BC%E0%A5%89%E0%A4%A8%E0%A5%8D%E0%A4%9F-%E0%A4%95%E0%A5%8D%E0%A4%AF%E0%A4%BE-%E0%A4%B9%E0%A5%88%E0%A4%82-%E0%A4%94%E0%A4%B0-%E0%A4%AF%E0%A5%87-%E0%A4%95%E0%A4%BF%E0%A4%A4%E0%A4%A8/>
2. <https://www.techyukti.com/2020/12/computer-font-kya-hai.html>
3. <https://chti.rajbhasha.gov.in/pdf/Chap4-HindiShabadSansadhan2ndEditionPart2.pdf>

PART – I

PAPER-I

Subject Code	LANGUAGE– OTHER LANGUAGES-IV	LTPC 3003
---------------------	---	----------------------

PART-II

Subject Code: 97242	PAPER II–GENERAL ENGLISH - IV	LTPC 3003
-------------------------------	--------------------------------------	----------------------------

COURSE OBJECTIVES:

- To help learner imbibe goal-setting attitude.
- To enable them to understand the value of integrity.
- To help them deal with emotions.
- To teach the learners to frame sentences using tenses.
- To enhance reporting skills.

UNIT I GOAL SETTING(UNICEF) 20 Hours

Life Story

From Chinese Cinderella–Adeline Yen Mah

Why I Write - George Orwell

Short Essay

On Personal Mastery–Robin Sharma

the Love of Life – William Hazlitt

UNIT II INTEGRITY 20 Hours

Short Story

The Taxi Driver – K.S. Duggal

Kabuliwala -Rabindranath Tagore

A Retrieved Reformation–O Henry

Extract from a play

The Quality of Mercy(Trial Scene from the Merchant of Venice-Shakespeare)

UNIT III COPING WITH EMOTIONS 20 Hours

Poem

Pride – Dahlia Ravikovitch

Phenomenal Woman–Maya Angelou

Reader's Theatre

The Giant's Wife A Tall Tale of Ireland–William Carleton

The Princess and the God : A Tale of Ancient India

UNIT IV LANGUAGE COMPETENCY SENTENCES 15 Hours

Simple Sentences

Compound Sentences

Complex Sentences

Direct and Indirect Speech

UNIT V REPORT WRITING 15 Hours

Narrative Report

Newspaper Report

Drafting Speeches

Welcome Address

Vote of Thanks

COURSE OUTCOMES:

On completion of this course, students will		Knowledge Level
CO1	Determine their goals	L4
CO2	Identify the value of integrity.	L2
CO3	Deal with emotions.	L3
CO4	Frame grammatically correct sentences	L4
CO5	Write cohesive reports.	L3

TEXT BOOKS:

1. Oxford Practice Grammar, John Eastwood, Oxford University Press
2. Cambridge Grammar of English, Ronald Carter and Michael McCarthy
3. George Orwell Essays, Penguin Classics

WEB LINKS:

1. <http://www.gradesaver.com/George-orwell-essays/study/summary>
2. O' Henry. A Retrieved Reformation.
https://americanenglish.state.gov/files/ae/resource_files/a-retrieved-reformation.pdf

3. Maya Angelou. Phenomenal Woman.
<https://www.poetryfoundation.org/poems/48985/phenomenal-woman>
4. The Quality of Mercy,
[https://poemanalysis.comhttps://www.oxfordscholarlyeditions.com/display/10.1093/actrade/9780199235742.book.1/actrade-9780199235742-div1-106- William Hazlitt](https://poemanalysis.comhttps://www.oxfordscholarlyeditions.com/display/10.1093/actrade/9780199235742.book.1/actrade-9780199235742-div1-106-William%20Hazlitt)

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	3	-	-	-	1	2	-	2	2	2
CO2	1	2	3	-	-	-	1	1	-	2	2	2
CO3	1	2	3	-	-	-	1	1	-	2	2	2
CO4	1	2	2	-	-	-	1	1	-	1	1	2
CO5	1	2	2	-	-	-	1	1	-	1	1	2
W.AV	1	2	2.6	-	-	-	1	1.2	-	1.6	1.6	2

S –Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	1	3	3
CO2	-	-	1	3	3
CO3	-	-	1	3	3
CO4	-	-	1	2	2
CO5	-	-	1	2	2
W.AV	-	-	1	2.6	2.6

S–Strong(3), M-Medium(2), L-Low(1)

PART-III
CORE COURSE-THEORY-V

Subject Code: 97243	INDUSTRIAL DRAWING PRACTICES	LTPC 4004
-------------------------------	-------------------------------------	--------------------------------

COURSE OBJECTIVES:

- To understand the concepts of engineering drawing
- To communicate the concepts, idea and basic design through graphical representation as per standards
- To understand the 3D drawings of any object

UNIT- I INTRODUCTION

12 Hours

Relevance of technical drawing in engineering field. Types of lines, Dimensioning, BIS code of practice for technical drawing. Orthographic projection of Points and Lines: Projection of points in different quadrants, Projection of straightlines inclined to one plane and inclined to both planes. Trace of line. Inclination of lines with reference planes. True length of line inclined to both the reference planes.

UNIT- II OR THOGRAPHIC PROJECTION OF SOLIDS

12 Hours

Projection of Simple solids such as Triangular, Rectangular, Square, Pentagonal and Hexagonal Prisms, Pyramids, Cone and Cylinder. Projection of solids in simple position including profile view. Projection of solids with axis inclined to one of the reference planes and with axis inclined to both reference planes.

UNIT- III SECTIONS OF SOLIDS

12 Hours

Sections of Prisms, Pyramids, Cone, Cylinder with axis in vertical position and cut by different section planes. True shape of the sections. Also locating the section plane when the true shape of the section is given.

UNIT- IV ISOMETRIC PROJECTION

12 Hours

Isometric View and Projections of Prisms, Pyramids, Cone, Cylinder, Frustum of Pyramid, Frustum of Cone, Sphere, Hemisphere and their combinations.

UNIT- V PERSPECTIVE PROJECTION**12 Hours**

Perspective projection of Prisms and Pyramids with axis perpendicular to the ground plane, axis perpendicular to picture plane. Conversion of Pictorial Views: Conversion of pictorial views into orthographic views.

TOTAL:60Hours**COURSE OUTCOMES:**

On completion of this course, students will		Knowledge Level
CO1	Draw the projection of points and lines located indifferent quadrants	L3
CO2	Prepare multiview or thographic projections of objects by visualizing them in different positions	L3
CO3	Prepare pictorial drawings using the principles of isometric and perspective projections to visualize objects in three dimensions	L3
CO4	Convert 3D views to orthographic views	L3
CO5	Obtain multiview projections and solid models of objects using CAD tools	L3

TEXT BOOKS:

1. Anilkumar, K.N., "Engineering Graphics", Adhyuth Narayan Publishers, 10th Edition, 2016
2. Varghese, P.I., "Engineering Graphics", VIP Publishers, 5th Edition, 2001

REFERENCE BOOKS:

1. Agrawal, B. And Agrawal, C.M., "Engineering Drawing", Tata McGraw Hill Publishers, 3rd Edition, 2019
2. Benjamin, J., "Engineering Graphics", Pentex Publishers-3rd Edition, 2017
3. Bhatt, N.D., "Engineering Drawing", Charotar Publishing House Pvt. Ltd., 3rd Edition, 2019

WEBLINKS:

1. <https://www.smartdraw.com>
2. <https://www.autodesk.in>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	2	1	1	1	2	2	2	2	2	2
CO2	1	2	2	1	1	2	1	1	3	2	2	2
CO3	1	2	2	1	1	2	3	2	3	2	2	2
CO4	1	2	2	1	1	2	2	3	3	2	2	2
CO5	1	1	2	2	1	1	1	3	3	2	2	2
W.AV	1	1.8	2	1.2	1	1.6	1.8	2.2	2.8	2	2	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	1	1
CO2	2	2	2	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	2.6	2	2.6	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART– III
CORE COURSE–PRACTICAL– IV

Subject Code: 97244	AIRCRAFT SAFETY AND SUPPORT SYSTEMS LAB	LTPC 0084
-------------------------------	--	----------------------

COURSE OBJECTIVES:

- To train the students “On Hand” experience in maintenance of various airframe systems in an aircraft and rectification of common snags.

LIST OF EQUIPMENT

S.No.	Items	Quantity	Experiment No.
1.	Service able aircraft with all above systems	1	1,2,3,4,5,6,7,8,9,10
2.	Hydraulic Jacks(Screw Jack)	5	1,2,4,8
3.	Trestle just able	5	1,2,4,8
4.	Spirit Level	2	2,3
5.	Levelling Boards	2	2,3,4
6.	Plumb Bob	1	4

LIST OF EXPERIMENTS

1. Aircraft “Jacking Up” procedure
2. Aircraft “Levelling” procedure
3. Control System “Rigging check” procedure
4. Aircraft “Symmetry Check” procedure
5. “Flow test” to assess of filter element clogging
6. “Pressure Test” to assess hydraulic External/Internal Leakage
7. “Functional Test” to adjust operating pressure
8. “Pressure Test” procedure on fuel system components
9. “Brake Torque Load Test” on wheel brake units
10. Maintenance and rectification of snags in hydraulic and fuel systems.

TOTAL: 60 Hours

COURSE OUTCOMES:

On completion of this course, students will		Knowledge Level
CO1	Understand to procedure involved in maintenance of various airframe systems	L2
CO2	Demonstrate the assembly and rigging procedure and operation of flight controls	L2
CO3	Demonstrate the ability to create, assemble, test and inspect aircraft pneumatic and hydraulic systems	L2
CO4	Test and maintain the fuel systems	L3
CO5	Understand and practice the certification and trouble shooting the snags in hydraulic and fuel systems	L2

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	3	2	3	2	1	2	1	1	1
CO2	1	1	2	3	2	3	2	2	2	1	1	1
CO3	1	1	2	3	2	3	2	1	2	1	1	1
CO4	1	1	2	3	2	3	2	1	2	1	1	1
CO5	1	1	2	3	2	3	2	1	2	1	1	1
W.AV	1	1	2	3	2	3	2	1	2	1	1	1

S-Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	1	1
CO2	2	3	2	1	1
CO3	2	3	2	1	1
CO4	2	3	2	1	1
CO5	2	3	2	1	1
W.AV	2	3	2	1	1

S-Strong(3), M-Medium(2), L-Low(1)

PART-III
CORE COURSE-THEORY-VI

Subject Code: 97245	AVIATION COMMUNICATION AND RADIOAIDS	LTPC 3003
-------------------------------	---	----------------------------

COURSE OBJECTIVES:

- To gain the knowledge about Electromagnetic Waves
- To learn the Communication Procedures in Aviation Industry
- To understand the principle and concepts of Radio Aids and Instruments on Radio principle utilized in the aviation industry

UNIT I PROPERTIES OF ELECTROMAGNETIC WAVES 9 Hours

Radio Frequency – General Properties - Amplitude, Wavelength and Frequency Spectrum, Types of Radio Transmission, Relationship, Phase and Phase Difference –Polarization – Polar Diagram –Modulation – AM, FM, PM, CW-Keying, Side Bands. Types of Radio Transmission. Ionosphere & its effect on propagation of Radio waves.

UNIT II GENERAL PRINCIPLES OF RADIO AIDS 9 Hours

Uses and Limitations of Radio Aids – ADF, VHF, OMEGA, GPS, ILS, Radio Altimeter. Different Band of Radio Waves – Surface Waves, Sky Waves – Attenuation, Refraction, Density, Dead Space – Fading – Multi Hop Refraction – Critical Angle.

UNIT III PRINCIPLES AND OPERATION OF RADAR 9 Hours

Uses and Limitations of Weather Radar, ASR, PAR, Types of Radio Communication–LF, HF, VHF, UHF, Factor affecting Range of Communication, VHF transceiver, HF transceiver, SELCAL, UNICOM, Airborne Radio Relay – Aeronautical Fixed Telecommunication Network, ACARS, Airborne Intercoms, SATCOM, Service, Service Telephone, Inter phone. General Principles, uses and errors of Pressure Altimeter, VSI, ASI, MachMeter, QFE, QNH, QNE.

UNIT IV RADIO COMMUNICATION PROCEDURE 9 Hours

ATC communication procedure- take off procedure, En-route procedure, Communication failure, Emergencies, Distress Signal, Distress Procedure, Urgency Procedure, Aircraft lost, Medical Transports, Radar Assistance, Case Study.

UNITV MODER NAVIATION WITH RADIO AIDS**9 Hours**

Ground Direction Finding, Classification of Bearings, Factors affecting accuracy, VOR, NDB/ADF, ILS – Localizer, Glide Slope, Marker Beacons, MLS, RMI, DME, RNAV, Radio Altimeters, INS, FMS, Transponder, TCAS.

