

**Annai College of Arts & Science**  
Quality Education for Today & Tomorrow  
Kovilacheri, Kumbakonam. 612 503. Ph: 0435 2453007  
Accredited by NAAC with "B" Grade & Recognized by UGC under Section 2(f) & 12(B)  
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## DEPARTMENT OF MATHEMATICS

UG

Choice Based Credit System (CBCS)-File

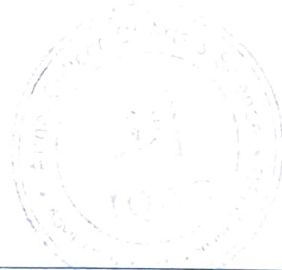
Mode of Elective Papers Chosen

BATCH: 2019 - 2022

**HOD**

Head, Department of Mathematics  
Annai College of Arts & Science,  
Kovilacheri, Kumbakonam-612 503

**IQAC**



**PRINCIPAL**

**Principal**  
Annai College of Arts & Science  
Kovilachery, Kumbakonam-612 503



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## DEPARTMENT OF MATHEMATICS

Choice Based Credit System (CBCS)-File

Mode of Non-Major Elective Chosen

2019 - 2022

  
HOD

Head, Department of Mathematics  
Annai College of Arts & Science,  
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**DEPARTMENT OF MATHEMATICS**

**ACADEMIC YEAR : 2020-2021**

**Non- Major Elective Papers taken from BBA(NME)**

| S.No                                 | Name of the Non Major Elective | Year II / III | Semester Odd/Even | No. of Students | Credit Hours |
|--------------------------------------|--------------------------------|---------------|-------------------|-----------------|--------------|
| 1.                                   | Management Principles          | II            | III               | 08              | 02           |
| 2.                                   | Banking Practices              | II            | IV                | 08              | 02           |
| Only for other Language Except Tamil |                                |               |                   |                 |              |
| 3                                    | Basic Tamil                    | II            | III               | NIL             | -            |
| 4                                    | Special Tamil                  | II            | IV                | NIL             | -            |

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## Acronym & Abbreviation

1. **CC** – Core Course.
2. **LC** - Language Course.
3. **ELC** - English Language Course
4. **AC** - Allied Course
5. **NME** – Non Major Elective
6. **SBE** - Skill Based Elective
7. **MBE** - Major Based Elective





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## DEPARTMENT OF MATHEMATICS

Date: 24.06.2020

### CIRCULAR

This is to inform you that our Department is planned to conduct meeting on 24.06.2020 regarding the selection of Non-Major Elective Papers(NME) only for second year students (Batch: 2019-2022). The students are instructed to attend the meeting at 10.00 A.M in the Hall No. 204 without fail.

HOD

Head, Department of Mathematics  
Annai College of Arts & Science.  
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#### COPY TO :

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## DEPARTMENT OF MATHEMATICS

### MINUTES OF MEETING

Date: 25.06.2020

### AGENDA

The selection of Non-Major Elective Papers only for second year students (Batch: 2019-2022), HOD has arranged a meeting for class representatives through a circular dated on 25.06.2020.

The following points were discussed in the meeting.

1. Discussed the list of NME papers with the students.
2. Student Cleared the doubts regarding the scope of each paper with staff members
3. Finally they selected the NME papers.
4. The students those who chose Arabic, French, and Hindi as language, they are eligible to select the NME papers.
  - a. Basic Tamil
  - b. Sirappu Tamil

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# ANNEXURE I

## NON MAJOR ELECTIVES (ARTS)

(For the candidates admitted from the academic year 2016-2017)

