FACULTY OF ARTS, SCIENCE, COMMERCE, MANAGEMENT AND HUMANITIES

UNDER GRADUATE PROGRAMMES

B.Sc COMPUTER SCIENCE

INFORMATION TECHNOLOGY AND CYBER SECURITY

REGULATIONS -2024

CHOICE BASED CREDIT SYSTEM (CBCS)

Effective from the Academic Year 2024-2025

IGNITE • INSPIRE • INNOVATE

ST. PETER’S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Deemed to be University)
Established under Section 3 of UGC Act, 1956
(Accredited with A+ Grade by NAAC & ISO 9001:2015 Certified)
AVADI, Chennai - 600054

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

UNDER GRADUATE REGULATIONS UNDER CHOICE BASED CREDIT SYSTEM

(with Effective from the Academic Year 2024-2025 and onwards)

REGULATIONS (2024)

The following regulations are effective from the academic year 2024-2025 and are applicable to candidates admitted to Undergraduate (UG) degree programmes in the Faculty of Arts, Science, Commerce, Management and Humanities, St. Peter"s Institute of Higher Education and Research (SPIHER).

1. PROGRAMMES OFFERED

1.1 UG Programmes Offered

1.2 A candidate may undergo a programme in any one of the undergraduate programmes approved by the SPIHER as given below.

S. No.	Programme	Discipline
1.	BA	Economics
2.	BA	English
3.	BA	Political Science
4.	BA	Tamil
5.	BBA	Business Administration
6.	BCA	Computer Applications
7.	BCA	Artificial Intelligence and Machine Learning
8.	BCA	Data Science
9.	BCA	Emerging Technologies and Data Science
10.	B.Com.	Commerce
11.	B.Com.	Accounting and Finance
12.	B.Com.	Bank Management
13.	B.Com.	Computer Applications
14.	B.Com.	Corporate Secretaryship
15.	B.Sc.	Biotechnology
16.	B.Sc.	Chemistry
17.	B.Sc.	Computer Science
18.	B.Sc.	Information Technology and Cyber Security
19.	B.Sc.	Microbiology
20.	B.Sc.	Visual Communication
21.	B.Sc.	Animation
22.	B.Sc.	Game Art
23.	B.Sc.	Game Design
24.	B.Sc.	Visual Production
25.	B.Sc.	Visual Effects
26.	B.Sc.	Visual Media Communication

1.3 Duration of the Programme

1.3.1 The minimum and maximum period for the completion of the Undergraduate degree with multiple entry and exit option are given below.

Programmes	**Year of Study**	**Minimum No. of Semesters**	**Maximum No. of Semesters**
BA. / BBA / BCA / B.Com. / B.Sc.	I	2	4
	II	4	6
	III	6	8
	IV	8	10

Each semester normally consists of 90 working days or 450 hours instructional hours of study. Examination shall be conducted at the end of every semester for the respective course.

2. MODE OF STUDY

All programmes are offered under Full-time regular mode. Candidates admitted under Full-time should be present in the SPIHER during the complete working hours for curricular, co-curricular and extra-curricular activities assigned to them.

3. ELIGIBILITY FOR ADMISSION

Eligibility for admission will be as per the criterion specified by the appropriate agencies of the Government of India.

- Candidates who passed the Higher Secondary Examination (10 +2) [Academic or Vocational] conducted by the Government of Tamil Nadu or its equivalent in the relevant subjects as recognized by the Institute or any other equivalent Examination accepted by SPIHER thereto wherever prescribed are eligible for admission to undergraduate degree programme with multiple entry and exit option **(Annexure – 1).**

4. CHOICE BASED CREDIT SYSTEM

All the programmes are offered under Choice Based Credit System (CBCS) with a total credit of 160 for 4 year UG programme and multiple entry and exit system

4.1 Credit

Credit means the weightage given to each course by the experts of the Board of Studies concerned. Total credits offered are 160 as per the UGC guidelines for the 4 year UG programme

5. STRUCTURE OF PROGRAMME

5.1 MAJOR COURSES

Major course consists of theory and practical of department domains for which examinations shall be conducted at the end of each semester. Students have to earn a minimum of required credits under major course.

5.2 MINOR COURSES

Minor Course consists of courses from disciplinary/ interdisciplinary and skill based courses and Students will have the option to choose the courses in each Semester.

5.3 MULTI DISCIPLINARY COURSES (MDC)

All UG students are required to undergo 3 introductory level courses relating to any of the broad disciplines. These courses are intended to broaden the intellectual experience and form part of liberal arts and Science education. The students have to study 3 Multidisciplinary courses and they have to earn a minimum of 09 credits

5.4 SKILL ENHANCEMENT COURSES (SEC)

These courses are aimed to impart practical skills, hands-on training, soft skills etc., to enhance the employability of students. Three skill enhancement courses are offered in the first, second and third semesters. The examination shall be conducted at the end of respective semester students have to earn a minimum of 09 credits in Skill Enhancement Courses.

5.5 ABILITY ENHANCEMENT COURSE (AEC)

There are four Ability Enhancement Courses offered during the first four semesters. Two credits are awarded for each course and the examinations will be conducted at the end of the semester. Students have to earn a minimum of 08 credits in Ability Enhancement Courses.

5.6 INTERNSHIP

The students exiting the programme after 1st year or 2nd year must have completed four credits internship /apprenticeship during 1st year or 2nd year summer term.

5.7 VALUE ADDED COURSES (VAC)

The students will study three Value Added Courses in the first three semesters of their programme. Two credits are awarded for each course and the examinations will be conducted at the end of each semester.

5.8 PROJECT WORK

The candidates shall undertake the research project or dissertation in the seventh and eighth semester as Phase I & II. The project report should be submitted at the end of the 7th and 8th semester. Students have to earn a minimum of 12 credits in Research Project/Dissertation.

If the candidate undertakes the project work outside the department the faculty concerned within the department shall be the Supervisor and the teacher/ scientist under whom the work is carried out will be the Co-Supervisor. The candidate shall bring the attendance certificate from the place where the project work carried out.

Permission for project work in general will be given to innovative and industry related work. Such projects will be evaluated periodically. If the Project evaluation committee is satisfied with the progress of the project work, continuation for the project work will be given until the final assessment is made in the VII and VIII semester. In case, there is no tangible progress in a session, such project work will be terminated and the students have to do their project in their respective departments.

HOD shall assign a project supervisor who shall monitor the student project works. A project assessing committee (PAC) shall be constituted with HOD and two senior faculty members of the department. The PAC shall announce the dates for the reviews and demonstration. The student shall make a presentation on the progress and demonstration of their project before the PAC in the presence of their supervisor on the scheduled dates.

The candidate has to submit in consultation with his / her supervisor the title, objective and the action plan to the PAC on the first review for approval of the project. The student can initiate the project work only after obtaining the approval of PAC.

Project work may be allotted to a group of 4 to 6 students as a group. In special cases, the number of students in a project group can exceed six, if it can be justified by the project supervisor and HoD, that the project work content is large enough.

For project work, assessment is done on a continuous basis by 3 reviews for 40 marks and final *viva voce* carries 60 Marks in each phase at the end of the semester.

There shall be three project reviews (conducted during the pre-final semester and final semester) to be conducted by a review committee. The student shall make presentation on the progress made, before the committee. The head of the department shall constitute the review committee for each branch in consultation with dean. The members of the review committee will evaluate the progress of the project and award marks as given below.

Project reviews (CIA) Marks			**Final Project Report (ESE) and *Viva Voce* Examination (Marks)**	**Total Marks**
Review 1	**Review 2**	**Review 3**		
5	15	20	60	100

The total marks obtained in the three reviews, rounded to the nearest integer is the continuous internal assessment marks out of 40. There shall be a final viva-voce examination at the end of semester conducted by one internal examiner, one external examiner and the supervisor concerned.

A student is expected to attend all the project reviews conducted by the institution on the scheduled dates. It is mandatory for every student to attend the reviews, even if they are working on a project in an industry based outside Chennai city. It is their duty to inform the organization about the project reviews and its importance, and get permission to attend the same. If a student does not attend any of the project reviews, he / she shall not be allowed for the successive reviews and thereby not allowed to appear for the final *viva voce* examination.

The candidate is expected to submit the project report as per the guidelines of the institution on or before the last day of submission. If he/she fails to submit the project report, even beyond the extended time, then he/she is deemed to have failed in the project work and shall register for the same in the subsequent semester and re-do the project after obtaining permission from the HoD and Dean.

5.9 ONLINE COURSES

The department shall approve the list of online courses offered by approved external agencies such as SWAYAM / NPTEL / MOOC. While listing the courses, the department shall consider the following points:

a. The course evaluation is carried out by the same external agency

b. Equivalent grading mechanism to be arrived at by the department

A student can register up to a maximum of 32 credits (total) as online courses during the entire programme of study. These shall be treated as Elective courses (programme elective or open elective). Students may be allowed to register for one course per semester. The student shall produce a Pass Certificate from the respective agencies. The credits(s) earned by the students will be transferred to the concerned course in the Grade Sheet.

