

**DON BOSCO ARTS & SCIENCE COLLEGE**  
**ANGADIKADAVU**

*(Affiliated to Kannur University Approved by Government of Kerala)*

**ANGADIKADAVU P.O., IRITTY, KANNUR – 670706**



**COURSE PLAN**

**BSC. MATHEMATICS**

**(2020 – 23)**

**SEMESTER – IV**

**ACADEMIC YEAR - (2021-22)**

## IV Semester BSC MATHEMATICS (2020 - 23)

| SL. No. | Name of Subjects with Code                           | Name of the Teacher | Duty Hours per week |
|---------|------------------------------------------------------|---------------------|---------------------|
| 1.      | 3A05ENG : Readings on Philosophy of Knowledge        | Jisha.E             | 6                   |
| 2.      | 4A10MAL: Drisya Kala Sahityam                        | Divya M M           | 6                   |
| 3.      | 4A10HIN : Natak aur Ekanki                           | E.T. Aswini         | 6                   |
| 4.      | 4B04 MAT Number Theory and Applications of Integrals | Remya Raj           | 6                   |
| 5.      | 4C04CSC Computation Using Python                     | Sindhu P M          | 3                   |
| 6.      | 4C04 STA Statistical Inference                       | Varsha C            | 6                   |
|         | <b>Name of Class Incharge</b>                        | <b>Remya Raj</b>    |                     |

### TIME TABLE

| Day | 09.50 Am - 10.45 Am                                                         | 10.45 Am -11.40 Am                                                               | 11.55 Am -12.50 Pm                                                               | 01.40 Pm - 02.35 Pm                                                     | 02.35 Pm - 03.30 Pm                                              |
|-----|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------|
| 1   | <b>4B04 MAT<br/>Number Theory<br/>and<br/>Applications of<br/>Integrals</b> | <b>4A10MAL: Drisya<br/>Kala<br/>Sahityam/4A10H<br/>IN : Natak aur<br/>Ekanki</b> | <b>4C04 STA<br/>Statistical<br/>Inference</b>                                    | <b>4C04CSC<br/>Computation<br/>Using Python</b>                         | <b>3A05ENG :<br/>Readings on<br/>Philosophy of<br/>Knowledge</b> |
| 2   | <b>4C04 STA<br/>Statistical<br/>Inference</b>                               | <b>4A10MAL: Drisya<br/>Kala<br/>Sahityam/4A10H<br/>IN : Natak aur<br/>Ekanki</b> | <b>4B04 MAT<br/>Number<br/>Theory and<br/>Applications of<br/>Integrals</b>      | <b>3A05ENG :<br/>Readings on<br/>Philosophy of<br/>Knowledge</b>        | <b>4C04CSC<br/>Computation<br/>Using Python</b>                  |
| 3   | <b>4C04CSC<br/>Computation<br/>Using Python</b>                             | <b>4B04 MAT<br/>Number Theory<br/>and Applications<br/>of Integrals</b>          | <b>4A10MAL:<br/>Drisya Kala<br/>Sahityam/4A10<br/>HIN : Natak<br/>aur Ekanki</b> | <b>4C04 STA<br/>Statistical<br/>Inference</b>                           | <b>3A05ENG :<br/>Readings on<br/>Philosophy of<br/>Knowledge</b> |
| 4   | <b>3A05ENG :<br/>Readings on<br/>Philosophy of<br/>Knowledge</b>            | <b>4A10MAL: Drisya<br/>Kala<br/>Sahityam/4A10H<br/>IN : Natak aur<br/>Ekanki</b> | <b>4C04CSC<br/>Computation<br/>Using Python</b>                                  | <b>4B04 MAT<br/>Number Theory<br/>and Applications<br/>of Integrals</b> | <b>4C04 STA<br/>Statistical<br/>Inference</b>                    |

|   |                                                                             |                                                                                  |                                                                                  |                                                 |                                                                             |
|---|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------|
| 5 | <b>4B04 MAT<br/>Number Theory<br/>and<br/>Applications of<br/>Integrals</b> | <b>4C04CSC<br/>Computation<br/>Using Python</b>                                  | <b>4A10MAL:<br/>Drisyā Kala<br/>Sahityam/4A10<br/>HIN : Natak<br/>aur Ekanki</b> | <b>4C04 STA<br/>Statistical<br/>Inference</b>   | <b>3A05ENG :<br/>Readings on<br/>Philosophy of<br/>Knowledge</b>            |
| 6 | <b>3A05ENG :<br/>Readings on<br/>Philosophy of<br/>Knowledge</b>            | <b>4A10MAL: Drisyā<br/>Kala<br/>Sahityam/4A10H<br/>IN : Natak aur<br/>Ekanki</b> | <b>4C04 STA<br/>Statistical<br/>Inference</b>                                    | <b>4C04CSC<br/>Computation<br/>Using Python</b> | <b>4B04 MAT<br/>Number<br/>Theory and<br/>Applications of<br/>Integrals</b> |

|                              |                                            |
|------------------------------|--------------------------------------------|
| <b>Subject Code:</b>         | <b>3A05 ENG</b>                            |
| <b>Subject Name:</b>         | <b>Readings on Philosophy of Knowledge</b> |
| <b>No. of Credits:</b>       | <b>4</b>                                   |
| <b>No. of Contact Hours:</b> | <b>90</b>                                  |
| <b>Hours per Week:</b>       | <b>6</b>                                   |
| <b>Name of the Teacher:</b>  | <b>Jisha.E</b>                             |

### **Course Outcomes**

- \_ 1. Understand the basic issues related to construction and acquisition of knowledge through articles, poems, stories, life writings and historical narratives.
- \_ 2. Understand the relationship between higher education and nation building.
- \_ 3. Evolve a deeper understanding of disciplines, multi-disciplinary approaches, interdisciplinary approaches and the various systems of knowledge.
- \_ 4. Understand knowledge as a social construct and the dynamics of paradigm shifts.
- \_ 5. Understand the epistemological and ontological factors within higher education.
- \_ 6. Understand logical fallacies and apply critical thinking.

### **Content Specifications**

#### **Module 1**

1. The School for Sympathy: E. V. Lucas
2. Zero Sum Game: Bibas Sen
3. Liberal Arts and the Campus: David W. Orr
4. The Banking Concept of Education: Paulo Freire

## Module 2

5. Banaras : Kedarnath Singh
6. Toba Tek Singh : Saadat Hasan
7. Three Hundred Ramayanas : A. K. Ramanujan
8. Indian Culture and Authority : Sudhir Kakar and Katharina Kakar

(Excerpts from The Indians: A Portrait of a People)

## Module 3

### 9. Confronting Class in the Classroom: Bell Hooks

### 10. Dalits and the Mangrove Forest Region : Kallen Pokkudan Additional Reading

#### Module 1

1. Beach Vacation: Dhaval Mehta
2. Kazhcha: M. T. Vasudevan Nair

#### Module 2

1. The Legend (Short story): O. V. Vijayan
2. Thottam on Pottan: (Excerpts from Trans: K. M. Tharakan)

#### Module 3

1. How to Take a Pair of New Chappals: Gopal Honnalgere
2. Panting (Trans. B. Chandrika) : Madhavan Purachery

## TEACHING SCHEDULE

| No of Weeks | Dates                          | Session    | Topic                                                  |
|-------------|--------------------------------|------------|--------------------------------------------------------|
| 1           | 03-01-2022<br>To<br>08-01-2022 | 1          | <b>Module 1</b><br>INTRODUCTION OF THE SYLLABUS        |
|             |                                | 2          | Theme discussion                                       |
|             |                                | 3          | <b>Module 1</b> . The School for Sympathy: E. V. Lucas |
|             |                                | 4          | The School for Sympathy: E. V. Lucas                   |
|             |                                | 5          | The School for Sympathy: E. V. Lucas                   |
|             |                                | 08 January | Second Saturday                                        |
| 2           | 10-01-2022<br>To<br>15-01-2022 | 6          | Discussion of question answers                         |
|             |                                | 7          | 2. Zero Sum Game: Bibas Sen                            |
|             |                                | 8          | 2. Zero Sum Game: Bibas Sen                            |
|             |                                | 9          | <b>Discussion of Question answers</b>                  |
|             |                                | 10         | 3. Liberal Arts and the Campus: David W. Orr           |
|             |                                | 11         | 3. Liberal Arts and the Campus: David W. Orr           |