| SI. No. | DEPARTMENT OFFERING THE NON-MAJOR ELECTIVE COURSES | TITLE OF THE NON-MAJOR ELECTIVE COURSES  |
|---------|--|--|
| 1.      | Applied Tamil                                      | I. தமிழ் நடைக்கூறுகள்<br>II. சிந்தனையியல்  |
| 2.      | B.Litt.  |  |
| 3.      | Pulavar Degree                                     |  |
| 4.      | Tamil  |  |
| 5.      | B.B.A. (Bachelor of Business Administration)       | I. Management Principles <b>(or)</b><br>Stock Exchange Practices<br>II. Banking Practices <b>(or)</b><br>International Business  |
| 6.      | B.Com.   | I. Personal Investment <b>(or)</b> Elements of Insurance<br>II. Introduction to Accountancy <b>(or)</b> Salesmanship   |
| 7.      | B.Com. (Applied)                                   |  |
| 8.      | B.Com. (Computer Applications)                     |  |
| 9.      | B.Com. (Bank Management)                           | I. Banking Practices <b>(or)</b> Indian Banking System<br>II. Rural Banking <b>(or)</b> Elements of Insurance  |
| 10.     | B.Com (Corporate Secretaryship)                    | I. Elements of Company Law<br>II. Stock Markets in India   |
| 11.     | B.Com (Co-operation)                               | I. Fundamentals of Cooperation <b>(or)</b><br>Cooperative Finance and Banking<br>II. Cooperatives in Foreign Countries <b>(or)</b><br>Cooperative Bookkeeping System   |
| 12.     | Economics  | I. Advertisement Management<br>II. Economics of Transportation   |
| 13.     | English  | I. Presentation Skills<br>II. Functional Skills  |
| 14.     | History  | I. Freedom Movement in India<br>II. Working of Indian Constitution   |
| 15.     | Journalism & Mass Communication                    | I. Basic Photography<br>II. Freelance Journalism   |
| 16.     | Public Administration                              | I. Public Administration for Civil Services<br>II. Indian Government and Administration  |
| 17.     | Sanskrit   | I. Introduction to Early Sanskrit Literature <b>(or)</b><br>History of fables & Popular tales and Didactic Literature Pub. R.S. Vadhyer Pub. Palakad<br>II. Scientific Literature <b>(or)</b><br>Indian Aesthetics |
| 18.     | Social Work  | I. Human Rights<br>II. Contemporary Social Issues and Problems   |
| 19.     | Sociology  | I. Dynamics of Society<br>II. Women Empowerment  |
| 20.     | Tourism And Travel Management                      | I. Basics of Tourism<br>II. Cultural Tourism   |



## NON MAJOR ELECTIVES (SCIENCE)

(For the candidates admitted from the academic year 2016-2017 onwards)

| Sl. No. | DEPARTMENT OFFERING THE NON-MAJOR ELECTIVE COURSES | TITLE OF THE NON-MAJOR ELECTIVE COURSES  |
|---------|--|--|
| 1.      | Apparel and Fashion Technology                     | I. Hand Embroidery (P)<br>II. Jewellery Making (P)   |
| 2.      | BCA  | I. Working Principles of Internet<br>II. Fundamentals of Information Technology                  |
| 3.      | Biochemistry                                       | I. Health and diseases<br>II. Hospital Management  |
| 4.      | Biotechnology                                      | I. Biotechnology for Human Welfare<br>II. Food Processing  |
| 5.      | Botany   | I. Biofertilizers & Biopesticides<br>II. Horticulture  |
| 6.      | Chemistry  | I. Chemistry in Everyday Life<br>II. Health Chemistry  |
| 7.      | Computer Science                                   | I. Working Principles of Internet<br>II. Fundamentals of Information Technology                  |
| 8.      | Electronics  | I. Principles of Electronics<br>II. Everyday Electronics   |
| 9.      | Fashion Technology & Costume Designing             | I. Fashion Accessories Designing<br>II. Visual Merchandising                                     |
| 10.     | Geography  | I. Geography of Tourism<br>II. Disaster Management   |
| 11.     | Geology  | I. Fundamentals of Geology<br>II. Introduction to Minerals, Rocks and Fossils                    |
| 12.     | Home Science                                       | I. Bakery and Food Preservation<br>II. Apparel Designing   |
| 13.     | Hospital Administration                            | I. Personal Hygiene<br>II. Role of Hospital Services   |
| 14.     | Hotel Management & Catering Science                | I. Basic Tamil / Special Tamil<br>II. Basic Tamil / Special Tamil                                |
| 15.     | Information Technology                             | I. Fundamentals of Information Technology<br>II. Information Security : Principles and Practices |
| 16.     | Mathematics  | I. Quantitative Aptitude I<br>II. Quantitative Aptitude II                                       |
| 17.     | Microbiology                                       | I. Mushroom Technology<br>II. Biofertilizer Technology   |
| 18.     | Nutrition & Dietetics                              | I. Nutrition for Women<br>II. Nutrition for Health and Fitness                                   |



|     |                      |   |
|-----|----------------------|---|
| 19. | Physics              | I. Energy Physics<br>II. Laser Physics  |
| 20. | Software Development | I. Working Principles of Internet<br>II. Fundamentals of Information Technology |
| 21. | Textile Science      | I. Management and Entrepreneurship<br>II. Marketing and Merchandising           |
| 22. | Visual Communication | I. Basics of Communication<br>II. Communication Personality Development         |
| 23. | Zoology              | I. Public Health and Hygiene<br>II. Ornamental fish farming                     |



