



B.Sc - Physics
Regulations, Curriculum and Syllabus (for 1st year only)
2012 – 2013

Faculty of Science and Humanities
SRM University
SRM Nagar, Kattankulathur – 603 203

B. Sc (Physics). REGULATIONS – 2012

(For students admitted from the academic year 2012 - 2013)

REGULATIONS

R.1.0 Eligibility

R.1.1. The candidates seeking admission to the B.Sc. (Physics) Degree programme shall be required to have passed (10+2) (Higher Secondary) examination or any other equivalent examination of any authority, recognized by this University, with Mathematics, Physics, and Chemistry

R.2.0 Duration and Structure of the B. Sc Programme

R.2.1 The programme is organized on semester basis with a total of six semesters. A candidate shall be required to complete the course of study and qualify for the B.Sc. Degree programme within 5 years (10 consecutive semesters) from the date of admission to the first semester of the Degree programme.

R.2.2 The complete programme will consist of 6 semesters, which includes 4 categories:

1) General Programme,(G) 2) Allied Programme,(A) 3) Core Programme,(C) 4) Technical Arts Programme (T)

Each semester shall normally consist of 90 working days or 450 hours

R.2.3 Brief details of the four categories are:

- a. A General Programme comprising of Foundation courses (English / Tamil / Hindi / French/Environmental studies / Computer Literacy /NSO/YOGA)
- b. Allied Programme relevant to the core subject which comprises Mathematics and Chemistry;
- c. Value Added Courses and
- d. Core programme corresponding to the Branch of Studies, which will include Core Courses, course based electives, skill based electives and project work.

R.2.4 Credits are assigned to the courses based on the following general pattern: One credit for each lecture period; One credit for two tutorial periods; One credit for two laboratory or practical session

R.2.5 The curriculum of of the B. Sc (Physics) programme is designed to have a total of 134 credits for the award of the B. Sc degree.

R.2.6 No semester shall have more than six lecture-based courses and four laboratory courses as prescribed in the curriculum carrying a maximum of 28 credits.

R.2.7 The medium of instruction, examination and project reports will be in English.

R.3.0 Faculty Adviser

R.3.1 To help the students in planning their courses of study and for getting general advice on the academic programme, the concerned School / Department will assign a certain number of students to a faculty member who will be called their Faculty Adviser.

R.4.0 Class Committee

R.4.1 Every class (comprising of sections) of the B.Sc programme will have a Class Committee consisting of Faculty and Students. The class committees for the Department programmes of each semester will be constituted by the Head of the concerned Department.

R.4.2 The constitution of the Class Committee for the Department programmes of each semester will be as follows:

- a) all teachers of the Courses
- b) four students from the top half of the class to be chosen by the students of the class.
- c) one professor of the concerned Department, preferably not associated with teaching of the class, to be nominated by the concerned Head of the Department, to act as the Chairman of the Class Committee.
- d) Faculty Adviser(s) of the respective class.

R.4.3 The basic responsibilities of the class committee are :

- a) To review periodically the progress of the classes,
- b) To discuss problems concerning curriculum and syllabus and the conduct of the classes.
- c) The method of assessment in the courses will be decided by the teachers in consultation with class committees and will be announced to the students at the beginning of the semester.
- d) The Class Committee without student members is responsible for the finalization of the semester results.
- e) The class committees shall meet at least thrice in a semester, once at the beginning of the semester, once after the first cycle test and once at the end of the semester to finalize the grades.

R.5.0 Registration and Enrolment

R.5.1 Registration and enrolment of any course will be controlled by the Office of the Controller of Examinations. Except for the first semester, the registration of a semester will be done during a specified week before end semester examination of the previous semester.

Late registration/enrolment will be permitted with a fine, decided time to time, up to two weeks from the last date specified for registration/enrolment.

R.5.2 ***From the second semester onwards all students have to enroll on a specified day at the beginning of a semester.*** A student will be permitted to enroll only if he/she has cleared all dues to the University, Hostel, Library, etc. up to the end of the previous semester, provided he/ she is not debarred for enrolment by a disciplinary action of the University.

R.5.3 The registration sheet contains the course number, course name, number of credits and category for each course taken in that semester. The student makes the choice of course in consultation with his/her Faculty Adviser

R.6.0 Registration Requirement

R.6.1 ***The curriculum for any semester, except for the final semester will normally carry credits between 19 and 26.***

If a student finds his/her load heavy in any semester, or for any other valid reason, he/she may drop course(s) within three weeks of the commencement of the semester but before commencement of first cycle test with the written approval of his/her Faculty Adviser & Head of the Department. However the student should ensure that the total number of credits registered in any semester should enable him/her to earn the minimum number of credits.

