## Syllabus for B.Sc. with Mathematics as Major Subject
## B.Sc. (Hons) Mathematics

***SEMESTER – I***

| **MATDSCT 1.1: Algebra - I and Calculus – I** | |
|---|---|
| **Teaching Hours : 4 Hours/Week** | **Credits: 4** |
| **Total Teaching Hours: 56 Hours** | **Max. Marks: 100 (S.A.-60 + I.A. – 40)** |

**Course Learning Outcomes**: This course will enable the students to

Learn to solve system of linear equations.
Solve the system of homogeneous and non homogeneous linear of $m$ equations in $n$ variables by using concept of rank of matrix.
Students will be familiar with the techniques of integration and differentiation offunction with real variables.
Students learn to solve polynomial equations.
Learn to apply Reduction formulae.

# Practical

| MATDSCP 1.1: Practical' s on Algebra - I and Calculus – I | |
|---|---|
| **Practical Hours : 4 Hours/Week** | **Credits: 2** |
| **Total Practical Hours: 56 Hours** | **Max. Marks: 50 (S.A.-25 + I.A. – 25)** |

**Course Learning Outcomes:** This course will enable the students to

Learn *Free and Open Source Software (FOSS)* tools for computer programming Solve problem on algebra and calculus theory studied in **MATDSCT 1.1** by usingFOSS software' s.

Acquire knowledge of applications of algebra and calculus

through FOSS**Practical/Lab Work to be performed in Computer Lab**

**(FOSS) Suggested Software' s**: Maxima/Scilab /Python/R.

# Open Elective

**(For students of Science stream who have not chosen Mathematics as one of Core subjects)**

| MATOET 1.1: Optional Mathematics – I | |
|---|---|
| **Teaching Hours : 3 Hours/Week** | **Credits: 3** |
| **Total Teaching Hours: 42 Hours** | **Max. Marks: 100 (S.A.-60 + I.A. – 40)** |

**Course Learning Outcomes**: This course will enable the students to

Learn to solve system of linear equations.
Solve the system of homogeneous and non homogeneous m linear equations by usingthe concept of rank of matrix.
Students will be familiar with the techniques of differentiation of function with realvariables.
Identify and apply the intermediate value theorems and L' Hospital rule.
Learn to apply Reduction formulae.

# Open Elective

*(For Students of all Streams)*

| MATOET 1.2: Business Mathematics-I | |
|---|---|
| **Teaching Hours : 3 Hours/Week** | **Credits: 3** |
| **Total Teaching Hours: 42 Hours** | **Max. Marks: 100 (S.A.- 60 + I.A. – 40)** |

**Course Learning Outcomes:** This course will enable the students to

Translate the real word problems through appropriate mathematical modellling.
Explain the concepts and use equations, formulae and mathematical expression andrelationship in a variety of context.
Finding the extreme values of functions.
Analyze and demonstrate the mathematical skill require in mathematically intensiveareas in economics and business.

# Open Elective

*(For Students of all Streams)*

| MATOET 1.3: Mathematical Aptitude-I | |
|---|---|
| **Teaching Hours : 3 Hours/Week** | **Credits: 3** |
| **Total Teaching Hours: 42 Hours** | **Max. Marks: 100 (S.A.- 60 + I.A. – 40)** |

**Course Learning Outcomes:** This course will enable the students to

have a strong base in the fundamental mathematical concepts.
grasp the approaches and strategies to solve problems with speed and accuracy
gain appropriate skills to succeed in preliminary selection process for recruitment

## SEMESTER – II

| MATDSCT 2.1: Number Theory and Calculus – II | |
|---|---|
| **Teaching Hours : 4 Hours/Week** | **Credits: 4** |
| **Totat Teaching Hours: 56 Hours** | **Max. Marks: 100 (S.A.-60 + I.A. –** |
| | **40)** |

**Course Learning Outcomes:** This course will enable the students to

- Learn the concept of Divisibility.
- Learn about prime and composite numbers.
- Learn the concept of congruences and its applications.
- Identify and apply the intermediate value theorems and L' Hospital rule.
- Understand the concept of differentiation and fundamental theorems in differentiationand various rules.
- Find the extreme values of functions of two variables.
- Students learn to find areas and volumes using integration.

# PRACTICAL

| MATDSCP 2.1: On Number Theory and Calculus – II | |
|---|---|
| **Practical Hours : 4 Hours/Week** | **Credits: 2** |
| **Total Practical Hours: 56 Hours** | **Max. Marks: 50 (S.A.-25 + I.A. – 25)** |

**Course Learning Outcomes:** This course will enable the students to

Learn *Free and Open Source Software (FOSS)* tools for computer programming
Solve problem on algebra and calculus by using FOSS software' s.
Acquire knowledge of applications of algebra and calculus through FOSS

***Practical/Lab Work to be performed in Computer Lab***

**Suggested Software' s**: Maxima/Scilab/Maple/MatLab/Mathematica/Phython/R.

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To understand the concepts of multiple integrals and their applications.

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(For Students of all streams)

| MATOET 2.2: Business Mathematics-II | |
|---|---|
| **Teaching Hours : 3 Hours/Week** | **Credits: 3** |
| **Total Teaching Hours: 42 Hours** | **Max. Marks: 100 (S.A.- 60 + I.A. – 40)** |

**Course Learning Outcomes**: This course will enable the students to

- Integrate concept in international business concept with functioning of global trade.
- Evaluate the legal, social and economic environment of business.
- Apply decision-support tools to business decision making.
- Will be able to apply knowledge of business concepts and functions in an integratedmanner.

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