| No of Weeks | Dates                          | Session     | Topic                                             |
|-------------|--------------------------------|-------------|---------------------------------------------------|
| 3           | 17-01-2022<br>To<br>22-01-2022 | 12          | 3. Liberal Arts and the Campus: David W. Orr      |
|             |                                | 13          | 3. Liberal Arts and the Campus: David W. Orr      |
|             |                                | 14          | 3. Liberal Arts and the Campus: David W. Orr      |
|             |                                | 15          | Discussion of Question answers                    |
|             |                                | 16          | Debate                                            |
|             |                                | 17          | Debate                                            |
| 4           | 24-01-2022<br>To<br>29-01-2022 | 18          | 4. The Banking Concept of Education: Paulo Freire |
|             |                                | 19          | 4. The Banking Concept of Education: Paulo Freire |
|             |                                | 26 January  | Republic Day                                      |
|             |                                | 20          | 4. The Banking Concept of Education: Paulo Freire |
|             |                                | 21          | 4. The Banking Concept of Education: Paulo Freire |
|             |                                | 22          | Discussion of Question answers                    |
| 5           | 31-01-2022<br>To<br>05-02-2022 | 31 January  | Don Bosco                                         |
|             |                                | 23          | CLASS TEST                                        |
|             |                                | 24          | Seminar Presentation                              |
|             |                                | 25          | Seminar Presentation                              |
|             |                                | 26          | Seminar Presentation                              |
|             |                                | 27          | Seminar Presentation                              |
| 6           | 07-02-2022<br>To<br>12-02-2022 | 28          | <b>Module 2</b><br>5. Banaras : Kedarnath Singh   |
|             |                                | 29          | Banaras : Kedarnath Singh                         |
|             |                                | 30          | Banaras : Kedarnath Singh                         |
|             |                                | 31          | Banaras : Kedarnath Singh                         |
|             |                                | 32          | Discussion of Question answers                    |
|             |                                | 12 February | Second Saturday                                   |
| 7           | 14-02-2022<br>To<br>19-02-2022 | 33          | 6. Toba Tek Singh : Saadat Hasan                  |
|             |                                | 34          | Toba Tek Singh : Saadat Hasan                     |
|             |                                | 35          | Toba Tek Singh : Saadat Hasan                     |
|             |                                | 36          | Toba Tek Singh : Saadat Hasan                     |
|             |                                | 37          | Toba Tek Singh : Saadat Hasan                     |
|             |                                | 38          | Discussion of Question answers                    |
| 8           | 21-02-2022<br>To<br>26-02-2022 | 39          | I Internal Examination                            |
|             |                                | 40          | I Internal Examination                            |
|             |                                | 41          | I Internal Examination                            |
|             |                                | 42          | I Internal Examination                            |
|             |                                | 43          | I Internal Examination                            |
|             |                                | 44          | I Internal Examination                            |

| No of Weeks | Dates                          | Session  | Topic                                                                                                                     |
|-------------|--------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------|
| 9           | 28-02-2022<br>To<br>05-03-2022 | 45       | Discussion of Question paper                                                                                              |
|             |                                | 01 March | Maha Sivarathri                                                                                                           |
|             |                                | 46       | 7. Three Hundred Ramayanas : A. K. Ramanujan ---discussion of different Ramayanas                                         |
|             |                                | 47       | Essence of Valmiki Ramayana                                                                                               |
|             |                                | 48       | Three Hundred Ramayanas : A. K. Ramanujan                                                                                 |
|             |                                | 49       | Three Hundred Ramayanas : A. K. Ramanujan                                                                                 |
| 10          | 07-03-2022<br>To<br>12-03-2022 | 50       | Three Hundred Ramayanas : A. K. Ramanujan                                                                                 |
|             |                                | 51       | Discussion of Question Answers                                                                                            |
|             |                                | 52       | Seminar Presentation                                                                                                      |
|             |                                | 53       | Seminar Presentation                                                                                                      |
|             |                                | 54       | Seminar Presentation                                                                                                      |
|             |                                | 12 March | Second Saturday                                                                                                           |
| 11          | 14-03-2022<br>To<br>19-03-2022 | 55       | 8. Indian Culture and Authority : Sudhir Kakar and Katharina Kakar<br>(Excerpts from The Indians: A Portrait of a People) |
|             |                                | 56       | Indian Culture and Authority : Sudhir Kakar and Katharina Kakar                                                           |
|             |                                | 57       | Indian Culture and Authority : Sudhir Kakar and Katharina Kakar                                                           |
|             |                                | 58       | Indian Culture and Authority : Sudhir Kakar and Katharina Kakar                                                           |
|             |                                | 59       | Indian Culture and Authority : Sudhir Kakar and Katharina Kakar                                                           |
|             |                                | 60       | Indian Culture and Authority : Sudhir Kakar and Katharina Kakar                                                           |
| 12          | 21-03-2022<br>To<br>26-03-2022 | 61       | Discussion of Question answers                                                                                            |
|             |                                | 62       | Debate                                                                                                                    |
|             |                                | 63       | CLASS TEST                                                                                                                |
|             |                                | 64       | BOOK REVIEW                                                                                                               |
|             |                                | 65       | BOOK REVIEW                                                                                                               |
|             |                                | 66       | BOOK REVIEW                                                                                                               |
| 13          | 28-03-2022<br>To<br>02-04-2022 | 67       | Module 3<br>9. Confronting Class in the Classroom: Bell Hooks                                                             |
|             |                                | 68       | Confronting Class in the Classroom: Bell Hooks                                                                            |
|             |                                | 69       | Confronting Class in the Classroom: Bell Hooks                                                                            |
|             |                                | 70       | Confronting Class in the Classroom: Bell Hooks                                                                            |
|             |                                | 71       | Confronting Class in the Classroom: Bell Hooks                                                                            |

| No of Weeks | Dates                          | Session  | Topic                                                                       |
|-------------|--------------------------------|----------|-----------------------------------------------------------------------------|
|             |                                | 72       | Discussion of Question answers                                              |
| 14          | 04-04-2022<br>To<br>09-04-2022 | 73       | <b>10. Dalits and the Mangrove Forest Region : Kallen Pokkudan</b>          |
|             |                                | 74       | Dalits and the Mangrove Forest Region : Kallen Pokkudan                     |
|             |                                | 75       | Dalits and the Mangrove Forest Region : Kallen Pokkudan                     |
|             |                                | 76       | Dalits and the Mangrove Forest Region : Kallen Pokkudan                     |
|             |                                | 77       | Discussion of Question answers                                              |
|             |                                | 09 April | Second Saturday                                                             |
|             |                                | 15       | 11-04-2022<br>To<br>16-04-2022                                              |
| 79          | Revision                       |          |                                                                             |
| 13 April    | Easter Holidays                |          |                                                                             |
| 14 April    | Easter Holidays                |          |                                                                             |
| 15 April    | Easter Holidays                |          |                                                                             |
| 16 April    | Easter Holidays                |          |                                                                             |
| 16          | 18-04-2022<br>To<br>23-04-2022 | 18 April | Easter Holidays                                                             |
|             |                                | 80       | <b>2. Kazhcha: M. T. Vasudevan Nair</b>                                     |
|             |                                | 81       | <b>Module 2<br/>1. The Legend (Short story): O. V. Vijayan</b>              |
|             |                                | 82       | <b>2. Thottam on Pottan: (Excerpts from Trans: K. M. Tharakan)</b>          |
|             |                                | 83       | <b>Module 3<br/>1. How to Take a Pair of New Chappals: Gopal Honnalgere</b> |
|             |                                | 84       | <b>2. Panting (Trans. B. Chandrika) : Madhavan Purachery</b>                |
| 17          | 25-04-2022<br>To<br>30-04-2022 | 85       | II Internal Examination                                                     |
|             |                                | 86       | II Internal Examination                                                     |
|             |                                | 87       | II Internal Examination                                                     |
|             |                                | 88       | II Internal Examination                                                     |
|             |                                | 89       | II Internal Examination                                                     |
|             |                                | 90       | II Internal Examination                                                     |

|                              |                                                    |
|------------------------------|----------------------------------------------------|
| <b>Subject Code:</b>         | <b>4B04 MAT</b>                                    |
| <b>Subject Name:</b>         | <b>NUMBER THEORY AND APPLICATIONS OF INTEGRALS</b> |
| <b>No. of Credits:</b>       | <b>4</b>                                           |
| <b>No. of Contact Hours:</b> | <b>90</b>                                          |
| <b>Hours per Week:</b>       | <b>6</b>                                           |
| <b>Name of the Teacher:</b>  | <b>Remya Raj</b>                                   |

**4B04 MAT:  
Number Theory and Applications of Integrals**

**Unit I - Number Theory I (22 hours)**

Number theory: Division algorithm (proof omitted), Greatest common Divisor, Euclidean Algorithm, Diophantine equation  $ax+by =c$ , primes and their distribution, fundamental theorem of arithmetic, the sieve of Eratosthenes (Sections 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2 of Text 1).

