यशवंतराव चव्हाण महाराष्ट्र मुक्त विद्यापीठ, नाशिक
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ज्ञानगंगोत्री, गंगापूर धरणाजवळ, गोवर्धन
नाशिक – ४२२ २२२ (महाराष्ट्र) भारत

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विज्ञान विद्याशाखा / School of Sciences

4Year B.Sc. (Honours) (Major in Physics) {2025 Pattern}

Minutes of the PAC Meeting held on 20.09.2024

Meeting No.: 02 **Date: 20th Sept, 2024** **Time: 03.20 pm to 05.30 pm**

The PAC Meeting for 4 Year B.Sc. (Honours) (Major in Physics) {2025 Pattern} programme as per NEP 2020 of **School of Sciences** was held online on **Friday, 20-09-2024 at 03:20 PM,** school meeting hall. Following members and invitees were present,

SN	Name of PAC Members	Designation
1.	Dr. Chetana Kamlaskar	**(Chairperson) and Member**
2.	Dr. Sunanda More	Member
3.	Dr. Sanjay J. Dhoble	Member
4.	Dr. Pallavi Chetan Dixit	Member
5.	Dr. Sanjay Subhash Latthe	Member
6.	Mr. Manish Shingare	Ex. Academic Coordinator (Physics Programme) and Invitee
7.	Ms. Tejaswi Kadam	Invitee
8.	Dr. Jagruti Chavan	Invitee
9.	Dr. Dnyaneshwar Bhusanur	Invitee
10.	Mr. Ravindra Bharsat	Invitee
11.	Ms. Minakshi Kadel	Invitee

Dr. Chetana Kamlaskar, Director of the School of Sciences and Chairperson of the PAC, first welcomed the PAC members and introduced the purpose of the meeting. During the meeting, the following items were discussed for the collective decision on the proposed content of each course in the 4 Year B.Sc. (Honours) (Major in Physics) {2025 Pattern} programme.

<table>
<tr><th>SN</th><th>Details of Items</th><th>Resolution</th></tr>
<tr><td>1</td><td>Agenda Item 1: To finalize and approve the detailed syllabus (semester 01 to 03) related to Open Elective (OE) courses under Chemistry programme for other faulty, as per NEP2020 guidelines.</td><td>The PAC members unanimously finalized and approved the proposed syllabus details for all Open Elective (OE) courses at semester 01 to 03 in the Physics discipline for the learners other than Physics Major, in accordance with NEP2020 guidelines, with few suggestions about course sequence and content:
1. The primary aim of OE courses is to provide an overview of the physics field that will spark curiosity and inspire further exploration while showcasing some of the surprising and fascinating elements of physics. Hence, only following courses are recommended by PAC members to retain among the proposed courses:
<table><tr><td>Sem</td><td>As per Suggestion by PAC</td></tr><tr><td rowspan="2">01</td><td>OE101: Physics of Daily Life</td></tr><tr><td>OE102: Materials in Daily Life

In OE102, Replace Unit 02-03: Composite Materials by new Unit 02-03: Energy Generate Materials</td></tr><tr><td rowspan="2">02</td><td>OE103: Renewable Energy for Daily life</td></tr><tr><td>OE104: Energy Audit</td></tr><tr><td>03</td><td>OE201: Physics of Sound & Music</td></tr></table>2. The list of OE courses will be added in the future as per demand.</td></tr>
<tr><td></td><td colspan="2">Action Taken: The Programme structure and syllabus have been updated following the discussion in the PAC meeting.
Refer Appendix I & II for the revised programme structure & syllabus.</td></tr>
<tr><td>2</td><td>Agenda Item 2: To discuss & finalize Discipline specific Indian Knowledge System (IKS) - Ancient Indian Physics course position within the Physics programme structure.</td><td>The PAC members unanimously finalized the position of the proposed Discipline specific Indian Knowledge System (IKS) Course at semester 03, of the following proposed Physics programmes as per NEP2020 guidelines, with few suggestions about courses in programme structure of:
i. 4 Year B.Sc. (Honours) (Major in Physics and Minor in Chemistry)
ii. 4 Year B.Sc. (Honours) (Major in Physics and Minor in Mathematics)</td></tr>
</table>

