### यशवंतराव चव्हाण महाराष्ट्र मुक्त विद्यापीठ, नाशिक



### Yashwantrao Chavan Maharashtra Open University, Nashik

#### **NAAC Accredited 'A' Grade**

ज्ञानगंगोत्री, गंगापूर धरणाजवळ, गोवर्धन नाशिक – ४२२ २२२ (महाराष्ट्र) भारत

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विज्ञान विद्याशाखा / School of Sciences

# VXXX: B.Sc. (Honours) (Major in Environmental Science) {2025 Pattern}

### Minutes of the PAC Meeting held on 14.06.2024

Date: 14<sup>th</sup> June, 2024 Time: 09.30 am to 05.30 pm

The PAC Meeting for B.Sc. (Honours) (Major in Environmental Science) {2025 Pattern} programme as per NEP 2020 of **School of Sciences** was held offline & online on **Friday**, **14-06-2024 at 09:30 AM** at school meeting hall. Following members and invitees were present,

01	Dr. Chetana Kamlaskar	(Chairperson) and Member
02	Dr. Pravin Nalawade	Member
03	Dr. Ashish Mane	Member
04	Dr. Kailas Dandge	Member
05	Dr. Jagruti Chavan	Academic Coordinator (Environment Science) and Invitee
06	Ms. Minakshi Kadel	Invitee
07	Mr. Ravindra Bharsat	Invitee
08	Ms. Tejaswi Kadam	Invitee
09	Dr. Dnyaneshwar Bhusanur	Invitee
10	Mr. Nandkishor Sangle	Invitee
11	Dr. Bharat More	Invitee

Following members could not attend the meeting due to their other engagements.

01	Dr. Sunanda More	Member

Dr. Chetana Kamlaskar, Chairperson and Member of the PAC first welcomed PAC members and introduced the members about the purpose of the meeting. During the meeting following items were discussed.

S	Details of Items	R	Resolutio	n	
N					
1	Agenda 1: To finalize and approve proposed BSc(Honours) (Major in Environmental Science) programme - credit distribution details, detailed syllabus (semester 01 to 06) related to Major and Minor, of Environmental Science, and their evaluation pattern for all first, second and third year courses at semester 01 to 06.	the a M for we still for the s	ne proportion of third Major and third Major and ollowing with few tructure:  1. 4 Sc Sc Sc Sc Major ollowing nembers  1. Fo proportion of the proportion of	sed programme cre pattern and other de year courses at seme d Minor, of Enviror 02 programmes as p suggestions about  Year B.Sc. (Honours) ience and Minor in B Year B.Sc. (Honours) ience and Minor in Z ience and Minor in Z in Environmental S Suggestions are  r the First year (Se posed B.Sc. progr ggested the followin urses of 4Y B.Sc. vironmental Science To increase the m each course for sem r the Second year (Se posed B.Sc. progr ggested the following The titles of two c	emester 01 and 02) of amme, PAC members g changes in first-year (Honours) (Major in umber of practicals for nester 01 and 02) Semester 03 and 04) of amme, PAC members
			Sem	follows: Proposed Course	Finalized Course
			~ CAA	Title	Title
			03	Biodiversity & its Conservation	Biodiversity Conservation
			04	Natural Resources and their Management	Natural Resources Management
			pro	has been advised to 'EVS201: Po Techniques. Also rearrange sequence logical flow of the rathe Third year (Supposed B.Sc. prograggested the following Two courses were	or rename course title as llution Monitoring it has been advised to of units to maintain the content covered.  emester 03 and 04) of amme, PAC members

Proposed Course and its Title	Changed courses and Finalized Course Title
EIA and	Environmental
Environmental	Legislation and Audit
Audit	(Changed from 2 Cr to 4
(4 Cr)	Cr)
Environmental	Environment Impact
Legislation	assessment
(2 Cr)	(Changed from 4 Cr to 2
	Cr)

- In semester 06, in EVS307: Remote Sensing and GIS, a unit related to "Database Management System" was suggested to add.
- 4. It is also suggested that course content of major shall be used for providing Environmental Science as minor.