5.10 INTERNSHIP / INDUSTRIAL TRAINING

Every student is required to undergo Industrial Visits during every semester of the Programme. HoDs shall take efforts to send the students to industrial visits in every semester.

Every student will have to undergo Internship / Industrial training for a Minimum period of 2 weeks during the summer term at the end of 1st and 2nd year..

This could be internship in an industry approved by the Dean or Professional Enrichment courses (like attending Summer Schools, Winter Schools, Workshops) offered on Campus or in Registered Off Campus recognised Training Centres approved by the Dean for a minimum period of 2 weeks.

A report on Training undergone by the student, duly attested by the Coordinator concerned from the industry / Organization, in which the student has undergone training and the Head of the Department concerned, shall be submitted after the completion of training. The evaluation of report and viva voce examination can be computed as per norms for the End Semester examination.

5.11 NSS/ NCC/ YRC/SPORTS Training

NSS/ YRC training is compulsory for all the Undergraduate students:

- The activities will include Practical / Field activities / Extension lectures. The activities shall be beyond class hours.
- The student participation shall be for a minimum period of 45 hours during the first / Second year.
- The activities will be monitored by the respective faculty in charge.
- Grades will be awarded on the basis of participation, attendance, performance and behavior. Grades shall be entered in the Grade statement as given below:

Very Good, Good, Satisfactory and **Unsatisfactory**

- If a student gets an unsatisfactory Grade, he/she has to repeat the above activity in the subsequent years, along with the first year students.
- The Grades awarded by the Faculty in-charge shall be entered in the Third Year (Sixth Semester) Grade Sheet.

5.12 Credit Distribution

S. No.	Category	3-year UG	4-year UG
1	Major Core Courses	60	80
2	Minor Stream Courses	24	32
3	Multidisciplinary Courses	9	9
4	Ability Enhancement Courses (AEC)	8	8
5	Skill Enhancement Courses (SEC)	9	9
6	Value Added Courses	6	6
7	Summer Internship	4	4
8	Research Project/Dissertation	-	12
	Total	**126**	**168**

6. MEDIUM OF INSTRUCTION

The medium of instruction, examinations and project report will be in English Language throughout the Programme except BA Tamil. The courses offered under Language (Tamil / Malayalam / Telgu / Hindi / French etc) will be taught in the respective language only.

7. MAXIMUM MARKS

All the theory, practical and project courses shall carry a maximum of 100 marks, out of which 40 marks is awarded for Continuous Internal Assessment (CIA) and 60 marks for End Semester Examination (ESE).

8. REQUIREMENTS FOR COMPLETION OF A SEMESTER

A candidate who has fulfilled the following conditions shall be deemed to have satisfied the requirement for completion of a semester.

- He / She secures not less than 75% of overall attendance in that semester.
- Candidates who do not have the requisite attendance for the semester will not be permitted to write the semester Examinations.
- A maximum of 10% shall be allowed under On Duty (OD) / Medical leave category.

9. VARIOUS POSITIONS IN A

DEPARTMENT 9.1 DEAN

All Arts, Science, Commerce, Management and Humanities Departments are headed by a Dean. The Dean is responsible for all activities taking place in coordination with all department heads and all faculty members belonging to them. The Dean makes a review of all the academic activities of faculty members, students and research on a regular time interval and takes steps to improve the morale of all Faculty and Students.

9.2 HEAD OF THE DEPARTMENT

Each department offering various UG and PG programmes is headed by a Head of the Department (HoD). The HoD is responsible for allotting courses to each faculty member uniformly in consultation with other HoD"s and Deans. The HoD is responsible for streamlined teaching of courses to students, improvement and assessment of teaching quality within the department on a continuous basis, assessment of faculty members, transparent conduct of continuous internal assessment tests, interacting with parents, ensuring that all academic and non-academic activities of Faculty and students are monitored and steps taken for their improvement.

9.3 FACULTY ADVISOR

To help the students in planning their courses of study and to render general advice regarding either the academic programme or any other activity, the Head of the Department concerned, will assign every year, a certain number of students from the first year to a faculty member who will be called as Faculty Advisor. The set of students thus assigned will continue to be under the guidance of this Faculty Advisor till they complete the programme or replaced by the HoD. The Faculty Advisor gets information about the syllabus coverage by the faculty members, requirements of the students academically and otherwise, attendance and progress of the students from the respective faculty advisors. The Faculty Advisor also informs the students about the academic schedule including the dates of assessments and syllabus coverage for each assessment, weightage for each assessment, their continuous internal assessment marks and attendance percentage details before the commencement of end semester examinations.

9.4 FACULTY MENTOR

To help students in planning their courses of study and for general advice on the academic programme and personal counselling, the HoD shall allot 20 students to a faculty who will function as a faculty mentor throughout their period of study. Faculty mentor shall advise the students and monitor their behaviour and academic performance. Problems if any shall be counselled by them periodically. The faculty mentor is also responsible to inform the parents of their mentee"s progress. The faculty mentor shall display the cumulative attendance particulars of his/her mentees periodically (once in four weeks) on the notice board to know their attendance status and satisfies the requirements to appear for the End Semester Examination.

9.5 COURSE COORDINATOR FOR COMMON COURSE

Each common theory course offered to more than one class or branch or group of branches, shall have a “course coordinator”. The course coordinator will be nominated by the dean in consultation with respective head of the department. The course coordinator will be normally a senior staff who is one among the teachers teaching the course.

The “Course Coordinator” shall meet the teachers handling the course, as often as possible and ensure

- A common teaching methodology is followed for the course.
- The study materials are prepared by the staff members and communicated to the students periodically.
- The involvement of students in course based projects and assignments.
- To prepare common question paper for continuous internal assessment tests.
- For uniform evaluation of continuous internal assessments answer sheets by arriving at a common scheme of evaluation.

The course coordinator is responsible for evaluating the performance of the students in the continuous internal assessments and end semester examinations and analyse them to find suitable methodologies for improvement in the performance. The analysis should be submitted to the HoD and Dean for suitable action.

10. CLASS COMMITTEE

a) Constitution of the Class Committee

For every class, a class committee shall be constituted by the Heads of Department, as given below:

Chairman	A faculty member not teaching that particular class
Members	• Faculty of all the courses of study • Four student members from the class to be nominated by the HoD

b) Functions of the Class Committee

(i) The class committee shall meet thrice during the semester. The first meeting will be held within two weeks from the date of commencement of the semester in which the nature of the broad assessment procedure for the different courses will be discussed. The second and third meetings will be held six weeks and ten weeks respectively from the commencement of a semester to meaningfully interact and express opinions and suggestions to improve the effectiveness of teaching - learning process and analyze the performance of the students in the assessments. The chairperson of the class committee should send the minutes of the class committee meetings to the Dean through the Head of the Department, immediately after the meetings is over.

(ii) During the first meeting of the class committee, all the faculty members shall give their course plan to the class committee chairperson/chairman for approval and uploading into the ERP.

(iii) Any innovation in any course plan not agreed by the class committee or the HoD will be referred to the Dean for approval.

11. COURSE PLAN AND DELIVERY

a) The course plan will have details of the overview of the course, course objectives, course outcome, course teaching and learning activities and course assessment methods and policy on compensation assessment.

b) Each course will have tailor-made assessment models *viz.* group tasks, assignments, report on field visit, quizzes, open book tests, laboratory exercises, mini-project and end of session summative assessment etc. The course plan will also have details of information on study materials.

c) The number of assessments for a course shall range from 4 to 6.

d) Every course should have a final assessment (End Semester) on the entire syllabus with 60% weightage.

e) The course plan shall be approved by the Class Committee (CC) chairperson / chairman and the HoD of the Department offering the course.

f) The Course plans for all courses offered by the Institute will be available in the website for reference.

g) ATTENDANCE

All courses should have a common attendance policy:

a) At least 75% attendance in each course is mandatory.

b) A maximum of 10% shall be allowed under On Duty (OD) / Medical leave category.

c) Students with less than 65% of attendance shall be prevented from writing the End Semester Examination.

12. ASSESSMENT PROCEDURE

Each Course shall have assessments done according to the Course Plan drawn by the faculty who handles the course. The assessments of a course will depend on the needed course learning outcomes.

There will be a Continuous Internal Assessment Tests and End Semester Examination for both theory and practical courses of all programmes.

(i) **Theory / practical / projects courses**

Continuous Internal Assessment (CIA)	:	40 % Marks
End Semester Examination (ESE)	:	60 % Marks

12.1 CONTINUOUS INTERNAL ASSESSMENT (CIA)

(a) Theory Courses

- There will be a minimum of Three continuous assessment tests (Assessment Test 1,2 and a Model Test), for each theory course.

