### ACADEMIC (1-BOARD OF STUDIES) SECTION

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E-mail: bos.srtmun@gmail.com  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agricultural Microbiology</td>
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<tr>
<td>2</td>
<td>Agrochemicals &amp; Fertilizers</td>
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<tr>
<td>3</td>
<td>Analytical Chemistry</td>
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<td>4</td>
<td>B.C.A.</td>
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<tr>
<td>5</td>
<td>B.Voc. (Food Processing, Preservation and Storage)</td>
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<tr>
<td>6</td>
<td>B.Voc. (Web Printing Technology)</td>
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<tr>
<td>7</td>
<td>Biochemistry</td>
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<td>8</td>
<td>Bioinformatics</td>
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<td>9</td>
<td>Biophysics</td>
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<td>10</td>
<td>Biotechnology (Vocational)</td>
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<tr>
<td>11</td>
<td>Biotechnology</td>
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<td>12</td>
<td>Botany</td>
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<tr>
<td>13</td>
<td>Chemistry</td>
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<tr>
<td>14</td>
<td>Computer Application (Optional)</td>
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<tr>
<td>15</td>
<td>Computer Science (Optional)</td>
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<tr>
<td>16</td>
<td>Computer Science</td>
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<tr>
<td>17</td>
<td>Dairy Science</td>
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<tr>
<td>18</td>
<td>Dyes and Drugs</td>
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<tr>
<td>19</td>
<td>Electronics</td>
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<td>20</td>
<td>Environmental Science</td>
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<tr>
<td>21</td>
<td>Fishery Science</td>
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<tr>
<td>22</td>
<td>Food Science</td>
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<td>23</td>
<td>Geology</td>
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<tr>
<td>24</td>
<td>Horticulture</td>
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<tr>
<td>25</td>
<td>Industrial Chemistry</td>
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<td>26</td>
<td>Information Technology (Optional)</td>
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<tr>
<td>27</td>
<td>Mathematics</td>
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<tr>
<td>28</td>
<td>Microbiology</td>
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<tr>
<td>29</td>
<td>Network Technology</td>
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<td>30</td>
<td>Physics</td>
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<td>31</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>32</td>
<td>Statistics</td>
</tr>
<tr>
<td>33</td>
<td>Zoology</td>
</tr>
</tbody>
</table>

The Board of Studies has decided to introduce CBCS Pattern from 2019-20 onwards. The courses offered are as follows:

1. Agricultural Microbiology
2. Agrochemicals & Fertilizers
3. Analytical Chemistry
4. B.C.A.
5. B.Voc. (Food Processing, Preservation and Storage)
6. B.Voc. (Web Printing Technology)
7. Biochemistry
8. Bioinformatics
9. Biophysics
10. Biotechnology (Vocational)
11. Biotechnology
12. Botany
13. Chemistry
14. Computer Application (Optional)
15. Computer Science (Optional)
16. Computer Science
17. Dairy Science
18. Dyes and Drugs
19. Electronics
20. Environmental Science
21. Fishery Science
22. Food Science
23. Geology
24. Horticulture
25. Industrial Chemistry
26. Information Technology (Optional)
27. Mathematics
28. Microbiology
29. Network Technology
30. Physics
31. Software Engineering
32. Statistics
33. Zoology

For further details, please visit the website: www.srtmun.ac.in

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**Note:**  
The Board of Studies has decided to introduce CBCS Pattern from 2019-20 onwards.
Disclaimer

The Syllabus of B. Sc. Physics First Year (Semester I and II) given here is prepared according to the Choice Based Credit System (CBCS) pattern of S.R.T.M. University following the guidelines of UGC, New Delhi, and has been duly approved by the BOS in Physics, the Faculty of Science and Technology and the Academic Council of the University.
Preamble:

Swami Ramanand Teerth Marathwada University, Nanded, following the directives of the University Grants Commission, New Delhi (UGC), has been taking several measures for improving quality of higher education in its jurisdiction. Few of the major steps in this regard include the improvement and revision of the curricula of various programmes offered by it in tune with the courses at national and international level, implementing innovative methods in teaching-learning processes, imparting skill based value added education, improvisation in the examination and evaluation processes, etc. These measures are very much useful in achieving 3Es, the equity, efficiency and excellence in higher education of this region.