TOTAL: 45Hours**COURSE OUTCOMES:**

On completion of this course, students will		Knowledge Level
CO1	Understand the properties of Electromagnetic waves	L2
CO2	Underst and the importance and uses of Radio Aidsin Aviation Communication Systems	L2
CO3	Knowledge on Aviation Communication Procedures and its protocol	L2
CO4	Knowledge onAviation Emergencies and its procedures	L2
CO5	Understand the concepts and functions of radio aids and itsinstru-ments utilized in the aviation industry	L2

TEXT BOOKS:

1. Ground Studiesfor Pilots – RadioAids,R.B. Underdown,David Cockburn,Wiley India Pvt Ltd, 2008.
2. Aviation Communication: Between Theory & Practice,Karin Maksymski, Silvia Hansen-Schirra, Peter Lang GMBH publisher, 2013

REFERENCE BOOKS:

1. RadioaidstoNavigation,UniversityofMichiganLibrary,1939
2. Aviation English: A lingua franca for pilots and air traffic controllers, Dominique Estival, Candace Farris, Brett Molesworth, Routeledge Publisher- 2016
3. ASA Aviation Radio Communications Made Easy, Hugh C. Ward, Aviation Suppliers and Academics, 2005.
4. FromtheGroundUP, SandyAFMacDonald's, SecondEdition, 1984,TheEnglish Book store, New Delhi.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	2	3	3	3	1	2	1	1	2
CO2	1	1	1	2	3	3	3	1	2	1	1	2
CO3	1	1	1	2	3	3	3	1	2	1	1	2
CO4	1	1	1	2	3	3	3	1	2	1	1	2
CO5	1	1	1	2	3	3	3	1	2	1	1	2
W.AV	1	1	1	2	3	3	3	1	2	1	1	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	1
CO2	3	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	3	3	3	1	1
W.AV	3	3	3	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART– III
ALLIED COURSE–THEORY IIB

Subject Code: 97246	PHYSICAL AND HEALTH EDUCATION	LTPC 3003
--------------------------------------	--------------------------------------	----------------------------

COURSE OBJECTIVES:

- To understand and appreciate the value of being physically active
- To develop motivation for making healthy choices
- To create awareness about diseases
- To learn the types and need of Nutrition
- To learn to do First Aid support if needed

UNIT– I INTRODUCTION TO HEALTH EDUCATION 9 Hours

Meaning - Definition of Health Education –Aim, Scope of Health Education- role of International Organizations (WHO) National, State Level Health Organizations.

UNIT– II PHYSICAL HEALTH & FITNESS 9 Hours

Physical Health- Physical Fitness – Health related fitness – Holistic and positive health (Physical, Mental, Social and Spiritual – components of Health related fitness and performance related fitness – mental health. Emotional intelligence.-types of emotions- weight control; Exercise is the key to successful weight loss - management for weight loss.

UNIT– III DISEASES AND AWARENESS 9 Hours

Communicable Diseases - Causes, modes of spread – Prevention of Tuberculosis, Malaria, Dengue, small pox, Chicken pox, and AIDS – cancers caused by tobacco.

UNIT– IV BASIC NUTRITION 9 Hours

Meaning, Need, Nature and Importance of Nutrition Basics of Nutrition, Carbohydrates, Fats, Proteins, Vitamins, Minerals, Water, Balanced diet, Nutritive value of Food stuffs. Personal hygiene - Principles of diet – Balanced diet.

UNIT– V FIRST AID AND BASIC LIFE SUPPORT 9 Hours

First aid basics: first aid –importance of first aid -CPR- Principles & practice of first aid- care for choking and other breathing emergencies- : Types of burns, danger of burns, first aid in dry burns and scalds, electrical burns, chemical burns, sunburn, heatstroke.

TOTAL:45Hours

TEXTBOOKS:

1. Carroll, Simon, and Marcia Hills, 'Health promotion, health education, and the public's health', in Roger Detels and others (eds), Oxford Text book of Global Public Health, 6 edition, Oxford Text book (Oxford, 2015; online edn, Oxford Academic, 1 Feb. 2015)
2. Gururaj, G., Varghese, M., Benegal, V., Rao, G.N., Pathak, K. & Singh, L.K. (2016). National Mental Health Survey of India, 2015–16. Bengaluru: National Institute of Mental Health and Neuro Sciences.

REFERENCE BOOKS:

1. Mahesh Chandra Guru B P, Sapna M S, and Madhura Veena M L, (2010) “Health education in India”, Department of Communication and Journalism, University of Mysore.
2. Suresh Kumar Malik (2014) Health And Physical Education, text book publisher: abhishek prakashan, delhi.
3. Rajagopal I, R. I., Rajagopal I Dr. (2014). Physical and Health Education: Text Book for Education and Physical Education Students. (n.p.): CreateSpace Independent Publishing Platform.
4. Cottrell, R. R., Seabert, D., Spear, C., McKenzie, J. F. (2021). Principles of Health Education and Promotion. UNITED States: Jones & Bartlett Learning.
5. Fitness, Wellness and Nutrition. (2020). (n.p.): Friends Publications India.
6. Callcott, D., Miller, J., Wilson-Gahan, S. (2012). Health and Physical Education: Preparing Educators for the Future. UNITED Kingdom: Cambridge University Press.
7. Connolly, M. (2018). Skills-Based Health Education. UNITED States: Jones & Bartlett Learning.

WEBLINKS:

1. Health Disparities, Centre's for Disease Control and Prevention, <http://www.cdc.gov/nchhstp/healthdisparities/>
2. Health Facilities, National Library of Medicine, NIH,
 - a. <http://www.nlm.nih.gov/medlineplus/healthfacilities.html>
3. American Library Association. (2016). Rainbow Books. Retrieved from <http://glbtrt.ala.org/rainbowbooks/>
4. Centers for Disease Control and Prevention. (2015). Components of the Whole School, Whole Community, Whole Child (WSCC). Retrieved from <http://www.cdc.gov/healthyschools/wscs/components.htm>

COURSE OUTCOMES

On completion of this course, students will		KnowledgeLevel
CO1	Acquire comprehensive knowledge and sound understanding of fundamentals of physical and health education	L2
CO2	Understand Evaluation in physical Health and mental health	L2
CO3	Familiarize with knowledge of components of health related fitness	L2
CO4	Gain the knowledge about balanced diet	L2
CO5	Equip the knowledge of first aid and CPR	L2

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	2	2	-	-	-	-	-	-	2	2	2
CO2	2	2	2	-	-	-	-	-	-	2	2	2
CO3	2	2	2	-	-	-	-	-	-	2	2	2
CO4	2	2	2	-	-	-	-	-	-	2	2	2
CO5	2	2	2	-	-	-	-	-	-	2	2	2
W.AV	2	2	2							2	2	2

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	2	1
CO2	1	1	1	2	1
CO3	1	1	1	2	1
CO4	1	1	1	2	1
CO5	1	1	1	2	1
W.AV	1	1	1	2	1

S–Strong(3), M-Medium(2), L-Low(1)

PART– III
ALLIED COURSE–PRACTICAL–IIB

Subject Code 97247	PHYSICAL AND HEALTH EDUCATION LAB	LTPC 0042
-------------------------------------	--	----------------------------

COURSE OBJECTIVES:

- To train the students to be aware of the practices to be done to safeguard themselves and others from the negative effects related to health and also practices to maintain their health.

LIST OF EQUIPMENT

1. Manual Blood Pressure Equipment-Stetho scopes,stand based and portable blood pressure cuffs for the assessment of resting and exercising blood pressure.
2. Skinfold Callipers - Measurement of skin and subcutaneous fatfor body density and body fat assessment.
3. Stadio meter–heightmeasurement.
4. Weighing Scale–for body weight assessment
5. CPR manikin–for practical cardiac arrest
6. Stretchers - Our Spine Boards and Emergency Rescue Stretchers are perfect for immobilization
7. Face mask-to safely deliver rescuebreaths during acardiacarrestorrespiratory arrest.

LIST OF EXPERIMENTS

1. Study and Practice on Health Related Assessment-BMICalculation
2. Study & Practiceon Components of Health Related Fitness
3. Study and Practiceon Dietplan forWeightloss
4. Study on Communicable Disease
5. Practice on Prevention of Tuberculosis,Malaria, Dengu, smallpox, Chickenpox.
6. Study on Cancers Caused by Tobacco.
7. Study and Practice on Balanced Dietand Food Pyramid.
8. Study on Personal hygiene.
9. Study and Practiceon CPR
10. Practice of First AidonVarious Conditions and Emergencies
11. Practice toCare for Choking and Other Breathing Emergencies

TOTAL:30Hours

COURSE OUTCOMES:

On completion of this course, students will be able		Knowledge Level
CO1	To know the procedure in calculating BMI through machine and manual	L2
CO2	To be able to prepare diet chart as per their requirement on their own	L3
CO3	To be able to do first aid for any victim in the public & working places	L3
CO4	To be able to do CPR for any victim if necessary	L3
CO5	To understand and practice the procedures to be followed to maintain health and hygiene in daily routine	L3

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	2	2	-	-	-	-	-	-	2	2	2
CO2	2	2	2	-	-	-	-	-	-	2	2	2
CO3	2	2	2	-	-	-	-	-	-	2	2	2
CO4	2	2	2	-	-	-	-	-	-	2	2	2
CO5	2	2	2	-	-	-	-	-	-	2	2	2
W.AV	2	2	2	-	-	-	-	-	-	2	2	2

S-Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	2	1
CO2	1	1	1	2	1
CO3	1	1	1	2	1
CO4	1	1	1	2	1
CO5	1	1	1	2	1
W.AV	1	1	1	2	1

S-Strong(3), M-Medium(2), L-Low(1)

PART-IV
NME –II

ADIPADAI TAMIL

Subject Code: 97248A		
--------------------------------	--	--

இரண்டாம் ஆண்டு - நான்காம் பருவம்				
பாடக்குறியீட்டு எண்:	பள்ளியில் தமிழ் பயிலாத மாணாக்கர்களுக்கான அடிப்படைத் தமிழ்ப் பாடங்கள்	T/P	C	H/W
		P	2	2
நோக்கம்	➤ மாணவர்கள் தமிழின் சிறப்புகள் அறிதல். ➤ பிழையின்றித் தமிழ் பேசுவதற்குப் பயிற்சி அளித்தல்			
அலகு	தமிழ் நீதி இலக்கியக் கருத்துக்களை அறிதல் திருக்குறள் (அறன் வலியுறுத்தல்) – 10 குறட்பாக்கள் ஆத்தி சூடி – முதல் 20 பாடல்கள் மூதுரை – முதல் 15 பாடல்கள்			
அலகு	தமிழின் சிறப்புகளை அறிதல் – (வாய்மொழித் தேர்வு) தமிழ்மொழியின் தொன்மை – சிறப்பு – தமிழ் இலக்கியங்கள் – சங்கப்புலவர்கள் தமிழ்க்காப்பியங்கள் – புதுக்கவிஞர்கள் – குறித்த செய்திகளை அறிதல்			
அலகு	சொற்களின் பயன்பாடு. அருஞ்சொற்பொருள் அறிதல் – பிரித்து எழுதுதல் – சேர்த்து எழுதுதல் – எதிர்ச்சொல் அறிதல், ஓரெழுத்து ஒரு மொழி அறிதல்			
அலகு	பிழையின்றித் தமிழ் பேசுவதற்குப் பயிற்சி அளித்தல் (வாய்மொழித் தேர்வு) 1. பழமொழிகள், உவமைகள், மரபுத்தொடர்கள் ஆகியவை குறித்து அறிந்து பேசும் திறன்களை வளர்த்தல். 2. வரவேற்புரை, நன்றியுரை ஆற்றுவதற்குப் பயிற்சி அளித்தல் 3. கதைசொல்லும் திறன்களை வளர்த்தல்.(நீதிக் கதைகள் கூறல்)			
அலகு	மொழிபெயர்ப்பு ஆங்கிலத்திலிருந்து தமிழில் மொழிபெயர்த்தல் 1. ஆங்கிலச் சொற்களை மொழி பெயர்த்தல் 2. ஆங்கிலத் தொடர்களைத் தமிழில் மொழிபெயர்த்தல்			
பயன்கள்	➤ அச்சமின்றி தெளிவாக தங்களுக்கு கருத்துக்களை மாணவர்கள் எடுத்துரைக்க வழி அறிதல். ➤ சொற்களின் பயன்பாடு, தயக்கமின்றி பேசக் கற்றுக்கொள்வதால் மாணவர்கள் தன்னம்பிக்கை பெறுதல்			

PART-IV
NME –II

ADVANCE TAMIL

SubjectCode:
97248B

இரண்டாம் ஆண்டு - நான்காம் பருவம்				
பாடக்குறியீட்டு எண்:	பள்ளியில் மேல்நிலைப் படிப்பு வரை தமிழ் பயின்று கல்லூரியில் பகுதி 1-இல் தமிழ் பயிலாத மாணாக்கர்களுக்கான சிறப்புத் தமிழ்ப்பாடங்கள்	T/P	C	H/W
	பழந்தமிழ் இலக்கியங்களும் இலக்கியவரலாறும்	T	2	2
நோக்கம் :	➤ மாணவர்கள் தமிழ் மொழியினைக் கற்பதால் அரிய இலக்கியங்களை அறியச் செய்தல் ➤ வாழ்வியல் அறங்களுக்கு வழிகாட்டுதலாக இருத்தல்			
அலகு -1	சங்க இலக்கியம் 1. நற்றிணை – 'நயனும், நண்பும், நாணா' எனத் தொடங்கும் பாடல் (குறிஞ்சி - 392) 2. குறுந்தொகை – 'நெய்தல் இருங் கழி' எனத் தொடங்கும் நெய்தற் பத்து பாடல். (நெய்தல்) 3. ஐங்குறுநூறு – 'வானம் பாடி வறம்' எனத் தொடங்கும் கிழவன் பருவம் பாராட்டுப் பத்து பாடல். (முல்லை) 4. அகநானூறு – 'கடல்கண் டன்ன' எனத் தொடங்கும் பாடல் (மருதம் - 176) 5. புறநானூறு – 'உண்டால் அம்ம இவ்வுலகம்' எனத் தொடங்கும் பாடல் 182. பிறர்க்கென முயலுநர்! பாடியவர்: கடலுள் மாய்ந்த இளம்பெருவழுதி.			
அலகு -2	காப்பிய இலக்கியம் சிலப்பதிகாரம் – அடைக்கலக் காதை (மதுரைக் காண்டம்)			