R.7.0 Passing minimum

A candidate shall be declared to have passed in each paper / practical / mini project and viva voce, if he / she secures not less than 40% of marks, provided minimum of 40% of marks secured in the University examinations and a minimum of 40% in aggregate marks in a paper / practical / project / viva voce

R.8.0 Temporary withdrawal from the programme

R.8 1.A student may be permitted to withdraw from the programme for a semester or longer for reasons of ill health or other valid reasons. Normally a student will be

permitted to discontinue from the programme only for a maximum continuous period of two semesters.

R.9.0 Discipline

R.9.1 Every student is required to maintain discipline and decorous behavior both inside and outside the University campus and not to indulge in any activity that will tend to bring down the prestige of the University.

R.9.2 Any act of indiscipline of a student is first to be considered by the Discipline and Welfare Committee of the Department for necessary action.

R.10.0 Attendance

R.10.1 *Attendance is the physical presence of the student in the class.* It is a well observed fact that the students who score good grades are those who attend classes regularly. Therefore, the students must strive to attend all the classes without fail.

R.10.2 Every teaching staff member handling a class will take attendance till 3 calendar days before the last instruction day in the semester. The percentage of attendance, calculated up to this point, will be indicated by a code number/letter as follows:

R.10.3 A student must maintain an attendance record of at least 75% in individual courses.

R.10.4 The students must strive to attend all the classes without fail. However, the minimum attendance requirement of 75% allows a student the facility to use the balance 25% to account for short illnesses of a few days; permitted assignments such as job interviews; inter university sports meets, inter-collegiate/inter-university competitions, etc.

R.11.0 Assessment Procedure

R.11.1 The complete academic performance of a student is evaluated internally by the concerned teachers/departments.

R.11.2 The student's performance in each course is evaluated for a maximum of 100 marks of which 50 marks for in-semester assessment and 50 marks for the end semester examination.

R.11.3 The in-semester assessment in theory subjects is based on cycle tests, quizzes, surprise tests, case presentations, seminar, model examinations etc. The

student shall be informed sufficiently early of the procedure followed for in semester assessment.

R.12.0 **System of Tests**

R.12.1 For theory based courses 2 cycle tests of 10 marks each, one surprise test of 5 marks, one model examination of 20 marks, and 5 marks (maximum) for attendance totaling to 50. An end semester examination for 50 marks will be conducted at the end of the semester. The break up of marks to be awarded for attendance is given below.

Attendance Percentage Range	Marks to be awarded
0-75	0
76-80	1
81-85	2
86-90	3
91-95	4
96-100	5

R.12.2 For laboratory based courses, regular laboratory class work over the full semester will carry a weightage of 50%. The remaining 50% weightage will be given by conducting an end semester practical examination for every individual student if possible or by conducting a 1 to 1 ½ hours duration common written test for all students, based on all the experiments carried out in the semester.

R.12.3 Absolute marks will be awarded for all tests, tutorial assignments (if any), laboratory work and examinations. The final percentage of marks will be calculated for award of grade.

R.13.0 **End Semester Examination**

R.13.1 There will be one end semester examination for three hours duration in each lecture based Course. The pattern of question paper is Ten (10) two (2) mark (short answer) questions carrying a total of 20 marks and Five (5) sixteen (16) mark either or (long answer) questions, each one from each unit carrying a total of 80 marks. Altogether, 100 marks for the exam.

R.13.2 The examinations at the end of a particular semester will be conducted for the courses of all odd and even semesters

R. 13.3 A student should have appeared for the end-semester examination of the prescribed course of study to be eligible for the award of the grade in that course.

R.14.0 Project Evaluation

R.14.1 B.Sc projects as far as possible should be socially relevant and product oriented ones. B.Sc projects can be given to individual students or groups of students. In the case of latter, the group can have a maximum of three students. At the completion of a project the student will submit a project report, which will be evaluated by duly appointed internal examiner(s). The evaluation will be based on the report and a viva voce examination on the project.

R.14.2 The grade will be awarded to the student on the basis of the total marks obtained by him/her out of 100. The total marks secured by the candidate include equal weightage of internal (50marks) and external (50marks).

R.15.0 Reappearance in end Semester Examination

R.15.1 Students who have secured F, W or I grade in a particular course can reappear when the end semester examination for that course is again conducted provided they satisfy other eligibility conditions.

