St. PETER'S
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
IGNITE · INSPIRE · INNOVATE
(Deemed to be University U/S 3 of the UGC Act, 1956)
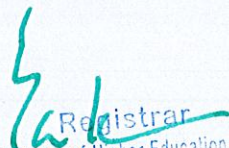
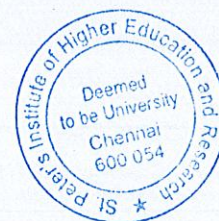# B.Sc.(PHYSICS)

(Approved by UGC)

(I to VI SEMESTERS)

REGULATIONS AND SYLLABI UNDER CHOICE BASED CREDIT SYSTEM

(REGULATIONS–2020)

Effective from the Academic Year 2020-2021

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St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600 054.

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to be University
Chennai
600 054

1

St. Peter's Institute of Higher Education and

Research B.Sc.(PHYSICS)

REGULATION2020

CHOICE BASED CREDIT SYSTEM

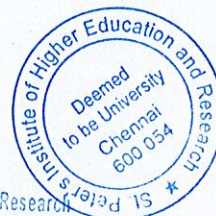## VISION& MISSION OF THE INSTITUTION

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

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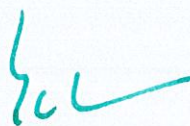Avadi, Chennai-600 054.

2

VISION&MISSIONOFTHEDEPARTMENT

Vision

To develop the department as a center for studies in materials science and Technology and to encourage the inquisitiveness in a student and make him understand the fundamental of physics so as to exploit it for research and implementation of technology.

Mission

- TofeedthebuddingEngineersandphysicistswithfineraspectsofscience.
- To make them understand, exploit and innovate the aspects of physics.
- To make the students contribute to the technological advancement softomorrow.
- To develop among students, sensitivity to contribute to the betterment of society through knowledge in Physics.

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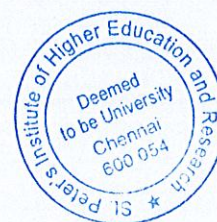
PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

After successful completion of three year degree program in physics a student should be able to:

PEO-1 Demonstrate, solve and understand the major concepts in all Disciplines of physics.

PEO-2 Solve the problem and also think methodically, independently and drawa

logical conclusion.

PEO-3 Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the

results of Physics experiments.

PEO-4 Usemodern techniques, decent equipments and Microprocessor kits

PEO-5 Create an awareness of the impact of Physics on the society, and development outside the

scientific Community.

PROGRAM OUTCOMES (POs):

Physics Graduates will be:

PO1: Disciplinary knowledge and skills: Capable of demonstrating good knowledge and understanding of major concepts, theoretical principles and experimental findings in Physics and its different subfields including broader interdisciplinary subfields.

PO 2: Skilled communicator: Ability to transmit complex technical information relating all areas in Physics in a clear and concise manner for better understanding

PO 3: Critical thinker and problem solver: Ability to employ critical thinking and efficient problem solving skills in all the basic areas of Physics.

PO 4: Sense of inquiry: Capability for asking relevant/appropriate questions relating to the issues and problems in the field of Physics, and planning, executing and reporting the results of a theoretical or experimental investigation.

PO 5: Skilled project manager: Capable of identifying/mobilizing appropriate resources required for a project, and manage a project through to completion

PO6:.National and international perspective: Thegraduatesshouldbeabletodevelopanationalaswellas internationalperspectivefortheircareerinthechosenfield oftheacademicactivities.

PO7:Life long learners: Capableofself-pacedandself-directedlearningaimedatpersonaldevelopmentandfor improvingknowledge/skilldevelopment andreskillingin allareasof Physics

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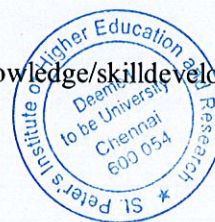
PROGRAMSPECIFIC OUTCOMES (PSOS)

PSO-1 Gain the knowledge of Physics through theory and practical"s.

PSO-2 Understand good laboratory practices and safety.
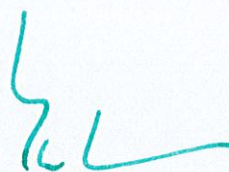
PSO-3.Develop research oriented skills.

PSO-4 Make aware and handle the sophisticated instruments/ equipments

Contribution1: Reasonable   **2: Significant**   **3: Strong**

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5

St.PETER'SINSTITUTEOFHIGHEREDUCATIONANDRESEARCH

B.Sc. (PHYSICS) PROGRAMME

REGULATIONSANDSYLLABIUNDERCHOICEBASEDCREDITSYSTEM

(Effective from the Academic Year 2020-2021)
B.Sc (PHY) REGULATIONS (2020)

Regulations–2020 is applicable to the students admitted to the Degree of Bachelor of Science (B.Sc.) Physics (SixSemesters) programme effective from the academic year 2020-2021
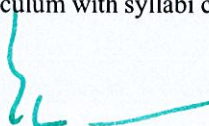
1. NOMENCLATURE

▢ **Programme**	:	Refers to the Bachelor of Science Physics Stream that a student has chosen for study.
▢ **Course**	:	Referstothecourse(Subject)that astudent wouldhavetoundergoduringthestudyinthe Institution
▢ **Batch**	:	Refers to the Starting and Completion year of a Programme of study. Eg.Batchof2020–2023referstostudentsbelongingtoa3yearDegreeprogrammeadmitted in 2020 and completingin2023.
▢ **Department**	:	Each Programme of the Institution is grouped under a Department. Eg. B.ScPhysics is grouped under Departments of Physics. This Department offers various Undergraduate and Postgraduate Programmes in Sciences like B.Sc (Physics), M.Sc (Physics).
▢ **Dean**	:	Refers to the Head of Arts and Science & Management Studies Programmes.
▢ **HoD**	:	Refers to the Head of a Department (HoD) offering various UG and PG programmes. He / She will be the Head of all staff members and Students belonging to the Department

2. QUALIFICATION FOR ADMISSION

Qualification 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 with Mathematics, Physics and Chemistryconducted by the Government of Tamil Nadu or its equivalent in the relevant subjects as recognized bythe Institute or any other equivalent Examination thereto wherever prescribed are eligible for admissiontoThree Year B.Sc (Physics) Programme.

3. STRUCTURE OF PROGRAMME

Every Programme will have a curriculum with syllabi consisting of theory and practical.
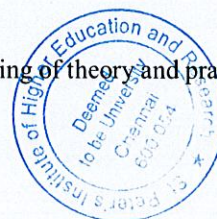
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Credit Distribution

S.No	Category	No.of Courses	Credits
1.	Institute Core Courses	22	66
2.	Institute Elective Courses	02	6
3.	Program Core Courses	16	45
4.	Program Elective Courses	04	18
Total		**44**	**135**

I Semester

CodeNo.	CourseTitle	L	T	P	Credit	CA	EA	Total
ATMT1601/ AHIT1601/ ATET1601/ AFRT1601	Language - I(Tamil/Hindi/Telugu/French)	5	0	0	4	40	60	100
AENT1638	English –I	5	0	0	4	40	60	100
AENT1642	English For Communication	3	0	0	2	40	60	100
A--------	Allied-I	6	1	0	6	40	60	100
APHT1601	Mechanics and Properties of Matter	5	0	0	4	40	60	100
APHL1601	Properties of Matter lab	0	0	4	2	40	60	100
Total		25	1	4	22	240	360	600

II Semester

CodeNo.	CourseTitle	L	T	P	Credit	CA	EA	Total
ATMT1602/ AHIT1602/ATET 1602/AFRT1602	Language – II(Tamil/Hindi/Telugu/French)	5	0	0	4	40	60	100
AENT1639	English– II	5	0	0	4	40	60	100
A--------	Allied-II	6	1	0	6	40	60	100
AEVT1601	Environmental Science	2	0	0	2	40	60	100

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APHT1602	ThermalPhysicsand Acoustics	5	0	0	4	40	60	100
APHL1602	Thermal Physics and Acousticslab	0	0	4	2	40	60	100
ASSL1601	Soft Skills– I	0	0	2	1	100	-	100
APHI1601	Internship-I	0	0	0	1	100	-	100
Total		23	1	6	24	440	360	800

III Semester

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
ATMT2603/ AHIT2603/ ATET2603/ AFRT2603	Language-III (Tamil/Hindi/Telugu/French)	5	0	0	4	40	60	100
AENT2640	English–III	5	0	0	4	40	60	100
A--------	Allied-III	5	0	0	4	40	60	100
APHT2603	Optics	5	0	0	4	40	60	100
A--------	Allied lab	0	0	4	2	40	60	100
APHL2603	Optics lab	0	0	4	2	40	60	100
ASSL2602	Soft Skills–II	0	0	2	1	100	-	100
Total		20	0	10	21	340	360	700

IV Semester

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
ATMT2604/ AHIT2604/ ATET2604/ AFRT2604	Language– IV (Tamil/Hindi/Telugu/French)	5	0	0	4	40	60	100
AENT2641	English– IV	5	0	0	4	40	60	100
A--------	Allied-III	5	0	0	4	40	60	100
APHT2604	Electricity and Electromagnetism	5	0	0	4	40	60	100
A--------	Allied lab	0	0	4	2	40	60	100
APHL2604	Electromagnetism lab	0	0	4	2	40	60	100
ASSL2603	Soft Skills–III	0	0	2	1	100	-	100
APHI2602	Internship–II	0	0	0	1	100	-	100
Total		20	0	10	22	440	360	800

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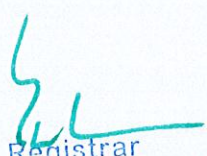(Deemed to be University U/S 3 of the UGC Act, 1956)
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8

B.ScREGULAR   REGULATIONS2020

V Semester

CodeNo.	CourseTitle	L	T	P	Credit	CA	EA	Total
						Marks		
APHT3605	Atomic Physics	5	0	0	4	40	60	100
APHT365-	Program Elective-I	5	0	0	4	40	60	100
APHT365-	Program Elective-II	5	1	0	6	40	60	100
-----------	Institute Elective–I	4	0	0	3	40	60	100
APHL3605	Electronics lab	0	0	4	2	40	60	100
APHL365-	Program ElectiveLab -I	0	0	4	2	40	60	100
ASSL3604	Soft Skills–IV	0	0	2	1	100	-	100
APHI3603	Internship–III	0	0	0	1	100	-	100
	Total	19	1	10	23	440	360	800

VI Semester

CodeNo.	CourseTitle	L	T	P	Credit	CA	EA	Total
						Marks		
APHT3606	Solid State Physics	5	0	0	4	40	60	100
APHT365-	Program Elective-III	5	1	0	6	40	60	100
------------	Institute Elective–II	4	0	0	3	40	60	100
APHL3607	Electronics and Communication lab	0	0	4	2	40	60	100
APHP3601	ProjectWork	0	0	6	6	40	60	100
ASSL3605	Soft Skills– V	0	0	2	1	100	-	100
AEAL3601	Extension Activity	0	0	0	1	100	-	100
	Total	14	1	15	23	400	300	700

TOTAL CREDITS: 135

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9
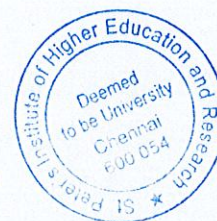
(i)   **Institute Core Courses (IC)** which includes General Foundation courses comprising English, Mathematics, and Basic Sciences along with Laboratories.

		Institute Core Applicable to Department of Physics		
Sl.No.	**Course Code**	**CourseTitle**	**No.of Courses**	**No.of Credits**
1	ATMT16--/ AHIT16--/ ATET16--/ AFRT16--	Language-I(Tamil/Hindi/Telugu/French)	1	4
2	AENT16--	English –I	1	4
3	ATMT26--/ AHIT26--/ ATET26--/ AFRT26--	Language–II(Tamil/Hindi/Telugu/French)	1	4
4	AENT26--	English– II	1	4
5	ATMT36--/ AHIT36--/ ATET36--/ AFRT36--	Language-III(Tamil/Hindi/Telugu/French)	1	4
6	AENT36--	English–III	1	4
7	ATMT46--/ AHIT46--/ ATET46--/ AFRT46--	Language–IV(Tamil/Hindi/Telugu/French)	1	4
8	AENT46--	English– IV	1	4
9	AENT1____	English For Communication	1	2
10	AEVT_____	Environmental Science	1	2
11	ASSL1601	Soft Skills– I	1	1
12	ASSL2602	Soft Skills–II	1	1
13	ASSL2603	Soft Skills–III	1	1
14	ASSL3604	Soft Skills–IV	1	1
15	ASSL3605	Soft Skills– V	1	1
16	ACSL66--	Extension Activity	1	1
17	AMAT16--	Mathematics–I		6
18	AMAT16--	Statistical Methods –I		6
19	AMAT16--	Numerical Methods-I	1	6
20	AMAT26--	Mathematics–II	1	6
21	AMAT26--	Statistical Methods –II	1	6

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10

22	AMAT26--	NumericalMethods-II	1	6
23	APHT36--	Chemistry–I	1	4
24	APHL36--	Chemistry –ILab	1	2
26	APHT46--	Chemistry–II	1	4
27	APHL46--	Chemistry–IILab	1	2

(ii) **Programme Core courses (PC)** belonging to the Major Programme of study.

		Programme Core Courses		
Sl.No.	**Course Code**	**CourseTitle**	**Prerequisite Courses**	**No.of Credits**
1	APHT1601	Mechanics and Properties of Matter	None	4
2	APHL1601	Properties of Matter lab	None	2
3	APHT1602	Thermal Physics and Acoustics	None	4
4	APHL1602	Thermal Physics and Acoustics lab	None	2
5	APHT1603	Optics	None	4
6	APHL1603	Optics lab	None	2
7	APHT1604	ElectricityandElectromagnetism	None	4
8	APHL1604	Electromagnetism lab	None	2
9	APHT2605	Atomic Physics	None	4
10	APHL2605	Electronics lab	None	2
11	APHT2606	Solid State Physics	APHT4601	4
12	APHL2606	Electronics and Communication lab	None	2
13	APHP2601	ProjectWork	All Fields of Physics	6
14	APHI1601	Internship-I	None	1
15	APHI2602	Internship–II	None	1
16	APHI3603	Internship–III	None	1

ALLIED PAPERS

Allied-I (ISemester)

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
AMAT16--	Mathematics–I	6	1	0	6	40	60	100
AMAT16--	Statistical Methods–I	6	1	0	6	40	60	100
AMAT16--	Numerical Methods–I	6	1	0	6	40	60	100

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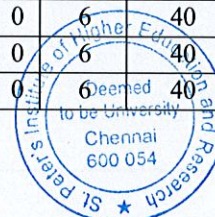
Allied-II (IISemester)

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
AMAT26--	Mathematics–II	6	1	0	6	40	60	100
AMAT26--	Statistical Methods–II	6	1	0	6	40	60	100
AMAT26--	Numerical Methods-II	6	1	0	6	40	60	100

Allied-III (IIISemester)

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
APHT36--	Chemistry–I	5	0	0	4	40	60	100
APHL36--	Chemistry –ILab	0	0	4	2	40	60	100

Allied-IV (IVSemester)

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
APHT46--	Chemistry–II	5	0	0	4	40	60	100
APHL46--	Chemistry-IILab	0	0	4	2	40	60	100

*Students are asked toselectthe same and relevant Allied papers in I& II, III & IV Semesters.

(iii) **Programme Electives (PE)** offered by the Department relatedto the Major programme of study. A student should choose atleast 5 courses during the programme.

PROGRAM ELECTIVES

Program Elective-I (VSemester)

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
APHT3651	Microprocessor Fundamentals	5	0	0	4	40	60	100
APHL3651	Microprocessor Lab	0	0	4	2	40	60	100
APHT3652	Mathematical Methods in Physics	5	1	0	6	40	60	100

Program Elective-II (VSemester)

CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
APHT3653	Nuclear Physics	5	1	0	6	40	60	100
APHT3654	Low Temperature hysics	5	1	0	6	40	60	100
APHT3655	Energy physics	5	1	0	6	40	60	100

Program Elective-III (VI Semester)

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CodeNo.	CourseTitle	L	T	P	Credit	Marks		
						CA	EA	Total
APHT3656	Numerical Methods	5	1	0	6	40	60	100
APHT3657	Astrophysics	5	1	0	6	40	60	100
APHT3658	Relativity and Quantum Mechanics	5	1	0	6	40	60	100

12

(iv) **Institute Elective/Open Electives (OE)** comprising of Professional elective courses from respective Departments and provides the opportunity to a students to choose any course of any stream. A student should choose atleast 2 courses during the programme.

<table>
<tr><th colspan="5">OPENELECTIVES</th></tr>
<tr><th>Sl.No.</th><th>Branch</th><th>Course Code</th><th>CourseName</th><th>Credits</th></tr>
<tr><td>1</td><td>CSE</td><td>ACST3112</td><td>Soft Computing and its applications</td><td>3</td></tr>
<tr><td>2</td><td>CSE</td><td>ACST3120</td><td>Artificial Intelligence For Real World Applications</td><td>3</td></tr>
<tr><td>3</td><td>CSE</td><td>ACST4124</td><td>Machine Learning For Real World Applications</td><td>3</td></tr>
<tr><td>4</td><td>CSE</td><td>ACST4139</td><td>Applied Cloud Computing</td><td>3</td></tr>
<tr><td>5</td><td>IT</td><td>AITT3111</td><td>Cyber Security Fundamentals</td><td>3</td></tr>
<tr><td>6</td><td>IT</td><td>AITT3119</td><td>Practical approach to data mining and analytics</td><td>3</td></tr>
<tr><td>7</td><td>IT</td><td>AITT4129</td><td>Big Data Analytics Tools and Applications</td><td>3</td></tr>
<tr><td>8</td><td>IT</td><td>AITT4130</td><td>Foundations of Block Chain Technologies</td><td>3</td></tr>
<tr><td>9</td><td>ECE</td><td>AECT3117</td><td>Electromagnetic Interference and Compatibility</td><td>3</td></tr>
<tr><td>10</td><td>ECE</td><td>AECT3120</td><td>PCB Design</td><td>3</td></tr>
<tr><td>11</td><td>ECE</td><td>AECT3121</td><td>Digital Design using EDA tools</td><td>3</td></tr>
<tr><td>12</td><td>CSE,IT</td><td>AITT3120</td><td>Internet of Things –Overview & its Application</td><td>3</td></tr>
<tr><td>13</td><td>EEE</td><td>AEET3112</td><td>Industrial Automation</td><td>3</td></tr>
<tr><td>14</td><td>EEE</td><td>AEET3119</td><td>Electric Vehicle Drive System</td><td>3</td></tr>
<tr><td>15</td><td>EEE</td><td>AEET4140</td><td>Robotic Systems</td><td>3</td></tr>
<tr><td>16</td><td>Mech</td><td>AMET4163</td><td>Waste Management</td><td>3</td></tr>
<tr><td>17</td><td>Mech</td><td>AMET4164</td><td>Computer Work station Ergonomics</td><td>3</td></tr>
<tr><td>18</td><td>Mech</td><td>AMET4165</td><td>Structure and Properties of Materials</td><td>3</td></tr>
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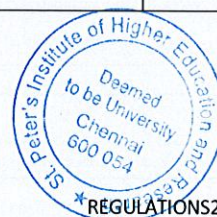
19	Mech	AMET4166	Total Quality Management	3
20	Mech	AMET4167	Supply chain Management	3
21	Mech	AMET4168	Industrial Automation	3
22	Civil	ACIT4130	Disaster Management	3
23	Civil	ACIT4131	Safety Engineering	3
24	Civil	ACIT4132	Climate Change	3
25	Civil	ACIT4125	Environmental Impact Assessment	3
26	BME	ABMT4128	Trouble shooting of Medical Instruments	3
27	BME	ABMT3117	Biomedical Nanotechnology	3
28	BME	ABMT1101	Biology for Engineers	3
29	BME	ABMT4136	Bio informatics	3
30	HUM	AHMT4101	Gender,Culture and Development studies	3
31	HUM	AHMT4102	State,Nation Building and Politics	3
32	HUM	AHMT4103	Work Ethics,Corporate Social Responsibility and Governance	3
33	HUM	AHMT4104	Indian Constitution, Essence of Indian KnowledgeTradition	3
34	HUM	AMBT3102	Cognitive Science	3
35	MBA	AMBT3103	StockTrading Fundamentals	3
36	MBA	AMBT3104	Industrial Economics	3
37	MBA	AMBT3105	Finance for NonFinance Professionals	3
38	Maths	AMAT2105	Numerical Methods	3
39	Maths	AMAT2106	Statistics and Numerical Methods	3
40	Maths	AMAT2107	Probability and Random Processes	3
41	Maths	AMAT2108	Probability and Statistics	3
42	Maths	AMAT2109	Probability and Queuing Theory	3

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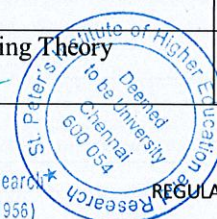
| 43 | Maths | AMAT2110 | Resource Management Techniques | 3 |

(vi) **ONLINE Courses:** The department Board of Studies (BoS) shall approve the list of onlinecourses offered by approved external agencies. While listing the courses, the BoS shall consider thefollowingpoints:

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 24 credits (total) as online courses during the entire programme of study. These shall be treated as Elective courses (program elective or open elective). Students may be allowed to register for one course per semester starting from3rd semester onwards.

(vii) Internship Training during the course of study.

(viii) **Project Work**

Each semester curriculum shall normally have a blend of lecture courses and practical courses.

3.1 MEDIUM OF INSTRUCTION:

The medium of instruction, examinations and project report will be in English Language throughout the Programme.

3.2 CREDIT ALLOTMENT TO COURSES

Each course is normally assigned certain number of credits as follows:

- ☐ **Lecture Hours(Theory)** : 1credit per lecture hour per week.

- ☐ **Laboratory Hours** : 1 credit for 2 Practical hours, 2 credits for 3 or 4 hours of practical per week.

- ☐ **Project Work** : 6 credits for 6 hours of project work per week.

- ☐ **InternshipTraining** : 1credit (In2nd,3rd& 5thSemesters)

* All the courses having 4 or 6 credits may have 5 or 7 lecture hours of which one hour will be dedicated for tutorial which will not be accounted asa credit.

4. DURATION OF THE PROGRAMME

A student is normally expected to complete the B.Sc Programme in 6 semesters but in any case not more than10 consecutive semesters from the time of commencement of the course.

5. 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 than75% of overall attendance in that semester.

- Candidates who do not have there quisite attendance for the semester will not be permitted to write the semester Examinations

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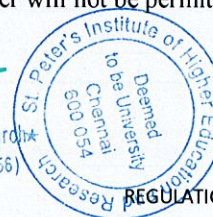
6.   VARIOUS POSITIONS IN A DEPARTMENT

6.1 DEAN:

All Arts, Science and Management Studies Departments are headed by a Dean. The dean is responsible forall activities taking place in coordination with all department heads and all staff members belonging tothem. The Dean shall act as a bridge between the Management, Vice –Chancellor, Registrar, HoD's, Faculty Members and the Students. The Dean makes a review of all the academic activities of staff, students and research on a regular time interval and takes steps to improve the morale of all Faculty andStudents.

6.2   HEAD OF THE DEPARTMENT

Each department offering various UG and PG programmes is headed by a Head (HoD). The head of the department (HoD) is responsible for allotting courses to each staff member uniformly in consultation with other HoD'sand 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 assessment examinations, interacting with Parents,ensuring that all academic and non-academic activities of Faculty and students are monitored and stepstaken for their improvement.
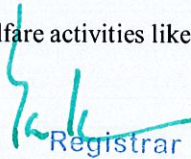
6.3   FACULTY ADVISOR

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 toa faculty member who will be called as FacultyAdvisor.The set of students thus assigned will continue to be under the guidance of this Faculty Advisor till theycomplete the programme or replaced by the HOD. The Faculty Advisor gets information about the syllabus coverage by the staff members, requirements of the students academically and otherwise, attendance and progress of the students from the respective class counselors. 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 assessment marks and attendance % details before the commencement of end semester examinations.

6.4 CLASS COUNSELOR

There shall be a class counselor for each class/section. The class counselor will be one among the teachers of the department. He/She will be appointed by the Head of the respective department. The responsibilities for the class counselor shall be:

- To act as the channel of communication between the HoD, dean, year coordinator, coursecoordinator, staff and students of the respective class.

- To collect and maintain various statistical details of students.

- To help the year coordinator inplanning and conduct of the classes.

- To monitor the academic performance of the students including attendance and to inform the year coordinator.

- To take care of the students'welfare activities like industrial visits,seminars, awards etc.

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6.5 COURSE COORDINATOR FOR EACH COURSE

Each 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 senior staffs 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 studentsperiodically.

- The involvement of students in course based projects and assignments.

- To prepare common question paper for continuous assessment exams.

- For uniform evaluation of continuous 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 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 suitableaction.

6.6   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 Head of the Department

b) Functions of the Class Committee

(i)   The class committee shall meet thrice during the session. The first meeting will be held within two weeks from the date of commencement of the session 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 session to meaningfully interactand 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 class committee meetings.

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

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

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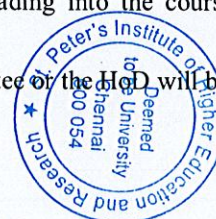
7   COURSE PLAN AND DELIVERY

a)   The course plan (**IC, PC, PE, OE,and PLC**) 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 fieldvisit, 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 4to6.

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

e)   The course plan shall be approved by the Class Committee (CC) chairperson 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 by the faculty and students.

8   ATTENDANCE

All courses should have a common attendance policy:

a)   At least75%attendance ineach courseismandatory.

b)   Amaximumof10%shall be allowed under On Duty (OD) category.

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

9. 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 assessment examination and end semester examination for both theory and practical courses of all programmes.

