यशवंतराव चव्हाण महाराष्ट्र मुक्त विद्यापीठ, नाशिक



नाशिक - ४२२ २२२ (महाराष्ट्र) भारत



Yashwantrao Chavan Maharashtra Open University, Nashik

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विज्ञान विद्याशाखा / School of Sciences

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

Minutes of the PAC Meeting held on 11.09.2024

Meeting No.: 02 Date: 11th September, 2024 Time: 01.00 pm to 3.00 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 online on **Wednesday**, **11-09-2024 at 1:00 PM**, School meeting hall. Following members and invitees were present in person,

| 01 | Dr. Chetana Kamlaskar | (Chairperson) and Member |
|----|-------------------------------|--|
| 02 | Prof. Dr. J. N. Chaudhari | Member |
| 03 | Prof. Dr. V. R. Nikam | Member |
| 04 | Prof. Dr. Bhausaheb S. Desale | Member |
| 05 | Ms. Tejaswi Kadam | Academic Coordinator (Mathematics Programme) and Invitee |
| 06 | Mr. Ravindra Bharsat | Invitee |
| 07 | Dr. Jagruti Chavan | Invitee |
| 08 | Ms. Minakshi Kadel | Invitee |

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

| 01 | Dr. Sunanda More | Member |
|----|--------------------------|---------|
| 02 | Dr. Dnyaneshwar Bhusanur | Invitee |

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 Item 1: To finalize and approve the detailed syllabus (semester 01 to 03) related to Open Elective (OE) courses under Mathematics programme for other faulty, as per NEP2020 guidelines. | The PAC members unanimously finalized an approved the proposed Open Elective (OE) Course along with their syllabus in the Mathematic discipline for the learners other than Mathematic Major, in accordance with NEP2020 guidelines. | | | | | | |
| | raunty, as per IVEI 2020 guidennes. | The PAC members provided the following suggestions: | | | | | | |
| | | | | | | | | |
| | | The PAC members have recommended that the proposed OE courses, which are designed to assist students in preparing for competitive exams, be renamed in order to enhance their appeal to students. Additionally, upon consultation with the PAC members, it has been determined that Mathematical courses pertaining to Finance and Research will be included as Of courses. Finalized courses are as detailed below: | | | | | | |
| | | Sem As per Suggestion | | | | | | |
| | | OE101: Mathematics for Competitive Exam- I OE102: Logical Reasoning and Data | | | | | | |
| | | OE103: Mathematics for Competitive Exam- II | | | | | | |
| | | OE104: Statistical Foundations for Research | | | | | | |
| | | 03 OE201: Mathematics for Finance | | | | | | |
| | | To finalize these courses at the university level, is 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 Programme strudiscussion in the PAC meeting. Refer Appendix I for the revised pro | ructure and syllabus have been updated following the | | | | | | |

Agenda Item 2: To discuss & finalize Discipline Specific Indian Knowledge System (IKS) course position within the Mathematics programme structure.

The PAC members unanimously finalized the position of the proposed Discipline Specific Indian Knowledge System (IKS) Course at semester 03, of the following proposed Mathematics programmes as per NEP2020 guidelines, with few suggestions about courses in programme structure of:

- 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)

The Following suggestions were made by the 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):

| Sem & Course | Suggestion | | | | | | | |
|----------------------|-----------------------|--|--|--|--|--|--|--|
| Sem 01: Mathematical | Replace with the | | | | | | | |
| Statistics using MS | course 'Basics of | | | | | | | |
| Excel | Statistics'. | | | | | | | |
| Sem 02 | Include the course on | | | | | | | |
| | 'Python' as a Skill | | | | | | | |
| | Enhancement Course | | | | | | | |
| | (SEC). | | | | | | | |

