DEPARTMENT OF MATHEMATICS

B.Sc. MATHEMATICS
SYLLABUS

Choice Based Credit System

(For those who joined in June 2013 and after)
ABOUT THE COLLEGE

Vivekananda College was started by Founder-President Swamiji Chidbhovanandhaji Maharaj of Sri Ramakrishna Tapovanam, Tirupparaithurai, Trichy in 1971 on the banks of the river Vaigai which is blissfully free from the noise and hurry, the crowds and distraction of the city.

Vivekananda College is a residential college functioning under Gurukula pattern. It is Man-making education, that is imparted in this institution, Culture, character and curriculam are the three facets of ideal education that make man a better man. This is possible only when the teacher and taught live together, The Gurukula system of Training is therefore a humble and systematic attempt in reviving the age old GURUGRIHAVASA for wholesome education, Attention to physical culture, devotion to duty, obedience to teachers, hospitality to guests, zest for life, love for the nation, and above all, humility and faith in the presence of God etc. are the values sought to be inculcated. All steps are taken to ensure the required atmosphere for the ideal life training.

Vivekananda College, Tiruvedakam West, Madurai District-625 234 is an aided college established in 1971 and offers UG and PG courses. This College is affiliated to the Madurai Kamaraj University, Madurai. The College was reaccredited with ‘A’ grade (CGPA 3.59 out of 4.00) by NAAC in September 2015. The College was awarded College with Potential for Excellence by UGC in April 2016.

VISION AND MISSION

Our Vision: To raise an army of neo-graduates steeped in the hoary culture of the motherland and dedicated to serving her as potential leaders in the manifold spheres of national effort.

Our Mission: A harmonious enrichment of physical, emotional and intellectual facets of a student’s personality to bring out his inherent PERFECTION.

Objectives of the Institution

1. To inculcate spiritual, ethical, moral and social values in all disciplines of study.
2. Simultaneous education of the Hand, Heart and Head. Only a sound body can hold a sound mind.
3. Provide opportunities for all round development of the students and excellence in higher education, research and extension in different disciplines.
4. Disseminate the findings of research to the community to facilitate its development.
5. To provide society citizens of sterling character.
6. To cater to the needs of the educationally backward people – the most backward, scheduled caste and tribe.
I Eligibility for Admission

Admission to B.Sc. – Mathematics Programme is open to candidates with +2 pass with Maths, Physics, Chemistry & Biology or Computer Science as major subjects.

For B.Sc.-Mathematics course offered in the college, a pass in the Higher Secondary Examination conducted by the Government of Tamil Nadu or an examination accepted as equivalent there to by the Syndicate of the MKU, subject to such conditions as may be prescribed therefore.

II Duration

The course is for a period of three years. Each academic year shall comprise of two semesters viz. Odd and Even semesters. Odd semesters shall be from June to November and Even Semesters shall be from December to April. There shall be not less than 90 working days which shall comprise 450 teaching clock hours for each semester (Exclusive of the days for the conduct of university end-semester examinations) for each semester.

III CBCS System

All Programmes offered in the college are run on Choice Based Credit System (CBCS). It is an instructional package developed to suit the needs of students to keep pace with developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education.

IV Semesters:

An academic year is divided into two semesters. In each semester, courses are offered in 15 teaching weeks. Each week has 30 working hours spread over 6 days a week.

V Credits:

The term 'Credit' refers to the weightage given to a course, usually in relation to the instructional hours assigned to it. The total minimum credits, required for completing the B.Sc. Programme is 140. The details of credits for individual components and individual courses are given in the above table.

VI Course:

Each Course is to be designed variously under lectures / laboratory / seminar / practical training / assignments to meet effective teaching and learning needs.

VII Examinations:

i). There shall be examinations at the end of each semester, for odd semesters in the month of October / November; for even semesters in April/May. A candidate who does not pass the examination in any course(s) shall be permitted to appear in such failed course(s) in the subsequent examinations to be held in October / November or April/May.

ii). A candidate should get registered for the first semester examination. If registration is not possible owing to shortage of attendance beyond condonation limit / regulations prescribed or belated joining or on medical grounds, the candidates are permitted to move to the next semester. Such candidates shall re-do the missed semester after the completion of the programme.
**VIII Condonation**

Students must have 75% of attendance in each paper to appear for the examination. Students who have 65% to 74% of attendance shall apply for condonation in the prescribed form with the prescribed fee. Students who have 50% to 64% of attendance shall apply for condonation in prescribed form with the prescribed fee along with the Medical Certificate. Students who have below 50% of attendance are not eligible to appear for the examination. They shall compensate the shortage after the completion of the programme.

**IX Question Paper Pattern**

Time: 3 Hours  
Maximum Marks: 75

**SECTION-A (10 X 1 = 10 Marks)**  
**Answer All Questions**  
(1-5) Multiple Choice  
(6-10) Fill in the blanks  
Two questions from each unit

**SECTION-B (5 X 7 = 35 Marks)**  
**Answer All Questions**  
(11-15) Questions shall be in the format of either (a) or (b)  
One question from each unit

**SECTION-C (3 X 10 = 30 Marks)**  
**Answer any THREE Questions**  
(16-20) one question from each unit.

**X Evaluation:**

Performance of the students are evaluated objectively. Evaluation is done both internally and externally. They will be assessed continuously through Internal Assessment System and finally through summative (end) semester examination. To assess internally, there will be three examinations conducted centrally with a duration of two hours for each paper. In addition to continuous evaluation, the summative semester examination, which will be a written examination of three hours duration, would also form an integral component of the evaluation. The ratio of marks to be allotted to continuous internal assessment and to end semester examination is 25: 75.

The pattern of internal valuation shall be:  
Test: 20 Marks (the average of best two tests out of three tests)  
Assignment: 5 marks  
**Total: 25 marks.**

In respect of practical papers, the ratio of marks to be allotted to internal assessment and to summative (end) semester examination is 40:60. The internal marks will be calculated on the basis of marks secured at the model examination and marks awarded for the preparation of practical note book. The external marks will be calculated on the basis of the marks awarded by the internal examiner and the external examiner at the summative semester examination.
XI Passing Minimum:
There is no passing minimum for Internal Assessment. The passing minimum for External Examinations shall be 27 out of 75 marks and passing minimum for a paper is 40%.

XII Classification of Students:
Candidates who have secured not less than 40% of marks in each paper shall be declared to have passed in that paper. Candidates who obtain 40% and above but below 50% shall be declared to have passed in Third Class. Candidates who obtain 50% and above but below 60% of the aggregate marks in Part-III shall be declared to have passed in Second Class and those who obtain 60% of marks and above shall be placed in the First Class. Candidates who obtain 75% and above shall be declared to have passed in Distinction provided he has not re-appeared for any paper during the course of the study.

XIII Failed Candidates:
A candidate who has arrears in any paper in a semester examination will be permitted to proceed to the next semester classes. A candidate who has arrears may appear again in these failed papers at the November/April examinations. The internal assessment marks already obtained by him shall be carried over for the subsequent appearance also.

XIV Improvement of Internal Marks:
The student desirous of improving the internal assessment marks may request the Head of the Department. After obtaining permission from the Staff Council Meeting by the Head, the student may write improvement examinations in consultation with the course teacher. The marks obtained (when it is more than the previous marks) will be submitted to the Controller of Examinations for further adoption.

XV Study Tour
Students are expected to participate in the field visit and the study tours organized by the department. Though study tour/field trip carries no credit, it is compulsory for the students to attend whereby the students can get an opportunity to gain practical knowledge. As such, observational visit to selected social welfare organizations, industries, trade centres, exhibitions, places of historical importance and the like will be considered as extra-curricular activities.

DEPARTMENT OF MATHEMATICS

Vision:
To raise a battalion of maths graduates equipped with logical thinking and tender heart to serve our motherland as potential leaders in the manifold spheres of national effort.

MISSION:
Enriching the mental, emotional and intellectual facets of maths students to cope up with any career that they choose and to strive to attain perfection in life.
OBJECTIVES:
1. To develop the students’ mental faculty to appreciate and enjoy the logical reasoning and hidden connections while learning mathematics.
2. To provide ample opportunities to excel in learning mathematics so that he can shine brightly in higher education, research or career that he chooses.
3. To encourage and provide ample opportunities to the maths students to disseminate his mathematical knowledge to the younger and tender students community in rural areas.
4. To provide ample mathematically oriented activities to the students to inculcate spiritual, ethical, moral and social values so that his Hand, Heart, and Head functions inter connectedly and harmoniously.
5. In short, to provide society, citizens of sterling character with sharp intellect.

HISTORY:
Mathematics was taught as a subject in Pre–university classes from 1971 onwards – that was the year the college started functioning. Mathematics as an Ancillary subject was offered from the inception of B.Sc. Physics degree, that is from the year 1973-74. From 1980-81 onwards B.Sc Degree in Mathematics major was offered and so Mathematics department became a full-fledged one. The college became autonomous in June 1987. So the department had freedom to chart its own course. Syllabus was framed in 1987 and updated periodically to cater to the career needs of the students. But while framing and updating the syllabus, Mathematics department has always kept in mind the main stake holders are rural students. So fundamental Mathematics was always a part of the syllabus. When the need arose Computer oriented papers, Competitive mathematics, Operations research, Vedic mathematics, Value education, Environmental science etc were also incorporated in the syllabus.