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## Department of Mathematics

Batch: 2019 - 2022

| S.NO | Name          | Reg.NO      | List of Departments in our College |     |     |       |    |     |         |    |    |    | Signature |     |         |           |               |
|------|---------------|-------------|------------------------------------|-----|-----|-------|----|-----|---------|----|----|----|-----------|-----|---------|-----------|---------------|
|      |               |             | Tamil                              | Eng | BBA | B.Com | CS | BCA | Vis.com | BT | MB | BC |           | BHM | Physics | Chemistry |               |
| 1    | Abinaya.M     | CB19S378126 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | M. Abinaya    |
| 2    | Akash.S       | CB19S378127 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Akash.S.      |
| 3    | Babyatchaya.R | CB19S378128 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Babyatchaya.R |
| 4    | Dharani.D     | CB19S378129 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Dharani       |
| 5    | Manikandan.T  | CB19S378130 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Manikandan.T  |
| 6    | Sarubala.B    | CB19S378131 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Sarubala.B    |
| 7    | Surya.T       | CB19S378132 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Surya.T       |
| 8    | Thenkuzhali.M | CB19S378133 |                                    |     |     |       |    |     |         |    |    |    |           |     |         |           | Thenkuzhali.M |

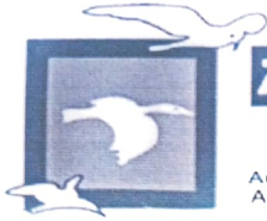
HOD

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## Justification on Non- Major Elective Selection

### Management Principles

Students will understand Management principles and concepts, so that they can use it, while working in the organization

### Banking Practices

Students will understand i.e, Banking Structure, Banking Polices, Banking Practices and also they will know the utilities of Banking.

  
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**Choice Based Credit System (CBCS)-File**  
**Mode of Skill Based Elective Papers Chosen**

**BATCH: 2019 - 2022**



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## Department of Mathematics

Academic Year : 2020-2021

Skill Based Elective Papers taken from

Desk Top Publishing (SBE)

| No | Name of the Non Major Elective | Year II / III | Semester Odd/Even | No. of Students | Credit Hours |
|----|--------------------------------|---------------|-------------------|-----------------|--------------|
| 1  | Page Maker                     | II            | IV                | 08              | 02           |
| 2  | Corel Draw                     | III           | V                 | 08              | 02           |
| 3  | Dream Weaver                   | III           | V                 | 08              | 02           |

  
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## DEPARTMENT OF MATHEMATICS

Date: 06.12.2020

### CIRCULAR

This is to inform you that our Department is planned to conduct meeting on 06.12.2020 regarding the selection of Skill Based Elective Papers(SBE) only for second year students (Batch: 2019-2022). The students are instructed to attend the meeting at 10.00 A.M in the Hall No. 204 without fail.

**HOD**

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**DEPARTMENT OF MATHEMATICS**  
**MINUTES OF MEETING**

Date: 10.12.2020

**AGENDA**

The selection of Skill Based Elective Papers only for second year students (Batch: 2019-2022), HOD has arranged a meeting for class representatives through a circular dated on 10.12.2020.

The following points were discussed in the meeting.

1. Discussed the list of SBE papers with the students.
2. Student Cleared the doubts regarding the scope of each paper with staff members
3. Finally they selected the SBE papers.