R.16.0 Course Wise Grading of Students

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

Range of total marks	Letter Grade	Grade Points
90 to 100	S	10
80 to 89	A	9
70 to 79	B	8
60 to 69	C	7
50 to 59	D	6
40 to 49	E	5
0 to 39	F	0
Incomplete	I	0
Withdrawal	W	0

“F” denotes failure in the course

“I” denotes incomplete as per clause 6.1 and hence prevented from writing the end semester examination.

“W” denotes withdrawal from the course. After the results are declared, Grade sheets will be issued to each student, containing the list of courses enrolled during that semester and the grade scored, the grade point average (GPA) for the semester and the Cumulative Grade Point Average (CGPA) of all the courses enrolled from the first semester onwards.

GPA is the ratio of the sum of the products of the number of credits of courses registered and the points corresponding to the grades scored in those courses, taken for all the courses, to the sum of the number of credits of all the courses in the semester.

$$\text{GPA} = \frac{\sum C \times GP}{\sum C}$$

CGPA will be calculated in a similar manner, considering all the courses enrolled from the first semester.

R.16.1 A student is considered to have completed a Course successfully and earned the credits if he secures a letter grade other than F or W or I in that Course.

R.16.2 A Course successfully completed cannot be repeated.

R.17.0 Method of Awarding Letter Grades.

R.17.1 A final meeting of the class committee without student members will be convened within seven days after the last day of the end-semester examination. The letter grades to be awarded to the students for different Courses will be finalized at the meeting.

R.18.0 Declaration of Results

R.18.1 After the finalization by the Class Committee the Letter Grades awarded to the students in each course of the B.Sc.,programme, will be announced by the Controller of Examinations.

R.18.2 ***The W grade once awarded stays in the record of the student and is deleted when he/she completes the course successfully later.*** The grade acquired by the student will be indicated in the grade card of the appropriate semester with an indication of the month and the year of passing of that course.

R.19.0 Re-evaluation of Answer Papers

R.19.1 In case any student feels aggrieved, he can contact the teacher concerned within three weeks from the commencement of the semester immediately following the announcement of the results. The student shall have access to his/her answer paper(s) in the end semester examination, which may be shown to him by the teacher(s) concerned. If the teacher feels that the case is genuine he may reexamine the case and forward a revised grade, if any, to the Controller of Examinations through the Chairman of the class committee with justification for the revision, with intimation to the Head of the Department.

R.20.0 Grade Sheet

R.20.1 The grade card issued by the Controller of Examinations at the end of the semester to each student will contain the following:

- a. The credits for each course registered for that semester,
- b. The letter grade obtained in each course
- c. The attendance code in each course
- d. The total number of credits earned by the student up to the end of that semester in each of the course categories
- e. The Cumulative Grade Point Average (CGPA) of all the courses taken from the third semester

R.20.2 Class/Distinction will be awarded to the students after they successfully complete the B.Sc., programme within the time duration of 6 semesters (for regular), as per norms given below.

CGPA ≥ 5 & < 6.5 - Second Class

CGPA ≥ 6.5 & < 8.0 First Class

CGPA ≥ 8.0 (without F or W or I in any Semester) First Class with Distinction

R.21.0 Eligibility for Award of the B. Sc Degree

R.21.1 A student shall be declared to be eligible for the award of the B. Sc degree if he/she has

- a. Registered and successfully completed all the courses and projects as for the curriculum.
- b. Successfully acquired the minimum required credits as specified in the curriculum corresponding to the branch of his/her study within the stipulated time duration.
- c. No disciplinary action pending against him/her.

R.22.0 Change of Regulations

R.22.1 Any regulation can be modified by the Academic Council of SRMU.

B. Sc (Physics)
(For students admitted from the academic year 2012)
Curriculum 2012
(Credit System)

OBJECTIVES :

1. To help the students to acquire experimental and technical skills for proficiency in his/her chosen career and to become self-confident, committed and adaptable graduate.
2. To provide the basis for students interested in pursuing Post graduate studies and to further acquire real insight into scientific world.
3. To prepare the students to successfully compete for employment in Electronics, Manufacturing and Teaching industry.