The department also did not fall back in repaying its social obligations. Our students, guided by the department teachers, become resource persons to teach mathematical concepts, vedic maths, yoga etc to the school students. Learning becomes easier by laboratory activities and by building mathematical models. Our students practise this and their innovations are exhibited and explained in the three day Mathematics Exhibition for Rural Masses conducted once in 2 years. Our students are encouraged to participate enthusiastically in all the college endeavours and activities like NSS, NCC, controlling the public during functions and festival times, election duties, temple cleanliness etc.
# Scheme of Examination

(For those who joined in June 2013 and after)

## First Semester

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PART-I: Language Tamil Subject

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<th>வரலாறு பாட்டுகள் உதவுகிறது தமிழ்வழியான பாட்டுகள்</th>
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<tr>
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<td>Seasonal Marks: 25</td>
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பாட்டுகள்

1. பாரசீக கதைகள்
   1. கதை (நல்லூர் பாடல்)
   2. பாசனை கதைகள் (காரியம் பாடல்)

2. பாரசீக கதைகள்
   1. நல்லூர் பாடல்கள் (நல்லூர் பாடல்)
   2. புரோந்த கதை (நல்லூர் பாடல்)

3. கதைகள் நூற்றாண்டுகள்
   பாராட்டுகள் நன்றி உலகாண்டுப் பிராந்தியா

4. மீண்டும் தமிழ்
   கதைகள் நூற்றாண்டுப் பிராந்தியா

5. வரலாறு பேரியல் பூமிக்க
   வரலாற்றுணர்வு ஆராய்ச்சிகள்

அட்டி: 2 கதைகள் பாடல்: புரோந்தத் தமிழ்

6. கதைகள் கைவடை
7. நல்லூர் பாடல்கள் செய்ய - கதை (என்னுள்ளது தமிழ்)
8. புரோந்த பாடல்கள் - வேளுவல் (காரியம் பாடல்)
9. புரோந்தப்பாடல் - காட்சிகள் (நல்லூர் பாடல்)
10. தமிழ் கதைகள் தமிழ் - கதை (என்னுள்ளது தமிழ்)
11. நல்லூர் பாடல்கள் - வேளுவல் (காரியம் பாடல்)
12. குருசு குண்டுக்கள் - குருசைக்குறிகள்

அட்டை: 3 சுற்று தமிழக திவாசியம் - கல்வி மின்மொழித் திறன்கள் (சுற்றுக்குறிகள் குறிக்குறிகள்)

அட்டை: 4 சுற்று திறன்கள் - குருவை

1. முழு உயிரினங்கள்
2. சுருக்கி உயிரினங்கள்
3. பொருள் உயிரினங்கள்
4. பொருள் உயிரினங்கள்
5. கைந்து பொருள் நிறைந்த உயிரினங்கள்
6. கைந்து பொருள் நிறைந்த உயிரினங்கள்

அட்டை: 5 சுற்று திறன்கள் முன்னோடியம் பயணம் சுற்றுமதி

(1) 1. பொருள் திறன்கள் குறிப்பிட்டு குறிப்பிட்டு
2. பொருள் திறன்கள் குறிப்பிட்டு குறிப்பிட்டு

(2) பொருளுக்கு திறன்கள் - பொருளுக்கு திறன்கள் - பொருளுக்கு திறன்கள் - பொருளுக்கு திறன்கள்

பல்கலைகள்

1. கல்வி மின்மொழித் திறன்கள் (சுற்றுக்குறிகள் குறிக்குறிகள்)
2. கல்வி மின்மொழித் திறன்கள் (சுற்றுக்குறிகள் குறிக்குறிகள்)

பல்கலைகள்

1. பொருள் திறன்கள் (சுற்றுக்குறிகள் குறிக்குறிகள்)
2. பொருள் திறன்கள் (சுற்றுக்குறிகள் குறிக்குறிகள்)
3. கைந்து பொருள் நிறைந்த உயிரினங்கள் - கைந்து பொருள் நிறைந்த உயிரினங்கள்
4. கைந்து பொருள் நிறைந்த உயிரினங்கள் - கைந்து பொருள் நிறைந்த உயிரினங்கள்
DEPARTMENT OF SANSKRIT
B.A. / B.Sc. PART-I – LANGUAGE SANSKRIT SYLLABUS: SEMESTER – I:

PAPER – I
(For those who join in June 2017 and After)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title: Fundamental Grammar &amp; History of Sanskrit Literature – I</th>
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<tbody>
<tr>
<td>Subject Code: PILS11</td>
<td>Hours per week: 6</td>
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<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
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FUNDAMENTAL GRAMMAR & HISTORY OF SANSKRIT LITERATURE -I

Following portions for Grammar:
Declension of the following nouns and pronouns:
UNIT-I  Akārānta Mascular, Ākārānta Faminine & Akārānta Neuter.
Asmad and Yuṣmdad šabdās
Conjugation of the following verbs in present, past & future tense
Bhav, paṭḥ, Vad, Gacch, Vas, Driś (Paś), Kṛṣṇ Dhāv
UNIT-II & III History of Sanskrit Literature:

a) Vedas and Purāṇās
b) Itihāsa
c) Court Epics – Mahākāvyas

UNIT –IV
Translation:

a) From Sanskrit to English:
Passages exercises 2, 3 and 4 from the prescribed texts.

b) From English to Sanskrit:
Passages exercises 1, 2 and 3 from the prescribed texts.
UNIT – V. Transliteration
a) Devanaagari to IPS. b) IPS to Devanaagari
Prescribed text: “SĀHITYA RASAKANĀI”
(Published by A.M.G. Publications, Madurai – 625 016)
Sanskrita Sri Patamala Book 1: Publication: Sanskrit Educational Society,
Madras – 18.
A short history of Sanskrit Literature (Published by A.M.G. Publications,
Madurai – 625 016) year of publication- 1996
Department of English (Part II) - SEMESTER I
(For those who joined in June 2017 and after)

<table>
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<th>PART II – Paper I</th>
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<td>Subject: Communicative English</td>
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<td>Subject Code: P2LE11</td>
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<td>Sessional Marks: 25</td>
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Objectives: Total number of hours per semester: 75 Hrs

- To develop listening and speaking skills
- To increase the vocabulary of students
- To improve reading skills
- To develop competency in grammar
- To develop continuous writing

Unit – I - Listening, Speaking and Reading Components 15 Hrs
1. Rabindranath Tagore – Cabuliwallah
2. Khushwant Singh – Karma
3. R.K. Narayan – Sweets for Angels
4. K.A. Abbas – Sparrows

Unit – II 15 Hrs
- Sentences, Clauses, and Phrases
- Pronouns
- Adjectives
- Some Common Adjectives and Adverbs
- Parts of Speech
- Determiners
- Verbs
- Nouns
- Articles
- Adverbs

Unit – III Composition 15 Hrs
- Letter writing – Formal Letters & Informal Letters
- Descriptive Writing – General topics (Paragraph)

Unit – IV - Extensive Reading: Short Stories 15 Hrs
- Young Naren - by Brahmachari Amal.
  [From “A Simple life of Swami Vivekananda” Advaita Ashrama, Kolkata]
- A Story of Initiation - by Sri Aurobindo Society.
  From “Stories and Anecdotes from the Mother” Pondicherry.
- Glory At Twilight - Bhabani Bhattacharya
- The Martyr’s Corner - R.K. Narayan

Unit – V - Translation 15 Hrs
Translation of Sentences and Stories from Tamil to English / English to Tamil
(Passages will be supplied)

Reference Book:
B.Sc. Mathematics CBCS Syllabus - SEMESTER – I
(For those who joined in June 2013 and after)

**PART – III : Core Subject Theory**
Subject Title: **Algebra and Trigonometry**

<table>
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<th>Hours per week: 5</th>
<th>Credit: 4</th>
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<td>Total Marks: 100</td>
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**Objective:**

❖ To develop the skill in basic Mathematics.

**Algebra**

**Unit – I:**

**Unit – II:**
Reciprocal equations – synthetic division – decreasing and increasing the roots – removal of terms – to form an equation whose roots are any power of the roots– transformation in general.

**Unit – III:**
Descarte’s rule of signs – Rolle’s Theorem – multiple roots– finding approximate root using Horner’s method

**Trigonometry**

**Unit – IV:**

**Unit – V:**
Logarithm of complex numbers – summation of series: (C+iS method only)

**Text book:**


✔ Trigonometry by T.K.Manicavachagompillai, Viswanathan, printers and publishers Pvt. Ltd., Chennai. For units IV, V - relevent chapters.