Following directives of UGC, New Delhi, this University has decided to adopt the cumulative grade point average (CGPA) for assessing academic performance of the students in the university examinations from the academic year 2014-2015. Further, following the suggestions by the UGC and looking at the better employability, entrepreneurship possibilities and also to enhance the latent skills of the students SRTMU has also adopted the Choice Based Credit System (CBCS) at graduate as well as post-graduate level. The CBCS system offers flexibility to the students in choosing courses of their own choice from the exhaustive list comprising core, elective/minor or skill based components that are evaluated following the grading system. In the coming academic year 2019-2020 the University shall be implementing the first revision of the B. Sc. First Year Physics syllabus under the CBCS system. This document provides detailed information on the structure of the B Sc Physics course along with the evaluation process and the available choice to the science graduates with Physics as one of the course at the B. Sc. Program.

The revised courses given in this document are of student-centric nature and help the stakeholders to understand the basic laws of nature and develop necessary skills to apply them to the advanced areas of studies. There are few core or mandatory courses meant to provide adequate knowledge of the basic courses of physics such as principles of cooling and liquefication of gasses, thermodynamics, theoretical physics, AC current, part of industrial electronics and enable the students to apply them to the advanced courses as well as in industrial and research related fields. The theory courses are also supplemented by the respective laboratory hands-on courses, which provide the students with the first hand do it yourself kind of training and enable them to understand the Physics principles at deeper level. This also enables the students to develop their keen interest in studying Physics. In addition to the core courses
there will be elective courses as well as skill enhancement courses of advanced nature and help the students to develop their skills through hands-on activities as they progress in the program. Details of the courses offered as a part of the B. Sc. Physics program are given below.

Outline of the Choice Based Credit System:

1. **Core or Compulsory Courses:** Every student graduating in Science faculty with Physics as one of the optional subject is required to **study** these theory and practical papers as core or compulsory courses. There shall be two such theory papers (P-I and P-II, each of 02 credits), one each in Semester I and II, whose performance shall be assessed at the end of the respective semesters. There shall be one practical course corresponding to both these compulsory courses, however, the performance of the candidates in the practical course shall be assessed on the annual basis i.e., at the end of the Semester II by a pair of external examiner appointed by the University.

2. **Elective Courses:** Students have freedom to choose an advanced course of their interest and inclination from a pool of courses made available by the university for a particular semester. The elective courses are mostly offered from third semester onwards and are of specific or specialized or advanced nature designed such that the students after completing these courses shall be able to expand their knowledgebase. These elective courses will also be supplemented by practical courses.

3. **Skill Enhancement Courses (SEC):** These courses are aimed at providing hands-on-training, competencies, skills, etc. to the students. As these courses are primarily of hands-on-training type, therefore, students are expected to devote much of their time in laboratory activities rather than the conventional classroom teaching. Therefore, one-third of the time allocated to this course will be utilized for the classroom teaching, imparting instructions, etc., while remaining two-third will be utilized by the students in developing their skills through the hands-on exercises. The exercises to be undertaken for this purpose shall be of different nature than that of their regular laboratory / practical courses. There shall be two such skill enhancement courses, one each in semester V and VI, which shall be selected by the students depending on their choice and inclination. Performance of the students in these courses shall be assessed at the end of the semester VI following annual pattern by a pair of external examiners along with their practical courses.

4. **Laboratory/Practical Courses:** Every student studying in B Sc First Year (Semester I and II) is required to complete two laboratory / practical courses (Paper Nos. P-?? and P-??), which shall be assessed / examined at the end of the Semester-II (annual pattern).
The B. Sc. Physics First Year (Semester I and II) syllabus given in this document was prepared by different subcommittees constituted in the meeting of the BOS in Physics held on 10th April 2018 and was finalized after due consent from all the respected members. The BOS has also invited comments, suggestions, corrections on the draft syllabus from all the Physics teachers affiliated to this university, which were later incorporated while finalizing the syllabus of B. Sc. Physics First Year program.