Distribution of Continuous Internal Assessment (CIA) marks for a theory course			
Evaluation Component	**Syllabus coverage**	**Duration of the Exam**	**Maximum marks**
CIA-1	First 1.5 Units of the syllabus	2 Hours	**7.5**
CIA-2	Second 1.5 Units of the syllabus	2 Hours	**7.5**
Model Test	All units	3 Hours	**10**
Assignment / Mini Project (or) Group Presentation	Two written assignments for each course / Written quiz (or) Presentation of a written Report (or) Case study / Multiple Choice Objective Type Test Or Technical Project involving not more than 3 students (or) any other Group Presentation related to the course.		**10**
Attendance	75% and above		**5**
Total			**40**

- The continuous assessment marks obtained by the candidate in the first appearance shall be retained, considered and valid for all subsequent attempts, till the candidate secures a pass.

Pattern of CIA/ Model Test Question Paper

(b) Practical Courses

S. No.	**Category**	**Maximum Marks**
01	Attendance (75% and above)	**05**
01	Observation work	**20**
02	Model Test	**15**
Total		**40**

- For practical courses, the student will be evaluated on a continuous basis for 20 Marks (which will include performing all experiments, submitting observation and record note book in scheduled format and time), 15 marks for model test at the end of the semester and 5 marks for attendance in the course.

- For practical courses, if a student has been absent for some practical classes or has performed poorly, then the student will have to get permission from the lab in-charge and year coordinator to do the experiments, so that he/she meets all the requirements for the course and thereby allowed to appear for model and end semester practical exams.

- If a student has not done all the experiments assigned for that lab, before the scheduled date will not be allowed to appear for the model and end semester practical exam. Such students will have to register the course again by doing all the experiments in the next semester when the course is offered.

Pattern of Question Paper (Theory) for CIA 1 and 2

Particulars	**Remarks**
Maximum Marks	50 Marks
Duration	2 Hours
Part – A (Q.No. 1 to 10)	MCQ (10x1=10)
Part – B (Q.No.11to 20)	Short Answers (10x2=20)
Part – C (Q.No. 21 to 22)	Essay Type Answers (two out of Three) (2x10=20)

Pattern of Question Paper (Theory) for Model

Particulars	**Remarks**
Maximum Marks	100 Marks
Duration	3 Hours
Part – A (Q.No. 1 to 10)	MCQ (10x1=10)
Part – B (Q.No. 11 to 15)	Short Answers (Either or Type) (5x6=30)
Part – C (Q.No. 16 to 20)	Long Answers (Either or type) (5x12=60)

12.2 END SEMESTER EXAMINATION (ESE)

- The end semester examinations shall be conducted at the end of the odd and even semester of the Academic year.

- End semester examinations will be conducted for a maximum of 100 marks. The marks secured in end semester exams will be converted to 60 marks.

- The evaluation of training will be made by a three member committee constituted by Head of the Department in consultation with Faculty Advisor and respective Training Coordinator. A presentation should be made by the student before the Committee, based on the Industrial Training or Professional Enrichment undergone.

Pattern of Question Paper (Theory) for ESE

Particulars	**Remarks**
Maximum Marks	100 Marks
Duration	3 Hours
Part – A (Q.No. 1 to 10)	MCQ (10x1=10)
Part – B (Q.No. 11 to 15)	Short Answers (Either or Type) (5x6=30)
Part – C (Q.No. 16 to 20)	Long Answers (Either or type) (5x12=60)

13. PURSUING COURSES IN OTHER INDIAN INSTITUTIONS AND ABROAD

- A student can be selected, to get Professional Exposure in his/her area of Expertise in any Reputed Research Organization or Educational Institution of repute or any Universities in India and abroad.

- This is possible only with the List of Research Organizations, Educational Institutions in India and abroad approved by the Academic Council.

- The student can have the option of spending not more than three to Six months in the Final year or Pre- final year of his/her Degree. During this period, the student can do his/her Project work or register for courses which will be approved by the Class Committee and Dean, under the Guidance of a Project Supervisor who is employed in the Organization and Co-guided by a staff member from our Institution.

- Credit Transfer can be done by the CoE on submission of certificate through the HoD and Dean within 15 days.

- The students who undergo training outside the Institution (either in India or Abroad) is expected to abide by all Rules and Regulations to be followed as per Indian and the respective Country Laws, and also should take care of Financial, Travel and Accommodation expenses.

14. PASSING REQUIREMENTS

- A candidate should secure not less than 40% of total marks (Minimum 40% of the grand total of CIA marks and ESE marks put together) prescribed for the courses, subject to securing a minimum of 40% marks out of maximum mark in End Semester Exams (ESE). Then he/she shall be declared to have passed in the examination.
- If a candidate fails to secure a pass in a particular course, it is mandatory that he/she shall register and reappear for the examination in that course during the next semester when examination is conducted in that course. It is mandatory that he/she should continue to register and reappear for the examination till he/she secures a pass.

15. REVALUATION OF ANSWER SCRIPTS

A candidate can apply for revaluation of his/her End semester examination answer Scripts in a theory course, immediately after the declaration of results, on payment of a prescribed fee along with application to the Controller of Examinations through the Head of the Department. The Controller of Examination will arrange for the revaluation and the result will be intimated to the candidate concerned through the Head of the Department. Revaluation is not permitted for practical courses and for project work.

16. WITHDRAWAL FROM EXAMINATIONS

- A candidate may, for valid reasons, (medically unfit / unexpected family situations) be granted permission to withdraw from appearing for the examination in any course or courses in any one of the semester examination during the entire duration of the degree programme.

- Withdrawal application shall be valid only if the candidate is otherwise normally eligible (if he/she satisfies Attendance requirements and should not be involved in Disciplinary issues or Malpractice in Exams) to write the examination and if it is made within FIVE days before the commencement of the examination in that course or courses and also recommended by the Dean through HoD.

- Notwithstanding the requirement of mandatory FIVE days notice, applications for withdrawal for special cases under extraordinary conditions will be considered based on the merit of the case.

- Withdrawal shall not be considered as an appearance for deciding the eligibility of a candidate for the purpose of Classification of Degree.

- Withdrawal is NOT permitted for arrears examinations of the previous semesters.

17. AUTHORIZED BREAK OF STUDY

- This shall be granted by the Institution, only once during the full duration of study, for valid reasons for a maximum of one year during the entire period of study of the degree programme.

- A candidate is normally not permitted to temporarily break the period of study. However, if a candidate would like to discontinue the programme temporarily in the middle of duration of study for valid reasons (such as accident or hospitalization due to prolonged ill health), he / she shall apply through the Dean in advance (Not later than the Reopening day of that semester) through the Head of the Department stating the reasons. He /She should also mention clearly, the Joining date and Semester for Continuation of Studies after completion of break of Study. In such cases, he/she will attend classes along with the Junior Batches. A student who availed break of study has to rejoin only in the same semester from where he/she left.

- The total period for completion of the programme shall not exceed more than 10 consecutive semesters from the time of commencement of the course irrespective of the period of break of study in order that he / she may be eligible for the award of the degree.

- If any student is not allowed to appear for End Semester Examinations for not satisfying Academic requirements and Disciplinary reasons, (Except due to Lack of Attendance), the period spent in that semester shall NOT be considered as permitted „Break of Study" and is NOT applicable for Authorized Break of Study.

- In extraordinary situations, a candidate may apply for additional break of study not exceeding another one Semester by paying prescribed fee for break of study. Such extended break of study shall be counted for the purpose of classification of First Class Degree.
- If the candidate has not reported back to the department, even after the extended Break of Study, the name of the candidate shall be deleted permanently from the institution enrolment. Such candidates are not entitled to seek readmission under any circumstances.

18. AWARD OF DEGREE

All assessments of a course will be done on absolute marks basis. However, for the purpose of reporting the performance of a candidate, letter grades, each carrying certain number of points, will be awarded as per the range of total marks (out of 100) obtained by the candidate in each course as detailed below:

RANGE OF MARKS FOR GRADES

Range of Marks	Letter Grade	Grade Point
90 -100	O	10
80–89	A+	9
70–79	A	8
60–69	B+	7
50–59	B	6
40-49	C	5
00-39 (Reappear)	F	0
ABSENT	AAA	0
Withdrawal	W	0
Authorised Break of Study	ABS	0

18.1 CUMULATIVE GRADE POINT AVERAGE CALCULATION

The CGPA calculation on a 10 Point scale is used to describe the overall performance of a student in all courses from first semester to the last semester. RA, AAA and W grades will be excluded for calculating GPA and CGPA.

$$\text{GPA}= \frac{\sum_{i=1}^{N} C_i\, GP_i}{\sum_i C_i} \qquad \text{CGPA} = \frac{\sum_{i=1}^{n} C_i\, GP_i}{\sum_i C_i}$$

Where

C_i – Credits for the course

GP_i – Grade Point for the course

i – Sum of all courses successfully cleared during all the semesters n
- Number of all courses successfully cleared during the particular
semester in the case of GPA and during all the semesters in the
case of CGPA

18.2 GRADE SHEET

After revaluation results are declared in each semester, Grade Sheets will be issued to each student. At the end of programme a consolidated grade sheet also will be issued to each student. The grade sheet and consolidated grade sheet will contain the following details:

- The programme and degree in which the candidate has studied
- The list of courses enrolled during the semester and the grade secured
- The Grade Point Average (GPA) for the semester.