**Reference Book:**

✔ Algebra by Dr. S. Arumugam, New gamma Publishing House, Palayankottai

✔ Trigonometry by Dr. S. Arumugam & Thangapandi Issac, New gamma Publishing House, Palayankottai.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – I
(For those who joined in June 2013 and After)

| PART – III : Core Subject Theory |  
|---------------------------------|---------------------------------|
| Subject Code: **05CT12** | Hours per week: **5**  
| Credit: **4** | Sessional Marks: **25**  
| Summative Marks: **75** | Total Marks: **100**  

**Objective:**

❖ To develop the skill in Solving problems

**Unit-I:**

Methods of differentiation: standard forms – differential coefficient of \( x^n \), \( e^x \), \( \log x \), \( \sin x \), \( \cos x \), \( \tan x \), (derivations not included) – differential coefficient of a sum or difference – product rule – quotient rule – function of a function rule – inverse functions – hyperbolic functions – inverse hyperbolic functions – logarithmic differentiation – trigonometrical transformations – differentiation of implicit function – differentiation of one function w.r.t. another function.

**Unit-II:**

Successive differentiation – the \( n^{th} \) derivative – standard results – formation of equation involving derivatives – Leibnitz formula for the \( n^{th} \) derivative of a product and related problems

**Unit-III:**


**Unit-IV:**

Curvature – circle, radius and centre of curvature – cartesian formula for the radius of curvature – the coordinates of centre of curvature – evolute and involute – radius of curvature when the curve is given in polar co-ordinates – pedal equation of a curve – chord of curvature.

**Unit-V:**


**Text Book:**


**Reference Book:**

✓ Calculus by Dr. S.Arumugam, New Gamma publishing house, Palayamkottai.
PART – III : Allied Subject

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<td>Sessional Marks: 25</td>
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Objectives:
- To learn about acoustics of buildings.
- To know about elasticity, viscosity and Surface tension.
- To get a knowledge in electricity and magnetism.
- To provide a good foundation in optics.

UNIT I: Waves and Oscillations


UNIT II: Properties of Matter


Viscosity: Streamline flow and turbulent flow – Coefficient of viscosity – Derivation of Poiseulle’s formula.


UNIT III: Thermal Physics


Unit IV: Electricity and Magnetism


Unit V: Geometrical Optics

Text Book:

  - Unit I: 1.1 to 1.3, 1.9, 1.11 to 1.19.
  - Unit II: 2.1 to 2.7, 2.12, 2.14, 2.15, 2.17, 2.24, 2.29
  - Unit III: 3.15 to 3.21
  - Unit IV: 4.1, 4.4 to 4.6, 4.15 to 4.20
  - Unit V: 5.1, 5.2, 5.4, 5.6, 5.14, 5.16, 5.18 to 5.20, 5.22, 5.27

Reference Books:

- Electricity and Magnetism by R. Murugeshan - Reprint with correction 2008.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – I
(For those who joined in June 2013 and After)

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<th>PART – IV : Non Major Elective</th>
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</tbody>
</table>

**Objective:**

- To develop the skill in Basic Mathematics.

**Unit-I**

Theory of indices – ratio and proportion.

**Unit-II**

Distance between two points – equation of a line – different forms [except normal form].

**Unit-III**

Theory of matrices – addition and multiplication of two matrices.

**Unit-IV**

Finding the \( n^{th} \) term and the sum to \( n \) terms of an A.P and G.P – arithmetic mean and geometric mean.

**Unit-V**

Solving the quadratic equations – finding the roots – forming the equation when the roots are given (only second degree).

**Text Book:**

- Business mathematics by Dr.M.Manoharan & Dr.C.Elango Palani Paramount publications, Palani.2006 Edt.

**Reference Book**

- Business Mahtematics by Dr.V.R.Vittal, Margham publications Chennai.
PART-I: Language Tamil Subject

| Subject Title: விளக்கச் செயல் தமிழ்மொழியில் வீரர் தமிழ்மொழியில் - எண்: 2 |
|------------------|------------------|------------------|
| Subject Code: PILT21 | Hours per week: 6 | Credit: 3       |
| Seasonal Marks: 25  | Summative marks: 75 | Total Marks: 100 |

	

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<tr>
<td>அட்டம் 3</td>
<td>வீரர்கள் தமிழ்மொழியில் - பார்வேயில் செயல்கள்</td>
</tr>
<tr>
<td>அட்டம் 4</td>
<td>வீரர்கள் தமிழ்மொழியில் - வேலை</td>
</tr>
<tr>
<td>அட்டம் 5</td>
<td>வீரர்கள் விளக்கச் செயல் தமிழ்மொழியில் - பார்வேயில் செயல்கள்</td>
</tr>
</tbody>
</table>

மாணவக்கை

1. மாணவர்கள் புதியபொழுது அறிவுகள் (பாதக கு. தியானா)
2. மாணவர்கள் வீரர்கள் பதித்து வேலை (க. ருஷ்யீசியம்)
3. விளக்கச் செயல் காலம் (பாதக பெருந்தெரு)
4. வீரர்கள் விளக்கச் செயல் தமிழ்மொழியில் (பாதக பெருந்தெரு)
2. ग्रन्थार्थ (पारिभाषिक)
3. ग्रन्थार्थ (लालेज विनिर्देशकान्तकारी)
4. ग्रन्थार्थ मा अवतारण (लालेज अविकल्पी गौतम)
5. द्वारिक प्रमोद अवलोकन (लालेज जी.वी.नरसिंह)

DEPARTMENT OF SANSKRIT
B.A. / B.Sc. PART-I –LANGUAGE SANSKRIT SYLLABUS: SEMESTER – II:
PAPER – II
(For those who join in June 2017 and After)

<table>
<thead>
<tr>
<th>Subject Title</th>
<th>Poetry Grammar &amp; History of Sanskrit Literature – II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code</td>
<td>P1LS21</td>
</tr>
<tr>
<td>Hours per week</td>
<td>6</td>
</tr>
<tr>
<td>Credit</td>
<td>3</td>
</tr>
<tr>
<td>Sessional Marks</td>
<td>25</td>
</tr>
<tr>
<td>Summative Marks</td>
<td>75</td>
</tr>
<tr>
<td>Total Marks</td>
<td>100</td>
</tr>
</tbody>
</table>

POETRY

Selected portions from the prescribed text: Kalividambanam & Sabhārañjanaśatakam

- Published by SADGUNA PUBLICATIONS

Kalividambanam

Cidambaram (TN)

Unit I. scholars and Teachers Verse No. 1-10,

Unit II. Astrologers & Physicians V. 14-30

Unit III. Relatives & Pseudo monks Vv. 41-50, 84-93.

Sabhārañjanaśatakam

Unit IV Wisdom and it’s acquisition Vv. 1-12


Prescribed text:
LYRICS & CHAMPU KAVYAS
A short history of Sanskrit Literature
(Published by A.M.G. Publications, Madurai – 625 016 Page No. 51 – 60, 42 – 45)
year of publication- 1996

Kalividambanam & Sabhārañjanaśatakam
Published by SADGUNA PUBLICATIONS
B.Sc. Mathematics Part-II English CBCS Syllabus - SEMESTER – II
(For those who join in June 2015 onwards)

<table>
<thead>
<tr>
<th>PART II – Paper I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title: Functional English</td>
</tr>
<tr>
<td>Subject Code: P2LE21</td>
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<tr>
<td>Sessional Marks: 25</td>
</tr>
</tbody>
</table>

Objectives: Total number of hours per semester: 75 Hrs

- To develop listening, speaking and reading skills
- To develop Information and Communication Technology (ICT) skills
- To develop presentation skills
- To develop competency in grammar

Unit – I Listening, Speaking and Reading Components 15 Hrs

Prose
1. My Visions for India - A.P.J. Abdul Kalam
2. Mahatma Gandhi - V.S. Srinivasa Sastri
3. The Secret of Work - Swami Vivekananda
4. The Golden Age of Cricket - Neville Cardus
5. Tree Speaks - C. Rajagopalachari

Unit – II Language Study 15 Hrs

- Tenses and Their Uses
- Concord or Agreement
- Conditional Sentences
- Active and Passive Voice
- Preposition


Unit – III Composition 15 Hrs

- Letter writing – Informal Letters
- Hints Development
- Descriptive Writing

Unit – IV Extensive Reading: Short Stories 15 Hrs

Extensive Reading
1. Upper Division Love - Manohar Malgonkar
2. The Tiger in the Tunnel - Ruskin Bond
3. A Devoted Son - Anitha Desai
4. The Lost Child - Mulk Raj Anand
5. The Cask of Amantilado - Edgar Allan Poe
Unit – V Translation  
• Translation of Sentences and Stories from Tamil to English/English to Tamil (Passages will be supplied)

B.Sc. Mathematics CBCS Syllabus - SEMESTER – II
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Core Subject Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject Code:</strong> 05CT21</td>
</tr>
<tr>
<td><strong>Sessional Marks:</strong> 25</td>
</tr>
</tbody>
</table>

**Objective:**

- To develop the skill of solving problems.

**Unit-I:**
Integration – introduction – definite integral – methods of integration – integral of function containing linear function of x – integrals of the form \( \int F[f(x)] f'(x)dx \) – integration of rational, irrational and algebraic functions.