CURRICULUM:

Semester	Course code	Course title	L	T	P	C
I	LAT1211/LAH1111/LAF1111	Tamil/Hindi/French Paper I	4	-	-	4
	LAE1111	English Paper I	4	-	-	4
	PHY1211	Properties of Matter , Acoustics and Optics	4	-	-	4
	PHY1212	Physics Practicals I	-	-	4	2
	AMA1211	Allied Mathematics I	3	2	-	4
	CLY1211	Computer Literacy	-	-	4	2
	PDT1211	Communication Skills	-	-	2	1
	NYS1211	NSO/YOGA/NSS - I	-	-	2	0
	Total Credits					
II	LAT1221/LAH1121/LAF1121	Tamil/Hindi/French Paper II	4	-	-	4
	LAE1121	English Paper II	4	-	-	4
	PHY1221	Fundamentals of Materials Science	4	-	-	4
	PHY1222	Physics Practicals II	-	-	4	2
	AMA1221	Allied Mathematics II	3	2	-	4
	PDT1221	Soft Skills	-	-	2	1
	NYS1221	NSO/YOGA/NSS - II	-	-	2	0
	Total Credits					
III	VAC1231	C Language	2	-	2	3

	PHY1231	Heat and Thermodynamics	4	-	-	4
	VAE1231	Value Education	1	-	-	1
	PHY1232	Electricity and Magnetism	4	-	-	4
	PHY1233	Physics Practicals III	-	-	4	2
	ACH1231	Allied Chemistry I	4	-	-	4
	ACH1232	Allied Chemistry Practicals I	-	-	4	2
	Total Credits					20
IV	VAC1241	Unix	2	-	2	3
	PHY1241	Elements of Earth science	4	-	-	4
	EVS1241	Environmental Studies	3	-	-	3
	PHY1242	Classical Mechanics and Mathematical methods of Physics	4	-	-	4
	PHY1243	Physics Practicals IV	-	-	4	2
	ACH1241	Allied Chemistry II	4	-	-	4
	ACH1242	Allied Chemistry Practicals II	-	-	4	2
	Total Credits					22
V	PHY1251	Quantum Mechanics and Relativity	4	-	-	4
	PHY1252	Atomic and Nuclear Physics	4	-	-	4
	PHY1253	Analog Electronics	4	-	-	4
	PHY1254	Physics Practicals V	-	-	4	2
	PHY1255	Electronics Laboratory I	-	-	4	2
	-	Core Based Elective –I	4	-	-	4
	-	Skill Based Elective – I	4	-	-	4
	Total Credits					24
VI	PHY1261	Introduction to Nano Technology	4	-	-	4
	PHY1262	Digital Electronics and Microprocessors	4	-	-	4
	PHY1263	Laser and Spectroscopy	4	-	-	4
	PHY1264	Electronics Laboratory II	-	-	4	2
	-	Core Based Elective – II	4	-	-	4

	-	Skill Based Elective- II	4	-	-	4
	-	Core Based Project	-	-	12	6
	Total Credits					28
		Total Credits for the course				134

SUMMARY

Semester	I	II	III	IV	V	VI	Total
G	11	09	1	3	-	-	24
A	4	4	6	6	-	-	20
V	-	-	3	3	-	-	10
C	6	6	10	10	24	28	84
Total Credits	22	20	20	22	24	28	134

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF THE DEGREE: 134

- G - General Programme comprising of Foundation courses (English / Tamil / Hindi / Environmental studies/ Computer Literacy /NSO/YOGA/SMA).
- A - Allied Programme relevant to the core subject which comprises Mathematics and Chemistry;
- V- Value Added Courses
- C- Core Courses corresponding to the Branch of Studies, which will include Core Courses, course based electives, skill based electives and project work.

- **CORE BASED ELECTIVES**

- **Semester V**

- **PHC1251** - Solid State Physics
- **PHC1252** - Fundamentals of Nanoscience
- **PHC1253** - Energy Physics

- **Semester VI**

- **PHC1261** - Low Temperature Physics
- **PHC1262** - Nuclear Reactor Theory
- **PHC1263** - Plasma Physics

- **SKILL BASED ELECTIVES**

- **Semester V**

- **PHS1251** - Electrical Appliances
- **PHS1252** - Electronic Instrumentation
- **PHS1253** - Medical Physics

- **Semester VI**

- **PHS1261** - Electronic Communication
- **PHS1262** - Bio Medical Instrumentation
- **PHS1263** - Laser Technology

SYLLABUS
SEMESTER I

Course Code	Course Title	L	T	P	C
LAF1111	French	4	-	-	4

UNIT-I

12

A l'aéroport 'Kamaraj domestic' de Chennai : Pronoms sujets, interrogation – *A l'université* : Articles définis et indéfinis, gens des noms, adjectifs, présent de l'indicatif : verbes réguliers en er, être, avoir, apprendre, prépositions-à, en, au, aux.

