

BACHELOR OF SCIENCE

Duration: 36 Months (3 Years) Eligibility: 12th Pass

COURSE STRUCTURE OF B.SC PHYSICS (HONOURS) Ist SEMESTER

| Course Details | | | | External Assessment | | Internal Assessment | | | | Credit Distribution | | | Allotted Credits |
|------------------------|---------------------|--|-------------|--------------------------------|-----------|---------------------|-----------|------------------|-----------|---------------------|----------|-----------|---------------------------|
| Course Code | Course Type | Course Title | Total Marks | Major | | Minor | | Sessional | | L | T | P | Subject wise Distribution |
| | | | | Max Marks | Min Marks | Max Marks | Min Marks | Max Marks | Min Marks | | | | |
| Theory Group | | | | | | | | | | | | | |
| 3HBHL101H | Ability Enhancement | हिन्दी भाषा और संरचना | 50 | 25 | 8 | 10 | 4 | 15 | 6 | 2 | - | - | 2 |
| 3CBCA201H | Ability Enhancement | Basic Information Computer Technology - I | 50 | 25 | 08 | - | - | - | - | 1 | - | 1 | 2 |
| 3SBPH103H | Core Course -1 | Mechanics, Oscillations and Properties of Matter | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH106H | Core Course -2 | Mathematical Physics -I | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| | Generic Elective -1 | (Select From Below Given Specialised Subject)* | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| Practical Group | | | | Term End Practical Exam | | | | Sessional | | | | | |
| 3SBPH103H | Practical | Mechanics, Oscillations and Properties of Matter | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH106H | Practical | Mathematical Physics -I | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH104H | Practical | Chemistry -I | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3CBCA201H | Practical | Basic of Computer & Information technology-I | - | - | - | 10 | 04 | 15 | 06 | - | - | - | - |
| Grand Total | | | 550 | - | - | - | - | - | - | 15 | - | 07 | 22 |

Minimum Passing Marks are equivalent to Grade C

L- Lectures T- Tutorials P- Practical

Major- Term End Theory Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

* Generic Elective Specialization: Opted Specialization by student in 1st Semester will remain same in IInd, IIIrd and IVth Semester (See the specialisation subject as mentioned below)*

| Generic Elective- 1 | | |
|---------------------|-------------|----------------------------------|
| Specialisation | Course Code | Subject |
| Mathematics | 3SBMA105H | Algebra, Trigonometry & Geometry |
| Chemistry | 3SBCH104H | Chemistry -I |

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COURSE STRUCTURE OF PHYSICS (HONOURS) IInd SEMESTER

| Course Details | | | | External Assessment | | Internal Assessment | | | | Credit Distribution | | | Allotted Credits |
|------------------------|----------------------------|--|-------------|--------------------------------|-----------|------------------------|-----------|------------------|-----------|---------------------|---|-----------|---------------------------|
| Course Code | Course Type | Course Title | Total Marks | Major | | Minor | | Sessional | | L | T | P | Subject wise Distribution |
| | | | | Max Marks | Min Marks | Max Marks | Min Marks | Max Marks | Min Marks | | | | |
| Theory Group | | | | | | | | | | | | | |
| 3HBEL201H | Ability Enhancement | English Language and Indian Culture | 50 | 25 | 08 | 10 | 04 | 15 | 06 | 2 | - | - | 2 |
| 3MBFE101H | Ability Enhancement | Fundamental of Entrepreneurship | 50 | 25 | 08 | 10 | 04 | 15 | 06 | 2 | - | - | 2 |
| 3SBPH203H | Core Course-3 | Mathematical Background, Electrostatics, and Steady Currents | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH206H | Core Course-4 | Mathematical Physics-II | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| | Generic Elective-2 | (Select From Below Given Specialised Subject)* | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| Practical Group | | | | Term End Practical Exam | | Lab Performance | | Sessional | | | | | |
| 3SBPH203H | Practical | Mathematical Background, Electrostatics, and Steady Currents | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH206H | Practical | Mathematical Physics-II | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBCH204H | Practical | Chemistry –II | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| Skill Courses | | | | | | | | Sessional | | | | | |
| *** | Skill Enhancement | Skill Enhancement Elective Course-I | 50 | - | - | - | - | 50 | 20 | 1 | - | 1 | 2 |
| Grand Total | | | 600 | - | - | - | - | - | - | 17 | - | 07 | 24 |

Minimum Passing Marks are equivalent to Grade C

Major- Term End Theory / Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

Skill Elective I – Any other course being offered in this semester as per the list given at the end of course structure.