  
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# ANNEXURE II

**SKILL BASED ELECTIVE PAPERS**  
(2016 onwards)

Updated on 19.02.2018

| Sl. No. | Skill Based Elective Paper       | Paper | Semester | Title of the Paper                                 |
|---------|----------------------------------|-------|----------|--|
| 1.      | Clinical Microbiology            | I     | IV       | Clinical Bacteriology                              |
|         |                                  | II    | V        | Clinical Mycology and Virology                     |
|         |                                  | III   | V        | Clinical Parasitology                              |
| 2.      | Computer Application             | I     | IV       | Hardware Troubleshooting                           |
|         |                                  | II    | V        | Ruby on Rails                                      |
|         |                                  | III   | V        | Web Services                                       |
| 3.      | Customer Relationship Management | I     | IV       | Overview of Customer Relationship Management (CRM) |
|         |                                  | II    | V        | CRM in Services Marketing & its Tools              |
|         |                                  | III   | V        | E - CRM (Virtual Marketing)                        |
| 4.      | Desktop Publishing               | I     | IV       | Page Maker   |
|         |                                  | II    | V        | Corel Draw   |
|         |                                  | III   | V        | Dream weaver                                       |
| 5.      | Herbal Medicine                  | I     | IV       | Ethno Medicine                                     |
|         |                                  | II    | V        | Pharmacognosy                                      |
|         |                                  | III   | V        | Herbs and Drug Action                              |
| 6.      | Journalism and Public Relations  | I     | IV       | Journalism and Mass Media                          |
|         |                                  | II    | V        | Reporting and Editing                              |
|         |                                  | III   | V        | Public Relations                                   |
| 7.      | Office Management                | I     | IV       | Introduction to Office Management                  |
|         |                                  | II    | V        | Office Management Tools                            |
|         |                                  | III   | V        | Communication & Interpersonal Skills               |
| 8.      | Sales and Marketing Management   | I     | IV       | Introduction to Marketing Management               |
|         |                                  | II    | V        | Sales Management                                   |
|         |                                  | III   | V        | Retail Management                                  |
| 9.      | Tourism and Travel Management    | I     | IV       | Tourism and Travel Agency                          |
|         |                                  | II    | V        | Cultural Tourism in India                          |
|         |                                  | III   | V        | Tourism Product – 3                                |
| 10.     | Yoga and Stress Management       | I     | IV       | Fundamentals of Yogic Practices                    |
|         |                                  | II    | V        | Stress Management Through Yoga                     |
|         |                                  | III   | V        | Asanas and Pranayamas – Practical                  |
| 11.     | அச்சு ஊடகங்கள்                   | I     | IV       | தமிழ் இதழியல் வரலாறு                               |
|         |                                  | II    | V        | நாளிதழ் உருவாக்கமும் வடிவமைப்பும்                  |
|         |                                  | III   | V        | இலக்கிய இதழ்கள்                                    |
| 12.     | <b>Biotechnology</b>             | I     | IV       | Aqua Culture                                       |
|         |                                  | II    | V        | Biofertilizer                                      |
|         |                                  | III   | V        | Mushroom Cultivation and Value Addition            |
| 13.     | <b>Chemistry</b>                 | I     | IV       | Food and Nutrition                                 |
|         |                                  | II    | V        | Agricultural Chemistry                             |
|         |                                  | III   | V        | Dyeing Techniques and Water Treatment              |

|               |  |     |    |  |
|---------------|--|-----|----|--|
| 14.           | <b>Electronics</b>                           | I   | IV | Home Appliance Maintenance and Servicing     |
|               |  | II  | V  | Computer Hardware and Networking             |
|               |  | III | V  | Mobile Servicing                             |
| 15.           | <b>Hotel Management and Catering Science</b> | I   | IV | Hospitality Marketing                        |
|               |  | II  | V  | Information Technology in Hotel Industry     |
|               |  | III | V  | Information Technology in Hotel Industry (P) |
| 16.           | <b>Microbiology</b>                          | I   | IV | Microbial Nanotechnology                     |
|               |  | II  | V  | Diagnostic Microbiology                      |
|               |  | III | V  | Antimicrobial agents                         |
| 17.           | <b>Zoology</b>                               | I   | IV | Apiculture                                   |
|               |  |     |    | Aquaculture                                  |
|               |  | II  | V  | Sericulture                                  |
|               |  |     |    | Poultry Farming                              |
|               |  | III | V  | Vermiculture                                 |
| Dairy farming |  |     |    |  |





