Shri Mata Vaishno Devi University

श्री माता वैष्णो देवी विश्वविद्यालय

Kakryal, Katra-182320 (J&K),
India

Minutes of the 13th Meeting of Board of Studies of SoP

1

The chair of the meeting extended warm welcome all the members of BoS, particularly esteemed external experts Prof. D. K. Pandya, Former Professor Department of Physics, IIT Delhi and Prof. Geeta Bhatt, University of Delhi, who joined the meeting virtually and took time out of their busy schedules, for deliberating upon and shaping the curriculum development of various programmes and making these robust, relevant and forward-looking. The chair also thanked internal faculty members and external experts Prof. D. K. Pandya and Dr. Vivek Gupta, Professor, Department of Physics, University of Jammu, who attended the one day PG Curriculum Development Workshop held on 16.07.2025, for their valuable inputs to review, refine and redesign UG and PG courses to keep pace with the latest academic and industry trends, emerging technologies, and student needs.

Agenda Item No. 13.1:

To confirm the minutes of the 12th Meeting of BoS, SoP held on 22nd Feb., 2025.

Resolution:

BoS confirmed the minutes of the 12th Meeting of BoS of SoP held in 22nd February, 2025 which were circulated vide Ref. No. SMVDU/SoP/25/647 dated: 27-02-2025 as appended as **Annexure-I**.

Agenda Item No. 13.2:

To consider and approve the course structure of the courses for the semester I to IV applicable for the Two Year Postgraduate (PG) Programme in Physics for batches to be admitted in AY 2025-26 and onwards NEP 2020.

Resolution:

The detailed course structure of Two year Postgraduate (PG) Programme in Physics as per NEP 2020 with

(i) only coursework for 1st year PG and

(ii)only Coursework (Structure 1), Coursework + Research (Structure 2) and Research only (Structure 3) for 2nd year PG

was prepared, strictly in accordance with the **Broad Course Structure** notified by AA wing (attached as **Annexure-II**), after detailed deliberations during the one day **PG Curriculum Development Workshop**. This was also ascertained while designing the course structure that curriculum of 1st year of PG programme may also become aligned with the 4th year of FYUP in respect of courses and their credits. This also resulted in slight changes in positioning and introduction of a few major and minor courses in the structure of a few semesters of FYUP without disturbing the original credit structure. The Board approved the PG Course Structure (All semesters) and the modified FYUP course structure (VI, VII & VIII semesters) and the same is annexed as **Annexure-III** and **Annexure-IV** respectively. These shall be applicable to the students of Integrated B.Sc.-M.Sc. Physics programme of academic sessions 2022-23 & 2023-24 as well as the students for FYUG and PG programmes of 2025-26 & onwards batches. Further, the Board decided to consider the detailed contents of the courses for only

1st year PG programme as per the availability of resources and requirements.

Agenda Item No. 13.3:

To consider and approve the new courses to enrich the basket of the minor courses in Physics to be offered by the school to the other schools for the students of Four Year Undergraduate Programme (FYUP) and Integrated UG-PG programme for AY 2025-26.

Resolution:

The Board approved the augmented baskets of minor courses to be offered under FYUP (Sem-I and Sem-III) and under Integrated B.Sc.-M.Sc. Programme (Sem-V and Sem-VII) in Physics as per NEP 2020 to facilitate the students of the Non-Engg. disciplines to opt for their choices on Samarth Portal during their semester registration for AY 2025-26, which are annexed as **Annexure-V**. Further, the Board decided to consider the detailed contents of the minor courses only for Sem-I and Sem-III of FYUP and Sem-V of Integrated UG-PG Programme as per the availability of resources and requirements.

Agenda Item No. 13.4:

To report the organization of various activities by the school since the 12th BoS meeting.

Resolution:

The Board noted the reported activities and appreciated the efforts put in by various students, faculty and staff members in having organized variety of curricular, co-curricular and extra-curricular activities and encouraged the faculty members to continue with the same passion and enthusiasm.

The School of Physics organized the following activities since the 12th BoS meeting:

1. The school organized One Day Seminar on "SCIENCE FOR EVERYONE" to celebrate National Science Day under University Fest '25 on 28 Feb., 2025 with the following activities:
   a. Physics demonstrations titled "Ignite Your Curiosity: A Science Extravaganza" by Mr. Surinder Manhas from School Education Department.
   b. Invited Talk "On the Vibrational Landscape of 2D Materials: Bridging Fundamental Science and Applications using Raman Spectroscopy" by Prof. Ajay Soni from School of Physical Sciences, IIT Mandi, HP.

2. The school organized a one day Educational Trip for 71 No. B.Sc., M.Sc. and Ph.D. students accompanied by 05 faculty and staff members to visit Baglihar Hydroelectric Power Project on 12th March, 2025 with partial financial liability on the university.