அலகு-3	நீதி இலக்கியம் 1. திருக்குறள் - அறிவுடைமை - 10 குறட்பாக்கள் 2. நாலடியார் - மேன்மக்கள் (முதல் பாடல்) 3. நான்மணிக்கடிகை - 'அஞ்சாமை அஞ்சுக' எனத் தொடங்கும் பாடல் எண்: 27 4. இனியவை நாற்பது - 'எவது மாறாஇளக்கிளைமை' எனத் தொடங்கும் பாடல் எண்: 3 5. இன்னா நாற்பது - 'ஆற்றல் இலாதான் பிடித்த படை' எனத் தொடங்கும் பாடல் எண்: 07
அலகு -4	இலக்கியவரலாறு 1. சங்க காலம் - எட்டுத்தொகை, பத்துப்பாட்டு. 2. காப்பிய இலக்கிய வரலாறு - ஐம்பெருங் காப்பியங்கள் - ஐஞ்சிறு காப்பியங்கள் 3. சிற்றிலக்கியங்கள் தோற்றமும் வளர்ச்சியும் 4. புதுக்கவிதை தோற்றமும் வளர்ச்சியும்.
அலகு -5	இலக்கணம் 1. சொல்வகை - பெயர், வினை, இடை, உரி 2. அணி இலக்கணம் - உவமை அணி, உருவக அணி தற்குறிப்பேற்ற அணி, உயர்வு நவிற்சி அணி. 3. புதுக்கவிதை இலக்கணம்- படிமம் குறியீடு.
பயன்கள்:	➤ அரசுப் பணி பெறுவதற்கான வாய்ப்பினை நல்குதல். ➤ நடைமுறைத் தமிழ் இலக்கியத்தை அறைய உதவுதல்

PART-IV

Semester-IV					
Course code:		NME	T/P	C	H/W
		Small Business Management	T	2	2
Objectives	➤ To understand the policy initiatives and infrastructural support for establishing a small scale enterprises ➤ To analyze the opportunities for starting as small enterprise.				
Unit-I	Small Scale enterprises–An Introduction and over view–Definition–Scope and importance – relative advantages of small scale enterprises vis - a - vis –Large and medium scale industries – Efforts to development of SSE- Meaning and concept of entrepreneurship, the history of entrepreneurship development, role of entrepreneurship in economic development, agencies in entrepreneurship management and future of entrepreneurship.				
Unit-II	Policy and institution a infrastructure for small enterprises–Development agencies for small enterprise–small enterprises growth and environmental factors influence–funding agencies and their role in Developing SSE.-Meaning of entrepreneur, the skills required to be an entrepreneur, the entrepreneurial decision process, and role models, mentors and support system.				
Unit-III	Establishing the small scale enterprises–opportunities scanning–Choice of enterprise–Market assessment for SSE–Choice of technology and selection of site–Financing then ew/small enterprise– Preparation of business plan–Ownership structure and organizational frame work- Business ideas, methods of generating ideas, and opportunity recognition				
Unit-IV	Operating the small -scale enterprise–Financial management issues in SSE– operation management issues in SSE– Marketing management issues in SSE- Importance of new venture financing, types of ownership securities, venture capital, types of debt securities, Determining ideal debt – equity mix, and financial institutions and banks				
Unit-V	Performance appraisal and growth strategies – Management performance assessment and control–Growth and stabilization strategies for small enterprises–Managing family enterprises–Related Cases-Exit strategies for entrepreneurs, bankruptcy, and Succession and harvesting strategy.				
Unit-VI	Dynamic Component for Continuous Internal Assessment only: Contemporary Developments Related to the Course during the Semester concerned.				
REFERENCES: Mathur S.P.(1979) <i>Economics of small-scale industries</i> . Siropolis.(1986) <i>Entrepreneurship and small Business Management</i> Vasant Desai.(1979) <i>Organization and management of small scale industries</i> .					
Outcomes	➤ The student should be able find out a suitable idea for starting a small enterprise ➤ The students should be able to visualize the importance of small scale Enterprises in economic development.				

SEMESTER V PART- III
CORE COURSE –THEORY–VII

Subject Code: 97251	AIRNAVIGATION (GENERAL)	LTPC 4004
--------------------------------------	--------------------------------	----------------------------

COURSE OBJECTIVES:

- To understand the basic Navigation procedures
- To learn the principle of working of Navigation
- To know the systems used for Navigation
- To learn the time calculation for different time zones

UNITI BASICS OF NAVIGATION

12 Hours

Navigation-Definitions, The Solar System – The Earth – Air Space – Time Conversions –
Directions – Latitude and Longitude– Distance – Magnetism and Compasses – 1 in 60 Rule-
Navigation using 1 in 60 Rule-Other applications using 1 in 60 Rule.TCAS–ACAS–Charts – Dead
Reckoning Navigation – Use of Navigational Computer – In Flight Navigation – GPS - GNSS –
GLONASS – ELT – Transponder – Loran – LORAN C

UNITIHAIRN AVIGATION PRINCIPLES

12 Hours

Course – Heading – Track – Drift Angle – Wind Correction angle – Air Speed – Ground Speed – Pilotage – True Course – Magnetic Heading – Deviation – Variation

UNIT III INTRODUCTION TO NAVIGATION SYSTEMS

12 Hours

Radio Navigation-DME, ADF, VOR, DECCA-LORAN-C-OMEGA- Dead Reckoning Navigation, Inertial Navigation Systems and Inertial Sensors, Satellite Navigation Systems-GPS, GNSS, GLONASS-In-Flight Navigation- Transponder, use of Navigational Computer-Conventional Method & FMS

UNITIV CHARTSUSEDFORNAVIGATION

12 Hours

Topographical Maps and Map Reading, Convergency and Great Circle Track-Conversion Angle, Scale, General Chart Properties, Examples

UNIT VCONVERSION OF TIME

12 Hours

Time Basics, Solar Systems—Planetary Objects—Kepler’s Law, The Seasons, Measurement of

Days and Years–Local MeanTime–Co-Ordinated Universal Time–Zone Time–Standard Time–
Twilight.

TOTAL:60Hours

COURSE OUTCOMES:

On completion of this course, students will be able		Knowledge Level
CO1	Understand the Basics of Air Navigation	L2
CO2	Knowledge on air navigation Principles	L2
CO3	Knowledge on air navigation systems	L2
CO4	Detail the usage of charts of Airnavigation	L2
CO5	To understand Universal Time zone & Conversion of Time	L2

TEXT BOOKS:

1. Air Navigation(AirPilot'sManual),TrevorThom, AirPilot Publisher Ltd, 2003.
2. Air Navigation, R.K. Bali,Sterling Book House, 2017.

REFERENCE BOOKS:

1. AirNavigation(Cpl/Atpl), Bali, 2002.
2. Aviation Logistics:The Dynamic Partnership of Air Freight and Supply Chain, Michael Sales, Kogan page, 2016.

WEBLINKS:

1. www.airnavigation.aero.com
2. www.dgca.gov.in

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	2	3	3	3	1	2	1	1	2
CO2	1	1	1	2	3	3	3	1	2	1	1	2
CO3	1	1	1	2	3	3	3	1	2	1	1	2
CO4	1	1	1	2	3	3	3	1	2	1	1	2
CO5	1	1	1	2	3	3	3	1	2	1	1	2
W.AV	1	1	1	2	3	3	3	1	2	1	1	3

S–Strong(3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	1
CO2	3	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	3	3	3	1	1
W.AV	3	3	3	1	1

S–Strong(3), M–Medium(2), L–Low(1)

PART- III

CORE COURSE –THEORY–VIII

SubjectCode: 97252	AIRCRAFT SYSTEMS	LTPC 4004
-------------------------------------	-------------------------	----------------------------

COURSE OBJECTIVES:

- To understand the working of different systems
- To learn the components & working of Landing Gear System
- To learn the components & working of Engine System
- To learn the components & working of Air Conditioning System

UNITI AIRCRAFTS SYSTEMS 12 Hours

Hydraulic systems – Study of typical workable systems – components – hydraulic systems controllers – modes of operation – pneumatic systems – working principles – typical pneumatic power system

UNIT II LANDINGGEAR SYSTEMS 12 Hours

Brake system – components, landing gear systems – classification – shock absorbers – Retractive mechanism

UNIT III AIRCRAFT CONTROL SYSTEMS 12 Hours

Conventional Systems – power assisted and fully powered flight controls – power actuated systems – engine control systems – push pull rod system – operating principles – modern control systems – digital fly-by-wire systems – auto pilot system, active control technology

UNIT IV	ENGINE SYSTEM	12 Hours
----------------	----------------------	-----------------

Fuel systems – piston and jet engines – components – multi-engine fuel systems, lubricating systems – piston and jet engines – starting and ignition systems – piston and jet engines

UNITV	AIRCONDITIONINGANDPRESSURIZING SYSTEM	12 Hours
-------	---------------------------------------	----------

Basic air cycle systems – vapour cycle systems, boot-strap air cycle system – evaporative vapour cycle systems – evaporation air cycle systems – oxygen systems – fire protection systems, de-icing and anti-icing system.

TOTAL:60Hours

COURSE OUTCOMES:

On completion of this course, students will be able		Knowledge Level
CO1	To demonstrate their proficiency in hydraulic and pneumatic systems	L2
CO2	To be able to apply their knowledge of brake and landinggear systems	L2
CO3	To comprehend Conventional and Modern FlightControl Systems	L2
CO4	To Analyze Aircraft Fuel and Lubrication Systems	L4
CO5	To Evaluate Air Cycle and Environmental Control Systems	L4

TEXT BOOKS:

1. Mckinley,J.L.andR.D.Bent,“Aircraft Power Plants”, McGrawHill1993.
2. Aircraft Instruments: Principles and applications, E.H.J.Pallett, Pitman Publishing,1981.

REFERENCE BOOKS:

1. Aircraft Engineering Design, Structures and Control Systems by Casey Stokes
2. Aeronautical Engineering by Margaret Ziegler
3. Aircraft systems by Ian Moir and Allan Seabridge.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	2	2	3	2	3	3	1	3	-	2	3
CO2	2	2	2	3	2	3	3	1	3	-	2	3
CO3	2	2	2	3	2	3	3	1	3	-	2	3
CO4	2	2	2	3	2	3	3	1	3	-	2	3
CO5	2	2	2	3	2	3	3	1	3	-	2	3
W.AV	2	2	2	3	2	3	3	1	3		2	3

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	1
CO2	3	2	3	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	3	3	3	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-I

SubjectCode: 97253A	AIRPORT& FLIGHT OPERATION	LTPC 400 4
--------------------------------------	--------------------------------------	--------------------------------

COURSE OBJECTIVES:

- To underst and the Operations handle din Airport
- To understand the Operations handle din an Aircraft
- To understand the connection between Aircraft & Airport

UNITI AVIATION GEOGRAPHY 12 Hours

Earth-Seasons-Equinox- Solstice-IATA traffic Conference Areas -Countries & Capitals - Open Sky Policy - Travel Documents Handling - Economic and Physical Geography Heat Zones - Latitude - Longitude - Planning Itineraries by Air - Time Zones & Elapsed Transportation time - IATA TC areas - Time Calculation

UNIT II AIRPORT STRUCTURES & OPERATIONS 12 Hours

Traffic control - Air traffic services - Runway - Types of Runway - Declared Distances - Airport Signs, Markings & Lightings - Ramp Services - Fuelling - Ground Support Equipment's - Aircraft Load Planning - Weight & Balance

UNIT III CREW& FLIGHT SCHEDULING 12 Hours

Flight Duty Time Limitations - Crew Salary Structure - Hotel & Ground Transportation - Layover - Dead Heading - Split Duty - Break - Consecutive Night Flying - Over fly permission - Landing Permission - Landing Slot Arrangement - Revenue & Yield Management

UNIT IV FLIGHTPLANNING 12 Hours

Fuel Plan & Calculation - Navigation Plan - Weight and Balance - Jet Routes - Navigation Log - NOTAM - Crew Briefing & Flight Release sheet - Alternates - Coded ICAO Flight Plan - FBO's / Ground Handlers - AIP

UNITV APPLICATIONS OF FLIGHT PLANNING 12 Hours

Weather Charts - Filing Flight plantothe ATC - Load Manifest Form- Computerized Flight Plan - Objects and Methods of Flight Planning - Flight Plan exercises using Performance Data, Tables, Range Tables & Graphs - Advanced flight operation knowledge (PBN, ETOPS, RNP, RNAV).

TOTAL:60Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Understand the concepts of Entire Aviation Geography	L2
CO2	Understand the concepts of the airport structures & operation	L2
CO3	Apply his crews scheduling, flight preparation and planning	L2
CO4	Identify the aircraft specification for its operations and limitations	L4
CO5	Understand the concepts of plan chart and performance data tables	L4

TEXT BOOKS:

1. Introduction to airport operations, IATA, 2011.
2. Airport Operations, Norman J Ashford, Mc Graw-Hill Education, 2012.
3. Airline Operations & Scheduling, Massoud Bazargan, Routeledge Publishing, 2010.

REFERENCE BOOKS:

1. Airport Design and Operations, Antonin Kazda, Emerald Group Publishing, 2007
2. Flight Operations, Charles A. Owens, Harper Collins Distribution Services, 1982.
3. Aircraft Dispatcher: Book of Knowledge, Patrick S. Flannery, Create space Independent Pub, 2014.