**Unit-II:**
Properties of definite integrals – integration by parts – reduction formulae: for integrands \( x^n e^{ax}, x^n \cos ax, \sin^n x, \cos^n x, \sin^m x, \cos^m x, \tan^n x, \cot^n x, \sec^n x, \cosec^n x \).

**Unit – III**

**Unit – IV**

**Unit -V**
Fourier series – definition – even and odd functions – expanding f(x) as Fourier series in (- \( \pi, \pi \)), (0, 2\( \pi \)) – half range series – development of cosine and sine series – change of interval – expanding f(x) as fourier series in (-\( l, l \)), (0, 2\( l \)) and (0, \( l \)).

**Text Book:**

**Reference Book:**
- Calculus by Dr.S.Arumugam New Gamma Publishing House, Palayamkottai.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – II
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Core Subject Theory</th>
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<tbody>
<tr>
<td>Subject Title: Analytical Geometry (3D) and Vector Calculus</td>
</tr>
<tr>
<td>Subject Code: 05CT22</td>
</tr>
<tr>
<td>Sessional Marks: 25</td>
</tr>
</tbody>
</table>

Objective:

❖ To develop the skill in solving problems.

Unit I – Coordinate system and planes – rectangular cartesian coordinates – direction cosines – direction ratios – angle between two lines – condition for parallelism and perpendicularity – planes – equation of a plane – different forms – general form, three point form; intercept form, normal form – angle between two planes – length of the perpendicular from a point to a plane – angle bisectors of two planes.

Unit – II Straight line – equation of a straight line-different forms – non-symmetric form, symmetric form, two point form – a plane and a line – coplanar lines – condition for coplanarity – angle between a line and a plane – equation of a plane containing two lines – length of the perpendicular from a point to a line – skew lines – shortest distance between two skew lines.

Unit – III The Sphere – equation of a sphere – different forms – centre radius form, diameter form – tangent line and tangent plane – angle of intersection of two spheres – section of a sphere.


Unit – V Line and surface integrals – vector integration – line integrals – work done by a force – surface integrals – integral theorems – Green’s theorem in plane, Stoke’s theorem, Gauss divergence theorem (Statements only, without proof) – verification of these theorems – simple problems.

Text Book:


Reference book:

✓ Analytical Geometry 3D and Vector Calculus by S.Arumugam and
B.Sc. Mathematics (Allied Physics) CBCS Syllabus - SEMESTER – II
(For those who joined in June 2016 and after)

<table>
<thead>
<tr>
<th>PART – III : Allied Subject</th>
</tr>
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<tbody>
<tr>
<td>Subject Title: <strong>Ancillary Physics – II</strong></td>
</tr>
</tbody>
</table>

| Subject Code: **06AT02** | Hours per week: **4** | Credit: **4** |
| Sessional Marks: **25** | Summative Marks: **75** | Total Marks: **100** |

Objectives:
- To learn about Atomic and nuclear physics
- To know about elements of relativity
- To get a knowledge in electronics

**UNIT I: PHYSICAL OPTICS**

**UNIT II: ATOMIC PHYSICS**
Vector atom model – Quantum numbers associated with the vector atom model – the Pauli’s exclusion principle – magnetic dipole moment due to spin – the stern and gerlach experiment.

**Unit III: NUCLEAR PHYSICS:**

**UNIT IV: ELEMENTS OF RELATIVITY**

**UNIT V: ELECTRONICS**
Light Emitting Diode (LED) – Zener Diode – experiment to study the characteristics of the zener diode – zener diode as voltage regulator – Logic Gates – AND gate – OR gate – the NOT gate – the NAND gate –NAND gate is a universal gate- the NOR gate –NOR gate is universal gate – Boolean algebra – Postulates and theorem of Boolean algebra – De Morgan’s theorem.

**Text Book:**
  
  Unit I: 6.2 to 6.4, 6.8, 6.10, 6.12, 6.14, 6.19, 6.20
  Unit II: 7.1, 7.2, 7.4, 7.7, 7.8
  Unit III: 8.1, 8.3, 8.4, 8.6, 8.8, 8.9, 8.12, 8.13, 8.14
  Unit IV: 10.1 to 10.4, 10.11 to 10.21
  Unit V: 9.1 to 9.7, 9.9

Reference Books:
✓ Electricity and Magnetism by R. Murugesan - Reprint with correction 2008.

B.Sc. Mathematics (Allied Physics) CBCS Syllabus - Semester II
(For those who joined in June 2016 and after)

<table>
<thead>
<tr>
<th>PART – III : Allied Physics Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code: <strong>06AP03</strong></td>
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<tr>
<td>Sessional Marks: <strong>40</strong></td>
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</tbody>
</table>

List of Experiments
(Any fourteen experiments)

1. Non-Uniform Bending – Pin and Microscope
2. Non-Uniform Bending – Optic lever
3. Uniform Bending – Pin and Microscope
4. Uniform Bending – Optic lever
5. Compound Pendulum
6. Torsion Pendulum
7. Sonometer – Verification of Laws (1st law & 2nd law)
8. Viscosity by Stoke’s method
9. Newton’s rings – Determination of Radius of curvature
10. Air wedge – Thickness of a paper
11. Spectrometer – Refractive Index
12. Spectrometer – Grating -Normal incidence
13. Carey Foster Bridge
14. Diode Characteristics
15. Zener Diode Characteristics
16. Logic Gates – AND, OR, NOT

B.Sc. Mathematics CBCS Syllabus - SEMESTER – II
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>Subject Title</th>
<th>Statistics and Operations Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code</td>
<td>05NE21</td>
</tr>
<tr>
<td>Hours per week</td>
<td>2</td>
</tr>
<tr>
<td>Credit</td>
<td>2</td>
</tr>
<tr>
<td>Sessional Marks</td>
<td>25</td>
</tr>
<tr>
<td>Summative Marks</td>
<td>75</td>
</tr>
<tr>
<td>Total Marks</td>
<td>100</td>
</tr>
</tbody>
</table>

Objective:

- To develop the skill in solving problems.

Unit-I: Averages – mean, median, mode.

Unit-II: Deviation – quartile deviation – standard deviation.

Unit-III: Graphical solution of a L.P.P.

Unit-IV: Transportation problem.

Unit-V: Assignment problem.

Text Book:

Reference Books:
PART-I: Language Tamil Subject

<table>
<thead>
<tr>
<th>Subject Title:</th>
<th>Language Tamil Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code:</td>
<td>PILT31</td>
</tr>
<tr>
<td>Hours per week:</td>
<td>6</td>
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<td>Credit:</td>
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<td>Summative marks:</td>
<td>75</td>
</tr>
<tr>
<td>Total Marks:</td>
<td>100</td>
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</table>

\[PART-2: \text{Language Tamil Subject}\]

\[PART-3: \text{Language Tamil Subject}\]

\[PART-4: \text{Language Tamil Subject}\]

\[PART-5: \text{Language Tamil Subject}\]
2. ஐலாகம் - கூற்றாக்கம் தொகுத்தாக்கம் அடைய (பாதையால் பட்டிச்செய்கின்றது).

பகுதி ராணிகள்

1. குறுக்கு சிறகியம் அவர்களுக்கு (பாதையால் பட்டிச்செய்கின்றது)
2. குறுக்கு சிறகியம் அவர்களுக்கு (பாதையால் பட்டிச்செய்கின்றது)
DEPARTMENT OF SANSKRIT

B.A. / B.Sc. PART-I –LANGUAGE SANSKRIT SYLLABUS: SEMESTER – III:
PAPER – III
(For those who join in June 2017 and After)

| PART – I Sanskrit Paper III                                                                 |
|-----------------------------------------------|-----------------------------------------------|
| Subject Title: Prose, Poetics & History of Sanskrit Literature – III                     |
| Subject Code: PILS31                        | Hours per week: 6                             |
| Sessional Marks: 25                        | Credit: 3                                     |
| Summative Marks: 75                        | Total Marks: 100                              |

PROSE
Following portions from the prescribed text: ‘SAHITYA RASA KANA’
- Published by J.M. Publications, Madurai.

UNIT I & II
1. Gurubhakti
2. Mātaṅgacaritam
3. Samsargajādoṣagunuḥ bhavanti
4. Akarnahrudayo gardabhaḥ
5. Śukanāsopadesaḥ

POETICS

UNIT III & IV

ALAṆKĀRA (POETICS) FROM THE TEXT BOOK: SĀHITYA RASAKANĀḤ:-

UPAMĀ, ANANVAYA, UTPREKṢĀ, ATIŚAYOKTI, ULLEKḤĀ, VYATIREKA, SAMĀSOKTI, ŚLEṢA, ARTHĀNTARANYĀSA.

HISTORY OF LITERATURE

UNIT V
Prose Romance,
Historical Kavyas, Popular Tales.