**Unit II – Number Theory II (23 hours)**

Basic properties of congruence, the little theorem and pseudo primes, Wilson’s theorem, Euler’s theorem (Proofs of Fermat’s, Wilson’s and Euler’s theorems excluded) (Sections 4.2, 5.2, 5.3, 7.3 of Text 1).

**Unit III – Area between curves and Arc length (23hours)**

Substitution and the area between curves, Arc length, Areas and length in polar co-ordinates (Sections 5.6, 6.3, 11.5 of Text 2).

**Unit IV – Volumes of solids and Areas of surfaces of revolution (22 hours)**

Volumes using cross sections, areas of surfaces of revolution (Sections 6.1, 6.4 of Text 2).

**Texts**

1. David M Burton, Elementary Number theory, 7th edition, Mc Graw Hill
2. G.B, Thomas Jr., M.D. Weir and J.R. Hass, Thomas’ Calculus (12th edition), Pearson Education.

**References**

1. T.M. Apostol, Introduction to Analytic Number Theory, Springer
2. N. Koblitz, A Course in Number theory and Cryptography (2nd edition), Springer
3. H Anton, Bivens and Davis, Calculus (10th edition), Willey
4. S. Narayan, Integral calculus, S. Chand & Company Ltd
5. Higher Engineering Mathematics, B.S. Grewal (43rd edition), Khanna Publishers.



## TEACHING SCHEDULE

| No of Weeks | Dates                          | Session    | Topic                                       |
|-------------|--------------------------------|------------|---------------------------------------------|
| 1           | 03-01-2022<br>To<br>08-01-2022 | 1          | Number theory-introduction,examples         |
|             |                                | 2          | Examples                                    |
|             |                                | 3          | Examples                                    |
|             |                                | 4          | Examples                                    |
|             |                                | 5          | Results                                     |
|             |                                | 08 January | Second Saturday                             |
| 2           | 10-01-2022<br>To<br>15-01-2022 | 6          | The division algorithm-theorem              |
|             |                                | 7          | Examples                                    |
|             |                                | 8          | Examples                                    |
|             |                                | 9          | Corollary-general division algorithm        |
|             |                                | 10         | Examples                                    |
|             |                                | 11         | Examples                                    |
| 3           | 17-01-2022<br>To<br>22-01-2022 | 12         | The greatest common divisor-theorem         |
|             |                                | 13         | Definitions ,examples                       |
|             |                                | 14         | Examples                                    |
|             |                                | 15         | Theorems ,examples                          |
|             |                                | 16         | Euclidian algorithm-lemma, examples         |
|             |                                | 17         | Definitions, theorem, examples              |
| 4           | 24-01-2022<br>To<br>29-01-2022 | 18         | Diophantine equation-examples, theorems     |
|             |                                | 19         | Examples                                    |
|             |                                | 26 January | Republic Day                                |
|             |                                | 20         | Primes and their distribution-theorems      |
|             |                                | 21         | Fundamental Theorem of arithmetic, examples |
|             |                                | 22         | The sieve of Eratosthenes- examples,        |
| 5           | 31-01-2022<br>To<br>05-02-2022 | 31 January | Don Bosco                                   |
|             |                                | 23         | Euclid theorem, corollary                   |
|             |                                | 24         | Revision                                    |
|             |                                | 25         | Assignment                                  |
|             |                                | 26         | Class test                                  |
|             |                                | 27         | Basic properties of congruence,examples     |
| 6           | 07-02-2022<br>To<br>12-02-2022 | 28         | Lemma, theorem,example                      |
|             |                                | 29         | Examples                                    |
|             |                                | 30         | Fermats little theorem, corollary           |
|             |                                | 31         | Examples                                    |
|             |                                | 32         | Lemma ,examples                             |

| No of Weeks | Dates                          | Session            | Topic                                                 |
|-------------|--------------------------------|--------------------|-------------------------------------------------------|
|             |                                |                    | Pseudoprimes -definition, examples                    |
|             |                                | <b>12 February</b> | <b>Second Saturday</b>                                |
| 7           | 14-02-2022<br>To<br>19-02-2022 | 33                 | Theorem, example                                      |
|             |                                | 34                 | Wilson's theorem-examples                             |
|             |                                | 35                 | Examples                                              |
|             |                                | 36                 | Theorem                                               |
|             |                                | 37                 | Theorem                                               |
|             |                                | 38                 | Examples                                              |
| 8           | 21-02-2022<br>To<br>26-02-2022 | 39                 | <b>I Internal Examination</b>                         |
|             |                                | 40                 | <b>I Internal Examination</b>                         |
|             |                                | 41                 | <b>I Internal Examination</b>                         |
|             |                                | 42                 | <b>I Internal Examination</b>                         |
|             |                                | 43                 | <b>I Internal Examination</b>                         |
|             |                                | 44                 | <b>I Internal Examination</b>                         |
| 9           | 28-02-2022<br>To<br>05-03-2022 | 45                 | Euler's theorem-examples                              |
|             |                                | <b>01 March</b>    | <b>Maha Sivarathri</b>                                |
|             |                                | 46                 | Theorems                                              |
|             |                                | 47                 | Examples                                              |
|             |                                | 48                 | Theorem                                               |
|             |                                | 49                 | <b>Corollary</b>                                      |
| 10          | 07-03-2022<br>To<br>12-03-2022 | 50                 | <b>Theorem</b>                                        |
|             |                                | 51                 | Revision                                              |
|             |                                | 52                 | Class test                                            |
|             |                                | 53                 | Substitution and area between curves-theorem, example |
|             |                                | 54                 | Examples                                              |
|             |                                | <b>12 March</b>    | <b>Second Saturday</b>                                |
| 11          | 14-03-2022<br>To<br>19-03-2022 | 55                 | Theorem, example                                      |
|             |                                | 56                 | Examples                                              |
|             |                                | 57                 | Area between curves-examples                          |
|             |                                | 58                 | Examples                                              |
|             |                                | 59                 | Integration with respect to y- examples               |
|             |                                | 60                 | Examples                                              |
| 12          | 21-03-2022<br>To<br>26-03-2022 | 61                 | Examples                                              |
|             |                                | 62                 | Arc length -examples                                  |
|             |                                | 63                 | Examples                                              |
|             |                                | 64                 | Examples                                              |
|             |                                | 65                 | Examples                                              |
|             |                                | 66                 | Areas and lengths in polar coordinates-examples       |

| No of Weeks | Dates                          | Session  | Topic                                                   |
|-------------|--------------------------------|----------|---------------------------------------------------------|
|             |                                |          | Area in polar coordinates -Examples                     |
| 13          | 28-03-2022<br>To<br>02-04-2022 | 67       | Examples                                                |
|             |                                | 68       | Examples                                                |
|             |                                | 69       | Length of a polar curve -Examples                       |
|             |                                | 70       | Class test                                              |
|             |                                | 71       | Volumes using cross sections -methods                   |
|             |                                | 72       | Method of slicing-examples                              |
| 14          | 04-04-2022<br>To<br>09-04-2022 | 73       | Disk method-examples                                    |
|             |                                | 74       | Volumes by disks for rotation about the y axis-examples |
|             |                                | 75       | Washer method-examples                                  |
|             |                                | 76       | Areas of surfaces of revolution -examples               |
|             |                                | 77       | Revolution about the y axis-examples                    |
|             |                                | 09 April | Second Saturday                                         |
| 15          | 11-04-2022<br>To<br>16-04-2022 | 78       | The short differential form-example                     |
|             |                                | 79       | Revision                                                |
|             |                                | 13 April | Easter Holidays                                         |
|             |                                | 14 April | Easter Holidays                                         |
|             |                                | 15 April | Easter Holidays                                         |
|             |                                | 16 April | Easter Holidays                                         |
| 16          | 18-04-2022<br>To<br>23-04-2022 | 18 April | Easter Holidays                                         |
|             |                                | 80       | Revision                                                |
|             |                                | 81       | Class test                                              |
|             |                                | 82       | discussion of previous university question paper        |
|             |                                | 83       | discussion of previous university question paper        |
|             |                                | 84       | Revision                                                |
| 17          | 25-04-2022<br>To<br>30-04-2022 | 85       | II Internal Examination                                 |
|             |                                | 86       | II Internal Examination                                 |
|             |                                | 87       | II Internal Examination                                 |
|             |                                | 88       | II Internal Examination                                 |
|             |                                | 89       | II Internal Examination                                 |
|             |                                | 90       | II Internal Examination                                 |

|                              |                                 |
|------------------------------|---------------------------------|
| <b>Subject Code:</b>         | <b>4C04CSC</b>                  |
| <b>Subject Name:</b>         | <b>COMPUTATION USING PYTHON</b> |
| <b>No. of Credits:</b>       | <b>2</b>                        |
| <b>No. of Contact Hours:</b> | <b>54</b>                       |
| <b>Hours per Week:</b>       | <b>3</b>                        |
| <b>Name of the Teacher:</b>  | <b>SINDHU P M</b>               |