(i) Theory courses

Continuous Assessment (CAE)   :40 Marks

End Semester Exams   (ESE)   :60Marks

(ii) Practical courses

Continuous Assessment (CAE)   :40 Marks

End Semester Exams   (ESE)   :60Marks

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18
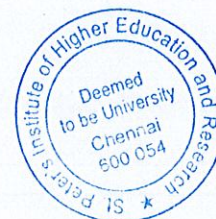
9.1 CONTINUOUS ASSESSMENT EXAMS (CAE)

(a)   Theory Courses

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

DISTRIBUTION OFCONTINUOUS ASSESSMENT EXAM (CAE) MARKS FOR A THEORY COURSE			
Evaluation Component	**Syllabus coverage**	**Duration of theExam**	**Max. Weightage**
CAE-1	First 1.5 Units of the syllabus	2Hours	**25 Marks** (20% weightage for CAE1&CAE2and60%for Model Exam)
CAE-2	Next 1.5 Units of the syllabus	2Hours	
Model Exam	Full syllabus	3Hours	
Assignment	2 written assignments for each course /Written quiz (or) Presentation ofa written Report(or)Casestudy/ Multiple choice ObjectiveTypeTest		**10 Marks**
Mini Project (or) Group Presentation	Technical Project involving not more than 3students (or) any other Group Presentation related to the course.		**5Marks**

- 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.

(b)   Practical Courses

- 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 notebook in scheduled format and time), 15 marks for model exam at the end of the semester and 5marks for attendancein 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 incharge 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 exams.

- If a student has not done all the experiments assigned for that lab, before the scheduled date or has attendance percentage less than 90%,the student will not be allowed to appear for the model and end semester practical exam.Such students will have to do the course again by doing all the experiments in the next semester when the course is offered.

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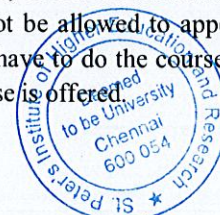
9.2   END SEMESTER EXAMINATIONS (ESE)

- The end semester examinations shall normally be conducted between October and December during the odd semesters and between March and May during the even semesters for both theory and practical courses of all programmes.

- End semester examinations will be conducted for a maximum of 100 marks. The markssecuredin end semester exams willbe converted to60marks.

9.3   Internship/ Industrial Training

- Every student is required to undergo Industrial Visits during every semester of the Programme.HoDs shal 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 2-3 weeks during the 2nd , 3rd& 5th semester.

- This could be internship in an industry approved by the Dean or Professional Enrichment courses (like attending Summer Schools, Winter Schools, Workshops) offered on Campusor in Registered Off Campus recognised Training Centres approved by the Dean for a minimum period of 3weeks.

- A report on Training undergone by the student, duly attested by the Coordinator concerned from the industry / Organisation, 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.

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

9.4   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 reputeor anyUniversities 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 orPre- final year of his/her Degree. During this period, the student can do his/her Project work orregisterforcourseswhichwillbeapprovedbytheClassCommitteeandDean,undertheGuidance of a Project Supervisor who is employed in the Organization and Co-guided by a staffmemberfromour Institution.

- Credit Transfer can be done by the CoE on submission of certificate through the HoD and Deanwithin15 days of completion of the training.

- 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
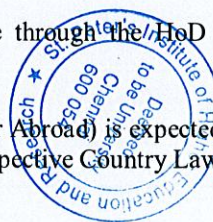
9.5   NSS/NCC/YRC/SPORTS Training

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

- The activities will include Practical /Fieldactivities /Extension lectures.The activities shall bebeyond classhours.

- The student participation shall befor a minimum period of 45 hours per session during the first /Second year.

- The activitieswill be monitored by the respective faculty incharge and theYear Coordinator.

- Grades will be awarded on the basis of participation, attendance, performance and behavior.Grades shall be entered in the mark 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 theFaculty in-charge shall been entered in the Third Year (SixthSemester) Mark Statement.

9.6 .PROJECT WORK

Project work has to be done by each student in the final year. The project work has to be done during the final semester.

- Permission for project work in the second year of the programme in general will be given toinnovative and industry related work. Such projects will be evaluated in every session until the VIsemester. If the evaluation committee is satisfied with the progress of the project work, continuationfor the project work will be given until the final assessment is made in the VI semester. In case, thereis no tangible progress in a session, such project work will be terminated and the students have to dotheirprojectinthefinalsemester intheirrespective departments.

- Project work may be allotted to a group of 4 to 6 students as a group. In special cases, the numberof students in a project group cannot exceed six, if it can be justified by the project supervisor and HoD,that the projectworkcontentislarge enough.

- For project work, assessment is done on a continuous basis by 3 reviews for 40 marks and finalviva voce carries 60Marks.

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

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	PROJECT REVIEWS			FINAL PROJECT
	1	2	3	VIVAVOCE
Max.Marks	5	15	20	60

- The total marks obtained in the three reviews, rounded to the nearest integer is the continuous assessment marks out of 40. There shall be a final viva-voce examination at the end of final semester conducted by one internal examiner,on e 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 studentto attendthe reviews,even if they areworking on a project in an industry based outsideChennai city. It is theirduty to inform the organization about theproject reviews and its importance, and get permission to attend the same. If a student does notattend any of the project reviews, he / she shall not be allowed for the successive reviews andtherebynotallowedto appear for the final vivavoce
- The final project viva-voce examination shall carry 60 marks. Marks are awarded to each student ofthe project group based on the individual performance in the viva-voce examination.The external examiner shall beappointed by the controller of examinations. The internal and external examiner will evaluate the project for 30 Marks each. The project report shall carry a maximum of100 marks.
- The candidate is expected to submit the project report as per the guidelines of the institution on orbefore the last day of submission. If a candidate fails to submit the project report on or before the specified deadline, he/she can be granted an extension of time up to a maximum limit of 5 days for the submission of projectwork, by the head of the department.
- 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.

9.7   REVALUATION OF ANSWER PAPERS:

A candidate can apply for revaluation of his/her End semester examination answer paper in a theorycourse, 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.

10   PASSING REQUIREMENTS

- A candidate should secure not less than 40% of total marks (Minimum 40% of the grand total of CAE MarksandESEmarksputtogether) 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 theexamination.

- If a candidate fails to secure a pass in a particular course, it is mandatory that he/she shall registerand 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.

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Avadi, Chennai-600 054.

11 .WITHDRAWAL FROM EXAMINATIONS

- A candidate may, for valid reasons, (medically unfit / unexpected family situations) be grantedpermission 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 isotherwisenormally eligible(ifhe/she satisfies Attendance requirements and should not be involved in Disciplinary issues orMalpractice in Exams) to write the examination and if it is made within FIVE days before thecommencement of the examination in that course or courses and also recommended by the DeanthroughHoD.

- Not withstanding the requirement of mandatory FIVE days notice, applications for withdrawal forspecial casesunder extraordinary conditions willbe considered based on the meritof thecase.

- Withdrawal shall not be considered as an appearance for deciding the eligibility of a candidate for First Class– ...., FirstClass with Distinction and First Class.

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

12 AUTHORIZED BREAK OF STUDY

- This shall be granted by the Institution, only once during the full duration of study, for validreasonsforamaximum ofoneyearduringthe entireperiod ofstudy ofthe degreeprogramme.
- A candidate is normally not permitted to temporarily break the period of study. However, if acandidate 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, theJoining date and Semester for Continuation of Studies after completion of break of Study. In suchcases, he/she will attend classes along with the Junior Batches. A student who availed break ofstudyhastorejoin onlyinthe samesemester fromwhere he/sheleft.

- The total period for completion of the programme shall not exceed more than 12 consecutive semesters from the time of commencement of the course (not more than 10 semesters for thosewho join 3rd semester under Lateral entry system) irrespective of the period of break of study inorder tha the /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 classificationof 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.

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Avadi, Chennai-600 054.

13   AWARD OF DEGREE

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

RANGE OF MARKS FOR GRADES

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

13.1 CUMULATIVE GRADE POINT AVERAGE CALCULATION

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

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

Where

C_i –Credits for the course

GP_i– Grade Point for th ecourse

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 GPAand during all the semesters in the case of CGPA

14   GRADE SHEET

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

- Name of the candidate with date of birth and photograph.
- The programme and degree in which the candidate has studied
- The list of courses enrolled duringthe semester and the grade secured
- The Grade Point Average (GPA) for the semester.

15   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 thecourses of all the 6 semesters in his/her first appearance within a maximum of 6 consecutivesemesters (maximum of 4 semesters for Lateral entry students who join the course in the third semester) 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 ofStudy vide Clause 12, 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 6 semesters within a maximum period of 8 consecutive semesters (maximum of 6 semesters for Lateral entry students who join the course in the third semester) after his/her commencement of study securing a overall CGPA of not less than6.0 (Calculated from 1stsemester), shall be declared to have passed the examination in **First Class.** Authorized break ofstudy vide Clause 12 (if availed of) or prevention from writing End semester examination due tolack 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 B.Sc.and2yearsforLateralEntry)willbeequaltotheNumberofsemestersavailedforAuthorizedBreakof 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 allthe courses of all the 6 semesters within a maximum period of 10 consecutive semesters (8 consecutive semesters for Lateral Entry students who join the course in the third semester) after

25

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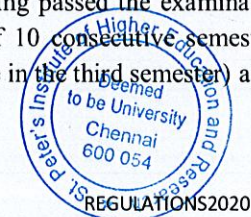
his/her commencement of study securing a overall CGPA of not less than 5.0,(Calculated from1st semester) shall be declared to have passed the examinationin **Second Class**.

4. All other candidates who qualify for the award of the Degree having passed the examination in all the courses of all the 6 semesters within a maximum period of 10consecutive semesters (8consecutive semesters for Lateral Entry students, who join the course in the third semester) afterhis/her commencementof study securing a overall CGPA ofnot lessthan 4.0, (Calculated from1st semester) shall be declared to have passed the examination in**Third Class**.

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

16   ELIGIBILITY FOR THE AWARD OF DEGREE

A student shall be declared to be eligible for the award of the B.SC(CS) degree, provided the student has successfully completed all the requirements of the programme,and has passed all the prescribed examinations in all the 6 semesters with in the maximum period specified inclause 3.

i) Successfully gained the required number of total credits as specified in the curriculumcorrespondingtohis/herprogramme within thestipulatedtime.

ii) Successfully completed the programme requirements and has passed all the courses prescribed inall the semesters within a maximum period of 5 years (4 Years for Lateral Entry Candidates) reckoned fromthe commencementofthefirstsemestertowhich the candidate was admitted.

iii) Successfully completedany 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.
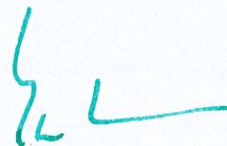
vii) No disciplinary action pending against the student.

The award of Degree must have been approved bythe Board of Management of theInstitution.

17   DISCIPLINE

Every student is required to observe disciplined and decorous behaviour both inside and outside theInstitutionandnottoindulgeinanyactivitywhichwilltendtobringdowntheprestigeoftheInstitution.If   a student indulges in malpractice in any of the end semester theory / practical examination, continuousassessment examinations he/she shall will be liable for disciplinary action as prescribed by the Institution from timeto time.
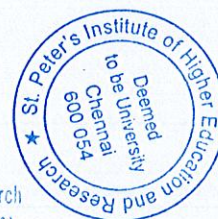
18   POWER TO MODIFY

From time to time, the Institution may revise, amend or change the regulations, scheme of examinations and syllabi if found necessary.

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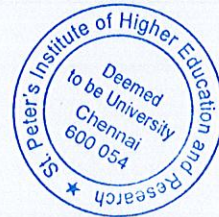(Deemed to be University U/S 3 of the UGC Act, 1956)
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SEMESTER-I

முதல் பருவம்

Course code - ATLT1601	PART - I	L	T	P	C
	பொதுத் தமிழ்	6	0	0	4

அலகு - 1   பாட நேரம் : 10

அ. நாட்டுப்புற இலக்கிய வரலாறு, நாட்டுப்புறப்பாடல்கள், நாட்டுப்புறக்கதைகள், நாட்டுப்புறக்
கதைப்பாடல்கள் பழமொழிகள், விடுகதைகள்.

ஆ. உரைநடை இலக்கிய வரலாறு

இ. நாவலின் தோற்றமும் வளர்ச்சியும்

ஈ. கவிதை இலக்கிய வரலாறு

புதுக் கவிதையின் தோற்றமும் வளர்ச்சியும்

உ. நாடக இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்

அலகு - 2   பாட நேரம் : 10

நாட்டுப்புறப் பாடல்கள்
தாலாட்டுப் பாடல், ஒப்பாரி பாடல் ,   தொழில் பாடல்
கட்டுரை

அ. உள்ளுணர்வு கனவாக வெளிப்படுகிறது - எம். எஸ் .உதயமூர்த்தி

ஆ. வீழ்ந்த ஆலமரம் - கல்கி

இ. ஏழாவது அறிவு - (போரின்றி வெற்றி மட்டும்) வெ. இறையன்பு

அலகு - 3   பாட நேரம் : 10

அ. பாரதியார் - மனதில் உறுதி வேண்டும், புதுமைப் பெண்

ஆ. பாரதிதாசன்- தமிழ்க்காதல், தமிழ்வளர்ச்சி, எந்நாளோ?

இ. கவிமணி - உடல் நலம் பேணல்

அலகு - 4   பாட நேரம் : 10

அ. கண்ணதாசன் - நீ மணி, நான் ஒலி

ஆ. கவிஞர் அறிவுமதி - நட்புக் காலம்

இ. வைரமுத்து - பெய்யெனப் பெய்யும் மழை (விதைத்தசோளம்)

ஈ. மு.மேத்தா - வாழை மரத்தின் சபதம்

உ. அப்துல்ரகுமான் - கனவு நாயகன் அப்துல்கலாம்

அலகு - 5   பாட நேரம் : 12

நாடகம்

சீவகங்கை சீமை – கண்ணதாசன்

அலகு - 6 மொழிப்பயிற்சி   பாட நேரம் : 8

பொருந்திய சொல் தருதல்

மரபுத்தொடர்கள், கலைச்சொற்கள், நேர்காணல்

மொத்த பாட நேரம் : 60
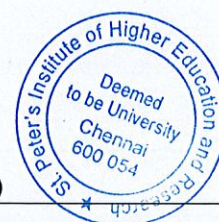
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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	2	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	-	-	2	-	-	-
CO4	-	-	-	-	-	-	2	-
CO5	-	-	-	-	-	-	2	-
AVERAGE	-	0.4	0.4	-	0.4	-	0.8	-

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is consider for empolyblity

CO NO	COURSE OUTCOME	RBT
CO1	நாட்டுப்புற இலக்கியங்களையும் அதன் வரலாற்றினையும் அறியச் செய்தல். உரைநடை, நாவல், கவிதை, நாடகம் முதலிய வளர்ச்சியையும் இலக்கியங்களின் தோற்றத்தினையும் அறியச் செய்தல்.	K2
CO2	கட்டுரைகள் எழுதும் முறையினை கற்றுக் கொடுத்தல்.	K6
CO3	மரபுக் கவிஞர்களின் கவிதைகள், புதுக்கவிதையின் கவிதைகளை மாணவர்களை அறியச் செய்தல்.	K5
CO4	நாடகம் மற்றும் இலக்கணங்களைக் கற்றுக் கொடுத்தல்.	K6
CO5	எழுத்து பிழையின்றி எழுத கற்றுக்கொடுத்தல்	K3

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CourseCode	Course Title	LTPC
AHIT1601	Hindi-I	5 00 4

Prerequisites:Nil

CourseObjectives:

PART – I PAPER – I - PROSE, FUNCTIONAL HINDI & LETTER WRITINGI. PROSE (Detailed Study): HINDI GADHYAMALA
Ed. by Dr. Syed
RahamathullaPoornimaPrakashan
4/7BegumIIIStreetR
oyapettah,Chennai–
14.
LESSONSPRESCRIBED:
1. SabhyatakaRahasya
2. Mitrata
3. Yuvavonsen
4. ParamanuOorjaevam KhadyaPadarthSanrakshan
5. YougyataaurVyavasaykaChunav.
II. FUNCTIONALHINDI&LETTERWRITING
StudentsareexpectedtoknowtheofficeandBusinessProcedures,AdministrativeandBusiness Correspondence.
1. GeneralCorrespondence:
1. PersonalApplications
2. LeaveLetters
3. LettertotheEditor
4. OpeninganA/C
5. ApplicationforWithdrawl
6. TransferofanA/C
7. MissingofPass Book/ ChequeLeaf
8. Complaints
9. OrderingforBooks
10. Enquiry
III.OFFICIALCORRESPONDENCE
1. GovernmentOrder
2. DemiOfficialLetter
3. Circular
4. Memo
5. OfficialMemo
6. Notification
7. Resolution
8. Notice
UNITISEDSYLLABUS
UNIT– I   **12hrs**
1. SabhyatakaRahasya
2. PersonalApplications
3. LeaveLetters
4. GovernmentOrder
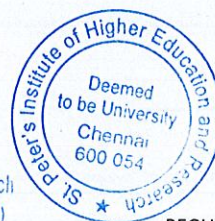5. AdministrativeTerminology Hindito English(25Words)

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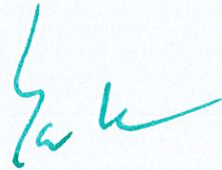St. Peter's Institute29of Higher Education and Research
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UNIT-II	**12hrs**
1. Mitrata	
2. LettertotheEditor	
3. OpeninganA/C	
4. DemiOfficialLetter	
5. AdministrativeTerminology Englishto Hindi(25Words)	
UNIT-III	**12hrs**
1. YuvavonSe	
2. ApplicationforWithdrawal	
3. Circular	
4. Memo	
5. AdministrativeTerminologyHindi toEnglish(25Words)	
UNIT-IV	**12hrs**
1. ParamanuOorjaevam KhadyaPadarthSanrakshan	
2. TransferofanA/C	
3. MissingofPassBook/Cheque Leaf	
4. OfficialMemo	
5. AdministrativeTerminologyEnglish toHindi(25 Words)	
UNIT-V	**6hrs**
1. YougyataaurVyavasaykaChunav	
2. Complaints	
3. OrderingforBooks	
4. Notification	
5. OfficialNoting HinditoEnglish (25words)	
UNIT-VI	**6hrs**
1. Enquiry	
2. Resolution	
3. Notice	
4. OfficialNotingEnglish toHindi(25 words)	

TOTALHOURS:60

BOOKSFORREFERENCE:
1. KaryalayeenTippaniya:KendriyaHindiSansthan,Agra
2. Prayojan Moolak Hindi : Dr. Syed
RahamathullaPoornimaPrakashan
4/7, Begum III
StreetRoyapettah,Chennai
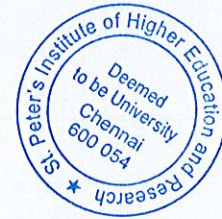–14.

Expected Course Outcomes:

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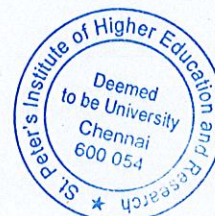(Deemed to be University U/S 3 of the UGC Act, 1956)
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Course Code	CourseTitle	L TPC
ATET1601	TeluguI	500 4

Prerequisites:Nil

CourseObjectives:

CLASSICALPOETRY
1. Kumarastravidyapradashanam-Nannya
2. Prahladacharitra-Potana
3. Pravrakhyunivruttantam-Peddana
4. Kuntikumari –JandhyalaPapayaaSastri

ExpectedCourseOutcomes:

STUDENTSWILLBE ABLETO

CourseCode	CourseTitle	LTPC
AFRT1601	French- I	500 4

Prerequisites:Nil

CourseObjectives:

- Togetagood exposuretothebasicsof French.
- ThelearnerwillbeabletomakesimplesentencesinFrenchaswellasarticula teusing the various parts ofspeech.
- Be able to effectively understand and use French grammar and thepronunciation.

Unit-1. Decouvrirlelanguefrancaise – DiscovertheFrenchLanguage.	12hrs
Unit– 2. FaireConnaissance–Gettingtoknowpeopleandlearningtoconverse.	12 hrs
Unit-3 Organsizersontemps –Articulationofhow we areorganasing ourtime.	12hrs
Unit– 4 Découvrirsonenvironnement– Communicationwithrespecttodiscoveringandexplainingone'senvironment.	12 hrs
Unit– 5 S'informer,sefaireplaisir.–Learningandunderstandingthelanguagewithpracticalusage.	12 hrs

TOTALHOURS:60

 Books forStudy:
Campus1.MethodedeFrancais.AuthorJackyGirardet&JacquesPecheur.

ExpectedCourseOutcomes:

STUDENTSWILLBEABLETO

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CourseCode	CourseTitle	L T P C
AENT1638	English I	5 0 0 4

Prerequisites:Nil

CourseObjectives:
- Togainfirsthand knowledgein grammar
- Tounderstandthe knowledgeofcommunication
- Tounderstandthehowtofaceinterviews

Unit1 :Preparatory Lessons	**12hrs**

1. CompetitionMatters -*SuzanneSievert*
2. APersonal CrisisMay Change History-*Dr. A.P.J.Abdul Kalam*
3. WhyPreserveBiodiversity-*Prof.D.Balasubramanian*

Unit2 :Prose	**12hrs**

MyGreatestOlympic Prize-*JesseOwens*
1. IfYou areWrongAdmit it-*DaleCarnegie*
2. MondayMorning -*MarkTwain*

Unit3 : Poetry	**12hrs**

1. PulleyorGift ofGod -*GeorgeHerbert*
2. TheNight of theScorpion-*Night of theScorpion*
3. TheDeath of aBird -*A.D. Hope*

Unit4:ShortStory	**12hrs**

1. ASnakein theGrass-*R.K. Narayan*
2. ThreeQuestions -*LeoTolstoy*
3. TheGiftoftheMagi -*O.Henry*

Unit5 :Grammar	**12hrs**

1. Synonym,Antonym
2. Parts of Speech – Noun, Pronoun, Verbs, Adjective, Adverbs, Preposition,Conjunction,Interjection.
3. QuestionTag
4. Errorspotting
5. FormalandInformalLetterwriting.

TOTALHOURS:60

TextBook:ReferenceBooks:

Catalyst*AMultilevelEnglishRefresher*byAnuChitraPublications.

SpringBoardbyOrientBlackSwanPvt.Ltd

(Refertothe Grammarexercisesin theTextBook) and **PartI**

Part-I

Sound Right

Introduction to the Sounds of the English Language, Word Stress, Strong and

Weak Forms, SentencesStress and Intonation, Voice Modulation

Expected Course Outcomes:

STUDENTS WILL BE ABLE TO

CO1 Interpret texts with attention to the content and the context..
CO2: The deliberate writing process with emphasis on the language and the literalsense.
CO3 Evaluate genres of writing in appropriate genres and modes for a
variety ofpurposes and audiences
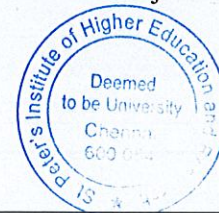   **CO4**: Acquire an intense knowledge of grammar and vocabulary.
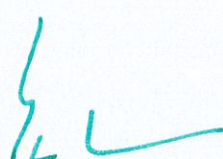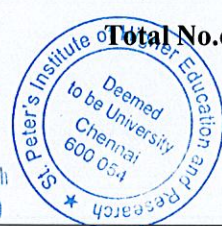**CO5**: Gain cognitive skills to understand and interpret texts in their own words..

CO	COURSE OUTCOME	RBT
CO1	Interpret texts with attention to the content and the context.	K1, K2
CO2	The deliberate writing process with emphasis on the language and the literalsense.	K3
CO3	Evaluate genres of writing in appropriate genres and modes for a variety of purposes and audiences.	K5
CO4	Acquire an intense knowledge of grammar and vocabulary	K4
CO5	Gain cognitive skills to understand and interpret texts in their own words.	K6

CO	PO1	PO2	PO3	P O4	P O 5	PO6	PO 7	PO 8	
CO1	1	-	-	1	-	-	-		-
CO2	-	2	-	-	-	-	-		-
CO3	-	-	1	-	-	-	3		-
CO4	-	-	-	-	-	-	-		-
CO5	-	-	-	-	-	-	3		-
AVG	0.2	0.4	0.2	0.2	-	-	1.2		-

Since it is mapped with, PO1, PO2, PO3, PO5 and PO7 this subject is considered for employability

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CourseCode	CourseTitle	LTPC
AENT1642	English for Communication	3 00 2

Prerequisites:Nil

Course Objectives:
- Aims students to hone their communication skills effectively in all the circumstances in different stages of their life.
- Seeks to equip students with the required language skills to face interviews and group discussions.
- Helps students to expose them to the correct usage of language and help them to apply that knowledge appropriately in all the platforms.
- Helps to facilitate students to speak effectively while exchanging ideas and making presentations.

UNIT – I   No.of Hours:06
- Language and Communication
- Barriers to Communication
- Importance of Communication
- LSRW in communication
- Principles of communication

UNIT – II   No.of Hours: 06
- Non- verbal Communication
- Posture
- Gestures
- Facial expression
- Eye contact

UNIT – III   No.of.Hours:06
- Face to face conversation
- Telephonic conversation
- Formal and Informal Conversation
- Interviews for Placement - Mock Interviews
- Group Discussions

UNIT – IV   No.of.Hours:06
- Extempore topics
- Public Speech
- Regulating speech
- Conducting seminars
- Organizing conferences

UNIT – V   No.of.Hours:06
- Report writing
- Dialogue Writing
- Paragraph Writing
- Note Taking/Note Making
- Letter Writing

Total No.of.Hours: 30

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TextBook/ ReferenceBooks:
Book Recommended
1. Krishna Mohan & Meera Banerji. Developing Communication Skills.Macmillan
2. SasiKumar. V and P.V. Dharmija. 1993. Spoken English: A Self Learning GuideConversation 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. PowerCommunication In English. Chennai, Loyola Publication, 200 Cole, Kris. Crystal clear Communication. Chennai, East West Books Pvt.Ltd.,2001.McKay,Mathew,Martha Davis and Patrick Fannin Communication Skills. New Delhi,B.JainPub.(P) Ltd;200

ExpectedCourseOutcomes:

STUDENTSWILLBE ABLETO
CO1: Communicate effectively through all the LSRW skills.
CO2: Interact efficiently with excellent verbal and nonverbal communication CO3:
Converse professionally in debates and group discussions
CO4: Participate and speak eloquently on any given platform.
CO5: Equip them with the dynamism needed for any professional forum..
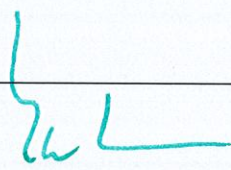
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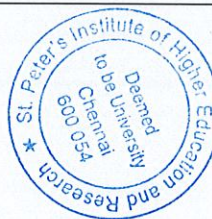Avadi, Chennai-600 054.