		• Due to addition of discipline specific IKS course at semester 03, the PAC members unanimously finalized and approved the syllabus of the proposed Major in Physics course 'PHY204: Wave Motion & Optics', of semester 04 which was retained after the finalization of the programme structure.
	Action Taken: Syllabus has been updated as per the modified programme structure. Refer **Appendix II** for updated syllabus.	
3	**Agenda Item 3:** To finalize the courses and syllabus from last verticals (VSC, SEC, AEC, VEC, generic IKS, OJT, FP, CEP, CC, RP) that will be offered common for all 4Y UG B.Sc. (Honours) programmes of School of Sciences.	Few courses from the last verticals (SEC, AEC, VSC, IKS, CC, CEP etc.) that will be offered common for all programmes have been discussed and approved along with their syllabus. To finalize these courses at the university level, if required, the PAC members unanimously gave authority to the School Director to update the courses in accordance with the university decision as needed.
	Action Taken: The syllabus has been updated as per the discussion in the PAC meeting. Refer **Appendix II** for updated syllabus.	
4	**Agenda Item 4:** Identification of Writers/ Editors for SLM development task	The PAC members unanimously gave their consent for the writing/editing of the Self Learning Material (SLM) for the proposed B.Sc. (Honours) (Major in Physics) programme. The PAC members have given their consent for SLM development. They also agreed to recommend experts for the new courses, in due course of time. It was also resolved to authorize the Director of this School to enrich and update the list of writers/editors for the Self Learning Material (SLM) development task from time to time as per the University Policy decisions/norms.

Meeting ends with vote of thanks by **Dr. Chetana Kamlaskar.**

Thanks…

(**Dr. Chetana Kamlaskar)**

Chairperson, PAC B.Sc. (Physics)

Credit Distribution:

Physics: Major, Minor, OE, VSC, SEC, VEC, CC and IKS Courses

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
4.5	I	**PHY101:** Mechanics **(T)**	4	-		-		**OE101 :** Physics of Daily Life **(T)**	2	**VSC101:** Basic Instrumentation Skills **(TW)**	2	**AEC101:** English Communication-1 **(T)**	2	**CC101:** Photography Techniques & Bird Watching **(TW)**	2	22
		PHY102: Lab Activity on PHY101 **(P)**	2					**OE102:** Materials in Daily Life **(T)**	2	**SEC101:** Fundamental Statistics using MS Excel **(TW)**	2	**VEC101:** Value Education **(T)**	2			
												IKS101: Generic IKS **(T)**	2			
	II	**PHY103:** Electricity & Magnetism **(T)**	4	-		**PHY103:** Electricity & Magnetism **(T)**	2	**OE103:** Renewable Energy for Daily life **(T)**	2	**VSC102:** Lab Activities on PHY103**(P)**	2	**AEC102:** English Communication-2 **(T)**	2	**CC102:** Yoga **(TW)**	2	22
		PHY104: Lab Activity on PHY103 **(P)**	2					**OE104:** Energy Audit **(T)**	2	**SEC102:** Solar Panel System **(TW)**	2	**VEC102:** Environmental Education **(T)**	2			
Cum. Cr.		**12**		**00**		**02**		**08**		**08**		**10**		**04**		**44**
5.0	III	**PHY201:** Thermodynamics & Statistical Mechanics **(T)**	4	-		**PHY201:** Thermodynamics & Statistical Mechanics **(T)**	4	**OE 201:** Physics of Sound & Music **(T)**	2	**VSC201:** Lab Activities on PHY201 **(P)**	2	**AEC201:** Modern Indian Language- 1 **(T)**	2	**FP201:Field Project**	2	22
		PHY202: Ancient Indian Physics **(T)** (IKS)	2													
		PHY203: Lab Activity on PHY201 **(P)**	2											**CC201:** Applied Arts **(TW)**	2	
	IV	**PHY204:** Wave Motion & Optics **(T)**	4	-		**PHY204:** Wave Motion & Optics **(T)**	4	**Code: IPR(T)**	2	**SEC201:** Financial & Investment Skills **(TW)**	2	**AEC202:**Modern Indian Language- 2 **(T)**	2	**CEP201:** Bee Keeping	2	22
		PHY205: Mathematical Methods in Physics **(T)**	2											**CC202:** Astronomy for Beginners **(TW)**	2	
		PHY206: Lab Activity on PHY204 **(P)**	2													
Cum. Cr.		**28**		**00**		**10**		**12**		**12**		**14**		**12**		**88**