## SYLLABUS

### **Unit I: Basic Elements and Control Statements**

Features of Python, Different Methods to Run Python, Basic Elements (Objects, Expressions, Numerical Types, Strings, Variables), Comments, Indentation in Python, Input and Output in Python, import function, Operators in Python, Branching (if, else, elif), Iteration (while, for), range and enumerate functions, Tuples, Lists, Sets, Dictionaries, Built-in methods of lists, sets and dictionaries, Mutable and Immutable Objects. (16 Hrs)

### **Unit II: Functions, Modules and Exception Handling**

Functions Definition, Function Calling, Function Arguments (Required, Keyword, Default), Recursion, Modules, Built-in Modules (math, statistics), Creating Modules, File Handling (Opening, Closing, Writing, Reading), Exceptions, Built-in Exceptions (Index Error, Overflow Error, ZeroDivisionError, Runtime Error), Exception Handling. (16 Hrs)

### **Unit III: Object Oriented Programming**

Class Definition, Object Creation, Built-in Attribute Methods, Encapsulation, Data Hiding, Inheritance, Multi-Level Inheritance, Polymorphism (Method Overriding, Operator Overloading) (10 Hrs)

### **Unit IV: Arrays and Data Visualization**

Arrays in Python, Numpy Module, ndarray, Creating Arrays (array, zeros, ones, empty, linspace, arrange, random), Two-Dimensional Array, Indexing, Slicing, Iterating, Copying, Splitting, Shape Manipulation (reshape, transpose, resize), Arithmetic Operations on Arrays. Data Visualization in Python (matplotlib Module, pyplot, plot(), hist, scatter, bar charts, Formatting, figure(), subplot(), text(), xlabel(), ylabel(), title(), Plotting Simple Mathematical Functions (sin x, x<sup>2</sup>) (12 Hrs)

## TEACHING SCHEDULE

| No of Weeks | Dates                          | Session                | Topic                                                                      |
|-------------|--------------------------------|------------------------|----------------------------------------------------------------------------|
| 1           | 03-01-2022<br>To<br>08-01-2022 | 1                      | Features of Python                                                         |
|             |                                | 2                      | Different Methods to Run Python                                            |
|             |                                | 3                      | Basic Elements (Objects, Expressions, Numerical Types, Strings, Variables) |
|             |                                | 08 January             | Second Saturday                                                            |
| 2           | 10-01-2022<br>To<br>15-01-2022 | 4                      | Comments, Indentation in Python                                            |
|             |                                | 5                      | Comments, Indentation in Python                                            |
|             |                                | 6                      | Input and Output in Python,                                                |
| 3           | 17-01-2022<br>To<br>22-01-2022 | 7                      | Import function,                                                           |
|             |                                | 8                      | Operators in Python                                                        |
|             |                                | 9                      | Branching (if, else, elif)                                                 |
|             |                                | 10                     | Branching (if, else, elif)                                                 |
| 4           | 24-01-2022<br>To<br>29-01-2022 | 11                     | Iteration (while, for),                                                    |
|             |                                | 12                     | Range and enumerate functions, Tuples, Lists                               |
|             |                                | 26 January             | Republic Day                                                               |
|             |                                | 13                     | Sets, Dictionaries,                                                        |
| 5           | 31-01-2022<br>To<br>05-02-2022 | 14                     | Built-in methods of lists, sets and dictionaries                           |
|             |                                | 31 January             | Don Bosco                                                                  |
|             |                                | 15                     | Mutable and Immutable Objects.                                             |
|             |                                | 16                     | <b>MODULE 1 EXAM</b>                                                       |
| 6           | 07-02-2022<br>To<br>12-02-2022 | 17                     | Functions Definition, Function Calling                                     |
|             |                                | 18                     | Function Arguments (Required, Keyword, Default)                            |
|             |                                | 19                     | Recursion                                                                  |
|             |                                | 20                     | Modules                                                                    |
| 7           | 14-02-2022<br>To<br>19-02-2022 | 12 February            | Second Saturday                                                            |
|             |                                | 21                     | Built-in Modules (math)                                                    |
|             |                                | 22                     | Built-in Modules ( statistics)                                             |
|             |                                | 23                     | Creating Modules                                                           |
| 8           | 21-02-2022<br>To<br>26-02-2022 | 24                     | File Handling -Opening, Closing                                            |
|             |                                |                        | I Internal Examination                                                     |
|             |                                |                        | I Internal Examination                                                     |
|             |                                |                        | I Internal Examination                                                     |
|             |                                |                        | I Internal Examination                                                     |
|             |                                | I Internal Examination |                                                                            |

| No of Weeks | Dates                          | Session  | Topic                                                                                      |
|-------------|--------------------------------|----------|--------------------------------------------------------------------------------------------|
| 9           | 28-02-2022<br>To<br>05-03-2022 | 25       | File Handling -Writing, Reading                                                            |
|             |                                | 01 March | Maha Sivarathri                                                                            |
|             |                                | 26       | Exceptions                                                                                 |
|             |                                | 27       | Built-in Exceptions (Index Error)                                                          |
|             |                                | 28       | Built-in Exceptions (Overflow Error)                                                       |
| 10          | 07-03-2022<br>To<br>12-03-2022 | 29       | Built-in Exceptions (ZeroDivisionError)                                                    |
|             |                                | 30       | Built-in Exceptions (Runtime Error)                                                        |
|             |                                | 31       | Exception Handling.                                                                        |
|             |                                | 32       | <b>MODULE 2 EXAM</b>                                                                       |
|             |                                | 12 March | <b>Second Saturday</b>                                                                     |
| 11          | 14-03-2022<br>To<br>19-03-2022 | 33       | Class Definition                                                                           |
|             |                                | 34       | Object Creation                                                                            |
|             |                                | 35       | Built-in Attribute Methods                                                                 |
|             |                                | 36       | Encapsulation                                                                              |
| 12          | 21-03-2022<br>To<br>26-03-2022 | 37       | Data Hiding                                                                                |
|             |                                | 38       | Inheritance                                                                                |
|             |                                | 39       | Multi-Level Inheritance                                                                    |
|             |                                | 40       | Polymorphism (Method Overriding)                                                           |
| 13          | 28-03-2022<br>To<br>02-04-2022 | 41       | Operator Overloading                                                                       |
|             |                                | 42       | <b>MODULE 3 EXAM</b>                                                                       |
|             |                                | 43       | Arrays in Python                                                                           |
| 14          | 04-04-2022<br>To<br>09-04-2022 | 44       | Numpy Module, ndarray                                                                      |
|             |                                | 45       | Creating Arrays (array, zeros, ones, empty, linspace, arrange, random)                     |
|             |                                | 46       | Two-Dimensional Array, 73 Copying, Splitting                                               |
|             |                                | 47       | Indexing, Slicing                                                                          |
|             |                                | 09 April | <b>Second Saturday</b>                                                                     |
| 15          | 11-04-2022<br>To<br>16-04-2022 | 48       | Iterating                                                                                  |
|             |                                | 49       | Shape Manipulation (reshape, transpose, resize)                                            |
|             |                                | 13 April | Easter Holidays                                                                            |
|             |                                | 14 April | Easter Holidays                                                                            |
|             |                                | 15 April | Easter Holidays                                                                            |
| 16          | 18-04-2022<br>To<br>23-04-2022 | 16 April | Easter Holidays                                                                            |
|             |                                | 18 April | Easter Holidays                                                                            |
|             |                                | 50       | Arithmetic Operations on Arrays.                                                           |
|             |                                | 51       | Data Visualization in Python -matplotlib Module, pyplot, plot(), hist, scatter, bar charts |
|             |                                | 52       | Formatting, figure(), subplot(), text(), xlabel(), ylabel(),                               |



|                              |                       |
|------------------------------|-----------------------|
| <b>Subject Code:</b>         | 4C04 STA              |
| <b>Subject Name:</b>         | STATISTICAL INFERENCE |
| <b>No. of Credits:</b>       | 3                     |
| <b>No. of Contact Hours:</b> | 90                    |
| <b>Hours per Week:</b>       | 6                     |
| <b>Name of the Teacher:</b>  | Varsha C              |

#### COMPLEMENTARY ELECTIVE COURSE IV: STATISTICAL INFERENCE

**Unit I:** Chebychev's Inequality and Law of Large Numbers: Chebyshev's Inequality and its applications, convergence in probability, Weak law of large numbers, Bernoulli's law of large numbers, Convergence in distribution and central limit theorem for IID random variables (Statement only). (15 Hrs.)