COURSE: GENERAL ENGLISH- I

CO	COURSE OUTCOME	RBT
CO1	Communicate effectively through all the LSRW skills.	K1, K2
CO2	Interact efficiently with excellent verbal and nonverbal communication.	K3
CO3	Converse professionally in debates and group discussions.	K5
CO4	Participate and speak eloquently on any given platform.	K4
CO5	Equip them with the dynamism needed for any professional forum.	K6

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO1	-	-	-	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	2	-	2	-	2	-
CO4	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	3	-
AVG	-	0.4	0.4	-	0.4	-	1	-

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37

Course Code	Course Title	LTPC
AMAT1620	Mathematics I	610 6

Prerequisites:Nil

COURSE OBJECTIVES
(i)   This course introduces the concepts of approximation values.
(ii)   To learn the basic concepts of matrices.
(iii)   To train the students in the basic Differentiation.

UNIT-I: ALGEBRA AND NUMERICAL METHODS   18Hrs

Algebra: Summation of series - simple problems.

Numerical Methods: Operators E, Δ, ∇, difference tables - Newton -Raphson method-Newton''s forward and backward interpolation formulae for equal intervals-Lagrange's interpolation formula. $\Delta \nabla$

UNIT-II:MATRICES: 18Hrs

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

UNIT-III: THEORY OF EQUATIONS   18Hrs

Polynomial equations with real coefficients-irrational roots-complex roots-symmetric functions of roots-transformation of equation by increasing or decreasing roots by a constant-reciprocal equation-Newton's method to find a root approximately - simple problems.

UNIT-IV: TRIGONOMETRY   18Hrs

Expansions of $\sin(n\theta)$ and $\cos(n\theta)$ in a series of powers of $\sin\theta$ and $\cos\theta$ - 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 $\sin\theta$, $\cos\theta$ and $\tan\theta$ in a series of powers of "θ"-Hyperbolic and inverse hyperbolic functions.

UNIT-V: DIFFERENTIAL CALCULUS   18Hrs

Successive differentiation-n^{th} derivatives-Jacobians-Curvature and radius of curvature in Cartesian co-ordinates-maxima and minima of functions of two variables-Lagrange's multipliers - Simple problems.

TOTAL HOURS :90.

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COURSE OUTCOMES
On the successful completion of the course, students will be able to

CO 1: Solve algebraic series and solve equations numerically
CO 2: Get knowledge of matrices to find eigen values and eigen vectors.
CO 3: Find roots of equations.
CO 4: Solve all kinds of trigonometric functions.
CO 5: Get the knowledge of radius of curvature.

TEXT/REFERENCE BOOKS

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

2. S. Narayanan and T.K. ManickavasagamPillai– Ancillary Mathematics, S. ViswanathanPrinters, 2009, Chennai.

3. Dr.A.Singaravelu-Allied Mathematics, Published by Meenakshi Agency 2017 .

apping with Programme Outcomes

CO's\PO's\PSO's	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3
CO1	2	2	-	-	2	2	2	-	1	2	2
CO2	2	2	2	-	2	2	1	1	-	2	2
CO3	2	2	-	-	2	1	1	2	-	2	2
CO4	-	2	2	-	1	-	2	-	-	1	1
CO5	-	2	2	-	1	-	1	-	-	1	2

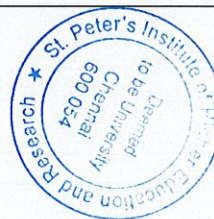**Course Outcomes**
On the successful completion of the course, students will be able to

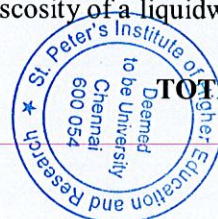| CO Number	CO Statement	Knowledge Level
CO1	Solve algebraic series and solve equations numerically	K1, K2 ,K3, K5
CO2	Get knowledge of matrices to find eigen values and eigen vectors.	K1,K2,K3,K4,K5
CO3	Find roots of equations.	K1,K2,K3.K4,K5
C04	Solve all kinds of trigonometric functions.	K1,K2,K3
C05	Get the knowledge of radius of curvature.	K1, K2 ,K3, K5

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Course Code	Course Title	L T P C
APHT1601	Mechanics and Properties of Matter	5 0 0 4

Prerequisites:Nil

COURSE OBJECTIVES:
- To acquire skills and practical knowledge in the concept of rigid body dynamics
- Will cater the basic requirementsfor understanding the basicsof hydrodynamics
- To provide a theoretical basis for doing experiments in related areas

UNIT1:IMPULSE,IMPACT&RIGIDBODYDYNAMICS   12hrs
Impulse – impact – Laws of impact – direct impact and oblique impact between twosmooth spheres – loss of kinetic energy – motion of two interacting bodies – reduced massCompound pendulum – theory – equivalent simple pendulum – reversibility of centers ofoscillation and suspension – determination of g and k – center of mass – velocity andacceleration of centre of mass – determination of motion of individual particle – system ofvariablemass.

UNIT2:CENTREOF GRAVITYAND CENTREOF PRESSURE   12hrs
Centre of gravity of solid and hollow tetrahedron, solid and hollow hemisphere– Centreof pressure – vertical rectangular lamina – vertical triangular lamina. Hydrodynamics :Equation of continuityof flow – Venturimeter – Euler's equation of unidirectional flow – Torricelli'stheorem– Bernoulli's theorem and itsapplications.

UNIT3 :ELASTICITY   12hrs
Hooke's Law –Stress– Strain- Elastic constants– Expressions forPoisson's ratiointerms of elastic constants – workdone in stretching and twisting a wire – twisting coupleon a cylinder – rigidity modulus by static torsion – torsional pendulum – rigidity modulusandmoment of inertia.

UNIT4:BENDINGOF BEAMS   12hrs
Cantilever – expression for bending moment – expression for depression – cantileveroscillations – Expression for time period – Experiment to find Young's modulus – Nonuniform bending – Experiment to determine Young's modulus by Koenig's method –uniform bending – expression for elevation – experiment to determine Young's modulususingmicroscope.

UNIT5:FLUID DYNAMICS   12hrs
Surface tension-Definition – Excess of pressure over curved surface – Application tosphericalandcylindricaldropsandbubbles–variationofsurfacetensionwithtemperature – Jaegar's method, Viscosity-Definition – Coefficient of viscosity – Rate offlow of liquid in a capillary tube – Poiseuille's formula – variation of viscosity of a liquidwithtemperature– Application.

TOTALHOURS :60

REFERENCEBOOKS:

1. Mechanics–Part IandIIbyNarayanamoorthy,NationalPublishingCompany.
2. MechanicsbyD.S.Mathur, S.Chand&Co., 4thEdition(2017).
3. MechanicsbyP.Duraipandian,LaxmiDuraipandian,MuthamizhJayapragasam,S.C hand& Co.,New Delhi (2019)
4. PropertiesofMatterbyR.Murugeshan,S.Chand&Co.,NewDelhi(2018).
5. PropertiesofMatterbyBrijLalandN.Subramaniam,S.Chand&Co.,NewDelhi (2017).

ExpectedCourseOutcomes:

Up on completion of the course students will be able to:

CO1: Understand the concepts of dynamics of rigid bodies

CO2:Understand the knoeledge of centre of pressure and centre of gravity

CO3: Acquire knowledge in the basics of hydrodynamics

CO4: Perform experiments by applying the concepts of elasticity and bending of beams

CO5: Get the knowledge in the principles of Fluid dynamics
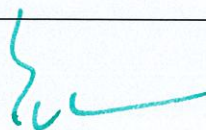
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CO No.	Course Outcome	RBT
CO1	Understand the concepts of dynamics of rigid bodies	K2
CO2	Understand the knoeledge of centre of pressure and centre of gravity	K2
CO3	Acquire knowledge in the basics of hydrodynamics	K3
CO4	Perform experiments by applying the concepts of elasticity and bending of beams	K3
CO5	Get the knowledge in the principles of Fluid dynamics	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO4,PO6 this subject is consider Entrepreunarship

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CourseCode	CourseTitle	L T P C
APHL1601	Properties of Matter lab	0 0 4 2

PREREQUISITES:None

COURSEOBJECTIVES:
- Tostudythebasisofpropertiesof matter fundamentalslikestress,strainandHooke'slaw.
- Togainpracticalknowledgebyapplyingtheexperimentalmethodstocorrelatewith the physics theory.
- Applytheanalyticaltechniqueandgraphicalanalysistotheexperimentaldata.

LISTOFEXPERIMENTS:(ANYSEVENEXPERIMENTS)

1. Young'smodulus –Non-uniformbending–Pin&microscope
2. Young'smodulus –Uniformbending –Opticlever
3. Rigiditymodulus–Torsionalpendulum(withoutidenticalmasses)
4. Rigidity modulus and moment of inertia – Torsional pendulum (With identicalmasses)
5. Surfacetensionand interfacialsurfacetension –drop weightmethod.
6. Coefficient of viscosity of liquid – Graduated burette (radius of capillary tubeusingTravelling Microscope).
7. Stoke'sMethod- CoefficientofViscosityofahighlyviscoustransparentliquid(castor oil)
8. Young'smodulus-cantilever-depression-(Staticmethod)-(Scaleandtelescope)
9. Rigiditymodulus-Statictorsion
10. Compoundpendulum-gandk
11. Young'smodulus-cantileveroscillations-(Dynamic method)

TOTALHOURS:60

ExpectedCourseOutcomes:

Uponcompletion ofthe coursestudents will beableto:

CO1: Understand the concepts of dynamics of rigid bodies

CO2: Acquire knowledge in the basics of hydrodynamics

CO3: Perform experiments by applying the concepts of elasticity and bending of beams

CO4: Get the knowledge in the principles of Fluid dynamics

CO5: Acquire the knowledge of Youngs modulus

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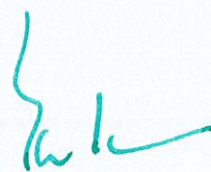(Deemed to be University U/S 3 of the UGC Act, 1956)
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43

CourseCode	CourseTitle
APHL1601	Properties of Matter lab

CO No.	Course Outcome	RBT
CO1	Understand the concepts of dynamics of rigid bodies	K2
CO2	Acquire knowledge in the basics of hydrodynamics	K3
CO3	Perform experiments by applying the concepts of elasticity and bending of beams	K3
CO4	Get the knowledge in the principles of Fluid dynamics	K1
CO5	Acquire the knowledge of Youngs modulus	K6

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO8, PO7 This subject is consider Employability ans skill development.

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இரண்டாம் பருவம்

Course code - ATLT1602	PART - I	L	T	P	C
	பொது தமிழ் – 2	5	0	0	4

அலகு - 1　　　　　　　　　　　　　　　　　　　　பாட நேரம் : 10

அ. சிற்றிலக்கிய வரலாறு

ஆ. கிருத்துவ இலக்கிய வரலாறு

இி. இஸ்லாமிய இலக்கிய வரலாறு

அலகு - 2　　　　　　　　　　　　　　　　　　　　பாட நேரம் : 10

அ. நந்திக்கலம்பகம்

ஆ.முத்தொள்ளாயிரம்

இ. தமிழ்விடு தூது – 20 முதல் 35 கண்ணிகள்

அலகு - 3　　　　　　　　　　　　　　　　　　　　பாட நேரம் : 10

அ. திருக்குற்றாலக் குறவஞ்சி

ஆ. முக்கூடற்பள்ளு

இ. இயேசுநாதர் பிள்ளைத்தமிழ்

அலகு – 4　　　　　　　　　　　　　　　　　　　　பாட நேரம் : 10

சிறுகதைகள்

அ. வெயிலோடுபோய் - தமிழ்ச்செல்வன்

ஆ. வளையாத பனைகள் - இரா. நந்தகோபால்

இ. ஒரு சிறு இசை – வண்ணதாசன்

அலகு - 5　　　　　　　　　　　　　　　　　　　　பாட நேரம் : 10

சீறாப்புராணம் - உமறுப்புலவர்

(மானுக்குப் பினை நின்ற படலம்)

அலகு - 6　　　　　　　　　　　　　　　　　　　　பாட நேரம் : 10

பண்புத்தொகை, வினைத்தொகை, உம்மைத்தொகை, உருவகம், வேற்றுமைத் தொகை, உவமை தொகை, ஒருமை - பன்மை மயக்கம், பிறமொழிச்சொற்களை நீக்குதல், அகரவரிசைப்படுத்துதல், பல பொருள் குறித்த ஒருசொல், ஒருசொல் குறித்த பல பொருள்.

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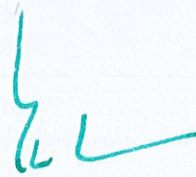(Deemed to be University U/S 3 of the UGC Act. 1956)
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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	2	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	-	-	-	-	2	-
CO4	-	-	-	-	-	-	2	-
CO5	-	-	-	-	-	-	-	2
AVERAGE	-	0.4	0.4	-	-	--	0.8	0.4

Since it is mapped with PO2, PO3, PO7 and PO8 this subject is consider for empolyblity and

skill development

| CO NO	COURSE OUTCOME	RBT
CO1	சிற்றிலக்கிய வரலாற்றினையும் வகைகளையும் அறிந்து கொள்ளுதல்	K2
CO2	சிறுகதை கவிதை திறனை வளர்த்தல்.	K6
CO3	பிள்ளைத்தமிழ் இலக்கணங்களை கற்றல்	K1
CO4	புராணங்களின் கதைகளை மாணவர்களுக்கு கற்பித்தல்	K2
CO5	இலக்கணங்களையும், தமிழ் மொழி பிற மொழிக் கலப்பினை நீக்குதல் போன்றவற்றை மாணவர்கள் அறிந்துக்கொள்ளல்	K3

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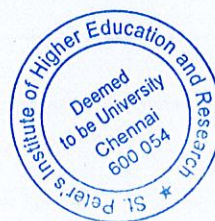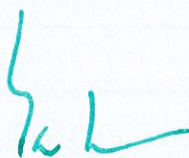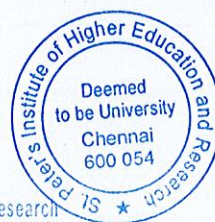St. Peter's Institute of Higher Education and Research
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PREREQUISITES:Nil

COURSEOBJECTIVES:

PART– IPAPER – II– ONE ACTPLAY, SHORT STORY&TRANSLATION
I. ONE ACTPLAY (Detailed Study):AATH EKANKI EditedBy:
DevendraRajAnkur,MaheshAanandV
aniprakashan
4695,21-ADariyagunj, NewDelhi–
110002 **LESSONSPRESCRIBED:**
1. AurangazebkiAakhariRaat
2. LaksmiKaSwagat
3. BasantRitukaNaatak
4. BahutBadaSawal
II.SHORTSTORIES(Non-DetailedStudy):SWARNAMANJARIEditedby:
Dr. Chitti.
AnnapurnaRajeswariP
ublications
21/3,MothilalStreet,(Opp.RanganathanStreet),
T.Nagar, Chennai – 600017.
LESSONSPRESCRIBED:
1. Mukthidhan
2. Mithayeewala
3. SebaurDev
4. Vivahki TeenKathayen
III. TRANSLATION PRACTICE: (English to
Hindi)BOOKS FOR REFERENCE:
1. Prayojan Moolak Hindi: Dr. Syed
RahamathullaPoornimaPrakashan
4/7, Begum III
StreetRoyapettah,Chennai
–14.
2. AnuvadAbhyasPart IIIDakshinBharatHindiPracharSabha
T.Nagar,Chennai -17.
UNITISEDSYLLABUS
UNIT– I   **12hrs**
1. AuranzebkiAakhiriRaat
2. Mukthidhan
3. Practiceof AnnotationWriting
4. PracticeofSummaryandLiteraryevaluation Writing
UNIT– II   **12hrs**
1. LaksmikaSwagat
2. Mithayeewala
3. Practiceof AnnotationWriting
4. PracticeofSummaryandLiteraryevaluation Writing
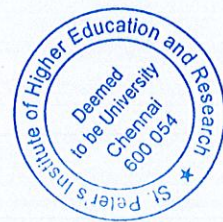
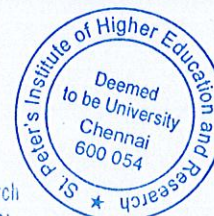| UNIT-III	12hrs
1. BasantRitukaNatak	
2. SebAurDev	
3. Practiceof AnnotationWriting	
4. PracticeofSummaryandLiteraryevaluation Writing	
UNIT-IV	**12hrs**
1. BahutBadaSawal	
2. VivahkiTeenKathayen	
3. Practiceof AnnotationWriting	
4. PracticeofSummaryandLiteraryevaluationWriting	
UNIT-V	**12hrs**
1. TranslationPractice.(English toHindi)	
	TOTALHOURS:60
EXPECTEDCOURSEOUTCOMES:	

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CourseCode	CourseTitle	LTPC
ATET1602	TeluguII	5 00 4

Prerequisites:Nil

CourseObjectives:

MODERNPOETRY
1. Purnamma-Gurajda AppaRao
2. Palitakesamu-DuvvuriRamiReddy
3. Desacharitralu -SrirangamSrinivasaRao
4. Simhasana(Telangana) -KundurtiAnjeneyulu
5. Rachayitarayaninatakam-Nagnamuni
(POETRYSELECTIONS:CLASSICAL&MODERNPOETRY–

TOTAL HOURS :60

ExpectedCourseOutcomes:

STUDENTSWILLBEABLETO

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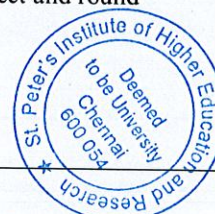(Deemed to be University U/S 3 of the UGC Act. 1956)
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CourseCode	CourseTitle	LTPC
AFRT1602	French-II	500 4

Prerequisites:Nil

CourseObjectives:
- TounderstandtheintermediateconceptsofFrench.
- To be able to make slightly more complex sentences in French as well asarticulateusing the various parts ofspeech.
- BeabletoeffectivelyunderstandanduseFrenchgrammarandthepronu nciation.

UNIT1:	**12hrs**

Emphasis on grammar building the awareness in using correct sentences. Conjugationofverbs. (er, ir, re – verbs). Adjectives.

UNIT2	**12hrs**

Improving the vocabulary. Proposing, accepting or denying a proposal. Verbs – Tospeak, To go, To come, To learn, to play, to work, to write, to take - for both writingandspeaking andexpressing day today activities with theseverbs.

UNIT3:	**12hrs**

Demonstrative pronom, Adverbial pronom, Les pronoms relatifs (qui, que)-Parler dupassé - Compréhension/ production écrite- - Épreuves Usage of Pourquoi and Parceque.

UNIT4	**12hrs**

Conversion of verbs to noun and vice versa. Usage of Depuis and ilya. Mon, ton. Son,votre…Usageof PronomComplement direct and Indirect

UNIT5	**12hrs**

Subjonctifs,Pronominauxverbs,Futurproche,Interrogativeadjectifs,Compréhension/pro duction écrite-Épreuves

TOTALHOURS:60

TextBook.

Campus1.Methode deFrancais.Author JackyGirardet& JacquesPecheur.

ExpectedCourseOutcomes:

STUDENTSWILLBEABLETO

CO1:TounderstandtheintermediateconceptsofFrench.

CO2: To be able to make slightly more complex sentences in French as well asarticulateusing thevarious parts of speech.

CO3:BeabletoeffectivelyunderstandanduseFrenchgrammarandthepronunciation.

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CourseCode	CourseTitle	LTPC
AENT1639	English II	5 00 4

PREREQUISITES:Nil

COURSEOBJECTIVES:
- Togainfirsthandknowledgein grammar.
- Tounderstandtheknowledgeof communication.
- Tounderstandthehowtofaceinterviews.
- Tounderstandmoralvaluesaboutdaytodaylife.

UNIT1:PROSE The Refugee-*K.A. Abbas* The Lion and TheLamb-*Leonard Clark* The Sky isthe limit-*KalpanaChawla*	**12 hrs**
UNIT2 :POEMS The Solitary Reaper - William WordsworthGift- AliceWalker O What is thatSound -W.H.Auden	**12hrs**
UNIT3:SHORT STORIES The Fortune-Teller-*KarelCapek* The Postmaster -*Rabindranath Tagore* The Model Millionaire - *OscarWilde*	**12hrs**
UNIT4 :ONE-ACT PLAYS The Death Trap - *Saki* (H.H. Munro)The Sherif's Kitchen - *Ronald Gow*TheAnniversary - *AntonChekkov*	**12hrs**
UNIT5:COMMUNICATIVEGRAMMAR DegreesofComparisonWordBuilding Prefixes and Suffixes.E-Mail. Extempore	**12hrs**

TOTALHOURS:60

BooksForStudy:
1. Panorama*EnglishforCommunication* byEmeraldPublishers.
PanoramaandPart IIIfromSpringBoard byOrientBlackSwanPvt.Ltd

EXPECTEDCOURSEOUTCOMES:
Uponcompletion ofthe coursestudents will be ableto:
CO1:Applytheusefulinformationonutilizingactivitywordsinsentencedevelopment.
CO2:Applyandpracticedthecorrectknowledgein grammar.
CO3:Applyandbreakdownthecorrectsortof articulationwithrespecttodiscoursesoundsand ready to get various kinds of elocutions.
CO 4: Apply the idea of central rule of checking to take care of the issues on direct,roundchanges and furthermoreforthe issues on determinations.
CO 5: Analyze the given conditions and discovering all the potential courses ofactionin direct and round request

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CO	COURSE OUTCOME	RBT
CO1	Apply the useful information on utilizing activity words in sentence development.	K1,K2
CO2	Apply and practiced the correct knowledge in grammar	K3
CO3	Apply and break down the correct sort of articulation with respect to discourse sounds and ready to get various kinds of elocutions.	K5
CO4	Apply the idea of central rule of checking to take care of the issues on direct, round changes and furthermore for the issues on determinations. Apply the idea of likelihood, while doing the issues on Leap year and Non-Leap year issues, coins, bones, balls and cards.	K4
CO5	Analyze the given conditions and discovering all the potential courses of action in direct and round request. Break down the given numbers or letters to discover the concealed relationship and apply that similarity to discover arrangements. Finding the odd ball by watching the standard which makes the others comparable.	K6

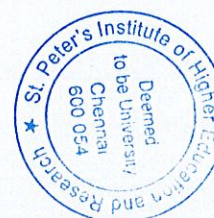|	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	-	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	2	-	2	-	2	-
CO4	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	3	-
AVERAGE	-	0.4	0.4	-	0.4	-	1	-

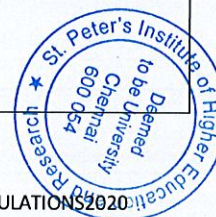Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

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52

Course Code	Course Title	L T P C
AMAT1625	Mathematics II	6 1 0 6

Prerequisites:Nil

COURSE OBJECTIVES
(i) To learn the basic concepts of Integrations.
(ii) To train the students in Differential equations.
(iii) Concepts of Laplace Transforms is also introduced

Unit-I: INTEGRAL CALCULUS   **18Hrs**

Bernoulli's formula. Reduction formulae - $\int_0^{\frac{\pi}{2}} sin^n x dx$, $\int_0^{\frac{\pi}{2}} cos^n x dx$, $\int_0^{\frac{\pi}{2}} sin^m x cos^n x dx$

(m, n being positive integers), Fourier series for functions in$(0,2\pi)$, Half range sine and cosine series.

Unit-II: DIFFERENTIAL EQUATIONS   **18Hrs**

Ordinary Differential Equations: Second order non- homogeneous differential equations with constant coefficients of the form $ay''+by'+cy=X$ where X is of the form $e^{\alpha x}sin\beta x$ and $e^{\alpha x}cos\beta x$.

Partial Differential Equations: Formation, complete integrals and general integrals-four standard types and solving Lagrange's linear equation P p +Q q=R

Unit -III: LAPLACE TRANSFORMS   **18Hrs**

Laplace transformations of standard functions and simple properties- inverse Laplace transforms- Application to solution of linear differential equations up to 2nd order- simple problems.

Unit –IV: VECTOR DIFFERENTIATION   **18Hrs**

Introduction- Scalar point functions-Vector point functions- Vector differential operator∇ Divergence-Curl-Solenoidal-irrotational-identities.

Unit -V: VECTOR INTEGRATION   **18Hrs**

Line, surface and volume integrals, Gauss, Stoke's and Green's theorems (without proofs). Simple problems on these.

TOTALHOURS:90

TEXT/REFERENCE BOOKS
1. Allied Mathematics Volume I and II by P. Duraipandian and S. Udayabaskaran, Published by S. Chand-2016 Edition (Reprint)
S. Narayanan and T.K. ManickavasagamPillai– Ancillary Mathematics, S. ViswanathanPrinters, 2009, Chennai.
Dr.A.Singaravelu-Allied Mathematics, Published by Meenakshi Agency 2017.

COURSE OUTCOMES
On the successful completion of the course, students will be able to
CO 1: Solve all type of integrals.
CO 2: Get the knowledge to solve ordinary and partial differential equation.
CO 3: Solve periodic functions and transform functions.
CO 4: Apply the vector operators.
CO 5: Evaluate vector operators using various theorem.

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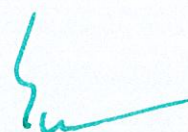St. Peter's Institute of Higher Education and Research
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Mapping with Programme Outcomes

CO Number	CO Statement	Knowledge Level
CO1	Solve all type of integrals.	K1, K3,K5
CO2	Get the knowledge to solve ordinary and partial differential equation.	K1,K2,K3,K4 K5,
CO3	Solve periodic functions and transform functions.	K1,K2,K3.K4 , K5
CO4	Apply the vector operators.	K1,K2,K3
CO5	Evaluate vector operators using various theorem.	K1, K2 , K5

Strong – 3; Medium – 2; Low – 1.