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**Department of Mathematics**  
**Batch: 2019 - 2022**

| S.NO | Name          | Reg.NO      | List of Skill Based Elective |                      |     |                    |                 |                               |            |                                |                             |                   |                |           |         | Signature |             |       |    |         |           |                |
|------|---------------|-------------|------------------------------|----------------------|-----|--------------------|-----------------|-------------------------------|------------|--------------------------------|-----------------------------|-------------------|----------------|-----------|---------|-----------|-------------|-------|----|---------|-----------|----------------|
|      |               |             | Clinical MB                  | Computer Application | CRM | Desktop publishing | Herbal Medicine | Journalism & Public Relations | Office Mgr | Sales and Marketing Management | Tourism & Travel Management | Yoga & Stress Mgt | Achu Udagankal | Chemistry | Biotech |           | Electronics | HM&CS | MB | Zoology |           |                |
| 1    | Abinaya.M     | CB19S378126 |                              |                      |     | ✓                  |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         | Abinaya.M |                |
| 2    | Akash.S       | CB19S378127 |                              |                      |     | ✓                  |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         |           | Akash.S        |
| 3    | Babyarchaya.R | CB19S378128 |                              |                      |     | ✓                  |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         |           | Baby archaya.R |
| 4    | Dharani.D     | CB19S378129 |                              |                      |     | ✓                  |                 |                               | ✓          |                                |                             |                   |                |           |         |           |             |       |    |         |           | Dharani.D      |
| 5    | Manikandan.T  | CB19S378130 |                              |                      |     | ✓                  |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         |           | Manikandan.T   |
| 6    | Sarubala.B    | CB19S378131 |                              |                      |     |                    |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         |           | Sarubala.B     |
| 7    | Surya.T       | CB19S378132 |                              |                      |     |                    |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         |           | Surya.T        |
| 8    | Thenkuzhali.M | CB19S378133 |                              |                      |     | ✓                  |                 |                               |            |                                |                             |                   |                |           |         |           |             |       |    |         |           | Thenkuzhali.M  |

*Thenkuzhali.M*  
**HOD**



*Thenkuzhali.M*  
**PRINCIPAL**

**Head, Department of Mathematics**  
**Annai College of Arts & Science,**  
**Kovilacheri, Kumbakonam-612 503**

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## Justification on Skill Based Elective Selection

### Page Maker

With the help of Page Maker applications, the knowledge is gained to create complex multiple page books, brochures and other printable materials can be easily handled by binding the whole paper layout on a single sheet that dissolves the confusion of managing hundreds of pages.

### Corel Draw

Corel Draw is vector based designing software is used to create logos, flexes, brochures, invitation cards and any kind of vector designing based on the lining.

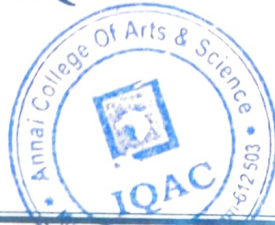
### Dream Weaver

Dream Weaver supports many make up languages including HTML, XML, CSS and Java script. This makes it possible for non coders to create web content. It helps to develop to build web sites are the internet or an intranet, and developing designs, code and manage websites as well as mobile content.

**HOD**

Head, Department of Mathematics  
Annai College of Arts & Science,  
Kovilacheri, Kumbakonam-612 503

**IQAC**



**PRINCIPAL**

**Principal**

Annai College of Arts & Science  
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**Choice Based Credit System (CBCS)-File**  
**Mode of Major Based Elective Papers Chosen**  
**Batch : 2019-2022**



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## Department of Mathematics

### Major Based Elective Papers

Academic Year : 2021-2022

| No | Name of the Major Based Elective | Year II / III | Semester Odd/Even | No. of Students | Credit Hours |
|----|----------------------------------|---------------|-------------------|-----------------|--------------|
| 1  | Operations Research              | III           | V                 | 08              | 05           |
| 2  | Graph Theory                     | III           | VI                | 08              | 05           |
| 3  | Astronomy                        | III           | VI                | 08              | 05           |

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Annai College of Arts & Science,  
Kovilacheri, Kumbakonam-612 503

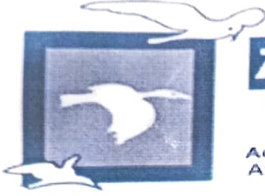
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## DEPARTMENT OF MATHEMATICS

Date: 08.09.2021

### CIRCULAR

This is to inform you that our department is planned to conduct meeting on 08.09.2021 regarding the selection of Major Based Elective Papers(MBE) only for third year students (Batch: 2019-2022). The students are instructed to attend the meeting at 10.00 A.M in the Hall No. 204 without fail.