* Generic Elective Specialization: Opted Specialization by student in 1st Semester will remain same in IInd, IIIrd and IVth Semester (See the specialisation subject as mentioned below)*

L- Lectures T- Tutorials P- Practical

| Generic Elective- 2 | | |
|----------------------------|-------------|--|
| Specialisation | Course Code | Subject |
| Mathematics | 3SBMA205H | Calculus, Differential Equations & Vector Calculus |
| Chemistry | 3SBCH204H | Chemistry –II |

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COURSE STRUCTURE OF PHYSICS (HONOURS) IIIrd SEMESTER

| Course Details | | | | External Assessment | | Internal Assessment | | | | Credit Distribution | | | Allotted Credits |
|------------------------|----------------------------|--|-------------|--------------------------------|-----------|------------------------|-----------|------------------|-----------|---------------------|---|-----------|---------------------------|
| Course Code | Course Type | Course Title | Total Marks | Major | | Minor | | Sessional | | L | T | P | Subject wise Distribution |
| | | | | Max Marks | Min Marks | Max Marks | Min Marks | Max Marks | Min Marks | | | | |
| Theory Group | | | | | | | | | | | | | |
| 3HBHL302H | Ability Enhancement | हिन्दी भाषा सकेधना एवं संचार साधन | 50 | 25 | 08 | 10 | 04 | 15 | 06 | 2 | - | - | 2 |
| 3CBCA502H | Ability Enhancement | Basic Information Computer Technology - II | 50 | 25 | 08 | - | - | - | - | 1 | - | 1 | 2 |
| 3SBPH303H | Core Course-5 | Kinetic Theory of Gases, Thermo-dynamics and Statistical Mechanics | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH306H | Core Course-6 | Mathematical Physics-III | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| | Generic Elective-3 | (Select From Below Given Specialised Subject)* | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| Practical Group | | | | Term End Practical Exam | | Lab Performance | | Sessional | | | | | |
| 3SBPH303H | Practical | Kinetic Theory of Gases, Thermo-dynamics and Statistical Mechanics | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH306H | Practical | Mathematical Physics-III | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBCH304H | Practical | Chemistry -III | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3CBCA502H | Practical | Basic Information Computer Technology - II | - | - | - | 10 | 04 | 15 | 06 | - | - | - | - |
| Skill Courses | | | | | | | | Sessional | | | | | |
| *** | Skill Enhancement | Skill Enhancement Elective Course-II | 50 | - | - | - | - | 50 | 20 | 1 | - | 1 | 2 |
| Grand Total | | | 600 | - | - | - | - | - | - | 16 | - | 08 | 24 |

Minimum Passing Marks are equivalent to Grade C

L- Lectures T- Tutorials P- Practical

Major- Term End Theory / Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

Skill Elective II– Any other course being offered in this semester as per the list given at the end of course structure.

* Generic Elective Specialization: Opted Specialization by student in 1st Semester will remain same in IInd, IIIrd and IVth Semester (See the specialisation subject as mentioned below)*

| Generic Elective- 3* | | |
|-----------------------------|--------------------|---|
| Specialisation | Course Code | Subject |
| Mathematics | 3SBMA305H | Calculus, Differential Equation and Mechanics |
| Chemistry | 3SBCH304H | Chemistry –III |