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
5.5	V	**PHY301:** Classical & Quantum Mechanics **(T)**	4	**PHY304:** Astronomy & Astrophysics **(T)** **OR** **PHY305:** Semiconductor Technology **(T)** **OR** **PHY306:** Electronics **(T)**	4	**PHY301:** Classical & Quantum Mechanics **(T)**	4	-	-	**VSC301:** Lab Activity on PHY301 **(P)**	2	-	-	**FP301/ CEP301:** Awareness of Sustainable Development Goals **(TW)**	2	22
		PHY302: Solid State Physics **(T)**	2													
		PHY303: Lab Activity on PHY301 & PHY302 **(P)**	4													
	VI	**PHY307:** Nuclear Physics & Radiation Safety **(T)**	4	**PHY310:** Instrumentation **(T)** **OR** **PHY311:** Energy Storage Devices **(T)** **OR** **PHY312:** Embedded System **(T)**	4	**PHY307:** Nuclear Physics & Radiation Safety **(T)**	4	-	-	-		-	-	**PHYOJT301 :** OJT **(TW)**	4	22
		PHY308: Electromagnetic Theory **(T)**	2													
		PHY 309: Lab Activity on PHY307 & PHY308 **(P)**	4													
Cum. Cr.		**48**		**08**		**18**		**12**		**14**		**14**		**18**		**132**

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP,CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
6.0	VII	**PHY401:** Classical Mechanics **(T)**	4	**PHY406:**Experimental Techniques in Physics **(T)** **OR** **PHY407:** Physics of LASERs **(T)**	4	**RES405:** Research Methodology **(T)**	4	-		-		-		-	2	22
		PHY402: Electronic Devices **(T)**	4													
		PHY403: Mathematical Methods in Physics **(T)**	2													
		PHY404: Physics – I **(P)**	4													
	VIII	**PHY409:**Atomic & Molecular Physics **(T)**	4	**PHY415:** Fundamental of Material Science **(T)** **OR** **PHY416:** Medical Physics **(T)**	4	-								**PHY413:** OJT **(TW)**	4	22
		PHY410: Electrodynamics **(T)**	4													
		PHY411: Quantum Mechanics-I **(T)**	2													
		PHY412: Physics – II (Computational Methods using 'C') **(P)**	4													
Cum. Cr.		**76**		**16**		**22**		**12**		**14**		**14**		**22**		**176**

Appendix I Programme Structure: 4 Year B.Sc. (Honours) (Major in Physics and Minor in Mathematics) {2025 Pattern}

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
4.5	I	**PHY101:** Mechanics **(T)**	4	-		-			2	**VSC101:** Basic Instrumentation Skills **(TW)**	2	**AEC101:** English Communication-1 **(T)**	2	**CC101:** Photography Techniques & Bird Watching **(TW)**	2	22
		PHY102: Lab Activity on PHY101 **(P)**	2						2	**SEC101:** Fundamental Statistics using MS Excel **(TW)**	2	**VEC101:** Value Education **(T)**	2			
												IKS101: Generic IKS **(T)**	2			
	II	**PHY103:** Electricity & Magnetism **(T)**	4	-		**MAT101:** Fundamentals of Mathematics **(T)**	2		2	**VSC102:** Practical Based on MAT101 **(P)**	2	**AEC102:** English Communication-2 **(T)**	2	**CC102:** Yoga**(TW)**	2	22
		PHY104: Lab Activity on PHY103 **(P)**	2						2	**SEC102:** Solar Panel System **(TW)**	2	**VEC102:** Environmental Education **(T)**	2			
Cum. Cr.		**12**		**00**		**02**		**08**		**08**		**10**		**04**		**44**
Exit option: Award of UG Certificate in PHYSICS as Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																
5.0	III	**PHY201:** Thermodynamics & Statistical Mechanics **(T)**	4	-		**MAT103:** Calculus **(T)**	4	**OE 201: (T)**	2	**VSC201:** Practical Based on MAT103 **(P)**	2	**AEC201:** Modern Indian Language- 1 **(T)**	2	**FP201:Field Project**	2	22
		PHY202: Ancient Indian Physics **(T)** IKS	2											**CC201:** Applied Arts **(TW)**	2	
		PHY203: Lab Activity on PHY201 **(P)**	2													
	IV	**PHY204:** Wave Motion & Optics **(T)**	4	-		**MAT201:** Linear Algebra **(T)**	4	**Code: IPR(T)**	2	**SEC201:** Financial & Investment Skills **(TW)**	2	**AEC202:**Modern Indian Language- 2 **(T)**	2	**CEP201:** Bee Keeping	2	22
		PHY205: Mathematical Methods in Physics **(T)**	2											**CC202:** Astronomy for Beginners **(TW)**	2	
		PHY206: Lab Activity on PHY204 **(P)**	2													
Cum. Cr.		**28**		**00**		**10**		**12**		**12**		**14**		**12**		**88**
Exit option: Award of UG Diploma in PHYSICS as Major and MATHEMATICS as Minor with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
5.5	V	**PHY301:** Classical & Quantum Mechanics **(T)**	4	**PHY304:** Astronomy & Astrophysics **(T)** **OR** **PHY305:** Semiconductor Technology **(T)** **OR** **PHY306:** Electronics **(T)**	4	**MAT301:**Differential Equations **(T)**	4	-	-	**VSC301:** Programming in MATLAB **(P)**	2	-	-	**FP/ CEP301:** Awareness of Sustainable Development Goals **(TW)**	2	22
		PHY302: Solid State Physics **(T)**	2													
		PHY303: Lab Activity on PHY301 & PHY302 **(P)**	4													
	VI	**PHY307:** Nuclear Physics & Radiation Safety **(T)**	4	**PHY310:** Instrumentation **(T)** **OR** **PHY311:** Energy Storage Devices **(T)** **OR** **PHY312:** Embedded System **(T)**	4	**MATXXX:** Numerical Analysis **(T)**	4	-	-	-		-	-	**PHYOJT301 :** OJT **(TW)**	4	22
		PHY308: Electromagnetic Theory **(T)**	2													
		PHY 309: Lab Activity on PHY307 & PHY308 **(P)**	4													
Cum. Cr.		**48**		**08**		**18**		**12**		**14**		**14**		**18**		**132**
Exit option: Award of UG Degree in PHYSICS as Major with 132 credits OR Continue with Major and Minor																