18.3 CLASSIFICATION OF DEGREE AWARDED

Final Degree is awarded based on the following

Range of CGPA	**Classification of Degree**
≥ 7.50	First Class with Distinction
≥ 6.00 <7.50	First Class
≥ 5.00 < 6.0	Second Class
≥4 .00 < 5.0	Third Class

Minimum requirements for award of Degree: A student should have obtained a minimum of 4.0 CGPA.

1. A candidate who qualifies for the award of the Degree having passed the examination in all the courses of all the 8 semesters in his/her first appearance within a maximum of 10 consecutive securing a overall CGPA of not less than 7.5 (Calculated from 1st semester) shall be declared to have passed the examination in **First Class with Distinction**. Authorized Break of Study vide Clause 17, will be considered as an Appearance for Examinations, for award of First Class with Distinction. Withdrawal shall not be considered as an appearance for deciding the eligibility of a candidate for First Class with Distinction

2. A candidate who qualifies for the award of the Degree having passed the examination in all the courses of all the 8 semesters within a maximum period of 10 consecutive semesters after his/her commencement of study securing a overall CGPA of not less than 6.0 (Calculated from 1st semester), shall be declared to have passed the examination in **First Class.** Authorized break of study vide Clause 17 (if availed of) or prevention from writing End semester examination due to lack of attendance will not be considered as Appearance in Examinations. For award of First class, the extra number of semesters than can be provided (in addition to four years for Normal UG programme) will be equal to the Number of semesters availed for Authorized Break of Study or Lack of Attendance. Withdrawal shall not be considered as an appearance for deciding the eligibility of a candidate for First Class.
3. All other candidates who qualify for the award of the Degree having passed the examination in all the courses of all the 8 semesters within a maximum period of 10 consecutive after his/her commencement of study securing a overall CGPA of not less than 5.0, (Calculated from 1st semester) shall be declared to have passed the examination in **Second Class**.

4. All other candidates who qualify for the award of the Degree having passed the examination in all the courses of all the 8 semesters within a maximum period of 10 consecutive semesters after his/her commencement of study securing a overall CGPA of not less than 4.0, (Calculated from 1st semester) shall be declared to have passed the examination in **Third Class.**

5. A candidate who is absent in semester examination in a course/project work after having registered for the same, shall be considered to have appeared in that examination for the purpose of classification.

18.4 ELIGIBILITY FOR THE AWARD OF DEGREE

A student shall be declared to be eligible for the award of the Certificate / Diploma / UG Degree / UG Honours degree, provided the student has successfully completed all the requirements of the programme, and has passed all the prescribed examinations in all the I/II/III/IV year respectively within the maximum period specified in clause 1.3.

i) Successfully gained the required number of total credits as specified in the curriculum corresponding to his/her programme within the stipulated time.

ii) Successfully completed the programme requirements and has passed all the courses prescribed in all the semesters within a maximum period of 5 years reckoned from the commencement of the first semester to which the candidate was admitted.

iii) Successfully completed any additional courses prescribed by the Institution.

iv) has earned a CGPA of not less than 4

v) has no dues to the Institution, Library, Hostels, etc.,

vi) has no disciplinary action pending against him / her.

19. SUPPLEMENTARY EXAMINATION

Supplementary examination will be conducted only for the final semester students within 10 days from the date of publication of results for students who have failed up to two theory courses. Only such students shall apply with the prescribed fee to the Controller of Examinations within the stipulated time period.

20. RANKING

A candidate who qualifies for the UG degree programme passing all the examinations in the first attempt, within the minimum period prescribed for the programme of study from semester I through semester VI/VIII to the programme shall be eligible for ranking. Such ranking will be confirmed to 10 percent of the total number of candidates qualified in that particular programme of study subject to a maximum of 10 ranks.

21. DISCIPLINE

Every student is required to observe disciplined and decorous behaviour both inside and outside the Institution and not to indulge in any activity which will tend to bring down the prestige of the Institution. If a student indulges in malpractice in any of the end semester theory / practical examination, continuous assessment examinations he/she shall will be liable for disciplinary action as prescribed by the SPIHER from time to time.

22. REVISION OF REGULATION AND CURRICULUM

St. Peter‟s Institute of Higher Education and Research may from time-to-time revise, amend or change the Regulations, Scheme of Examinations and Syllabi if found necessary.

23. MULTIPLE ENTRY AND EXIT

The students are allowed to exit the programme after I or II or III or IV year with Undergraduate Certificate, Undergraduate Diploma, Undergraduate Degree and Undergraduate with Honours / Honours (Research) respectively as per the regulations of NEP 2020, Government of India. Similarly, the students from other institutions can join SPIHER institution in the 3rd or 5th or 7th semester with an appropriate Undergraduate Certificate or Undergraduate Diploma or Undergraduate Degree Certificates respectively.

24. ACADEMIC BANK OF CREDITS (ABC)

All the students who admitted in any one of the above programmes are mandatory to register in the Academic Bank of Credits (ABC) portal provided by the Ministry of Education (MoE), Government of India.

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Annexure – 1

Eligibility requirements for Admission to UG Program in Arts, Science, Commerce, Management and Humanities for the Academic year 2024-2025 and onwards

S. No.	Name of the Programme	Eligibility for admission
01	B.A. Economics	Candidates who passed the Higher Secondary Examination with Economics, Commerce, and Accountancy conducted by the Government of Tamil Nadu or its equivalent in the relevant subjects as recognized by the Institute or any other equivalent Examinations thereto are eligible for admission to B.A. in Economics Programme.
02	B.A. English	Candidates who have passed Higher Secondary Examination (XII) under the 10+2 pattern preferably taking Mathematics, Physics and Chemistry conducted by the Government of Tamil Nadu or its equivalent in the relevant subjects as recognized by the Institute or any other equivalent examination thereto wherever prescribed are eligible for admission to B.A. (English) Programme.
03	B.A. Political Science	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking Mathematics/ Statistics/ Computer/ Information Science being one of the subjects (OR) 3 year diploma after 10th or 10+2 pattern of education taking computer science / mathematics one of the subject.
04	B.A. Tamil	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern at the Higher Secondary level with minimum 50% aggregate marks.
05	BBA	Candidates who have passed Higher Secondary Education with Commerce, Economics and Accountancy conducted by the Government of Tamil Nadu or its equivalent in the relevant subjects as recognized by the institute or any other equivalent examination thereto are eligible for admission to BBA programme.
06	BCA	a) Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking Mathematics / Business Mathematics / Statistics/ Computer Science / Applied Mathematics / Information Science/Computer Applications being one of the subjects. b) 3 years diploma after 10th or 10+2 pattern of education taking Computer science / Mathematics as one of the subject. **Provision for lateral admission for bachelor of computer application (BCA)** Candidates with Diploma (3 years) in Computer Science and Engineering or Electrical and Electronics Engineering or Electronic and Communication Engineering awarded by Director of Technical Education, Government of Tamil Nadu or any other Diploma as equivalent thereto, shall be admitted to the Second year of the B.C.A Degree Course.
07	BCA (Artificial Intelligence and Machine Learning)	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking Computer Science / Mathematics / Business Mathematics / Statistics / Applied Mathematics being one of the subjects.

S. No.	Name of the Programme	Eligibility for admission
08	BCA (Data Science)	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking Computer Science / Mathematics / Business Mathematics / Statistics / Applied Mathematics being one of the subjects.
09	B.Com (General / Account and Finance / Computer Applications)	Candidates who passed the Higher Secondary Examination with Commerce, Economics and Accountancy conducted by the Government of Tamil Nadu or its equivalent in the relevant subjects as recognized by the Institute or any other equivalent Examination thereto are eligible for admission to B.Com. Programme.
10	B.Com (Corporate Secretaryship)	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern with Commerce, Accountancy, Economics or Business Mathematics as a subject under the academic or vocational stream at the Higher Secondary level.
11	B.Sc. Biochemistry	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern taking Biology or Botany or Zoology or chemistry or Physics as subjects at the Higher Secondary level.
12	B.Sc. Biotechnology	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern taking Biology or Botany or Zoology or chemistry as subjects at the Higher Secondary level.
13	B.Sc. Computer Science	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking Computer Science / Mathematics / Business Mathematics / Statistics / Applied Mathematics being one of the subjects.
14	B.Sc. Information Science with Cyber Security	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking Computer Science / Mathematics / Business Mathematics / Statistics / Applied Mathematics / Computer Applications being one of the subjects.
15	B.Sc. Information Security and Digital Forensics	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern preferably taking any Science Group or any group with Computer Science / Mathematics / Business Mathematics / Statistics / Applied Mathematics / Computer Applications / Commerce group with Computer Science or Computer Applications being one of the subjects.
16	B.Sc. Microbiology	Candidates who have passed Higher Secondary Education (XII) or any equivalent Examination conducted by a State Government or a University or Board under the 10+2 pattern taking Biology or Botany or Zoology or chemistry or Physics as subjects at the Higher Secondary level.
17	B.Sc. Visual Communication	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.