Course Outcomes

On the successful completion of the course, students will be able to

CO's\PO's\PSO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	-	-	2	2	2	-	1	2	2
CO2	2	2	2	-	2	2	1	1	-	2	2
CO3	2	2	-	-	2	1	1	2	-	2	2
CO4	-	2	2	-	1	-	2	-	-	1	1
CO5	-	2	2	-	1	-	1	-	-	1	2

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Course Code	Course Title	LTPC
AEVT1601	Environmental Science	2 00 2

Prerequisites :None

COURSE OBJECTIVES
- To study the nature and the facts about environment.
- Tofind the concept of ecosystem.
- To study the integrated themes and natural resources, biodiversity and pollution control.
- To appreciate the importance of environment by assessing its impact on the human world;envision the surrounding environment, its functions and its value.

UNIT1 :INTRODUCTIONTO ENVIRONMENTALSTUDIES   2hrs
Multidisciplinarynatureofenvironmentalstudies;Scopeandimportance;Conceptofsustai nability and sustainabledevelopment.

UNIT2:ECOSYSTEMS   3hrs
Ecosystem-Structure and function of ecosystem; Energy flow in an ecosystem: foodchains, food webs and ecological succession. Case studies of the followingecosystems:Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquaticecosystems(ponds, streams, lakes, rivers,oceans, estuaries)

UNIT 3: NATURALRESOURCES: RENEWABLE ANDNON-RENEWABLE RESOURCES   5hrs
Land resources and land use change; Land degradation, soil erosion anddesertification.
Deforestation: Causes and impacts due to mining, dam building on environment,forests,biodiversity and tribalpopulations.
Water: Useand over-exploitation of surface andground water, floods, droughts, conflicts overwater (international & inter-state).
Energyresources:Renewableandnonrenewableenergysources,useofalternateenergy sources, growing energy needs, casestudies.

UNIT4 :BIODIVERSITYAND CONSERVATION   5hrs
- Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hotspots.
- India as amega-biodiversitynation; Endangered and endemicspecies of India.
- Threatsto biodiversity :Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation ofbiodiversity : In-situ and Ex-situ conservation ofbiodiversity.
- Ecosystemandbiodiversityservices:Ecological, economic,social,ethical,aestheticandInformationalvalue.

55

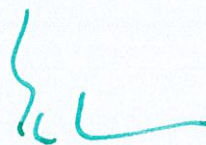## UNIT5:ENVIRONMENTAL POLLUTION   5hrs
- Environmentalpollution:types,causes,effects andcontrols;Air,water,soilandnoisepollution
- Nuclearhazardsandhumanhealthrisks
- Solidwastemanagement: Controlmeasuresofurbanand industrialwaste.
- Pollutioncasestudies.

UNIT6:ENVIRONMENTAL POLICIES &PRACTICES   5hrs
- Climate change, global warming, ozone layer depletion, acid rain and impactsonhuman communities andagriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Controlof Pollution) Act; Water (Prevention and control of Pollution) Act; WildlifeProtection Act; Forest Conservation Act. International agreements: MontrealandKyoto protocolsandConventionon BiologicalDiversity(CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts inIndiancontext.

UNIT7:HUMANCOMMUNITIESANDTHEENVIRONMENT   5hrs
- Humanpopulationgrowth:Impactsonenvironment,humanhealthandwelf are.
- Resettlementandrehabilitationofprojectaffectedpersons;casestudies.
- Disastermanagement: floods,earthquake,cyclones andlandslides.
- Environmentalmovements :Chipko, Silentvalley, BishnoisofRajasthan.
- Environmentalethics:RoleofIndianandotherreligionsandculturesinenvir onmentalconservation.
- Environmental communication and public awareness, case studies (e.g., CNGvehiclesin Delhi).

TOTALHOURS:30

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Text Book/ReferenceBooks:

1. GilbertM.Masters,"IntroductiontoEnvironmentalEngineeringandScience",2ndEdition, Pearson Education, 2014.
2. Benny Joseph, "Environmental Science and Engineering", Tata Mc Graw-Hill,NewDelhi, 2017.
3. R.K.Trivedi,"HandbookofEnvironmentalLaws,Rules,Guidelines,CompliancesandStandard", Vol.IandII,Enviro Media,2011.
4. Cunningham,W.P.Cooper,T.H.Gorhani,"EnvironmentalEncyclopedia",JaicoPubl., House, Mumbai, 2007.
5. DharmendraS.Sengar, "Environmentallaw",PrenticeHallof IndiaPVT LTD,NewDelhi, 2007.
6. Rajagopalan,R,"Environmental Studies-From CrisistoCure",OxfordUniversity Press2016

ExpectedCourseOutcomes:
Upon completion of the course students will be ableto:
CO1:Create public awareness of environmentat infant stage.
CO2:Gain knowledge on the structure and functions of different types of ecosystems.
CO3:Understand the importance of Natural resources,Biodiversity,Environmental pollution and Environmental policies
CO4:To analyzet he importance of environment byassessing itsimpact on the
Human world.
CO5: To analyze the environment policies and practices.

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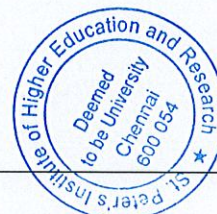(Deemed to be University U/S 3 of the UGC Act, 1956)
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CO No.	Course Outcome	RBT
CO1	Create public awareness of environmentat infant stage.	K2
CO2	Gain knowledge on the structure and functions of different types of ecosystems.	K3
CO3	Understand the importance of Natural resources, Biodiversity, Environmental pollution and Environmental policies	K3
CO4	To analyzet he importance of environment byassessing itsimpact on the Human world	K1
CO5	To analyze the environment policies and practices.	K6

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	-	-	-	3	-	-	3
CO2	-	-	-	3	-	-	3
CO3	-	-	-	3	-	-	3
CO4	-	-	-	3	-	-	3
CO5	-	-	-	3	-	-	3
AVG	-	-	-	3	-	-	3

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

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B.ScREGULAR   REGULATIONS2020

Course Code	Course Title	L T P C
APHT1602	Thermal Physics and Acoustics	5 0 0 4

PRE REQUISITES:Nil

COURSEOBJECTIVES:
- Tolearnthe basicideaof thermometry andcalorimetry
- Tostudybasicideology ofphasespace, microstate,macrostate.
- To apply the principles of probability in distribution of particles in varioussystemsand to calculate thermodynamicprobability.
- To gain knowledge in the principles of oscillation and gives the insight ofultrasonics

UNIT1:THERMOMETRYANDCALORIMETRY   12 hrs

Platinum resistance thermometer – Calendar and Griffith's bridge – Thermistor – Specific heat capacity – Specific heat capacity of solids – Dulong and Petit's law – Specific heat capacity of liquid – method of mixtures – Barton's correction – Specificheat capacity of gases – C_p and C_v by Regnault's and Callendar & Barne's methods –variation of specific heat capacity of diatomic gases **Low temperature physics :**Joule-Kelvineffect–porousplugexperiment–liquefactionofgases–Linde'smethod ofliquefying air

UNIT2:THERMODYNAMICS   12hrs

Thermodynamicequilibrium–zerothlawofthermodynamics–firstlawofthermodynamics–Reversibleandirreversibleprocesses–secondlawofthermodynamics-Heatengine–Carnot'sengine–Carnot'stheorem–Internalcombustionengines–petrolanddieselengines–thermodynamicsscaleoftemperature-Entropy–entropyandavailableenergy–temperature–entropydiagramforCarnot'scycle-IIILaw ofthermodynamics – Nernst'sheat theorem.

UNIT3:CONDUCTION ANDRADIATION   12hrs

Thermal conductivity – rectilinear flow of heat – thermal conductivity of a goodconductor – Forbe's method – thermal conductivity of a bad conductor – Lee's discmethod–radiation–blackbodyradiation–Wien'slaw–Stefan'slaw–Newton'slawof coolingfrom Stefan'slaw–Solar constant – Pyrometer– Pyroheliometer.

UNIT4 :WAVES ANDOSCILLATIONS   12hrs

Simple harmonic motion - combination of two SHMs in a straight line – at rightangles – Lissajous's figures– free, damped, forced oscillations and resonance – intensityand loudness ofsound – intensity level–decibel – noise pollution.

UNIT5:ULTRASONICS   12hrs

Ultrasonics–production–piezoelectriccrystalmethod–magnetostrictionmethod–applicationsAcousticsofbuildings–reverberation–Absorptioncoefficient–Sabine'sformula – Acoustics aspectsof halls andauditoriums.

TOTALHOURS:60

59

Books forSTudy:

1. Heat and Thermodynamics by D.S.Mathur, 3rd edition Sulthan Chand & Sons,NewDelhi .
2. Heat and Thermodynamics by Brijlal and N. Subramanyam, S.Chand & Co,New Delhi(2017).
3. HeatbyNarayanamoorthyandKrishnaRao, TriveniPublishers,Madras.
4. TextbookofSoundbyV.R.KhannaandR.S.Bedi,1st edition,KedharnaathPublish&Co, Meerut (2008).
5. Waves and Oscillations by Brijlal and N. Subramanyam, Vikas Publishinghouse,New Delhi (2010).
6. Textbookof SoundbyGhosh,S.Chand &Co,New Delhi(2017).

ReferenceBooks:

1. HeatandThermodynamicsbyZemansky,McGraw–HillBookCo.Inc.,NewYork.
2. FundamentalsofPhysicsbyResnickHallidayandWalker,6thedition,,JohnWilley andSons,AsiaPvt.Ltd.,Singapore.
3. FundamentalsofThermodynamicsbyCarrollM.Leonard,Prentice-HallofIndia (P) Ltd.,NewDelhi .
4. Heat and Thermodynamics by J.B.Rajam and C.L.Arora, 8th edition, S.Chand&Co. Ltd., New Delhi.
5. PrinciplesofThermodynamicsbyJinShengHsieh,1stedition,McGraw–Hill KogakushaLtd.,Tokyo .Thermodynamicsby Warren Giedt, 1st edition, Van Nostrand ReinholdCompany,NewYork .

ExpectedCourseOutcomes:
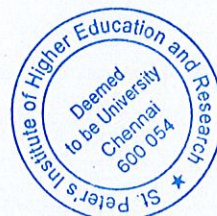
Uponcompletion ofthecoursestudents willbe ableto:

CO1: Understand the basic idea of thermometryand calorimetry

CO2: Acquire knowledge in laws if Thermodynamics

CO3: Apply the concept of conduction and radiation in the experiment

CO4: Gain knowledge in the concept of waves and oscillations.

CO5: Gives the insight of ultrasonics

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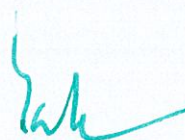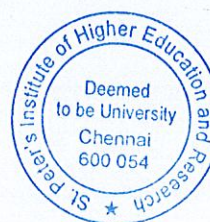Avadi, Chennai - 600 054.
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Course Code   Course Title
APHT1602   **Thermal Physics and Acoustics**

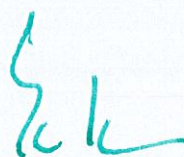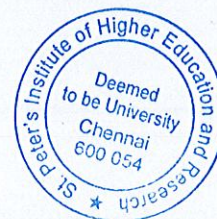| CO No.	Course Outcome	RBT
CO1	Understand the basic idea of thermometry and calorimetry	K2
CO2	Acquire knowledge in laws if Thermodynamics	K6
CO3	Apply the concept of conduction and radiation in the experiment	K3
CO 4	Gain knowledge in the concept of waves and oscillations	K1
CO5	Gives the insight of ultrasonics	

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	1	-	2
CO2	3	3	3	3	1	-	2
CO3	3	3	3	3	1	-	2
CO4	3	3	3	3	1	-	2
CO5	3	3	3	3	1	-	2
AVG	3	3	3	3	1	-	2

Since it is mapped with PO7 this subject is considered for employability

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Course Code	Course Title	L T P C
APHL1602	Thermal Physics and Acoustics Lab	0 0 4 2

Pre requisites:None

Course Objectives:
- Toknowbasics ofThermal Physics andWaves and oscillations.
- To gain practical knowledge by applying the experimental methods tocorrelatewith the physics theory.
- Toknowabout applyingtheanalytical techniqueandgraphical analysisto theexperimentaldata.

List of Experiments:(Any Seven Experiments)

1. Specificheatcapacityof aliquid–Newton'slaw ofcooling.
2. Specific heat capacity of liquid – Method of mixtures (Half-timecorrection).
3. Sonometer-A.C.Frequency-SteelandBrasswires
4. Thermalconductivityofabadconductor-Lee'sdiscmethod
5. Sonometer–Verificationoflawsandfrequencyof tuningfork
6. Melde'sstring-frequency,RelativeDensityofasolidandliquid
7. Kundt'sTube–Determinationofvelocityofsoundinsolid-Young'smodulus.
8. Sonometer-RelativeDensityofasolidandliquid
9. Melde'sstring-RelativeDensityofasolidandliquid.
10. Stefan'sConstant

TOTALHOURS:60

TextBook:Reference book

Expected Course Outcomes:
STUDENTSWILL BE ABLE TO

CO1: To know basics of Thermal Physics and Waves and oscillations.
CO2: Gain practical knowledge by applying the experimental methods to correlate with the physics theory
CO3: Apply the analytical technique and graphical analysis to the experimental data
CO4: Use the different measuring devices and meters to record the date with precision
CO5: Understanding the relative density of solids

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CO No.	Course Outcome	RBT
CO1	To know basics of Thermal Physics and Waves and oscillations.	K2
CO2	Gain practical knowledge by applying the experimental methods to correlate with the physics theory	K6
CO3	Apply the analytical technique and graphical analysis to the experimental data	K3
CO 4	Use the different measuring devices and meters to record the date with precision	K1
CO5	Understanding the relative density of solids	

CO –PO MATRICES:

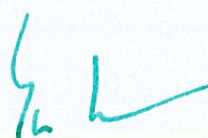|	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO7 this subject is considered for employability

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CourseCode	CourseTitle	LTPC
ASSL1601	Soft Skills I	2 00 1

Prerequisites:Nil

CourseObjectives:
- To improve their personality skills such as selfconfidenceand self-disclosure.
- To make the students to gain knowledge on body language and how to follow professional dress code.

Personality Skills:
1. Selfconfidence
2. Self-disclosure
3. Dress code
4. BodyLanguage

TOTAL HOURS:15

Text Book:Reference Books

Useful websites:

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO

CO1: Learn about how to develop their personality skills such as self-confidence andself-disclosure.

CO2:Gain knowledge on body language.

CO3: Learn the knowledge of professional ethics.

CO4: Learning the body knowledge to perform in all activities.

CO5: Capability of knowing the professional skills in good manner.

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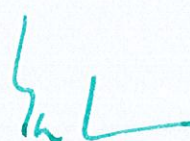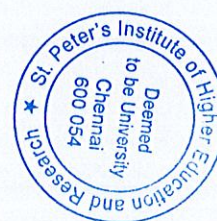Avadi, Chennai-600 054.

Course Code	Course Title
ASSL1601	**Soft Skills I**

CO No.	Course Outcome	RBT
CO1	Learn about how to develop their personality skills such as self-confidence andself-disclosure	K2
CO2	Gain knowledge on body language.	K6
CO3	Learn the knowledge of professional ethics.	K3
CO 4	Learning the body knowledge to perform in all activities.	K1
CO5	Capability of knowing the professional skills in good manner.	

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	-	-	1	2	-	-	3
CO2	-	-	1	2	-	-	3
CO3	-	-	1	2	-	-	3
CO4	-	-	1	2	-	-	3
CO5	-	-	1	2	-	-	3
AVG	-	-	1	2	-	-	3

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

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CourseCode	CourseTitle	LTPC
APHI1601	Internship I	000 1

Prerequisites:Nil

CourseObjectives:
- Togainopportunityto work ata firm forafixed periodoftime
- Tohet knowledgeonthe varioustopicsusefulfor placement

Studentsarealsoencouragedtopursueasummerinternshipinanindustryorlaboratoryat theend ofthefirst year

1. An internship is an opportunity offered by an employer to potential employees, called in terns, to work at a firm for a fixed period of time.

2. Interns are usually under graduates or students, and most internships last between a month and three months.

3. Internships are usually part-time if offered during a semester and full-time if offered during the vacation periods.

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: To gain opportunity to work at a firm for a fixed period of time
CO2: To Gain knowledge about opportunity about potential employees
Co3: Acquired knowledge about summer interns.
CO4: Gaining knowledge about interns in laboratory and industry.
CO5: Get knowledge on the various topics useful for placement

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66

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: To gain opportunity to work at a firm for a fixed period of time
CO2: To Gain knowledge about opportunity about potential employees
Co3: Acquired knowledge about summer interns.
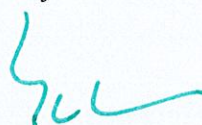CO4: Gaining knowledge about interns in laboratory and industry.
CO5: Get knowledge on the various topics useful for placement.

CO No.	Course Outcome	RBT
CO1	To gain opportunity to work at a firm for a fixed period of time	K2
CO2	To Gain knowledge about opportunity about potential employees	K5 K6
CO3	Acquired knowledge about summer interns	K5 K6
CO4	Gaining knowledge about interns in laboratory and industry	K3 K5
CO5	Get knowledge on the various topics useful for placement	K6

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is consider employability

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67

SEMESTER-III

மூன்றாம் பருவம்

Course code - ATLT1603	PART - I	L	T	P	C
	பொது தமிழ் – 3	5	0	0	4

அலகு – 1

சைவ இலக்கிய வரலாறு   பாட நேரம் -10

அ . பல்லவர் கால பக்தி இலக்கியங்கள்

ஆ. காப்பிய இலக்கிய வரலாறு

இ. தேவாரம் - திருநாவுக்கரசர்

ஈ. திருவாசகம் - மாணிக்கவாசகர்

திருவெம்பாவை முதல் 10 செய்யுள்கள்

அலகு - 2   பாட நேரம் -10

வைணவ இலக்கிய வரலாறு

அ. நாலாயிரத் திவ்யபிரபந்தம் - ஆண்டாள் வாரணம் ஆயிரம் தொடங்கி 10 செய்யுள்கள்

ஆ. தொண்டரடிப் பொடியாழ்வார் திருப்பள்ளி எழுச்சி முதல் 5 பாடல்கள்

இ. குலசேகராழ்வார் பெருமாள் திருமொழி 4 ஆம் திருமொழி ஊனேறுசெல்வம் முதல் 5 பாடல்கள்

அலகு - 3   பாட நேரம் -10

கம்பராமாயணம்

 யுத்தகாண்டம் - கும்பகருணன் வதைப்படம்

அலகு - 4   பாட நேரம் -10

பெரியபுராணம்

அ. காரைக்காலம்மையார் புராணம்

ஆ. கண்ணப்ப நாயனார் புராணம்

அலகு - 5   பாட நேரம் -10

இராமலிங்க அடிகள் - மனுமுறை கண்ட வாசகம்

அலகு - 6   பாட நேரம் -10

மொழிப்பயிற்சி

 தனியார் நிறுவனத்திற்கு வேலை வாய்ப்பு வேண்டி விண்ணப்பம் எழுதுதல்

 ஊராட்சி ,பேரூராட்சி, நகராட்சி ,மாநகராட்சி

அ. தெருக்குழாய் குடிநீர் வேண்டி

ஆ.வீட்டுக்குள் குடிநீர் இணைப்பு வேண்டி

இ .தெருக்குப்பைகளை அப்புறப்படுத்த வேண்டி

ஈ. கொசுத்தொல்லை நீங்க மருந்து தெளிக்க வேண்டி

உ . இரயில் பாதையின் மேல் மேம்பாலம்வேண்டி கடிதம் எழுதுதல்

மொத்த பாட நேரம் – 60

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	1	-	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	-	-	-	-	1	-
CO4	-	-	-	-	-	-	2	-
CO5	-	-	-	-	-	-	-	1
AVERAGE	-	0.6	-	-	-	-	0.6	0.2

Since it is mapped with PO2, PO7 and PO8 this subject is consider for empolyblity and skill development

CO NO	COURSE OUTCOME	RBT
CO1	சைவ இலக்கியங்களின் தோற்றம் வளர்ச்சியினை மாணவர்கள் அறிதல்.	K2
CO2	வைணவ இலக்கிய வரலாற்றினை அறிதல்	K2
CO3	கம்பராமாயணம் போன்ற புராண நூல்களை படித்து கதைகளை அறிய செய்தல்.	K1
CO4	உரைநடை எழுதும் திறன் வளர்த்தல்	K6
CO5	கடிதங்கள் விண்ணப்பங்கள் போன்றவற்றை பிழையின்றி எழுதும் திறன் வளர்த்தல்	K3

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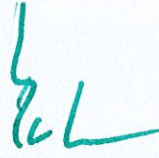(Deemed to be University U/S 3 of the UGC Act. 1956)
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CourseCode	CourseTitle	LTPC
AHIT2603	Hindi-III	500 4

PREREQUISITES:Nil

COURSEOBJECTIVES:

LessonsPrescribed:
1. Kabirdas-Saakhi(Dohas from1to10)
2. Surdas-BramargeetSaaronly
3. Tulasidas– VinaykePadonly
4. MeeraBai–Padonly
5. Tiruvalluar(Dharmakaandonly)
6. Biharilal(Dohas 1 to5)

1.IntroductiontoHindiLiterature(uptoReethikaal)
LessonsPrescribed:
1.LiteraryTrends ofVeeragathaKaal(Aadikaal) - Importantpoets:

1. ChandBaradai2.Vidhyapathi andtheirWorks
2. LiteraryTrendsofBhakthiKaal– ImportantPoets:

1.Kabirdas 2.Joyasi 3.Tulasidas 4.Surdas andtheir works
3.LiteraryTrendsofReethikaal–ImportantPoets :

1.Bihari2.Bhushan3.Ghananand.

UNIT–I	**12hrs**

1. Kabirdas-Saakhi(Dohas from1to10)
2. LiteraryTrendsofVeeragathaKaal(Aadikaal)
3. ChandBaradaiandhisWorks
4. VidhyapathiandhisWorks

UNIT-II	**12hrs**

1. Surdas-BramargeetSaar
2. LiteraryTrendsof BhakthiKaal
3. Gyan MargiShakha
4. ImportantPoet :1. Kabirdas

UNIT-III	**12hrs**

1. Tulasidas– VinaykePadonly
2. LiteraryTrendsofBhakthi Kaal–PremMargiShakha
3. LiteraryTrendsofBhakthiKaal-RamBhakthi Shakha
4. ImportantPoets – 1.Joyasiand 2.Tulasidas

UNIT-IV	**12hrs**

1. MeeraBai–Padonly
2. Tiruvalluar(Dharmakaandonly)
3. LiteraryTrendsofBhakthiKaal–KrishnaBhakthiShakha

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70

4.ImportantPoet –Surdas

UNIT-V   **12hrs**
1. Biharilal(Dohas1 to5)
2. LiteraryTrendsofReethikaal
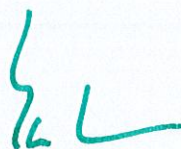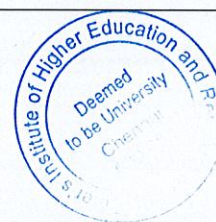3. ImportantPoet:Bihariandhisworks
4. BhushanandhisworksandGhananandandhisworks

TOTALHOURS:60

BooksmforStudy :
1. HindiSahithyaKaItihasBy:RamchandraShukla,JayabharathiPublications,217, B, MayaPress Road, Allahabad– 211 003.
2. HindiSahithyaYugAurPravrithiyaBy:Dr.SivakumarVarma,AsokPrak ashanNayi Sarak, New Delhi– 6
3. HindiSahithyakaSybodhItihasBy:BabuGulabroy,Lakshmi Narayanan Agarwas Book Publishers seller,Anupama Plaza -1, Block.No.50, SanjayPlace,Agra-282002

EXPECTEDCOURSEOUTCOMES:

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CourseCode	CourseTitle	LTPC
AFRT2603	French-III	5 00 4

Prerequisites:Nil

CourseObjectives:
- Tounderstandthe intermediateconcepts ofFrench.
- The learner will be able to make slightly more complex sentences in French aswellas articulateusing the various parts of speech.
- BeabletoeffectivelyunderstandanduseFrenchgrammarandthepronunciation.

UNITI: **12hrs**
UsageofFuturtense,SubjonctifandtheusageofDemonstrativepronouns.

UNITII: **12hrs**
Improving the vocabulary. Usage at higher concepts To learn, to play, to work, towrite, to take - for both writing and speaking and expressing day to day activities withtheseverbs.

UNITIII: **12hrs**
Adverbial pronom, Les pronoms relatifs (qui, que)-Parler du passé - Compréhension/productionécrite--Épreuves Usageof Pourquoi and Parceque.

UNITIV: **12hrs**
Possesiveadjectices,ArticlePartitifsandlearningtouseslightlycomplexsentences.

UNITV: **12hrs**
Futurproche, Interrogativeadjectifs,Compréhension/productionécrite-Épreuves.
                                                                TOTALHOURS:60
TextBook.
Campus1.MethodedeFrancais.AuthorJackyGirardet &JacquesPecheur.

ExpectedCourseOutcomes:

STUDENTSWILLBEABLETO

CourseCode	CourseTitle	LTPC
AENT2640	English III	500 4

Prerequisites:Nil

CourseObjectives:
- Toenablethelearnertocommunicateeffectivelyandappropriatelyinreallifesituation.
- To enable the learner to discuss general topics, express opinions includingfacts& ideas andmaintain conversation ineveryday situations.

Unit – I: Prose   No.of.Hours:12
Fusion Music - Pt. Ravi Shankar
A Speech - N.R. Narayana Murthy
Unity of Minds - A.P.J. Abdul Kalam

Unit – II: Poetry   No.of.Hours:12
A Different History - Sujata Bhatt
Digging - Seamus Heaney
Leave this Chanting and Singing and Telling of Beads - Rabindranath Tagore

Unit – III: Short Stories   No.of.Hours:12
The Story of Stanford
Engine Trouble - R.K. Narayan
Two Gentlemen of Verona - A.J. Cronin.