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP,CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
6.0	VII	**PHY401:** Classical Mechanics **(T)**	4	**PHY406:**Experimental Techniques in Physics **(T)** **OR** **PHY407:** Physics of LASERs **(T)**	4	**RES405:** Research Methodology **(T)**	4	-		-		-		-	2	22
		PHY402: Electronic Devices **(T)**	4													
		PHY403: Mathematical Methods in Physics **(T)**	2													
		PHY404: Physics – I **(P)**	4													
	VIII	**PHY409:**Atomic & Molecular Physics **(T)**	4	**PHY415:** Fundamental of Material Science **(T)** **OR** **PHY416:** Medical Physics **(T)**	4	-								**PHY413:** OJT **(TW)**	4	22
		PHY410: Electrodynamics **(T)**	4													
		PHY411: Quantum Mechanics-I **(T)**	2													
		PHY412: Physics – II (Computational Methods using 'C') **(P)**	4													
Cum. Cr.		**76**		**16**		**22**		**12**		**14**		**14**		**22**		**176**
Four Year UG Honours Degree in PHYSICS as Major and MATHEMATICS as Minor with 176 credits																

Appendix I Programme Structure: 4 Year B.Sc. (Honours) (Major in Physics and Minor in Chemistry){2025 Pattern}

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
4.5	I	**PHY101:** Mechanics **(T)**	4	-		-			2	**VSC101:** Basic Instrumentation Skills **(TW)**	2	**AEC101:** English Communication-1 **(T)**	2	**CC101:** Photography Techniques & Bird Watching **(TW)**	2	22
		PHY102: Lab Activity on PHY101 **(P)**	2						2	**SEC101:** Fundamental Statistics using MS Excel **(TW)**	2	**VEC101:** Value Education **(T)**	2			
												IKS101: Generic IKS **(T)**	2			
	II	**PHY103:** Electricity & Magnetism **(T)**	4	-		**CHE103**: Physical & Organic Chemistry-I **(T)**	2		2	**VSC102** Physical & Organic Chemistry-I **(P)**	2	**AEC102:** English Communication-2 **(T)**	2	**CC102:** Yoga **(TW)**	2	22
		PHY104: Lab Activity on PHY103 **(P)**	2						2	**SEC102:** Solar Panel System **(TW)**	2	**VEC102:** Environmental Education **(T)**	2			
Cum. Cr.		**12**		**00**		**02**		**08**		**08**		**10**		**04**		**44**
Exit option: Award of UG Certificate in PHYSICS as Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																
5.0	III	**PHY201:** Thermodynamics & Statistical Mechanics **(T)**	4	-		**CHE201:** Physical & Organic Chemistry-II **(T)**	4	**OE 201: (T)**	2	**VSC201:** Physical & Organic Chemistry-II **(P)**	2	**AEC201:** Modern Indian Language- 1 **(T)**	2	**FP201:Field Project**	2	22
		PHY202: Ancient Indian Physics **(T)** IKS	2											**CC201:** Applied Arts **(TW)**	2	
		PHY203: Lab Activity on PHY201 **(P)**	2													
	IV	**PHY204:** Wave Motion & Optics **(T)**	4	-		**CHE204:**Basic Analytical Chemistry **(T)**	4	**Code: IPR(T)**	2	**SEC201:** Financial & Investment Skills **(TW)**	2	**AEC202:**Modern Indian Language- 2 **(T)**	2	**CEP201:** Bee Keeping	2	22