S. No.	Name of the Programme	Eligibility for admission
18	B.Sc. Animatiom	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.
19	B.Sc. Game Art	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.
20	B.Sc. Game Design	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.
21	B.Sc. Visual Effects	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.
22	B.Sc. Visual Media Communication	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.
23	B.Sc. Visual Production	Candidates who have passed Higher Secondary Education (XII) or vocational stream at the Higher Secondary level or any equivalent examination conducted by a State Government or a University or Board under the 10+2 pattern taking any group as subjects at the Higher Secondary level or diploma degree in Engineering.

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B.Sc. COMPUTER SCIENCE
INFORMATION TECHNOLOGY AND CYBER SECURITY

REGULATION 2024

CHOICE BASED CREDIT SYSTEM

VISION & MISSION OF THE INSTITUTION

Vision

To achieve, Academic Excellence in Engineering, Technology and Science through Teaching, Research and Extension to Society

Mission

By generating, preserving and disseminating knowledge through rigorous academic study, inquisitiveness to understand and explore nature, entrepreneurship with creativity and innovation

Cyber Security

Mission:

- To develop the students with extensive knowledge related to the development of Computer Science, Applications and Technology
- To collaborate with innovators to provide real-world, standards-based cyber security capabilities that address blooming technology.
- To encourage young minds to educate society to restore nationwide human safety and security in digital world.
- To enhance the academic level of graduates of Internet technology so they would be distinguished and qualified Locally, Regionally and Globally achieving the vision of the University and the Nation.

Mission:

To ignite and develop students to provide a sustainable, humane, and research-centric educational platform to achieve academic excellence in the domain of computer science, applications, and cyber security for a secure cyber infrastructure that inspires technological innovation and fosters economic growth, building a robust, resilient, and attack-free digital universe.

PROGRAMME OUTCOMES (POs)

Upon the Successful Completion of B.Sc. (CS) Programme, the student will exhibit

PO1	**Discipline knowledge:** Acquiring knowledge on basics of Computer Science in the field of cyber security and ability to apply the design principles in the development of solutions for problems of varying complexity
PO2	**Problem Solving:** Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibit a sound knowledge on data structures and algorithms
PO3	**Design and Development of Solutions:** Ability to critically Analyze, Categorize, Formulate, Solve and establish the Skills in applying various design strategies in the field of Cyber Security
PO4	**Programming Knowledge:** Exhibiting strong skills required to program a computer for various issues and problems of day-to-day applications with thorough knowledge on programming languages of various levels
PO5	**Application Systems Knowledge:** Strengthen the **critical thinking** skills and develop professionalism with the state of art ICT facilities.
PO6	**Modern Tool Usage:** Identify, select and use a modern scientific and IT tool or technique for modeling, prediction, data analysis and solving problems in the area of Computer Science and making them mobile based application software.
PO7	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings which means graduates should be able to apply IT principles in various domains, such as business, healthcare, finance, education, and more.
PO8	**Communication:** Excelling with good communication knowledge and effectively communicate with diverse types of audience.
PO9	**Project Management:** Practicing of existing projects and becoming independent to launch own project by identifying a gap in solutions.
P10	**Ethicon Profession, Environment and Society:** Exhibiting professional ethics to maintain the integrality in a working environment and also have concern on societal impacts due to computer-based solutions for problems.
P11	**Lifelong Learning:** To adopt independent learning with the change in C**yber Technology.**
P12	**Motivation to take up Higher Studies**: Quality for **higher education, government services**, industry needs and start up units through continuous practice of preparatory examinations.

Programme Educational Objectives:

PEO1	Graduates may additionally have basics in Mathematics, Programming, Networks Network Security, Big Data, Internet Of Things, Cyber laws, Cyber Security basics and advancements to resolve technical troubles.
PEO2	Graduates may want to have the capability to apply their know-how and talents acquired to treatment the problems in actual worldwide community and cyber safety areas and to boom viable and reliable structures to save you and shield structures from safety attack.
PEO3	Provide solutions making use of the knowledge gained in Artificial Intelligence& machine learning, Cloud Computing, Big Data and Cyber Security.
PEO4	Demonstrate comprehensive knowledge in IT solution development leading to excellence in professional career and/or higher education including research.
PEO5	To systematically educate the necessity to understand the impact of cyber crimes and threats with solutions in a global and societal context

Programme Specific Outcomes (PSOs)

After the successful completion of B.Sc. Computer Science with Cyber Security program the students are expected to

PSO1	Ability to analyze a problem, and identify and define the security related issues appropriate to its solution.
PSO2	Ability to design, implement, and evaluate a security system that capable of identify, prevent and protect from malware attack.
PSO3	To develop basic understandings of IOT structures and develop familiarity with basic security attacks and its measures.
PSO4	To code and execute python programming with a higher level of expertise
PSO5	Expose the students to learn the important of Cyber Security such as Cyber laws, Web designing, intrusion detection and biometric security so that they can opportunity to be a part of industry 5.0 applications irrespective of domains.

St. Peter’s Institute for Higher Education and Research
(Deemed to be University)
Established Under Section 3 of UGC Act, 1956
Avadi, Chennai – 600054

Department of Computer Science and Applications
Information Technology and Cyber Security (Regulation 2024)

S.No	Category	3-year UG	4-year UG
1	Major Core Courses	**68**	**88**
2	Minor Stream Courses	**24**	**32**
3	Multidisciplinary Courses	**9**	**9**
4	Ability Enhancement Courses (AEC)	**8**	**8**
5	Skill Enhancement Courses (SEC)	**9**	**9**
6	Value Added Courses	**6**	**6**
7	Summer Internship	**2**	**4**
8	Research Project/Dissertation	**0**	**12**
Total		**126**	**168**

B.Sc(ITCS) Curriculum 2024

Credits for 8 Sem

	Core Theory	Core Lab	Minor	Multi-Disciplinary	SEC	AEC	Value added	Internship	Mini Project	Project
I Sem	6	2	4	3	3	4				
II Sem	6	2	4	3	3	4				
III Sem	6	4	4	3	3		2			
IV Sem	10	4	4				2			
V Sem	8	4	4				2	2		
VI Sem	12	4	4							
VII Sem	6	4	4					2		6
VIII Sem	6	4	4							6
Total	**60**	**28**	**32**	**9**	**9**	**8**	**6**	**4**	**-**	**12**

SEMESTER – I

Course Code	Course Title	Hours / Week				Marks		
		L	T	P	C	CIA	ESE	Total
24CBU101	**Core 1:** Problem Solving Using Python	3	0	0	3	40	60	100
24CBU111	**Core 1:** Problem Solving Using Python Lab	0	0	4	2	40	60	100
24CBU102	**Core 2:** Introduction to Cyber security	3	0	0	3	40	60	100
24MAU101	**Minor 1:** Mathematics –I	4	0	0	4	40	60	100
24BAU162	**Multidisciplinary Course 1:** Management Thoughts and Applications	2	0	0	3	40	60	100
24CAU141	**SEC 1 :** Office Automation	3	0	0	3	40	60	100
24TAU151/ 24HIU151/ 24TEU151/ 24FRU151	**AEC1 :** Language-I (Tamil-I / Hindi-I / English-I, French-I)	3	0	0	2	40	60	100
24ENU151	**AEC2 :** English-I	3	0	0	2	40	60	100
Total		**21**	**0**	**4**	**22**	**320**	**480**	**800**

SEMESTER – II

Course Code	Course Title	Hours / Week				Marks		
		L	T	P	C	CIA	ESE	Total
24CBU201	**Core 3:** Operating Systems	3	0	0	3	40	60	100
24CBU211	**Core 3 Lab:** Operating Systems Lab	0	0	4	2	40	60	100
24CBU202	**Core4:** Cyber crime and Cyber law	3	0	0	3	40	60	100
24MAU201	**Minor 2**: Mathematics II	4	0	0	4	40	60	100
24BOU262	**Multidisciplinary Course 2:** Environmental Studies	2	0	0	3	40	60	100
24CBU241	**SEC 2:** Digital Literacy and Cyber Security	3	0	0	3	40	60	100
24TAU251/ 24HIU251/ 24TEU251/ 24FRU251	**AEC 3 :** Language-II (Tamil-II / Hindi-II / English-II, French-II)	3	0	0	2	40	60	100
24ENU251	**AEC 4:** English-II	3	0	0	2	40	60	100
Total		**21**	**0**	**4**	**22**	**320**	**480**	**800**

SEMESTER - 1

Course Code:	**Course Title:**	**L T P C**
24CBU101	**PROBLEM SOLVING USING PYTHON**	**4 0 0 3**

Prerequisites: None

Course Objectives:

1. To provide basic knowledge for solving problems using computers.
2. To impart the necessary skills for the development of applications.
3. To design an algorithmic solution to a problem, create and execute Python programs.