Prescribed text:
A short history of Sanskrit Literature
(Published by A.M.G. Publications, Madurai – 625 016, Page No. 35 – 40, 40 – 44, 45 - 50) year of publication- 1996
Department of English (Part II) - SEMESTER III
(For those who join in June 2017 and after)

<table>
<thead>
<tr>
<th>PART II – Paper I</th>
</tr>
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<tbody>
<tr>
<td>Subject Title:</td>
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<tr>
<td>Subject Code:</td>
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<td>Credit:</td>
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<tr>
<td>Sessional Marks:</td>
</tr>
<tr>
<td>Summative Marks:</td>
</tr>
<tr>
<td>Total Marks:</td>
</tr>
</tbody>
</table>

Objectives:

- To make students read and appreciate English Plays
- To make students appreciate English poetry
- To motivate students to face Competitive Examinations
- To develop continuous writing in English
- To make students read extensively

Unit I – One Act Plays

1. The First and the Last - John Galsworthy
2. Remember Caesar - G.Devoit
3. The Sheriff’s Kitchen - Ronald Gow
4. The Boatswain’s Mate - W.W.Jacobs and H.C. Sargent

Unit II – Poems

1. Githanjali (Poem 50) - Rabindranath Tagore
2. The Earthen Goblet - Harindranath Chattopadhyaya
3. La Belle Dame sans Mercy - John Keats
4. Fidelity - William Wordsworth
5. The Tiger and the Deer - Sri Aurobindo

Unit - III     Objective English

- Comprehension
- Spotting the Errors
- Sentence rearrangement
- Sentence Fillers
- Cloze test or Numbered Gaps


Unit – IV Composition

- Dialogue Writing
- Paragraph Writing

Unit – V Intensive Reading (Great Speeches)

Swami Vivekananda – Addresses at the Parliament of Religions
1. Response to Welcome,
2. Why We Disagree,
3. Religion Not the Crying Need of India,
4. Paper on Hinduism,
5. Address at the Final Session

Text: Swami Vivekananda’s Chicago Address, Ramakrishna Tapovanam Printing School.
Part – III : Core Subject Theory

<table>
<thead>
<tr>
<th>Subject Title</th>
<th>Sub. Code: 05CT31</th>
<th>Hours per week: 5</th>
<th>Credit: 4</th>
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<tbody>
<tr>
<td>Differential Equations</td>
<td></td>
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<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
<td></td>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

5 Hours / Week

Objective:

❖ To develop the skill in solving differential equations.

UNIT I


UNIT II

Linear differential equations with constant coefficients – particular integrals of functions of the form $e^{ax}$, $\cos ax$, $\sin ax$, $x^m$, $e^{ax}$ – equations with variable coefficients – equations reducible to the linear homogenous equations.

UNIT III


UNIT IV

Laplace transformations – the inverse Laplace transformations – solving differential equations using Laplace transformations.

UNIT V


Text Book:


Reference Book:

✔ Differential equations, by Dr.S.Arumugam, New Gamma Publishing House, Palayamkottai.
Part – III : Core Subject Theory

Subject Title: Numerical Methods

<table>
<thead>
<tr>
<th>Sub. Code: 05CT32</th>
<th>Hours per week: 6</th>
<th>Credit: 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

Objective:

- To develop the skill of solving problems.

UNIT I


UNIT II


UNIT-III


UNIT-IV


UNIT-V


Text Books

- Numerical Analysis, by Dr. S. Arumugam, Prof. A. Thangapandi Issac and Dr. A. Somasundaram. New Gamma Publishing House, Palayamkottai.

Reference Book

- Numerical Methods, by A. Singaravelu, Meenakshi Agency – Chennai.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – III
(For those who joined in June 2013 and after)

Part – III : Allied Subject Theory

<table>
<thead>
<tr>
<th>Subject Code: 05AT31</th>
<th>Hours per week: 4</th>
<th>Credit: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

Objectives:

- To understand the theory of Computers.
- To develop the skill in writing Programmes.

UNIT I:


UNIT II:


UNIT III:

Arrays – one, two and multi-dimensional arrays – string handling – reading, writing, comparison and concatenation of strings – table of strings.

UNIT IV:


UNIT V:

Pointers – accessing address of a variable – pointer expressions – pointers and scale factors – pointers in arrays, strings, functions and structures – files – opening and closing a file – input/output operations on files – random access to files.

Text book:


Reference Book:

B.Sc. Mathematics CBCS Syllabus - SEMESTER – III
(For those who joined in June 2013 and after)

PART – III : Allied Subject Practical

<table>
<thead>
<tr>
<th>Subject Title</th>
<th>Practical: Programming in C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code:</td>
<td>05AP32</td>
</tr>
<tr>
<td>Hours per week:</td>
<td>2</td>
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<tr>
<td>Sessional Marks:</td>
<td>40</td>
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<tr>
<td>Summative Marks:</td>
<td>60</td>
</tr>
<tr>
<td>Total Marks:</td>
<td>100</td>
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</tbody>
</table>

List of Problems for Lab

Programming in C: Practical

1. Program to calculate the area of a triangle.
2. Program to find whether the given number is odd or even using ‘if...else...’ statement.
3. Program to find the biggest among three given numbers using ‘nested if’ statement.
4. Program to sum the digits of a given number.
5. Program to reverse a number using ‘while’ loop.
6. Program to check whether the given number is prime or not using ‘for’ loop.
7. Program to prepare students mark statement.
8. Program to sum the series (1+2+3+......+ n)
9. Program to sum the series (1/1+1/2+1/3+....+1/n)
10. Program to generate Fibonacci series.
11. Program to sort an array in ascending order using one dimensional array.
12. Program to sort an array in descending order using one dimensional array.
13. Program to add two matrices using two dimensional arrays.
14. Program to multiply two matrices using two dimensional arrays.
15. Program to calculate the factorial value of a number using recursive function.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – III
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>Part – IV : Skill Based Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title : <strong>Mathematical Logic</strong></td>
</tr>
<tr>
<td>Sub. Code: <strong>05SB31</strong></td>
</tr>
<tr>
<td>Sessional Marks: <strong>25</strong></td>
</tr>
</tbody>
</table>

**Objective:**

- To develop the knowledge in logic.

**UNIT I**

Introduction – statements and notations – connectives

**UNIT II**

Statement formulae – well formed formulae

**UNIT III**

Tautology

**UNIT IV**

Equivalence of formula – truth table method – replacement process

**UNIT V**

Law of duality – tautological implications

**Text Book**

- Discrete Structures and Graph Theory by Gajavelli. S.S. Bhisma Rao, Scitech Publications (India) Ltd. Chennai-600 017

**Reference Book**

- Discrete Mathematics by Dr.M.K.Venkataraman, Dr.N.Chandra Sekaran, Dr.N.Sridharan, the National Publishing Company Chennai.2003-Edition
PART-I: Language Tamil Subject

| Subject Title: மாண்டையிய தமிழ் சொக்குரோக்கு எழுத்துப் பாடல் - வகுப்பு: 4 |
|-------------------------------|-----------------|-----------------|-----------------|
| Subject Code: PILT41          | Hours per week: 6 | Credit: 3       |
| Seasonal Marks: 25            | Summative marks: 75 | Total Marks: 100 |

பாண்டுரும்-

1. பழுப்பு வாரம் தினசரி பொருள் (பொழுதுவரியாலும்)
2. பழுப்பு வாரம் தினசரி (சூறுசநான்கரால்)
3. பழுப்பு வாரம் தினசரி
4. பழுப்பு வாரம்
5. பழுப்பு வாரம் வருமானப் பாடல்விளம்பிப்பு.

பாண்டுரும் எழுத்தைகள்

1. பழுப்பு வாரம் தினசரி பொருள் (பொழுதுவரியாலும்)
2. பழுப்பு வாரம் தினசரி (சூறுசநான்கரால்)
3. பழுப்பு வாரம் தினசரிக் குறிப்பு
4. பழுப்பு வாரம்
5. பழுப்பு வாரம் வருமானப் பாடல்விளம்பிப்பு.

பாண்டுரும் எழுத்தைகள்

1. பழுப்பு வாரம் தினசரிக் குறிப்பு (சூறுசநான்கரால்)
2. பழுப்பு வாரம் தினசரிக் குறிப்பு (சூறுசநான்கரால்)
3. பழுப்பு வாரம் தினசரி (சூறுசநான்கரால்)
4. பழுப்பு வாரம்

5. பழுப்பு வாரம் வருமானப் பாடல்விளம்பிப்பு.

ஆ) 1. மாண்டையிய தமிழ் எழுத்து

ஆ) 1. பழுப்பு வாரம் தினசரிக்
2. பழுப்பு வாரம்

மாண்டையிய எழுத்து
1. Kāṇabhāra of Bhāsa

Unit IV
History of Drama Literature
A short history of Sanskrit Literature

(Published by A.M.G. Publications, Madurai – 625 016
Page No. 59 – 75) year of publication- 1996

Unit V
30 HOURS OF ORAL TRAINING DEVELOPING THE COMMUNICATION SKILLS THROUGH THE SANSKRIT LANGUAGE.
Department of English (Part –II) - SEMESTER – IV
(For those who join in June 2015 onwards)

<table>
<thead>
<tr>
<th>PART II – Paper I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title:</td>
</tr>
<tr>
<td>Subject Code:</td>
</tr>
<tr>
<td>Hours per week:</td>
</tr>
<tr>
<td>Credit:</td>
</tr>
<tr>
<td>Sessional Marks:</td>
</tr>
<tr>
<td>Summative Marks:</td>
</tr>
<tr>
<td>Total Marks:</td>
</tr>
</tbody>
</table>

Objectives: Total number of hours per semester: 60 hours

- To motivate students to read and understand English prose
- To make students appreciate English poetry
- To enable students to face Competitive Examinations in English
- To develop continuous writing of the students
- To make students read extensively.

