



4Y B.Sc. (Honours) (Major in Mathematics) (2025 Pattern) Programme

Minutes of the PAC Meeting held on 06.06.2024

Date: 6th June, 2024

Time: 10.30 am to 04.30 pm

The PAC Meeting for 4Y B.Sc. (Honours) (Major in Mathematics) (2025 Pattern) Programme as per NEP 2020 of **School of Sciences** was held offline & online on **Thursday, 06-06-2024 at 10:30 AM** at school meeting hall. Following members and invitees were present in person,

01	Dr. Chetana Kamlaskar	(Chairperson) and Member
02	Dr. J. N. Chaudhari	Member
03	Dr. V. R. Nikam	Member
04	Dr. Bhausahab S. Desale	Member
05	Dr. S. R. Chaudhari	Invitee
06	Ms. Tejaswi Kadam	Academic Coordinator (Mathematics Programme) and Invitee
07	Dr. Bharat More	Invitee
08	Dr. Jagruti Chavan	Invitee
09	Mr. Nandkishor Sangale	Invitee
10	Ms. Minakshi Kadel	Invitee
11	Dr. Dnyaneshwar Bhusanur	Invitee
12	Mr. Ravindra Bharsat	Invitee

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

01	Dr. Sunanda More	Member
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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.

SN	Details of Items	Resolution																
1	Agenda 1: To finalize and approve proposed BSc (Honours) (Major in Mathematics) programme - credit distribution details, second and third year (semester 03 to 06) detailed syllabus related to Major, Minor courses of Mathematics, and their evaluation pattern for all first, second and third year courses at semester 01 to 06	The PAC members unanimously finalised and approved the proposed programme structure, credit distribution details for all second- and third-year courses at semester 03 to 06, detailed syllabus related to Major, Minor courses of Mathematics, and evaluation pattern for all first, second- and third-year courses at semester 01 to 06 of the following 02 programmes as per NEP2020 guidelines, with few suggestions about courses in programme structure: i) 4 Year B.Sc. (Honours) (Major in Mathematics and Minor in Physics) ii) 4 Year B.Sc. (Honours) (Major in Mathematics and Minor in Chemistry) Suggestions by PAC members: 1. Suggestions related to Major in Mathematics programme courses in proposed programme structure of ‘B.Sc. (Honours) {2025 Pattern}’: - For the First year (Semester 01 and 02): <table><tr><th>Sem & Course name</th><th>Suggestion</th></tr><tr><td>Sem01: Algebra</td><td>Rename course title as ‘Fundamentals of Mathematics’</td></tr></table> - For the Second year (Semester 03 and 04): <table><tr><th>Sem & Course name</th><th>Suggestion</th></tr><tr><td>Sem04: Group Theory</td><td>Replace with the course ‘Numerical Methods’</td></tr><tr><td>Sem05:Complex Analysis</td><td>Replace with the course ‘Differential Equations’</td></tr><tr><td>Sem05: Ordinary Differential Equations</td><td>Replace with Mathematics related IKS course.</td></tr><tr><td>Sem05: Introduction to Programming for mathematics: [Scilab, C, Python, LaTeX]</td><td>Replace with practical course ‘Programming in MATLAB’.</td></tr><tr><td>Sem06: Partial</td><td>Replace with the course</td></tr></table>	Sem & Course name	Suggestion	Sem01: Algebra	Rename course title as ‘ Fundamentals of Mathematics ’	Sem & Course name	Suggestion	Sem04: Group Theory	Replace with the course ‘ Numerical Methods ’	Sem05:Complex Analysis	Replace with the course ‘ Differential Equations ’	Sem05: Ordinary Differential Equations	Replace with Mathematics related IKS course.	Sem05: Introduction to Programming for mathematics: [Scilab, C, Python, LaTeX]	Replace with practical course ‘ Programming in MATLAB ’.	Sem06: Partial	Replace with the course
Sem & Course name	Suggestion																	
Sem01: Algebra	Rename course title as ‘ Fundamentals of Mathematics ’																	
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Sem04: Group Theory	Replace with the course ‘ Numerical Methods ’																	
Sem05:Complex Analysis	Replace with the course ‘ Differential Equations ’																	
Sem05: Ordinary Differential Equations	Replace with Mathematics related IKS course.																	
Sem05: Introduction to Programming for mathematics: [Scilab, C, Python, LaTeX]	Replace with practical course ‘ Programming in MATLAB ’.																	
Sem06: Partial	Replace with the course																	