**Action Taken:** Programme structure and syllabus has been updated as per the discussion in PAC meeting.

Refer **Appendix I & II** for updated programme structure & syllabus.

**Agenda 2:** Finalization and approval of Syllabus of Elective courses (DSE), OE/VSC courses etc. related to Environmental Science.

The PAC members unanimously finalized and approved the syllabus of the proposed Elective courses (DSE) in Environment Science with few suggestions, which were retained after the finalization of the programme structure:

- In semester 05 EVS305: Alternate Energy Resources- it has been advised to rearrange sequence of units to maintain the logical flow of the content covered.
- In semester 06, The title of one course (EVS312) were changed as follows:

Sem	<b>Proposed Course</b>	Finalized Course
	Title	Title
06	Environmental	Environmental
	Toxicology,	Health, Toxicology
	Human health and	& Safety
	safety	-

- In semester 03, One Skill Enhancement Course (SEC) was suggested for , "Simulation software's based on Pollution Control Technology" for second year (3<sup>rd</sup> semester)
- Regarding IKS based on Environment Science, the PAC members suggested the course title as "Environment: Indian Culture & Traditions."

		<ul> <li>The OE/VSC courses etc. related to Environmental Science have been discussed and in which some courses are suggested which will be open for all faculties. The detail discussion regarding OE/VSC will be finalised in next PAC meeting.</li> <li>The PAC members Suggested OE course</li> </ul>
		title are given below: -  1. Smart City 2. Biodiversity of India 3. Environmental Economics 4. Environment & Public Health. 5. Sustainable Development Goal & Society 6. Environmental Law
	Ţ	updated as per the discussion in PAC meeting.
	Refer <b>Appendix II</b> for updated sy	
3	<b>Agenda 3:</b> Framing guidelines for OJT/FP and RP Courses	The PAC members agreed to guide time to time in future regarding the OJT/FP and RP courses. A booklet of OJT/FP will be proposed by School of Sciences for all UG courses, which will be finalized in due course of time.  It was also resolved to authorize the Director of this School to enrich and update the OJT, Field Project (FP), and Research Project (RP) guidelines from time to time as per the University Policy decisions/norms.
4	Agenda 4: Identification of	The PAC members unanimously gave their consent for
	Writers/ Editors for SLM development task	the writing/editing of the Self Learning Material (SLM) for the proposed B.Sc. (Honours) (Major in Environmental Science) programme.  For a few courses, 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. Jagruti Chavan.** 

Thank You

**Dr.** Chetana Kamlaskar)

Chairperson, PAC B.Sc. (Honours)

(Major in Environmental Science)

