

**J.J. College of Arts and Science(Autonomous)**  
J.J.Nagar, Sivapuram Post, Pudukkottai - 622 422

**B.Sc. MATHEMATICS**

Proposed Course structure based on TANSCH and UGC-LOCF  
(Choice Based Credit System)

Applicable for the candidates admitted from the academic year 2023-2024 onwards

| Sem.  | Part | Course Code            | Course Title                                                        | Hrs/<br>Week | Credit | Exam<br>Hrs. | Marks |       | Total<br>Marks |
|-------|------|------------------------|---------------------------------------------------------------------|--------------|--------|--------------|-------|-------|----------------|
|       |      |                        |                                                                     |              |        |              | Int.  | Ext.  |                |
| I     | I    | U1R3TL1                | Language Course – I                                                 | 6            | 3      | 3            | 25    | 75    | 100            |
|       | II   | U1R3EL1                | English Language Course – I                                         | 6            | 3      | 3            | 25    | 75    | 100            |
|       | III  | U1R3MACC1              | Algebra and Trigonometry                                            | 5            | 5      | 3            | 25    | 75    | 100            |
|       |      | U1R3MACC2              | Differential Calculus                                               | 5            | 5      | 3            | 25    | 75    | 100            |
|       |      | U1R3 MADSE1:1/<br>1:2  | Numerical Methods with<br>Applications /<br>Mathematical Statistics | 4            | 3      | 3            | 25    | 75    | 100            |
|       |      | U1R3CSSEC1(NME)        | SEC-1 Office Automation                                             | 2            | 2      | 3            | 25    | 75    | 100            |
|       |      | U1R3MAFC               | FC-Bridge Mathematics                                               | 2            | 2      | 3            | 25    | 75    | 100            |
| Total |      |                        |                                                                     | 30           | 23     | -            | -     | -     | 700            |
| II    | I    | U2R3TL2                | Language Course – II                                                | 6            | 3      | 3            | 25    | 75    | 100            |
|       | II   | U2R3EL2                | English Language Course – II                                        | 6            | 3      | 3            | 25    | 75    | 100            |
|       | III  | U2R3MACC3              | Analytical Geometry(2D&3D)                                          | 5            | 5      | 3            | 25    | 75    | 100            |
|       |      | U2R3MACC4              | Integral Calculus                                                   | 5            | 5      | 3            | 25    | 75    | 100            |
|       |      | U2R3 MADSE2:1P/<br>2:2 | R Programming-Practical/<br>Discrete mathematics                    | 4            | 3      | 3            | 40/25 | 60/75 | 100            |
|       | IV   | U2R3SEC2(NME)          | SEC-2 (To be opted from other<br>department)                        | 2            | 2      | 3            | 25    | 75    | 100            |
|       |      | U2R3MASEC3             | A Prime on Divisibility and<br>Number Sequences                     | 2            | 2      | 3            | 25    | 75    | 100            |
| Total |      |                        |                                                                     | 30           | 23     | -            | -     | -     | 700            |
| III   | I    | U3R3TL3                | Language Course – III                                               | 6            | 3      | 3            | 25    | 75    | 100            |
|       | II   | U3R3EL3                | English Language Course – III                                       | 6            | 3      | 3            | 25    | 75    | 100            |
|       | III  | U3R3MACC5              | Vector Calculus and Fourier<br>Series                               | 5            | 5      | 3            | 25    | 75    | 100            |
|       |      | U3R3MACC6              | Differential Equations and<br>Laplace Transforms                    | 5            | 5      | 3            | 25    | 75    | 100            |
|       |      | U3R3 MADSE3:1/<br>3:2  | Allied Physics-I/<br>Allied Chemistry-I                             | 4            | 3      | 3            | 25    | 75    | 100            |
|       | IV   | U3R3MASEC4:1/<br>4:2   | Data Analysis using SageMath/<br>Computational Mathematics          | 2            | 2      | 3            | 25    | 75    | 100            |
|       |      | U3R3VE                 | Value Education                                                     | 2            | 2      | 3            | 25    | 75    | 100            |
| Total |      |                        |                                                                     | 30           | 23     | -            | -     | -     | 700            |