		Differential Equations	‘Group Theory’ which is removed from earlier sem.
		The selection of (Major) Mandatory courses in the programme structure has been finalized with very serious discussion and fruitful deliberations among all PAC members. 2. Suggestions related to Syllabus of Major courses of Mathematics in the finalized programme structure of ‘B.Sc. (Honours) {2025 Pattern}’: After careful consideration of the syllabi of the finalized courses, it has been observed that the proposed syllabus is extensive and presents a higher level of difficulty compared to those of other traditional universities. As part of the discussions, it has been suggested to restructure the course content for certain courses to ensure a logical flow. Following extensive deliberations among all PAC members and considering the aforementioned suggestions, it has been decided to conduct a thorough review of the syllabi for the proposed courses in collaboration with the respective proposed Self-Learning Material (SLM) writers. Additionally, it has been agreed to finalize the syllabi for the newly proposed courses in due course of time. Now, updated syllabi received from PAC members are attached with this minutes. 3. Suggestions related to Mathematics as Minor courses in proposed programme structure of ‘B.Sc. (Honours) {2025 Pattern}’: In the proposed programme structure, major Mathematics courses that can be advantageous for students majoring in disciplines other than Mathematics, such as Chemistry or Physics, are being recommended as minor Mathematics courses for these students. Therefore, any modifications proposed for major classes will also be applicable to the corresponding courses offered as minors.	
	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 Mathematics	1. The PAC members unanimously finalized and approved the syllabus of the proposed electives courses (DSE) in Mathematics with few suggestions, which were retained after the finalization of the programme structure: <table><tr><td>Sem05: Numerical Analysis</td><td>Replace with the course ‘Lattice and Graph Theory’</td></tr></table> 2. Related to OE courses: It has been resolved to modify the proposed Mathematics OE courses. The focus will now be on fostering fundamental level conceptual understanding and offering application-oriented courses tailored for students outside the Science Faculty. 3. Therefore, OE/VSC courses related to Mathematics have been discussed and some courses are suggested which will be open for all faculties, as per NEP 2020 guidelines. The detail discussion regarding OE/VSC will be finalised in next PAC meeting. • The PAC members Suggested OE course title are given below: - i. Fundamental Mathematics ii. Quantitative Aptitude iii. Logical Reasoning	Sem05: Numerical Analysis	Replace with the course ‘Lattice and Graph Theory’
Sem05: Numerical Analysis	Replace with the course ‘Lattice and Graph Theory’			
	Action Taken: Syllabus has been updated as per the discussion in PAC meeting. Refer Appendix II for updated syllabus.			
3	Agenda 3: Framing guidelines for OJT/FP and RP Courses	The PAC members agreed to guide time to time 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 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 Mathematics) 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.
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Meeting ends with vote of thanks by Minakshi Kadel.

Thank You



(Dr. Chetana Kamlaskar)

Chairperson, PAC B.Sc. (Honours)

(Major in Mathematics)

Credit Distribution:

Mathematics: Major, Minor, OE, VSC 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	MAT101: Fundamentals of Mathematics (T)	4	-		-	OE101 :Fundamental Mathematics (T)	2	VSC101: Basic Instrumentation Skills (TW)	2	AEC101: English Communication-1 (T)	2	CC101: Yoga(TW)	2	22		
		MAT102: Mathematical Statistics using MS Excel(P)	2				OE102: Fundamental Mathematics (P)	2	SEC101: IT & e-Learning Skills (TW)	2	VEC101: Value Education (T)	2					
									IKS101: Vedic Mathematics (T)	2							
	II	MAT103: Calculus (T)	4	-		MAT101: Fundamentals of Mathematics (T)	2	OE103: Quantitative Aptitude (T)	2	MAT102: Mathematical Statistics using MS Excel(P)	2	AEC102: English Communication-2 (T)	2	CC102: Drawing & Sketching (TW)	2	22	
		MAT104: Practical Based on MAT103 (P)	2				OE104: Quantitative Aptitude (P)	2	SEC102: Solar Panel System (TW)	2	VEC102: Environmental Science (T)	2					
	Cum. Cr.		12		00		02		08			08		10		04	
5.0	III	MAT201: Linear Algebra (T)		4	-		MAT103: Calculus (T)	4	OE 201: Logical Reasoning (T)	2	MAT104: Practical Based on MAT103 (P)	2	AEC201: Modern Indian Language- 1 (T)	2	Field Project	2	22
		MAT202: Calculus of Several Variables (T)		2											CC201: Conference & Event Management(TW)	2	
		MAT203: Practical Based on MAT201 & MAT202(P)		2													
	IV	MAT 204: Real Analysis (T)		4	-		MAT201: Linear Algebra (T)	4	Code: IPR(T)	2	SEC201: Financial & Investment Skills (TW)	2	AEC202:Modern Indian Language- 2 (T)	2	CEP	2	22
		MAT 205: Numerical Methods(T)		2											CC202: Personality & Career Skills (TW)	2	
		MAT206: Practical Based on MAT204 & MAT205 (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	MAT301:Differential Equations (T)	4	MAT304:Lattice and Graph Theory (T) OR MAT305: Analytical Geometry (T)	4	MAT301:Differential Equations (T)	4	-	-	VSC301: MAT303: Programming in MATLAB (P)	2	-	-	FP/CEP	2	22
		MAT302: IKS (T)	2													
		MAT303:Programming in MATLAB (P)	4													
	VI	MAT306: Metric Spaces (T)	4	MAT309:LPP and Game Theory(T) OR MAT310:Financial Mathematics(T)	4	MATXXX: Numerical Analysis (T)	4	-	-	-	-	-	OJT	4	22	
		MAT307: Group Theory (T)	2													
		MAT 308:Mathematical Modelling(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	MAT401: Real Analysis (T)		4	MAT406: Operations Research (T) OR MAT407: Numerical Analysis (T)		4	RES405: Research Methodology (T)		4	-	-	-	-	2	22	
		MAT402:Abstract Algebra (T)		4													
		MAT403: Ordinary Differential Equations (T)		2													
		MAT404:Programming in C and Scilab (P)		4													
	VIII	MAT409: Topology (T)		4	MAT415: Number Theory (T) OR MAT416: Field Theory (T)		4	-						MAT413: OJT	4	22	
		MAT410: Linear Algebra (T)		4													
		MAT411: Partial Differential Equations (T)		2													
		MAT412:LaTeX and Programming in SageMath(P)		4													
Cum. Cr.		76		16		22		12		14		14		22		176	