(Dr. M. K. Patil)
Chairman,
Board of Studies in Physics
### B. Sc. Physics F. Y. (CBCS) Course Structure and Marking Scheme

<table>
<thead>
<tr>
<th>Semester</th>
<th>Paper No.</th>
<th>Name of the Course</th>
<th>Contact</th>
<th>Assessment Scheme</th>
<th>Credits</th>
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<tr>
<td></td>
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<td>Lect/wk (L+T)</td>
<td>Total Hrs</td>
<td>MSA</td>
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<tr>
<td>I</td>
<td>CCP I (Section A)</td>
<td>Mechanics and Properties of Matter (P-I)</td>
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<td>45</td>
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<tr>
<td></td>
<td>CCP I (Section B)</td>
<td>Mathematical Methods in Physics (P-II)</td>
<td>03</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>II</td>
<td>CCP II (Section A)</td>
<td>Heat and Thermodynamics (P-III)</td>
<td>03</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>CCP II (Section B)</td>
<td>Electricity and Magnetism (P-IV)</td>
<td>03</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>CCP P I (Annual Pattern)</td>
<td>P-V :Practicals based on Section A &amp; B of CCP-I &amp; II</td>
<td>04</td>
<td>60</td>
<td>20</td>
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<td>Total Credits of Semester I and II</td>
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### B. Sc. Physics S. Y. (CBCS) Course Structure and Marking Scheme

<table>
<thead>
<tr>
<th>Semester</th>
<th>Paper No.</th>
<th>Name of the Course</th>
<th>Contact</th>
<th>Assessment Scheme</th>
<th>Credits</th>
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<td>Lect/wk (L+T)</td>
<td>Total Hrs</td>
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<tr>
<td>III</td>
<td>CCP III (Section A)</td>
<td>Waves and Oscillations (P-VI)</td>
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<td></td>
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<td>Statistical Physics, Electromagnetics and Theory of Relativity (P-VII)</td>
<td>03</td>
<td>45</td>
<td>10</td>
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<tr>
<td></td>
<td>CCPS I (Section A)</td>
<td>Skill Enhancement Course I (SEC I)</td>
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<td>45</td>
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<tr>
<td>IV</td>
<td>CCP IV (Section A)</td>
<td>Optics and Lasers (P-VIII)</td>
<td>03</td>
<td>45</td>
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<td>CCP IV (Section B)</td>
<td>Basic Electronics (P-IX)</td>
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<td>45</td>
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<td>CCPS I (Section B)</td>
<td>Skill Enhancement Course II (SEC II)</td>
<td>03</td>
<td>45</td>
<td>25</td>
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<td>CCP II (Annual Pattern)</td>
<td>P-X :Practicals based on Section A of CCP-III &amp; IV</td>
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<td>45</td>
<td>25</td>
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<td>CCP III (Annual Pattern)</td>
<td>P-XI :Practicals based on Section B of CCP-III &amp; IV</td>
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<td>Total Credits of Semester III and IV</td>
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**Abbreviations:**
- MSA - Mid Semester Assessment
- ESA – End Semester Assessment
- CCP – Core Course Physics
- CCPP – Core Course Physics Practical
### B. Sc. Physics T. Y. (CBCS) Course Structure and Marking Scheme

<table>
<thead>
<tr>
<th>Semester</th>
<th>Paper No.</th>
<th>Name of the Course</th>
<th>Contact</th>
<th>Assessment Scheme</th>
<th>Credits</th>
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<tbody>
<tr>
<td>V</td>
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<tr>
<td></td>
<td>DSEP I (Section A)</td>
<td>Quantum Mechanics (P-XII)</td>
<td>03 45</td>
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<td></td>
<td>DSEP II (Section B) (Elective Course)</td>
<td>Solid State Physics (P-XIII A) OR Solar Energy (P-XIII B) OR Astrophysics (P-XIII C)</td>
<td>03 45</td>
<td>MSA 40 ESA 50</td>
<td>2</td>
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<tr>
<td></td>
<td>DSEPP I (Section A)</td>
<td>Practicals Based on P-XII (P-XVI)</td>
<td>03 6 pract 24 hours</td>
<td>MSA 20 ESA 25</td>
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<td></td>
<td>DSEPP II (Section A)</td>
<td>Practicals Based on P-XIII (P-XVII)</td>
<td>03 6 pract 24 hours</td>
<td>MSA 20 ESA 25</td>
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<tr>
<td></td>
<td>SEC III</td>
<td>Renewable energy &amp; harvesting OR Electrical Ckt Analysis Skill</td>
<td>03 45 Hands-on</td>
<td>MSA 25 ESA 25</td>
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<tr>
<td>VI</td>
<td></td>
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<tr>
<td></td>
<td>DSEP I (Section B) (Elective Course)</td>
<td>Atomic and Molecular Physics (P-XIV)</td>
<td>03 45</td>
<td>MSA 40 ESA 50</td>
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<td>DSEP II (Section B) (Elective Course)</td>
<td>Digital &amp; Communication Electornics (P-XV A) OR Linear &amp; Digital Electronics Circuits (P-XV B) OR Fibre Optics Communication (P-XV C)</td>
<td>03 45</td>
<td>MSA 40 ESA 50</td>
<td>2</td>
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<tr>
<td></td>
<td>DSEPP I (Section B)</td>
<td>Practicals Based on P-XIV (P-XVI)</td>
<td>03 6 pract 24 hours</td>
<td>MSA 20 ESA 25</td>
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<td></td>
<td>DSEPP II (Section B)</td>
<td>Practicals Based on P-XV (P-XVII)</td>
<td>03 6 pract 24 hours</td>
<td>MSA 20 ESA 25</td>
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<td></td>
<td>SEC IV</td>
<td>Physics Workshop Skill OR Semiconductor Devices Applications Skill</td>
<td>-- 45 Hands-on</td>
<td>MSA 25 ESA 25</td>
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**Total Credits of Semester V and VI**: 16