UNIT-II

12

Au café : Adjectifs interrogatifs, présent de l'indicatif : avoir, verbes en er, savoir, négations, possessifs, qui est-ce ? Qu'est-ce que c'est ? , adjectifs possessifs, négation, adjectifs irréguliers.

UNIT-III

12

A la plage : phrases au singulier et au pluriel, pronom indéfini- on, il y a, adjectifs démonstratifs, interrogatifs, négation, présent de l'indicatif : faire, voir, aller, sortir, connaître troisième groupe verbes.

UNIT-IV

12

Un concert : présent de l'indicatif : verbes en er, venir, pouvoir, vouloir, Articles contracté avec à, chez, le futur, interrogation-est-ce que, adverbes interrogatifs- *Chez Nalli* : Adjectifs possessifs, accord de l'adjectif, Adjectifs exclamatifs, très/trop, présent de l'indicatif : acheter- regarder, Impératif.

UNIT-V

12

Nouvelles de l'Inde : Présent, verbes en -er, - ir, le futur, interrogation totale, féminin d'autres adjectifs.

REFERENCE :

“SYNCHRONIE- 1”, Méthode de français, Samhita Publications, Chennai, 2007.

Course Code	Course Title	L	T	P	C
LAE1111	English	4	-	-	4

Prose : Detailed

- | | |
|-----------------------------|------------------------|
| 1. Indian crowds | - Nirad C Chaudhorjuri |
| 2. Women not the weaker sex | - Mahatma Gandhi |
| 3. The King is dead | - Mary Coleridge |
| 4. My financial career | - Stephen Leacock |

Poetry : (Detailed)

- | | |
|--|------------------|
| 1. Prometheus Unbound | - AD Hope |
| 2. Urban | - Nissim Ezekiel |
| 3. There has been a death in the opposite home | - Emily Dicknson |
| 4. My grandmother House | - Kamala Das |

Play (Non detailed)

1. The referee
2. The Refund – Fritz Karinthy

Grammar :

1. Functional English :Tense, Parts of speech, active and passive voice, conditional clauses
2. Vocabulary : Synonyms and antonyms, Affixation, homonyms, one –word substitution
3. Composition : Report writing, writing advertisement, writing short messages, reading comprehension, note making

REFERENCES:

Compilations of prose and poetry collections

Learners high school grammar text by Prasad rao

Wrenn and Martin

Course Code	Course Title	L	T	P	C
PHY1211	Properties of Matter, Acoustics and Optics	4	-	-	4

UNIT 1 : ELASTICITY

12

Stress – Strain diagram _ Elastic Moduli, work done per unit volume in shearing strain – Relation between elastic constants – Poisson’s Ratio – Expression for poisson’s ration in terms of elastic constants – Twisting couple on a wire – Work done in twisting – Torsional pendulum – Determinaion of rigidity modulus of a wire.

UNIT II: BENDING OF BEAMS

12

Expression for bending moments – Cantilever – expression for depression - Experiment to find Young’s modulus – Cantilever oscillaion – Expression for period – Uniform bending – Expression for elevation – Experiment to find Young’s modulus using microscope – Non Uniform bending – expression for depression – Experiment to determine Young’s modulus using mirror and telescope.

UNIT III : SURFACE TESNSION AND VISCOSITY

12

Definition and dimensions of surface tension – Excess of pressure over curved surfaces – Variation of surface tension with temperature – Jaeger’s experiment. Streamlined motion – Turbulent motion – Coefficient of viscosity and its dimension – Rate of flow of liquid in a capillary tube – Poisuilles formula – experiment to determine the coefficient of viscosity of liquid.

UNIT IV :ACOUSTICS

12

Fourier’s theorem – Application to saw tooth wave and square wave, extension of range – Analysis into partial Fourier – Phonodeila. Music and noise – Characteristics of musical sound,quality of tone, consonance and dissonance – musical scale – tempered scale – decibel – noisepollution. Source in an enclosure – reverberation and time of reverberation – Sabine’s formula – Erring Formula – Optimum reverberation – measurement of reverberation time – absorption coefficient - acoustics design – Ultrasonics – production , properties and applications.

UNIT V: GEOMETRICAL OPTICS

12

Spherical aberration in lenses - Reducing Spherical aberration – Methods of minimisation - Dispersion - Angular and Chromatic dispersion - Combination of prisms to produce (i) dispersion without deviation and (ii) deviation without dispersion – Chromatic aberration - Achromatism in lenses - Achromatic combination of lenses (i) in contact and (ii) Separated by a distance.