Unit – IV: Biographies from Inspiring Lives   No.of.Hours:12
Mother Teresa
Charles Chaplin
WangariMaathi

Unit – V: Grammar   No.of.Hours:12
Mock Interview
Preparing for Interview
Active Passive
Direct to Indirect

                                                                       Total No.of.Hours:60
Reference:
Reflections by Foundation Books.
Inspiring Lives by Maruthi Publications.
Refer to the exercises given in the text and Part -V from Spring Board by Orient Black Swan Pvt.Ltd
Face-to-Face
Preparing for an Interview, Win the Game of Life, The First Written Encounter: Writing Skills.
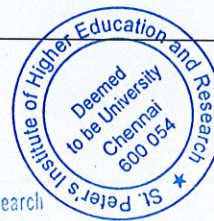
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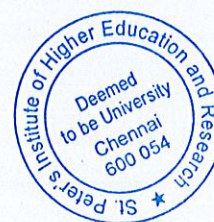Avadi, Chennai - 600 054.

73

CourseCode	CourseTitle
AENT2640	**English III**

CO	COURSE OUTCOME	RBT
CO1	Heighten their awareness of correct usage of English grammar in writing and speaking.	K1,K2
CO2	Improve their fluency and comprehensibility of different genres through the texts prescribed.	K3
CO3	Enlarge their vocabulary of literary terms and genres.	K5
CO4	Strengthen their ability to write essays and summaries in an advanced level.	K4
CO5	Attain and enhance competence in the four modes of literacy: writing, speaking, reading and listening	K6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	-	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	2	-	2	-	2	-
CO4	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	3	-
AVERAGE	-	0.4	0.4	-	0.4	-	1	-

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

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CourseCode	CourseTitle	LTPC
ACYT2607	Chemistry I	5 00 4

Prerequisites: Nil

CourseObjectives:
- ToacquireknowledgeinNuclear andIndustrialchemistry.
- TounderstandthebasicsofOrganicChemistry.
- TogainknowledgeinthefieldofThermodynamicsandChemicalkinetics.

UNIT1:NUCLEARCHEMISTRY   12hrs

Fundamentalparticlesofnucleus, isobars,isotones and isomers–Differences between chemical reactions; fusion and fission–Radio active series,groupdisplacement law – Mass defect, derivation of 1amu = 931 MeV – nuclear bindingenergyandcalculation– Applications of radioisotopes–carbon dating,and medicinal applications.

UNIT2:INDUSTRIALCHEMISTRY   12hrs

Fuels- Classification-gaseous fuels like water gas, producer gas, liquefied petroleumgas, gobar gas, compressed natural gas - Fertilizers- Classification – urea ,ammoniumsulphate, superphosphate, triple super phosphate, potassium nitrate-manufacture   anduses-Silicones-Preparation,propertiesandapplications.Hardnessofwater:temporary   and   permanent hardness, disadvantages of hard water - Softening of hardwater - zeolite process, demineralization   process   and   reverse   osmosis   -   Purification ofwaterfordomesticuse:useofchlorine,OzoneandUVlight-Definitionanddeterminationsof BOD and COD.

UNIT3:FUNDAMENTALSOFORGANIC CHEMISTRY   12hrs

Classification of organic compounds -Hybridization in methane, ethane, acetylene,benzene - classification of reagents - electrophiles, nucleophiles and free radicals   - Classificationofreactionsaddition,substitution,elimination,condensationandpolymeriza tion - Polar Effects - Inductive effect, resonance, hyper-conjugation, stericeffect - Keto-enol tautomerism - electrophilic substitution mechanism in benzene(Nitration and Sulphonation) – Heterocyclic compounds - Preparation, properties andusesof furan, Thiophene,pyrrole and pyridine

UNIT4:THERMODYNAMICS   12hrs

Definition of Certain terms - system, surrounding, reversible and irreversible process-Limitationsof ILaw NeedforIILaw-DifferentStatementsofII.Law-Carnot cycle - Efficiency - Carnot Theorem - Thermodynamic Scale of Temperature - Entropy-Definition, unit and change of entropy for phase transformation-Free energy natureofProcess in termsofFreeenergy andentropy-StatementofThird Law.

UNIT5:CHEMICALKINETICS   12hrs

Rate of chemical reaction- Differential rate expression - order and molecularity - Integratedrateexpressionforfirst,second,andzeroorderreactions-Half-lifeperiod – Effectoftemperatureonrate-Activationenergy.Arrheniusequation-Arrheniusreactionratetheory-homogeneousandheterogeneouscatalysis.

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Photochemistry-StatementofGrothuss-DraperLaw,Stark-Einstein'sLaw,Quantum Yield. Hydrogen-chlorine reaction (elementary idea only) Photosynthesis,Photosensitization, Phosphorescence Fluorescence, Chemiluminescence - Definitionwithexamples.
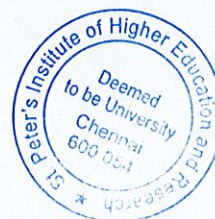
TOTALHOURS:60

BooksforStudy:

1. Morrison,R.N.&Boyd,R.N,"OrganicChemistry",DorlingKindersley(India)Pvt. Ltd, PearsonEducation,2016
2. Dr. Veeraiyan V., "Text book of Ancillary Chemistry", High mountPublishinghouse, 2008.
3. VaithyanathanS."TextbookofAncillaryChemistry",PriyaPublications,2006.
4. Puri B.R., Sharma and Pathania, "Text book of Physical Chemistry", VishalPublishingCo., New Delhi.2017.
5. Dara S.S., "Text book of Environmental Chemistry and Pollution Control",S.Chandand Co., NewDelhl, 2014.

REFERENCE BOOKS

Dr. Veeraiyan V., Text book of Ancillary Chemistry, High mount Publishing house, Chennai, 2008.

Vaithyanathan S. and Others, Text book of Ancillary Chemistry, Priya Publications, Karur, 2006.

oni P. and Others, Text book of Organic chemistry, Sultan Chand and Company, New Delhi, 2004.

oni P. and Others, Text book of Inorganic Chemistry, Sultan Chand and Company, New Delhi, 2004.

uri B.R., Sharma and Pathania, Text book of Physical Chemistry, Vishal Publishing Co., New Delhi. 2002.

6. Dara S.S., Text book of Environmental chemistry and Pollution Control.- S.Chand and Co., NewDelhl, 2006

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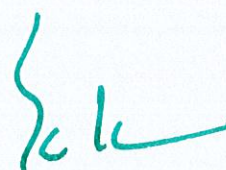Avadi, Chennai-600 054.
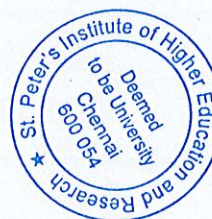
76

CourseCode	CourseTitle
ACYT2607	Chemistry I

CO	COURSE OUTCOMES	RBT
CO1	Acquire knowledge in Nuclear Chemistry	K1,K2
CO2	Gain knowledge on Industrial Chemistry involving Fuels, Fertilizers, Silicones and Water technology	K1,K2,K3
CO3	Understand the basics of Organic Chemistry	K1,K2
CO4	Gain knowledge in the field of Thermodynamics	K1,K2, K3
CO5	Understand the concept of Chemical kinetics and Photochemistry	K1,K2

CO PO MATRICES:

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

Since it is mapped with, PO1, PO2 and PO7 this subject is considered for Employability

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CourseCode	CourseTitle	LTPC
APHT2603	Optics	500 4

Prerequisites:Nil

CourseObjectives:
- Tomakeawarethestudents about various phenomenon ofoptics.
- To get insight on the phenomenon like Interference, Diffraction andPolarization.
- Toacquireknowledgeonthespectroscopic aspects ofthemolecules

UNIT1 :GEOMETRICAL OPTICS   12 hrs
Sphericalaberrationinlenses-methodsofminimizingsphericalaberration-condition   for minimum spherical aberration in the case of two lenses separated by adistance - Chromatic aberration in lenses - Condition for achromatism of two thinlenses (in and out of contact) - Dispersion produced by a thin prism - Achromaticprisms - Combination of prisms to produce - Dispersion without deviation - Deviationwithout dispersion.

UNIT2: INTEREFERENCE   12hrs
Analytical treatment of interference - expression for intensity - condition for maximaand minima in terms of phase and path difference - Airwedge - determination ofdiameter of thin wire - test for optical flatness - Haidinger's fringes - Michelson'sinterferometer - theory - applications - determination of wavelength; thickness of thintransparentmaterial andresolution ofinterferometer.

UNIT3: DIFFRACTION   12hrs
Fresnel diffraction - diffraction at a circular aperture and narrow wire. Fraunhofferdiffraction - single slit - double slit - (simple theory). Plane diffraction grating -missing order - overlapping spectra - maximum number of orders - Determination ofwavelengths using grating - normal incidence - oblique incidence (theory). Dispersivepower of a grating. Rayleigh's criterion for resolution - limit of resolution   of   the   eye   -resolvingpowerofTelescopeandmicroscope-resolvingpowerofprismandgrating
-Differencebetweenresolving power andDispersive power.

UNIT4: POLARIZATION   12hrs
Double refraction - Nicol prims -polarizer and analyzer - Huygen's explanation ofdouble refraction in uniaxial crystals - Dichroism - polaroids and their uses - Doubleimage polarizing prisms - Quarter wave plate and Halfwave plate - plane, ellipticallyand circularly polarized light - production and detection - Babinet's Compensator -optical Activity - Fresnel's explanation of optical activity - specific rotatory power -determinationusing Laurent's half shadepolarimeter.

UNIT5 : SPECTROSCOPY   12hrs
Introduction to spectroscopy - Electromagnetic spectrum - characterization of electromagnetic radiation - quantization of energy - regions of the spectrum – classificationofmolecules–microwavespectroscopy–rigidrotator-vibrationalspectroscopy–
harmonicoscillator-Ramaneffect-experimentalsetup-CharacteristicsofRaman lines-Laser-Rubylaser-He-Ne,CO_2laserconstructionandworking-applicationoflaser

Registrar   **TOTALHOURS:60**

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Books forStudy:

1. Avadhanulu,S.Chand&Co.,NewDelhi(2018).
2. OpticsbyKhannaD.R.&GulatiH.R.,S.Chand&Co.,NewDelhi.
3. OpticsandSpectroscopybyR.MurugeshanandKiruthigaSivaprasath,S.Chand&Co
   .,NewDelhi(2017).
4. MolecularstructureandspectroscopybyAruldhas,PrenticeHallofIndiaPvt.Ltd.,
   NewDelhi.

ReferenceBooks:
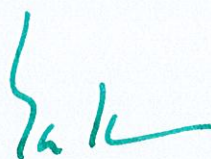
1. FundamentalsofPhysics,byD.Halliday,R.ResnickandJ.Walker,Wiley,10th
   Edition, New York (2017).
2. OpticsbyAjayGhatak,TataMcGraw-
   HillpublishingCo.Ltd.,NewDelhi(1998).
3. SpectroscopybyGurdeepChatwal,ShamAnand,HimalayaPublishingHo
   use(1990).

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: Understand the physics behind various optical phenomenons
CO2: Understand various natural phenomenon which is happening in theirsurroundings.
CO3: Explain the spectroscopic aspects of the molecule
CO4: Gaining the knowledge of understading the property of polarization
CO5: Learn about interference and thickness of thin films

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CourseCode	CourseTitle
APHT2603	Optics

CO No.	Course Outcome	RBT
CO1	Understand the physics behind various optical phenomenons.	K2
CO2	Understand various natural phenomenons which is happening in their surroundings.	K2
CO3	Explain the spectroscopic aspects of the molecule	K4
CO4	Gaining the knowledge of understading the property of polarization	
CO5	Learn about interference and thickness of thin films	

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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Course Code	Course Title	LTPC
ACYL2607	**CHEMISTRY –I ALLIED PRACTICAL**	0042

Prerequisites:Nil

Course Objectives:
- Togain knowledgeon various types oftitrimetricanalysis\

LIST OF EXPERIMENTS

Volumetric Analysis

1. EstimationofsodiumhydroxideusingStd.Sodiumcarbonate.

2. EstimationofHydrochloricacidusingStd.Oxalic acid.

3. EstimationofFerroussulphateusingStdMohr'ssalt.

4. EstimationofoxalicacidusingstandardFerroussulphate.

5. EstimationofTotalhardnessofwaterbyEDTA Method.

6. EstimationofMagnesium byEDTAMethod.

7. EstimationofFerrousionusing diphenylamineasinternalindicator.

TOTALHOURS:60

Books forStudy:

1. Mendham,DavidJ.Barnes,R.C.Denney,M.J.KThomas,
2. Vogel's, Text Book of Quantitative Chemical Analysis. 6th edition, PearsonIndia,2018.
3. VenkateswaranV,VeeraswamyR.,KulandiveluA.R.,"BasicPrinciplesofPracticalChemistry",2ndedition,NewDelhi,SultanChand&Sons,2012.

REFERENCE BOOK

1. Venkateswaran V, Veeraswamy R., Kulandivelu A.R.,Basic Principles of Practical Chemistry, 2nd edition, New Delhi, Sultan Chand & Sons,2012.

COURSE OUTCOMES

After the completion of the practical students will be able to

CO1: Acquire knowledge on neutralization reaction by volumetric analysis.
CO2: Gain knowledge on redox titration by volumetric estimation.
CO3: Understand the estimation of potassium permanganate by volumetric analysis
CO4: Gain knowledge on the estimation of magnesium in water sample by complexometric titration.

CO5: Understand the estimation of ferrous iron using diphenylamine as internal indicator.

81 Registrar
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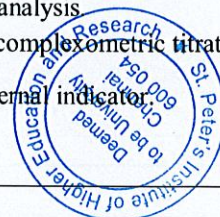
Course Code	Course Title
ACYL2607	CHEMISTRY –I ALLIED PRACTICAL

CO	COURSE OUTCOMES	RBT
CO1	Acquire knowledge on neutralization reaction by volumetric analysis.	K1,K2,K3
CO2	Gain knowledge on redox titration by volumetric estimation.	K1,K2,K3
CO3	Understand the estimation of potassium permanganate by volumetric analysis.	K1,K2,K3
CO4	Gain knowledge on the estimation of magnesium in water sample by complexometric titration.	K1,K2, K3
CO5	Understand the estimation of Ferrous iron by dichrometry.	K1,K2

CO PO MATRICES:

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

Since it is mapped with PO8 this subject is considered for skill development

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CourseCode	CourseTitle	LTPC
APHL2603	Optics Lab	004 2

Prerequisites:Nil

CourseObjectives:
- TostudythebasicfundamentalsofOptical InstrumentsandSpectrometer.
- To gain practical knowledge by applying the experimental methods tocorrelatewith thephysics theory.
- To have an insight on how to apply the analytical technique and graphicalanalysisto theexperimental data.

LISTOFEXPERIMENTS(AnySevenExperiments)

1. Spectrometer – angle and refractive index of a prism using Minimumdeviation
2. Focallength,Power, Rand refractiveindex ofalongfocus convexlens.
3. Focallength, Power,R andrefractiveindexof aconcavelens.
4. Spectrometer-μofaglassprism-i-dCurve
5. Airwedge-Thicknessofawire
6. Spectrometer-Smallangledprism-Normalincidenceandemergencerefractiveindexofthematerialofprism.
7. Newton'srings-R_1,R_2andμofconvexlens
8. Spectrometer-(i-i')curve-refractiveindex.
9. Spectrometer-Cauchy'sconstant.
10. Spectrometer-GratingNandλ-normalincidencemethod
11. Spectrometer-GratingNandλ-minimumdeviationmethod

TOTALHOURS :60

Expected Course Outcomes:

STUDENTSWILL BE ABLE TO
CO1: Understand the physics behind various optical phenomenons.
CO2: Understand various natural phenomenon which is happening in their surroundings.
CO3: Explain the spectroscopic aspects of the molecule
CO4: Gain practical knowledge by applying the experimental methods to correlate with the physics theory
CO5: Apply the analytical technique and graphical analysis to the experimental data.

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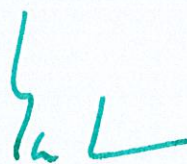(Deemed to be University U/S 3 of the UGC Act. 1956)
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Course Code	Course Title
APHL2603	**Optics Lab**

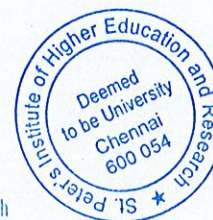| CO No.	Course Outcome	RBT
CO1	Understand the physics behind various optical phenomenons.	K2, K3
CO2	Understand various natural phenomenon which is happening in their surroundings.	K2
CO3	Explain the spectroscopic aspects of the molecule	K6, K4
CO4	Gain practical knowledge by applying the experimental methods to correlate with the physics theory	K3
CO5	Apply the analytical technique and graphical analysis to the experimental data	K1, K5

CO – PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

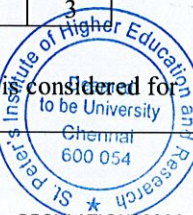Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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84

CourseCode	CourseTitle	LTPC
ASSL2602	Soft Skills II	2 00 1

Prerequisites:Nil

Course Objectives:
- To make the students to improve their communication skills such aslistening,speaking, reading and writing skills.
- Tomakethestudenttoacquireknowledgeondigitalliteracyandusesocial mediaeffectively.
- Tomakethestudentstodeveloptheirnon-verbalcommunication.

CommunicationSkills:
1. Listening
2. Speaking
3. Reading
4. WritingandDifferentModesofWriting
5. DigitalLiteracy
6. EffectiveUseofSocial Media
7. Non-VerbalCommunication

TOTAL HOURS:30

Text Book:Reference Books:
Usefulwebsites:

Soft skills

CO No.	Course Outcome	RBT
CO1	Learn about how to develop their personality skills listening,speaking and reading	K2
CO2	Gain knowledge different modes of writing	K6
CO3	Learn the knowledge of Digital literacy	K3
CO 4	Learning the body knowledge to perform effective social media	K1
CO5	Capability of knowing the professional skills in good manner.	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	-	-	1	2	-	-	3
CO2	-	-	1	2	-	-	3
CO3	-	-	1	2	-	-	3
CO4	-	-	1	2	-	-	3
CO5	-	-	1	2	-	-	3
AVG	-	-	1	2	-	-	3

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

SEMESTER – IV

நான்காம் பருவம்

Course code - ATLT1604	PART - I	L	T	P	C
	பொது தமிழ் -4	5	0	0	4

அலகு - 1   பாட நேரம் -10

தமிழிலக்கிய வரலாறு

அ. சங்க இலக்கிய வரலாறு

ஆ. அற இலக்கிய வரலாறு

அலகு - 2   பாட நேரம் -10

எட்டுத்தொகை நூல்கள்

அ. நற்றிணை - 10, 110,129

ஆ.குறுந்தொகை - 8,25, 32

இ. கலித்தொகை - 6,37, 51

ஈ. அகநானூறு - 7,122,155

உ. புறநானூறு - 89, 109, 204

அலகு - 3   பாட நேரம் -10

பத்துப்பாட்டு

முல்லைப்பாட்டு

அலகு - 4   பாட நேரம் -10

அ. சிலப்பதிகாரம் - வழக்குரைக்காதை

ஆ. மணிமேலை - விழாவறை காதை

அலகு - 5   பாட நேரம் -10

திருக்குறள்

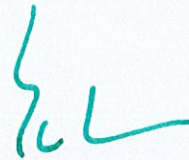1. கல்வி   2. கேள்வி   3. ஒழுக்கமுடைமை   4. வாய்மை   5. வான்சிறப்பு

அலகு - 6   பாட நேரம் -10

மொழிப்பயிற்சி: ஆங்கிலத்திலிருந்து தமிழுக்கும், தமிழிலிருந்து ஆங்கிலத்துக்கும் மொழிபெயர்த்தல்.

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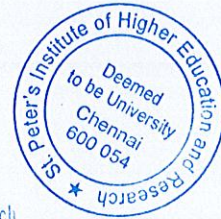|	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	2	-	-	-	-	-	-
CO2	2	-	2	-	-	-	-	-
CO3	-	-	-	-	-	-	2	-
CO4	-	-	-	-	1	-	-	-
CO5	-	-	-	-	-	-	-	2
AVERAGE	0.4	0.4	0.4	-	0.2	-	0.4	0.4

Since it is mapped with PO1, PO2 , PO3, PO5, PO7 and PO8 this subject is consider for

empolyblity and skill development

| CO NO	COURSE OUTCOME	RBT
CO1	சங்க இலக்கியம், அற இலக்கியங்களை அறிந்து கொள்ளல்.	K2
CO2	சங்க இலக்கியப் பாடல்கள் வழி தமிழர்களின் அகம், புறம் வாழ்வினை அறிதல்.	K2
CO3	முல்லைப்பாட்டு உள்ள போர்முறை பாசறை நிகழ்வுகள் மாணவர் அறிதல்	K1
CO4	காப்பியங்கள் உணர்த்தும் செய்திகளை மாணவர்கள் அறிதல்.	K3
CO5	திருக்குறள் கூறும் ஒழுக்கமுடைமை, வாய்மை, வான்சிறப்பு, கல்வி போன்றவற்றை கற்றுக் கொள்ளல். ஆங்கிலத்தில் இருந்து தமிழில் மொழிப்பெயர்க்கவும் தமிழில் இருந்து ஆங்கிலத்தில் மொழிப்பெயர்க்கவும் அறிந்து கொள்ளல்	K6

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CourseCode	CourseTitle	LTPC
AHIT2604	Hindi-IV	5 00 4

PREREQUISITES:Nil

COURSEOBJECTIVES:

LessonsPrescribed:
1. Asha–(JayashankarPrasad)
2. TumLogon seDoor(Nagarjun)
3. KaviAurKalpana–(DhramaveerBhaarathi)
4. BharatKi Aarthi -(ShamsherBahadhur Singh)
5. VaradanMangoonga Nahi(SivaMangalSinghSuman)
6. AnevalonSeEkSavaal (BharatBhooshanAgarwal)

IIntroductiontoHindiLiterature(Aadhunik Kaal)-LessonsPrescribed:
1. LiteraryTrendsofChayavaad
2. LiteraryTrendsofPragathivaad
3. LiteraryTrendsofNayeeKavita
4. LiteraryTrends ofHindiShort Stories
5. LiteraryTrends ofHindi OneAct Plays
6. BriefNoteonthewritersandtheir works
MaithiliSaranGupta,JayashankarPrasad,Nirala,MahadeviVarma,Panth,Dinakar,Premc
hand,Yashpaal JainendraKumar, Mohan Rakesh,
UnitwiseSyllabus forIVSemester

UNITI   **12hrs**
1. Asha–(JayashankarPrasad)
2. TumLogon seDoor(Nagarjun)
3. LiteraryTrendsofChayavaad

UNITII   **12hrs**
1. KaviAurKalpana–(DhramaveerBhaarathi)
2. BharatKi Aarthi -(ShamsherBahadhur Singh)
3. LiteraryTrendsofPragathivaad

UNITIII   **12hrs**
1. VaradanMangoonga Nahi(SivaMangalSinghSuman)
2. AnevalonSeEkSavaal(BharatBhooshanAgarwal)
3. LiteraryTrendsofNayeeKavita

UNITIV   **12hrs**
1. LiteraryTrends ofHindiShort Stories
2. LiteraryTrendsof HindiOneActPlays

UNIT-V   **12hrs**
1. MaithiliSaranGupta,JayashankarPrasad, Nirala,
2. MahadeviVarma,Panth,Dinakar,Premchand,
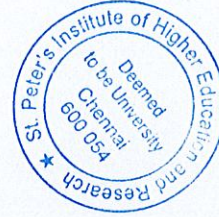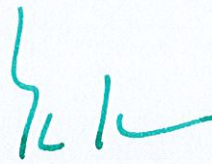3. YashpaalJainendraKumar,MohanRakesh.

TOTALHOURS:60
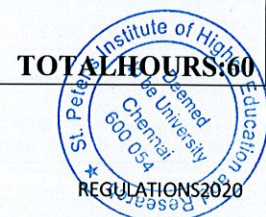
BooksforSyllabus:

1. HindiSahithyaKaItihasBy:RamchandraShukla,JayabharathiPublications,217,B ,MayaPress Road, Allahabad–211 003.
2. HindiSahithyaYugAurPravrithiyaby:Dr.SivakumarVarma,AsokPrakashanNay i Sarak,New Delhi–6
3. HindiSahithyakaSybodhItihasBy:BabuGulabroy,LakshmiNarayananAgarwas BookPublishersseller,AnupamaPlaza-1,Block.No.50,SanjayPlace,Agra– 282002.
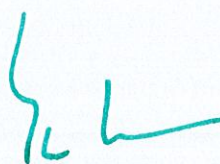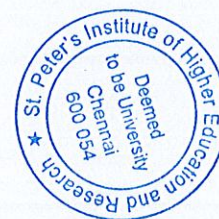
EXPECTEDCOURSEOUTCOMES:

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CourseCode	CourseTitle	LTPC
AFRT2604	French-IV	500 4

Prerequisites:Nil

CourseObjectives:
- TounderstandtheintermediateconceptsofFrench.
- ThelearnerwillbeabletomakeslightlymorecomplexsentencesinFrenchaswellas articulateusing the various partsof speech.
- Be able to effectively understand and use French grammar and thepronunciation.

UNIT1:   **12hrs**
Emphasisonusingcomplex sentences-En,Y, Don'tandpronoms
UNIT2:   **12hrs**
Improvingthevocabulary.EmphasisonusingFrenchGrammarinspeakingeffectively.
UNIT3:   **12hrs**
ÉpreuvesUsageofPourquoi andParceque.Usageofalltenses
UNIT4:   **12hrs**
Possesiveadjectices,ArticlePartitifsandlearningtouseslightlycomplexsentences.
UNIT5 :   **12hrs**
Futurproche,   Interrogativeadjectifs,Compréhension/productionécrite-Épreuves.
                                                                        TOTALHOURS:60
TextBook.
Campus1.MethodedeFrancais.AuthorJackyGirardet&JacquesPecheur.
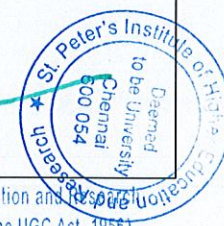
ExpectedCourseOutcomes:

STUDENTSWILLBEABLETO

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90

Course Code	Course Title	LTPC
AENT2641	English IV	5 00 4

Prerequisites:Nil

Course Objectives:
- Tounderstandmoralvaluesaboutday-to-daylife.
- Tofamiliarizetheknowledgeongeneralcommunication.
- Toenablethelearnerto handle alimited rangeof social languagein acontrolledsituation foravariety ofeveryday purposes.