3. The school also organized 4 days Trekking Trip to Triund, McleodGanj, Himachal Pradesh from 30th April to 3rd May, 2025 in which 26 No. 1st and 2nd year M.Sc. students participated along with 02 faculty members without any financial liability of the university. The trekking

trip was held to promote recreation, physical well-being, team bonding, and a bit of mental refreshment for students after their busy academic schedule.

Agenda Item No. 13.5:

To report the successful defense of Ph.D. thesis by research student namely, Ms Neha Lalotra.

Resolution:

The board expressed satisfaction and noted that a student namely, Ms Neha Lalotra (Entry No. 20DPH002) under the supervision of Dr. Kamni Pathania, Associate Professor, SoP, who is on extraordinary leave, has successfully qualified for the award of Ph.D. degree during June, 2025.

Agenda Item No. 13.6:

To consider the modification in the name and course code of a course namely "Summer Internship" applicable to 5th semester students of 2022-23 & 2023-24 batches.

Resolution:

The Board approved offering of the modified name and course code of a **2 credits** IAPC course on "**Summer Internship/ Project/ Dissertation**" (course codes(s): PHD 3131/ PHI PR301/ PHD PR301); **LTP: 0-0-4**) applicable to 5th semester students of 2022-23 & 2023-24 batches of Integrated B.Sc.-M.Sc. Physics Programme.

Agenda Item No. 13.7:

To consider and ratify the modified L-T-P structure of a multidisciplinary course namely "*Elements of Themodynamics*" in 5 year Integrated B.Sc. (Hons.) Physics – M.Sc. Physics programme.

Resolution:

The board noted and approved the change in L-T-P structure of the multidisciplinary course on "***Elements of Themodynamics***" for 5 year Integrated B.Sc. (Hons.) Physics – M.Sc. Physics programme applicable to the students of 2023-24 batch as per the following table:

S. No.	Name of Course	Previous Course Code & L-T-P	New Course Code & L-T-P	Applicable to
1.	Elements of Themodynamics	PHL MU201 (3-0-1) 4 credits	PHL MU201 (3-1-0) 4 credits	Int B.Sc.- M.Sc. Physics (2023-24)

Agenda Item No. 13.8:

To consider and ratify the course codes of the courses for the 5th semester of 5 year Integrated B.Sc. (Hons.) Physics – M.Sc. Physics programme as applicable to students of 2023-24 batch as per the new course coding scheme under NEP 2020.

Resolution:

The Board noted the newly assigned course codes to the Major, Minor and IAPC courses for 5th Semester of 5 year Integrated B.Sc. (Hons.) Physics – M.Sc. Physics programme as applicable to students of 2023-24 batch under NEP 2020. This is attached as **Annexure-VI** for kind information of the board members.

Dr. Yugal Khajuria
Professor
Member

Dr. S. K. Wanchoo
~~Associate~~ Professor
Member

(on leave)
Dr. Vineet V. Tyagi
Associate Professor
Member

Dr. Anupam K. Sharma
Associate Professor
Member

Dr. Jitendra Sharma
Associate Professor
Member

Dr. Pankaj Biswas
Assistant Professor
Member

Dr. Varun Pandey
Assistant Professor
Member

Dr. Ram Prakash
Associate Professor & Head, SoP
Chairman

Prof. Geeta Bhatt
Director, NCWEB
University of Delhi
Member Expert (External)

Prof. D. K. Pandya
Former Professor of Physics, IIT Delhi
Member Expert (External)

Submitted for your kind consideration and necessary action for approval of the same in the forthcoming Academic Council Meeting of the University.

Shri Mata Vaishno Devi University

श्री माता वैष्णो देवी विश्वविद्यालय

Kakryal, Katra-182320 (J&K),
India

Dr. Pankaj Biswas
Member Secretary BoS, SoP

Head, SoP:

To

All members for the information.

Copy to:

1. Dean (AA) for information.
2. Registrar, SMVDU for information & placing of the same before Academic Council.
3. AR, VC office for kind information of the Hon'ble Vice Chancellor.
4. Concerned file.

Office SoP (Physics) <office.sop@smvdu.ac.in>

Draft Minutes of 12th meeting of BoS of SoP by Circulation

3 messages

pankaj biswas <pankaj.biswas@smvdu.ac.in> Sat, Feb 22, 2025 at 10:15 PM
To: Dinesh Pandya <dinesh.pandya@iitjammu.ac.in>, geeta.bhatt@bcas.du.ac.in, director@ncweb.du.ac.in, Department of Physics <dop@smvdu.ac.in>
Cc: HoD Physics <hod.physics@smvdu.ac.in>, "Office SoP (Physics)" <office.sop@smvdu.ac.in>

Dear All,

With reference to the 12th meeting of BoS of SoP which was held by circulation (through e-mail of Agenda items sent on 18th Feb., 2025), PFA the draft minutes (in docx format) along with annexures (in pdf) of the meeting.