Unit 1:Problem Solving Techniques: **No. of Hours:09**

Introduction to components of a computer system: Memory, processor, I/O Devices, storage, operating system, Concept of assembler, compiler, interpreter, loader and linker. Idea of Algorithm: Representation of Algorithm, Flowchart, Pseudo code with examples, From algorithms to programs, source code.

Unit-2:Introduction Python: **No. of Hours:09**

Introduction-Python Overview-Comments-Identifiers-Reserved Keywords-Variables-Standard Data type-Operators-Statements and Expressions-String Operations Boolean Expressions-Control Statements-Iteration Statements-Input from Keyboard.

Unit 3: Function, String, Lists: **No. of Hours:09**

Introduction-Built-in Functions-User defined Functions- Python Recursive Function- Writing Python Scripting.

Introduction-String handling functions-String Formatting operator and functions

Lists: Value & Accessing Elements-Deleting elements from List-Built-in List Operators and methods.

Unit-4:Tuples,Dictionaries,Files & Exceptions: **No. of Hours:09**

Introduction-Creating Tuple-Accessing Tuple-Tuple Assignment - Tuple as Return Value-Basic Tuple Operations and Functions- Dictionaries: operations and methods; advanced list processing – list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram. Files: Text File Directories- Exceptions: Exception with arguments-User-Defined Exceptions.

Unit-5:Classes&Objects,Modules&Packages: **No. of Hours:09**

Introduction-class Definition-creating Objects-Objects as a Arguments Object as Return Values-Built-in Class Attributes-Inheritance-Method Overriding-Data Encapsulation-Data Hiding. modules, packages; Illustrative programs: word count, copy file.

Text Books

1. Problem Solving Using Python : Understanding the Python Programming Concepts, by Dr.K.Venkatanagendra, Notion Press Media Pvt.Ltd. 2022.
2. E. Balagurusamy, “Introduction to Computing & Problem Solving Using Python”, Mc Graw Hill Education, 2016.

Reference Books

1. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.
2. T. Budd, Exploring Python, TMH, 1st Ed, 2011.
3. Allen Downey, Jeffrey Elkner, Chris Meyers , How to think like a computer scientist : learning with Python , Freely available online.
4. Computer Concepts and Programming in C by D.S. Yadav and Rajeev Khanna, New AgeInternational Publication.
5. Computer Concepts and Programming by Anami, Angadi and Manvi, PHI Publication.
6. Computer Concepts and Programming in C by Vikas Gupta, Wiley India Publication
7. Computer Fundamentals and Programming in C. Reema Thareja, Oxford Publication
8. Problem Solving and Programming in C, R.S. Salaria, Khanna Publishing House

Expected Course Outcomes:

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

CO1: To identify computer hardware and peripheral devices, examine and analyze alternative solutions to a problem.

CO2: To learn and how to identify Python object types, then how to write loops and decision statements in Python.
CO3: To learn,write and solve the problems using built in and user defined functions
CO4: To learn how to use tuples and dictionaries in sorting problems and learn how to read and write files in Python.
CO5: To learn and how to implement modules , packages and objects in python,

Course Code:	**Course Title:**	**L T P C**
24CBU111	**PROBLEM SOLVING USING PYTHON LAB**	**0 0 4 2**

Prerequisites: None

Course Objectives:

1. To Write, Compile And Debug Programs In Python Language.
2. To Formulate Problems And Implement Algorithms In Python.
3. To Effectively Choose Programming Components That Efficiently Solve Computing Problems In Real-World.

List of Programs:

1. Write a program to swap two numbers
2. Write a program to convert kilogram into pound
3. Write a program to find largest among given three numbers
4. Write a function program to find HCF of some given numbers
5. Write a function program to display the factors of a given number
6. Write a function to find the ASCII value of the character.
7. Write a function program to convert a decimal number to its binary,octal and hexa decimal equivalents
8. Write a function program to find sum of several natural numbers using recursion
9. Write a program to find duplicate characters in a given string.
10. Write a program to check whether a string is palindrome or not.
11. Write a program to remove punctuations from a string
12. Write a program to transpose a matrix
13. Write a function to print the resolution of an image file.
14. Write a program to catch on divide by zero exception .Add a finally block too.
15. 15. Write a program to write data in a file for both write and append modes.

Expected Course Outcomes:

CO1: To understand the basic concept of python programming.

CO2: To use The Conditional Expressions and Looping Statements To Solve Problems Associated With Conditions And Repetitions.

CO3: To use String Manipulations using String Handling Functions.

CO4: To demonstrate the role of functions involving the idea of modularity.

CO5: To understand the concept of file.

Course Code: **24CBU102**	**Course Title:** **Introduction to Cyber Security**	**L T P C** **3 0 0 3**

Prerequisites: None

Course Objectives: The course aims

1. Learn the foundational concepts and the evolving landscape of Cyber Security.
2. Equip students with the technical knowledge and skills necessary to protect and defend against cyber threats.
3. Develop the ability to plan, implement, and monitor cybersecurity mechanisms to safeguard information technology assets.
4. Explore the governance, regulatory, legal, economic, social, and ethical contexts of cybersecurity.

Unit 1: Introduction to Cyber Security: **No. of Hours:09**

Overview of Cyberspace: Defining cyberspace, Architecture of cyberspace, Communication and web technology. **Computer and Web Technology:** Introduction to the Internet, World Wide Web, and its infrastructure. **Cyber Security Concepts:** Fundamental concepts, layers of security, the CIA Triad, vulnerability, threat, and harmful acts. **Regulation and Governance:** Internet society, regulation of cyberspace, challenges, and issues in cybersecurity.

Unit-2: Linux and Cybersecurity: **No. of Hours:09**

Introduction to Linux: Overview of Linux operating system, Linux distributions, and basic commands. **Linux Security Fundamentals:** File system structure, user and group management, file permissions, and access control. **Security Tools in Linux:** Introduction to Linux-based cybersecurity tools, including firewalls, intrusion detection systems (IDS), and intrusion prevention systems (IPS).

Shell Scripting for Security: Basic shell scripting for automating security tasks, managing logs, and monitoring systems. **Linux Hardening:** Steps to secure Linux servers and desktops, configuring firewalls (e.g., iptables, firewalld), and securing SSH.

Unit 3: Social Media Overview and Security: **No. of Hours:09**

Introduction to Social Media: Types of social networks, platforms, and social media monitoring. **Security Concerns:** Privacy issues, challenges, and best practices for online social network security. **Legal Aspects and Case Studies:** Flagging and reporting inappropriate content, relevant laws, and significant cases in social media security.

Unit-4: E-Commerce and Digital Payments: **No. of Hours:09**

E-Commerce Fundamentals: Definition, components, and security elements of e-commerce.

Digital Payment Systems: Introduction to digital payment modes like Banking Cards, UPI, e-Wallets, USSD, and Aadhar-enabled payments. **Security Measures:** Best practices for digital payment security, RBI guidelines, and preventive measures against fraud. **Legal Framework:** Relevant provisions of the Payment and Settlement Act, 2007.

Unit-5: Digital Devices Security, Tools, and Technologies for Cyber Security: **No. of Hours:09**

Device Security: End-point device security, mobile security, password policies, and security patch management. **Cyber Security Tools:** Host firewalls, antivirus management, Wi-Fi security, and device security policies. **Best Practices:** Data backup, managing third-party software, and configuring security policies.

Text Books

1. Cyber Crime Impact in the New Millennium by R. C Mishra, Author Press, Edition 2010.
2. Cyber Security Understanding Cyber Crimes, Computer Forensics, and Legal Perspectives by Sumit Belapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011).
3. Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson, 13th November 2001).

Reference Books

1. Electronic Commerce by Elias M. Awad, Prentice Hall of India Pvt Ltd.
2. Cyber Laws: Intellectual Property & E-Commerce Security by Kumar K, Dominant Publishers.
3. Network Security Bible by Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd.
4. Fundamentals of Network Security by E. Maiwald, McGraw Hill.