**Unit II:** Theory of Estimation: Point estimation, Desirable properties of a good estimator, Cramer-Rao inequality (statement only), Methods of estimation - method of MLE and method of moments. Interval estimation - Confidence interval for mean, proportion, variance, difference of means, difference of proportions. (25 Hrs.)

**Unit III:** Testing of Hypotheses: Statistical hypotheses, Simple and composite hypotheses, Null and alternative hypotheses, Types of errors, Critical region, Size and power of test – Definition and problems, most powerful test, Neyman – Pearson lemma (without proof). (20 Hrs.)

**Unit IV:** Large and small sample tests: Test for mean, proportion, equality of means, equality of proportions, paired t-test, test for variance and equality of variance, Chi-square test for goodness of fit, test for independence of attributes, One-way ANOVA (assumptions and problem only). (30 Hrs.)

#### Books for Study:

1. Gupta, S. C. & Kapoor, V. K. (1980). Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
2. Gupta, S. C. & Kapoor, V. K. (1994). Fundamentals of Applied Statistics, Sultan Chand & Sons, New Delhi

#### Books for Reference:

1. John E. Freund (1980). Mathematical Statistics, Prentice Hall of India, New Delhi.
2. Rohatgi, V. K. (1993). An Introduction to Probability Theory and Mathematical Statistics, Wiley Eastern, New Delhi.
3. Medhi, J. (2005). Statistical Methods-An Introductory Text, New Age International (P) Ltd., New Delhi.
4. Spiegel, M. R., Schiller, J. J. & Srinivasan, R. A. (2013). Schaum's Outline of Probability and Statistics, 4thEdn. The McGraw-Hill Companies, Inc., New York.



## TEACHING SCHEDULE

| No of Weeks | Dates                          | Session    | Topic                                          |
|-------------|--------------------------------|------------|------------------------------------------------|
| 1           | 03-01-2022<br>To<br>08-01-2022 | 1          | Chebyshev's Inequality                         |
|             |                                | 2          | Applications of Chebyshev's Inequality         |
|             |                                | 3          | Problems                                       |
|             |                                | 4          | Problems                                       |
|             |                                | 5          | Convergence in probability                     |
|             |                                | 08 January | Second Saturday                                |
| 2           | 10-01-2022<br>To<br>15-01-2022 | 6          | Weak law of large numbers                      |
|             |                                | 7          | Problems                                       |
|             |                                | 8          | Bernoulli's law of large numbers,              |
|             |                                | 9          | Problems                                       |
|             |                                | 10         | Convergence in distribution                    |
|             |                                | 11         | Central limit theorem for IID random variables |
| 3           | 17-01-2022<br>To<br>22-01-2022 | 12         | Revision                                       |
|             |                                | 13         | Revision                                       |
|             |                                | 14         | Class test- module I                           |
|             |                                | 15         | Point estimation                               |
|             |                                | 16         | Desirable properties of a good estimator       |
|             |                                | 17         | Unbiasedness                                   |
| 4           | 24-01-2022<br>To<br>29-01-2022 | 18         | Problems                                       |
|             |                                | 19         | Consistency                                    |
|             |                                | 26 January | Republic Day                                   |
|             |                                | 20         | Problems                                       |
|             |                                | 21         | Efficiency                                     |
|             |                                | 22         | Problems                                       |
| 5           | 31-01-2022<br>To<br>05-02-2022 | 31 January | Don Bosco                                      |
|             |                                | 23         | Sufficiency                                    |
|             |                                | 24         | Fisher-Neyman Factorization theorem            |
|             |                                | 25         | Problems                                       |
|             |                                | 26         | Methods of estimation                          |
|             |                                | 27         | Maximum likelihood estimator                   |
| 6           | 07-02-2022<br>To<br>12-02-2022 | 28         | Problems                                       |
|             |                                | 29         | Method of moments                              |
|             |                                | 30         | Problems                                       |
|             |                                | 31         | Cramer-Rao inequality                          |
|             |                                | 32         | Interval estimation                            |

| No of Weeks | Dates                          | Session     | Topic                                                            |
|-------------|--------------------------------|-------------|------------------------------------------------------------------|
|             |                                | 12 February | Second Saturday                                                  |
| 7           | 14-02-2022<br>To<br>19-02-2022 | 33          | Confidence interval for mean –when $\sigma$ is known             |
|             |                                | 34          | Confidence interval for mean –when $\sigma$ is unknown           |
|             |                                | 35          | Problems                                                         |
|             |                                | 36          | Confidence interval for proportion                               |
|             |                                | 37          | Problems                                                         |
|             |                                | 38          | Confidence interval for Variance                                 |
| 8           | 21-02-2022<br>To<br>26-02-2022 | 39          | I Internal Examination                                           |
|             |                                | 40          | I Internal Examination                                           |
|             |                                | 41          | I Internal Examination                                           |
|             |                                | 42          | I Internal Examination                                           |
|             |                                | 43          | I Internal Examination                                           |
|             |                                | 44          | I Internal Examination                                           |
| 9           | 28-02-2022<br>To<br>05-03-2022 | 45          | Confidence interval for difference of means                      |
|             |                                | 01 March    | Maha Sivarathri                                                  |
|             |                                | 46          | Confidence interval for Difference of proportions                |
|             |                                | 47          | Problems                                                         |
|             |                                | 48          | Revision                                                         |
|             |                                | 49          | Class test Module II                                             |
| 10          | 07-03-2022<br>To<br>12-03-2022 | 50          | Statistical hypotheses                                           |
|             |                                | 51          | Simple and composite hypotheses, Null and alternative hypotheses |
|             |                                | 52          | Types of errors, Critical region                                 |
|             |                                | 53          | Size and power of test                                           |
|             |                                | 54          | Steps in hypothesis testing                                      |
|             |                                | 12 March    | Second Saturday                                                  |
| 11          | 14-03-2022<br>To<br>19-03-2022 | 55          | Definition and problems                                          |
|             |                                | 56          | Problems                                                         |
|             |                                | 57          | Most powerful test                                               |
|             |                                | 58          | Neyman – Pearson lemma                                           |
|             |                                | 59          | Revision                                                         |
|             |                                | 60          | Class test- Module III                                           |
| 12          | 21-03-2022<br>To<br>26-03-2022 | 61          | Test for mean Population $\sigma$ is known                       |
|             |                                | 62          | Test for mean Population $\sigma$ is unknown                     |
|             |                                | 63          | P Value                                                          |
|             |                                | 64          | Test for equality of means                                       |
|             |                                | 65          | Problems                                                         |
|             |                                | 66          | Testing of proportions                                           |

| No of Weeks | Dates                          | Session  | Topic                                   |
|-------------|--------------------------------|----------|-----------------------------------------|
| 13          | 28-03-2022<br>To<br>02-04-2022 | 67       | Equality of proportions                 |
|             |                                | 68       | Small Sample test for means             |
|             |                                | 69       | Paired t-test                           |
|             |                                | 70       | Problems                                |
|             |                                | 71       | Small Sample test for means             |
|             |                                | 72       | Paired t-test                           |
| 14          | 04-04-2022<br>To<br>09-04-2022 | 73       | Problems                                |
|             |                                | 74       | Problems                                |
|             |                                | 75       | Test for variance                       |
|             |                                | 76       | Equality of variance                    |
|             |                                | 77       | Test for Goodness of Fit                |
|             |                                | 09 April | Second Saturday                         |
| 15          | 11-04-2022<br>To<br>16-04-2022 | 78       | Test for independence of attributes     |
|             |                                | 79       | Problems                                |
|             |                                | 13 April | Easter Holidays                         |
|             |                                | 14 April | Easter Holidays                         |
|             |                                | 15 April | Easter Holidays                         |
|             |                                | 16 April | Easter Holidays                         |
| 16          | 18-04-2022<br>To<br>23-04-2022 | 18 April | Easter Holidays                         |
|             |                                | 80       | Analysis of Variance                    |
|             |                                | 81       | One-way ANOVA                           |
|             |                                | 82       | Revision module 4                       |
|             |                                | 83       | Class test module 4                     |
|             |                                | 84       | Previous year question paper discussion |
| 17          | 25-04-2022<br>To<br>30-04-2022 | 85       | II Internal Examination                 |
|             |                                | 86       | II Internal Examination                 |
|             |                                | 87       | II Internal Examination                 |
|             |                                | 88       | II Internal Examination                 |
|             |                                | 89       | II Internal Examination                 |
|             |                                | 90       | II Internal Examination                 |