Unit I - Prose
1. Building Self Confidence - by Norman Vincent Peale (Personality Development)
   From, English for Enrichment, Edited by Prof. K. Chellappan.
2. Sport- A Modern Hunting Ritual - by Desmond Morris (Essay),
   From, English for Enrichment, Edited by Prof. K. Chellappan.
3. The Soft Thunder of Lumbini - by Hugh and Colleen,
   (A travelogue Feature in a Newspaper)
   From, English for Enrichment, Edited by Prof. K. Chellappan.
4. She is Dancing Back in Life - by Deborah Cowley (A True Life Story)
   From, English for Enrichment, Edited by Prof. K. Chellappan.
5. Within Without - Rabindranath Tagore.

Unit II – Poems
1. Kali the Mother - Swami Vivekananda
2. Lochinvar - Walter Scott
3. Yossouf - James Russell Lowell
4. The Daffodils - William Wordsworth
5. Much Madness - Emily Dickinson
6. The Woman Who is ……(XCII) - Kabir Das
7. Stopping by Woods on a Snowy Evening - Robert Frost

Unit III - Objective English
- Sentence Completion
- Synonyms
- Antonyms
➢ Idioms and Phrases
➢ Substitution


Unit IV - Composition

➢ Descriptive writing - Topics on Personal Experience
➢ Resume Preparation
➢ SMS and E-Mail Preparation and sending.

Unit V Extensive Reading: Four Scenes from Shakespeare’s plays.

B.Sc. Mathematics CBCS Syllabus - SEMESTER – IV
(For those who joined in June 2013 and After)

<table>
<thead>
<tr>
<th>Part – III : Core Subject Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title : <strong>Sequences and Series</strong></td>
</tr>
<tr>
<td>Sub. Code: <strong>05CT41</strong></td>
</tr>
<tr>
<td>Sessional Marks: <strong>25</strong></td>
</tr>
</tbody>
</table>

**Objective:**

❖ *To develop the skill of solving problems.*

**UNIT I:**


**UNIT II:**


**UNIT III:**

Cauchy’s first limit theorem – Cesaro’s theorem – Cauchy’s second limit theorem – subsequences – limit points – Cauchy sequences (upper and lower limit of a sequence not included).

**UNIT IV:**

Series of positive terms – convergence – Cauchy’s general principle of convergence – comparison test, Kummer’s test, D-Alembert’s ratio test, Gauss’ test, Cauchy’s root test, Raabe’s test, Cauchy’s condensation test (proofs of tests not included) – simple problems.

**UNIT V:**


**Text Book:**

✔ Sequences and Series by Dr. S. Arumugam. New Gamma Publishing House, Palayamkottai.
Reference Book:


B.Sc. Mathematics CBCS Syllabus - SEMESTER – IV
(For those who joined in June 2013 and After)

<table>
<thead>
<tr>
<th>Part – III : Core Subject Theory</th>
<th>Subject Title : Dynamics</th>
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<tbody>
<tr>
<td>Sub. Code: 05CT42</td>
<td>Hours per week: 5</td>
</tr>
<tr>
<td></td>
<td>Credit: 4</td>
</tr>
<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
</tr>
<tr>
<td></td>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

Objective:

❖ To develop the skill in solving problems.

Unit – I

Projectiles – path of the projectile, range, etc. – velocity of the projectile in magnitude and direction at the end of time t – range on an inclined plane – enveloping parabola.

Unit – II


Unit – III


Unit – IV


Unit – V

Moment of inertia – theorems on parallel and perpendicular axes – moments of inertia in some particular cases – Dr.Routh’s rule.

Text Books:

✓ Dynamics by M.K. Venkataraman – Chapters: 6, 8 (sections 8.1 to 8.8), 10, 11 &12 (Agasthiar Publications Trichy)

Reference Book:

✓ Mechanics by P. Duraipandian, Laxmi Duraipandian, S. Chand and company
B.Sc. Mathematics CBCS Syllabus - SEMESTER – IV
(For those who joined in June 2013 and after)

Part – III : Allied Part – III- Allied Subject Theory

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Hours per week</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>05AT41</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Sessional Marks: 25 Summative Marks: 75 Total Marks: 100

Objective:
To develop the skill of knowledge in computers and writing programmes.

Unit I: Basic concepts of Object Oriented Programming (OOP) – benefits of OOP – applications of OOP – operators in C++


Text Book:

Reference Book:
B.Sc. Mathematics CBCS Syllabus - SEMESTER – IV
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Allied Subject Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title : Practical: Programming in C++</td>
</tr>
<tr>
<td>Subject Code: 05AP42</td>
</tr>
<tr>
<td>Sessional Marks: 40</td>
</tr>
</tbody>
</table>

List of Problems for Lab

Object Oriented Programming with C++: practical

1. Program to convert Fahrenheit into Celsius.
2. Program to swap two numbers without third variable.
3. Program to find whether the given year is leap or not using ‘if…else…’ statement.
4. Program to find the commission of sales using ‘simple if’ statement.
5. Program to print odd numbers up to a range using ‘while’ loop.
6. Program to find the factorial of a given number using ‘for’ loop.
7. Program to generate Fibonacci series using ‘do…while’ loop.
8. Program to generate the pyramid of digits.
9. Program to check whether the given number is a perfect number or not.
10. Program to calculate nCr value using ‘function’.
11. Program to explain ‘function overloading’.
12. Program to find the sum of three numbers using ‘class’.
13. Program to perform various arithmetic operations using ‘member functions’ inside the ‘class’.
14. Program to display the basic details of a person using ‘class’.
15. Program to explain ‘static data members’ of ‘a class’.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – IV
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>Skill Based Subject</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Subject Title:</td>
<td>Competitive Mathematics</td>
</tr>
<tr>
<td>Sub. Code:</td>
<td>05SB41</td>
</tr>
<tr>
<td>Hours per week:</td>
<td>2</td>
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<td>Sessional Marks:</td>
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<tr>
<td>Summative Marks:</td>
<td>75</td>
</tr>
<tr>
<td>Total Marks:</td>
<td>100</td>
</tr>
</tbody>
</table>

Objective:

❖ To develop the skill of solving problems in competitive exams.

UNIT I:

HCF and LCM of numbers – decimal fractions.

UNIT II:

Square roots and cube roots – averages.

UNIT III:

Problems on ages – percentage.

UNIT IV:

Profit and loss – ratio and proportion.

UNIT V:

Partnership.

Text Book:

✓ Quantitative Aptitude for Competitive Examinations by Dr. R.S. Aggarwal, S. Chand & Company Pvt. Ltd., New Delhi.

Reference Book:

Department of English (Part-II) - SEMESTER - V
(For those who join in June 2015 and after)

<table>
<thead>
<tr>
<th>Part II – Paper I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Title:  English for Career Development</td>
</tr>
<tr>
<td>Subject Code: P2LE51 / P2CE51</td>
</tr>
<tr>
<td>Hours per week: 1</td>
</tr>
<tr>
<td>Credit: 1</td>
</tr>
<tr>
<td>Sessional Marks: 100</td>
</tr>
</tbody>
</table>

Total number of hours: 15 hours

Objectives:

- To make students face Competitive Examinations with confidence
- To train students in writing book reviews
- To make them write reports, resolutions, minutes
- To make them prepare agenda for meeting.

Unit I

- Comprehension

Unit II

- Spotting the Errors
- Sentence Improvement
- Voice
- Preposition
- Cloze Test or Numbered Gaps

Text Book:  Objective English for Competitive Examinations, Hari Mohan Prasad

Unit III

- Book Reviews

Unit IV

- Report-Writing
- Preparation of Agenda, Resolutions, Minutes

Unit V Extensive Reading – Self study – How to win Friends and Influence People –
Dale Carnegie, Vermilian, London
Objective:

- To develop the skill in solving problems.


UNIT IV: Tests of significance (small samples) – tests of significance based on t-test, F-test.


Text Book:

- Statistics by Dr. S. Arumugam and Prof. A. Thangapandi Isaac, New Gamma Publishing House, Palayamkottai.

Reference Book:

B.Sc. Mathematics CBCS Syllabus - SEMESTER – V: Paper - II
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Core Subject Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject  Title : <strong>Modern Algebra</strong></td>
</tr>
<tr>
<td>Subject Code: 05CT52  Hours per week: 5  Credit: 4</td>
</tr>
<tr>
<td>Sessional Marks: 25  Summative Marks: 75  Total Marks: 100</td>
</tr>
</tbody>
</table>

**Objective:**

- To develop the skill of understanding of definitions and theorems.