HOD

#### COPY TO :

1. Department file.
2. Department Notice Board.
3. To be read in classroom.

Head, Department of Mathematics  
Annai College of Arts & Science  
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## DEPARTMENT OF MATHEMATICS

### MINUTES OF MEETING

Date: 09.09.2021

### AGENDA

The selection of Major Based Elective Papers only for third year students (Batch: 2019-2022), HOD has arranged a meeting for class representatives through a circular dated on 09.09.2021.

The following points were discussed in the meeting.

1. Discussed the list of MBE papers with the students.
2. Student Cleared the doubts regarding the scope of each paper with staff members
3. Finally they selected the MBE papers.

  
**HOD**

Head, Department of Mathematics  
Annai College of Arts & Science,  
Kovilacheri, Kumbakonam-612 503

  
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# ANNEXURE III



(Applicable to the candidates admitted from the academic year 2016 -2017 onwards)

Updated on 09.07.2018

| Sem          | Part | Course  | Title   | Ins. Hrs                                      | Credit    | Exam Hours | Marks |      | Total      |     |
|--------------|------|---|---|---|-----------|------------|-------|------|------------|-----|
|              |      |   |   |   |           |            | Int   | Ext. |            |     |
| I            | I    | Language Course – I (LC) – Tamil*/Other Languages +#  |   | 6   | 3         | 3          | 25    | 75   | 100        |     |
|              | II   | English Language Course - I (ELC)                     |   | 6   | 3         | 3          | 25    | 75   | 100        |     |
|              | III  |   | Core Course – I (CC)  | Differential Calculus and Trigonometry        | 5         | 5          | 3     | 25   | 75         | 100 |
|              |      |   | Core Course – II (CC)   | Integral Calculus                             | 4         | 4          | 3     | 25   | 75         | 100 |
|              |      |   | First Allied Course – I (AC)  |   | 4         | 4          | 3     | 25   | 75         | 100 |
|              |      | First Allied Course – II (AP)                         |   | 3   | ---       | ---        | ---   | ---  | ---        |     |
|              | IV   | Value Education                                       | Value Education   |   | 2         | 2          | 3     | 25   | 75         | 100 |
| <b>TOTAL</b> |      |   |   | <b>30</b>                                     | <b>21</b> |            |       |      | <b>600</b> |     |
| II           | I    | Language Course – II (LC) - Tamil*/Other Languages +# |   | 6   | 3         | 3          | 25    | 75   | 100        |     |
|              | II   | English Language Course – II (ELC)                    |   | 6   | 3         | 3          | 25    | 75   | 100        |     |
|              | III  |   | Core Course – III (CC)  | Differential Equations and Laplace Transforms | 5         | 5          | 3     | 25   | 75         | 100 |
|              |      |   | Core Course – IV (CC)   | Analytical Geometry 3D                        | 4         | 3          | 3     | 25   | 75         | 100 |
|              |      |   | First Allied Course – II (AP)   |   | 3         | 3          | 3     | 40   | 60         | 100 |
|              |      | First Allied Course – III (AC)                        |   | 4   | 2         | 3          | 25    | 75   | 100        |     |
|              | IV   | Environmental Studies                                 | Environmental Studies   |   | 2         | 2          | 3     | 25   | 75         | 100 |
| <b>TOTAL</b> |      |   |   | <b>30</b>                                     | <b>21</b> |            |       |      | <b>700</b> |     |
| III          | I    | Language Course – III (LC) Tamil*/Other Languages +#  |   | 6   | 3         | 3          | 25    | 75   | 100        |     |
|              | II   | English Language Course - III (ELC)                   |   | 6   | 3         | 3          | 25    | 75   | 100        |     |
|              | III  |   | Core Course – V (CC)  | Sequences and Series                          | 5         | 4          | 3     | 25   | 75         | 100 |
|              |      |   | Core Course – VI (CC)   | Classical Algebra and Theory of Numbers       | 4         | 4          | 3     | 25   | 75         | 100 |
|              |      |   | Second Allied Course – I (AC)   |   | 4         | 4          | 3     | 25   | 75         | 100 |
|              |      | Second Allied Course – II (AP)                        |   | 3   | ---       | ---        | ---   | ---  | ---        |     |
|              | IV   |   | Non Major Elective I – for those who studied Tamil under Part I   |   |           |            |       |      |            |     |
|              |      |   | a) Basic Tamil for other language students<br>b) Special Tamil for those who studied Tamil upto 10th +2 but opt for other languages in degree programme | Quantitative Aptitude I                       | 2         | 2          | 3     | 25   | 75         | 100 |
| <b>TOTAL</b> |      |   |   | <b>30</b>                                     | <b>20</b> |            |       |      | <b>600</b> |     |