Unit1 :Six One-Act Plays	**12hrs**

1. FusionMusic-*Pt.RaviShankar*
2. ASpeech-*N.R.NarayanaMurthy*
3. Unityof Minds-*A.P.J.Abdul Kalam*

Unit2:Poetry	**12hrs**

1. ADifferent History -*Sujata Bhatt*
2. Digging -*Seamus Heaney*
3. LeavethisChantingandSingingandTellingofBeads-*RabindranathTagore*

Unit3 : Short Stories	**12hrs**

1. TheStory ofStanford
2. EngineTrouble -*R.K. Narayan*
3. TwoGentlemenofVerona-*A.J.Cronin.*

Unit4:Biographiesfrom Inspiring Lives	**12hrs**

1. MotherTeresa
2. CharlesChaplin
3. WangariMaathi

Unit 5 :Grammar	**12hrs**

1. MockInterview
2. PreparingforInterview
3. ActivePassive
4. Directto Indirect

TOTALHOURS:60

Books forStudy:

1. *Reflections*byFoundationBooks.
2. *InspiringLives*byMaruthiPublications.
3. **Part-V** from**SpringBoard**byOrientBlackSwanPvt.Ltd
   Face-to-Face
   Preparing for an Interview, Win the Game of Life, The First
   WrittenEncounter:Writing Skills

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ExpectedCourseOutcomes:

Students will be able to

CO1: Heighten their awareness of correct usage of English grammar in writing andspeaking.
CO2: Improve their fluency and comprehensibility of different genres through the ttexts
     prescribed.
CO3:Enlargetheirvocabularyofliterary termsandgenres.
CO4:Strengthentheirabilitytowriteessaysandsummariesinanadvancedlevel.
CO5: Attain and enhance competence in the four modes of literacy: writing,
     speakingreadingand listening.

CO O	COURSE OUTCOME	RBT
CO1	To comprehend the content and structures of all types of fiction in a betterway.	K3
CO2	Appreciate the linguistics of theatre and short-Fiction alike.	K2
CO3	Familiarize yourself with the background and the impact of a fictional texton society.	K1 ,K4
CO4	Relate the moral, ethical and grammatical aspects of a text with theirperformance.	K4, K5
CO5	Communicate very effectively through their writings.	K6

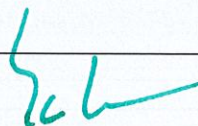|	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	-	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	2	-	2	-	2	-
CO4	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	3	-
AVERA GE	-	0.4	0.4	-	0.4	-	1	-

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Course Code	Course Title
AENT2641	**English IV**

CO O	COURSE OUTCOME	RBT
CO1	To comprehend the content and structures of all types of fiction in a better way.	K3
CO2	Appreciate the linguistics of theatre and short-Fiction alike.	K2
CO3	Familiarize yourself with the background and the impact of a fictional text on society.	K1,K4
CO4	Relate the moral, ethical and grammatical aspects of a text with their performance.	K4,K5
CO5	Communicate very effectively through their writings.	K6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	-	-	-	-	-	-	-	-
CO2	-	2	-	-	-	-	-	-
CO3	-	-	2	-	2	-	2	-
CO4	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	3	-
AVERAGE	-	0.4	0.4	-	0.4	-	1	-

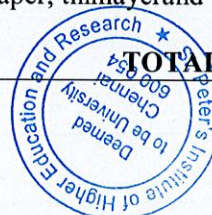Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

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Course Code	Course Title	L TPC
ACYT2608	Chemistry II	5004
Prerequisites:Nil		

COURSE OBJECTIVES
- To gain knowledge in the basics of Coordination chemistry in complexformations.
- Tounderstandtheanalyticalskillintheinterpretationof Biomolecules.
- Toacquiretheoretical knowledgeon Phaserule.
- Tounderstandtheconceptof Electrochemistry.
- Tolearnthebasicsof AnalyticalChemistry.

UNIT1:CO-ORDINATION CHEMISTRY   12hrs
Definition of terms - Classification of Ligands - Nomenclature - Chelation - EDTAand the application – Werner's Theory - Effective Atomic Number - Pauling's theory-Postulates - Applications to $Ni(CO)_4$,$Ni(CN)_4$-Merits and Demerits of Werner's andPauling's theory - Biological Role of haemoglobin and Chlorophyll (elementary ideaonly)-Applicationsof co-ordination compoundsinqualitativeanalysisandquantitative analysis like Separation of copper and cadmium ions- Nickel and cobaltion- Identification of metal ions like Cu, Fe and Ni. Estimation of Ni using DMG andAl usingOxine.

UNIT2:BIOMOLECULES   12 hrs
Classification, preparation and reactions of glucose and fructose. Discussion of openand ring structure of glucose. Mutarotation.Interconversion of glucosetofructoseand vice versa - Preparation and properties of sucrose. Properties of starch, celluloseand derivatives of cellulose - Diabetes - causes and control measures RNA and DNA(elementaryideaonly)
Aminoacids:Classification,preparationandpropertiesofalanine   -preparation ofdipeptideusing Bergman method.

UNIT3:PHASE DIAGRAM   12hrs
Phase rule: Definition of terms, application of phase rule to water system - reducedphaseruleanditsapplicationto Pb-Ag system.Freezingmixture-Completelymiscible and partially miscible liquid systems - upper and lower critical solutiontemperatures

UNIT4:ELECTROCHEMISTRY   12 hrs
Galvaniccells–emf-standardelectrodepotential-referenceelectrodes –electrochemical series and its applications - Determination of pH using electrometricmethod - Electroplating process -Nickel and Chrome plating - Different type of cells -Primary cell, Secondary cell and fuel cells -Corrosion and methods of prevention,Conductometric titrations. Buffer solution - Henderson's equation. Applications of pHandbuffer inbiological process andindustries-Corrosionand itsprevention.

UNIT5:ANALYTICALCHEMISTRY   12hrs
IntroductiontoQualitativeandQuantitativeAnalysis-Principleofvolumetricanalysis-Separationtechniques-Extraction-Distillation-Crystallization—Chromatographic separations - Principles and applications of column , paper, thinlayerand gas-liquid Chromatography.   **TOTALHOURS:60**

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BooksforStudy:

1. Skoog,D.A.HollerF.J.&Nieman,T.A."PrinciplesofInstrumentalAnalysis",Saunders CollegePub., 2006.
2. Dr.VeeraiyanV.,"TextbookofAncillaryChemistry",HighmountPublishinghouse, 2008.
3. VaithyanathanS."TextbookofAncillaryChemistry",PriyaPublications,2006.
4. Morrison,R.N.&Boyd,R.N,"OrganicChemistry",6thEdn.,DorlingKindersley(India)Pvt. Ltd.,Pearson Education,2016
5. Puri B.R., Sharma and Pathania, "Text book of Physical Chemistry", VishalPublishingCo., New Delhi.2017.
6. Purcell,K.F&Kotz,J.C. "InorganicChemistry", W.B.SaundersCo,2012

REFERENCE BOOKS

Dr. Veeraiyan V., Text book of Ancillary Chemistry, High mount Publishing house, Chennai, 2008.

Vaithyanathan S. and Others, Text book of Ancillary Chemistry, Priya Publications, Karur, 2006.

oni P. and Others, Text book of Organic chemistry, Sultan Chand and Company, New Delhi, 2004.

oni P. and Others, Text book of Inorganic Chemistry, Sultan Chand and Company, New Delhi, 2004.

uri B.R., Sharma and Pathania, Text book of Physical Chemistry, Vishal Publishing Co., New Delhi. 2002.

6. Dara S.S., Text book of Environmental chemistry and Pollution Control.- S.Chand and Co., NewDelhl, 2006

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COURSE OUTCOMES

After the completion of the course students will be able to

CO1: Gain knowledge in the basics of Coordination chemistry in complex formations.
CO2: Understand the analytical skills in the interpretation of Biomolecules.
CO3: Acquire theoretical knowledge on Phase rule for the construction of Phase diagram.
CO4: Gain knowledge on Electrochemistry, Cell mechanism, principle and applications
CO5: Acquire Knowledge on Analytical skills in Qualitative and Quantitative Analysis.

CO	COURSE OUTCOMES	RBT
CO1	Gain knowledge in the basics of Coordination chemistry in complex formations.	K1,K2
CO2	Understand the analytical skills in the interpretation of Biomolecules.	K1,K2,K3
CO3	Acquire theoretical knowledge on Phase rule for the construction of Phase diagram.	K1,K2,K3,K4
CO4	Gain knowledge on Electrochemistry, Cell mechanism, principle and applications	K1,K2,K3
CO5	Acquire Knowledge on Analytical skills and Chromatographic techniques	K1,K2,K3,

|	PO1	PO2	PO3	PO4	PO5	PO6	**PO7**	PO8
CO1	-	2	-	-	-	-	**2**	-
CO2	2	-	2	-	-	-	**2**	-
CO3	-	-	-	-	-	-	**2**	-
CO4	-	-	-	-	1	-	**2**	-
CO5	-	-	-	-	-	-	**2**	2
AVERAGE	2	2	2	-	1	-	**2**	2

Since it is mapped with, PO1, PO2 and PO7 this subject is considered for Employability

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96

Course Code	Course Title	L T P C
APHT2604	Electricity and Electromagnetism	5 0 0 4

Pre equisites:Nil

Course Objectives:
- To gain firsthand knowledge in Electric field, Magnetic field, andElectromagnetictheory.
- Tounderstandthemathematicalideabehindthe electrostaticfield.
- Toacquireknowledgephysics behindtheMagnetostatistics.
- Tolearn thebasics ofelectromagnetictheory.

Unit1:Chemical Effects of Electric Current   **12hrs**

Faraday'slawsofElectrolysis-ionicvelocitiesandmobilities.Calculationandexperimental determination of ionic mobilities - transport number. Thermoelectricity-Peltiereffect-ExperimentaldeterminationofPeltiercoefficient-Thomsoncoefficient experimental determination of Thomson coefficient – application ofthermodynamicstoathermocoupleandconnectedrelations-thermoelectricdiagramanduses.

Unit2:DC Circuits   **12hrs**

Growthanddecayofcurrentinacircuitcontainingresistanceandinductance-growthanddecayofchargeinacircuitcontainingresistanceandcapacitor-growthanddecayof charge in an LCR circuit - condition for the discharge to be oscillatory - frequencyofoscillation -networkanalysis-TheveninandNorton'sTheorems.

Unit3:AC Circuits   **12hrs**

ACVoltageandcurrent-PowerfactorandcurrentvaluesinandACcircuitcontainingLCR circuit - series and Parallel resonant circuits - AC motors - single phase, threephase-staranddeltaconnections-electricfuses-circuitbrakers.

Unit4:MagneticEffectofElectricCurrent

         12hrs

Biot and Savart's law - magnetic field intensity due to a solenoid carrying current - effect of iron core in a solenoid - Helmholtz galvanometer - moving coil ballisticgalvanometer–theory-dampingcorrection-determinationoftheabsolutecapacityofacondenser usingB.G.

Unit5:ElectromagneticInductionandItsApplications

         12hrs

Faraday'slawsofelectromagneticinduction-inductorandinductance-determinationofselfinductanceofacoilusingAndersonmethod-mutualinductance-experimentaldeterminationofabsolutemutualinductance-coefficientofcoupling-Earthinductor-uses of earth inductor - measurement of horizontal component of the earth's magneticfield-measurementofverticalcomponentofearth'smagneticfield-calibrationof
B.G.-Inductioncoilanditsuses.
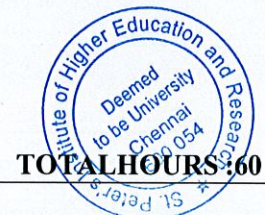
TOTALHOURS:60

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BooksforStudy:
1. Electricity&MagnetismbyM.Narayanamurthy&N.Nagarathnam,NPCpub.,Revised edition.
2. ElectricityandMagnetismbyBrijlalandSubrahmanyam;S.Chand&Co.,NewDelhi,(2000).
3. Electricity&MagnetismbyD.ChattopadhyayandP.C.Rakshit,BooksandAllied(P)Ltd.(2001).
4. Fundamentals of electricityand   magnetismbyB.D.   Dugal and C.L.Chhabra,ShobanlalNagin,S.
5. Chand&Co.,5thedition,NewDelhi(2005).
6. ElectricityandMagnetismbyR.Murugeshan,S.Chand&Co.,NewDelhi,(2008).
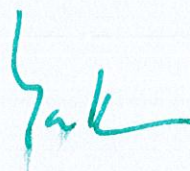
BooksforReference:
1. Electricity&MagnetismbyK.K.Tewari,S.Chand&Co.,NewDelhi,.(2002).
2. IntroductiontoElectrodynamicsbyD.J.Griffiths,PrinticeHallofIndiaPvt.Ltd.,3rd Edition,NewDelhi(2003).
3. FundamentalsofPhysics,D.Halliday,R.ResnickandJ.walker,Wiley,6th Edition,NewYork(2001).
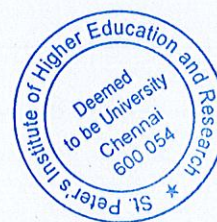
Expected Course Outcomes:
STUDENTS WILL BE ABLE TO

CO1: Interpret basics ofElectric field, Magnetic field, and Electromagnetic theory.
CO2:Acquire the knowledge of Ac & DC circuits
CO3: Acquire an intense knowledge mathematical idea behind the electrostatic field
CO4: Gain cognitive skills in physics behind the Magnetostatistics
CO5: Acquire an in depth knowledge in the basics of electromagnetic theory

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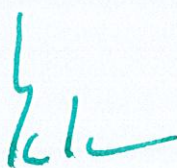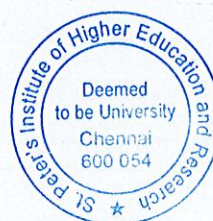(Deemed to be University U/S 3 of the UGC Act. 1956)
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98

Course Code	Course Title
APHT2604	Electricity and Electromagnetism

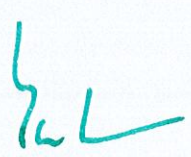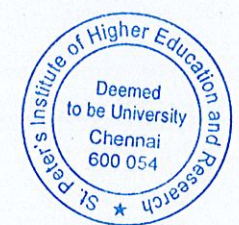| CO No.	Course Outcome	RBT
CO1	Interpret basics of Electric field, Magnetic field, and Electromagnetic theory.	K4
CO2	Acquire the knowledge of Ac & DC circuits	K1
CO3	Acquire an intense knowledge mathematical idea behind the electrostatic field	K5
CO 4	Gain cognitive skills in physics behind the Magnetostatistics	K4
CO5	Acquire an in depth knowledge in the basics of electromagnetic theory	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	2	2	3
CO2	3	3	3	3	2	2	3
CO3	3	3	3	3	2	2	3
CO4	3	3	3	3	2	2	3
CO5	3	3	3	3	2	2	3
AVG	3	3	3	3	2	2	3

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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99

CourseCode	CourseTitle	LTPC
ACYL2608	Chemistry II Allied Practical	0 04 2

Prerequisites:Nil

COURSE OBJECTIVES
- To gain knowledge on various typeso for anicqualitative analysis

LIST OF EXPERIMENTS

Organic Analysis

- DetectionofElements (N,S,Halogens)
- TodistinguishbetweenAliphaticandAromatic, saturatedandunsaturatedcompounds. Functional group tests for Phenol, acids (Mono,di), Aromaticprimaryamine, Amide,Aldehydeand Carbohydrate (Glucose).
- Systematic analysis of Organic compounds containing one functional groupand characterization by confirmatory test- Phenol/Cresol,Cinnamic acid,Benzoic acid, Phthalic acid, Succinic acid, Benzamide, Urea, Glucose andBenzaldehydeand Aniline.

TOTALHOURS:60

Books ForStudy:

1. Furniss, B.S., et al. Vogel's Textbook of Practical Organic Chemistry, 7thedition,London, ELBSLongman,2008
2. VenkateswaranV,VeeraswamyR.,KulandiveluA.R.,"BasicPrinciplesofPracticalChemistry",2ndedition,NewDelhi,SultanChand&Sons,2012.

REFERENCE BOOK

1. Venkateswaran V, Veeraswamy R., Kulandivelu A.R.,Basic Principles of Practical Chemistry, 2nd edition, New Delhi, Sultan Chand & Sons ,2012.

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100

COURSE OUTCOMES

After the completion of the practical students will be able to

CO1: Acquire knowledge on detection of aliphatic and aromatic elements in organic compound.
CO2: Gain knowledge on saturation and unsaturation in organic compound.
CO3: Identify the functional groups present in the organic compound.
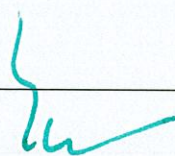**CO4:** Gain knowledge on the detection of special elements in organic compound.
CO5: Understand the preparation of derivatives of the organic compound.

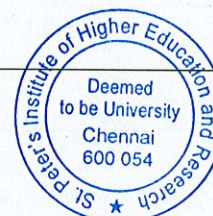| CO	COURSE OUTCOMES	RBT
CO1	Acquire knowledge on detection of aliphatic and aromatic elements in organic compound.	K1,K2, K3
CO2	Gain knowledge on saturation and unsaturation in organic compound.	K1,K2, K3
CO3	Identify the functional groups present in the organic compound.	K1,K2, K3
CO4	Gain knowledge on the detection of special elements in organic compound.	K1,K2, K3
CO5	Understand the preparation of derivatives of the organic compound.	K1,K2, K3

CO PO MATRICES:

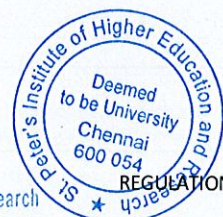| CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	-	-	-	-	-	2
CO2	2	2	-	-	-	-	-	2
CO3	2	2	-	-	-	-	-	2
CO4	2	2	-	-	-	-	-	2
CO5	2	2	-	-	-	-	-	2
AVERAGE	2	2	-	-	-	-	-	2

Since it is mapped with PO1, PO2 and PO8 this subject is considered for Skill development

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101

Course Code	CourseTitle	LTPC
APHL2604	Electro magnetism lab	0042

Prerequisites:Nil

COURSE OBJECTIVES
- Tostudy thebasic propertiesof Instruments,specificresistanceof thegivenmaterial.
- To gain practical knowledge by applying the experimental methods tocorrelatewith thephysics theory.
- Knowtoapplytheanalyticaltechniqueandgraphicalanalysistotheexperi mentaldata.

LIST OF EXPERIMENTS

1. CaryPoster'sBridgespecificresistanceofthegivenwire.
2. P.O.Box –Temperaturecoefficientofresistance
3. Potentiometer–VoltmeterCalibration
4. M and B_H - deflectionmangetometerTanCpositionandvibrationmagnetometer
5. Potentiometer-Ammetercalibration.
6. Figureofmerit ofgalvanometer (Miror GalvanometerOrTableGalvanometer
7. Fieldalongaxisofacircularcoil-Deflectionmagnetometer-$B_H$andM.
8. Potentiometer-Calibrationofhighrangevoltmeter
9. Potentiometer-Emfofathermocouple.
10. B.G-Comparisonofmutualinductances
11. Fieldalongaxisofacircularcoil-vibrationmagneticneedle-B_H.
12. B.G-ComparisonofEMFs
13. B.G-Comparisonofcapacitances

TOTALHOURS:60

BooksforStudy:

1. Furniss,B.S.,etal.Vogel'sTextbookofPracticalOrganicChemistry,7theditio n,London, ELBSLongman,2008
2. VenkateswaranV,VeeraswamyR.,KulandiveluA.R.,"BasicPrinciplesof Practical Chemistry", 2nd edition, New Delhi, Sultan Chand &Sons,2012.

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: To demonstrate the basic properties of Instruments specific resistance of the given material.
CO2: Apply the analytical technique and graphical analysis to the experimental data
CO3: Learnig the calibration of potentiometer
CO4: Gain practical knowledge by applying the experimental methods to correlate with the physics theory
CO5: Use the different measuring devices and meters to record the date with precision.

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	Course Code		Course Title
	APHL2604		Electro magnetism lab

CO No.	Course Outcome	RBT
CO1	To demonstrate the basic properties of Instruments specific resistance of the given material.	K4
CO2	Apply the analytical technique and graphical analysis to the experimental data	K3
CO3	Learnig the calibration of potentiometer	K1
CO4	Gain practical knowledge by applying the experimental methods to correlate with the physics theory	K6
CO5	Use the different measuring devices and meters to record the date with precision	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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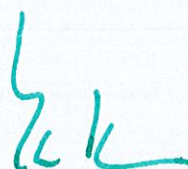| Course Code	CourseTitle	L T P C
ASSL2603	Soft Skills –III	2 0 0 1

Prerequisites:Nil

COURSE OBJECTIVES
- Tomakethe students tofollow theUniversal humanvalues in their life.
- To make the students to learn the human values such as love & compassion,truth,non-violence, righteous, peace,serviceandsacrifice.

UniversalHumanValues:
1. Loveand Compassion
2. Truth
3. Non-Violence
4. Righteousness
5. Peace
6. ServiceandRenunciation(Sacrifice)Tyag

TOTALHOURS:15

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1:Follow the Universal human values in their life.
CO2:Learn the human values such as love &compassion, truth righteous, peace.
CO3: Learn the knowledge of professional ethics.
CO4: Making the students to follow in servive and sacrifice manner.
CO5: Employing the students in life long learning about non-violence.

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CourseCode
ASSL2603

CourseTitle
SoftSkills –III

CO No.	Course Outcome	RBT
CO1	Follow the Universal human values in their life.	K2
CO2	Learn the human values such as love &compassion, truth righteous, peace.	K6
CO3	Learn the knowledge of professional ethics.	K3
CO 4	Making the students to follow in servive and sacrifice manner.	K1
CO5	Employing the students in life long learning about non-violence.	

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	-	-	1	2	-	-	3
CO2	-	-	1	2	-	-	3
CO3	-	-	1	2	-	-	3
CO4	-	-	1	2	-	-	3
CO5	-	-	1	2	-	-	3
AVG	-	-	1	2	-	-	3

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability, skill Development

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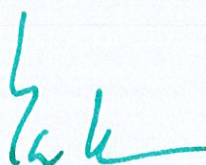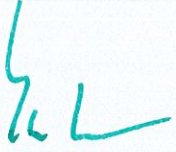Avadi, Chennai-600 054.

CourseCode	CourseTitle	LTPC
APHI2602	Internship II	0 00 1

Prerequisites:Nil

Course Objectives:
- To gain opportunity to work at a firm for a fixed period of time
- To get knowledge on the various topics useful for placement

Students a real so encouraged to pursue a summer internship in an industry or laboratory at the end of the first year

1. An internship is an opportunity offered by an employer to potential employees,called interns, to work at a firm for a fixed period of time.

2. Interns are usually undergraduates or students,and most internships last between a month and three months.

3. Internships are usually part-time if offered during a semester and full-time if offered during the vacation periods.

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: To gain opportunity to work at a firm for a fixed period of time
CO2: To Gain knowledge about opportunity about potential employees
Co3: Acquired knowledge about summer interns.
CO4: Gaining knowledge about interns in laboratory and industry.
CO5: Get knowledge on the various topics useful for placement.

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CourseCode	CourseTitle
APHI2602	Internship II

CO No.	Course Outcome	RBT
CO1	To gain opportunity to work at a firm for a fixed period of time	K2
CO2	To Gain knowledge about opportunity about potential employees	K5 K6
CO3	Acquired knowledge about summer interns	K5 K6
CO4	Gaining knowledge about interns in laboratory and industry	K3 K5
CO5	Get knowledge on the various topics useful for placement	K6

CO-PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO2, PO3, PO5 and PO7 this subject is considered for employability

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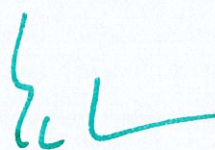| Course Code	Course Title	LTPC
APHT3605	Atomic Physics	500 4

Prerequisites:Nil

COURSE OBJECTIVES

- To Study the main features of the structure of the hydrogen atom and the various contributions to the energy of atomic states of hydrogen.
- To acquire knowledge in the way that light interacts with atoms and hence explain the observed spectrum of hydrogen.
- Know the quantum mechanical description of two-particle states,including the effect of spin.
- To Study how more complex atoms are built and give rise to the periodic table of the elements.

UnitI :Discharge PhenomenonThrough Gases

12hrs

Moving of a charge in transverse electric and magnetic fields – specific charge of anelectron – Dunnington's method – magnetron method – positive rays – Aston's ,Dempster'smass spectrographs.

UnitII:Photoelectric Effect

12hrs

Richardson and Compton experiment – Laws of photoelectric emission – Einstein photo electric equation – Millikan'sexperiment-verification of photoelectric equation - Photo electric cells- photo emissivecells –photo voltaic cell-photo conducting cell - photo multiplier.

UnitIII:Atomic Structure

12hrs

Bohr and Sommerfield atom models-Vector atom model-Pauli'sexclusion principle - explanation of periodic table – various quantum numbers – angular momentum andmagnetic moment – coupling schemes – LS and JJ coupling – special 104 uantization –Bohr magnetron –Stern and Gerlach experiments.

UnitIV: Ionisation PotentialandSplittingofEnergyLevels

12hrs

Excitation and ionization potential – Frank and Hertz's experiment – Davis andGoucher's method. Spectral terms and notions – selection rules – intensity rule andinterval rule – fine structure of sodium D lines – alkali spectra – fine structure of alkalispectra – spectrum of Helium – Zeeman effect – Larmor's theorem – Debye'sexplanation of normal Zeeman effect. Anamalous Zeeman effect – theoretical explanation. Lande's `g' factor and explanation of splitting of D1 and D2 lines ofsodium.Paschen-Back effect –Starke ffect (qualitativestudy only).

UnitV: X-Rays

12hrs

Bragg's law – X-ray spectroscopy – characteristic X-ray spectra – satellite and Auger effect-continuousX-rayspectra- X-rayabsorptionand fluorescence-Moseley'slaw - uses ofX-rays –Comptoneffect-experimentalverification ofComptoneffect.