WEB LINKS:

1. <https://www.iata.org>
2. <https://www.icao.int>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	2	2	2	3	2	2	2	3	2	2	3
CO2	3	2	3	3	3	3	2	3	3	3	2	3
CO3	3	2	3	3	3	3	2	3	3	3	2	3
CO4	3	2	3	3	3	3	2	3	3	3	2	3
CO5	3	2	3	3	3	3	2	3	3	3	2	3
W.AV	2.8	2	2.8	3	3	2.8	2	2.8	3	2.8	2	3

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	1
CO2	3	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	3	3	3	2	2
W.AV	3	3	3	1.2	1.2

S–Strong(3), M-Medium(2), L-Low(1)

PART-III DSE – ELECTIVE-I

Subject Code: 97253B	AIR REGULATIONS	LTPC 4004
---------------------------------------	------------------------	----------------------------

COURSE OBJECTIVES:

- To know the Governing Authorities for Aviation Industry
- To learn the services provided to Flights from the Airport
- To understand the Rules and Regulations for Aircrafts and Airports
- To learn the operational procedure of Aircrafts in Airports

UNITI AVIATION ORGANIZATION & AGREEMENT 12 Hours

Convention – Bi Lateral Agreement – Multi Lateral Agreement – Open Sky Policy - Freedom of Air – IATA – ICAO – DGCA – Convention of Chicago, Tokyo, Montreal, La Haye – DGCA Organisation and Structure

UNIT II AIRTRAFFICSERVICES 12 Hours

Objectives of ATS – Airspace – Controlled Airspace Structure – Airport – Controlled and Uncontrolled Airport – Control Areas – Control Zones – FIR – ADIZ – Specifications for Flight Information Region–Separation Minima – Contents of Clearances– Flight Information Services

UNIT III AIRCRAFT INVESTIGATION 12 Hours

National Law – Air Space – Flight Information Regions – Accidents – Incidents – Major accidents in the History of Aviation – Indian aircraft Act 1934 – Indian Aircraft Rules 1954 (Public Health Rules) – Indian Aircraft Rules 2003 (Carriage of Dangerous Goods)

UNIT IV BASICAVIATIONPSYCHOLOGY 12 Hours

Human information processing – Human error and Reliability – Decision Making – Avoiding and managing Errors – Cockpit Management – Personality and attitudes – Human Overload and Under load – Fatigue and Stress Management

UNITV	OPERATIONAL PROCEDURE	12 Hours
--------------	------------------------------	-----------------

General Requirements – Operator certification and Supervision requirement – Operational procedure requirements – All weather operations requirements – Instrument and safety equipment requirements – Communication and navigation equipment

TOTAL:60Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Learnt about the Air Regulations and various Air Organizational agreements	L2
CO2	Ability to identify the Air Traffic Services	L2
CO3	Understand the Laws involved in Air Regulation to investigate Air Accidents and Incidents	L2
CO4	Ability to understand basic aviation psychology	L4
CO5	Ability to understand operation procedure for safe operation	L4

TEXT BOOKS:

1. Air Regulations, Part-I&II,R.K.Bali, Sterling Book House,2018

REFERENCE BOOKS:

- 1.A Hand book on Air Regulations for pilots, V.Krishnan,2014
2. Air Regulations for CPL/ATPL,R.K.Bali, 2015.
3. Nordin, Air Law & ATC Procedures, Edition 7.2(2018).
4. V. Krishnan & S.R. Iyer, “A Hand book on Air Regulations for Pilots”, The English Book Store (The Aviation People) (1 January 2014).
5. V. Krishnan & S.R. Iyer, “A Hand book on Air Regulations for Pilots”, The English Book Store (The Aviation People) (1 January 2014).

WEB LINK:

1. <https://iclg.com/practice-areas/aviation-laws-and-regulations/india>
2. https://www.icao.int/Meetings/anconf12/Document%20Archive/an02_cons%5B1%5D.pdf
3. <https://www.mod.gov.in/sites/default/files/AFAct.pdf>
4. https://www.civilaviation.gov.in/sites/default/files/moca_000947.pdf
5. <http://164.100.60.133/rules/car-ind.htm>
6. <https://www.icao.int>
7. <https://www.faa.gov>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	1	1	3	3	3	3	3	3	2	2	3
CO2	2	1	1	3	3	3	3	3	3	2	3	3
CO3	2	1	1	3	3	3	3	3	3	2	3	3
CO4	2	1	1	3	3	3	3	3	3	2	3	3
CO5	2	1	1	3	3	3	3	3	3	2	3	3
W.AV	2	1	1	3	3	3	3	3	3	2	2.8	3

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	2	2
CO2	3	2	3	2	2
CO3	3	2	3	2	2
CO4	3	2	3	2	2
CO5	3	2	3	2	2
W.AV	3	3	3	2	2

S–Strong(3), M-Medium(2), L-Low(1)

PART-III DSE – ELECTIVE-I

Subject Code: 97253C	AIRTRAF FICCONTROL	LTPC 4004
---------------------------------------	---------------------------	----------------------------

COURSE OBJECTIVES:

- To enable the Students to learn the absolute necessity of Air Traffic Control
- To learn the AT Cprocedures in an Airports
- To know the services related to RADAR
- To learn the concept of Navigation ATC

UNIT I INTRODUCTION TO ATC 12 Hours

Basic Concept - Objectives of ATS – Parts of ATC Service – Scope and Provision of ATC's – VFR & IFR Operations – Classification of ATS Air Spaces – Various kinds of separation Meteorological Support - providing ATS – Division of Responsibility of Control

UNIT II AIR TRAFFIC SERVICES 12 Hours

Air Traffic Services - Area Control Service, Assignment of Raising levels minimum Flight Altitude - ATS routes & Significant Points – RNAV and RNP – Vertical, Lateral and Longitudinal Separations based on Time / Distance -ATC clearance – Flight plans- Position report

UNIT III RADAR RELATED SERVICES 12 Hours

Flight Information Alerting Services, Coordination, Emergency Procedure and Rule of the Air - Radar Service, Basic Radar Terminology, Identification Procedures using Primary/ Secondary radar- Performance Checks – Use of Radar in Area and Approach Control Service.

UNIT IV AERODROMES 12 Hours

Aerodrome Data, Physical Characteristics and Obstacles Restriction Aerodrome Data: Basic Terminology – Aerodrome Reference Code - Aerodrome Reference Point – Aerodrome Reference Temperature Instrument Runway, Physical Characteristic; Length of Runway.

UNIT V NAVIGATION IN ATC 12 Hours

Visual Aids for Navigation, Visual Aids for Denoting Obstacles Emergency and other Services – Visual Aids for Navigation; Wind Direction Indicator – Landing Direction Indicator Location and Characteristics of Signal Area – Marking General Requirements – Various Markings.

TOTAL: 60 Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Able to understand the Roles & Responsibilities of ATC	L2
CO2	Able to understand the ATSServices provided for the aircrafts	L2
CO3	Able to know the procedures in Communication & Navigation Standard	L2
CO4	Able to know the types of AT Sservices for different aero dromes	L4
CO5	Able to understand the applications of RADAR	L4

TEXT BOOKS:

1. Fundamentals of Air Traffic Control–MichaelS. Nolan, Cengage Learning,2012.

REFERENCE BOOKS:

1. Understanding Air Traffic Control–Dieudonne Ndayizera,NotionPress, 2016.
2. AirTrafficControl:Human Performance Factors –AnneR.Isaac,Bert Ruitenberg, Routledge, 1999.
3. “Aircraft Manual(India)VolumeI”,latest Edition –The English Book Store,17-1, Connaught Circus, New Delhi.
4. “PANS–RAC–ICAODOC4444”, Latest Edition, The English Book Store,17-1, Connaught Circus, New Delhi.

WEB LINK:

1. https://www.skybrary.aero/index.php/ATC_Unit_Coordination
2. <http://web.mit.edu/6.933/www/Fall2000/mode-s/atc.html>
3. https://www.faa.gov/air_traffic/publications/atpubs/aim_html/chap4_section_2.html#:~:text=Radio%20communications%20are%20a%20critical%20link%20in%20the%20ATC%20system.&text=The%20single%2C%20most%20important%20thought,the%20appropriate%20aircraft%20call%20sign.
4. <https://science.howstuffworks.com/transport/flight/modern/air-traffic-control.htm>
5. <https://www.aopa.org/training-and-safety/students/presolo/special/new-pilots-guide-to-atc-communication>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	1	3	3	3	3	2	2	1	1	1
CO2	1	1	1	3	3	3	3	2	2	1	1	1
CO3	1	1	1	3	3	3	3	2	2	1	1	1
CO4	1	1	1	3	3	3	3	2	2	1	1	1
CO5	1	1	1	3	3	3	3	2	2	1	1	1
W.AV	1	1	1	3	3	3	3	2	2	1	1	1

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	3	2	2
CO2	2	2	3	2	2
CO3	2	2	3	2	2
CO4	2	2	3	2	2
CO5	2	2	3	2	2
W.AV	2	2	3	2	2

S–Strong(3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-II

Subject Code: 97254A	PUBLIC RELATIONSHIP IN THE AVIATION INDUSTRY	LTPC 4004
---------------------------------	---	----------------------

Objectives: On successful completion of this course, the students should have understood Role, Importance and Challenges of PR in Aviation Industry, Role of PR in Aviation Crisis Management Strategy and PR Planning

UNITI SERVICES MARKETING 12 Hours

Meaning – Nature of Services – Types and Importance – Relationship Marketing – Mission, Strategy, Elements of Design, Marketing Plan Market Segmentation – Marketing Mix Decisions: - Unique Features of Developing, Pricing, Promoting and Distributing Services.

UNITII MARKETING OF HOSPITALITY 12 Hours

Perspective of Tourism, Hotel and Travel Services – Airlines, Railway, Passenger and Goods Transport – Leisure Services. Positioning and Differentiations Strategies, Quality of Service Industries –Achievement and Maintenance, Customer Support Service.

UNITIII PUBLICRELATIONS 12 Hours

An essential in Aviation – Issues in PR: Airport Operators, Air Operators, Security Requisites of a Good PR professional–Challenges: Accessibility, Integrity of Information and Neutrality Handling the media – Types and Role of Media Handling – Do's and Don'ts in Media Handling – Preparation for Elective Media Handling – Electronic Media

UNITIV PUBLIC RELATIONS AND CRISIS MANAGEMENT AT AIRPORTS 12 Hours

Crisis at an Airport – Preparing for a Crisis – Managing the Crisis – PR: The Role during Crisis- Four Steps Public Relations Process, Defining PR Problems, Planning And Programming, Taking Action And Communicating.

UNIT V STRATEGIES FOR SUCCESSFUL PR PERSONNEL 12 Hours

Successful PR of an Organization: Strategy – Alternatives and Choices in Communication– PR Planning and Prioritization, Evaluating the Program, Elements of Public Relations, Human Relations, Empathy, Persuasion, Dialogue, Objectives of Public Relations

TOTAL:60Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	To understand the Concept of Marketing in service based industries	L2
CO2	To understand the role and importance of hospitality in service based industries	L2
CO3	To understand the need of public relations in all industries	L2
CO4	To understand crisis management and its importance	L2
CO5	To get the knowledge on strategies in Public Relations	L2

TEXT BOOKS:

1. Services Marketing: Integrating customer Focus Across the Firm–Zeithaml, Mc Graw Hill Education, 2017.
2. Public Relationship Management–Mahor N.K, Pearl Books, 2012.

REFERENCE BOOKS:

1. Profitable Customer Relationships–Ceo Speak, Vision Books, 2009.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	3	2	2	1	1	2	1	2	1	3	2	3
CO2	3	2	2	1	1	2	1	2	1	3	2	3
CO3	3	2	2	1	1	2	1	2	1	3	2	3
CO4	3	2	2	1	1	2	1	2	1	3	2	3
CO5	3	2	2	1	1	2	1	2	1	3	2	3
W.AV	3	2	2	1	1	2	1	2	1	3	2	3

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	2	3	2	3
CO2	1	2	3	2	3
CO3	1	2	3	2	3
CO4	1	2	3	2	3
CO5	1	2	3	2	3
W.AV	1	2	3	2	3

S–Strong (3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-II

Subject Code: 97254B	LOGISTICS & AIRCARGO MANAGEMENT	LTPC 4004
---------------------------------------	--	----------------------------

COURSE OBJECTIVES:

- To know the concept of logistics in cargo plat form
- To learn the procedures being followed in Ware house
- To know the different types of Air Cargo procedures

UNIT I	CONCEPT OF LOGISTICS	12 Hours
---------------	-----------------------------	-----------------

Introduction – Components, Advantage & Growth-Logistics in Global Organization – Marketing and Logistics Channel – Environmental and Marketing Issue – Inventory Management – Purpose, Type, Objective and Cost- Model of Inventory Management – MRP, DRP & JIT

UNIT II TRANSPORT SYSTEM MODEL AND WARE HOUSING 12 Hours

Deregulation and Government Rule – Transport Security – Product Packaging and Pricing – Role of Warehouse –Alternative Warehousing – Trend in Material Handling – Inbound Logistics and Purchasing

UNIT III GLOBAL ENVIRONMENT&STRATEGY 12 Hours

Global Supply Chain – International Documentation- Strategy Formulation & Implementation – Quality Concept & TQM – Improving Logistics Performance

UNIT IV AIRCAR GO CONCEPTS **12 Hours**

Introduction – Operations and Industry Regulations – Service Function, Organization and Liability – SLI, Types of cargo-Handling of Perishable, Valuable Cargo and Special Cargo – Air cargo Tariff, Rates & Charges – Valuation charges and Disbursement – Airway Bill, Function, Purpose and Validation

UNIT V HANDLING FACILITIES 12 Hours

Airport Cargo Activity & Cargo Zone – Aircraft Handling with Cargo – Cargo Terminals and Facilities – Emerging trend in Cargo & Cargo Carriers

TOTAL:60Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Understand the Concept of Logistics & Air Cargo	L2
CO2	To know about Transport System Model and Ware housing	L2
CO3	Understand the Concept of Logistics & Air Cargo business in the aviation industry	L2
CO4	Awareness about Strategy for improving Air Cargo & Logistics performance	L2
CO5	Knowledge on Cargohandling facilities	L2

TEXT BOOKS:

1. AirCargo Management: AirFreight and the Global Supply Chain, Michael Sales, Route ledge Publications, 2016.

REFERENCE BOOKS:

1. Aviation Logistics: The Dynamic Partnership of AirFreight and Supply Chain, Michael Sales, Koganpage, 2016.
2. BabuP, "Introduction to Air Cargo Management", 12 November 2020.
3. The Air Logistics Hand book: Air Freight and the Global Supply Chain, Michael Sales, Routledge Publications, 2013.
4. ICAO Technical Instructions (TI).