The minutes have been prepared in accordance with the proposed ensuing Academic Council Meeting of SMVDU in near future. The worthy members of the Board are requested to give away their suggestions and/ or comments (if any) to the undersigned **on or before 24.02.2024 (Monday) by 12:00 p.m.**

Minutes are being submitted to Board Members to accord their approval to notify the same.

Dr. Pankaj Biswas
Asst. Prof. SoP, SMVDU
(M): 9419113597

3 attachments

- **Minutes of the 12th Meeting of BOS of SoP_23_02_2025.docx** 63K
- **Annexure-I.PDF** 1551K
- **Annexures II to XI.pdf** 664K

Dinesh Pandya <dinesh.pandya@iitjammu.ac.in> Sat, Feb 22, 2025 at 11:45 PM
To: pankaj biswas <pankaj.biswas@smvdu.ac.in>
Cc: geeta.bhatt@bcas.du.ac.in, director@ncweb.du.ac.in, Department of Physics <dop@smvdu.ac.in>, HoD Physics <hod.physics@smvdu.ac.in>, "Office SoP (Physics)" <office.sop@smvdu.ac.in>

Minutes of 12th meeting signed and attached.

प्रोफेसर दिनेश पंड्या
आगंतुक प्रोफेसर भौतिकी
आई. आई. टी. जम्मू
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Professor Dinesh Pandya
Adjunct Professor Physics
I. I. T. Jammu
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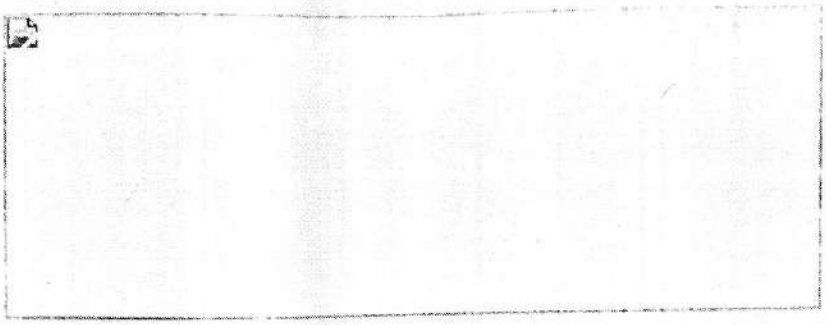

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SMVDU_Minutes of the 12th Meeting of BOS of SoP_23_02_2025.pdf
199K

Dr.Geeta Bhatt <geeta.bhatt@bcas.du.ac.in> Sun, Feb 23, 2025 at 11:02 PM
To: Dinesh Pandya <dinesh.pandya@iitjammu.ac.in>
Cc: pankaj biswas <pankaj.biswas@smvdu.ac.in>, Director NCWEB <director@ncweb.du.ac.in>, Department of Physics <dop@smvdu.ac.in>, HoD Physics <hod.physics@smvdu.ac.in>, "Office SoP (Physics)" <office.sop@smvdu.ac.in>

Kindly consider my endorsement for the minutes.
Regards
Prof. Geeta Bhatt
[Quoted text hidden]

Annexure-I

Shri Mata Vaishno Devi University

श्री माता वैष्णो देवी विश्वविद्यालय

Kakryal, Katra-182320 (J&K), India

School of Physics

27/10/2025

Dr. Pankaj Biswas
Member Secretary BoS, SoP

27/10/2025

Head, SoP:

To

All members for the information.

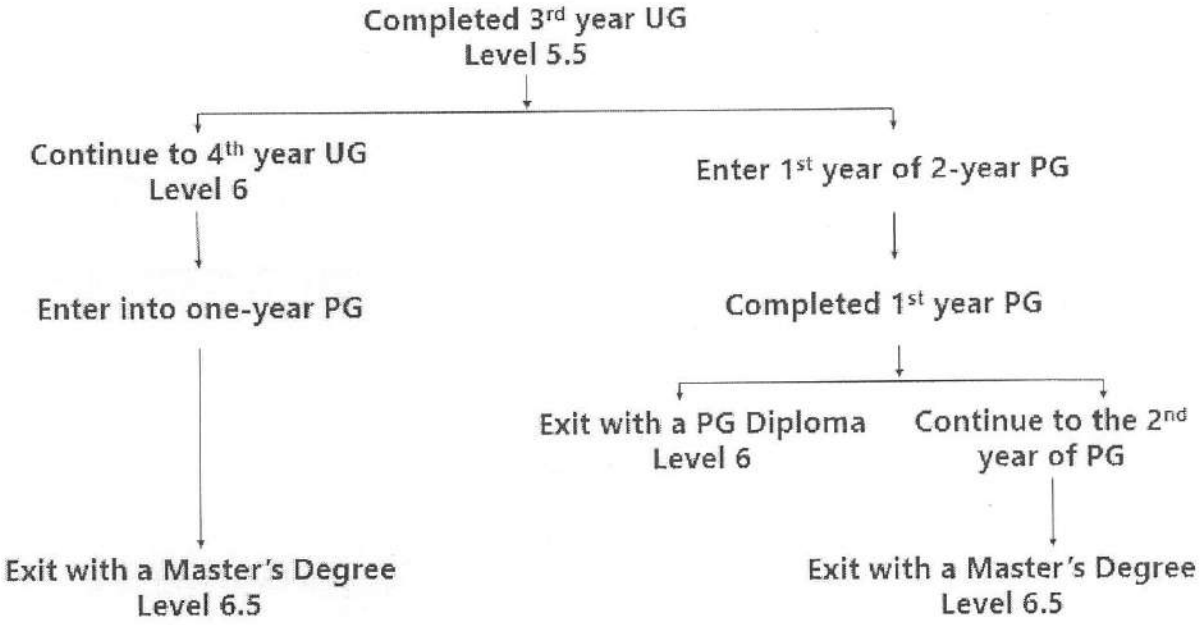
Copy to:

1. Dean (AA) for information.
2. Registrar, SMVDU for information & placing of the same before Academic Council.
3. AR, VC office for kind information of the Hon'ble Vice Chancellor.
4. Concerned file.

Annexure-II

Post Graduate Course Curriculum as per NEP 2020 @ SMVDU

Progression from UG to PG



Programme of Study and the corresponding qualification levels

First year UG programme – Level 4.5

Second Year UG Programme – Level 5

Third Year UG Programme – Level 5.5

Fourth Year UG Programme – Level 6

First year of Two Year PG Programme – Level 6

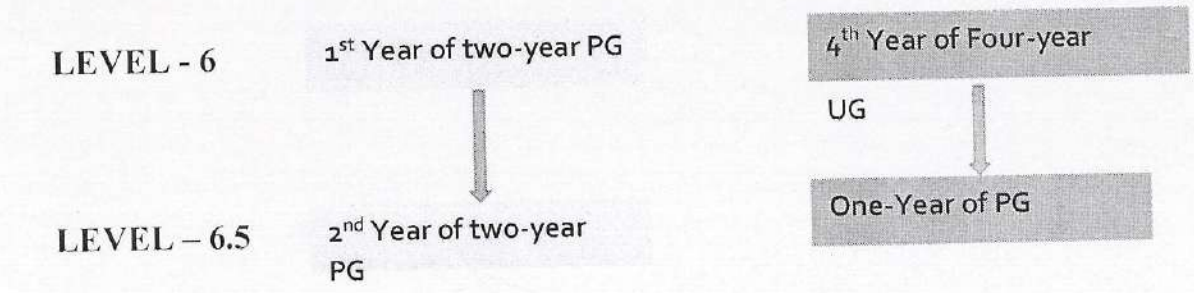
Second Year of Two Year PG Programme – Level 6.5

One year of PG Programme after 4 Year UG – Level 6.5

First year of Two Year PG Programme after 4 Year UG – Level 6.5

Second year of Two Year PG Programme after 4 Year UG – Level 7

Postgraduate Curricular Framework 2025 (based on NEP 2020)



Only Coursework | Coursework & Research | Only Research

Credit Distribution Plan for 2-year Post-graduate Program

S.No.	*Course Category*	*Credit Per Course*	*2-year PG with course work*	*2-year PG with Corse work + Research*	*2-year PG with Research*
1.	Discipline-Specific Core (DSC)	4	40	32	24
2.	Discipline Specific Elective	4	40	24	16
3.	Research thesis/project/Patent/Intensive Research Work	----	-------	24	40
Total Credits			80	80	80

Credit Distribution Plan for 1-Year Post-graduate Program

S.No.	*Course Category*	*Credit Per Course*	*1 year PG with course work*	*1 year PG with Corse work + Research*	*1 year PG with Research*
1.	Discipline-Specific Core (DSC)	4	16	8	--------
2.	Discipline-Specific Elective	4	24	8	----------
3.	Research thesis/project/Patent/Intensive Research Work	----	-------	24	40
Total Credits			40	40	40

1st Year of PG curriculum structure for 2-year PG Programme (3+2)

1st Semester

Sr.	Course Category	Category	L	T	S/P	C
1	Discipline-Specific Core (DSC)	DSC-1	x	x	x	4
		DSC-2	x	x	x	4
		DSC-3	x	x	x	4
2	Discipline Specific Elective (DSE)	DSE-1	x	x	x	4
		DSE-2	x	x	x	4
		Total Credits				20

2nd Semester

Sr.	Course Category	Category	L	T	P	C
1	Discipline-Specific Core (DSC)*	DSC-4	x	x	x	4
		DSC-5	x	x	x	4
		DSC-6	x	x	x	4
2	Discipline Specific Elective (DSE)	DSE-3	x	x	x	4
		DSE-4	x	x	x	4
		Total Credits				20

- 1 DSC in Semester I to be offered on Research Methodology.