		PHY205: Mathematical Methods in Physics **(T)**	2											**CC202:** Astronomy for Beginners **(TW)**	2	
		PHY206: Lab Activity on PHY204 **(P)**	2													
Cum. Cr.		**28**		**00**		**10**		**12**		**12**		**14**		**12**		**88**
Exit option: Award of UG Diploma in PHYSICS as Major and CHEMISTRY as Minor with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
5.5	V	**PHY301:** Classical & Quantum Mechanics **(T)**	4	**PHY304:** Astronomy & Astrophysics **(T)** OR **PHY305:** Semiconductor Technology **(T)** OR **PHY306:** Electronics **(T)**	4	**CHE206:**Physical & Inorganic Chemistry**(T)**	4	-	-	**VSC301:** Physical & Inorganic Chemistry **(P)**	2	-	-	**FP/ CEP301:** Awareness of Sustainable Development Goals **(TW)**	2	22
		PHY302: Solid State Physics **(T)**	2													
		PHY303: Lab Activity on PHY301 & PHY302 **(P)**	4													
	VI	**PHY307:** Nuclear Physics & Radiation Safety **(T)**	4	**PHY310:** Instrumentation **(T)** OR **PHY311:** Energy Storage Devices **(T)** OR **PHY312:** Embedded System **(T)**	4	**CHE306:** Green Chemistry **(T)**	4	-	-	-		-	-	**PHYOJT301 :** OJT **(TW)**	4	22
		PHY308: Electromagnetic Theory **(T)**	2													
		PHY 309: Lab Activity on PHY307 & PHY308 **(P)**	4													
Cum. Cr.		**48**		**08**		**18**		**12**		**14**		**14**		**18**		**132**
Exit option: Award of UG Degree in PHYSICS as Major with 132 credits OR Continue with Major and Minor																

Level	Sem	Major				Minor		OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP,CC, RP		Cum. Cr. / Sem
		Mandatory		Electives												
6.0	VII	**PHY401:** Classical Mechanics **(T)**	4	**PHY406:**Experimental Techniques in Physics **(T)** OR **PHY407:** Physics of LASERs **(T)**	4	**RES405:** Research Methodology **(T)**	4	-		-		-		-	2	22
		PHY402: Electronic Devices **(T)**	4													
		PHY403: Mathematical Methods in Physics **(T)**	2													
		PHY404: Physics – I **(P)**	4													
	VIII	**PHY409:**Atomic & Molecular Physics **(T)**	4	**PHY415:** Fundamental of Material Science **(T)** OR **PHY416:** Medical Physics **(T)**	4	-								**PHY413:** OJT **(TW)**	4	22
		PHY410: Electrodynamics **(T)**	4													
		PHY411: Quantum Mechanics-I **(T)**	2													
		PHY412: Physics – II (Computational Methods using 'C') **(P)**	4													
Cum. Cr.		**76**		**16**		**22**		**12**		**14**		**14**		**22**		**176**
Four Year UG Honours Degree in PHYSICS as Major and CHEMISTRY as Minor with 176 credits																

Abbreviations: Yr.: Year; Sem.: Semester; Cumulative Credits: Cum. Cr. ; T- Theory Course; P- Practical course; TW-Term Work; PW- Project Work

APPENDIX I:

SYLLABUS OF OE COURSES FROM PHYSICS

Refer the syllabus file attached with this mail separately

APPENDIX II: SYLLABUS OF B.SC. (HONOURS) (PHYSICS) – VSEC, AEC VEC, OJT, FP, CC, CEP COURSES_20 SEPT 2024

Refer the syllabus file attached with this mail separately