WEB LINKS:

1. www.airlogisticsgroup.com
2. www.kalelogistics.com
3. <https://skybrary.aero/bookshelf/books/1178.pdf>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	1	1	3	3	3	3	3	3	2	2	3
CO2	2	1	1	3	3	3	3	3	3	2	3	3
CO3	2	1	1	3	3	3	3	3	3	2	3	3
CO4	2	1	1	3	3	3	3	3	3	2	3	3
CO5	2	1	1	3	3	3	3	3	3	2	3	3
W.AV	2	1	1	3	3	3	3	3	3	2	2.8	3

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2	1	1
CO2	2	3	2	1	1
CO3	2	3	2	1	1
CO4	2	3	2	1	1
CO5	2	3	2	1	1
W.AV	2	2	2	1	1

S–Strong (3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-II

Subject Code: 97254C	AIRPORT PLANNING	LTPC 4004
---------------------------------------	-------------------------	--------------------------------

COURSE OBJECTIVES:

- To learn about the basic airport planning methods and forecasting
- To explore about the airport site selection
- To know about the airside layouts of an airport
- To study about the terminal buildings and risk management in airports

UNIT-1 Introduction to Airport Planning **12 Hours**

Dynamic Strategic Planning-Planning Concepts, Systems Perspective, Concept of Dynamic strategic planning – Forecasting – Multi Airport Systems –User Charges – Airfield Design – Airfield Capacity – Airfield Delay

UNIT - 2 Airport Site Selection **12 Hours**

Airport Planning Procedure - types of operations and aircraft, facility planning, heliports, water aerodromes - site selection criteria, fine tuning site selection, – Air Traffic Zones – Approach Areas

UNIT-3 Airside Layout Runways, Taxiways & Aprons **12 Hours**

Runway orientation, wind rose analysis, runway configurations, Obstacle Limitation Surfaces, runway components, Declared Distances, runway separation – taxiway layout and design, holding bays, apron layout and design, ATC Tower considerations, ground – based Nav- aids, airside capacity

UNIT-4 Air Cargo and Passenger Terminal Building (PTB) **12 Hours**

Planning considerations, siting the terminal, PTB layouts, PTB sub-systems, pedestrian flows, and modeling – Functions of the Cargo Terminal, air cargo characteristics and shipping models, terminal concepts, and planning considerations

UNIT-5 Risk Management **12 Hours**

Environment impact, land use planning impacts - Airport Noise Management –Noise Abatement Procedure, pollution – Risks in the operative area of airport – Obstacle-free surfaces – Airport risk plans – Risk assessment – Case Study

Total:60Hours

COURSE OUTCOMES:

On successful completion of this course, the student will be able to;		Knowledge Level
CO1	To understand about the airport planning and various concept so Fairfield design	L2
CO2	To know about the airport planning procedure and site selection	L2
CO3	To get knowledge about the Airside layout, runways taxi ways and apron configuration and management	L2
CO4	To understand about the aircargoterminal and passenger terminal planning and considerations	L2
CO5	To study about the Risk management in airport planning and operations	L3

TEXT BOOK:

1. Airport Systems Planning, Design and Management–Richardde Neufville, Amedeo R.Odoni(author),2013(edition), Mc-Graw Hill Educaiton Publications

REFERENCE:

1. Airport Planning and Design–Khanna Sk(author),2014(edition),Nem Chand Publi-cations
2. Planning and Design of Airport–Asheesh Kumar(author),2020(edition),Vayu Education of India
3. Planning and Design of Airports- Francis McKelvey, SethYoung, William Sproule (authors), 2010 (edition),Mc-Graw Hill Professional
4. Airport Engineering:Planning and Design, Saxena.S.C(author), 2015(edition), CBS Publication

Mapping Course OutcomesVs Programme Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	2	2	1	1	2	1	1	1
CO2	3	2	1	2	2	2	1	1	1	1	1	1
CO3	3	1	2	2	2	2	2	1	1	1	1	1
CO4	3	2	1	2	2	2	1	1	1	1	1	1
CO5	1	2	1	2	2	2	2	1	1	1	1	1
W.AV	2.6	1.8	1.4	1.8	2	2	1.4	1	1.2	1	1	1

S–Strong (3),M-Medium(2),L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	1	1
CO2	2	2	1	1	1
CO3	2	2	2	1	1
CO4	2	2	1	1	1
CO5	2	2	2	1	1
W.AV	2	2	1.6	1	1

S–Strong (3), M-Medium(2), L-Low(1)

PART– III
DSE–ELECTIVE–III

SubjectCode: 97255A	PRINCIPLES OF ROTOR CRAFT	LTPC 4004
--------------------------------------	----------------------------------	----------------------------

COURSE OBJECTIVES:

- To know the parts of Helicopter
- To learn the working principle of Helicopter
- To learn the controls of Helicopter
- To understand the principle behind working of every part of helicopter

UNIT I INTRODUCTION TO ROTORCRAFT 12 Hours

Helicopter as an aircraft, Basic features, Layout, Generation of lift, Main rotor, Gearbox, tail rotor, power plant, drive to main tail rotor, considerations on blade, feathering and flapping, Rotor controls and various types of rotor, Geometry of the rotor, Blade loading, Effects of solidity, Profile drag, compressibility etc., Blade area required, Number of Blades, Bladeform, Power losses, Rotor efficiency.

UNIT II AERODYNAMIC SO FROTOR BLADE 12 Hours

Aerofoil characteristics in forward flight, Hovering and Vortex ring state, Blade stall, Maximum lift of the helicopter, Calculation of induced power, High speed limitations; parasite drag, power loading, Ground effect.

UNIT III FLIGHT PERFORMANCE & POWER PLANTS 12 Hours

Piston engines, Gas turbines, Ramjet principle, Gross weight of a jet helicopter, Comparative performance, Horse power required, Range and Endurance, Rate of climb, Best climbing speed, Ceiling in vertical climb, Autorotation - Helicopter AFCS, autopilots/yaw dampers, flight director systems and stability augmentation system (SAS), Sensors (raw data) Computer, Controller (mode selector), Loads (command bars and autopilot), and Functioning

UNIT IV STABILITY & CONTROL 12 Hours

Physical description of effects of disturbances, Stick fixed longitudinal dynamic stability; Stick fixed lateral dynamic stability, longitudinal stability characteristics, Lateral stability characteristics, Control response. Difference between stability and control of airplane and helicopter.

UNITV**VIBRATION OF ROTOR****12 Hours**

Dynamic model of the rotor, Motion of the rigid blades, flapping motion, lagging motion, feathering motion, Properties of vibrating systems, phenomenon of vibrations, fuselage response, Vibration absorbers, Measurement of vibration in flight, General considerations, Airfoil selection, Blade constructions, Materials, Factors affecting weight and cost, Design conditions, Stress analysis

TOTAL:60Hours**COURSE OUTCOMES:**

On completion of this course, students will be able		Knowledge Level
CO1	To study about parts of Helicopter	L2
CO2	To study the Aerodynamics calculation of Rotorblade	L2
CO3	To study about the performance of Helicopter Engine	L2
CO4	To Study stability and control characteristics of Helicopter	L2
CO5	To study about controlling of Rotorvibration	L2

TEXT BOOKS:

1. JohnFay, "The Helicopter and How It Flies",Himalay an Books1995
2. Joseph Schafer, "Basic Helicopte rMaintenance",Jeppesen1980

REFERENCE BOOKS:

1. Principles of Helicopter Flight– Walter J. Wagtendonk,Aviation Supplies & Academics Inc, 2006.
2. Fundamental s of Helicopter Dynamics–C. Venkatesan, CRCpress,2017.
3. Helicopter Dynamics–A.R.S.Bramwell, Butter worth -Heine mannLtd, 1976.
4. LalitGupta,"HelicopterEngineering", Himalay an Books New Delhi1996
5. RWProuty,"Helicopter Aerodynamics"

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	-	2	-	3	1	2	1	3	2	1	1	2
CO2	-	2	-	3	1	2	3	3	2	1	1	2
CO3	-	2	-	3	1	2	3	2	3	1	1	2
CO4	-	2	-	3	1	2	3	3	2	1	1	2
CO5	-	2	-	3	1	2	2	3	2	1	1	2
W.AV	2	1	1	3	3	3	3	3	3	2	2.8	3

S–Strong(3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	2	2	2
CO3	3	3	3	3	3
CO4	1	1	1	1	1
CO5	1	1	1	1	1
W.AV	2	2	2	1	1

S–Strong(3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-III

Subject Code: 97255B	PISTONENGINE AND PROPELLER	LTPC 4004
---------------------------------------	-----------------------------------	----------------------------

COURSEOBJECTIVES:

- To understand the different thermodynamic cycles
- To learn the parts of a piston engine and their working
- To learn the working of different systems in a piston engine
- To understand the concept of propeller and its uses

UNIT I Introduction, Terms, Definition and Power Calculation 12 Hours

Development, classification and characteristics of piston engines. Comparison of the Otto, Diesel and Dual cycle, Stroke, Compression ratio and four stroke cycle. Principles of valve timing and port timing and engine firing order. Description of terms related to piston engine. Engine efficiency. Power Calculation, engine performance parameters.

UNIT II Basic Engine components and Nomenclature 12 Hours

Constructional features of Crank case, crank shaft, Connecting rod, propeller shaft, cylinder, piston, valve and valve operating mechanism and their function. Description of accessory section and propeller reduction gears. General description of induction and exhaust manifold and Types of engine cooling system. Supercharger and Turbo charger – system arrangement and principle of operation.

UNIT III Engine Fuel System and Lubricating System 12 Hours

Aviation gasoline and its characteristics. Principle of operation of Float type carburetor. Carburetor icing and prevention. Maintenance of float type carburetor. Principle of operation and maintenance of Hydromechanical fuel control, Hydromechanical / Electronic fuel control system. Need for lubrication. Classification and characteristics of lubricating oil. Principal components of lubricating system and their function.

UNIT IV Ignition and Starting System 12 Hours

Principles of ignition. Magneto-Type, Characteristics and operation. Engine ignition systems- Capacitor-type ignition system. Description of ignition shielding, ignition switch and wiring. Magneto timing procedure. Magneto maintenance. Description of sparkplugs and

its servicing including pressure testing. Description of engine starter motor, over running clutch mechanism and its trouble shooting and maintenance.

UNIT V Propeller

12 Hours

Propeller theory, terms and definition. Types of propeller –Forces acting on propeller in flight. Propeller-aerodynamic effect, General description of fixed and variable pitch propeller. Propeller controls and operations of pitch changing mechanism. Description of wooden and composite blade propellers.

TOTAL:60 Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Explain the working principle of pistonengine.	L2
CO2	Analyze the components and accessories of pistonengine and performance	L4
CO3	Explain a bout the Fuel system and Turbo charging	L2
CO4	Write the procedure for installation of lubricants, fuelignition systems	L2
CO5	Interpret the principle and operation of various propellers	L2

TEXT BOOKS:

1. Aircraft Power plant by Kroes Wild.
2. Her schel Smith,“Aircraft Piston Engines”,McGrawHill Higher Education (1July1981).

REFERENCE BOOKS:

1. GrahamWhite,“Allied Aircraft Piston Engines of World WarII”,SAE.
2. Aircraft Pist on Engines: For Professional and Private Pilots by Oxford Aviation Academy Limited.
3. RalphD Bent and MckinleyJamesL, “Aircraft Power Plants”,McGraw-Hill;Revised Ed
4. Internal combusti on Engines,VGanesan.

WEB LINKS:

1. <https://nptel.ac.in/content/storage2/courses/101101001/downloads/Intro-Propulsion-Lect-25.pdf>
2. <http://learntoflyblog.com/2015/10/22/cfi-brief-four-stroke-piston-engine/>
3. https://www.skybrary.aero/index.php/Piston_Engine#:~:text=An%20aircraft%20piston%20engine%2C%20also,engines%20found%20in%20most%20automobiles.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	1	3	1	2	1	3	2	1	1	2
CO2	1	2	1	3	1	2	3	3	2	1	1	2
CO3	1	2	1	3	1	2	3	2	3	1	1	2
CO4	1	2	1	3	1	2	3	3	2	1	1	2
CO5	1	2	1	3	1	2	2	3	2	1	1	2
W.AV	1	2	1	3	1	2	2.4	2.8	2.2	1	1	2

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	1	1
CO2	2	2	2	1	1
CO3	2	2	2	1	1
CO4	2	2	2	1	1
CO5	2	2	2	1	1
W.AV	2	2	2	1	1

S–Strong (3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-III

Subject Code: 97255C	TURBINEENGINE	LTPC 4004
---------------------------------------	----------------------	----------------------------

COURSE OBJECTIVES:

- To know the different engines used in Aviation Industry
- To learn the working principle of GasTurbine Engine
- To learn the working of several systems required for the working of the engine

UNITI FUNDAMENTALS OF TURBINEENGINES 12 Hours

Back Ground and Development, Principle of jet propulsion. Application of Newton's law of motion, Brayton's Cycle, Jet propulsionengines –Rocket, Ramjet engine, pulse jet engine and Turbine Engine. Principle and type ofgas turbine engines – turbojet, turbo fan, turbo propand turboshaft engines. Description ofthrust and effect ofaltitude, temperature and velocityofthe gas flow; Engine ratings, humidity, temperature and water injection. Airflow, Engine Efficiencies.