Curricular Structure of 2nd Year of PG for Two-year PG Programme (3+2)

OR

One-year PG Programme after completion of a Four-Year UG Programme (4+1)

Structure 1 (Level 6.5): PG Curricular Structure with only coursework

3rd Semester

Sr.	Course Category	Category	L	T	S/P	C
1	Discipline-Specific Core (DSC)	DSC-7	x	x	x	4
		DSC-8	x	x	x	4
2	Discipline Specific Elective (DSE)	DSE-5	x	x	x	4
		DSE-6	x	x	x	4
		DSE-7	x	x	x	4
		Total Credits				20

4th Semester

Sr.	Course Category	Category	L	T	S/P	C
1	Discipline-Specific Core (DSC)	DSC-9	x	x	x	4
		DSC-10				4
2	Discipline Specific Elective (DSE)	DSE-8	x	x	x	4
		DSE-9	x	x	x	4
		DSE-10				4
		Total Credits				20.0

Structure 2 (Level 6.5): PG Curricular Structure with coursework and Research

3rd Semester

Sr.	Course Category	Category	L	T	S/P	C
1	Discipline Specific Elective (DSE)	DSC-7	x	x	x	4
		DSC-8	x	x	x	4
2	Research thesis/project/Patent	Project-1	x	x	x	12
		Total Credits				20

4th Semester

Sr.	Course Category	Category	L	T	S/P	C
1	Discipline Specific Elective (DSE)	DSE-5	x	x	x	4
		DSE-6	x	x	x	4
2	Research thesis/project/Patent	Project-2	x	x	x	12
		Total Credits				20.0

Structure 3 (Level 6.5): PG Curricular Structure with Research

3rd Semester

Sr.	Course Category	Category	L	T	S/P	C
1	Research thesis/project/Patent	Project-1	x	x	x	20
		Total Credits				20

4th Semester

Sr.	Course Category	Category	L	T	S/P	C
1.	Research thesis/project/Patent	Project-2	x	x	x	20
		Total Credits				20.0

NOTE: *The* **Research thesis/project/Patent** *chosen should be an original work and* ***not a repetition of work done in the 4th Year of the UG programme.*** *It may be an extension of the work done in the 4th Year of the UG programme.*

Outcomes expected of Research thesis/project/Patent **in the 2nd Year of PG Programmes**

Semester III

The following **four** outcomes must be achieved by the end of the III Semester:

i. Research Problem Identification
ii. Review of literature
iii. Research design formulation
iv. Commencement of experimentation, fieldwork, or similar tasks

Semester IV

The following **three** outcomes must be achieved by the end of the IV Semester:

i. Completion of experimentation/ fieldwork
ii. Submission of dissertation
iii. Research output in the form of **any one** of the following –

- Prototype or product development/ patent
- Publication/Presentation of research work in National/International Conference/conference proceedings
- Publication in a reputed journal such as Scopus-indexed journals or other similar quality journals
- Book or Book Chapter in a publication by a reputed publisher.
- Any other scholastic work as recommended by the School Research Committee and approved by the competent authority.

Note:

- **The detailed Curriculum to be prepared as per the Graduate Attributes of PG Programme available in the UGC document "Curriculum & Credit Framework for Postgraduate Programs"**

(https://www.ugc.gov.in/pdfnews/4682468_Curriculum-and-Credit-Framework-for-Postgraduate-Programmes.pdf)

- **Courses on AI/Machine Learning, entrepreneurship, and cutting-edge technologies as applicable to the relevant discipline to be included in the course structure under DSC/DSE course categories.**

Annexure-III

Credit Distribution Plan for 2-year Post-graduate Program in Physics

S.No.	*Course Category*	*Credit Per Course*	*2-year PG: With course work*	*2-year PG: With course work + Research*	*2-year PG: WithResearch*
1.	**Discipline-Specific Core (DSC)**	4	40	32	24
2.	**Discipline Specific Elective**	4	40	24	16
3.	**Research: Thesis/ Project/ Patent/ Intensive Research Work**	----	-------	24	40
Total Credits			**80**	**80**	**80**

Credit Distribution Plan for 1-Year Post-graduate Program

S.No.	*Course Category*	*Credit Per Course*	*1 year PG With course work*	*1 year PG with course work + Research*	*1 year PG with Research*
1.	**Discipline-Specific Core (DSC)**	4	16	8	-------
2.	**Discipline-Specific Elective**	4	24	8	-------
3.	**Research: Thesis/ Project/ Patent/ Intensive Research Work**	----	------	24	40
Total Credits			**40**	**40**	**40**

School of Physics, Shri Mata Vaishno Devi University

Course Structure as per NEP-2020 &NCrF for

Two Year PG Programme in Physics applicable for the students of 2022-23, 2023-24 & 2024-25 and onwards batches