|                    |              |  |  |            |            |           |    |    |             |            |
|--------------------|--------------|--|--|------------|------------|-----------|----|----|-------------|------------|
| IV                 | I            | Language Course –IV (LC)<br>Tamil*/Other Languages +#  |  | 6          | 3          | 3         | 25 | 75 | 100         |            |
|                    | II           | English Language Course – IV<br>(ELC)  |  | 6          | 3          | 3         | 25 | 75 | 100         |            |
|                    | III          | Core Course – VII (CC)   | Vector Calculus and<br>Fourier Series            |            | 4          | 4         | 3  | 25 | 75          | 100        |
|                    |              | Core Course – VIII (CC)  | Linear Algebra                                   |            | 4          | 4         | 3  | 25 | 75          | 100        |
|                    |              | Second Allied Course – II<br>(AP)  |  |            | 3          | 3         | 3  | 40 | 60          | 100        |
|                    |              | Second Allied Course – III   |  |            | 3          | 2         | 3  | 25 | 75          | 100        |
|                    | IV           | Non Major Elective II – for<br>those who studied Tamil under<br>Part I   | Quantitative Aptitude II                         |            |            |           |    |    |             |            |
|                    |              | a) Basic Tamil for other<br>language students<br>b) Special Tamil for those<br>who studied Tamil upto<br>10 <sup>th</sup> +2 but opt for other<br>languages in degree<br>programme |  | 2          | 2          | 3         | 25 | 75 | 100         |            |
|                    |              | Skill Based Elective - I   | Skill Based Elective - I                         |            | 2          | 2         | 3  | 25 | 75          | 100        |
|                    | <b>TOTAL</b> |  |  |            | <b>30</b>  | <b>23</b> |    |    |             | <b>800</b> |
| V                  | III          | Core Course – IX (CC)  | Numerical Methods with<br>MATLAB Programming     | 5          | 4          | 3         | 25 | 75 | 100         |            |
|                    |              | Core Course – X (CC)   | Real Analysis                                    | 6          | 6          | 3         | 25 | 75 | 100         |            |
|                    |              | Core Course – XI (CC)  | Statics  | 6          | 5          | 3         | 25 | 75 | 100         |            |
|                    |              | Core Practical – I (CP)  | Numerical Methods with<br>MATLAB Programming (P) | 2          | 2          | 3         | 40 | 60 | 100         |            |
|                    |              | Major Based Elective – I   | Operations Research /<br>Stochastic Processes    | 5          | 5          | 3         | 25 | 75 | 100         |            |
|                    | IV           | Skill Based Elective – II  | Skill Based Elective - II                        |            | 2          | 2         | 3  | 25 | 75          | 100        |
|                    |              | Skill Based Elective – III   | Skill Based Elective - III                       |            | 2          | 2         | 3  | 25 | 75          | 100        |
|                    |              | Soft Skills Development  | Soft Skills Development                          |            | 2          | 2         | 3  | 25 | 75          | 100        |
|                    | <b>TOTAL</b> |  |  |            | <b>30</b>  | <b>28</b> |    |    |             | <b>800</b> |
| VI                 | III          | Core Course – XII (CC)   | Abstract Algebra                                 | 6          | 5          | 3         | 25 | 75 | 100         |            |
|                    |              | Core Course – XIII (CC)  | Complex Analysis                                 | 6          | 5          | 3         | 25 | 75 | 100         |            |
|                    |              | Core Course - XIV (CC)   | Dynamics   | 5          | 5          | 3         | 25 | 75 | 100         |            |
|                    |              | Major Based Elective II  | Graph Theory /<br>Mathematical Modelling         | 6          | 5          | 3         | 25 | 75 | 100         |            |
|                    |              | Major Based Elective III   | Astronomy /<br>Number Theory                     | 6          | 5          | 3         | 25 | 75 | 100         |            |
|                    | V            | Extension Activities   | Extension Activities                             |            | -          | 1         | -  | -  | -           | -          |
|                    |              | Gender Studies   | Gender Studies                                   |            | 1          | 1         | 3  | 25 | 75          | 100        |
| <b>TOTAL</b>       |              |  |  | <b>30</b>  | <b>27</b>  |           |    |    | <b>600</b>  |            |
| <b>GRAND TOTAL</b> |              |  |  | <b>180</b> | <b>140</b> | -         | -  | -  | <b>4100</b> |            |