### APPENDIX I: PROGRAMME STRUCTURE:

# Environmental Science: Major, Electives, Minor, OE, VSC, Sec, IKS Courses $\{ {\bf 2025~Pattern} \}$

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

		Major											OJT, FP,	Cum.																		
Level	Sem	Mandatory		Electives	S Minor		OE		VSC, SEC	(VSEC)	AEC, VEC,	IKS	CEP, CC, RP	Cr. / Sem																		
		EVS101: Ecology and Ecosystem (T)	4				(EVS) OE-I	2		2		2																				
	I	EVS102: Lab activities on EVS101 (P)	2	-	-		(EVS) OE-II	2		2	IKS101: Environment: Ir Culture & Tradi		2	22																		
4.5	II	EVS103: Environmental Chemistry and Physics (T)	4	_	EVS103: Environmental Chemistry and	2	(EVS) OE-III	2	Lab Activity Environme Chemistry Physics (1)	y on intal <b>2</b> and		2	2	2 22																		
		EVS104: Lab activities on EVS103 (P)	2		Physics (T)		(EVS) OE-IV	2		2		2																				
Cum.	Cr.	12		00	02		08	I .	08	}	10	l	04	44																		
	III	EVS 201: : Biodiversity Conservation (T)  EVS 202: Pollution Monitoring Techniques (T)	4		EVS 201: Biodiversity	4	(EVS)OE-V	<b>2</b> ]		2	2	Field	Project 2	2 22																		
		EVS 203: Lab Activity on EVS201 (P)	2		Conservation (T)			Cor	nservation (P)				2	2																		
5.0		EVS 204: Pollution Control Technologies (T)	4		EVS 304:				C: Simulation				2	2																		
	IV	EVS 205: Natural Resource  Management (T)	2		Pollution Control Technologies (T)	4	IPR :	softwares based on EVS304	softwares based on EVS304										softwares based		softwares based		softwares based	softwares based	softwares based	softwares based	softwares bas	2	2			22
		EVS 206: Lab Activity on EVS204(P)	2		_																											
Cum.	Cr.	28		00	10		12		12		14		12	88																		

				Major							AEC,	OJT, F	•	Cum. Cr. /
Level	Sem	Mandatory		Electives		Minor		OE	VSC, SEC (VSEC)		VEC, IKS	CEP,	CEP, CC, RP	
		EVS 301: Environmental Legislation and Audit(T)	4	EVS 304: Environmental Geosciences (T)  OR		FIX.0 (			7700					
	v	EVS 302: Environment Impact assessment(T)	2	EVS 305: Alternate Energy Resources (T)	4	EVS 206: Environmental Legislation and Audit (T)	4		VSC207: Environmental	2		FP/CEP	2	22
		EVS 303: Lab Activities on EVS301, EVS302 and Elective (P)	4	OR EVS 306: Urban Ecosystem & Sustainable Development (T)					Legislation and Audit <b>(P)</b>					
5.5		EVS 307: Remote Sensing and GIS (T)	4	EVS 310: Atmospheric Sciences (T)										
	VI	EVS 308: Environmental Biotechnology (T)	2	OR EVS 311: Environmental Statistics (T)	4	EVS 306: Remote	4					OJT	4	22
		EVS 309: Lab Activities on EVS307, EVS308 and Elective (P)	4	OR EVS 312: Environmental Toxicology, Human Health & Safety (T)	-	Sensing and GIS <b>(T)</b>								
Cum.	. Cr.	48		08		18		12	14		14	18		132

· 1	C	Major	Major						VSC, SEC	AEC, VEC,	OJT, FP,	CEP,	Cum . Cr.
Level	Sem	Mandatory		Electives		Minor		OE	(VSEC)	IKS	CC, ŔI		/ Sem
		<b>EVS 401:</b> Environmental Science and Environmental Biology <b>(T)</b>	4	EVS 406: Environmental Education,		RES405:							
	VII	EVS 402: Natural Resources and Their Conservation (T)	2	Policies & Legislation (T)	4	Research Methodology	4				FP/CEP	2	22
	VII	EVS 403: Biodiversity and Conservation (T)	4	EVS 407: Management of	4	(T)					FI/CEI	_	22
6.0		<b>EVS 404:</b> Lab Activities on <b>EVS</b> 401, <b>EVS</b> 402 & <b>EVS</b> 403 <b>(P)</b>	4	Water Resources (T)									
		EVS 409: Environmental Chemistry (T)	4	EVS 415: Environmental	4								
	VIII	EVS 410: Environmental Geosciences & Computer Applications (T)	2	Sustainability <b>(T)</b> OR							EVS413: On-Job	4	22
		EVS 411: Herbal Wealth (T)	4	EVS 416: Solid & Hazardous Waste	•						Training <b>(TW)</b>	•	
		EVS 412: Lab Activities on EVS 409, EVS 410 & EVS 411 (P)	4	Management (T)									
Cum. C	Cr.	76		16		22		12	14	14	22		176