|       |       |                      |                                                                                   |              |        |              |           |           |                |
|-------|-------|----------------------|-----------------------------------------------------------------------------------|--------------|--------|--------------|-----------|-----------|----------------|
| IV    | I     | U4R3TL4              | Language Course – IV                                                              | 5            | 3      | 3            | 25        | 75        | 100            |
|       | II    | U4R3EL4              | English Course – IV                                                               | 5            | 3      | 3            | 25        | 75        | 100            |
|       | III   | U4R3MACC7            | Sequences and Series                                                              | 6            | 5      | 3            | 25        | 75        | 100            |
|       |       | U4R3MACC8            | Classical Algebra and Theory of Numbers                                           | 5            | 5      | 3            | 25        | 75        | 100            |
|       |       | U4R3 MADSE4:1P /4:2P | Allied Physics- II- Practical<br>Allied Chemistry- II- Practical                  | 3            | 3      | 3            | 40        | 60        | 100            |
|       | IV    | U4R3MASEC5:1/ 5:2    | Introduction to GeoGebra/<br>Theory of Games and Decision Theory                  | 2            | 2      | 3            | 25        | 75        | 100            |
|       |       | U4R3MASEC6:1/ 6:2P   | Mathematics for Competitive Examination-I/<br>Data Analysis using SPSS- Practical | 2            | 2      | 3            | 25/<br>40 | 75/<br>60 | 100            |
|       |       | U4R3ES               | Environmental Studies                                                             | 2            | 2      | 3            | 25        | 75        | 100            |
|       | Total |                      |                                                                                   |              | 30     | 25           | -         | -         | -              |
| Sem.  | Part  | Course Code          | Course Title                                                                      | Hrs/<br>Week | Credit | Exam<br>Hrs. | Marks     |           | Total<br>Marks |
| V     | III   | U5R3MACC9            | Mechanics                                                                         | 6            | 5      | 3            | 25        | 75        | 100            |
|       |       | U5R3MACC10           | Abstract Algebra                                                                  | 5            | 4      | 3            | 25        | 75        | 100            |
|       |       | U5R3MACC11           | Real Analysis                                                                     | 5            | 4      | 3            | 25        | 75        | 100            |
|       |       | U5R3MACC12           | Operations Research                                                               | 4            | 4      | 3            | 25        | 75        | 100            |
|       |       | U5R3MADSE5:1P / 5:2  | Numerical Methods with<br>MATHLAB-Practical /<br>Introduction to Machine Learning | 5            | 3      | 3            | 40/<br>25 | 60/<br>75 | 100            |
|       |       | U5R3MADSE6:1/ 6:2    | Fuzzy Mathematics /<br>Combinatorial Mathematics                                  | 5            | 3      | 3            | 25        | 75        | 100            |
|       |       | U5R3MAINT            | Internship                                                                        | -            | 2      | -            | -         | -         | 100            |
| Total |       |                      |                                                                                   | 30           | 25     | -            | -         | -         | 700            |
| VI    | III   | U6R3MACC13           | Linear Algebra                                                                    | 5            | 4      | 3            | 25        | 75        | 100            |
|       |       | U6R3MACC14           | Complex Analysis                                                                  | 5            | 4      | 3            | 25        | 75        | 100            |
|       |       | U6R3MACC15PW         | Project Work                                                                      | 6            | 4      | -            | -         | -         | 100            |
|       |       | U6R3MADSE7:1P/ 7:2   | Programming Language with<br>C++ - Practical /<br>Introduction to Data Science    | 5            | 3      | 3            | 40/<br>25 | 60/<br>75 | 100            |
|       |       | U6R3MADSE8:1/ 8:2    | Astronomy / Graph Theory and<br>its Applications                                  | 5            | 3      | 3            | 25        | 75        | 100            |
|       | IV    | U6R3MASEC7:1/ 7:2P   | Mathematics for Competitive Examination-II /<br>Introduction to LATEX – Practical | 3            | 2      | 3            | 25/<br>40 | 75/<br>60 | 100            |
|       | V     | U6R3GS               | Gender Studies                                                                    | 1            | 1      | 3            | 25        | 75        | 100            |
|       |       | Extension Activity   | -                                                                                 | 1            | -      | -            | -         | -         |                |

|             |  |                                                |         |     |   |   |   |      |
|-------------|--|------------------------------------------------|---------|-----|---|---|---|------|
|             |  | Extra Credit Online Courses-<br>[SWAYAM-MOOCs] | -       | [4] | - | - | - | -    |
| Total       |  |                                                | 30      | 22  | - | - | - | 700  |
| Grand Total |  |                                                | 141 [4] |     |   |   |   | 4300 |

**Group C (NME-SEC) (Offered to other Departments)**

1. Quantitative Aptitude-I
2. Basic Mathematics
3. Quantitative Aptitude-II
4. Statistics with R/ SPSS
5. Bio Mathematics
6. Data Analysis by using SPSS

*A. Tamil*  
05/03/24  
(A. TAMILSELVAM)

*3. S. S. S.*

*A. S. S.*

*O. Uma*  
5/3/24

*S. S. S.*  
5/3/24

*A. A.*  
05/03/24

*M. S. S.*  
5/3/24

*S. S. S.*  
5/3/24

**J.J. College of Arts and Science(Autonomous)***J.J.Nagar, Sivapuram Post, Pudukkottai - 622 422***M.Sc. MATHEMATICS****Proposed Course structure based on TANSCH and UGC-LOCF****(Choice Based Credit System)****Applicable for the candidates admitted from the academic year 2023-2024 onwards**