BACHELOR OF SCIENCE

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COURSE STRUCTURE OF PHYSICS (HONOURS) IVth SEMESTER

| Course Details | | | | External Assessment | | Internal Assessment | | | | Credit Distribution | | | Allotted Credits |
|------------------------|----------------------------|--|-------------|--------------------------------|-----------|------------------------|-----------|------------------|-----------|---------------------|---|-----------|---------------------------|
| Course Code | Course Type | Course Title | Total Marks | Major | | Minor | | Sessional | | L | T | P | Subject wise Distribution |
| | | | | Max Marks | Min Marks | Max Marks | Min Marks | Max Marks | Min Marks | | | | |
| Theory Group | | | | | | | | | | | | | |
| 3HBEL402H | Ability Enhancement | English language and scientific temper | 50 | 25 | 08 | 10 | 04 | 15 | 06 | 2 | - | - | 2 |
| 3HBHP401H | Ability Enhancement | Human Values & Ethics | 50 | 25 | 08 | 10 | 04 | 15 | 06 | 2 | - | - | 2 |
| 3SBPH403H | Core Course-7 | Group Waves, Acoustics and Optics | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH406H | Core Course-8 | Digital System & Application | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| | Generic Elective-4 | (Select From Below Given Specialised Subject)* | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| Practical Group | | | | Term End Practical Exam | | Lab Performance | | Sessional | | | | | |
| 3SBPH403H | Practical | Group Waves, Acoustics and Optics | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH406H | Practical | Digital System & Application | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBCH404H | Practical | Chemistry –IV | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| Grand Total | | | 550 | - | - | - | - | - | - | 16 | - | 06 | 22 |

Minimum Passing Marks are equivalent to Grade C

L- Lectures T- Tutorials P- Practical

Major- Term End Theory Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

* **Generic Elective Specialization: Opted Specialization by student in 1st Semester will remain same in IInd, IIIrd and IVth Semester (See the specialisation subject as mentioned below)***

| Generic Elective- 4* | | |
|-----------------------------|-------------|--|
| Specialisation | Course Code | Subject |
| Mathematics | 3SBMA405H | Advanced Calculus, Partial Differential Equations, Complex Analysis and Abstract Algebra |
| Chemistry | 3SBCH404H | Chemistry –IV |

BACHELOR OF SCIENCE (HONOURS)

Duration: 36 Months (3 Years) Eligibility: 12th Pass from Science with Minimum 60%

COURSE STRUCTURE OF Physics (HONOURS) SEMESTER Vth

| Course Details | | | | External Assessment | | Internal Assessment | | | | Credit Distribution | | | Allotted Credits |
|------------------------|-----------------------------------|--|-------------|--------------------------------|-----------|------------------------|-----------|------------------|-----------|---------------------|----------|-----------|---------------------------|
| Course Code | Course Type | Course Title | Total Marks | Major | | Minor | | Sessional *** | | L | T | P | Subject wise Distribution |
| | | | | Max Marks | Min Marks | Max Marks | Min Marks | Max Marks | Min Marks | | | | |
| Theory Group | | | | | | | | | | | | | |
| 3SBPH501H | Core Course - 9 | Physics-V (Quantum Mechanics, Atomic, Molecular and Nuclear Physics) | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH502H | Core Course - 10 | Physics-V (Astro Physics & Atmospheric Science) | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH503H | Core Course - 11 | Analog Systems And Applications | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| ** | Discipline Specific Elective - I | Elective table-I | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| *** | Discipline Specific Elective - II | Elective table-II | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| Practical Group | | | | Term End Practical Exam | | Lab Performance | | Sessional | | | | | |
| 3SBPH501H | Practical | Physics-V (Quantum Mechanics, Atomic, Molecular and Nuclear Physics) | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH502H | Practical | Physics-V (Astro Physics & Atmospheric Science) | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH503H | Practical | Analog Systems and applications | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| ** | Practical | Elective table-I | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| *** | Practical | Elective table-II | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| | | | | | | | | Sessional | | | | | |
| ***** | Skill Enhancement | Skill Enhancement Elective Course-II | 50 | - | - | - | - | 50 | 20 | 1 | - | 1 | 2 |
| Grand Total | | | 800 | | | | | | | 21 | - | 11 | 32 |