UNITII CONSTRUCTION OF TURBINEENGINE 12 Hours

Principalparts – Descriptionofair intake- Subsonic inlet ducts,Supersonic inlet duct, Airinlet icing. Compressor- Types of compressor, Compressor stall. Diffuser, Combustion chamber – Types of combustion Chamber. Turbine – Turbine inlet guide vanes, types of turbine and function. Exhaust Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise limiting features.

UNITIII TURNINE ENGINE FUEL SYSTEM 12 Hours

Type of turbine engine fuel and its properties and characteristics. Description of fuel system components. High pressure fuel system, fuel metering system, large aircraft Turbo fan engine fuel system, Description of fuel control UNITs and their operation. Electronic engine controls and FADEC system. Description of Fuel Spray Nozzle and its Types.

UNITIV LUBRICATING SYSTEM 12 Hours

Types of lubricants, Description of lubricating system UNITs and their function. Turbine Engine Lubrication Systems- Typical Dry-sump variable pressure lubrication system Lubricating oil analysis and its process. Torque meter and its function.

UNITV IGNITION AND STARTING SYSTEMS**12 Hours**

Description of ignition system and its components. Igniters and glow plugs.
Description of engine starting system – Electric starters and Air Turbine Starters and their operation.

TOTAL:60 Hours**COURSE OUTCOMES:**

On completion of this course, students will be able to		Knowledge Level
CO1	Explain the principle of operation, basic design and construction of turbine engines	L2
CO2	Summarize the operation of a gas turbine engine combustion	L2
CO3	Discuss the principle of operation, basic design and construction of fuel system of turbine engines	L2
CO4	Analyze the lubrication system units and their function of turbine Engines	L2
CO5	Illustrate the procedure for Engine starting system	L2

TEXT BOOK:

1. Aircraft Power plant by Kroes Wild (Chapter 11-14) Irwin Treager.
2. "Aircraft Gas Turbine Technology by", Mc Graw Hill Education; Third edition (1 July 2017).

REFERENCE BOOKS:

1. Ralph D Bent and McKinley James L, "Aircraft Power Plants", McGraw-Hill; Revised Edition (January 1, 1955).
2. Airframe and Powerplant Mechanics (EA-AC65-12A)-Powerplant Handbook FAA.
3. M.J.Kroes, T.W.Wild, R.D.Bent and J.L.McKinley, "Aircraft Power Plants" McGraw-Hill Education 2014.
4. The Jet Engine by "ROLLS ROYCE", Power plant Section Text book-(EA-ITP-P), Wiley; 5th edition (14 August 2015).

WEB LINKS:

1. <https://www.cfnotebook.net/notebook/operation-of-aircraft-systems/power-plant>
2. <http://www.bits.de/NRANEU/others/amd-us-archive/FM1-506%281990%29.pdf>
3. <https://nptel.ac.in/courses/112/103/112103281/>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	1	3	1	2	1	3	2	1	1	2
CO2	1	2	1	3	1	2	3	3	2	1	1	2
CO3	1	2	1	3	1	2	3	2	3	1	1	2
CO4	1	2	1	3	1	2	3	3	2	1	1	2
CO5	1	2	1	3	1	2	2	3	2	1	1	2
W.AV	1	2	1	3	1	2	2.4	3	2.1	1	1	2

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	1	1
CO2	2	2	2	1	1
CO3	2	2	2	1	1
CO4	2	2	2	1	1
CO5	2	2	2	1	1
W.AV	2	2	2	1	1

S–Strong (3), M-Medium(2), L-Low(1)

PART-III CORE COURSE-PRACTICAL-V

Subject Code: 97256	COMPUTER AIDED DESIGN LAB	LTPC 0084
--------------------------------------	----------------------------------	----------------------------

COURSE OBJECTIVES:

- To learn to working a CAD software
- To learn to draw the components in 2D&3D
- To learn the procedures of assembly in CAD software

LIST OF EQUIPMENT

1.Desktop with CAD software installed-30nos.

LIST OF EXPERIMENTS

1. Study of Capabilities of Software for Drafting & Modelling–Co-Ordinate System
2. Creation of Simple Figures like polygon and General Multiline Figures
3. Drawing of aTitle Block with necessary Text and Projection Symbol
4. Drawing of curves like parabola, spiral, involute using B-spline or Cubic spline
5. Drawing of front view and to pview of simple solidslikeprism, pyramid, cylinder, cone, etc, and dimensioning
6. Drawing front view,top view and side view of objects from the given pictorial views (eg. V-block, Base of a mixie, simple stool, object with hole and curves)
7. Drawing the plan view of gear.
8. Drawing of a Connecting Rod 3D
9. Drawan object using3-Dadvance tools.
10. Making mechanical joint and soldering of joint on sheet metal

TOTAL:60 Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Understand the fundamental so computer aided design	L2
CO2	Implement the knowledge increasing a model	L3
CO3	Understand the various limits and to lerances	L2
CO4	Understand various dimensioning styles	L2
CO5	Implement the knowledge to model various 2D and 3D models	L3

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	2	2	2	1	1	1	1	2	2
CO2	1	1	2	2	2	2	1	1	1	1	2	2
CO3	1	1	2	2	2	2	1	1	1	1	2	2
CO4	1	1	2	2	2	2	1	1	1	1	2	2
CO5	1	1	2	2	2	2	1	1	1	1	2	2
W.AV	1	1	2	2	2	2	1	1	1	1	2	2

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course OutcomesVsProgramme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	1	1	1
CO2	1	1	1	1	1
CO3	1	1	1	1	1
CO4	1	1	1	1	1
CO5	1	1	1	1	1
W.AV	1	1	1	1	1

S–Strong (3), M-Medium(2), L-Low(1)

SEMESTER VI
PART – III
CORE COURSE–THEORY–IX

Subject Code: 97261	AVIATION SECURITY & SAFETY	LTPC 4004
--------------------------------	---------------------------------------	----------------------

COURSE OBJECTIVES:

- To understand the basic regulations and importance of aviation safety and security
- To understand the importance of Safety and Security in Air Transportation
- To learn about the techniques and methodologies used in protecting passenger, crew, baggage, cargo, mail, ground personnel, aircraft and property of Airports

UNIT I Importance of Air Transportation Safety and Security 12 Hours

Introduction to Aviation Security – Organization Structure – Indian Aviation Security System – Ministry of Civil Aviation – About CISF – About BCAS – About BDDS – Role of CISF in Indian Aviation – Role of BCAS, Airport and Airlines Security team and Local Police in Aviation.

UNIT II Security Measures for Passengers and Baggage 12 Hours

Pre-hold screening of passengers and their cabin baggage – Sterile areas – Handling of special passengers – Control of Hold Baggage – Security measures for air cargo – Catering Security measures – Bomb threat Analysis – Nature of Bomb threats – Managing threats – Inflight Threats.

UNIT III Hijacking - Security Laws and Procedures 12 Hours

Frisking – Security at Boarding – Fencing – Improvised Explosive Device – Improvised Biological Device – Classification based on Trigger Mechanism – Airport Metal Detectors – Aircraft Hijacking – Dealing with Hijacking – International Law Issues – Isolated Aircraft Parking Position – Hostage Negotiation – Specifications of Hand Held Metal Detectors – Prohibited Articles – Airport Enforcement Authority. Cockpit doors – Sky Marshal Program – Crimes against Humanity – Air Transportation Security Act 2001 – The Tokyo Convention and Summit.

UNIT IV Terrorism – Handling Methods 12 Hours

Terrorism – Introduction- Causes of Terrorism – Rival claims of Palestine Liberation Organisation – Nuclear Terrorism – Aircraft as Missile – 9/11 Terrorist Act and its consequences – Biological and Chemical warfare – Steps to combat terrorism.

UNIT V National Civil Aviation Security Program**12 Hours**

Meaning – Aircraft Rules 2011 – International Legislation – Hijacking – Anti-Hijacking measures –against Terrorist- Terrorism – Hijacking incidents in the world – Access control – Staff – passengers – purpose- points – Access control of vehicles – Landside Security – Convention 1991 -Personal Security Officer of VVIP & VIP or high risk category – SPG or President,Vice President, Prime Minister–Sportsperson, X-Ray baggage inspection system – Top Down Beamer – HHMD = DFMD – Advantages and Disadvantages procedures of carriage of prisoner – catering screening -Behaviour detection and profiling.

TOTAL:60 Hours**COURSE OUTCOMES:**

On completion of this course, students will be able to		Knowledge Level
CO1	Understand the basic regulations and importance of aviation safety and security	L2
CO2	Knowledge on Security Laws, Procedures and handling procedures	L2
CO3	Follow Standard Operating Procedure	L2
CO4	Understand the security standards being followed in Aviation Industry	L2
CO5	Able to understand the impact of terrorism to the Aviation Industry	L2

TEXT BOOKS:

1. Aviation Safety procedures Manual,DGCA,2014
2. Commercial Aviation Safety,Stephen K.Cusick, AntonioI. Cortes, Clarence C.Rodrigues, McGraw Hill Edition, 2017,.

REFERENCE BOOKS:

1. Aviation and Airport Security:Terrorism and Safety Concerns, Second Edition, Kathleen Sweet, CRC press, 2009.
2. Ground handling services Management by Fly sky Aviation, Edition 2020
3. General Aviation Security by Danie IJ Benny
4. Aviation Security Management by Andrew R .Thomas

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	3	3	3	3	2	1	1	1	2
CO2	1	1	2	3	3	3	3	2	1	1	1	2
CO3	1	1	2	3	3	3	3	2	1	1	1	2
CO4	1	1	2	3	3	3	3	2	1	1	1	2
CO5	1	1	2	3	3	3	3	2	1	1	1	2
W.AV	1	1	2	3	3	3	3	2	1	1	1	2

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	1	1
CO2	3	3	3	1	1
CO3	3	3	3	1	1
CO4	3	3	3	1	1
CO5	3	3	3	1	1
W.AV	3	3	2	1	1

S–Strong (3), M-Medium(2), L-Low(1)

PART-III
CORE COURSE-THEORY-X

Subject Code: 97262	AIRCRAFT INSTRUMENTS	LTPC 4004
--------------------------------------	-----------------------------	----------------------------

COURSE OBJECTIVE:

- To understand Instrument Displays and Panels
- To understand several instruments need to operate the aircraft
- To learn the working of major aircraft instruments

UNIT I-BASIC AIRCRAFT INSTRUMENTS

12 Hours

Instrument display, Panels and layouts – Quantitative displays – Circular scales, Straight scales, and Digital displays. Qualitative displays – Director Displays, LED and LCD displays. Description of operational range markings on instrument dial and colors. Description of International Standard Atmosphere and its assumptions.

UNIT II- AIRDATA SYSTEMS (FLIGHT INSTRUMENTS)

12 Hours

Pitot-Static probes, Static vents and their installation on aircraft. Description of Pitot heater arrangement. Constructional features and principle of operation of 'Altimeter' and its 'Q' code settings. Constructional features and principle of operation of 'Air Speed Indicator', Constructional features and principle of operation of Vertical Speed Indicator, Constructional features and principle of operation of Machmeter, Description of 'Altitude Alerting' and 'Stall Warning' system.

UNIT III-GYROS COPIC FLIGHT INSTRUMENTS

12 Hours

Gyroscopic theory, types of gyroscopes and their application in instruments. Description of driving force of gyroscopes. Constructional features and principle of operation of 'Directional Gyroscopes Direction Indicator'. Constructional features and principle of operation of 'Artificial Horizon' Constructional features and principle of operation of 'Turn and Slip Indicator'

UNIT IV– ENGINE INSTRUMENTS**12 Hours**

Constructional features and principle of operation of ‘Pressure Gauges’ (Bourdon tube type), Manifold pressure gauge, RPM Indicators (both DC&AC type) Torque Pressure Indicator, Engine pressure Ratio Indicator and Fuel Flow indicators. Description of ‘Thermometers’ – Resistance type (Oil Temperature Gauge – Wheatstone Bridge type and Ratiometer type) and its operation, Thermocouple type thermometers (CHT and EGT system) and operation. Description of Fuel Quantity indicating system (Capacitance type) and its operation.

UNITV– AIRCRAFT COMPASS**12 Hours**

Description of magnetic properties and laws of magnetism. Earth as a magnet and Form of earth. Compass Terminology (Magnetic Variation, Deviation and Magnetic DIP). Description of ‘Terrestrial magnetism’. Types of Compasses – Direct Reading (DR) and Remote Reading (RR). Constructional features of DR Compass and their function. Constructional features of RR Compass and their function. Advantages of RR Compass. Calibration of DR compass.

TOTAL:60 Hours**COURSE OUTCOMES:**

On completion of this course, students will be able to		Knowledge Level
CO1	Identify Aircraft Instrument Displays and Layouts	L2
CO2	Well versed in Pitot-Static Systems and Instruments	L2
CO3	Interpret and have a Comprehensive Understanding of Gyroscopic Theory and Instruments	L2
CO4	Have a Profound Knowledge of Pressure and Temperature Indicating Systems	L2
CO5	Gain Expertise in Compass Systems and Magnetism	L2

TEXT BOOKS:

1. Aircraft Instruments and Integrated system by EHJ Pallett

REFERENCE BOOKS:

1. Introduction to Avionics Systems by R.P.G Collinson
2. Fundamentals of Avionics systems ByDr. Krishna DevKumar
3. Aircraft systems by I an Moirand All an Seabridge
4. Aircraft Instruments and Systems by S.Nagabhushana

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	2	2	3	2	3	3	1	3	-	2	3
CO2	2	2	2	3	2	3	3	1	3	-	2	3
CO3	2	2	2	3	2	3	3	1	3	-	2	3
CO4	2	2	2	3	2	3	3	1	3	-	2	3
CO5	2	2	2	3	2	3	3	1	3	-	2	3
W.AV	2	2	2	3	2	3	3	1	3		2	3

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	3	1	1
CO2	3	2	3	1	1
CO3	3	2	3	1	1
CO4	3	2	3	1	1
CO5	3	2	3	1	1
W.AV	3	2	3	1	1

S–Strong (3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-IV

Subject Code: 97263A	TO TALQUALITY MANAGEMENT	LTPC 4004
---------------------------------------	---------------------------------	----------------------------

COURSE OBJECTIVES:

- To provide an understanding of the process of managing quality and managing services
- To provide a valuable perspective for future business managers
- To learn the need of Quality and procedures to maintain in industries

UNIT I INTRODUCTION 12 Hours

Introduction – Need for quality – Evolution of quality – Definition of quality – Dimensions of manufacturing and service quality – Basic concepts of TQM – Definition of TQM – TQM Framework – Contributions of Deming, Juran and Crosby – Barriers to TQM.