REFERENCES:

- “Properties of matter” by Brijlal and Subramanian, S. Chand and Co, New Delhi, 2005
- “Elemental Properties of matter” by D.S.Mathur, S. Chand and Co, New Delhi, 2005
- “Text Book of sound” by L.P. Sharma, H.C.Saxena, New Age International Publishers, New Delhi, 2005

Course Code	Course Title	L	T	P	C
PHY1212	PHYSICS PRACTICAL I	-	-	4	2

LIST OF EXPERIMENTS

1. Determination of Young’s modulus – Uniform Bending
2. Determination of Young’s modulus – Non uniform bending
3. Determination of rigidity modulus using Torsional Pendulum – Without masses
4. Determination of rigidity modulus using Torsional Pendulum – With identical masses
5. Determination of dispersive power of a prism using spectrometer
6. Determination of Cauchy’s constant using spectrometer
7. Determination of Laser parameters – Laser Grating
8. Frequency of tuning fork - Sonometer
9. Determination of velocity of ultrasonic waves in liquids

REFERENCES:

- "Laboratory Experiments in College Physics", C.H. Bernard and C.D. Epp, John Wiley and Sons, Inc., New York, 1995.
- "Fundamentals of Optics", 4th Ed., F.A. Jenkins and H.E. White, McGraw-Hill Book Co., 1981.
- "Fundamentals of Physics", 6th Ed., D. Halliday, R. Resnick and J. Walker, John Wiley and Sons, Inc., New York, 2001.

Course Code	Course Title	L	T	P	C
AMA1211	Allied Mathematics 1	3	2	-	4

UNIT I : ALGEBRA

12

Partial fractions, Binomial, Exponential and logarithmic Series (Without proof), summation and approximate problems.

UNIT II : MATRICES

12

Symmetric, skew-symmetric, Hermitian, skew-Hermitian, Orthogonal, Unitary matrices, Rank – Consistency – Eigen values – Eigen vectors – Cayley – Hamilton Theorem (without roof) – Inverses.

UNIT III: THEORY OF EQUATIONS

12

Polynomial equations, irrational roots, complex roots, Reciprocal equations, Approximation of roots of a polynomial equation by Newton and Horner’s methods.

UNIT IV: DIFFERENTIAL CALUCLUS

12

nth derivatives – Leibnitz theorem – Jacobians – radius of curvature (Cartesian Coordinates) – Maxima and minima of functions of two variables.

UNIT V: TRIGONOMETRY

12

Expansions of $\sin\theta$, $\cos\theta$, $\tan\theta$,. Expansions of $\sin\theta$, $\cos\theta$, $\sin\theta\cos\theta$, Hyperbolic and inverse hyperbolic functions.

REFERENCES :

- “Ancillary Mathematics” by A. Manickavasagam Pillai and Narayanan, S. Viswanathan & Co, Chennai, 1992
- “Allied Mathematics” by A. Singaravelu, Meenakshi Traders, Chennai, 2000
- “Allied Mathematics” by P.R. Vittal, Margham Publications, Chennai, 2000.

Course Code	Course Title	L	T	P	C
CLY1211	Computer Literacy	-	-	4	2

EXPERIMENTS TO IMPLEMENT

1. Study experiment on evolution of computer programming languages
2. Suggest some of the Network Topologies that can be incorporated in your campus. Justify your choice
3. Experiments to demonstrate directory creation and file creation

4. Create a document with all formatting effects
5. Create a document with tables
6. Create labels in MS word
7. Create a document to send mails using mail merge option
8. Create an Excel File to analyze the student's performance. Create a chart for the above data to depict it diagrammatically
9. Create Excel sheet to use built-in-function
10. Create Excel sheet to maintain employee information and use this data to send mails using mail merge
11. Create a Power Point presentation for your personal profile with varying animation effects with timer
12. Consider student information system which stores student personal data, mark information and non academic details
 - * Use MS Access to create Tables and execute SQL queries to do this following
 - * Display all student records
 - * Display student details with respect to his identity
 - * Delete some records from the table
 - * Find total marks obtained by student in each list

REFERENCE:

- "Introduction to Information Technology" ITL Education Solutions Ltd., Pearson 2nd Edition, 2006

Course Code	Course Title	L	T	P	C
PDT1211	Communication Skills	-	-	2	1

LISTENING SKILL : Listening comprehension and response through various modes – face to face conversations, telephone conversations, reading out written material, audio – video recorded material, mimes.

SPEAKING SKILL : Group communication – features of an effective, fluent speech through regular practise – role play, extempore –Situational conversations – Greetings, requests, demands, instructions and enquiries.