Expected Course Outcomes:

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

- **CO1:** To understand the concept of cybersecurity and its associated challenges.
- **CO2:** To work proficiently with Linux operating systems to manage and secure information.
- **CO3:** To appreciate privacy and security concerns in social media and apply best practices for safe usage.
- **CO4:** To grasp the fundamentals of e-commerce and digital payments, understanding related cybersecurity aspects.
- **CO5:** To apply basic security measures for digital devices and effectively use cybersecurity tools and technologies.

24MAU101	MATHEMATICS-I	L	T	P	C	Total Marks
		3	**1**	**0**	**4**	**100**

PREREQUISITES: NIL

COURSE OBJECTIVES:

The main objectives of this course are to:

1	To introduce the concepts of approximation values.
2	To learn the basic concepts of matrices.
3	To form algebraic equations finding roots.
4	To gain general knowledge of trigonometry.
5	To train the students to learn basic calculus.

UNIT 1:	**NUMERICAL METHODS**	**12 hrs**

Numerical Methods: Operators E,Δ,∇difference tables - Newton -Raphson method-Newton‟s forward and backward interpolation formulae for equal intervals.

UNIT 2:	**MATRICES**	**12 hrs**

Symmetric-Skew-Symmetric-Orthogonal-Hermetian-Skew-Hermetian-Unitary Matrices-Eigen values and Eigen-vectors-Cayley-Hamilton theorem (without proof)-verification.

UNIT 3:	**THEORY OF EQUATIONS**	**12 hrs**

Polynomial equations with real coefficients-irrational roots-complex roots-symmetric functions of roots-reciprocal equation-Newton’s method to find a root approximately - simple problems.

UNIT 4:	**TRIGONOMETRY**	**12 hrs**

Expansions of sin(nθ) and cos(nθ) in a series of powers of sinθ and cosθ - Expansions of $\sin^{n}\theta$, $\cos^{n}\theta$, $\tan^{n}\theta$ in a series of sines, cosines and tangents of multiples of “θ” - Expansions of sinθ, cosθ and tanθ in a series of powers of “θ”.

UNIT 5:	**DIFFERENTIAL CALCULUS**	**12 hrs**

Successive differentiation-nth derivatives-partial differentiations (simple problems)-Jacobians-maxima and minima of functions of two variables-Lagrange's multipliers - Simple problems.

60 PERIODS

COURSE OUTCOMES:

Upon successful completion of the course, students will be able to:

CO1:	Solve algebraic series and solve equations numerically
CO2:	Get knowledge of matrices to find eigen values and eigen vectors.
CO3:	Find roots of equations.
CO4:	Solve all kinds of trigonometric functions.
CO5:	Get the knowledge of basic differential calculus.

TEXT BOOKS

1.	Allied Mathematics Volume I and II by P. Duraipandian and S. Udayabaskaran, Published by S. Chand-2016 Edition (Reprint)

REFERENCES

1.	S. Narayanan and T.K. Manickavasagam Pillai – Ancillary Mathematics, S. Viswanathan Printers, 2009, Chennai

Course Code: 24BAU162	Course Title: Management Thoughts and Applications	L T P C 2 0 0 3

Prerequisites: None

Course Objectives:

The course aims

1. To familiarize the learner with extant and emerging management theories
2. To practice for reflective and holistic thinking on management principles and practices.

Unit 1:Introduction: **No. of Hours:09**

Meaning and importance of management; Coordination mechanisms in organisations; Management theories- classical, neo-classical and modern constructions of management; Managerial functions; Managerial roles (Mintzberg); Managerial competencies. Indian Ethos for Management: Value-Oriented Holistic Management; Learning Lessons from Bhagavat Gita and Ramayana.

Unit-2:Planning: **No. of Hours:09**

Organisational objective setting; Decision-making environment (certainty, risk, uncertainty); Techniques for individual and group decision-making; Planning vis-à-vis Strategy- meaning and elements of the business firm environment- micro, meso, and macro; Industry structure, Business-level strategic planning.

Unit 3: Organising: **No. of Hours:09**

Decentralization and Delegation; Factors affecting organisational design; Departmentalization; Organisational structures and Organograms: traditional and modern, comparative suitability and changes over time; formal- informal organisations‟ interface.

Unit-4: Directing and Controlling**:** **No. of Hours:09**

Motivation- meaning, importance and factors affecting motivation; Leadership- meaning, importance and factors affecting leadership, leadership styles, and followership. Controlling- Principles of controlling; Measures of controlling and accountability for performance. .

Unit-5: Salient Developments and Contemporary Issues in Management: **No. of Hours:09**

Management challenges of the 21st Century; Factors reshaping and redesigning management purpose, performance and reward perceptions- Internationalisation, Digitalisation, Entrepreneurship & Innovation, Values & Ethics - Case studies on Indian corporates like Tata, Bhilwara Group, IOC and Godrej, Workplace diversity, Democracy and Sociocracy, Subaltern management ideas from India.

Text Books

1. Laasch, O. (2022). Principles of Management, 2e, Sage Textbook
2. Tulsian, P. C., & Pandey, V. (2021). Business Organisation & Management. Pearson Education, India
3. Chhabra, T. N. (2021). Business Organisation and Management. Sun India Publications. New Delhi
4. Rao, V. S. P. (2020). Management Principles and Applications. Taxmann Publications
5. Gupta, C. B., & Mathur, S. (2020). Management Principles and Applications. Scholar Tech Press, Delhi.
6. Mahajan, J. P., & Mahajan A. (2016). Management Principles and Applications. Vikas
7. Mitra, J. K. (2018). Principles of Management.Oxford University Press..

Reference Books

1. Kumar, P. (2019). Management: Principles and Applications. JSR Publication House LP, Delhi.
2. Griffin. (2013). Management Principles and Application. Cengage.
3. Koontz, H., & Weihrich, H. (2012). Essentials of Management: An International and Leadership Perspective. McGraw Hill Publications
4. Sharlekar, S. A. (2010). Management (Value-Oriented Holistic Approach). Himalaya Publishing House. (Chapters 3 and 4)
5. Singh, B. P., & Singh, A. K. (2002). Essentials of Management. New Delhi. Excel Books Pvt. Ltd.

Expected Course Outcomes:

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

CO1: To describe the various levels of management and applicability of management principles .

CO2: To evaluate a company‟s competitive landscape as per Porter‟s Five-force model .

CO3: To demonstrate various types of authority, delegation and decentralization in authority

CO4: To demonstrate various types of leadership styles and identify the motivation techniques used by leaders .

CO5: To discuss the impact of emerging issues in management.

Course Code:	**Course Title:**	**L T P C**
24CAU141	**Office Automation**	**3 0 0 3**

Prerequisites: None

Course Objectives:

1. To understand basics of computer and identify the components of a computer system.
2. To understand and familiarize in I/O and storage devices.
3. To familiarize the students in preparation of documents and presentations with office automation tool.
4. To make aware of Office automation using MS-Office
5. To educate MS-office system, internet operations, online, offline working areas
6. To train them to work on the comment based activities in MS-office system
7. To make the participants to understand various services based on online and offline surfaces

Unit I: **No. of Hours: 09**

Introduction to Computer and Information Technology: History, Computer system concepts-Computer system characteristics- Capabilities and limitations Types of computers- Generations. Computer organization and working: Introduction-The Control UnitALU- Memory-Read only memory (ROM).

Unit II: **No. of Hours: 09**

Input Devices: Introduction- Keyboards-Mouse-Joysticks-Optical Recognition input- Scanners-Bar coders-Digital camera-MICR-Card reader-Web Cameras Light pens-Trackball- Touch screens-Touch pad-Digitizer-Voice input-Voice recognizers. Output Devices: Introduction-Monitors and Displays-Multimedia Projector-Printers-Graphics Output Devices-Plotters-Flatbed Plotters-Drum Plotters. Storage Devices: Introduction- Hard Disk Drives –CD-ROMs and DVDs – Magnetic tape –Erasable disks.

Unit III: **No. of Hours: 09**

Microsoft Office and Word Processing: Introduction to Microsoft Office - Microsoft Word Screen. Microsoft Word: Working with Document in Word – Introduction – saving the file – Formatting, Alignment of text, Applying fonts-Spell checking- Borders and shading – Closing of the file, Editing document, Autocorrect-Auto format-Find and Replace, Page numbering, header and footer- Footnotes and endnotes- splitting panes-Tiling of the documents using mail merge in Word.

Unit IV: **No. of Hours: 09**

Microsoft Office Excel: Understanding Spreadsheets-Creating a Worksheet in Microsoft Excel - Copying formula – Styles –functions in Excel – Using Auto calculate –References –Sum, Average functions. Creating Charts in Excel -Auditing a workbook – Comments Inserting – Function wizard-Goal seeking- Typing with Auto fill- Formatting numbers and Labels – changing the size of Rows and columns- Add or Remove a sheet – Protect a worksheet-Applying themes.