**DON BOSCO ARTS & SCIENCE COLLEGE**  
**ANGADIKADAVU**

*(Affiliated to Kannur University Approved by Government of Kerala)*

**ANGADIKADAVU P.O., IRITTY, KANNUR – 670706**



**COURSE PLAN**

**(DEPARTMENT)**

**(2020 – 23)**

**SEMESTER – IV**

# ACADEMIC YEAR - (2021-22)

## IV Semester (DEPARTMENT) (2020 - 23)

| SL. No. | Name of Subjects with Code | Name of the Teacher | Duty Hours per week |
|---------|----------------------------|---------------------|---------------------|
| 1.      |                            |                     |                     |
| 2.      |                            |                     |                     |
| 3.      |                            |                     |                     |
| 4.      |                            |                     |                     |
| 5.      |                            |                     |                     |
| 6.      |                            |                     |                     |
|         |                            |                     |                     |

### TIME TABLE

| Day | 09.50 Am - 10.45 Am | 10.45 Am -11.40 Am | 11.55 Am - 12.50 Pm | 01.40 Pm - 02.35 Pm | 02.35 Pm - 03.30 Pm |
|-----|---------------------|--------------------|---------------------|---------------------|---------------------|
| 1   |                     |                    |                     |                     |                     |
| 2   |                     |                    |                     |                     |                     |
| 3   |                     |                    |                     |                     |                     |
| 4   |                     |                    |                     |                     |                     |
| 5   |                     |                    |                     |                     |                     |
| 6   |                     |                    |                     |                     |                     |

|                       |                  |
|-----------------------|------------------|
| Subject Code:         | 4A10 HIN         |
| Subject Name:         | Natak aur Ekanki |
| No. of Credits:       | 4                |
| No. of Contact Hours: | 90               |
| Hours per Week:       | 5                |
| Name of the Teacher:  | E.T.Ashwni       |

| Semester | Course Code | Hours per week | Credit | Exam hours |
|----------|-------------|----------------|--------|------------|
| Fourth   | 4A10 HIN    | 5              | 4      | 3          |

**Unit 1:**

1. चरवाहे - उपेंद्रनाथ अशक - कथावस्तु - प्रमुख समस्याएं - विभिन्न पात्रों का विश्लेषण - विशेषताएं - आधुनिक युग में इसकी प्रासंगिकता। (15 Hrs)

**Unit 2:**

2. ममता का विष - विष्णु प्रभाकर - कथावस्तु - प्रमुख समस्याएं - पात्रों का विश्लेषण - विशेषताएं - आधुनिक युग में इसकी प्रासंगिकता। (15 Hrs)

**Unit 3:**

3. कलिंग विजय - जगदीश चंद्र माथुर - कथावस्तु - प्रमुख समस्याएं - ऐतिहासिकता - विभिन्न पात्रों का विश्लेषण - विशेषताएं - आधुनिक युग में इसकी प्रासंगिकता। (15Hrs)

**Unit 4:**

4. माधवी (नाटक) - भीष्म साहनी (विस्तृत अध्ययन) - माधवी की कथावस्तु - प्रमुख समस्याएं - नारी विमर्श - विभिन्न पात्रों का विश्लेषण - विशेषताएं - आधुनिक युग में इसकी प्रासंगिकता। (45 Hrs)

## TEACHING SCHEDULE

| No of Weeks | Dates                          | Session | Topic                       |
|-------------|--------------------------------|---------|-----------------------------|
| 1           | 03-01-2022<br>To<br>08-01-2022 | 1       | हिंदी साहित्य में एकांकी    |
|             |                                | 2       | एकांकी का उद्भव और विकास    |
|             |                                | 3       | प्रमुख एकांकीकार            |
|             |                                | 4       | लेखक परिचय - उपेंद्रनाथ अशक |
|             |                                | 5       | चरवाहे                      |

| No of Weeks | Dates                          | Session     | Topic                                         |
|-------------|--------------------------------|-------------|-----------------------------------------------|
|             |                                | 08 January  | Second Saturday                               |
| 2           | 10-01-2022<br>To<br>15-01-2022 | 6           | चरवाहे - कथावस्तु                             |
|             |                                | 7           | चरवाहे - कथावस्तु                             |
|             |                                | 8           | चरवाहे - कथावस्तु                             |
|             |                                | 9           | चरवाहे - कथावस्तु                             |
|             |                                | 10          | चरवाहे- प्रमुख समस्याएं                       |
|             |                                | 11          | चरवाहे- प्रमुख समस्याएं                       |
| 3           | 17-01-2022<br>To<br>22-01-2022 | 12          | चरवाहे- विभिन्न पात्रों का विश्लेषण           |
|             |                                | 13          | चरवाहे- विभिन्न पात्रों का विश्लेषण           |
|             |                                | 14          | चरवाहे- एकांकी की विशेषताएं                   |
|             |                                | 15          | चरवाहे- आधुनिक युग में इसकी प्रासंगिकता       |
|             |                                | 16          | कक्षा परीक्षा                                 |
|             |                                | 17          | लेखक परिचय- विष्णु प्रभाकर                    |
| 4           | 24-01-2022<br>To<br>29-01-2022 | 18          | ममता का विष - कथावस्तु                        |
|             |                                | 19          | ममता का विष - कथावस्तु                        |
|             |                                | 26 January  | Republic Day                                  |
|             |                                | 20          | ममता का विष - कथावस्तु                        |
|             |                                | 21          | ममता का विष - कथावस्तु                        |
|             |                                | 22          | ममता का विष - प्रमुख समस्याएं                 |
| 5           | 31-01-2022<br>To<br>05-02-2022 | 31 January  | Don Bosco                                     |
|             |                                | 23          | ममता का विष - प्रमुख समस्याएं                 |
|             |                                | 24          | ममता का विष - प्रमुख समस्याएं                 |
|             |                                | 25          | ममता का विष - पात्रों का विश्लेषण             |
|             |                                | 26          | ममता का विष - पात्रों का विश्लेषण             |
|             |                                | 27          | ममता का विष - एकांकी की विशेषताएं             |
| 6           | 07-02-2022<br>To<br>12-02-2022 | 28          | ममता का विष - आधुनिक युग में इसकी प्रासंगिकता |
|             |                                | 29          | ममता का विष - आधुनिक युग में इसकी प्रासंगिकता |
|             |                                | 30          | कक्षा परीक्षा                                 |
|             |                                | 31          | लेखक परिचय - जगदीश चंद्र माथुर                |
|             |                                | 32          | कलिंग विजय - कथावस्तु                         |
|             |                                | 12 February | Second Saturday                               |
| 7           | 14-02-2022<br>To<br>19-02-2022 | 33          | कलिंग विजय - कथावस्तु                         |
|             |                                | 34          | कलिंग विजय - कथावस्तु                         |
|             |                                | 35          | कलिंग विजय - प्रमुख समस्याएं                  |
|             |                                | 36          | कलिंग विजय - प्रमुख समस्याएं                  |
|             |                                | 37          | कलिंग विजय - ऐतिहासिकता                       |
|             |                                | 38          | कलिंग विजय - ऐतिहासिकता                       |
| 8           | 21-02-2022                     | 39          | I Internal Examination                        |