For the Second year (Semester 03 and 04):

| Sem & Course | Suggestion |
|-----------------------|----------------------|
| Sem 03: Linear | Replace with the |
| Algebra | course 'Calculus of |
| _ | Several Variables'. |
| Sem 03: Calculus of | Replace with the |
| Several Variables | course 'Vedic |
| | Mathematics' - |
| | Discipline Specific |
| | Indian Knowledge |
| | System (IKS) Course. |
| Sem 03: Practical | Replace with the |
| Based on MAT201 & | course 'R |
| MAT202 | Programming'. |
| Sem 04: Real Analysis | Replace with the |
| | course 'Linear |
| | Algebra'. |
| Sem 04: Numerical | Replace with the |
| Methods | course 'Complex |
| | Variables'. |

| For the Third year (Seme | ester 05 and 06): | | | | | | | | |
|--------------------------|-----------------------|--|--|--|--|--|--|--|--|
| Sem & Course | Suggestion | | | | | | | | |
| Sem 05: Discipline | Replace with the | | | | | | | | |
| Specific IKS Course | course 'Real | | | | | | | | |
| | Analysis'. | | | | | | | | |
| Sem 05: Lattice and | Replace with the | | | | | | | | |
| Graph Theory - | course 'Graph | | | | | | | | |
| Discipline Specific | Theory' | | | | | | | | |
| Elective (DSE) Course | | | | | | | | | |
| Sem 05 | Add the course | | | | | | | | |
| | 'Dynamical Systems' | | | | | | | | |
| | as a DSE course. | | | | | | | | |
| Sem 06 | Add the course | | | | | | | | |
| | 'Lattice Theory and | | | | | | | | |
| | Boolean Algebra' as a | | | | | | | | |
| | DSE course. | | | | | | | | |
| Sem 06: Financial | Replace with the | | | | | | | | |
| Mathematics | course 'Numerical | | | | | | | | |
| | Methods' | | | | | | | | |

Additionally, it has been agreed to finalize the syllabi for the newly proposed courses in due course of time.

2. Suggestions related to Mathematics as Minor courses in proposed programme structure of 'B.Sc. (Honours) {2025 Pattern}':

| Sem & Course | Suggestion |
|------------------------|-------------------|
| Sem 02: Fundamentals | Rename as |
| of Mathematics | 'Foundation of |
| | Mathematics' |
| Sem 02: Practical | Replace with the |
| Based on | course 'Basics of |
| Fundamentals of | Statistics' |
| Mathematics | |

Action Taken: The Programme structure and syllabus have been updated based on the discussions in the PAC meeting. Refer **Appendix I** for Programme structure and revised syllabus.

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 | The PAC members unanimously gave their consent |
|---|----------------------------------|--|
| | Writers/ Editors for SLM | for the writing/editing of the Self Learning Material |
| | development task | (SLM) for the proposed B.Sc. (Honours) (Major in |
| | | Mathematics) 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 Ms. Tejaswi Kadam.

Thanks...

(Dr. Chetana Kamlaskar)

Chairperson, PAC 4Y. B.Sc. (Honours)

(Major in Mathematics)

Appendix I: Credit Distribution: Mathematics: Major, Minor, OE, VSC and IKS Courses

| Level | Sem | Major Mandatory | Elec | ctives | Minor | | OE | | VSC, SEC (VSEC) | | AEC, VEC, II | KS | | OJT, FP, CEP, CC, | | |
|-------|-------|--|-------|--------|-------------------------------|---|--|----|---|---|---|------------------|--------------------------------------|-------------------|----|--|
| 4.5 | I | MAT101: Fundamentals of Mathematics (T) | - | | | | E 101: Mathematics for Competitive Exam- I | 2 | VSC101: Basic Instrumentation Skills (TW) | 2 | AEC101: English Communication-1 | 1 | 2 CC101: Photography & Bird Watching | 2 | 22 | |
| | | MAT102: Basics of Statistics (P) | | | - | | OE102: Logical Reasoning and Data Interpretation (T) | 2 | SEC101: MS Excel with AI (TW) | 2 | VEC101: Environmental Education (T) IKS101:Generic IKS(T) | | (TW) | | | |
| | II | MAT103: Calculus (T) | - | | MAT105: Foundation of | OE103: Mathematics for Competitive Exam- II (T) | | 2 | VSC102: Basics of Statistics (P) | | | h (T) | 2 CC102: Yoga (TW) | 2 | 22 | |
| | | MAT104: Practical Based on MAT103 (P) | | | | | (T) | | SEC102: Python (TW) | | VEC102: Environmental Education(T) | | 2 | | | |
| Cum | . Cr. | 12 | 12 00 | | 02 | | 08 | 08 | | | 10 | | 04 | | 44 | |
| 5.0 | III | MAT201: Calculus of Several Variables (T) MAT202: Vedic Mathematics (IKS) (T) | 4 | _ | MAT103: Calculus (T) | 4 | OE201: Mathematics for | 2 | VSC201:Practical Based on MAT103 (P) | 2 | AEC201: Modern Indian Language- 1 | 2 | MAT204: Field Project | 2 | 22 | |
| | | MAT203: R Programming (P) | 2 | | Calculus (1) | Finance (T) | | | based on MATIO3 (1) | | (T) | | CC201: Applied Arts (TW) | 2 | | |
| | IV | MAT 205: Linear Algebra (T) | 4 | | | | IPR208: | | SEC201: Financial & | | AEC202:Modern | | CEP201: Bee Keeping(TW) | 2 | 22 | |
| | | MAT 206: Complex Variables (T) | 2 | - | MAT205: Linear Algebra (T) | 4 | Intellectual Property Rights (T) | 2 | Investment Skills (TW) | 2 | Indian Language- 2 (T) | 2 | CC202: Astronomy for | 2 | | |
| | | MAT207: Practical Based on MAT205 & MAT206 (P) | 2 | | | | | | . , | | | | Beginners (TW) | | | |
| Cum | . Cr. | 28 | | 00 | 10 | | 12 | | 12 | | 14 | | 12 | | 88 | |