## Programme Structure: B.Sc. (Honours) (Major in Environmental Science and Minor in Botany) (2025 Pattern)

EVS102: Lab activities on EVS101 2			Major										OJT, FP,	Cum.
I EVS102: Lab activities on EVS101 2	Level	Sem	Mandatory	Elective	es Minor		OE	OE		C (VSEC)	AEC, VEC,	IKS		Cr. / Sem
EVS102: Lab activities on EVS101   2			EVS101: Ecology and Ecosystem (T)				OE-I	2		2		2		
4 - BOT103: EvS103: Environmental Chemistry and Physics (T)		I		-	-		OE-II	2		2		nvironment: Indian 2		22
EVS104: Lab activities on EVS103 2 Gymnosperms (T) OE-IV 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	4.5	II			Evolution and Diversity of Pteridophytes	2	OE-III	2	Lab Activi Evolution Diversity Pteridophyt	ty on and of of es and		2	2	2 22
Exit option: Award of UG Certificate in Environmental Science as Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Min EVS 201:: Biodiversity Conservation (T)  EVS 202: Pollution Monitoring Techniques (T)  EVS 203: Lab Activity on EVS201 2  EVS 203: Lab Activity on EVS201 2  EVS 204: Genetics & Evolutionary Biology (T)  EVS 205: Microbiology (T)  EVS 206: Lab Activity on EVS201 2  EVS 206: Lab Activity on EVS204 4  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)			· · · · · · · · · · · · · · · · · · ·	:	Gymnosperms		OE-IV	2		2		2		
Field Project 2    Field Project   2	Cum.	Cr.	12	00	02	I	08	<u> </u>	0	8	10		04	44
The second of th	Exit opt	tion: Av	ward of UG Certificate in Environment	l Science	as Major with 44 cre	dits	and an additiona	al 4 cr	edits core NSQ	F course/ In	nternship OR Co	ontinue w	ith Major and	Minor
5.0  EVS 203: Lab Activity on EVS201 (P)  Diversity (T)  EVS 204: Genetics & Evolutionary Biology (T)  EVS 205: Microbiology (T)  EVS 206: Lab Activity on EVS201 2  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS204 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS304 Plant Physiology and Metabolism (T)  EVS 206: Lab Activity on EVS304 Plant Physiology and Metabolism (T)		ш	(T) EVS 202: Pollution Monitoring		Angiosperms Morphology,	4	OE-V		Activity on Angiosperms	2	2 -	Field	Project 2	2 22
IV EVS 205: Microbiology (T) 2 EVS 206: Lab Activity on EVS204(P) 2  Biology (T) 4 Physiology and Metabolism (T) 4  IPR 2  SEC: Simulation softwares based on EVS304 2  2  2 2 2	5.0				Diversity			T	axonomy and				2	
EVS 206: Lab Activity on EVS204(P)  Metabolism (T)  4  IPR  2  on EVS304  2  2			Biology (T)										2	2
		IV	EVS 206: Lab Activity on			4	IPR	0		2	2		2	22
Cum. Cr. 28 00 10 12 12 14 12	Cum.	Cr.		00	10		12		12		14		12	88

Exit option: Award of UG Diploma in Environmental Science as Major and Botany as Minor with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor

				Major				OE		AEC,	OJT, FI		Cum.
Level	Sem	Mandatory		Electives		Minor	Minor		VSC, SEC (VSEC)	VEC, IKS	CEP, CC, RI		Cr. / Sem
		EVS 301: Environmental Legislation and Audit(T)	4	EVS 304: Environmental Geosciences (T)									
	$\mathbf{v}$	EVS 302: Environment Impact assessment(T)	2	OR EVS 305: Alternate Energy Resources (T)	4	BOT 206: Cell Biology & Genetics (T)	4		VSC207: Lab Activity on Cell		FP/CEP	2	22
		EVS 303: Lab Activities on EVS301, EVS302 and Elective (P)	4	OR EVS 306: Urban Ecosystem & Sustainable Development (T)	-	Genetics (1)			Biology & Genetics (P)		,		
5.5		EVS 307: Remote Sensing and GIS (T)	4	EVS 310: Atmospheric Sciences (T)  OR		BOT 306: Analytical							
	VI	EVS 308: Environmental Biotechn ology (T)	2	EVS 311: Environmental Statistics (T)	4	Techniques in Plant Science	4				OJT	4	22
		EVS 309: Lab Activities on EVS307, EVS308 and Elective (P)	4	OR EVS 312: Environmental Toxicology, Human Health & Safety (T)		& Horticulture (T)	-						
Cum	. Cr.	48		08		18		12	14	14	18		132