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**Legend**

- **MSA**: Mid Semester Assessment
- **ESA**: End Semester Assessment
- **DSEP**: Discipline Specific Elective Paper
- **DSEPP**: Discipline Specific Elective Paper Practical
- **SEC**: Skill Enhancement Course
Learning objectives: The objective of this course is to introduce the students to the world of mechanics and properties of the matter that exists in different phases i.e., solid, liquid and gas. Laws of motion and its applications to various systems studied in this paper is of fundamental nature and enable the students to handle different types of problems and is the pre-requisite for several other advanced courses in physics and chemistry. The pre-requisite for this course is knowledge of calculus, wave theory and modern physics. This course is the core course and every student pursuing B Sc with physics as one of the optional is required to study this course.

Unit I: Mechanics (12 Periods)

Laws of Mechanics (Newton’s Laws of Motion), Newton’s Law of Gravitation, Keplar’s Law of Planetary Motion, Gravitational Field, Gravitational Intensity, Gravitational Potential, Gravitational Potential energy, Conservation Law, Work, Power, Kinetic Energy (Work Energy Theorem), Conservation of energy for a particle energy function, Motion of a body near the surface of earth, Types of conservative and non-conservative forces

Unit II: Surface Tension (08 Periods)

Molecular Forces, Surface Tension & its explanation, Pressure difference across a curved surface, Expression for Excess Pressure inside a Spherical Drop and spherical Soap Bubble, Surface Tension by Jaeger’s Method, Surface Tension by Ferguson Method.

Unit III: Viscosity (10 Periods)

Introduction, Coefficient of Viscosity, Streamline flow, critical velocity, Reynolds Number & its significance, Bernoullies Theorem, Poiseuille’s equation for the flow of liquid through a tube, Experimental determination of coefficient viscosity by Poiseuille’s Method.

Unit IV: Elasticity (15 Periods)

Introduction, Hooke’s Law, Elastic Constants (Y, K & η), Poisson’s Ratio, Twisting couple on a cylinder or a (wire), Torsional pendulum ,Bending of Beam, Bending Moment, Cantilever (Weight of the beam is ineffective, Weight of the beam is effective), Depression of a Beam supported at the ends and loaded at the Centre, Determination of Y by bending of beam.

Books Recommended:

# CCP I - (Section B) P-II Core Course: Mathematical Methods in Physics

<table>
<thead>
<tr>
<th>Credits: 02</th>
<th>Periods: 45</th>
<th>Total Marks: 50 (CA=10, ESE=40)</th>
</tr>
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</table>

**Learning objectives:** This course is also aimed to develop knowledge in mathematical physics and its applications, to develop expertise in mathematical methods required in the study of Physics, to develop critical thinking and problem solving skill. After completion of this course students will be able to apply the concept of vectors and complex variables to various physical quantities. This course will also enable the students to solve the problems related to partial differentiation. Fourier Analysis unit will enable the students to analyze the periodic functions.

**Unit I: Complex variables**

Introduction, Definition, complex algebra (Addition, Subtraction, Multiplication, Division, conjugate complex number), Argand diagram, Graphical representation of Sum, Difference, product and Quotient of complex number, Properties of moduli, arguments and geometry of complex numbers, Rectangular, polar and exponential form of complex numbers.