| | | | | Major | | | | | VSC, SEC (VSEC) | | AEC, | OJT, FP, CEI | , | Cum . Cr. | |
|-------|-------|------------------------------------|---|--|----------|--|---|----|--------------------|-----------------------------------|-------------|--------------|---|--------------|-----|
| Level | Sem | Mandatory | | Electives | | Minor | | OE | | | VEC, IKS | CC, RP | | / Sem | |
| | | MAT301: Differential Equations (T) | 4 | MAT304: Graph Theory (T) | | | | | | | | | MAT307: FP | | |
| | v | MAT302: Real Analysis (T) | 2 | OR | as (T) 4 | MAT301:Differential | 4 | - | - | VSC301: Programming in MATLAB (P) | | | OR CEP301: | | |
| 5.5 | V | MAT303:Programming in MATLAB (P) | 4 | MAT305: Dynamical Systems (T) OR MAT306: Analytical Geometry (T) | | Equations (T) | | | | | 2 | | Awareness of Sustainable Development Goals | 2 | 22 |
| | | MAT308: Metric Spaces (T) | 4 | MAT311: LPP and Game Theory (T) | | | | | | | | | | | |
| | VI | MAT309: Group Theory (T) | 2 | OR MAT312: Numerical Methods (T) OR | 4 | MAT313: Lattice Theory & Boolean Algebra (T) | 4 | - | - | - | | | MAT314: OJT | 4 | 22 |
| | | MAT 310: Mathematical Modelling(P) | 4 | MAT313: Lattice Theory & Boolean Algebra (T) | | Ingebiu (1) | | | | | | | | | |
| Cum | . Cr. | 48 | | 08 | | 18 | | 12 | | 14 | | 14 | 18 | | 132 |
| | | | | | | | | | | | | | | | |

| Level | Sem | Majo | Minor | OE | VSC, SEC | | AEC, | | OJT, FP, | | Cum. Cr./ | | | |
|-------|--------|---|-------|---------------------------------|----------|------------------------|------|--------|----------|---------|--------------|----------------|---|-----|
| | | Mandatory | | Electives | | | | (VSEC) | | VEC, IK | | CEP,CC, R | P | Sem |
| | | MAT401: Real Analysis (T) | 4 | MAT406: Operations Research (T) | | RES405: | | | | | | | | |
| | VII | MAT402:Abstract Algebra (T) | 4 | OR | 4 | Research | 4 _ | _ | | - | | - | 2 | 22 |
| | | MAT403: Ordinary Differential Equations (T) | 2 | MAT407: Numerical Analysis (T) | - | Methodology (T) | | | | | | | | |
| | | MAT404:Programming in C and Scilab (P) | 4 | mariqo), ivamenea imaiyes (1) | | , , | | | | | | | | |
| 6.0 | | MAT409: Topology (T) | 4 | MAT415: Number Theory (T) | | | | | | | | | | |
| | VIII | MAT410: Linear Algebra (T) | 4 | OR | | | | | | | | MAT413: | | 20 |
| | VIII | MAT411: Partial Differential Equations (T) | 2 | MAT416: Field Theory (T) | 4 | - | | | | | | OJT | 4 | 22 |
| | | MAT412:LaTeX and Programming in SageMath(P) | 4 | | | | | | | | | | | |
| Cun | ı. Cr. | 76 | | 16 | | 22 | 12 | 14 | | 14 | | 22 | | 176 |
| | | | | | | | | 1 | | | <u> </u> | | | |