UNIT II TQM PRINCIPLES 12 Hours

Leadership – Strategic quality planning, Quality statements – Customer focus – Customers, orientation, Customer satisfaction, Customer complaints, Customer retention – Employee, involvement – Motivation, Empowerment, Team and Teamwork, Recognition and Reward, Performance appraisal – Continuous process improvement – PDCA cycle, 5s, Kaizen – Supplier partnership – Partnering, Supplier selection, Supplier Rating.

UNIT III TQM TOOLS & TECHNIQUES I 12 Hours

The seven traditional tools of quality – New management tools – Six sigma: Concepts, methodology, applications to manufacturing, service sector including IT – Benchmarking – Reason to benchmark, Benchmarking process – FMEA – Stages, Types.

UNIT IV TQM TOOLS & TECHNIQUES II 12 Hours

Quality circles – Quality Function Development (QFD) – Taguchi quality loss function – TPM – Concepts, improvement needs – Cost of Quality – Performance measures.

UNIT V QUALITY SYSTEMS 12 Hours

Need for ISO 9000 – ISO 9000:2000 Quality System – Elements, Documentation and Quality auditing – QS 9000 ISO 14000 – Concept, Requirements and Benefits – Case studies of TQM implementation in manufacturing and service sector including IT.

TOTAL: 60 Hours

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Get familiarized with the basic concept and frame work of Total Quality management	L2
CO2	Understand the contribution of Quality Gurus in TQM Journey	L2
CO3	Grasp the nature and importance of various components that constitute TQM	L2
CO4	Describe and discuss the role of techniques used in TQM	L3
CO5	Understand the need of ISO9000 & ISO14000	L2

TEXT BOOKS:

1. Dale H. Besterfield et al., "Total Quality Management", Pearson Education Asia, 3rd Edition, Indian Reprint (2006).
2. Samuel. Ainga "Total Quality Management: Understanding TQM" CreateSpace Independent Publishing Platform (October 8, 2015).

REFERENCE BOOKS:

1. James R. Evans and William M. Lindsay, "The Management and Control of Quality", 6th Edition, South-Western (Thomson Learning), 2005.
2. Oakland J.S. "TQM-Text with Cases", Butterworth-Heinemann Ltd., Oxford, 3rd Edition, 2003.
3. Suganthi, L. & Anand Samuel, "Total Quality Management", Prentice Hall (India) Pvt. Ltd, 2006.
4. Janakiraman, B. and Gopal, R.K., "Total Quality Management-Text and Cases", Prentice Hall (India) Pvt. Ltd., 2006.

WEB LINK:

1. <https://www.grafiati.com>
2. <http://eprints.hud.ac.uk/id/eprint/4875/>.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	2	1	1	2	2	2	1	1	1	1
CO2	2	2	2	1	1	2	1	2	1	1	1	1
CO3	2	2	2	1	1	1	1	2	2	2	2	1
CO4	2	2	2	2	2	1	1	1	1	1	2	1
CO5	1	1	1	1	1	1	1	1	1	1	1	1
W.AV	1.6	1.8	1.8	1.2	1.2	1.4	1.4	1.6	1.2	1.2	1.4	1

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	2	2
CO2	2	2	1	2	2
CO3	1	2	1	2	2
CO4	2	1	1	2	2
CO5	2	2	1	2	2
W.AV	1.8	1.8	1.2	2	2

S–Strong (3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-IV

Subject Code: 97263B	PROFESSIONAL ETHICS	LTPC 4004
---------------------------------	----------------------------	----------------------

COURSE OBJECTIVES:

- To maintain the dignity of the legal profession
- To inculcate the sense of social responsibility
- To develop a firm ethical base and to make the students realize the significance of ethics in professional environment

UNIT-I Introduction to Professional Ethics

12 Hours

Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics and Profession.

UNIT-II Basic Theories

12 Hours

Basic Ethical Principles, Moral Developments, Deontology, Utilitarianism, Virtue Theory, Rights Theory, Casuist Theory, Moral Absolution, Moral Rationalism, Moral Pluralism, Ethical Egoism, Feminist Consequentialism, Moral Issues, Moral Dilemmas, Moral Autonomy.

UNIT-III Professional Practices in Engineering

12 Hours

Professions and Norms of Professional Conduct, Norms of Professional Conduct vs. Profession; Responsibilities, Obligations and Moral Values in Professional Ethics, Professional codes of ethics, the limits of predictability and responsibilities of the engineering profession, Central Responsibilities of Engineers - The Centrality of Responsibilities of Professional Ethics; lessons from 1979 American Airlines DC-10 Crash and Kansas City Hyatt Regency Walk away Collapse.

UNIT-IV Work Place Rights & Responsibilities

12 Hours

Ethics in changing domains of Research, Engineers and Managers; Organizational Complaint Procedure, difference of Professional Judgment within the Nuclear Regulatory Commission (NRC), the Hanford Nuclear Reservation. Ethics in changing domains of research - The US government wide definition of research misconduct, research misconduct distinguished from mistakes and errors, recent history of attention to research misconduct, the emerging emphasis on understanding and fostering responsible conduct, responsible authorship, reviewing & editing.

UNIT– V Globalissues in Professional Ethics**12 Hours**

Introduction – Current Scenario, Technology Globalization of MNCs, International Trade, World Summits, Issues, Business Ethics and Corporate Governance, Sustainable Development Ecosystem, Energy Concerns, Ozone Deflection, Pollution, Ethics in Manufacturing and Marketing, Media Ethics; War Ethics; Bio Ethics, Intellectual Property Rights.

TOTAL:60 Hours**TEXT BOOKS:**

1. Professional Ethics: R.Subramanian, Oxford University Press,2015.
2. Ethics in Engineering Practice & Research,Caroline Whitbeck, 2e, Cambridge University Press 2015.

REFERENCE BOOKS:

1. Engineering Ethics, Concepts Cases:Charles EHarrisJr.,MichaelS Pritchard, Michael JRabins, 4e , Cengage learning, 2015.
2. Business Ethics concepts &Cases: Manuel GVelasquez,6e,PHI,2008.
3. Caroline whit back, Ethicsin engineering practice and research ---- Cambridge.
4. Engineering ethics, Harrispitch and Rabbins, cengage.

WEB LINK:

1. <http://nptel.ac.in/courses.php>
2. <http://jntuk-coeerd.in/>

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Making students aware of the various issues concerning man and society	L2
CO2	Be broader towards the social, cultural, economic and human issues, involved in social changes	L2
CO3	Understand the nature of the individual and the relationship between the self and the community	L2
CO4	Understand major ideas, values, beliefs, and experiences that have shaped human history and cultures	L2
CO5	Excel in competitive and challenging environment to contribute to industrial growth	L2

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	3	1	2	3	3	2	2	2	1	1	1	2
CO2	2	2	2	3	2	2	1	2	1	1	1	2
CO3	2	2	2	3	3	3	2	2	2	2	2	3
CO4	2	2	2	2	2	1	1	1	2	1	2	3
CO5	3	3	3	3	1	1	1	1	1	1	1	2
W.AV	1.6	1.6	1.6	1.4	1.6	1.4	1.4	1.2	1.8	1.2	1.4	1.2

S–Strong (3), M-Medium(2), L-Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	2	2
CO2	2	2	3	2	2
CO3	2	2	3	2	2
CO4	3	3	2	2	2
CO5	2	2	3	2	2
W.AV	2.4	2.2	2.6	2	2

S–Strong (3), M-Medium(2), L-Low(1)

PART-III DSE-ELECTIVE-IV

Subject Code: 97263C	PRINCIPLES OF MANAGEMENT	LTPC 4004
---------------------------------	---------------------------------	----------------------

COURSE OBJECTIVES:

- To provide insights to facilitate efficient decision making
- To provide knowledge and ability to deal with various situations and also helps in handling recurring contemplated problems
- To learn decision making in increasing managerial efficiency

UNIT I Introduction to Management and Organizations 12 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 12 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 Organizing 12 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 12 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.

UNITV Controlling**12 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:60 Hours**COURSE OUTCOMES:**

On completion of this course, students will be able to		Knowledge Level
CO1	Identify and apply appropriate management techniques for managing business	L2
CO2	Have a conceptual knowledge about the planning and decision making	L2
CO3	Apply the concept of organising for the effective functioning of a management	L2
CO4	Evaluate leadership style to anticipate the consequences of each leadership style	L2
CO5	Demonstrate the techniques for controlling and coordination	L2

TEXT BOOKS:

1. StephenP.Robbins,DavidA.Decenzo,2016.Fundamentals of Management, Pearson Education, 9th Edition
2. Kuo,B.C.,Automatic Control System, Prentice
3. Sinha,N.K.,Control System, New Age International (P) Limited, Publishers(2002).

REFERENCE BOOKS:

1. HaroldKoontz,O'Donnell and Heinz Weihrich,2012.Essentials of Management. New Delhi,9th edition, Tata McGraw Hill
2. Management Fundamentals: Concepts, Applications, & Skill Development, 6th edition,Sage. 2014
3. Richard L.Daft, Principles Of Management, Cengage Learning.2009
4. Robbins,Management,9th edition Pearson Education. 2008

WEB LINK:

1. <https://www.weforum.org/agenda/2018/01/prediction-globalization-2018>
2. <http://www.pewresearch.org/fact-tank/2017/04/27/10-demographic-trends-shaping-the-u-s-and-the-world-in-2017>

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	1	2	2	2	1	1	1	2	1	2	1
CO2	2	2	1	1	2	2	2	1	2	1	1	1
CO3	1	2	2	2	1	2	2	1	2	2	1	1
CO4	2	1	1	0	1	1	1	2	1	1	1	2
CO5	2	2	2	2	2	1	1	1	2	1	2	1
W.AV	1.6	1.6	1.6	1.4	1.6	1.4	1.4	1.2	1.8	1.2	1.4	1.2

S–Strong (3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	2	2	2
CO2	2	1	1	2	2
CO3	2	2	1	2	2
CO4	1	2	2	2	2
CO5	1	2	2	2	2
W.AV	1.6	1.6	1.6	2	2

S–Strong (3), M–Medium(2), L–Low(1)

PART-III CORE
COURSE-PRACTICAL-VI

SubjectCode: 97264	RADIOAIDSANDCOMMUNICATIONLAB	LTPC 0064
-------------------------------------	-------------------------------------	----------------------------

COURSE OBJECTIVES:

- To implement several tasks being followed in ATC related to Navigation & Communication

LIST OF EQUIPMENTS

1. Power Amplification System -Ea3
2. Microphone and Headphone with PTT -Ea30
3. Master System with over ride facility -Ea3

LIST OF EXPERMENTS

Exp No	EXPERIMENTS
1	Aircraft identification: IC 320, Type of Aircraft : Airbus, Level FL 290, Dep Aerodrome: VEBB, Destination Aerodrome: VOMM Route: Over flying VEBS & VEVZ Selcal combination: ALCH 10 Q1. Before Departure from Mumbai obtain the following i) Startup Clearance ii) Taxi Instruction iii) Take Off clearance Q2. Over Kolkata Chennai FIR boundary you have received a SELCAL indication. Take action. Departure Time 1400 Q3. a) When crossing DOCKET, you observed fire on left engine and decided to make force landing. b) The fire was minor and you are able to extinguish the fire and decided to proceed as per flight plan. Take action. Q4. When you are 30 NMDME distance of Chennai request for Visual approach. 5. Transmit the following phrases as per Radio telephony procedure. (a) WAIT, I SHALL CALL YOU.