|    |                                |          |                                              |
|----|--------------------------------|----------|----------------------------------------------|
|    | To<br>26-02-2022               | 40       | I Internal Examination                       |
|    |                                | 41       | I Internal Examination                       |
|    |                                | 42       | I Internal Examination                       |
|    |                                | 43       | I Internal Examination                       |
|    |                                | 44       | I Internal Examination                       |
| 9  | 28-02-2022<br>To<br>05-03-2022 | 45       | कलिंग विजय - पात्रों का विश्लेषण             |
|    |                                | 01 March | Maha Sivarathi                               |
|    |                                | 46       | कलिंग विजय- एकांकी की विशेषताएं              |
|    |                                | 47       | कलिंग विजय - आधुनिक युग में इसकी प्रासंगिकता |
|    |                                | 48       | कक्षा परीक्षा                                |
| 10 | 07-03-2022<br>To<br>12-03-2022 | 49       | लेखक परिचय - भीष्म साहनी                     |
|    |                                | 50       | भीष्म साहनी - कृतित्व                        |
|    |                                | 51       | नाटक के प्रमुख तत्व                          |
|    |                                | 52       | माधवी - कथावस्तु                             |
|    |                                | 53       | माधवी - कथावस्तु                             |
| 11 | 14-03-2022<br>To<br>19-03-2022 | 54       | माधवी - कथावस्तु                             |
|    |                                | 12 March | Second Saturday                              |
|    |                                | 55       | माधवी - कथावस्तु                             |
|    |                                | 56       | माधवी - कथावस्तु                             |
|    |                                | 57       | माधवी - कथावस्तु                             |
| 12 | 21-03-2022<br>To<br>26-03-2022 | 58       | माधवी - कथावस्तु                             |
|    |                                | 59       | माधवी - कथावस्तु                             |
|    |                                | 60       | माधवी - प्रमुख समस्याएं                      |
|    |                                | 61       | माधवी - प्रमुख समस्याएं                      |
|    |                                | 62       | माधवी - प्रमुख समस्याएं                      |
| 13 | 28-03-2022<br>To<br>02-04-2022 | 63       | माधवी - पात्रों का विश्लेषण                  |
|    |                                | 64       | माधवी - पात्रों का विश्लेषण                  |
|    |                                | 65       | माधवी - पात्रों का विश्लेषण                  |
|    |                                | 66       | माधवी - पात्रों का विश्लेषण                  |
|    |                                | 67       | माधवी - एकांकी की विशेषताएं                  |
| 14 | 04-04-2022<br>To<br>09-04-2022 | 68       | माधवी - एकांकी की विशेषताएं                  |
|    |                                | 69       | माधवी - एकांकी की विशेषताएं                  |
|    |                                | 70       | माधवी - एकांकी की विशेषताएं                  |
|    |                                | 71       | माधवी - नारी विमर्श                          |
|    |                                | 72       | माधवी - नारी विमर्श                          |
|    |                                | 73       | माधवी - नारी विमर्श                          |
|    |                                | 74       | माधवी - नारी विमर्श                          |
|    |                                | 75       | माधवी - आधुनिक युग में इसकी प्रासंगिकता      |
|    |                                | 76       | माधवी - आधुनिक युग में इसकी प्रासंगिकता      |
|    |                                | 77       | माधवी - आधुनिक युग में इसकी प्रासंगिकता      |



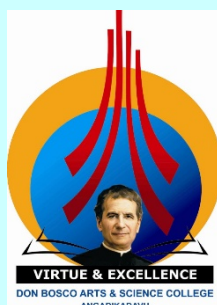
| No of Weeks | Dates                          | Session  | Topic                                    |
|-------------|--------------------------------|----------|------------------------------------------|
|             |                                | 09 April | Second Saturday                          |
| 15          | 11-04-2022<br>To<br>16-04-2022 | 78       | माधवी - आधुनिक युग में इसकी प्रासंगिकता  |
|             |                                | 79       | माधवी - आधुनिक युग में इसकी प्रासंगिकता  |
|             |                                | 13 April | Easter Holidays                          |
|             |                                | 14 April | Easter Holidays                          |
|             |                                | 15 April | Easter Holidays                          |
|             |                                | 16 April | Easter Holidays                          |
| 16          | 18-04-2022<br>To<br>23-04-2022 | 18 April | Easter Holidays                          |
|             |                                | 80       | कक्षा परीक्षा                            |
|             |                                | 81       | सेमिनार                                  |
|             |                                | 82       | सेमिनार                                  |
|             |                                | 83       | वाद - विवाद                              |
|             |                                | 84       | रिविजन - गत वर्ष के प्रश्न पत्र की चर्चा |
| 17          | 25-04-2022<br>To<br>30-04-2022 | 85       | II Internal Examination                  |
|             |                                | 86       | II Internal Examination                  |
|             |                                | 87       | II Internal Examination                  |
|             |                                | 88       | II Internal Examination                  |
|             |                                | 89       | II Internal Examination                  |
|             |                                | 90       | II Internal Examination                  |

**DON BOSCO ARTS & SCIENCE COLLEGE**

**ANGADIKADAVU**

*(Affiliated to Kannur University Approved by Government of Kerala)*

**ANGADIKADAVU P.O., IRITTY, KANNUR – 670706**



**COURSE PLAN**

**(DEPARTMENT)**

**(2020 – 23)**

**SEMESTER – IV**

# ACADEMIC YEAR - (2021-22)



|                              |                     |
|------------------------------|---------------------|
| <b>Subject Code:</b>         | 4A10MAL Drisya Kala |
| <b>Subject Name:</b>         | ദൃശ്യകലാസാഹിത്യം    |
| <b>No. of Credits:</b>       | 4                   |
| <b>No. of Contact Hours:</b> | 90                  |
| <b>Hours per Week:</b>       | 5                   |
| <b>Name of the Teacher:</b>  | Divya MM            |

## SYLLABUS

യൂണിറ്റ് 1

ആട്ടിക്രമം

1. നളചരിതം രണ്ടാം ഭാഗം

യൂണിറ്റ് 2 തുളു

1. സഭാപ്രവേശം പറയൻ തുള്ളൽ  
 യൂണിറ്റ് 3 നാടകം

1. ആ മനുഷ്യൻ നീ തന്നെ- സി ജെ തോമസ്
2. കർണഭാരം - വിവർത്തനം- ചെറുതോണിയിൽ കുഞ്ഞുണ്ണി നമ്പീശൻ

യൂണിറ്റ് 4 സിനിമ / ചിത്രകല

1. കൊടിയേറ്റം- അടൂർ ഗോപാലകൃഷ്ണൻ
2. തെയ്യം- ക്ഷണിക കലയുടെ സൗന്ദര്യം - എ.ടി.മോഹൻരാജ്.

**TEACHING SCHEDULE**

| No of Weeks | Dates                          | Session    | Topic                                                      |
|-------------|--------------------------------|------------|------------------------------------------------------------|
| 1           | 03-01-2022<br>To<br>08-01-2022 | 1          | ആട്ടക്കഥാസാഹിത്യം സാമാന്യധാരണ                              |
|             |                                | 2          | കഥകളി ഉത്ഭവം വളർച്ച- വിശദീകരണം                             |
|             |                                | 3          | ആട്ടക്കഥാ സാഹിത്യത്തിലെ ശ്രദ്ധേയമായ എഴുത്തുകാർ             |
|             |                                | 4          | ആട്ടക്കഥാസാഹിത്യം ശ്രദ്ധേയ രചനകൾ                           |
|             |                                | 5          | ആട്ടക്കഥാസാഹിത്യം ശ്രദ്ധേയമായ രചനകൾ വിശദീകരണം              |
|             |                                | 08 January | Second Saturday                                            |
| 2           | 10-01-2022<br>To<br>15-01-2022 | 6          | ഉണ്ണായിവാദ്യർ കവിപരിചയം                                    |
|             |                                | 7          | നളചരിതം ആട്ടക്കഥ ഇതിവൃത്തം                                 |
|             |                                | 8          | നളചരിതം ആട്ടക്കഥയ്ക്ക് സാഹിത്യത്തിനുള്ള പ്രസക്തി, വിശകലനം. |
|             |                                | 9          | നളചരിതം ആട്ടക്കഥയുടെ ഭാഷാപരമായ സവിശേഷതകൾ.                  |
|             |                                | 10         | നളചരിതം ഒന്നാം രംഗം വിശദീകരണം                              |
|             |                                | 11         | നളചരിതം ഒന്നാം രംഗം വിശദീകരണം                              |
| 3           | 17-01-2022<br>To<br>22-01-2022 | 12         | നളചരിതം രണ്ടാം രംഗം വിശദീകരണം                              |
|             |                                | 13         | നളചരിതം രണ്ടാം രംഗം വിശദീകരണം                              |
|             |                                | 14         | നളചരിതം മൂന്നാം രംഗം വിശദീകരണം                             |
|             |                                | 15         | നളചരിതം മൂന്നാം രംഗം വിശദീകരണം                             |
|             |                                | 16         | നളചരിതം നാലാം രംഗം വിശദീകരണം                               |
|             |                                | 17         | നളചരിതം നാലാം രംഗം വിശദീകരണം                               |
| 4           | 24-01-2022<br>To<br>29-01-2022 | 18         | നളചരിതം അഞ്ചാം രംഗം വിശദീകരണം                              |
|             |                                | 19         | നളചരിതം അഞ്ചാം രംഗം വിശദീകരണം                              |
|             |                                | 26 January | Republic Day                                               |
|             |                                | 20         | നളൻ ദമയന്തി കഥാപാത്ര വിശകലനം                               |
|             |                                | 21         | ആട്ടക്കഥാ സാഹിത്യത്തിൽ നളചരിതത്തിന് ജനകീയത                 |
|             |                                | 22         | ക്ലാസ് പരീക്ഷ                                              |