Type of Course	1st Year Masters' Degree (Level-8)		2nd Year (Structure -1: Coursework only) Masters' Degree (Level-9)		2nd Year (Structure-2: Coursework + Research work) Masters' Degree (Level-9)		2nd Year (Structure-3: Research work only) Masters' Degree (Level-9)	
Semester	VII	VIII	IX	X	IX	X	IX	X
Discipline Specific Core (DSC)	**DSC-1** Quantum Mechanics-II **4-0-0 (4 credits)** **DSC-2** An introduction to Research Methodology **2-2-0 (4 credits)** **DSC-3** Physics Laboratory-I **0-0-8 (4 credits)**	**DSC-4** Electrodynamics and Plasma **4-0-0 (4 credits)** **DSC-5** Electrical, Optical and Magnetic Properties of Materials **4-0-0 (4 credits)** **DSC-6** Physics Laboratory-II **0-0-8 (4 credits)**	**DSC-7** Nucleation, Growth and Nanoarchitecture Fabrication **4-0-0 (4 credits)** **DSC-8** Nuclear and Particle Physics **4-0-0 (4 credits)**	**DSC-9** Sensors and Actuators (Course to cover Dielectric, Piezo-electric, Ferro-electric, Electro-optic Concepts & Materials for sensor applications) **4-0-0 (4 credits)** **DSC-10** Numerical and Scientific Computing **2-0-4 (4 credits)**	**DSC-7** Nucleation, Growth and Nanoarchitecture Fabrication **4-0-0** **DSC-8 also to be done by 4+1 PG: Coursework + Research**			
Discipline Specific Electives (DSE)	**DSE-1 (4-0-0)** **(4 credits)** Nanoscience and Nanotechnology **OR** Physics of Semiconductor Devices **OR** Advanced Classical Mechanics **OR** Nucleation, Growth and Nanoarchitecture Fabrication **OR** Classical Mechanics (only applicable for 2022-23 & 2023-24 batches of Int. B.Sc.-M.Sc. Program) **DSE-2 (4-0-0)** **(4 credits)** X-Ray & Electron Spectroscopy and X-ray & Electron Diffraction **OR** Optoelectronics **OR** Nuclear and Particle Physics	**DSE-3 (4-0-0)** **(4 credits)** Solar Photovoltaics: Principles and Applications **OR** Introduction to Photonics **OR** Sensor and Actuators **DSE-4** **(4 credits)** Low Dimensional Physics **(4-0-0)** **OR** Fibre Optics **(4-0-0)** **OR** Atmospheric and Space Physics **(4-0-0)** **OR** Numerical and Scientific Computing **(2-0-4)**	**DSE-5 (4-0-0)** **(4 credits)** Sustainability Physics & Materials **OR** Functional Materials & Device Concepts **OR** Advanced Thermodynamics and Statistical Physics **DSE-6 (4-0-0)** **(4 credits)** Nano Electronics **OR** Nano-magnetism &Data Storage Concepts **OR** Advanced Mathematical Physics **DSE-7** **(4 credits)** Fundamentals of Microprocessors **(3-0-2)** **OR** Quantum Optics **OR**	**DSE-8 (4-0-0)** **(4 credits)** Microcontrollers and Embedded Systems**(3-0-2)** **OR** Microwave Devices and Circuits **OR** Lasers and its Applications **DSE-9 (4 credits)** Advanced Particle Physics **OR** Device Simulation Methods (Course to be run using device simulation software. Any of the electronic, optical, magnetic devices etc. can be covered) **(2-0-4)** **OR** Experimental Research Techniques **2-0-4** **[Not for those opting for**	**DSE-5 (4-0-0)** **(4 credits)** Sustainability Physics & Materials **OR** Functional Materials & Device Concepts **OR** Advanced Thermodynamics and Statistical Physics **DSE-6 (4-0-0)** Nano Electronics **OR** Nano-magnetism & Data Storage Concepts **OR** Advanced Mathematical Physics **DSE-7 (3-0-2)** Fundamentals of Microprocessors **OR** Quantum Optics **OR** Non-solar Energy			

			Non-solar Energy Conversion Devices (Course to cover: Thermoelectric conversion, Electro-chemical and Photo-electrochemical Conversion, Hydrogen power & storage etc.)	**Experimental Research]** **OR** Theoretical Research Techniques **(2-0-4)** **[Not for those opting for Theoretical Research]** **DSE-10 (4-0-0)** Physics of Visual Display Materials **OR** Liquid-crystal and Polymer Physics **OR** AI, ML and IoT in Various Device Applications	Conversion Devices **[Only two of DSE-5, DSE-6, DSE-7 to be done by 4+1 PG: Coursework + Research]**			
Research work					**DSC-11 (0-0-8) Research (Preparatory)** **[Justification, Plan, Methodology, Feasibility, Needs]**	**DSC-12 (0-0-40) Research (Complete)**	**DSC-13 (0-0-40) Research Part 1** **[Defining Objectives and Targets + Completing 40% of research work]**	**DSC-14 (0-0-40) Research Part 2**
	20	**20**	**20**	**20**	**20**	**20**	**20**	**20**
		[160 credits]		**Masters' Degree [200 credits]**		**Masters 'Degree [200 credits]**		**Masters' Degree [200 credits]**