Unit V: **No. of Hours: 09**

Microsoft PowerPoint: Getting Started with PowerPoint - Developing a PowerPoint Presentation - Performing Advanced Text Editing Operations - Adding Graphical Elements to Your Presentation - Modifying Objects in Your Presentation - Adding Tables to Your Presentation - Adding Charts to Your Presentation - Preparing to Deliver Your Presentation.

Text Books

1. COMPUTER ON OFFICE AUTOMATION (Theory Book) Mr. M.Veerapandiyan Second Edition: Jan 2023
2. Computer Basics with Office Automation, January 2019, by Archana Kumar
3. Learning computer fundamentals, MS Office and Internet & Web technology, Dinesh Maidasani, Firewall Media, Third Edition, 2014.

Reference Books:

1. A Beginners Guide to Computers – Alexis Leon & Mathews Leon-Vikas Publishing House Pvt. Ltd., 2001.
2. Fundamentals of Computers, P. Mohan, Himalaya Publishing House, Revised Edition, 2010.
3. Fundamentals of Computers, V. Rajaraman, PHI Publication, Fifth Edition, 2010.

Expected Course Outcomes:

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

CO1: Understand about Computer and Information Technology.
CO2: Acquire knowledge on I/O and Storage devices usage and also to acquire knowledge on editor, spreadsheet and presentation software
CO3: Understand and discuss about the use of Office Package in daily life and apply hands on training to the students to create and format documents using MSWord
CO4: Construct charts in MS-Excel and
CO5: Design presentation with efficient slides

Course code **24TAU151**	Ability Enhancement Course -1	L	T	P	C
	பொதுத் தமிழ்	3	0	0	2

அலகு - 1 கவிதை இலக்கியம்

அ. நாட்டுப்புற இலக்கியம், மரபுக் கவிதை, புதுக்கவிதை வரலாறுகள்

ஆ. தாலாட்டு பாடல், ஒப்பாரி (பாக்குறது எக்காலம்)

இ. பாரதியார் – பாரத தேசம்(1,5,9,10,12,13)

ஈ. பாரதிதாசன் – தமிழ்க் காதல் (2 பாடல்கள்)

உ. பட்டுக்கோட்டை – செய்யும் தொழிலே தெய்வம்

அலகு - 2 சிற்றிலக்கியம்

அ. சிற்றிலக்கிய வரலாறு

ஆ. நந்திக்கலம்பகம் – (பாட்டுடைத் தலைவன் வீரச்சிறப்பு, மேக விடு தூது, கையறுநிலை)

இ. குற்றாலக் குறவஞ்சி – குறத்தி மலை வளம் கூறுதல் (2 பாடல்கள்)

ஈ. இயேசுபிரான் பிள்ளைத்தமிழ் – (2 பாடல்கள்)

அலகு - 3 சிறுகதை இலக்கியம்

அ. உரைநடை இலக்கிய வரலாறு

ஆ. கு.ப.ராஜகோபாலன் – விடியுமா!

இ. குளத்தங்கரை அரசமரம் – வ.வே.சு

அலகு - 4 நாடகம்

பம்மல் சம்பந்த முதலியார் – சந்திரஹரி

அலகு - 5 மொழிப் பயற்சி

அ. அலுவல் கடிதமும் விண்ணப்பமும்

ஆ. நேர்காணல்

இ. பேச்சுக்கலை

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CO NO	COURSE OUTCOME	RBT
CO1	மொழி வழியே கவித்திறனையும், படைப்பாற்றல் திறனையும் வளரத்தல்	K3, K6
CO2	கால மாற்றத்தில் வெவ்வேறு வடிங்களைப் பெறும் இலக்கியங்களை அறிதலும் அவ்வாறு தோன்றிய இலக்கியக் கூறுகளை ஆய்வுசெய்தலும்	K4
CO3	புனைவு இலக்கிய வளர்ச்சியில் சிறுகதையின் பங்கினை விளங்கிகொண்டு அப்படைப்பாற்றல் திறனைப் பயன்படுத்துதல்	K2, K3
CO4	பண்டைய கால நாடக இலக்கியம் இன்றைய தொழில்நுட்பத்தின் மூலம் அடைந்த வளர்ச்சியினை மதிப்பிடுதல் மற்றும் அதில் தனித்திறனை வளரத்தல்	K6
CO5	மொழியின் பயன்பாடுகளையும் இலக்கியத் திறனையும் விளங்க செய்தல்	K5

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	2	-	-	2	-	-
CO2	-	-	-	2	-	-	-	-
CO3	-	2	2	-	-	-	-	-
CO4	-	-	-	-	-	2	-	-
CO5	-	-	-	-	2	-	-	-
AVERAGE	-	2	2	2	2	2	-	-

Since it is mapped with, PO2, PO3, PO4, PO5, PO6, this subject is consider for empolyability

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Course Code:	**Course Title:**	**L T P C**
24FRU151	French - **I**	**2 0 0 2**

Prerequisites: None

Course Objectives:

1. To get a good exposure to the basics of French.
2. The learner will be able to make simple sentences in French as well as articulate using the various parts of speech.
3. Be able to effectively understand and use French grammar and the pronunciation.

Unit - 1. **No. of Hours: 06**

Decouvrir le langue francaise – Discover the French Language.

Unit – 2. **No. of Hours: 06**

Faire Connaissance – Getting to know people and learning to converse.

Unit -3 **No. of Hours: 06**

Organsizer son temps – Articulation of how we are organasing our time.

Unit – 4 **No. of Hours: 06**

Découvrir son environnement – Communication with respect to discovering and explaining one's environment.

Unit – 5 **No. of Hours: 06**

S'informer, se faire plaisir. – Learning and understanding the language with practical usage

Text Books

Campus 1. Methode de Francais. Author Jacky Girardet & Jacques Pecheur

ANNEXURE-II

Course Code: **24ENU151**	**Ability Enhancement course E1**	**L**	**T**	**P**	**C**
	ENGLISH -I	**3**	**0**	**0**	**2**

Prerequisites: None

COURSE OBECTIVES:

This course is designed to equip students with a comprehensive understanding of effective communication and interpersonal skills, essential for professional growth.

UNIT – I: Vocabulary: **No.of.Hours:06**

- Synonyms and Antonyms
- One word substitution
- Word Formation (prefixes & suffixes)
- Homonyms, Homophones and Homographs
- Discourse Markers
- Cause & Effect Expressions

UNIT – II: Language and Communication: **No.of.Hours:06**

- Definition of Language
- Importance of Language
- Definition of Communication
- Barriers of Communication
- Importance of Communication
- Principles of Communication

UNIT – III: Communication Strategies: **No.of.Hours:06**

- Verbal Communication
- Tone, Audibility, Fluency
- Types of Verbal Communication
- Non- verbal Communication
- Posture, Gestures, Facial expression, Eye contact
- Advantages and Disadvantages of Verbal and Non-Communication

UNIT – IV: Self-management Skills **No.of.Hours:06**

- Self-awareness and Self-confidence
- Time management
- Stress management
- Perseverance and Resilience

- Mind mapping

UNIT-V: Social skills: **No.of.Hours:06**

- Negotiation & persuasion
- Networking
- Problem solving and Empathy
- Decision making
- Presentation skills
- Leadership skills and Team work
- Social responsibility

Total No.of.Hours: 30

Book Recommended

1. Krishna Mohan & Meera Banerji. *Developing Communication Skills*.Macmillan
2. SasiKumar. V and P.V. Dharmija. 1993. *Spoken English*: A Self-Learning Guide Conversation Practice. 34th reprint. Tata McGraw – Hill. New Delhi.
3. Suresh Kumar, E. & Sreehari, P. *Communicative English*. New Delhi: Orient BlackSwan, 2007.Print.
4. Yardi, V.V *English Conversation for Indian Students*. NewDelhi: Orient BlackSwan, 2002.Print.
5. Chandra, Joseph, Xavier Alphonse, Antony Jeyadoss and Mary Thomas. *Power Communication In English*. Chennai, Loyola Publication, 2003.
6. Cole, Kris. *Crystal clear Communication*. Chennai, East West Books Pvt.Ltd.,2001.
   McKay,Mathew,Martha Davis and Patrick Fanning. *Communication Skills*. New Delhi,B.Jain Pub.(P) Ltd;2003.

COURSE OUTCOMES:

By the end of the course students will be able to:

CO1: develop an enriched vocabulary and recognize the importance of discourse markers in effective communication.

CO2: recognize the barriers that can hinder effective communication and explore methods to overcome them.

CO3: analyze verbal communication and utilize non-verbal cues.

CO4: cultivate perseverance, resilience, and effective mind mapping for problem-solving and goal achievement.

CO5: demonstrate negotiation and persuasion skills for effective communication in various contexts.