**Unit II: Vector Analysis**

Introduction to Scalars, Vectors, Dot products and Cross Product of two vectors, Vector triple product, Scalar triple product, Scalar and vector field, Gradient of a scalar field, Divergence of a vector field and Curl of a vector field and their Physical interpretation, Laplacian Operator ($\nabla^2$), Line integral, Surface integral, Volume integral, Gauss’s divergence theorem, Stoke’s theorem, (Statements only), Vector identities.

**Unit III: Partial Differentiation**

Definition of Partial Differentiation, Order or Successive Differentiation, total Differentiation and Chain rule, Change of variables from Cartesian to Polar Co-ordinates, Condition for maxima and minimum (without proof), Linear Homogeneous Partial differential equations with constant coefficients, Rules for finding the complementary function.

**Unit IV: Fourier series**

Introduction of Periodic Functions, Definition of Fourier Series, Evaluation of the coefficients of Fourier series, Cosine series, Sine series, Dirichlet’s Conditions, Graphical representations of even and odd functions, Advantages of Fourier series, Physical applications of Fourier series analysis: Square wave and half wave Rectifier.

**Books Recommended:**

1. Vector Analysis - Murray R. Spigel
2. Mathematical Physics - B.S. Rajput
3. Mathematical Physics - B.D. Gupta (Vikas publishing House)
4. Methods of Mathematical Physics by Laud Talboult and Gambhir
5. Mathematical methods in Physical Sciences - Masy and Bias.
6. Mathematics For Engineers and Physists – Pipe
8. Mathematics For Engineers and Physists- Pipe
CCP II - (Section A) P-III Core Course: Heat and Thermodynamics

| Credits: 02 | Periods: 45 | Total Marks: 50 (CA=10, ESE=40) |

**Learning objectives:** This course will introduce the students to the world of heat and thermodynamics and the behaviour of the physical systems at different thermodynamical conditions. After completing this course students will understand the difference in the behaviour of the ideal and real gases, transport phenomenon in gases. Students will also understand the working of various heat engines and the ways to increase their working efficiency.

**Unit–I: Thermometry**
(12 Periods)
Types of Thermometers, Centigrade and Fahrenheit scale, relation between Celsius, Kelvin, Fahrenheit & Rankine scales, Platinum resistance thermometer, Seebeck effect.

**Unit –II: Real Gases and Their Behavior**
(12 Periods)
Behavior of gases at high pressure, Boyle temperature, Andrew’s Experiment on CO₂, Amagat’s Experiment, Vander wall’s Equation of State, Critical Constants, Corresponding states, Coefficients of Vander wall’s Equation, Reduced Equation of State, Joule Thomson Porous Plug Experiment, Temperature of Inversion, Relation between Boyle temperature and Temperature of Inversion.

**Unit–III: Transport Phenomenon in Gases**
(9 Periods)
Molecular Collisions, Mean free path, Expression for mean free path, Transport Phenomena, Viscosity of Gases, Thermal Conductivity of Gases, Diffusion, Inter relation between three transport coefficients.

**Unit-IV: Thermodynamics and Thermodynamical Relations**
(12 Periods)

**Books Recommended:**

3. Thermodynamics and Statistical Physics – S.L.Kakani
Learning objectives: The objective of this course is to introduce the students to the concepts of static and dynamical electrical magnetic fields, the sources for generating such fields, polarization and induction effects, understand the basic difference between the DC and AC circuits and their functioning. This course is of most applied nature and will enable the students to understand the role of electricity in everyday life, relate electrical conduction, validate using Ohm’s law and will also enable the students to understand the working principles of various electrical components and gadgets.

Unit- I: Electrostatics and Magnetostatics (15 Periods)
Concept of electric field, electric flux, Gauss’s law, conservative nature of electric field, concept of electric potential, potential energy of a system of charges, energy density in an electric field.
Concept of Magnetic Field (B) and magnetic flux (Φ), Lorentz Force, Force on a current carrying conductor, Biot and Savert’s Law, Applications of Biot-Savert’s law to straight and circular current carrying conductor, Ampere’s circuital law (Integral form), Curl of magnetic field (Ampere’s circuital law differential form). Motion of charged particles in uniform electric field, Motion of charged particle in magnetic field, Maxwell's displacement current.