| Sem | Course Code                   | Course Title                                                                                                                                                                   | Hours/<br>Week | Credit    | Exam<br>Hours | Int<br>.  | Ex<br>t.  | MAR<br>KS  |
|-----|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|---------------|-----------|-----------|------------|
| I   | P1R3MACC1                     | Algebraic Structure                                                                                                                                                            | 7              | 5         | 3             | 25        | 75        | 100        |
|     | P1R3MACC2                     | Real Analysis – I                                                                                                                                                              | 7              | 5         | 3             | 25        | 75        | 100        |
|     | P1R3MACC3                     | Ordinary Differential Equations                                                                                                                                                | 6              | 4         | 3             | 25        | 75        | 100        |
|     | P1R3MADSE1:1/1<br>:2/1:3/1:4P | Number Theory and<br>Cryptography /<br>Graph Theory and Applications /<br>Formal languages and Automata<br>Theory /<br>Programming in C++ and<br>Numerical Methods (Practical) | 5              | 3         | 3             | 25/<br>40 | 75/<br>60 | 100        |
|     | P1R3MADSE2:1/<br>2:2/2:3/2:4  | Lie Groups and Lie Algebras /<br>Mathematical Programming /<br>Fuzzy sets and Their applications<br>/ Discrete Mathematics                                                     | 5              | 3         | 3             | 25        | 75        | 100        |
|     |                               | <b>TOTAL</b>                                                                                                                                                                   | <b>30</b>      | <b>20</b> |               |           |           | <b>500</b> |
| II  | P2R3MACC4                     | Advanced Algebra                                                                                                                                                               | 6              | 5         | 3             | 25        | 75        | 100        |
|     | P2R3MACC5                     | Real Analysis – II                                                                                                                                                             | 6              | 5         | 3             | 25        | 75        | 100        |
|     | P2R3MACC6                     | Partial Differential Equations                                                                                                                                                 | 6              | 4         | 3             | 25        | 75        | 100        |
|     | P2R3MADSE3:1/3<br>:2/3:3P/3:4 | Algebraic Topology /<br>Mathematical statistics /<br>Statistics Data Analysis Using R<br>Programming /<br>Tensor Analysis and Relativity                                       | 4              | 3         | 3             | 25/<br>40 | 75/<br>60 | 100        |
|     | P2R2MADSE4:1<br>/4:2P/4:3/4:4 | Wavelets /<br>Modeling & Simulation with<br>Excel /<br>Machine Learning and AI /<br>Neural Networks                                                                            | 4              | 3         | 3             | 25/<br>40 | 75/<br>60 | 100        |
|     | P2R3MASECIP                   | Mathematical Documentation<br>using LATEX - Practical                                                                                                                          | 4              | 2         | 3             | 40        | 60        | 100        |
|     |                               | <b>TOTAL</b>                                                                                                                                                                   | <b>30</b>      | <b>22</b> |               |           |           | <b>600</b> |
| III | P3R3MACC7                     | Complex Analysis                                                                                                                                                               | 6              | 5         | 3             | 25        | 75        | 100        |
|     | P3R3MACC8                     | Fluid Dynamics                                                                                                                                                                 | 6              | 5         | 3             | 25        | 75        | 100        |
|     | P3R3MACC9                     | Topology                                                                                                                                                                       | 6              | 5         | 3             | 25        | 75        | 100        |
|     | P3R3MACC10                    | Numerical Analysis                                                                                                                                                             | 6              | 5         | 3             | 25        | 75        | 100        |
|     | P2R3MADSE5:1/<br>5:2/5:3/5:4P | Calculus of Variations and<br>Integral Equations/<br>Advanced Number Theory /<br>Ethical Attitude in Mathematical<br>Research/                                                 | 3              | 3         | 3             | 25/<br>40 | 75/<br>60 | 100        |

|    |                       |                                                                       |              |           |   |           |           |             |
|----|-----------------------|-----------------------------------------------------------------------|--------------|-----------|---|-----------|-----------|-------------|
|    |                       | Programming in MATHLAB (Practical)                                    |              |           |   |           |           |             |
|    | P3R3MASEC2:1/<br>2:2P | Numerical Ability and Reasoning / Differential Equations using SCILAB | 3            | 2         | 3 | 25/<br>40 | 75/<br>60 | 100         |
|    | P3R3MAINT             | Internship                                                            | -            | 3         | - | -         | -         | 100         |
|    |                       | <b>TOTAL</b>                                                          | <b>30</b>    | <b>28</b> |   |           |           | <b>700</b>  |
| IV | P4R3MACC11            | Functional Analysis                                                   | 6            | 5         | 3 | 25        | 75        | 100         |
|    | P4R3MACC12            | Differential Geometry                                                 | 6            | 5         | 3 | 25        | 75        | 100         |
|    | P4R3MACC13            | Stochastic Processes                                                  | 6            | 5         | 3 | 25        | 75        | 100         |
|    | P4R3MACC14PW          | Project Work                                                          | 12           | 5         | - | -         | -         | 100         |
|    |                       | Extra Credit Online Courses- [SWAYAM-MOOCs]                           |              | [4]       |   |           |           |             |
|    |                       | <b>TOTAL</b>                                                          | <b>30</b>    | <b>20</b> |   |           |           | <b>300</b>  |
|    |                       | <b>GRAND TOTAL</b>                                                    | <b>90[4]</b> |           |   |           |           | <b>2200</b> |

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05/03/24  
(A. TAMILSELVAN)

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O. Uma  
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