| No of Weeks | Dates                          | Session     | Topic                                                      |
|-------------|--------------------------------|-------------|------------------------------------------------------------|
| 5           | 31-01-2022<br>To<br>05-02-2022 | 31 January  | Don Bosco                                                  |
|             |                                | 23          | തുളുൽ പ്രസ്ഥാനം ഉത്ഭവം വളർച്ച                              |
|             |                                | 24          | തുളുൽ എന്ന ജനകീയ കല                                        |
|             |                                | 25          | ആക്ഷേപഹാസ്യം തുളുൽ കൃതികളിൽ                                |
|             |                                | 26          | മലയാള സാഹിത്യ ചരിത്രത്തിൽ തുളുൽ പ്രസ്ഥാനത്തിന് ഉള്ള സ്ഥാനം |
|             |                                | 27          | മലയാളത്തിലെ പ്രധാനപ്പെട്ട തുളുൽ കൃതികൾ വിശകലനം             |
| 6           | 07-02-2022<br>To<br>12-02-2022 | 28          | മലയാളത്തിലെ പ്രധാനപ്പെട്ട തുളുൽ കൃതികൾ വിശകലനം             |
|             |                                | 29          | ശീതകൻതുളുൽ- പ്രധാനകൃതികൾ                                   |
|             |                                | 30          | പറയൻതുളുൽ -പ്രധാനകൃതികൾ                                    |
|             |                                | 31          | ഓട്ടൻ തുളുൽ- പ്രധാനകൃതികൾ                                  |
|             |                                | 32          | കുഞ്ചൻ നമ്പ്യാർ കവി പരിചയം                                 |
|             |                                | 12 February | Second Saturday                                            |
| 7           | 14-02-2022<br>To<br>19-02-2022 | 33          | കുഞ്ചൻ നമ്പ്യാരുടെ രചന സവിശേഷതകൾ                           |
|             |                                | 34          | ചിരി, ചിന്ത, ലാളിത്യം നമ്പ്യാർ കൃതികളിൽ                    |
|             |                                | 35          | സഭാപ്രവേശം പറയൻതുളുൽ വിശദീകരണം                             |
|             |                                | 36          | സഭാപ്രവേശം പറയൻ തുളുൽ വിശദീകരണം                            |
|             |                                | 37          | സഭാപ്രവേശം പറയാൻ തുളുൽ വിശദീകരണം                           |
|             |                                | 38          | സഭാപ്രവേശം പറയൻ തുളുൽ വിശദീകരണം                            |
| 8           | 21-02-2022<br>To<br>26-02-2022 | 39          | I Internal Examination                                     |
|             |                                | 40          | I Internal Examination                                     |
|             |                                | 41          | I Internal Examination                                     |
|             |                                | 42          | I Internal Examination                                     |
|             |                                | 43          | I Internal Examination                                     |
|             |                                | 44          | I Internal Examination                                     |
| 9           | 28-02-2022<br>To<br>05-03-2022 | 45          | നാടക സാഹിത്യ ചരിത്രം                                       |
|             |                                | 01 March    | Maha Sivarathri                                            |
|             |                                | 46          | മലയാള നാടകം ഉത്ഭവം വളർച്ച                                  |
|             |                                | 47          | സംസ്കൃതനാടകങ്ങൾ വിശദീകരണം                                  |
|             |                                | 48          | നാടക വിവർത്തനം മലയാളത്തിലേക്ക്                             |
|             |                                | 49          | ഇന്ത്യൻ നാടകവേദി                                           |
| 10          | 07-03-2022<br>To<br>12-03-2022 | 50          | മലയാള നാടകം സാമാന്യധാരണ                                    |
|             |                                | 51          | അഭിജ്ഞാനശാകന്തളം- കേരള വർമ്മ വലിയ കോയി തമ്പുരാൻ            |
|             |                                | 52          | സി ജെ തോമസ് - എഴുത്തുകാരനെ പരിചയപ്പെടുത്തൽ                 |
|             |                                | 53          | സിജെ തോമസിനെ പ്രധാന നാടകങ്ങൾ വിശകലനം                       |

| No of Weeks | Dates                          | Session  | Topic                                                        |
|-------------|--------------------------------|----------|--------------------------------------------------------------|
|             |                                | 54       | സീരിയൽ തോമസിനെ പ്രധാന നാടകങ്ങൾ വിശകലനം                       |
|             |                                | 12 March | Second Saturday                                              |
| 11          | 14-03-2022<br>To<br>19-03-2022 | 55       | ആ മനുഷ്യൻ നീ തന്നെ നാടകവായന                                  |
|             |                                | 56       | ആ മനുഷ്യൻ നീ തന്നെ നാടകവായന                                  |
|             |                                | 57       | ആ മനുഷ്യൻ നീ തന്നെ നാടകം വായന                                |
|             |                                | 58       | ആ മനുഷ്യൻ നീ തന്നെ നാടകം വായന                                |
|             |                                | 59       | നാടകത്തിന്റെ ഭാഷാപരമായ സവിശേഷത വിശകലനം                       |
|             |                                | 60       | നാടകത്തിലെ കഥാപാത്രങ്ങൾ വിശകലനം                              |
| 12          | 21-03-2022<br>To<br>26-03-2022 | 61       | പ്രമേയ സ്വീകരണത്തിൽ സിജെ തോമസിനെ നാടകങ്ങളുടെ പ്രത്യേകത.      |
|             |                                | 62       | ക്ലാസ് പരീക്ഷ                                                |
|             |                                | 63       | ചെറുതോണിയിൽ കുഞ്ഞുണ്ണി നമ്പീശൻ -എഴുത്തുകാരനെ പരിചയപ്പെടുത്തൽ |
|             |                                | 64       | മലയാളത്തിലെ വിവർത്തന നാടകങ്ങൾ                                |
|             |                                | 65       | കർണഭാരം നാടകവായന                                             |
|             |                                | 66       | കർണഭാരം നാടകവായന                                             |
| 13          | 28-03-2022<br>To<br>02-04-2022 | 67       | കർണഭാരം നാടകവായന                                             |
|             |                                | 68       | കഥാപാത്ര വിശകലനം                                             |
|             |                                | 69       | ക്ലാസ് പരീക്ഷ                                                |
|             |                                | 70       | മലയാള സിനിമ ചരിത്രം                                          |
|             |                                | 71       | പുതിയ കാലത്തിന്റെ ജനകീയ കല എന്ന രീതിയിൽ സിനിമയുടെ പ്രസക്തി   |
|             |                                | 72       | തിരക്കഥയുടെ സാഹിത്യ മൂല്യം                                   |
| 14          | 04-04-2022<br>To<br>09-04-2022 | 73       | തിരക്കഥാസാഹിത്യം                                             |
|             |                                | 74       | മലയാള സിനിമയിലെ പ്രധാനപ്പെട്ട തിരക്കഥ വിശകലനം                |
|             |                                | 75       | അടൂർ ഗോപാലകൃഷ്ണൻ - എഴുത്തുകാരൻ സിനിമാ സംവി                   |
|             |                                | 76       | കൊടിയേറ്റം സിനിമ വിശകലനം                                     |
|             |                                | 77       | കൊടിയേറ്റം സിനിമ വിശകലനം                                     |
|             |                                | 09 April | Second Saturday                                              |
| 15          | 11-04-2022<br>To<br>16-04-2022 | 78       | തിരക്കഥ,സംഗീതം, ശബ്ദലേഖനം കൊടിയേറ്റം എന്ന സിനിമയിൽ വിശകലനം.  |
|             |                                | 79       | ക്ലാസ് പരീക്ഷ                                                |
|             |                                | 13 April | Easter Holidays                                              |
|             |                                | 14 April | Easter Holidays                                              |
|             |                                | 15 April | Easter Holidays                                              |
|             |                                | 16 April | Easter Holidays                                              |
| 16          | 18-04-2022<br>To               | 18 April | Easter Holidays                                              |
|             |                                | 80       | ചിത്രകലാ സാമാന്യ ധാരണ                                        |

| No of Weeks | Dates                          | Session | Topic                                         |
|-------------|--------------------------------|---------|-----------------------------------------------|
|             | 23-04-2022                     | 81      | ചിത്രകലാ പാരമ്പര്യം കേരളത്തിൽ                 |
|             |                                | 82      | തെയ്യം ക്ഷണിക കലയുടെ സൗന്ദര്യം പാഠഭാഗ വിശകലനം |
|             |                                | 83      | തെയ്യം ക്ഷണിക കലയുടെ സൗന്ദര്യം പാഠഭാഗ വിശകലനം |
|             |                                | 84      | തെയ്യം ക്ഷണിക കലയുടെ സൗന്ദര്യം പാഠഭാഗ വിശകലനം |
| 17          | 25-04-2022<br>To<br>30-04-2022 | 85      | II Internal Examination                       |
|             |                                | 86      | II Internal Examination                       |
|             |                                | 87      | II Internal Examination                       |
|             |                                | 88      | II Internal Examination                       |
|             |                                | 89      | II Internal Examination                       |
|             |                                | 90      | II Internal Examination                       |