Programme Structure: 4 Year B.Sc. (Honours) (Major in Mathematics and Minor in Physics)

Level	Sem	Major				Minor	OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem					
		Mandatory		Electives																
4.5	I	MAT101: Fundamentals of Mathematics (T)	4	-		-		2	VSC101: Basic Instrumentation Skills (TW)	2	AEC101: English Communication-1 (T)	2	CC101: Yoga(TW)	2	22					
		MAT102: Mathematical Statistics using MS Excel(P)	2													2	SEC101: IT & e-Learning Skills (TW)	2	VEC101: Value Education (T)	2
	II	MAT103: Calculus (T)	4	-	PHY103: Electricity & Magnetism (T)	2	2	VSC102: Lab Activities on PHY103 (P)	2	AEC102: English Communication-2 (T)	2	CC102: Drawing & Sketching (TW)	2	22						
		MAT104: Practical Based on MAT103 (P)	2												2	SEC102: Solar Panel System (TW)	2	VEC102: Environmental Science (T)	2	
	Cum. Cr.		12		00		02		08		08		10		04		44			
Exit option: Award of UG Certificate in MATHEMATICS as Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																				
5.0	III	MAT201: Linear Algebra (T)		4	-		PHY201: Thermodynamics & Statistical Mechanics (T)	4	2	VSC201: Lab Activities on PHY201 (P)	2	AEC201: Modern Indian Language- 1 (T)	2	Field Project		2	22			
		MAT202: Calculus of Several Variables (T)		2										CC201: Conference & Event Management(TW)	2					
		MAT203: Practical Based on MAT201 & MAT202(P)		2																
	IV	MAT 204: Real Analysis (T)		4	-		PHY 304: Optics (T)	4	Code: IPR(T)	2	SEC201: Financial & Investment Skills (TW)	2	AEC202:Modern Indian Language- 2 (T)	2	CEP		2	22		
		MAT 205: Numerical Methods(T)		2											CC202: Personality & Career Skills (TW)	2				
		MAT206: Practical Based on MAT204 & MAT205 (P)		2																
	Cum. Cr.		28			00		10		12		12		14		12		88		
Exit option: Award of UG Diploma in MATHEMATICS as Major and PHYSICS 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	MAT301:Differential Equations (T)	4	MAT304:Lattice and Graph Theory (T) OR MAT305: Analytical Geometry (T)	4	PHY301:Classical & Quantum Mechanics(T)	4	-	-	VSC301:Lab Activities on PHY301(P)	2	-	-	FP/CEP	2	22
		MAT302: IKS (T)	2													
		MAT303:Programming in MATLAB (P)	4													
	VI	MAT306: Metric Spaces (T)	4	MAT309:LPP and Game Theory(T) OR MAT310:Financial Mathematics(T)	4	PHY307:Nuclear Physics & Radiation Safety (T)	4	-	-	-	-	OJT	4	22		
		MAT307: Group Theory (T)	2													
		MAT 308:Mathematical Modelling(P)	4													
Cum. Cr.		48		08		18		12		14		14		18		132
Exit option: Award of UG Degree in MATHEMATCS 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	MAT401: Real Analysis (T)		4	MAT406: Operations Research (T) OR MAT407: Numerical Analysis (T)		4	RES405: Research Methodology (T)		4	-	-	-	-	2	22		
		MAT402:Abstract Algebra (T)		4														
		MAT403: Ordinary Differential Equations (T)		2														
		MAT404:Programming in C and Scilab (P)		4														
	VIII	MAT409: Topology (T)		4	MAT415: Number Theory (T) OR MAT416: Field Theory (T)		4	-						MAT413: OJT	4	22		
		MAT410: Linear Algebra (T)		4														
		MAT411: Partial Differential Equations (T)		2														
		MAT412:LaTeX and Programming in SageMath(P)		4														
Cum. Cr.		76			16			22		12		14		14		22		176
Four Year UG Honours Degree in MATHEMATICS as Major and PHYSICS as Minor with 176 credits																		