*** The students opting for exit after 1st year PG programme to become eligible for getting 1 year PG diploma shall have to do 4 credits skill enhancement course**

**** The Discipline Specific Elective (DSE) courses may be floated by the school as per the availability of resources and requirements in the given semester.**

Annexure-IV

School of Physics, Shri Mata Vaishno Devi University

Course Structure as per NEP-2020 & NCrF for FYUP in Physics applicable for the batches 2024-25 & onwards

	First Year		Certificate [Level-5]	Second Year		Diploma [Level-6]	Third Year Bachelors' Degree [Level-7]		Fourth Year Bachelors' Degree (Level-8)		
Semester/Type of Course	I	II		III	IV		V	VI	VII	VIII (Hons.)	VIII (Hons.+Research)
Major Course	Newtonian Mechanics **(3-0-0)** Newtonian Mechanics Lab **(0-0-2)**	Applied Optics **(3-0-0)** Applied Optics Lab **(0-0-2)**		Analog Electronics **(3-0-0)** Analog Electronics Lab **(0-0-2)** Mathematical Methods-I**(3-1-0)**	Digital Fundamentals **(3-0-0)** Heat and Thermodynamics**(3-0-0)** Electromagnetic Interactions **(3-0-0)** Waves and Oscillations **(3-0-0)** Heat and Wave Propagation Lab**(0-0-4)** Electromagnetic Interactions and Digital Fundamentals Lab**(0-0-4)**		Elements of Statistical Physics **(3-1-0)** Classical Mechanics **(3-1-0)** Atomic and Molecular Physics **(3-0-0)** Atomic and Molecular Physics Lab **(0-0-2)**	Mathematical Methods-II **(3-1-0)** Quantum Mechanics-I **(3-0-0)** Introductory Solid State Physics **(3-1-0)** Modern Physics Lab **(0-0-2)** Computational Physics **(2-0-4)**	Quantum Mechanics-II **(3-1-0)** An Introduction to Research Methods **(1-0-6)** **DSE (CE)-I (Basket-1) 4 credits** **DSE (CE)-II (Basket-2) 4 credits** Project-I **(0-0-4) 2 credits** [Optional]	Electrodynamics and Plasma **(3-1-0)** Electrical, Optical and Magnetic Properties of Materials **(4-0-0)** **DSE (CE)-III (Basket-3) 4 credits** **DSE (CE)-IV (Basket-4) 4 credits**	Electrodynamics and Plasma **(3-1-0)** Project/ Dissertation **(0-0-24)**
Minor Course	**Choose one Minor Course form the Basket of courses offered by other Schools**										
Multidisciplinary Course (MDC)	Choose one Minor Course form the Pool of courses offered by other schools **MD-I** 3-0-0 **(3 credits)**	Choose one Minor Course form the Pool of courses offered by other schools MD-II 3-0-0 **(3 credits)**		Choose one Minor Course form the Pool of courses offered by other schools MD-III 3-0-0 **(3 credits)**							

Ability Enhancement Course (AEC)	Choose one course from the pool of courses from AEC-I **(3 credits)**	Choose one course from the pool of courses from AEC-II **(3 credits)**		Choose one course from the pool of courses from AEC-III **(3 credits)**							
Skill Enhancement Course (SEC)	Choose one course from the pool of courses from SEC-I **(2 credits)**	Choose one course from the pool of courses from SEC-II **(2 credits)**		Choose one course from the pool of courses from SEC-III **(2 credits)**			Choose one course from the pool of courses from SEC-IV **(2 credits)**				
Value Addition Course (VAC)	Choose two courses from the pool of courses from VAC-I & VAC-II **(4 credits: 2 courses of 2 credits each)**	Choose two courses from the pool of courses from VAC-III & VAC-IV **(4 credits: 2 courses of 2 credits each)**									
Skill Development/ Training/ Laboratory Skills/ Summer Internship/ Project/ Dissertation			**[An exit 4 credit skill enhancement course]**			**[An exit 4 credit skill enhancement course]**	**IAPC** [2 credits]			Dissertation/ Project **(0-0-24)** **[12 credits]**	
Total Credits	20	20	4	20	20	4	20	20	20+2*	20	20
Exit Options			Certificate [44 credits]			Diploma [84 credits]		Bachelors Degree [120 credits]	*Optional For Research Student	Bachelors Degree Hons. [160 credits]	Bachelors Degree Res. [160+2 credits]

Minor Courses offered equal to 24 credits (for B.Sc.) and 32 credits (for B.Sc. Hons.) offered by SoP to the other schools