	(b) ESTABLISH RADIO CONTACT (c) MY TRANSMISSION IS ENDED AND I EXPECT RESPONSE FROM YOU (d) EXAMINE A SYSTEM OR PROCEDURE (e) CONTINUE IN ACCORDANCE WITH THE CONDITIONS SPECIFIED
2	Aircraft Identification: IC 402, Type of Aircraft : BOEING, Level FL 320, Dep Aerodrome : VIDP, Destination Aerodrome: VOMM Route : Over flying VOBP & VIH Y Selcal combination : CMJL 10 Q1. Obtain ATC and Take-off Clearance. Departure Time 0235 Q2. On reaching "BUKLO" you get Selcal indication in the cockpit. Take action. Q3. On reaching "BUSBO" report position. Q4. While passing "BODEL" a passenger on board is seriously ill. Take action. Q5. Transmit the following phrases as per Radio telephony 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	Aircraft identification: IC 181, Type of Aircraft: Boeing 737, Level FL 370, Dep Aerodrome : VIDP, Destination Aerodrome: VABB Route: Over flying VIUD & VAAH Selcal combination: CDJK 10 Q1. a) Carry out pre-flight check and Selcal check. b) Obtain departure on taxi holding point received instruction from appropriate services that there will be a delay of 30 minutes. Ask for alternative Taxiway. Departure Time 1400 Q2. At 20 NM DME distance from Jaipur, unable to establish communication. Take action. Q3. a) Assume that now the communication system starts working normal and at 70 NM DME distance from Ahmedabad observed fire alarm activated. Take action.

	b) Fire alarm found false and decided to continue the flight to destination. Take action. Q4. Over BOFIN, report our position. Q5. Transmit the following phrases as per Radio telephony procedure. i. A change has been made to your last clearance and superseded your previous clearance. ii. Reduce your rate of speech iii. No iv. I cannot comply with your request vi. Yes
4	Aircraft identification: 9W465 (JET 465), Type of Aircraft: B737, Level FL 300, Dep Aerodrome: VOMM, Destination Aerodrome: VIDP Route : o/f VOHY, VABP Selcal combination: RMLD Q1. a) As you approach Runway holding position you get ready for an immediate take off in order to avoid delay. Take action b) On getting airborne you see birds ahead, take appropriate action. Departure Time 0940 Q2. You are maintaining your cruising level, and reach BODEL. Take action. Q3. a) At 30 NM distance in bound Bhopal you are informed that a passenger has fallen sick and needs immediate medical attention. Take action. b) After sometime the passenger gets well and is normal, you decide to continue the flight to Delhi as per flight plan. Take action. Q4. While on final approach Runway 28, you reach decision height and do not see the runway. Take action. Q5. Transmit the following phrases as per Radio telephony procedure. i. Wind direction & speed 250 degrees 15 knots, 070 degrees 10 knots gusting to 20 knots. ii. Headings. 330 degrees, 080 degrees

	iii. Flightlevel200,310 iv. Visiblity1000,2000 v. RunwayVisualRange500,1200
5	Aircraft identification : DN 786, Type of Aircraft : Airbus, Level FL 320, Dep Aerodrome : VIDP, Destination Aerodrome: VOMM Route : Over flying VEBS & VEVZ Selcal combination : ALCH 10 Q 1.Youareparked inBayNo 7.Obtainthe following i. StartupClearence ii. Lineup instruction iii. Take Off clearence Departure Time 1400 Q 2.i. Over Bhopal you notice right engine is on fire. You plan to carry out force landing on an open field. iiThe firewas minor and youareabletoextinguishthe fireanddecidedto proceed as per flight plan. Take action. Q3Over BODAL your CoPilot is hurt due to BirdHit. Takeaction. Q4.Onfinalsyouarenortabletogetthreegreens.Askforvisualcheck. Q5.Transmit the following phrases asper Radio telephony procedure. i. IC439ii.VT ATT iii. VISIBILITY 2000 iv. RUNWAY VISUAL RANGE 800, RUNWAY VISUAL RANGE 550 v. FL 250, FL 050

COURSE OUTCOMES:

On completion of this course,students will be able to		Knowledge Level
CO1	Gain the basic understanding of regulations in radio communication	L2
CO2	Understand how radio waves work and its principlesly in gasa base for communication	L2
CO3	Understand phonetics and calls used in the aviation sector	L2
CO4	Decode phraseologies used byATCandpilots	L3
CO5	Identify NOTAM	L2

TEXT BOOKS:

1. K.D.Tuli,“GuideToFlight Radio telephony Radio Aids & Avionics VolI &II”,Himalayan Books, 11TH Edition, 2018.
2. R.B.UnderdownandDavidCockburn,“GroundStudiesforPilots:RadioAids”,WileyIndia Pvt Ltd; Sixth edition (7 July 2008).

REFERENCES BOOKS:

1. Trevor Thom, "Radio Navigation and Instrument Flying: Air Pilot's Manual", Airline Pub Ltd (1 July 2002).
2. Keith Williams, "Radio Navigation 1000 questions and answers with explanation", The English Book Store (The Aviation People) (1 January 2013).
3. Alan E. Bramson, Neville Birch and Alan Branson, "Radio Navigation for Pilots", Gardners Books; 3rd edition (June 30, 1996).

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	2	1	2	3	3	3	3	2	1	1	1	2
CO2	2	1	2	3	3	3	3	2	1	1	1	2
CO3	2	1	2	3	3	3	3	2	1	1	1	2
CO4	2	1	2	3	3	3	3	2	1	1	1	2
CO5	2	1	2	3	3	3	3	2	1	1	1	2
W.AV	2	1	2	3	3	3	3	2	1	1	1	2

S–Strong (3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	2	3	1	1
CO2	1	2	3	1	1
CO3	1	2	3	1	1
CO4	1	2	3	1	1
CO5	1	2	3	1	1
W.AV	1	2	3	1	1

S–Strong (3), M–Medium(2), L–Low(1)

PART-III

Subject Code: 97265	PROJECT WORK	PR	LTPC 00128
--------------------------------------	---------------------	-----------	-----------------------------

COURSE OBJECTIVES:

- To develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same.
- To train the students in preparing project reports and to face reviews and viva voce examination.
- To enhance knowledge to prepare a comprehensive project report after completing the work to the satisfaction.
- To improve the skill to manage the project and submit it for evaluation

Foster Proficiency in Problem Solving:

Develop the capacity to systematically address specific issues, beginning with problem identification and literature analysis, and culminating in the effective resolution of the problem.

Enhance Project Report Preparation Skills:

Equip students with the skills to create comprehensive project reports and confidently engage in reviews and viva voce examinations.

Course Structure:

Students, organized in groups of 1 to 2, will select a topic endorsed by the department head. Under the guidance of a faculty mentor, they will engage in the project's execution and, upon meeting the supervisor's criteria, compile a comprehensive project report.

Evaluation Process:

Student progress will be appraised through a series of a minimum of three reviews. The review committee will be assembled by the Department Head. The culmination of the project will involve the submission of a project report by the end of the semester.

Final Assessment:

The project work's evaluation will comprise both an oral presentation and an assessment of the project report. This assessment will be conducted jointly by external and internal examiners, who will be nominated by the Department Head

TOTAL:100 PERIODS

COURSE OUTCOMES:

On completion of this course, students will be able to		Knowledge Level
CO1	Proficient Problem–Solving Skills	L2
CO2	Effective Project Report Preparation	L2
CO3	Skillful Engagement in Reviews and VivaVoce Examinations	L2
CO4	Collaborative Project Execution	L2
CO5	Project Management and Evaluation	L2
CO6	Critical Analysis and Synthesis	L2
CO7	Effective Communication and Presentation	L2
CO8	Profound Understanding of Evaluation Methods	L2

By achieving these course outcomes, students will be well-prepared to tackle complex problems, manage projects effectively, and communicate their findings confidently in both written and oral formats.

Mapping Course Outcomes Vs Programme Outcomes

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	1	2	3	3	3	3	3	3	2	2	3	3
CO2	1	2	3	3	3	3	3	3	2	2	3	3
CO3	1	2	3	3	3	3	3	3	2	2	3	3
CO4	1	2	3	3	3	3	3	3	2	2	3	3
CO5	1	2	3	3	3	3	3	3	2	2	3	3
CO6	1	2	3	3	3	3	3	3	2	2	3	3
CO7	1	2	3	3	3	3	3	3	2	2	3	3
CO8	1	2	3	3	3	3	3	3	2	2	3	3
W.AV	1	2	3	3	3	3	3	3	2	2	3	3

S–Strong (3), M–Medium(2), L–Low(1)

Mapping Course Outcomes Vs Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2
CO2	3	3	3	3	2
CO3	3	3	3	3	2
CO4	3	3	3	3	2
CO5	3	3	3	3	2
CO6	3	3	3	3	2
CO7	3	3	3	3	2
CO8	3	3	3	3	2
W.AV	3	3	3	3	2

S–Strong (3), M-Medium(2), L-Low(1)

UG Programme

Passing minimum

- A candidate shall be declared to have passed in each course if he/she secures not less than 40% marks in the End Semester Examinations and 40% marks in the Internal Assessment and not less than 40% in the aggregate, taking Continuous assessment and End Semester Examinations marks together.
- The passing minimum for CIA shall be 40% out of 25 marks (i.e.10 marks) in Theory/ Practical Examinations.
- The passing minimum for University Examinations shall be 40% out of 75 marks (i.e. 30 marks) for Theory /Practical papers.
- The candidates not obtain 40% in the Internal Assessment are permitted to improve their Internal Assessment marks in the subsequent semesters (2 chances will be given) by writing the CIA tests or by submitting assignments.
- Candidates, who have secured the pass marks in the End-Semester Examination and in the CIA but failed to secure the aggregate minimum pass mark (E.S.E + C I.A), are permitted to improve their Internal Assessment mark in the following semester and/or in University examinations.
- A candidate shall be declared to have passed in the Dissertation/Project report/Internship report if he/she gets not less than 40% marks in the Internal Assessment and End Semester Examinations and not less than 40% in the aggregate, taking Continuous assessment and End Semester Examinations marks together.
- A candidate who gets less than 40% in the Dissertation / Internship/ Project Report must resubmit the thesis. Such candidates need to take again the Viva-Voce on the resubmitted report/thesis.

18.2 Grading of the Courses

The following table gives the marks, Grade points, Letter Grades, and classifications meant to indicate the overall academic performance of the candidate.

Conversion of Marks to Grade Points and Letter Grade (Performance in Course / Paper)

RANGE OF MARKS	GRADE POINTS	LETTER GRADE	DESCRIPTION
90 - 100	9.0 – 10.0	O	Outstanding
80 - 89	8.0 – 8.9	D+	Excellent
75 - 79	7.5 – 7.9	D	Distinction
70 - 74	7.0 – 7.4	A+	Very Good

60 - 69	6.0 – 6.9	A	Good
50 - 59	5.0 – 5.9	B	Average
40 - 49	4.0 – 4.9	C	Satisfactory
00 - 39	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

- Successful candidates passing the examinations and earning a GPA between 9.0 and 10.0 and marks from 90 – 100 shall be declared to have Outstanding (O).
- Successful candidates passing the examinations and earning GPA between 8.0 and 8.9 and marks from 80 - 89 shall be declared to have Excellent (D+).
- Successful candidates passing the examinations and earning GPA between 7.5 – 7.9 and marks from 75 - 79 shall be declared to have Distinction (D).
- Successful candidates passing the examinations and earning GPA between 7.0 – 7.4 and marks from 70 - 74 shall be declared to have Very Good (A+).
- Successful candidates passing the examinations and earning GPA between 6.0 – 6.9 and marks from 60 - 69 shall be declared to have Good (A).
- Successful candidates passing the examinations and earning GPA between 5.0 – 5.9 and marks from 50 - 59 shall be declared to have Average (B).
- Successful candidates passing the examinations and earning GPA between 4.0 – 4.9 and marks from 40 - 49 shall be declared to have Satisfactory (C).
- Candidates earning GPA between 0.0 and marks from 00 - 39 shall be declared to have Re-appear (U).
- Absence from an examination shall not be taken as an attempt.

From the second semester onwards the total performance within a semester and continuous performance starting from the first semester are indicated respectively by Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA).

These two are calculated by the following formulate

$$\text{GRADE POINT AVERAGE (GPA)} = \frac{\sum C_i G_i}{\sum C_i}$$

$$\text{GPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses in a Semester}}$$

18.3 Classification of the final result

The final result of the candidate shall be based only on the CGPA earned by the candidate.

- a) Successful candidates passing the examinations and earning CGPA between 9.5 and 10.0 shall be given Letter Grade (O+) and those who earned CGPA between 9.0 and 9.4 shall be given Letter Grade (O) and declared to have First Class –Exemplary*.
- b) Successful candidates passing the examinations and earning CGPA between 7.5 and 7.9 shall be given Letter Grade (D), those who earned CGPA between 8.0 and 8.4 shall be given Letter Grade (D+) and those who earned CGPA between 8.5 and 8.9 shall be given Letter Grade (D++) and declared to have First Class with Distinction*.
- c) Successful candidates passing the examinations and earning CGPA between 6.0 and 6.4 shall be given Letter Grade (A), those who earned CGPA between 6.5 and 6.9 shall be given Letter Grade (A+), and those who earned CGPA between 7.0 and 7.4 shall be given Letter Grade (A++) and declared to have First Class.
- d) Successful candidates passing the examinations and earning CGPA between 5.0 and 5.4 shall be given Letter Grade (B) and those who earned CGPA between 5.5 and 5.9 shall be given Letter Grade (B+) and declared to have passed in the Second Class.
- e) Successful candidates passing the examinations and earning CGPA between 4.0 and 4.4 shall be given Letter Grade (C) and those who earned CGPA between 4.5 and 4.9 shall be given Letter Grade (C+) and declared to have passed in the Third Class.
- f) Absence from an examination shall not be taken as an attempt.

Final Result

CGPA	Grade	Classification of Final Result
9.5 – 10.0 9.0 and above but below 9.5	O+ O	First Class – Exemplary*
8.5 and above but below 9.0 8.0 and above but below 8.5 7.5 and above but below 8.0	D++ D+ D	First Class with Distinction*
7.0 and above but below 7.5 6.5 and above but below 7.0 6.0 and above but below 6.5	A++ A+ A	First Class
5.5 and above but below 6.0 5.0 and above but below 5.5	B+ B	Second Class

4.5 and above but below 5.0 4.0 and above but below 4.5	C+ C	Third Class
0.0 and above but below 4.0	U	Re-appear

CUMULATIVE GRADE POINT AVERAGE (CGPA) = $\frac{\sum_n \sum_i C_{ni} \cdot G_{ni}}{\sum_n \sum_i C_{ni}}$

CGPA = Sum of the multiplication of grade points by the credits of the entire programme

Sum of the credits of the course for the entire Programme

Where ‘**C_i**’ is the Credit earned for Course i in any semester; ‘**G_i**’ is the Grade Point obtained by the student for Course i and ‘**n**’ refers to the semester in which such courses were credited.

CGPA (Cumulative Grade Point Average) = Average Grade Point of all the Courses passed starting from the first semester to the current semester.

Note: * The candidates who have passed in the first appearance and within the prescribed Semesters of the UG Programme (Major, Allied, and Elective courses alone) are eligible for this classification.