Informal speech, facing audience – Body language – Conversion of mother tongue to English language – Pitfalls in the translation of words and essential phrases to English language through short conversations.

Formal speech, paper presentation, -essential aspects of Business communication – Address, tone, choice of words (language), style, Deciding the target audience

READING SKILL : Reading comprehension – poems, passages (stories, essays, article, reports), conversations, short messages, e-mails, formal/informal letters – purpose – Phonemic awareness,

Phonics, vocabulary development, Reading fluency, including oral reading skills, reading comprehension strategies.

WRITING SKILLS :Letter writing –Formats and language – Types – personal, business, applications, thanks, invitation, condolence, requisition, complaint – e mail etiquette.

Reports –Oral reports – Periodical report – Progress report – Field report.

Essay writing – essential elements of an essay – structure – coherence –relevance.

SEMESTER II

Course Code	Course Title	L	T	P	C
LAF1211	French	4	-	-	4

UNIT-I

12

A la gare Central Station : Pronoms compléments d'objet direct, présent : payer, partir, sortir, l'impératif expression du temps, construction avec infinitif – réserver des billets, demander des renseignements, donner des renseignements.

UNIT-II

12

Un lit dans la cuisine ! : Verbes, ranger, mettre, impératif, il faut, devoir+infinitif, prépositions de lieu- *Pierre apprend à conduire* : impératif- être, avoir, savoir- pronoms compléments d'objet indirect, le passé composé avec avoir – rassurer, exprimer l'interdiction, exprimer l'autorisation, avertir.

UNIT-III

12

Mangez-vous correctement ? : Expression de la quantité – Articles partitifs, adverbess, pronoms directs et indirects, pronom en, présent des verbes – manger, boire, offrir, prendre, la condition avec si – demander des informations sur les habitudes de quelqu'un, offrir à manger ou à boire, accepter, refuser, exprimer la certitude.

UNIT-IV

12

Ils ont eu tort tous les deux ! : Le passé composé, adverbess, mots interrogatifs - demander son chemin, indiquer le chemin à quelqu'un, reprocher/conseiller.

UNIT – V

12

Comment as-tu passé le week-end ? : Le passé composé avec être, faire du... pouvoir, vouloir – parler des activités du week-end, demander à quelqu'un de se taire.

REFERENCE :

“SYNCHRONIE- 1”, Méthode de français, Samhita Publications, Chennai, 2007.

Course Code	Course Title	L	T	P	C
LAE1121	English	4	-	-	4

Prose : (Detailed)

1. Examinations - Winston S Churchill
2. Travel by train - John Boynton Priestley
3. On not answering the telephone - W Plomer
4. The Reason - E V Lucas

Poetry (Detailed)

1. The Blindmen and the elephant - John Godfrey Saxe
2. Ode on a grecian urn - John Keats
3. On killing a tree - Gieve Patel
4. Strange meeting - Wilfred Owens

Play :

1. The Sheriffs kitchen
2. The death of an anarchist by Dario de fo

Grammar :

1. Functional english : Agreement of subject and verb, transformation of sentence, article, preposition
2. Vocabulary : Sentence formation, british and american vocabulary, fill in the blanks, choosa the appropriate words
3. Composition : Creative writing, non-verbal task, interpreting visuals, drafting posters, writing notices

REFERENCES :

Compilations of prose and poetry collections

Learners high school grammar text by Prasad rao

Wrenn and Martin

Course Code	Course Title	L	T	P	C
PHY1221	Fundamentals of Materials Science	4	-	-	4

UNIT I: CRYSTAL PHYSICS

12

Crystal directions – Planes and Miller indices – Symmetry elements – Diamond and HCP crystal structure – Polymorphism and allotropy – Reciprocal lattice – Diffraction of X-rays by crystal planes – Laue method and powder method – Imperfections in crystals

UNIT II : ELECTRONIC AND PHOTONIC MATERIALS

12

Electronic materials: Importance of Classical and Quantum free electron theory of metals – Fermi energy and Fermi Dirac distribution function – Variation of Fermi level with temperature in intrinsic and extrinsic semiconductors – Hall effect – Dilute Magnetic Semiconductors (DMS) and their applications – High temperature Superconductivity. **Photonic materials:** LED and LCD materials – Photo conducting materials – Nonlinear optical materials (elementary ideas) and their applications.

UNIT III: MAGNETIC, DIELECTRIC AND MODERN ENGINEERING MATERIALS

12

Magnetic materials: Ferrites and garnets – Magnetic bubbles and their applications – Giant Magneto Resistance (GMR) – Colossal Magneto Resistance (CMR).