Minimum Passing Marks are equivalent to Grade C L- Lectures T- Tutorials P- Practical

Major- Term End Theory / Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

Skill Elective III – Any other course being offered in this semester as per the list given at the end of course structure

BACHELOR OF SCIENCE (HONOURS)

Duration: 36 Months (3 Years) Eligibility: 12th Pass from Science with Minimum 60%

COURSE STRUCTURE OF Physics (HONOURS) SEMESTER VIth

| Course Details | | | | External Assessment | | Internal Assessment | | | | Credit Distribution | | | Allotted Credits |
|------------------------|--|--|-------------|--------------------------------|-----------|------------------------|-----------|------------------|-----------|---------------------|----------|-----------|---------------------------|
| Course Code | Course Type | Course Title | Total Marks | Major | | Minor | | Sessional *** | | L | T | P | Subject wise Distribution |
| | | | | Max Marks | Min Marks | Max Marks | Min Marks | Max Marks | Min Marks | | | | |
| Theory Group | | | | | | | | | | | | | |
| 3SBPH601H | Core Course - 12 | Physics-VI (Solid State Physics, Electronics and Laser) | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH602H | Core Course -13 | Physics-VI (Nano Technology and Material Science) | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| 3SBPH603H | Core Course -14 | Nuclear and Particle Physics | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| ** | Discipline Specific Elective | Elective table-III | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| *** | Discipline Specific Elective//Project/Dissertation | Elective table-IV / Group B DISSERTATION | 100 | 50 | 17 | 20 | 08 | 30 | 12 | 4 | - | - | 4 |
| Practical Group | | | | Term End Practical Exam | | Lab Performance | | Sessional | | | | | |
| 3SBPH601H | Practical | Physics-VI (Solid State Physics, Electronics and Laser) | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH602H | Practical | Physics-VI (Nano Technology and Material Science) | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| 3SBPH603H | Practical | Nuclear and Particle Physics | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| ** | Practical | Elective table-III | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| *** | Practical/ Project/Dissertation | Elective table-IV / Group B DISSERTATION | 50 | 25 | 08 | 25 | 08 | - | - | - | - | 2 | 2 |
| Grand Total | | | 750 | | | | | | | 20 | - | 10 | 30 |

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Minimum Passing Marks are equivalent to Grade C L- Lectures T- Tutorials P- Practical

Major- Term End Theory / Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

Compulsory Project/Dessertation with choice in any Disciplinary specific elective. Compulsory one paper presentation certificate in related dicipline.

DISCIPLINE SPECIFIC ELECTIVE

***Note** - Students need to select any two from below mentioned four papers from Each Group Elective's for Fifth and Sixth semester of **B.Sc. Physics (Honours)** .

| ELECTIVES FOR SEMESTER 5 TH | | | ELECTIVES FOR SEMESTER 6 TH | | |
|--|----------------------------------|--|--|----------------------------------|--------------------|
| Course Code | Course Type | List of Electives | Course Code | Course Type | List of Electives |
| GROUP ELECTIVE -I | | | GROUP ELECTIVE -III | | |
| 3SBPH504H | Discipline Specific Elective-I | EXPERIMENTAL TECHNIQUES | 3SBPH604H | Discipline Specific Elective-I | Biological Physics |
| 3SBPH505H | Discipline Specific Elective-II | Astronomy and Astrophysics | 3SBPH605H | Discipline Specific Elective-II | Physics of Earth |
| GROUP ELECTIVE -II | | | GROUP ELECTIVE -IV | | |
| 3SBPH506H | Discipline Specific Elective-III | Atmospheric Physics | 3SBPH606H | Discipline Specific Elective-III | Medical Physics |
| 3SBPH507H | Discipline Specific Elective-IV | RENEWABLE ENERGY AND ENERGY HARVESTING | 3SBPH607H | Discipline Specific Elective-IV | TECHNICAL DRAWING |