### Exit option: Award of UG Degree in Environmental Science as Major with 132 credits OR Continue with Major and Minor

T 1		Major				7.5		O.F.	VSC, S		AEC, VI	EC,	OJT, FP, O	CEP,	Cum . Cr.
Level	Sem	Mandatory		Electives	Minor		OE	(VSE		IKS	,	CC, RP		/ Sem	
		<b>EVS 401:</b> Environmental Science and Environmental Biology <b>(T)</b>	4	EVS 406: Environmental Education,		RES405:									
	VII	EVS 402: Natural Resources and Their Conservation (T)	2	Policies & Legislation (T)	4	Research Methodology	4						FP/CEP	2	22
	V 11	EVS 403: Biodiversity and Conservation (T)	4	EVS 407: Management of	7	(T)							11/021	_	
6.0		EVS 404: Lab Activities on EVS 401, EVS 402 & EVS 403 (P)	4	Water Resources (T)											
		EVS 409: Environmental Chemistry (T)	4	EVS 415: Environmental											
	VIII	EVS 410: Environmental Geosciences & Computer Applications (T)	2	Sustainability (T) OR	Sustainability (T)								<b>EVS413:</b> On-Job	4	22
		EVS 411: Herbal Wealth (T)	4	EVS 416: Solid & Hazardous Waste	-								Training <b>(TW)</b>	-	
		EVS 412: Lab Activities on EVS 409, EVS 410 & EVS 411 (P)	4	Management (T)									(2)		
Cum. C	Cr	76		16		22		12	14		14		22		176
	Four Veer IIC Honours Degree in Major in Environmental S														

## Programme Structure: B.Sc. (Honours) (Major in Environmental Science and Minor in Zoology) (2025 Pattern)

r 1		Major		M'				TIGG OF			AFG	TEC II	70	OJT, FP,		Cum.		
Level	Sem	Mandatory	Elective	es Minor	Minor				VSC, SEC	C (VSEC	AEC,	VEC, IK	CS .	CEP, CC, RP		Cr. / Sem		
4.5		EVS101: Ecology and Ecosystem (T)	4						2			2			2			
	I	EVS102: Lab activities on EVS101 (P)	2	-	-		OE-II		2			2	IKS Environn Culture &	S101: nent: Indi Traditio	ian 2		2	22
	п	EVS103: Environmental Chemistry and Physics (T)	4	-	ZOO103: Comparative Anatomy & Developmental Biology	Comparative Anatomy & Developmental			2	VSC102: Lab Activity on Comparative Anatomy & Developmental Biology Vertebrates (P)		2			2		2	22
		EVS104: Lab activities on EVS103 (P)	2		Vertebrates(T)		OE-IV		2			2	1					
Cum.	Cr.	12	Į.	00	02		08			O	8	1		10	1	04		44
Exit opt	tion: Av	ward of UG Certificate in Environmen	ntal	Science a	as Major with 44 cre	edits	and an addition	al 2	4 cred	lits core NSQ	F cours	se/ In	ternship	OR Cont	tinue w	ith Major aı	nd N	<b>Minor</b>
		EVS 201: : Biodiversity Conservation (T)	4		ZOO201: Animal	4				C201: Lab					Field	Project	2	
	III	EVS 202: Pollution Monitoring Techniques (T)	2		Physiology & Ecology (T)		OE-V			Animal  nysiology &	2			2	riciu	cia i roject		22
5.0		EVS 203: Lab Activity on EVS201 (P)	2		200108) (1)					cology (P)								
		EVS 204: Genetics & Evolutionary Biology (T)	4		<b>ZOO204:</b> Genetics & Evolutionary	4	IDD	soft		C: Simulation ware based on							2	
	IV	EVS 205: Microbiology (T)	2		Biology (T)		IPR	2		EVS304	2			2			1	22
		EVS 206: Lab Activity on EVS204(P)	2														2	
Cum.		28		00	10		12			12			14			12		88
Exit option: Award of UG Diploma in Environmental Science as Major and Zoology as Minor with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																		