Programme Structure: 4 Year B.Sc. (Honours) (Major in Mathematics and Minor in Chemistry)

Level	Sem	Major				Minor	OE		VSC, SEC (VSEC)		AEC, VEC, IKS		OJT, FP, CEP, CC, RP		Cum. Cr. / Sem				
		Mandatory		Electives															
4.5	I	MAT101: Fundamentals of Mathematics (T)	4	-		-		2	VSC101: Basic Instrumentation Skills (TW)	2	AEC101: English Communication-1 (T)	2	CC101: Yoga(TW)	2	22				
		MAT102: Mathematical Statistics using MS Excel(P)	2													SEC101: IT & e-Learning Skills (TW)	2	VEC101: Value Education (T)	2
																		IKS101: Vedic Mathematics (T)	2
	II	MAT103: Calculus (T)	4	-	CHE103: Physical & Organic Chemistry-I (T)			VSC102: Physical & Organic Chemistry-I (P)	2	AEC102: English Communication-2 (T)	2	CC102: Drawing & Sketching (TW)	2	22					
		MAT104: Practical Based on MAT103 (P)	2												SEC102: Solar Panel System (TW)	2	VEC102: Environmental Science (T)	2	
	Cum. Cr.		12		00				08		10		04		44				
Exit option: Award of UG Certificate in MATHEMATICS as Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor																			
5.0	III	MAT201: Linear Algebra (T)	4	-		CHE201: Physical & Organic Chemistry-II (T)		2	VSC201: Physical & Organic Chemistry-II (P)	2	AEC201: Modern Indian Language- 1 (T)	2	Field Project	2	22				
		MAT202: Calculus of Several Variables (T)	2													CC201: Conference & Event Management(TW)	2		
		MAT203: Practical Based on MAT201 & MAT202(P)	2																
	IV	MAT 204: Real Analysis (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	CEP	2	22				
		MAT 205: Numerical Methods(T)	2										CC202: Personality & Career Skills (TW)	2					
		MAT206: Practical Based on MAT204 & MAT205 (P)	2																
	Cum. Cr.		28		00		10		12		12		14		12		88		
Exit option: Award of UG Diploma in MATHEMATICS 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	MAT301:Differential Equations (T)	4	MAT304:Lattice and Graph Theory (T) OR MAT305: Analytical Geometry (T)	4	CHE206:Physical & Inorganic Chemistry(T)	4	-	-	VSC301: Physical & Inorganic Chemistry (P)	2	-	-	FP/CEP	2	22
		MAT302: IKS (T)	2													
		MAT303:Programming in MATLAB (P)	4													
	VI	MAT306: Metric Spaces (T)	4	MAT309:LPP and Game Theory(T) OR MAT310:Financial Mathematics(T)	4	CHE306: Green Chemistry (T)	4	-	-	-	-	-	OJT	4	22	
		MAT307: Group Theory (T)	2													
		MAT 308:Mathematical Modelling(P)	4													
Cum. Cr.		48		08		18		12		14		14		18		132
Exit option: Award of UG Degree in MATHEMATCS 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	MAT401: Real Analysis (T)		4	MAT406: Operations Research (T) OR MAT407: Numerical Analysis (T)		4	RES405: Research Methodology (T)		4	-	-	-	-	2	22	
		MAT402:Abstract Algebra (T)		4													
		MAT403: Ordinary Differential Equations (T)		2													
		MAT404:Programming in C and Scilab (P)		4													
	VIII	MAT409: Topology (T)		4	MAT415: Number Theory (T) OR MAT416: Field Theory (T)		4	-						MAT413: OJT	4	22	
		MAT410: Linear Algebra (T)		4													
		MAT411: Partial Differential Equations (T)		2													
		MAT412:LaTeX and Programming in SageMath(P)		4													
Cum. Cr.		76		16		22		12		14		14		22		176	
Four Year UG Honours Degree in MATHEMATICS as Major and CHEMISTRY as Minor with 176 credits																	

APPENDIX II:

SYLLABUS OF B.Sc. (HONOURS) (MATHEMATICS AS MAJOR)

Refer the syllabus file attached with this mail separately.

APPENDIX III: SYLLABUS OF B.Sc. (HONOURS) (MATHEMATICS AS MINOR)

Refer the syllabus file attached with this mail separately