COURSE CODE: 3SBCH608H

Dissertation/Project

Guidelines

SKILL ENHANCEMENT ELECTIVE COURSES

| Non-Technical | | | |
|----------------------|--|--|----------|
| Elective No. | Department/ Faculty Name | | |
| | Faculty of Information Technology | | |
| I | SCIT 201 | Data Entry Operation | 2(1+0+1) |
| II | SCIT 301 | Multimedia | 2(1+0+1) |
| III | SCIT 501 | Web Designing with HTML | 2(1+0+1) |
| IV | SCMIT 201 | Web Development | 2(1+0+1) |
| V | SCMIT 301 | LINUX | 2(1+0+1) |
| | Faculty of Management | | |
| I | SMGT 201 | Briefing and Presentation Skills | 2(1+0+1) |
| II | SMGT 301 | Resolving Conflicts and Negotiation Skills | 2(1+0+1) |
| III | SMGT 802 | Entrepreneurship Development | 2(1+0+1) |
| | Faculty of Commerce | | |
| I | SCOM 201 | Tally ERP 9 | 2(1+0+1) |
| II | SCOM 302 | Multimedia | 2(1+0+1) |
| III | SCOM 803 | Data Analyst | 2(1+0+1) |
| | Faculty of Humanities | | |
| I | SHBA 301 | Pursuing Happiness | 2(1+0+1) |
| II | SHBA302 | Communication Skill and Personality Development | 2(1+0+1) |
| III | SHMA301 | Tourism in M.P | 2(1+0+1) |
| | Faculty of Science | | |
| I | SSBI 301 | Mushroom Cultivation | 2(1+0+1) |
| II | SSPH 301 | House Hold Wiring | 2(1+0+1) |
| III | SSPH 301 | Basic Instrumentation | 2(1+0+1) |
| IV | SSPH 301 | DTP Operator | 2(1+0+1) |
| V | SSCH 301 | Graphic Designing | 2(1+0+1) |
| | Faculty of Education | | |
| I | SCBE 403 | Understanding of ICTC (Information Communication Technology) | 2(1+0+1) |
| II | SCPE 201 | Yoga Education | 2(1+0+1) |

SKILL ENHANCEMENT ELECTIVE COURSES

| Non-Technical | | | |
|----------------------|--|--|----------|
| Elective No. | Department/ Faculty Name | | |
| | Faculty of Information Technology | | |
| I | SCIT 201 | Data Entry Operation | 2(1+0+1) |
| II | SCIT 301 | Multimedia | 2(1+0+1) |
| III | SCIT 501 | Web Designing with HTML | 2(1+0+1) |
| IV | SCMIT 201 | Web Development | 2(1+0+1) |
| V | SCMIT 301 | LINUX | 2(1+0+1) |
| | Faculty of Management | | |
| I | SMGT 201 | Briefing and Presentation Skills | 2(1+0+1) |
| II | SMGT 301 | Resolving Conflicts and Negotiation Skills | 2(1+0+1) |
| III | SMGT 802 | Entrepreneurship Development | 2(1+0+1) |
| | Faculty of Commerce | | |
| I | SCOM 201 | Tally ERP 9 | 2(1+0+1) |
| II | SCOM 302 | Multimedia | 2(1+0+1) |
| III | SCOM 803 | Data Analyst | 2(1+0+1) |
| | Faculty of Humanities | | |
| I | SHBA 301 | Pursuing Happiness | 2(1+0+1) |
| II | SHBA302 | Communication Skill and Personality Development | 2(1+0+1) |
| III | SHMA301 | Tourism in M.P | 2(1+0+1) |
| | Faculty of Science | | |
| I | SSBI 301 | Mushroom Cultivation | 2(1+0+1) |
| II | SSPH 301 | House Hold Wiring | 2(1+0+1) |
| III | SSPH 301 | Basic Instrumentation | 2(1+0+1) |
| IV | SSPH 301 | DTP Operator | 2(1+0+1) |
| V | SSCH 301 | Graphic Designing | 2(1+0+1) |
| | Faculty of Education | | |
| I | SCBE 403 | Understanding of ICTC (Information Communication Technology) | 2(1+0+1) |
| II | SCPE 201 | Yoga Education | 2(1+0+1) |