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

| | G | Major | | | 74. | | O.D. | | TIGG CEG (TIGEG) | | AFG IFG IVG | | OJT, FP, CEP, O | CC. | Cum. |
|-------|---------|---|-----------------------------|-------------|-----------------------------|------|--|------|---|---------------|--|--------|----------------------------------|--------------|------|
| Level | Sem | Mandatory | Ele | ctives | Minor | | OE | | VSC, SEC (VSEC) | AEC, VEC, IKS | | ŔP | , | Cr. / Sem | |
| 4.5 | I | MAT101: Fundamentals of Mathematics (T) | + | | | | 2 | 2 | VSC101: Basic Instrumentation Skills (TW) | 2 | AEC101: English Communication-1 (T) | 2 | CC101: | 2 | 22 |
| | | MAT102: Basics of Statistics (P) | - : | - | - | | | 2 | SEC101: MS Excel with AI (TW) | 2 | VEC101: Environmental Education (T) | 2 | Photography & Bird Watching (TW) | | |
| | | | | | | | | | | | IKS101:Generic IKS(T |) 2 | | | |
| | II | MAT103: Calculus (T) 4 | + | | PHY103: | | | 2 | VSC102: Lab Activities on PHY103 | 2 | AEC102: English Communication-2 (T) | 2 | CC102: Yoga | 2 | 22 |
| | | MAT104: Practical Based on MAT103 (P) | - | - | Electricity & Magnetism (T) | | | 2 | SEC102: Python (TW) | | VEC102: Environmental Education(T) | 2 | (TW) | | |
| Cum | | 12 | | 00 | 02 | | 08 | | | | 10 | 04 | | | 44 |
| | Exit op | tion: Award of UG Certificate | in MA | THEM | ATICS as Major with | 1 44 | credits and an additi | iona | d 4 credits core NSQF c | ourse | e/ Internship <mark>OR</mark> Cont | inue v | vith Major and M | inor | |
| 5.0 | III | MAT201: Calculus of Several Variables (T) | 4 | | | | | | VSC201: Lab | | AEGood Malan | I | MAT204: Field | 2 | 22 |
| | | MAT202: Vedic Mathematics (IKS) (T) | 2 | - | PHY201: Thermodynamics | 4 | | 2 | Activities on PHY201 | 2 | AEC201: Modern Indian Language- 1 (T) | | Project | | |
| | | & Statistical | & Statistical Mechanics (T) | | | | (P) | | | (| CC201: Applied Arts (TW) | 2 | | | |
| | TT 7 | | | | | | | | SECoot. Financial & | | AECocorModern | | CEP201 : Bee | 2 | 22 |
| | IV | MAT 205: Linear Algebra (T) | 4 | | | | IPR208. | | SEC201: Financial & | | AFC202·Modern | | Keeping(TW) | | |
| | IV | MAT 206: Complex Variables (T) | 2 | | PHY 304: Optics | 4 | IPR208: Intellectual Property Rights (T) | 2 | | 2 | AEC202:Modern Indian Language- 2 (T) | : | CC202: | 2 | - |
| | IV | MAT 206: Complex Variables | 2 2 | - - - | | 4 | | 2 | | 2 | | | | 2 | - |
| Cum | | MAT 206: Complex Variables (T) MAT207: Practical Based on | 2 2 | - 00 | Optics | 4 | Intellectual Property | 2 | Investment Skills | 2 | Indian Language- | | CC202: Astronomy for | 2 | 88 |