TOTALHOURS:60

BooksforStudy:
1. ModernPhysicsbyR.Murugeshan,KiruthigaSivaprasath,S.Chand&Co.,NewDelhi(2018).
2. ModernPhysicsbyD.L.Sehgal,K.L.ChopraandN.K.Sehgal.SultanChandSonsPublication,10thEdition,NewDelhi(2017).
3. AtomicPhysicsbyJ.B.Rajam,S.Chand&Co.,20th

                                                                    Edition,NewDelhi(
2007).
4. AtomicandNuclearPhysicsbyN.SubrahmanyamandBrijLal,S.Chand&Co. 5thEdition,NewDelhi(2000).

COURSE OUTCOMES

Uponcompletionof thiscoursestudentswill beable to:

CO1: Understand the main features of the structure of the hydrogen atom and thevariouscontributions to theenergy ofatomicstates ofhydrogen.

CO2: Study the way that light interacts with atoms and hence explain the observedspectrumof hydrogen.

CO3: Know the quantum mechanical descriptionof two-particle states, including the effectof spin.

CO4: Get knowledge on how more complex atoms are built and give rise to the periodic table of the elements.

CO5: Analyzing the knowledge about X-rays in various aspects

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Course Code	Course Title
APHT3605	**Atomic Physics**

CO No.	Course Outcome	RBT
CO1	Understand the main features of the structure of the hydrogen atom and thevarious contributions to the energy of atomic states of hydrogen.	K2
CO2	Study the way that light interacts with atoms and hence explain the observed spectrum of hydrogen.	K1
CO3	Know the quantum mechanical description of two-particle states, including the effect of spin.	K1
CO 4	Get knowledge on how more complex atoms are built and give rise to the periodic table of the elements.	K1
CO5	Analyzing the knowledge about X-rays in various aspects	K4

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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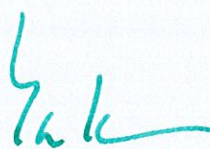| CourseCode	CourseTitle	LTPC
APHL3605	Electronics Lab	004 2

Prerequisites:Nil

COURSE OBJECTIVES
- Tostudy thebasicsofElectronics.
- To gain practical knowledge by applying the experimental methods tocorrelatewith the physics theory.
- Knowtoapplytheanalyticaltechniqueandgraphicalanalysistotheexperi mentaldata.

List of Experiments(AnySeven)
1. A.C.Circuit –LCR –SeriesandParallel resonance
2. Bridgerectifier-Zenerregulatedpowersupply - 9Vcharacteristics.
3. NAND/ NORas universal gates.
4. R-CCoupledAmplifierwithfeedback.
5. Transistor-Wien'sBridgeOscillator
6. FETcharacteristics
7. UJTcharacteristics
8. SCRcharacteristics
9. Transistor-Astablemultivibrator
10. Transistor-Bistablemultivibrator
11. HalfAdder–Fulladder–Ex-OR(7486)
12. HalfSubtractor–Fullsubtractor–Ex- OR(7486)
13. 4bit shiftregister using7473/7476

TOTALHOURS:60

BooksforStudy:

1.PracticalPhysicsandElectronics,Vijeyandran,CCOuseph,U.J.Rao,S,ViswanathanP vt.Ltd(2011).

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: Learn the basis of Electronics and working of electronic circuits
CO2: Gain practical knowledge by applying the experimental methods to correlatewiththephysics theory.
CO3: Learnthebasic anduniversal logicgates
CO4: Apply the analytical technique and graphical analysis to the experimental data
CO5: Use the different measuring devices and meters to record the date with precision

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111

Course Code   CourseTitle

APHL3605   Electronics Lab

CO No.	Course Outcome	RBT
CO1	Learn the basis of Electronics and working of electronic circuits	K2
CO2	Gain practical knowledge by applying the experimental methods to correlate with the physics theory	K5
CO3	Learn the basic and universal logic gates	K3
CO 4	Apply the analytical technique and graphical analysis to the experimental data	K3
CO5	Use the different measuring devices and meters to record the date with precision	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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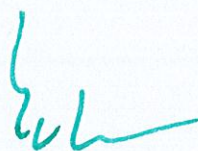Avadi, Chennai-600 054.

Course Code	Course Title	L T P C
ASSL3604	Soft Skills -IV	2 0 0 1

Prerequisites:Nil

COURSE OBJECTIVES
 ➢ To make the students develop skills such as career skills, resume skills, interviewskills, group discussion skills, exploring career opportunities skills and teamskills.

 ➢ To make the students to improve their listening as a team skill, brainstormingefficiency, internal communication, trust & collaboration and social & culturalcommunication.

ProfessionalSkills
   A.CareerSkills
   1. ResumeSkills
   2. InterviewSkills
   3. GroupDiscussionSkills
   4. ExploringCareer OpportunitiesSkills
   B.TeamSkills
   1. PresentationSkills
   2. TrustandCollaboration
   3. ListeningasaTeamSkill
   4. Brainstorming
   5. SocialandCulturalEtiquettes
   6. InternalCommunication

                                                                 TOTALHOURS:30

Expected Course Outcomes:
 STUDENTS WILL BE ABLE TO
CO1:Develop skills such as career skills, resume skills, interview skills.
CO2: Gaining the knowledge of Group discussion skills, exploring career opportunities skills and team skills
CO3: Improve their listening as a team skill, brainstorming efficiency, internalcommunication, trust&collaboration
CO4:Develop social&cultural communication.
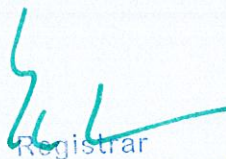CO5: Capability of knowing the professional skills in good manner
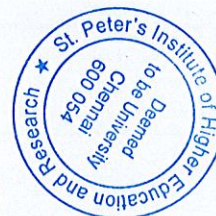
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Course Code	Course Title
ASSL3604	**Soft Skills -IV**

CO No.	Course Outcome	RBT
CO1	Develop skills such as career skills, resume skills, interview skills.	K2
CO2	Gaining the knowledge of Group discussion skills, exploring career opportunities skills and team skills	K6
CO3	Improve their listening as a team skill, brainstorming efficiency,internalcommunication, trust&collaboration	K3
CO 4	Develop social&cultural communication	K1
CO5	Capability of knowing the professional skills in good manner.	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	-	-	1	2	-	-	3
CO2	-	-	1	2	-	-	3
CO3	-	-	1	2	-	-	3
CO4	-	-	1	2	-	-	3
CO5	-	-	1	2	-	-	3

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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CourseCode	CourseTitle	LTPC
APHI3603	Internship III	0 00 1

Prerequisites:Nil

CourseObjectives:
- To gain opportunity to work at a firm for afixed period of time
- To get knowledge on the various topics useful for placement

Students a real so encouraged to pursue a summer internship in an industry or laboratory at the end of the first year

4. An internship is an opportunity offered by an employer to potential employees,called interns, to work at a firm for a fixed period of time.

5. Interns are usually undergraduates or students,and most internships last between a month and three months.

Internships are usually part-time if offered during a semester and full-time if offered during the vacation periods.

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: To gain opportunity to work at a firm for a fixed period of time
CO2: To Gain knowledge about opportunity about potential employees
Co3: Acquired knowledge about summer interns.
CO4: Gaining knowledge about interns in laboratory and industry.
CO5: Get knowledge on the various topics useful for placement.

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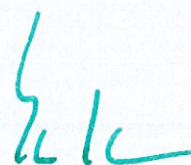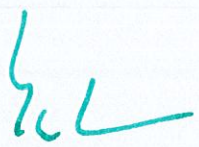(Deemed to be University U/S 3 of the UGC Act. 1956)
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115

CourseCode   CourseTitle

APHI3603   Internship III

CO No.	Course Outcome	RBT
CO1	To gain opportunity to work at a firm for a fixed period of time	K2
CO2	To Gain knowledge about opportunity about potential employees	K5 K6
CO3	Acquired knowledge about summer interns	K5 K6
CO4	Gaining knowledge about interns in laboratory and industry	K3 K5
CO5	Get knowledge on the various topics useful for placement	K6

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO2, PO3, PO5,PO7 & PO8 this subject is considered for employability & Skill development

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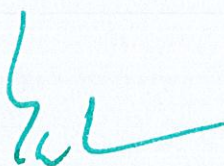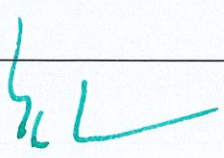(Deemed to be University U/S 3 of the UGC Act, 1956)
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CourseCode	CourseTitle	LTPC
APHT3606	Solid StatePhysics	500 4

Prerequisites:Nil

COURSEOBJECTIVES
- Torecognizeandalsogivethe latticeparameterrelationshipsforall sevencrystalsystems
- Given a unit cell and the Miller indices for a plane, to draw the plane for asystem
- To be able to draw the atomic packing arrangement for a specificcrystallographicplane.
- To understandthe use ofX-ray diffraction measurements in determiningcrystallinestructures

UnitI:CrystalStructure   **12hrs**

Crystal lattice – primitive and unit cell – seven classes of crystal – Bravais Lattice – MillerIndices–Structureofcrystals–simplecubic,hexagonalclosepackedstructure,face centred cubic structure, body centred cubic structure – Sodium chloride structure,ZincBlendestructure,Diamondstructure.

UnitII:DefectsinSolids   **12hrs**

X ray diffraction – Bragg's law in one dimension – Experimental methods – LaueMethod, powder crystal method and rotating crystal method. Defects in solids - Pointdefects-Frenkelandschottkydefects-Equilibriumconcentrations-Linedefects-Edgedislocationandscrewdislocation-Surfacedefects-Grainboundary-EffectsofCrystalimperfections.

UnitIII:ChemicalBonds   **andCrystallography**
                                                                                                  12hrs

Interatomicforces-Differenttypesofchemicalbonds-Ionicbond-CohesiveenergyofionicCrystalsandMadelungconstant-Covalentbond-Metallicbond-VanderWaal'sbond-Hydrogenbond.Superconductivity-Generalproperties-TypeIandII Superconductors-Meissnereffect-BCStheory-applicationsofsuperconductors.

Unit4:DielectricProperties   **12hrs**

Dielectricmaterials-Polarization,susceptibilityanddielectricconstant-Localfieldorinternal field - Clausius - Mossoti relation - Sources of polarizability - Electronicpolarizability-Ionicpolarizability-Orientationalpolarizability-Frequencyandtemperatureeffectsonpolarization-Dielectricbreakdown–Propertiesofdifferenttypesofinsulatingmaterials.

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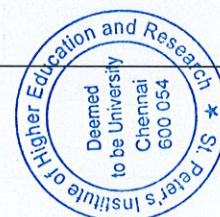
Unit5:MagneticProperties   **12hrs**

Differenttypesofmagneticmaterials-classicaltheoryofdiamagnetism(Langevin theory)- Langevin theoryof paramagnetism- Weiss theory of paramagnetism-Heisenberg interpretation on internal field and quantum theory of ferromagnetism - Antiferromagnetism-Hardandsoftmagneticmaterials.

TOTALHOURS:60

BooksforStudy:

1. MaterialsSciencebyM.Arumugam, AnuradhaAgencies Publishers.(2012)
2. Solid State Physics by R L Singhal, Kedarnath Ram Nath & Co., Meerut(2017)
3. IntroductiontoSolidStatePhysicsbyKittel, WilleyEasternLtd(2013).
4. Materials Science and Engineering by V. Raghavan, Prentice Hall of IndiaPrivateLimited, New Delhi(2014)
5. SolidStatePhysicsbyS.O.Pillai,New AgeInternational(P)Ltd.,(2018).
6. SolidStatePhysicsbyA.J.Dekker,MacmillanIndia(2019).
7. Solid State Physics by HC Gupta, Vikas Publishing House Pvt. Ltd., NewDelhi(2017).

TOTALHOURS:60

Usefulwebsites :

http://folk.uio.no//dragos//solid/fys230-
Exerciser.html.http://www.physics.brocku.ca/courses/
4p7d

COURSEOUTCOMES

Uponcompletion ofthe coursestudents will beable to:

CO1: Understandthe crystallineandnon crystallinematerial
CO2: Know the principles of structure determination by diffraction
CO3: Understand the principles and techniques of X-ray diffraction
CO4: Knowthefundamental principles ofsuperconductors
CO5: Getanextendedknowledgeabout magneticand dielectricmaterials

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CourseCode	CourseTitle
APHT3606	**Solid StatePhysics**

CO No.	Course Outcome	RBT
CO1	Understand the crystalline and non crystalline material	K2
CO2	Know the principles of structure determination by diffraction	K1
CO3	Understand the principles and techniques of X-ray diffraction	K2
CO 4	Know the fundamental principles of superconductors	K1
CO5	Get an extended knowledge about magnetic and dielectric materials	K1

CO –PO MATRICES:
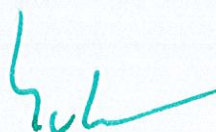
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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CourseCode	CourseTitle	LTPC
APHL3607	Electronics& communication lab	004 2

Prerequisites:Nil

COURSEOBJECTIVES
- TostudythebasicsofInvertingAmplifier.
- To gain practical knowledge by applying the experimental methods tocorrelatewith the physics theory.
- Togainaninsightonhowtoapplytheanalyticaltechniqueandgraphicalanalysisto theexperimental data.

ListofExperiments (AnySeven)
1. Opamp741 - Inverting,Non- Invertingamplifier, unityfollower.
2. Opamp741 -Summinganddifferenceamplifier
3. Opamp741 –Differentiator,integrator
4. OPamp741–Solvingsimultaneousequations
5. Opamp741 – Wein'sBridgeoscillator
6. Opamp 741-PhaseShift oscillator
7. 555-Timer-Schmitt Trigger
8. 555-Timer-Astableoperation
9. 555 -Timer-Monostable
10. D/AConverter–4bit,binaryweightedresistormethod.

TOTALHOURS:60

BooksforStudy:

1.PracticalPhysicsandElectronics,Vijeyandran,CCOuseph,U.J.Rao,S,Viswanathan Pvt.Ltd(2011).

Usefulwebsites:

COURSEOUTCOMES

Uponcompletion ofthecoursestudents willbeable to:
CO1: Be aware of the basics of Inverting/non inverting Amplifier.
CO2: Design circuits using 555 timer
CO3: Apply the basics and design the circuits
CO4: Apply the analytical technique and graphical analysis to the experimental data
CO5: Use the different measuring devices and meters to record the date with precision

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CourseCode	CourseTitle
APHL3607	**Electronics& communication lab**

CO No.	Course Outcome	RBT
CO1	Be aware of the basics of Inverting/non inverting Amplifier	K4
CO2	Design circuits using 555 timer	K4
CO3	Apply the basics and design the circuits	K6
CO4	Apply the analytical technique and graphical analysis to the experimental data	K3
CO5	Use the different measuring devices and meters to record the date with precision	K5

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO4,PO6 , PO7,&PO8, this subject is considered for employability, skill development & Entrepreneurship

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Course Code	Course Title	L T PC
ASSL3605	Soft Skills - V	200 1

Prerequisites: Nil

COURSEOBJECTIVES
- To make the students to improve their leadership skills, managerial skills and entrepreneurship.
- To make the students to enhance innovative leadership & design thinking and ethics& integrity internal communication.

LeadershipandManagementSkills

1. Leadership Skills
2. Managerial Skills
3. Entrepreneurship
4. Innovative Leadership and DesignThinking
5. Ethics and Integrity

TOTALHOURS:30

REFERENCEBOOKS
Usefulwebsites:

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: Improve their leadership skills,managerial skills and entrepreneurship.
CO2: Enhance innovative leadership&design thinking
CO3: Capability of knowing the professional skills in good manner
CO4: Learning the knowledge of professional ethics
CO5:Creating an awareness about innovating thinking in life long with integrity

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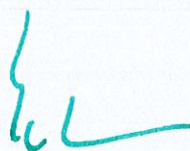(Deemed to be University U/S 3 of the UGC Act. 1956)
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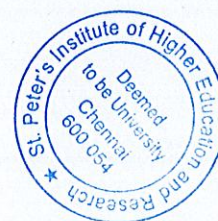
Course Code   CourseTitle

ASSL3605   Soft Skills -V

CO No.	Course Outcome	RBT
CO1	Improve their leadership skills,managerial skills and entrepreneurship.	K2
CO2	Enhance innovative leadership&design thinking	K6
CO3	Capability of knowing the professional skills in good manner	K3
CO 4	Learning the knowledge of professional ethics	K1
CO5	Creating an awareness about innovating thinking in life long with integrity	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	-	-	1	2	-	-	3
CO2	-	-	1	2	-	-	3
CO3	-	-	1	2	-	-	3
CO4	-	-	1	2	-	-	3
CO5	-	-	1	2	-	-	3
AVG	-	-	1	2	-	-	3

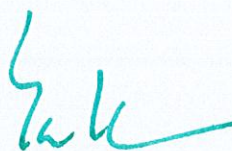Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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SYLLABUS FOR PROGRAMME ELECTIVES

Course Code	CourseTitle	LTPC
APHT3607	Microprocess or Fundamentals	5 00 4

Prerequisites:Nil

COURSE OBJECTIVES
- ➢ ToprovideknowledgeofarchitectureofMicroprocessorandInter facingDevices
- ➢ Tohaveaninsightonthe Programming Technques
- ➢ Tostudtytheinterfacingmemoryof8085
- ➢ Togain knowledgeontheinterrupts of8085

UnitI:Architecture   **12hrs**

Architecture of 8085 registers, flags, ALU, address and data bus,demultiplexing address/ databus–control and status signals– control bus,Programmer'smodel of 8085 –Pinoutdiagram–Functions of different pins.

UnitII:ProgrammingTechniques   **12hrs**

Instructionsetof8085–datatransfer,arithmetic ,logic,branching andmachine control group of instructions – addressing modes – register indirect, direct, immediate andimplied addressing modes. Assembly language & machine language – programming techniques:addition,subtraction,multiplication,division,ascending,descen dingorder,largest and smalles (singlebyte)

UNITIII:Interfacingmemoryto8085   **12hrs**

Memory interfacing – Interfacing 2kx8 ROM and RAM, Timing diagram of $8085(MOVR_d,R_s–MVIR_d,data(8))$.

UnitIV: InterfacingI/O Portsto8085   **12hrs**

Interfacing input port and output port to 8085 – Programmable peripheral interface8255– flashing LEDs.

UnitV:Interrupts   **12hrs**

Interruptsin8085-hardwareandsoftwareinterrupts–RIM,SIMinstructions–priorities– simplepolledandinterruptcontrolleddatatransfer.

TOTALHOURS:60

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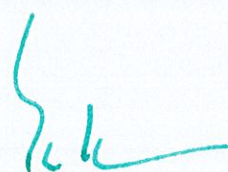124
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BooksforStudy:

1. Microprocessor Architecture programming and application with 8085 /8080A.R.S.Gaonkar, Wiley Eastern Ltd.(2019).
2. Fundamentalofmicroprocessor8085byV.Vijayendran,S.ViswanathanPublishers,Chennai(2003)
3. Fundamentals of Microprocessors and microcomputers by B.Ram - DhanpatRAIpublication.
4. Introduction to microprocessor by Aditya Mathur - Tata Mc.Graw HillPublishing Company Ltd.(2009).
5. Microprocessor and digital system by Dougles V. Hall - 2nd Edition - McGraw Hill Company(2018).

Usefulwebsites:

http://www.engj.ulst.ac.uk/sidk/eeellla/lecture-series//microprocessor.

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: GainknowledgeonthearchitectureofMicroprocessorand InterfacingDevices.

CO2: Instructing the programming techniques in machine language.

CO3: Writeprogramsusingthebasicsof8085.

CO4: Understandtheinterfacingmemoryof8085.

CO5: Gain knowledgeon the interrupts of8085.

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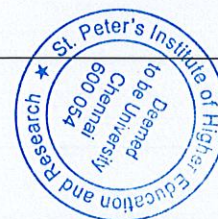(Deemed to be University U/S 3 of the UGC Act. 1956)
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125

Course Code	Course Title
APHT3607	Microprocess or Fundamentalss

CO No.	Course Outcome	RBT
CO1	Gain knowledge on the architecture of Microprocessor and Interfacing Devices	K1
CO2	Instructing the programming techniques in machine language.	K5
CO3	Write programs using the basics of 8085	K5
CO 4	Understand the interfacing memory of 8085	K2
CO5	Gain knowledge on the interrupts of 8085	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	2	2	-	-	1
CO2	3	2	2	2	-	-	1
CO3	3	2	2	2	-	-	1
CO4	3	2	2	2	-	-	1
CO5	3	2	2	2	-	-	1
AVG	3	2	2	2	-	-	1

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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CourseCode	CourseTitle	LTPC
APHL3606	Microprocessor Lab	0042

Prerequisites:Nil

COURSE OBJECTIVES
- Tostudy thebasics ofMicroprocessor.
- To gain practical knowledge by applying the experimental methods tocorrelatewith the physics theory.
- Knowtoapplytheanalyticaltechniqueandgraphicalanalysistotheexperi mentaldata.

List of Experiments (Anyseven)
1. Microprocessor–8085–8bit Addition
2. Microprocessor–8085–8bit Subtraction
3. Microprocessor–8085–8bit Multiplication
4. Microprocessor–8085–8bit Division
5. Microprocessor–8085–Addition of N Number of single byte numbers
6. Microprocessor–8085–Sorting of given set of numbers in ascending order
7. Microprocessor–8085–Sorting of given set of numbers in descending order
8. Microprocessor–8085–Findingt he largest no.in a given set of numbers.
9. Microprocessor–8085–Finding the smallest no.in a given set of numbers.

TOTALHOURS:60

BooksforStudy:

1.PracticalPhysicsandElectronics,Vijeyandran,CCOuseph,U.J.Rao,S,ViswanathanP vt.Ltd(2011).

Expected Course Outcomes:
 STUDENTS WILL BE ABLE TO
CO1: Apply the basics of Microprocessors and to write programs.
CO2: Design circuits using 555 timer.
CO3: Instructing the programming techniques in machine language.
CO4: Apply the analytical technique and graphical analysis to the experimental data.
CO5: Use the different measuring devices and meters to record the date with precision.

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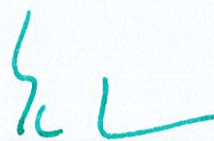(Deemed to be University U/S 3 of the UGC Act. 1956)
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Course Code   **CourseTitle**
APHL3606   **Microprocessor Lab**

CO No.	Course Outcome	RBT
CO1	Apply the basics of Microprocessors and to write programs	K3
CO2	Design circuits using 555 timer	K6
CO3	Instructing the programming techniques in machine language.	K5
CO4	Apply the analytical technique and graphical analysis to the experimental data	K3
CO5	Use the different measuring devices and meters to record the date with precision	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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CourseCode	CourseTitle	LTPC
APHT3606	Mathematical Methods in Physics	5 00 4

Prerequisites:Nil

COURSE OBJECTIVES
- To introduce students tomethods ofmathematical physics
- To develop required mathematical skills to solve problems in quantum mech anics,electrodynamics and other fields of theoretical physics
- To prelude to basic theoretical studies in classical mechanics
- To developa workingknowledge of statistical mechanics

Unit1:MatricesandSpecialFunctions   12hrs

Characteristic equation of a matrix – Eigenvalues and Eigenvectors – Hermition andUnitarymatrices-Propertiesoftheireigenvaluesandeigenvectors- Diagonalisation of matrices.Specialfunctions-Gammaand Beta functions- Series solutions of Legendre,Bessel and Hermite equations – Orthogonality properties of Legendre and Hermite Polynomials and Bessel functions.

Unit2:ElementaryComplexAnalysis   12hrs

Functions of a Complex variable- Continuity and differentiability-single and multivalued functions-Analytic function-Cauchy- Riemann conditions (necessity and sufficiency).Cauchy- Riemann Conditions in the Polar(r,θ) coordinates.

Unit3:VectorAnalysis   12hrs

Scalar and Vector fields – Gradient, Divergence and Curl – Equations of motion in the vector notation-equations of motion (components) in Cartesian coordinates and spherical polar coordinates- equation of motion in the polar coordinates.

Unit4:ClassicalMechanics   12hrs

Generalisedcoordinates-configurationspace-Lagrange'sequation-simple applications : to find equations of motion given a lagrangian; central potential andconservation of angular momentum – Hamilton function and Hamilton's equations – harmonicoscillator.

Unit5:StatisticalPhysics   12hrs

Quantum statistics of identical particles – Maxwell – Boltzmann, Bose – Einstein andFermi-Diracstatistics-DerivationofPlanck'sradiationformulafromBose-Einsteinstatistics-DegenerateFermigas.

TOTALHOURS:60

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129
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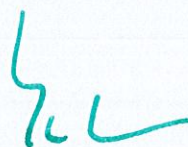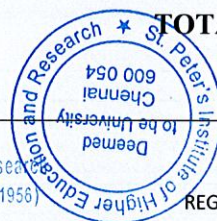**BooksforStudy**

1. MathematicalPhysicsbySathyaPrakash,SultanChandandSons,NewDelhi
2. ClassicalMechanicsbyJ.C.Upadhyaya,HimalayaPublishingHouse,Mumbai
3. Introduction to Statistical Mechanics by S.K. Sinha NarosaPublication(2007).
4. HeatThermodynamicsandStatisticalPhysicsbyBrijlalN.Subrahmanyam, P.S.HemneS.Chand&Co.,NewDelhi.(2007)

BooksforReference
1. MathematicalPhysicsbyB.D.Gupta,VikasPublishingHousePvt.Ltd.,NewDelhi(1996).
2. AdvancedEngineeringMathematicsbyE.Kreyszig,EighthEdition,WileyPublishers,NewYork(1989).
3. ClassicalMechanicsbyH.Goldstein,SpecialIndianstudentedition,NarosaPublishingHouse,NewDelhi(1985)

WebSite

http://phy.syr.edu/~trodden/courses/math
methods.http://www.mpipks_dresden.mpg.de/~jochen/methoden/outline/html.

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: Understand basic theory of vector and tensor analysis.
CO2: Understand the theoretical background of classical mechanics
CO3: Understand the theory of statistical mechanics
CO4: Explore various applications related to mathematical methods
CO5: Getting the knowledge about Statistical mechanics.