Unit- II: Magnetization (9 Periods)
Introduction, Magnetic Induction (B), Flux density, Intensity of magnetization (I), Intensity of magnetizing field (H) Permeability, Susceptibility, Relation between Permeability and Susceptibility, Hysteresis curve, Brief introduction of ferromagnetic, paramagnetic and diamagnetic phenomenon, I-H curve By magnetometer method, Principle and construction of Moving coil type Ballistic Galvanometer with theory (q×θ).

Unit- IV: Time Varying (Dynamic) Fields (Waves) (9 Periods)

Unit–I: Alternating Current circuits (12 Periods)
Brief introduction to AC through Capacitor and Inductor, Nature of Impedance(z) and Reactance(x) of Inductance(z_L&x_L),Capacitance(z_C&x_C) and Resistance(z_R&x_R), Complex number and J-operator, Complex Impedance and reactance, Application of Complex numbers in solving AC Circuit (Not vector diagram), L-C-R (Series resonance and Parallel resonance) circuits. Power in AC circuit and Power Factor, Principle, working and types of transformers (step up and step down with figures), Current, voltage and turns ratio of transformer, Efficiency of transformer, AC bridges (Wheatstone bridge).
Books Recommended:
1. Electricity and Magnetism – BrijLal, Subramanyan (RatanPrakashanMandir, Twentieth revised and enlarged edition 1997)
2. Fundamentals of physics- P.B.Patil (Renuka Prakashan, Aurangabad)
3. Electricity and Electronics – D.C.Tayal (Himalaya Publishing Co, Mumbai)
4. Electricity and Magnetism – Murugesan (S.Chand & Co.)

Reference Books
1. Electricity and Magnetism-K.K. Tiwari (S.Chand & Co.)
2. Electricity and Magnetism – Khare, Shrivastav (Twentieth revised 1997)
4. Electricity and Magnetism-E.M.Purcell, Berkley physics course, vol-2 (MGH)
5. Foundations of Electromagnetic theory- Reitz, Milford, Christey
# CCPP I (Section A & B) : Laboratory Course (P-V) : Physics Practical Paper

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</thead>
</table>

**Learning Objectives:** Objective of this Laboratory course is to introduce the students to the practical applications of the four core courses in Physics that the students have studied in Semester I and II. The Laboratory course also includes experiments based on the computational methods applicable for solving problems in physical situations. The course will consist of lectures (both theory and practical) in the Computer Lab. Evaluation of the computational method does not include the programming skill of the students but will only analyze the basis of formulating the problem. Each student appearing for examination must produce a journal showing that he has completed not less than 12 experiments during the year; out of which at least two should be based on the computational methods.

1. Y- by Spiral spring.
2. η - by Spiral spring.
3. η - by Static torsion.
4. η - by Maxwell’s needle.
5. Y- by bending loaded at the middle.
6. Viscosity of given liquid by Poiseuille’s method.
7. Surface Tension of liquid by Jaeger’s method.
9. Field along the axis of Circular coil (Determination of radius of the coil)
10. Small resistance by Carry Fosters Bridge.
11. Ballistic galvanometer (Figure of merit)
12. Comparison of capacity by Desauty Method
13. Determination of angle of Prism by Spectrometer
14 Determination of Refractive Index of Prism by Spectrometer
15 Characteristics of P-N junction diode (forward and reverse)
16. Zener Diode Characteristics
17 Introduction to SCILAB, Advantages and disadvantages, SCILAB environment, Command Window, Figure window, Edit window, Variables and arrays, initializing variables in SCILAB.
18 Solving Simple Operations: Addition, Subtraction, Multiplication and division using SCILAB
19 Addition and subtractions of simple complex numbers using SCILAB software
20. Solving solution to first order differential partial differential equation using computer Software (SCILAB)
Question Paper Pattern
Semester End Assessment
B. Sc. Physics First and Second Semester (CBCS) Section A
Total Marks: 40

Note: All questions are compulsory and carry equal marks

Question 1 – Single long answer type question

OR

Two sub-questions (a and b of 8 & 7 marks)
(Note: This question will be based on Unit I & II)

15 marks

Question 2 – Single long answer type question

OR

Two sub-questions (a and b of 8 & 7 marks)
(Note: This question will be based on Unit III & IV)

15 marks

Question 3 – Write Short Notes on ANY TWO (each of 5 marks)

a.
b.
c.
d.
(Note: This question shall be based on entire syllabus and must have one sub-question from each of the unit)

10 marks