Exit option: Award of UG Diploma in MATHEMATICS as Major and PHYSICS as Minor with 88 credits <mark>and</mark> an additional 4 credits core NSQF course/ Internship <mark>OR</mark> Continue with Majo and Minor

| | | | | Major | | | | | VSC, SEC | | AEC, | OJT, FP, CEP, | | Cum . Cr. |
|-------------|-----|------------------------------------|-----|--|------|---|-----|--------|---------------------------------|----|-------------|-------------------------------------|-----|--------------|
| Level | Sem | Mandatory | | Electives | | Minor | | OE | (VSEC) | | VEC, IKS | CC, RP | | / Sem |
| | | MAT301: Differential Equations (T) | 4 | MAT304: Graph Theory (T) | | PHY301:Classical & | | | Veccoss | | | MAT307: FP OR | | |
| | v | MAT302: Real Analysis (T) | 2 | OR MAT305: Dynamical Systems (T) | 4 | Quantum Mechanics(T) | | _ | VSC301: Lab | 2 | _ _ | CEP301: Awareness of | 2 2 | 22 |
| 5.5 | | MAT303:Programming in MATLAB (P) | 4 | OR MAT306: Analytical Geometry (T) | | | | | Activities on PHY301 (P) | | | Sustainable Development Goals | | |
| | | MAT308: Metric Spaces (T) | | MAT311: LPP and Game Theory (T) | | DIIVoozaNuoloon | | | | | | | | |
| | VI | MAT309: Group Theory (T) | 2 | OR MAT312: Numerical Methods (T) OR | 4 | PHY307:Nuclear Physics & Radiation Safety (T) | | | - | | - - | MAT314: OJT | 4 | 22 |
| | | MAT 310: Mathematical Modelling(P) | 4 | MAT313: Lattice Theory & Boolean Algebra (T) | | | | | | | | | | |
| Cum. Cr. 48 | | | 08 | | 18 | 12 | | 14 | | 14 | 18 | | 132 | |
| | | Exit option: Aw | arc | of UG Degree in MATHEMATCS as Major v | with | 132 credits OR Conti | nue | with N | Iajor and Minor |) | | | | |

| Level | Sem | Мајо | r | | | Minor | OE | VSC, SEC | | EC, | OJT, FP, | | Cum. Cr./ |
|-------|--------|---|---|---------------------------------|---|------------------------|-----|----------|-----|-----|-----------|-----|--------------|
| | | Mandatory | | Electives | | | | (VSEC) | VEC | IKS | CEP,CC, R | RP. | Sem |
| | | MAT401: Real Analysis (T) | 4 | MAT406: Operations Research (T) | | RES405: | | | | | | | |
| | VII | MAT402:Abstract Algebra (T) | 4 | OR | 4 | Research | 4 _ | - | _ | | _ | 2 | 22 |
| | | MAT403: Ordinary Differential Equations (T) MAT404:Programming in C and Scilab (P) | | MAT407: Numerical Analysis (T) | - | Methodology (T) | | | | | | | |
| | | | | | | . , | | | | | | | |
| 6.0 | | MAT409: Topology (T) | | MATALE: Number Theory (T) | | | | | | | | | |
| | VIII | MAT410: Linear Algebra (T) | 4 | MAT415: Number Theory (T) OR | | | | | | | MAT413: | _ | |
| | VIII | MAT411: Partial Differential Equations (T) | 2 | MAT416: Field Theory (T) | 4 | - | | | | | OJT | 4 | 22 |
| | | MAT412:LaTeX and Programming in SageMath(P) | 4 | | | | | | | | | | |
| Cun | n. Cr. | 76 | | 16 | | 22 | 12 | 14 | 1 | 4 | 22 | • | 176 |
| | | | | | | | | | | | | | |