Dielectric materials: Various polarization mechanisms in dielectrics (elementary ideas) and their frequency and temperature dependence – Dielectric loss – Piezo electric and ferro electric materials and their applications. **Modern engineering materials:** Shape memory alloys – Metallic glasses – Advanced ceramics and composites.

UNIT IV : BIO MATERIALS

12

Classification of biomaterials –Surface properties of fluids- Comparison of properties of some common biomaterials – Effects of physiological fluid on the properties of biomaterials – Biological responses (extra and intra vascular system) – Metallic, Ceramic and Polymeric implant materials – Introduction to bio sensors and tissue engineering.

UNIT V: NANO MATERIALS AND NANOTECHNOLOGY

12

Basic concepts of Nano science and technology – Quantum wire – Quantum well – Quantum dot – Properties and technological advantages of Nano materials – Carbon Nanotubes and applications – Material processing by Sol – Gel method, Chemical Vapour deposition and Physical Vapour deposition – Microwave Synthesis of materials – Principles of SEM, TEM and AFM .

REFERENCES:

- “*Material Science for Engineers*” by Van Vlack, L.H.,Addision Wesley, 1985.
- “*Principles of Electronic Materials and Devices*” by S.O. Kasap, , Tata McGraw Hill Edition, New Delhi, 2002.
- “*Materials Science*” by Thiruvadigal, J. D., Ponnusamy, S. and Vasuhi.P. S.,Vibrant Publications, Chennai, 2007.

Course Code	Course Title	L	T	P	C
PHY1222	Physics Practicals II	-	-	4	2

LIST OF EXPERIMENTS

1. Band gap determination using Post office box
2. Dielectric constant measurement
3. Photoconductivity measurement
4. Determination of Planks constant using LED
5. Resistivity determination for a semiconductor wafer using Four probe method
6. Determination of Hall coefficient and carrier type for a semiconductor material
7. To trace the hysteresis loop for a magnetic material
8. Magnetic susceptibility - Quincke's method
9. Determination of thermal conductivity - Lee's Disc method

REFERENCES:

- Van Vlack, L.H., *Material Science for Engineers*, 6th edition, Addison Wesley, 1985
- S.O. Kasap, *Principles of Electronic Materials and Devices*, Tata McGraw Hill Edition, New Delhi, 2002
- Thiruvadigal, J. D., Ponnusamy, S. and Vasuhi.P. S., *Materials Science*, Vibrant Publications, Chennai, 2012.

Course Code	Course Title	L	T	P	C
AMA1221	Allied Mathematics II	3	2	-	4

UNIT I: INTEGRAL CALCULAS

12

Integration of irrational and trigonometric function – Bernoulli's formula – reduction formula – $\int \sin^n x \, dx$ - $\int \cos^n x \, dx$ – properties of definite integral – valuation of double and triple integral – changing the order of integration.

UNIT II : FOURIER SERIES

12

Fourier series of periodic function on interval $[0, 2\pi]$ and $[-\pi, \pi]$

UNIT III : LAPALACE TRANSFORMS

12

Laplace transforms of standard functions – inverse transform - Solving ordinary equations using Laplace transforms (simple problems)

UNIT IV : DIFFERENTIAL EQUATIONS**12**

Second order Differential equation with constant coefficient. Partial Differential Equation: Eliminating arbitrary constants and functions – four standard types.

UNIT V : VECTOR ANALYSIS**12**

Gradient, divergence, curl, solenoidal, irrotational vectors, directional derivatives unit normal to a surface – Operator – expansion formula - line integral – Gauss, Stokes and Greens theorem (without proof) simple problems.

REFERENCES:

- “Ancillary Mathematics” by A. Manickavasagam Pillai and Narayanan, S. Viswanathan & Co, Chennai, 1992
- “Allied Mathematics” by A. Singaravelu, Meenakshi Traders, Chennai, 2000
- “Allied Mathematics” by P.R. Vittal, Margham Publications, Chennai, 2000.

Course Code	Course Title	L	T	P	C
PDT1221	Soft skills	-	-	2	1

- Self analysis
- Attitude – perceptions – Positive approach to challenges
- Change management – ideas & approach
- Goal setting
- Time management – planning
- Entrepreneurial skills – Leadership skills
- People management – team work, leadership
- Decision making – problem identification
- Interview skills – getting familiar with one’s CV – presentation and performance – giving and receiving feedback, setting expectations and exhibiting professional behaviour.