	First Year			Second Year			Third Year		Fourth Year	
Semester/ Course Typer	I	II		III	IV		V	VI	VII	VIII
Minor Course	Newtonian Mechanics (3-0-0) Newtonian Mechanics Lab (0-0-2)	Applied Optics (3-0-0) Applied Optics Lab (0-0-2)		Analog Electronics (3-0-0) Analog Electronics Lab (0-0-2)	Heat and Thermodynamics (3-0-0) Heat and Thermodynamics Lab (0-0-2) OR Electromagnetic Interactions (3-0-0) Electromagnetic Interactions Lab (0-0-2) OR Waves and Oscillations (3-0-2) Waves and Oscillations Lab (0-0-2)		Mathematical Methods-I (3-1-0) OR Classical Mechanics (3-1-0) OR Atomic and Molecular Physics (3-0-0) Atomic and Molecular Physics Lab (0-0-2)	Quantum Mechanics-I (3-1-0) OR Introductory Solid State Physics (3-1-0)	Quantum Mechanics-II (3-1-0) OR Nucleation, Growth and Nanoarchitecture Fabrication (4-0-0) OR Elementary Statistical Mechanics (3-1-0)	Mathematical Methods-II (3-1-0) OR Electrical, Optical and Magnetic Properties of Materials (4-0-0)

Minors from Allied Schools (Min. 12 Credits out of a total of 24 Credits for 3 year Degree Course/ Min. 16 Credits out of a total of 32 Credits for 4 year Degree Course). Rest 12/16 credits shall be at the discretion of the student.

1. School of Computer Science & Engineering
   a. AI & ML
   b. Cyber System Security
   c. CSE General Basket
2. School of Electrical Engg.
   a. Power Electronics
   b. Control Systems
   c. Energy Management
3. School of Electronics and Communication Engineering
   a. VLSI Design
   b. Millimeter Wave Technology
   c. Embedded Systems and Networks
   d. Multimedia Technologies
4. School of Mechanical Engineering
5. School of Mathematics

6. School of Biotechnology
7. School of Business
8. School of Economics
9. School of Energy Management

* The minors' baskets of the allied schools being dynamic in nature shall be updated from time-to-time by the AAC of the School of Physics and shall be reported to the BoS. If a student completes 50% of the minor credits from a basket in a given area, then he/ she will be eligible to receive minor degree in that area.

Multidisciplinary Courses offered by SoP to the other schools in this programme

	First Year			Second Year	
Semester/ Course Typer	MD-I	MD-II		MD-III	
Multidisciplinary Course (MD)	Quantum in Everyday Life [PHL MU101] 3-1-0 (3 credits)	Lasers and Applications [PHL MU102] 3-1-0 (3 credits)		Nanotechnology for Beginners [PHL MU203] 3-1-0 (3 credits)	

Annexure-V

Minor courses in Physics to be offered by the school to the other schools for the students of Four Year Undergraduate Programme (FYUP) and Integrated UG-PG programmes for AY 2025-26.

	First Year		Second Year		Third Year	Fourth Year
Semester/ Course Typer	Semester-I		Semester-III		Semester-V	Semester-VII
Minor Course	Newtonian Mechanics **(3-0-0)** Newtonian Mechanics Lab **(0-0-2)** **OR** Physical Optics **(3-0-0)** Physical Optics Lab **(3-0-0)**		Analog Electronics **(3-0-0)** Analog Electronics Lab **(0-0-2)** **OR** Measurement and Analysis **(2-0-0)** Measurement and Analysis Lab **(0-0-4)**		Mathematical Methods-I **(3-1-0)** **OR** Classical Mechanics **(3-1-0)** **OR** Atomic and Molecular Physics **(3-0-0)** Atomic and Molecular Physics Lab **(0-0-2)** **OR** Fundamentals of Modern Physics **(3-0-2)**	Quantum Mechanics-II**(3-1-0)** **OR** Nucleation, Growth and Nanoarchitecture Fabrication **(4-0-0)** **OR** Elementary Statistical Mechanics **(3-1-0)**

Annexure-VI

Int. B.Sc. (Hons.) Physics – M.Sc. Physics (Semester – V) Batch 2023-24				
Course Type	**Semester – V**	**Course Code**	**L-T-P**	**Credits**
Major (Theory)	Atomic and Molecular Physics	PHL MD305	3-0-0	3
Major (Lab)	Atomic and Molecular Physics Lab	PHP MD305	0-0-2	1
Major (Theory)	Elementary Statistical Mechanics	PHL MD307	3-1-0	4
Major (Theory + Lab)	Introduction to Numerical Computation	PHM MD309	3-0-2	4
Minor (Theory)	Fundamentals of Materials Science	PHL MI307	4-0-0	4
SEC-IV	Choose one course from the pool of courses from SEC-IV [In house/ Swayam platform/ Industry based]			2
Skill Development/Training/ Laboratory Skills/ Summer Internship/Project/ Dissertation	Summer Internship/ Project/ Dissertation	PHI PR301/ PHD PR301	0-0-4	2
Total Credits				**20**