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

| Level | Sem | Major Mandatory | E | lectives | Minor | | OE | | VSC, SEC (VSEC) | | AEC, VEC, IK | ζS | OJT, FP, CEP, O | Cum. | | | | | |
|-------|----------------|--|--------|------------------------------|--|--------|--------------------------------------|------|--|------|--|--------|--|------------|----|--|----|--|----|
| 4.5 | I | MAT101: Fundamentals of Mathematics (T) | 4 | | | | | 2 | VSC101: Basic Instrumentation Skills (TW) | 2 | AEC101: English Communication-1 | | 2 CC101: | 2 | 22 | | | | |
| | | MAT102: Basics of Statistics (P) | 2 | - | - | | | 2 | SEC101: MS Excel with AI (TW) | 2 | VEC101: Environmental Education (T) IKS101:Generic | | Photography & Bird Watching (TW) | | | | | | |
| | | | | | | | | | | | IKS(T) | | 2 | | | | | | |
| | II | MAT103: Calculus (T) | 4 | | CHE103: Physical & | | | 2 | VSC102: Physical & Organic Chemistry-I (P) | 2 | AEC102: Englis Communication-2 | | 2 CC102: Yoga | 2 | 22 | | | | |
| | | MAT104: Practical Based on MAT103 (P) | 2 | - | Organic Chemistry-I (T) | | | 2 | SEC102: Python (TW) | 2 | VEC102: Environmental Education(T) | | 2 (TW) | | | | | | |
| Cum | . Cr. | . 12 | | | | | | | | 02 | | 08 | | 08 | 10 | | 04 | | 44 |
| | | | | | | | | | | | | | - | | | | | | |
| | | tion: Award of UG Certificate | e in M | | | 1 44 (| | onal | | urse | | ntinu | - | Iinor | | | | | |
| 5.0 | | tion: Award of UG Certificate MAT201: Calculus of Several Variables (T) | , | | ATICS as Major with | 1440 | | onal | | urse | | ntinu | e with Major and M | linor 2 | | | | | |
| 5.0 | Exit op | mAT201: Calculus of Several Variables (T) | | IATHEM | CHE201: Physical & | 4 | | onal | 4 credits core NSQF cou VSC201: Physical & Organic | | / Internship OR Co AEC201: Modern Indian Language- 1 | entinu | e with Major and M | | | | | | |
| 5.0 | Exit op | tion: Award of UG Certificate MAT201: Calculus of Several Variables (T) | s | ATHEM | ATICS as Major with | | | | 4 credits core NSQF cou VSC201: Physical & | | / Internship OR Co | | e with Major and M | | | | | | |
| 5.0 | Exit op | tion: Award of UG Certificate MAT201: Calculus of Several Variables (T) MAT202: Vedic Mathematics (IKS) (T) | s : | 4 2 - | CHE201: Physical & Organic | | credits <mark>and</mark> an addition | | 4 credits core NSQF cou VSC201: Physical & Organic Chemistry-II (P) | | / Internship OR Co AEC201: Modern Indian Language- 1 (T) | | MAT204: Field Project CC201: Applied | 2 | | | | | |
| 5.0 | Exit op III | MAT 206: Complex Variables MAT 206: Complex Variables MAT 206: Complex Variables (T) | s : | 1ATHEM 4 2 - 2 | CHE201: Physical & Organic Chemistry-II (T) CHE204:Basic Analytical | | IPR208: Intellectual Property | | VSC201: Physical & Organic Chemistry-II (P) SEC201: Financial & Investment Skills | | AEC202: Modern Indian Language- 1 (T) AEC202: Modern Indian Language- | | MAT204: Field Project CC201: Applied Arts (TW) CEP201: Bee Keeping(TW) | 2 2 | 22 | | | | |
| 5.0 | Exit op III | MAT 205: Complex Variables MAT 206: Complex Variables MAT 206: Complex Variables MAT 206: Complex Variables | s : | 1ATHEM 4 - 2 - 2 4 - 4 | CHE201: Physical & Organic Chemistry-II (T) CHE204:Basic | 4 | eredits and an addition | 2 | VSC201: Physical & Organic Chemistry-II (P) SEC201: Financial & | 2 | / Internship OR Co AEC201: Modern Indian Language- 1 (T) AEC202: Modern | 2 | MAT204: Field Project CC201: Applied Arts (TW) CEP201: Bee Keeping(TW) | 2 | 22 | | | | |
| 5.0 | III IV | MAT201: Calculus of Several Variables (T) MAT202: Vedic Mathematics (IKS) (T) MAT203: R Programming (P) MAT 205: Linear Algebra (T) MAT 206: Complex Variables (T) MAT207: Practical Based on | s : | 4 - 2 - 4 | CHE201: Physical & Organic Chemistry-II (T) CHE204:Basic Analytical | 4 | IPR208: Intellectual Property | 2 | VSC201: Physical & Organic Chemistry-II (P) SEC201: Financial & Investment Skills | 2 | AEC202: Modern Indian Language- 1 (T) AEC202: Modern Indian Language- | 2 | MAT204: Field Project CC201: Applied Arts (TW) CEP201: Bee Keeping(TW) CC202: Astronomy for | 2 2 | 22 | | | | |