	Sem	Major										OJT, FP,		Cum.
Level		Mandatory		Electives		Minor		0	E VSC, SEC (VSEC	<b>C)</b>	VEC, IKS	CEP, CC, RP		Cr. / Sem
	v	EVS 301: Environmental Legislation and Audit(T)	4	EVS 304: Environmental Geosciences (T)  OR						2				
		EVS 302: Environment Impact assessment(T)	2	EVS 305: Alternate Energy Resources (T)	4	ZOO301:  Mammalian			VSC207: Lab Activity on			FP/CEP	2	22
		EVS 303: Lab Activities on EVS301, EVS302 and Elective (P)	4	OR		Histology(T)			Mammalian Histology <b>(P)</b>			,		
				EVS 306: Urban Ecosystem & Sustainable Development (T)					Thistology (1)					1
5.5	VI	EVS 307: Remote Sensing and GIS (T)	4	EVS 310: Atmospheric Sciences (T) OR	4	ZOO307: Pest Management & Parasitology (T)	4							
		EVS 308: Environmental Biotechn ology (T)	2	EVS 311: Environmental Statistics (T)								OJT	4	22
		<b>EVS 309:</b> Lab Activities on EVS307, EVS308 and Elective <b>(P)</b>	4	OR EVS 312: Environmental Toxicology, Human Health & Safety (T)									_	
Cum. Cr.		48		08		18		1:	2 14		14	18		132

Exit option: Award of UG Degree in **Environmental Science** as Major with 132 credits OR Continue with Major and Minor

Level	Sem	Major	3.51		0.7	VSC, SI	EC	AEC, VEC,		OJT, FP, CEP		Cum . Cr.			
		Mandatory		Electives	Minor		OE	(VSEC		IKS	-,	CC, RP		/ Sem	
	VII	EVS 401: Environmental Science and Environmental Biology (T) EVS 402: Natural Resources and Their Conservation	4	EVS 406: Environmental Education, Policies & Legislation (T)	4	RES405: Research	4								
		(T) EVS 403: Biodiversity and Conservation (T)	4	OR EVS 407: Management of Water Resources (T)		Methodology (T)	4						FP/CEP	2	22
6.0		<b>EVS 404:</b> Lab Activities on <b>EVS</b> 401, <b>EVS</b> 402 & <b>EVS</b> 403 <b>(P)</b>	4	water Resources (1)											
	VIII	EVS 409: Environmental Chemistry (T)	4	EVS 415: Environmental	4										
		EVS 410: Environmental Geosciences & Computer Applications (T)	2	Sustainability (T) OR									<b>EVS413:</b> On-Job	4	22
		EVS 411: Herbal Wealth (T)	4	EVS 416: Solid & Hazardous Waste									Training <b>(TW)</b>	-	
		EVS 412: Lab Activities on EVS 409, EVS 410 & EVS 411 (P)	4	Management (T)									(177)		
Cum. Cr.		76		16		22		12	12 14		14		22		176

### **APPENDIX II:**

SYLLABUS OF VXXX: B.Sc. (HONOURS) (MAJOR IN ENVIRONMENTAL SCIENCE) {2025 PATTERN}

Refer the syllabus file attached with this mail separately.