**Unit I:**

Relations and mappings.

**Unit II:**

Definition of groups – examples – elementary properties – permutation groups – subgroups and cyclic groups.

**Unit III:**

Order of an element – cosets and Lagrange’s theorem – normal sub groups – quotient groups.

**Unit IV:**

Isomorphism and homomorphism of groups.

**Unit V:**


**Text Book:**

- Modern Algebra by Dr.S.Arumugam and Prof.A. Thangapandi Isaac, Scitech Publications Pvt. Ltd., Chennai.

**Reference Book:**

(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Core Subject Theory</th>
<th>Subject Title: REAL ANALYSIS</th>
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<tbody>
<tr>
<td>Subject Code: 05CT53</td>
<td>Hours per week: 5</td>
</tr>
<tr>
<td></td>
<td>Credit: 5</td>
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<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
</tr>
<tr>
<td>Total Marks: 100</td>
<td></td>
</tr>
</tbody>
</table>

Objective:

❖ *To develop the skill of understanding definitions and theorems.*

UNIT I:


UNIT II:


UNIT III:

Complete metric space – Baire’s category theorem – continuity – homeomorphism – uniform continuity.

UNIT IV:

Connectedness – definition and examples – connected subsets of R – connectedness and continuity.

UNIT V:


Text Book:

✔ Modern Analysis by Dr.S.Arumugam, and A.Thangapandi Issac, New Gamma Publishing House.

Reference Book:

✔ Principles of Real Analysis By Chandra Sekara Rao
Subject Code: 05CT54  Hours per week: 5  Credit: 4

Sessional Marks: 25  Summative Marks: 75  Total Marks: 100

Objective:

To develop the skill in solving problems.

UNIT I:

Introduction – force – types of forces – equilibrium – principle of transmissibility – forces acting at a point – parallelogram law of forces – triangle law of forces – polygon law of forces – Lami’s theorem – \((\lambda-\mu)\)- theorem – resolution of forces – components of forces – resolved parts – resultant of any number of forces acting at a point – condition of equilibrium of any number of forces acting at a point.

UNIT II:


UNIT III:

Equilibrium of three forces acting on a rigid body – conditions of equilibrium – two trigonometrical theorems – solving statical problems (simple problems) – coplanar forces – reduction of coplanar forces – conditions for a system of coplanar forces to reduce to a single force or to a couple – equation to the line of action of the resultant – conditions of equilibrium of a system of coplanar forces (simple problems only).

UNIT IV:


UNIT V:

Equilibrium of strings – equation of the common catenary – tension at any point – important formulae – geometrical properties of the catenary – approximations – parabolic
Text Book:
✓ Statics by M.K. Venkataraman – (Chapters: 1, 2, 3, 4, 5, 6, 7 & 11), Agasthiar publications Trichy.

Reference Book:

B.Sc. Mathematics CBCS Syllabus - SEMESTER – V: PAPER-I
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Elective Subject</th>
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<tbody>
<tr>
<td>Subject Code: 05EP51</td>
</tr>
<tr>
<td>Hours per week: 5</td>
</tr>
<tr>
<td>Credit: 5</td>
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<td>Sessional Marks: 25</td>
</tr>
<tr>
<td>Summative Marks: 75</td>
</tr>
<tr>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

Objectives:
❖ To develop the skill in forming models,
❖ To develop the skill in Solving Problems.

UNIT I:
Linear Programming Problem – mathematical formulation of the problem – LPP-graphical solution method – some exceptional cases – general LPP – canonical, standard forms of LPP.

UNIT II:

UNIT III:

UNIT IV:

UNIT V:

Text Book:
B.Sc. Mathematics CBCS Syllabus - SEMESTER – V: PAPER-III
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Skill Based Subject</th>
<th>Subject Title: Quantitative Aptitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code: 05SB51</td>
<td>Hours per week: 2</td>
</tr>
<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
</tr>
</tbody>
</table>

Objective:

- To develop the skill of solving problems in Competitive Exams.

Unit-I:

Time and work – time and distance

Unit – II:

Problems on trains

Unit – III:

Simple interest – compound interest

Unit – IV:

Logarithms – calendar

Unit – V:

Clocks – stocks and shares.

Text Book:


Reference Book:

B.Sc. Mathematics CBCS Syllabus - SEMESTER – V
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>Part – IV : Common Subject</th>
<th>Theory</th>
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<tbody>
<tr>
<td>Subject Title</td>
<td>Environmental studies</td>
</tr>
<tr>
<td>Subject Code:</td>
<td>ESUG51</td>
</tr>
<tr>
<td>Hours per week:</td>
<td>2</td>
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<td>Credit:</td>
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<tr>
<td>Sessional Marks:</td>
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</tr>
<tr>
<td>Summative Marks:</td>
<td>75</td>
</tr>
<tr>
<td>Total Marks:</td>
<td>100</td>
</tr>
</tbody>
</table>

2hrs/week 24hrs

Objectives:

- Disseminate information of Environment of national and international issues
- Environmental consciousness creation among the students
- Facilitation of environmental leadership among students

Unit-I: 5 hrs

Introduction – Nature, scope and importance of Environmental studies – Natural Resources and conservation – forest, water and energy.

Unit-II: 5 hrs

Ecosystem – concept – structure and function, energy flow, food chain, food web and ecological pyramids

Unit-III: 5hrs

Biodiversity – definition, types – values – India, a mega diversity zone – Hotspots – Endangered and endemic species – threat to biodiversity and conservation

Unit-IV: 5 hrs


Unit-V: 4hrs


Text books
Department of English (Part-II) - SEMESTER VI
(For those who join in June 2015 and after)

<table>
<thead>
<tr>
<th>Subject Code: P2LE61 / P2CE61</th>
<th>Hours per week: 1</th>
<th>Credit: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessional Marks: 100</td>
<td>Total Marks: 100</td>
<td></td>
</tr>
</tbody>
</table>

Total number of hours: 15 hours

Objectives:

- To make students face Competitive Examinations with confidence
- To prepare students to face interviews
- To make students familiar with books and authors in English literature
- To make students prepare resume
- To motivate students to participate in Group Discussion

Unit – I:
- Sentence Completion
- Sentence Fillers
- Synonym
- Antonym
- Idioms and Phrases
- Substitution

Unit – II:
- Sentence Arrangement
- Jumbled sentences
- Paragraph Reconstruction
- Analogy

Text Book: Objective English for Competitive Examinations, Hari Mohan Prasad

Unit III:
- Interview Skills – mock – interview.
- Debate, Group Disscussion, Resume Writing

Unit IV:
B.Sc. Mathematics CBCS Syllabus - SEMESTER – VI: PAPER - I
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Core Subject Theory</th>
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<tbody>
<tr>
<td>Subject Code: 05CT61</td>
</tr>
<tr>
<td>Hours per week: 5</td>
</tr>
<tr>
<td>Credit: 4</td>
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<tr>
<td>Sessional Marks: 25</td>
</tr>
<tr>
<td>Summative Marks: 75</td>
</tr>
<tr>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

Subject Title: Linear Algebra

Objective:

❖ To develop the skill of solving problems.


Unit-II: Inner product spaces – definition and examples – orthogonality – orthogonal complement.


Unit –IV: Simultaneous linear equations – characteristic equation – Cayley Hamilton theorem – eigen values and eigen vectors.


Text Book:

✓ Modern Algebra by Dr.S. Arumugam and A. Thangapandi Issac, Scitech Publications, Chennai.

Reference Book:

✓ Linear Algebra by S.kumaresan, Prentice publications.
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Core Subject</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Subject Title : Complex Analysis</td>
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</table>

<table>
<thead>
<tr>
<th>Subject Code: 05CT62</th>
<th>Hours per week: 5</th>
<th>Credit: 5</th>
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<tbody>
<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
<td>Total Marks: 100</td>
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</tbody>
</table>

Objectives:
- To develop the skill of understanding definitions and theorems.
- To develop the skill in solving problems.

Unit I:
Elementary transformations – bilinear transformations – cross ratio – fixed points of a bilinear transformation – bilinear transformations which map the real axis onto itself, unit circle onto itself, real axis onto the unit circle.

Unit II:

Unit III:

Unit IV:

Unit V:

Text Book:
✓ Complex Analysis by Dr.S.Arumugam, A. Thangapandi Issac and A.Somasundaram. Scitech Publication, Chennai.

**Reference Books:**

✓ Complex Analysis by Dr.T.K.Manickavachagampillay, S.Viswanathan pritners and publishers Pvt Ltd.
✓ Complex Analysis by Dr. Durai pandian and others. Emerald Publishers, Chennai.

B.Sc. Mathematics CBCS Syllabus - SEMESTER – VI: Paper - II  
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – III : Elective Subject</th>
<th>Subject Code: 05EP61</th>
<th>Hours per week: 5</th>
<th>Credit: 5</th>
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<tbody>
<tr>
<td>Subject Title: Graph Theory</td>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

**Objective:**

- To develop the skill of understanding the definitions, the theorems and skill of Solving Problems.