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

| | | | | Major | | | | | | | | AEC | | | Cum |
|-------|--------------|------------------------------------|-----|--|------|---------------------------------|-----|--------|------|------------------------------------|---|--------------|-------------------------------|------|-------------------|
| Level | Sem | Mandatory | | Electives | | Minor | | OE | | VSC, SEC (VSEC) | | VEC , IKS | OJT, FP, CEP, CC, RP | | . Cr. / Sem |
| | | MAT301: Differential Equations (T) | 4 | MAT304: Graph Theory (T) | | | | | | VSC301: | | | MAT307: FP | | |
| | \mathbf{v} | MAT302: Real Analysis (T) | 2 | OR MAT305: Dynamical Systems (T) | 4 | CHE206: Physic al & Inorganic | 4 | _ | _ | Physical & Inorganic Chemistry (P) | 2 | - - | CEP301: Awareness of | 2 22 | 22 |
| 5.5 | | MAT303:Programming in MATLAB (P) | 4 | OR MAT306: Analytical Geometry (T) | | Chemistry (T) | | | | | | | Sustainable Development Goals | | |
| | | MAT308: Metric Spaces (T) | 4 | MAT311: LPP and Game Theory (T) | | | | | | | | | | | |
| | VI | MAT309: Group Theory (T) | 2 | OR MAT312: Numerical Methods (T) OR | 4 | CHE306: Green | 4 | - | - | - | | - - | MAT314: OJT | 4 | 22 |
| | | MAT 310: Mathematical Modelling(P) | 4 | MAT313: Lattice Theory & Boolean Algebra (T) | | Chemistry (T) | | | | | | | | | |
| Cum | . Cr. | 48 | | 08 | | 18 | | 12 | | 14 | | 14 | 18 | | 132 |
| | | Exit option: Awa | arc | l of <mark>UG Degree in MATHEMATCS</mark> as Major v | witl | h 132 credits <mark>OR</mark> C | ont | inue w | rith | Major and Minor | | | | | |

| Level | Sem | Major | | | | Minor | | OE | VSC, SEC | | OJT, FP, | | Cum. Cr./ |
|-------|-------|---|--------------------------|--|------|---------------------------|-----|---------|-----------|----------|-----------------------|---|--------------|
| Lever | Sem | Mandatory | | Electives | | 1/11101 | | 02 | (VSEC) | VEC, IKS | CEP,CC, R | | Sem |
| | | MAT401: Real Analysis (T) | 4 | MAT406: Operations Research (T) | | RES405: | | | | | | | |
| | VII | MAT402:Abstract Algebra (T) | 2:Abstract Algebra (T) 4 | | 4 | Research | 4 | - | _ | - | - | 2 | 22 |
| | | MAT403: Ordinary Differential Equations (T) 2 | | MAT407: Numerical Analysis (T) | | Methodology (T) | | | | | | | I |
| | | MAT404:Programming in C and Scilab (P) | 4 | 11211 4 07.1(umericur 1111ur) 515 (17 | | , , | | | | | | | I |
| 6.0 | | MAT409: Topology (T) | 4 | MAT415: Number Theory (T) | | | | | | | | | 1 |
| | VIII | MAT410: Linear Algebra (T) | 4 | OR | | | | | | | MAT413: OJT | | |
| | VIII | MAT411: Partial Differential Equations (T) | 2 | MAT416: Field Theory (T) | 4 | - | | | | | 031 | 4 | 22 |
| | | MAT412:LaTeX and Programming in SageMath(P) | 4 | | | | | | | | | | |
| Cum | . Cr. | 76 | | 16 | | 22 | | 12 | 14 | 14 | 22 | , | 176 |
| | | Four Year UG Honours | Deg | ree in MATHEMATICS as Major a | nd C | HEMISTRY as Min | nor | with 17 | 6 credits | , | | | |

APPENDIX I:

Syllabus of B.Sc. (Mathematics as Major, Minor, OE Courses) {2025 Pattern}

Refer the syllabus file attached with this mail separate.

APPENDIX II:

Syllabus of Last Verticals (VSC, SEC, AEC, VEC, GENERIC IKS, CEP, CC and RP) that will be offered common for all 4Y UG B.Sc. (Honours) programmes of School of Sciences

Refer the syllabus file attached with this mail separate