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CourseCode CourseTitle
APHT3606 **Mathematical Methods in Physics**

CO No.	Course Outcome	RBT
CO1	Understand basic theory of vector and tensor analysis.	K2
CO2	Understand the theoretical background of classical mechanics	K6
CO3	Understand the theory of statistical mechanics	K3
CO 4	Explore various applications related to mathematical methods	K1
CO5	Getting the knowledge about Statistical mechanics.	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	1	1	3
CO2	3	3	3	3	1	1	3
CO3	3	3	3	3	1	1	3
CO4	3	3	3	3	1	1	3
CO5	3	3	3	3	1	1	3
AVG	3	3	3	3	1	1	3

Since it is mapped with PO4,PO6 , PO7,&PO8, this subject is considered for employability & skill development & Entrepreneurship

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Course Code	CourseTitle	L T PC
APHT3608	Nuclear Physics	510 6

Prerequisites:Nil

COURSE OBJECTIVES
- To study the phenomen a taking place in the nuclear domain and dimensions of an ucleus.
- To know the stability of nucleus and various other properties.
- To learn aboutvarious types of radiations and their interaction with matter.
- To gain Knowledge about various types of nuclear reactions and their energies.
- To learn the methods to find them and charge of any nucleus by using some instruments.

Unit1:General Properties of Nuclei   18hrs

Nuclear size,charge,mass-determination of nuclear r adius-mirror nucleus method-mass defect and binding energy-packing fraction-nuclear spin-magnetic dipole moment-electric quadrupole moment-nuclear models-liquid drop model-Weizacker semiempirical mass formula-Shell mode land magic numbers-collective model-nuclear forces-meson theory ofnuclearforce (qualitative).

Unit2: Radioactivity   18hrs

Naturalradioactivity-lawofdisintegration-halflifeandmeanlifeperiod-unitsofradioactivity-transient and secular equilibrium-radiocarbon dating-age of earth - alpha rays-characteristics-Geiger Nuttal law - α-ray spectra-Gamow's theory of α-decay (qualitative study)-beta rays-characteristics-betarayspectra-neutrinohypothesis-violationofparityconservation-experimentalverificationwithCo^{60}-gammaraysandinternalconversion-nuclearisomerism.

Unit3:Radiation Detectors and Particle Accelerators   18hrs

Ionisation   chamber-G.M.Counter-quenching   and   resolving   time-scintillation   counter-photomultipliertube–thermoluminescence-thermoluminescencedosimetry(TLD)-Linearaccelerator-cyclotron-synchrocyclotron,betatron.

Unit4:Nuclear Reactions   18hrs

Conservationlaws-nuclearreactionKinematics-Q-value-thresholdenergy-artificialradioactivity-radioisotopesanditsuses-classificationofneutrons-nuclearfission-chainreaction-critical mass and size-nuclear   reactor-breeder   reactor   -   transuranic   elements-nuclear   fusion-thermonuclearreactions-sourcesofstellarenergy.

Unit5:ElementaryParticles   18hrs

Classification   of   elementary   particles   fundamental   interaction-elementary   particle quantumnumbers - isospin and strangeness - conservation laws and symmetry-basic ideas about quark-quarkmodel.   **TOTAL HOURS:90**

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REFERENCE BOOKS

1. NuclearPhysicsbyR.R.RoyandB.P.Nigam,NewAgeInternational(P)Ltd.,NewDelhi(2017).
2. FundamentalsofElementaryParticlePhysicsbyLongo,McGraw-Hill.
3. NucleiandParticlesbySerge.,W.A.Benjamin,USA
4. ElementsofNuclearPhysicsbyMLPandyaandRPSYadav,KedarnathRamNath,Meerut

Useful websites:

http://ocw.mit.edu/ocwWeb/physics/8-701spring2004/Lectinenotes.
http://faraday.physics.utoronto.ca/GeneralInterest/D.Bailey/Sub
Atomic/Lectures/Lect.html.

COURSE OUTCOMES

Uponcompletionofthiscourse studentswill beableto:

CO1: Know the properties of nucleus likes binding energy, magnetic dipole moment
    andelectricquadruple moment
CO2: Understandtheconceptofradioactivityanddecayslaw
CO3: KnowtheworkingofRadiationdetectorsandparticleaccelerators
CO4: Gainanextendedknowledgeabout nuclearreactionssuchasnuclearfissionandfusion
CO5: UnderstandthebasicconceptofParticlePhysics

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133

Course Code	CourseTitle

APHT3608   **Nuclear Physics**

CO No.	Course Outcome	RBT
CO1	Know the properties of nucleus likes binding energy, magnetic dipole moment and electric quadruple moment	K1
CO2	Understand the concept of radioactivity yand decays law	K2
CO3	Know the working of Radiationdetectors and particle accelerators	K1
CO 4	Gain an extended knowledge about nuclear reactions such as nuclear fission and fusion	K3
CO5	Understand the basic concept of Particle Physics	K2

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	2	2	2	2
CO2	3	3	3	2	2	2	2
CO3	3	3	3	2	2	2	2
CO4	3	3	3	2	2	2	2
CO5	3	3	3	2	2	2	2
AVG	3	3	3	2	2	2	2

Since it is mapped with PO4,PO6 , PO7,&PO8, this subject is considered for employability & skill development & Entrepreneurship

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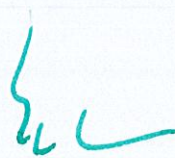Avadi, Chennai-600 054.

Course Code	Course Title	LTPC
APHT3607	Low Temperature Physics	510 6

Prerequisites:Nil

COURSE OBJECTIVES
- ToKnowthe theorybehindlow temperaturephysics
- Tounderstandthe conceptof differenttypes ofcryogens.
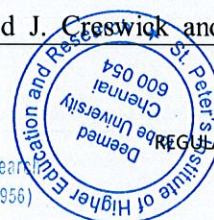- ToGainknowledge aboutthemagneticandelectricalproperties
- ToGain anextended knowledgeaboutspecificheats andspectral properties

UNITI-Production of Low Temperature   **18hrs**

Introduction-JouleThomsoneffect-Regenerativecooling-Vacuumpumps-liquefactionofair-Hydrogen-Helium-Maintenanceoflowtemperature-productionof temperature below1K- Adiabatic demagnetization- EvaporativecoolingofHe-3-Dilutionrefrigeration -Laser cooling -Nucleardemagnetization.

UNITII–Measurement of Low Temperature

                                                                                  18hrs

The gas thermometer rand it corrections-Secondary thermometers-resistance thermometers,thermocouples-vapourpressurethermometers-magnetic thermometers.

UNITIII-Liquid and Solid Cryogens

                                                                                  18hrs

Liquid Nitrogen-Liquid oxygen-Liquid hydrogen-Liquid He-4andHe-3-Solid He–4andHe-3-Lamda point-Superfluidity-Density-Compressibilityfactor-viscosityand thermal properties -Velocity of sound in liquid helium.

UNITIV-Electrical and Magnetic Properties   **18hrs**

 Experimentalobservations-Theoriesofsommerfieldandblock-Superconductivity - magnetic properties of superconductors - Thermal properties of superconductors - penetration depth and high frequency resistance - Ferromagnetism - Diamagnetism - paramagnetism -Paramagneticsaturation.

UNITV–Specific Heats, Spectroscopic and Hyperfine Properties

                                                                                  18hrs

Specificheats-RotationalspecificheatofHydrogen-Einstein"sandDebye"stheories - Schottky effect - Anomalies in specific heats at low temperature - Infrared-visible spectra - Zeeman spectra at low temperature - Dielectric constant and its measurement- Magnetic susceptibility - NMR and electron paramagnetic resonance at low temperature-Nuclear magnetic properties-Mossbauer effect and other hyperfine properties at low temperature

                                                           TOTAL HOURS:90

 BooksforStudy:
1. Cornelis JacobusGorter,D.F.Brewer,Progressin Low TemperaturePhysics,ElsevierLtd, 2011.
2. ChristianE. andSiegfried H,Low TemperaturePhysics,Springer, 2005.

BooksforReference:
1. JackEkin,ExperimentalTechniquesforLow-TemperatureMeasurements,OUPOxford, 2006.
2. CharlesP. Poole Jr., Horacio A. Farach, Richard J. Creswick and

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RuslanProzorov,SuperconductivityElsevierLtd,2007.
3. JohnWilks,PropertiesofLiquidandSolidHelium,OxfordUniversityPress,1967.
4. JackšonL.C.,LowTemperaturePhysics, MethuenandCompany,1962.
5. ChingWuChuandJ.Woollam,HighPressureandLowTemperaturePhysics,Plenu
    mPress, 1978.

Expected Course Outcomes:
 STUDENTS WILL BE ABLE TO

CO1: Knowthetheory behindlow temperaturephysics

CO2: Understandtheconceptofdifferenttypesofcryogens

CO3: Gainknowledgeaboutthemagneticandelectricalproperties

CO4: Gain an extendedknowledgeabout specific heatsandspectralproperties

CO5: Learn about the spectroscopy and hyperfine properties.

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Course Code	Course Title
APHT3607	Low Temperature Physics

CO No.	Course Outcome	RBT
CO1	Know the theory behind low temperature physics	K1
CO2	Understand the concept of different types of cryogens	K2
CO3	Gain knowledge about the magnetic and electrical properties	K1
CO 4	Gain an extended knowledge about specific heats	K1
CO5	Learn about the spectroscopy and hyperfine properties	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3
CO5	3	3	3	3	3	3	3
AVG	3	3	3	3	3	3	3

Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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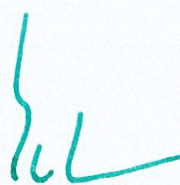(Deemed to be University U/S 3 of the UGC Act, 1956)
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Course Code	CourseTitle	LTPC
APHT3607	Energy Physics	5106

Prerequisites:Nil

COURSEOBJECTIVES
- Tohaveaninsightonthe variousrenewable energyresourcesavailableatalocationand assessmentof itspotential, usingtools andtechniques
- TolearntheSolarenergyradiation,itsinteractions,measurementandestimation
- ToacquireknowledgeinGeothermal,wave,tidalresourcesandsiteselection

UnitI Introduction to energy sources: **18hrs**
Energysourcesandtheiravailability–prospectsofrenewableenergysources.
Solarradiationanditsmeasurements: Solarconstant–solarradiationattheEarth's surface – solar radiation Geometry – solar radiation measurements – solarradiationdata–estimationofaveragesolarradiation–solarradiationoftiltedsurfaces.

UnitII Solar cells: **18hrs**
Solarcellsfordirectconversionofsolarenergytoelectricpowers–Solarcellparameter – Solar cell electrical characteristics – Efficiency – Single crystal siliconsolarcells – Polycrystallinesilicon solarcells– cadmium sulphidesolar cells.

UnitIII Applications of solar energy:

                                    18hrs
Solarwaterheating–spaceheatingandspacecooling–solarphotovoltaics–agricultural and industrial process heat – solar distillation – solar pumping – solarfurnace– solarcooking– solargreen house.

UnitIV Wind Energy: **18hrs**
 Base principles of wind energy conversion wind data and energy estimation – Basecomponents of wind energy conversion systems (WECS) types of wind machines –Generating systems– schemes for electric generation– generator control– loadcontrol– applications ofwind energy.

UnitV Energy from Biomass: **18hrs**
BiomassconversionTechnologies –wetandDryprocess–Photosynthesis.
Biogasgeneration: Introduction–basicprocessandenergetic– Advantagesofanaerobicdigestion– factorsaffecting bio digestion andgeneration ofgas.
Classification of Biogas plants: Continuous and batch type – the done and drumtypes of Bio gas plants – biogas from wastes fuel properties of biogas utilization ofbiogas.
                                    TOTAL HOURS:90

Books for studyand Reference
1.KreithandKreider,PrinciplesofsolarEngineering,2ndEdition,2008,McGrawHill Pub.,

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2. A.B.MeinelandA.P.Meinel,AppliedSolarEnergy,1976,AddisonWeselyEducati
onPublishers, India.
3. M.P.Agarwal,SolarEnergy,S.Chand&Co.,1983.
4. S.P.Sukhatme,SolarEnergy,TataMcGraw HillPublications,1984.
5. G.D.Rai,Non-conventionalEnergysources,KhaunaPublications,Delhi,2004.

Expected Course Outcomes:
At the end of the course, the students will be able to
CO1: Learn the various renewable energy resources available at a location and assessment of
    its potential, using tools and techniques.
CO2: Understand the concepts of solar photovoltaic (SPV).
CO3: Know photo thermal application of solar energy
CO4: Understand the principles of wind energy
CO5: Learn the various energy from Biomass

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139

Course Code   CourseTitle
APHT3607   **Energy Physics**

CO No.	Course Outcome	RBT
CO1	Learn the various renewable energy resources available at a location and assessment of its potential, using tools and techniques.	K1
CO2	Understand the concepts of solar photovoltaic (SPV).	K2
CO3	Know photo thermal application of solar energy	K1
CO4	Understand the principles of wind energy	K2
CO5	Learn the various energy from Biomass	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	-	-	-	3	3
CO2	3	2	-	-	-	3	3
CO3	3	2	-	-	-	3	3
CO4	3	2	-	-	-	3	3
CO5	3	2	-	-	-	3	3
AVG	3	2	-	-	-	3	3

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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140

Course Code	CourseTitle	L T PC
APHT3607	Numerical Methods	510 6

Prerequisites:Nil

COURSE OBJECTIVES
- Develop a greate runderstanding of the issues involved in the numerica solutions of Algebraic, Transcentaland Differential Equation.
- Develop an in-depth understanding in Interpolation andcurve fitting.
- To learn aboutthe concepts of Numerical Integrations.

Unit1:SimultaneousLinearAlgebraicEquations

18hrs

Method of triangularisation - Gauss elimination method - Inverse of a matrix - Gauss - Jordanmethod

Unit2:Numerical Solution of Algebraic,Transcendental and Differential Equation

18hrs

Bisection method – Regular falsi method - Newton - Raphson method - - Horner's method - Solutionofordinarydifferentialequation-Euler'smethod.

Unit3:Interpolation   **18hrs**

Finite differences – operators $\Delta, \nabla, \delta, E, D$ – relation between operators –linear interpolation – interpolationwithequalintervals–Newtonforwardinterpolationformula– Newtonbackwardinterpolationformula.

Unit4:Curve Fitting   **18hrs**

Principlesofleastsquares-fittingastraightline-linearregression-fittinganexponentialcurve.

Unit5:Numerical Integration   **18hrs**

TrapezoidalRule-Simpson's1/3ruleand3/8rule-Applications-Weddle'srule

TOTAL HOURS:90

Books for Study

1. Numericalmethods-M.K.Venkatraman,NationalPublishingCompany,(1990).
2. NumericalmethodsbyV.Rajaraman,Prentice-HallIndiaPvt.Ltd.,(2003).
3. NumericalmethodsbyP.Kandasamy,K.ThilagavathyandK.Gunavathy,S.Chand&Co. (2002).

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Books for References

1. Numerical methods for Scientific and Engineering computation by Jain Iyenger andJain,NewAgeInternational(P)Ltd.,(2004).
2. NumericalmethodsbyS.S.Sastry,PrenticeHallofIndiaPvt.Ltd.,NewDelhi(2003).

WebSite

http://www.sst.ph.ic.ac.uk/angur/lectures/compphys/compphys.html.http://www.library.cornell.edu/nn/(NumericalreceipieronlinebookinC&Fortran).

Expected Course Outcomes:
STUDENTS WILL BE ABLE TO
CO1: Understand the issues involved in the numerical solutions
CO2: Analyzing the Algebraic,Transcental equations
CO3: Gaining the knowledge of Differential eqatuions
CO4: Be capable of specifying the Interpolation and curve fitting.
CO5:UnderstandtheconceptoftheNumericalIntegrations

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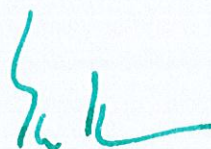(Deemed to be University U/S 3 of the UGC Act. 1956)
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142

Course Code	CourseTitle
APHT3607	**Numerical Methods**

CO No.	Course Outcome	RBT
CO1	Understand the issues involved in the numerical solutions	K2
CO2	Analyzing the Algebraic,Transcental equations	K5
CO3	Gaining the knowledge of Differential eqatuions	
CO4	Be capable of specifying the Interpolation and curve fitting.	
CO5	Understand the concept of the Numerical Integrations	K2

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	2	3	3	-	-	2
CO2	3	2	3	3	-	-	2
CO3	3	2	3	3	-	-	2
CO4	3	2	3	3	-	-	2
CO5	3	2	3	3	-	-	2
AVG	3	2	3	3	-	-	2

Since it is mapped with PO7, PO8 this subject is considered for employability & skill development

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143

CourseCode	CourseTitle	LTPC
APHT3607	AstroPhysics	5106

Prerequisites:Nil

COURSE OBJECTIVES
- ➢ To study thevarious astronomical scales in astrophysics.
- ➢ To gain knowledge on astronomical techniques.
- ➢ To learn the concept of physical principles in astrophysics
- ➢ Tolearn about the sun and origin of solar system.
- ➢ To study about the different types of galaxies.

UnitI:Astronomical Scales: **18hrs**

AstronomicalDistance,MassandTime,Scales,Brightness,RadiantFluxandLuminosity,Measurement of AstronomicalQuantitiesAstronomicalDistances,StellarRadii,MassesofStars,StellarTemperature.Basicconceptsofpositionalastronomy: Celestial   Sphere, Geometry of a Sphere, Spherical Triangle, AstronomicalCoordinate Systems, Geographical Coordinate Systems, Horizon System, EquatorialSystem, Diurnal Motion of the Stars, Conversion of Coordinates. Measurement ofTime, Sidereal Time, Apparent Solar Time, Mean Solar Time, Equation of Time,Calendar.Basic Parameters ofStars:

UnitII:Astronomical techniques: **18hrs**

BasicOpticalDefinitionsforAstronomy(MagnificationLightGatheringPower,Resolving Power and Diffraction Limit, Atmospheric Windows), Optical Telescopes(Types of Reflecting   Telescopes,   Telescope   Mountings,   Space   Telescopes, DetectorsandTheirUsewithTelescopes(TypesofDetectors,detectionLimitswithTelescopes)

UnitIII:Physical principles: **18hrs**

Gravitation in Astrophysics (Virial Theorem, Newton versus Einstein), Systems inThermodynamicEquilibrium,TheoryofRadiativeTransfer(RadiationField,RadiativeTransferEquation),OpticalDepth;SolutionofRadiativeTransferEquation,Local ThermodynamicEquilibrium

UnitIV:The sun   **18hrs**

(Solar   Parameters,   Solar   Photosphere,   Solar   Atmosphere,   Chromosphere. Corona,Solar Activity, Basics of Solar Magnetohydrodynamics. Helioseismology). The solarfamily (Solar System: Facts and Figures, Origin of the Solar System: The NebularModel, Tidal Forces and Planetary Rings, Extra-Solar Planets. Stellar spectra andclassificationStructure(AtomicSpectraRevisited,StellarSpectra,SpectralTypes andTheirTemperatureDependence,BlackBodyApproximation,HRDiagram, LuminosityClassification)

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144
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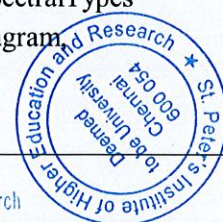
UnitV:Galaxies: **18hrs**

Galaxy Morphology, Hubble's Classification of Galaxies, Elliptical Galaxies (TheIntrinsicShapesofElliptical,deVaucouleursLaw,StarsandGas).SpiralandLenticular Galaxies (Bulges, Disks, Galactic Halo) The Milky Way Galaxy, Gas andDustin the Galaxy, Spiral Arms, ActiveGalaxies.

TOTALHOURS:90

BooksforStudy

1. Modern Astrophysics, B.W. Carroll & D.A. Ostlie, Addison-WesleyPublishing Co.
2. IntroductoryAstronomyandAstrophysics,M.ZeilikandS.A.Gregory,4thEditi on,Saunders CollegePublishing.
3. The physical universe: An introduction to astronomy, F.Shu, Mill Valley:UniversityScienceBooks.
4. FundamentalofAstronomy(FourthEdition),H.Karttunenetal.Springer

BooksforReference

K.S.Krishnasamy,'AstroPhysicsamodernperspective,'Reprint,NewAgeInter national(p) Ltd, New Delhi,2002.
BaidyanathBasu,'AnintroductiontoAstrophysics',Secondprinting,Prentice-Hallof India Private limited, New Delhi,2001.
Textbook of Astronomy and Astrophysics with elements of cosmology, V.B. Bhatia,NarosaPublication.

Expected Course Outcomes:
 STUDENTS WILL BE ABLE TO
CO1: Understand the various astronomical scales in astrophysics
CO2: Acquire knowledge on astronomical techniques.
CO3: Learn the concept of physical principles in astrophysics
CO4: Understand about the sun and origin of solar system..
CO5: Gain knowledge on the different types of galaxies

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145

	CourseCode	CourseTitle
	APHT3607	AstroPhysics

CO No.	Course Outcome	RBT
CO1	Understand the various astronomical scales in astrophysics	K2
CO2	Acquire knowledge on astronomical techniques.	K6
CO3	Learn the concept of physical principles in astrophysics	K1
CO 4	Understand about the sun and origin of solar system.	K2
CO5	Gain knowledge on the different types of galaxies	K1

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	1	2	1	2	2	2
CO2	3	1	2	1	2	2	2
CO3	3	1	2	1	2	2	2
CO4	3	1	2	1	2	2	2
CO5	3	1	2	1	2	2	2
AVG	3	1	2	1	2	2	2

Since it is mapped with PO4,PO6 , PO7,&PO8, this subject is considered for employability, skill development & Entrepreneurship

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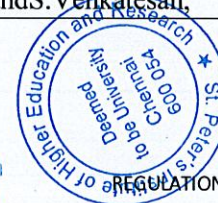(Deemed to be University U/S 3 of the UGC Act, 1956)
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Course Code	CourseTitle	LTPC
APHT3609	Relativity and Quantum mechanics	5106

Prerequisites:Nil

COURSEOBJECTIVES
- Tostudy thebasicprinciples ofquantum mechanics.
- To explaint he operator formulation of quantum mechanics.
- Tol earnt he concept of wave function.
- To understand the Schrodinger equation and their applications.
- To study role of uncertainty in quantum physics.

Unit1:Relativity   18hrs

Frames of reference - Galilean transformation - Michelson - Morley experiment - Postulatesofspecialtheoryofrelativity-Lorentztransformation-lengthContraction- timedilation-Relativityofsimultaneity-additionofvelocities- variationofmasswithvelocity–Massenergyrelation-Elementaryideasofgeneralrelativity.

Unit2:Wave Nature of Matter   18hrs

Phase and group velocity - wave packet - expression of De Brogile's wave length - DavissonandGermer'sexperiment-G.P.Thompson'sexperiment-Electronmicroscope - Heisenberg'suncertaintyprincipleanditsconsequences.

Unit3:Schrodinger Equation   18hrs

Inadequacyofclassicalmechanics-Basicpostulatesofquantummechanics- Schrodingerequation-Propertiesofwavefunction- Probabilityinterpretationofwavefunction-linearoperators-selfadjointoperators- expectationvalue–eigenvaluesandeigenfunctions-commutativityandcompatibility.

Unit4:Angular Momentum in Quantum Mechanics   18hrs

Orbital angular momentum operators and their commutation relations - separation ofthreedimensionalSchrodingerequationintoradialandangularparts- Elementaryideasofspinangularmomentumofanelectron-Paulimatrices.

Unit5:Solutions of Schrodinger Equation   18hrs

Freeparticlesolution-Particleinabox-Potentialwelloffinitedepth(onedimension) - linearharmonicoscillator-rigidrotatorandhydrogenatom.

TOTAL HOURS:90

Books for Study

1. ATextbookofQuantummechanicsbyP.M.MathewsandS.Venkatesan.

TataMcGraw-Hill,NewDelhi(2005).

2. QuantumMechanicsbyV.K.Thankappan,NewAgeInternational(P)Ltd.Publishers,NewDelhi(2003).
3. Quantum mechanicsbyK.K.Chopra and G.C.Agrawal, Krishna PrakasamMedia(P)Ltd.,MeerutFirstEdition(1998).
4. Modern Physics by R. Murugeshan and Kiruthiga Sivaprasath, S. Chand &Co.,(2008).
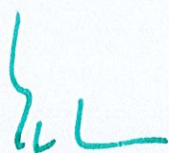
Books for Reference
1. MechanicsandRelativitybyBrijlalSubramanyam,S.Chand&Co.,NewDelhi,. (1990).
2. Concepts of modern physicsbyA.Beiser. Tata McGraw-Hill,5th edition,NewDelhi(1997).
3. IntroductiontoquantummechanicsbyPaulingandWilson,McGraw–Hill.
4. QuantummechanicsbyA.GhatakandLoganathan,MacmillanIndiaPvt.Ltd.

WebSite
http://physics.usc.edu/~bars.http://www.nscl.msu.edu/~pratt/phy851/lectrues/lectures.html

COURSE OUTCOMES

Uponcompletionof thiscoursestudents willbe ableto

CO1: Pinpointthehistoricalaspectsofdevelopmentofquantummechanics

CO2: Understandandexplainthedifferencesbetweenclassicalandquantummechanics.

CO3: Understand theideaofwavefunction

CO4: Gainan extendedknowledgeabouttheuncertaintyrelations

CO5: Solve Schrodingerequation forsimple potentials.

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Course Code   CourseTitle
APHT3609   Relativity and Quantum mechanics

CO No.	Course Outcome	RBT
CO1	Pinpoint the historical aspects of development of quantum mechanics	K1
CO2	Understand and explain the differences between classical and quantum mechanics.	K2
CO3	Understand the idea of wave function	K2
CO 4	Gain an extended knowledge about the uncertainty relations	K1
CO5	Solve Schrodinger equation forsimple potentials.	K5

CO –PO MATRICES:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7
CO1	3	3	2	2	2	2	2
CO2	3	3	2	2	2	2	2
CO3	3	3	2	2	2	2	2
CO4	3	3	2	2	2	2	2
CO5	3	3	2	2	2	2	2
AVG	3	3	2	2	2	2	2

Since it is mapped with PO4, PO6 this subject is considered for Entrepreneurship

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149