**Unit I:** Graphs and subgraphs – definition and examples – degrees – sub graphs – isomorphism between graphs – Ramsey numbers – independent sets and coverings – intersection graphs and line graphs – matrix of a graph – operations on graphs.

**Unit II:** Degree sequences – graphic sequences – connectedness – walks, trails and paths – connectedness and components – blocks – connectivity.

**Unit III:** Eulerian graphs – Hamiltonian graphs – trees – characterization of trees – centre of a tree.

**Unit IV:** Matchings – matchings in bipartite graphs – planarity – definition and properties – characterization of planar graphs – thickness, crossings and outer planarity.

**Unit V:** Colourability – chromatic number and chromatic index – five colour theorem – four colour problem – chromatic polynomials.

**Text Book:**

✓ An invitation to Graph Theory by Dr. S. Arumugam & S. Ramachandran, Scitech Publishing Company, Chennai.

**Reference Book:**

✓ Graph Theory by Frank Harary, Publisher, Addison – Wesley Publishing Company, New Delhi.
B.Sc. Mathematics CBCS Syllabus - SEMESTER – VI
(For those who joined in June 2013 and After)

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Hours per week</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>05EP62</td>
<td>Operations Research</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Sessional Marks: **25**  Summative Marks: **75**  Total Marks: **100**

**Objective:**

- To develop the skill of forming OR models and the skill of solving problems.

**Unit – I:**

Inventory control – cost associated with inventories – factors affecting inventory control – Economic Order Quantity (EOQ) – deterministic inventory problems with no shortages – probabilistic inventory problems.

**Unit – II:**

Queuing theory – elements of queuing system and characteristics of queuing system – probability distribution in queuing systems – classification of queuing models – Poisson queuing systems (M / M / 1): (∞ / FIFO), (M / M / 1): (N / FIFO)

**Unit – III:**

Network scheduling by PERT/CPM – network and basic components – logical sequence – rules of network construction – numbering the events – critical path analysis – probability consideration in PERT – distinction between PERT and CPM.

**Unit – IV:**

Sequencing problems – problem of sequencing – basic terms used in sequencing – processing n jobs through two machines – processing n jobs through k machines – processing two jobs through k machines

**Unit – V:**

Replacement problem and system reliability – replacement of equipment/asset that deteriorates gradually – replacement policy when the value of money does not change with time – replacement policy when value of money changes with time.
Text Book:

Reference Book:

B.Sc. Mathematics CBCS Syllabus - SEMESTER – VI: PAPER-IV
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – IV : Skill Based Subject</th>
<th>Subject Title : Applied Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code: 05SB61</td>
<td>Hours per week: 2</td>
</tr>
<tr>
<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
</tr>
</tbody>
</table>

Objective:

❖ To develop the skill of solving problems

Unit – I: Attributes – definition – positive and negative classes – class frequencies – dichotomization

Unit – II: Consistency of data – association of attributes.

Unit – III: Analysis of variance (ANOVA) – introduction – one way classification.

Unit – IV: Two way classification.

Unit – V: Randomized block design and latin square design.

Text Book:
✓ Statistics by Dr.S. Arumugam, New Gamma Publishing House.

Reference Book:
✓ Mathematical Statistics by Kapur and Gupta.
PART – IV: Skill Based Subject

Subject Title: **Boolean Algebra**

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Hours per week</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>05SB62</strong></td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Sessional Marks: **25**  
Summative Marks: **75**  
Total Marks: **100**

**Objective:**

- To develop the skill in solving problem.

**Unit – I:**

- Relations - reflexive, symmetric, transitive and equivalence relations – antisymmetric relations – partial order relations – posets – linearly ordered sets – chain.

**Unit – II:**

- Representation of finite posets by diagrams – diagrams for M₅ and N₅ – zero and unit elements in a poset – greatest lower bound and least upper bound.

**Unit – III:**


**Unit – IV:**


**Unit – V:**

Modern Algebra by Dr. S.Arumugam and others.
Discrete Mathematics by Seymour Lipschutz, Mark Lipson, Schaum series

Reference Book:

B.Sc. Mathematics CBCS Syllabus - SEMESTER – VI: PAPER-VI
(For those who joined in June 2014 and after)

<table>
<thead>
<tr>
<th>PART – IV : Skill Based Subject</th>
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</thead>
<tbody>
<tr>
<td>Subject Title : MS OFFICE PRACTICAL</td>
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<tr>
<td>Subject Code: 05SB63</td>
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<tr>
<td>Sessional Marks: 40</td>
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</table>

Objective:

- To develop the skill of MS Office practical.

UNIT – I MS-Word – Text manipulation (Bio-Data) – Page formatting (Borders, Background etc.)

UNIT –II MS-Word – Working with tables – Working with graphics – Mail merge

UNIT –III MS-Excel – Formatting worksheet – Preparing students mark statement

UNIT –IV MS-Excel – Preparing employees salary – Creating chart

UNIT – V MS –Powerpoint – Creating simple presentation – Custom animation. (Text animation, Picture animation)

Text Book

UNIT I: The heart of Education:

UNIT II: The Value of Body and Life Energy

UNIT III: Analysis of Thought

UNIT IV: Moralisation of Derive

UNIT V: Eradication of Worries
Worry is a mental disease – Nature’s Law of cause and effect – factors beyond our control – How to deal with problems – analyse your problem and eradicate worry

Text Book: Value Education for Health, Happiness and Harmony
(Based on the Philosophy and Teachings of Swami Vethanthiri Maharisi)
Published By: Brain Trust, Aliyar A Wing of World Community Service Centre.

B.Sc. Mathematics CBCS Syllabus - SEMESTER – VI
(For those who joined in June 2013 and after)

<table>
<thead>
<tr>
<th>PART – V : Common Subject Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Code: <strong>EAUG61</strong></td>
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<tr>
<td>Sessional Marks: <strong>25</strong></td>
</tr>
</tbody>
</table>

UNIT-I: Community Development–I:
Definition – structure and composition – community based issues – need for awareness – Developmental Programmes.

UNIT – II: Community Development–II:

UNIT – III: Volunteer Empowerment:

UNIT – IV: Social Analysis:

UNIT – V: Introduction to NSS:
(OR)


Reference:

✓ National Service Scheme Manual (Revised), Ministry of Human Resources Development, government of India.

Department of Mathematics - SEMESTER – III

Allied Subject Theory for Physics & Chemistry Major

(For those who joined in June 2013 and After)

<table>
<thead>
<tr>
<th>PART – III : Allied Subject Theory</th>
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</thead>
<tbody>
<tr>
<td>Subject Code: 05AT01</td>
</tr>
<tr>
<td>Sessional Marks: 25</td>
</tr>
</tbody>
</table>

Objective

❖ *To develop the skill of solving problems.*

Unit – I:

Trigonometry – expression for sin nθ, cos nθ and tan nθ – expression for sin^n θ and cos^n θ – expansion of sinθ, cosθ and tanθ as a series in ascending powers of θ – hyperbolic functions and inverse hyperbolic functions.

Unit – II:

Differential calculus – differentiation methods – successive differentiation (up to second order derivative only, omit Leibnitz theorem).

Unit –III:

Integral calculus – properties of definite integrals – reduction formula for ∫ sin^n x dx, ∫ cos^n x dx and ∫sin^m x cos^n x dx only – double and triple integrals (simple problems).

Unit IV:


Unit V:

Line and surface integrals – Green’s theorem, Stoke’s theorem and Gauss’ divergence theorem (statements only) – verifications (simple problems).
Text book:

✓ Ancillary Mathematics by Dr.S.Arumugam & Issac. Vol I – IV (Relevant Chapters), New Gamma Publishing House, Palayamkottai

Reference:


Department of Mathematics - SEMESTER - IV
Allied Subject Theory for Physics & Chemistry Major
(For those who joined in June 2013 and After)

<table>
<thead>
<tr>
<th>PART – III : Allied Subject Theory</th>
<th>Subject Title : MATHEMATICS - II</th>
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</thead>
<tbody>
<tr>
<td>Subject Code: 05AT02</td>
<td>Hours per week: 6</td>
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<tr>
<td></td>
<td>Credit: 5</td>
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<td>Sessional Marks: 25</td>
<td>Summative Marks: 75</td>
</tr>
<tr>
<td></td>
<td>Total Marks: 100</td>
</tr>
</tbody>
</table>

Objective:

❖ To develop the skill of Knowledge in Mathematics and Solving problems

UNIT I:


UNIT II:

Second order linear differential equations with constant coefficients – methods of finding particular integrals for the funtions of the type $e^{ax}$, $\cos ax$, $\sin ax$, $x^m$, $e^{ax}V$ – second order linear differential equations with variable coefficients.

UNIT III:


UNIT IV:


UNIT V:

Fourier series – Fourier series for even and odd funtions – half range Fourier cosine and sine series.

Text Book:
✓ Ancillary Mathematics by Dr. S. Arumugam & Issac. Vol I – IV (Relevant Chapters), New Gamma Publishing House, Palayamkottai

**Reference Book:**