### List of Allied Courses

#### Group I (Any one)

1. Physics
2. Mathematical Statistics
3. Financial Accounting

#### Group II (Any one)

1. Chemistry
2. Computer Science
3. Management Accounting



|                        |   |    |               |
|------------------------|---|----|---------------|
| Language Part – I      | - | 4  |               |
| English Part –II       | - | 4  |               |
| Core Paper             | - | 14 |               |
| Core Practical         | - | 1  |               |
| Allied Paper           | - | 4  |               |
| Allied Practical       | - | 2  |               |
| Non-Major Elective     | - | 2  |               |
| Skill Based Elective   | - | 3  |               |
| Major Based Elective   | - | 3  |               |
| Environmental Studies  | - | 1  |               |
| Value Education        | - | 1  |               |
| Soft Skill Development | - | 1  |               |
| Gender Studies         | - | 1  |               |
| Extension Activities   | - | 1  | (Credit only) |

\* for those who studied Tamil upto 10<sup>th</sup> +2 (Regular Stream)

+ Syllabus for other Languages should be on par with Tamil at degree level

# those who studied Tamil upto 10<sup>th</sup> +2 but opt for other languages in degree level under Part I should study special Tamil in Part IV

\*\* Extension Activities shall be out side instruction hours

Non Major Elective I & II – for those who studied Tamil under Part I

- Basic Tamil I & II for other language students
- Special Tamil I & II for those who studied Tamil upto 10<sup>th</sup> or +2 but opt for other languages in degree programme

**Note:**

|   | <b>Internal Marks</b> | <b>External Marks</b> |
|---|-----------------------|-----------------------|
| 1. Theory   | 25                    | 75                    |
| 2. Practical  | 40                    | 60                    |
| 3. Separate passing minimum is prescribed for Internal and External marks |                       |                       |

**FOR THEORY**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]  
The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

**FOR PRACTICAL**

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks]  
The passing minimum for University Examinations shall be 40% out of 60 marks [i.e. 24 marks]

\*\*\*\*\*



**Department of Mathematics**  
**Batch: 2019 - 2022**

| S.NO | Name          | Reg.NO      | List of Major Based Elective |                      |              |                         |           |               | Signature     |
|------|---------------|-------------|------------------------------|----------------------|--------------|-------------------------|-----------|---------------|---------------|
|      |               |             | Operations Research          | Stochastic Processes | Graph Theory | Mathematica I Modelling | Astronomy | Number Theory |               |
| 1    | Abinaya.M     | CB19S378126 | ✓                            |                      | ✓            |                         | ✓         |               | Abinaya.M     |
| 2    | Akash.S       | CB19S378127 |                              | ✓                    |              |                         |           | ✓             | Akash.S       |
| 3    | Babyatchaya.R | CB19S378128 | ✓                            |                      | ✓            |                         |           |               | Babyatchaya.R |
| 4    | Dharani.D     | CB19S378129 | ✓                            |                      | ✓            |                         | ✓         |               | Dharani.D     |
| 5    | Manikandan.T  | CB19S378130 | ✓                            |                      | ✓            | ✓                       |           |               | Manikandan.T  |
| 6    | Sarubala.B    | CB19S378131 | ✓                            |                      | ✓            |                         | ✓         |               | Sarubala.B    |
| 7    | Surya.T       | CB19S378132 |                              | ✓                    |              | ✓                       |           | ✓             | Surya.T       |
| 8    | Thenkuzhali.M | CB19S378133 | ✓                            |                      | ✓            |                         | ✓         |               | Thenkuzhali.M |

  
 HOD

  
 IQAC

  
 PRINCIPAL

Head, Department of Mathematics  
 Annai College of Arts & Science,  
 Kovilacheri, Kumbakonam-612 503



Principal  
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 Kovilacheri, Kumbakonam-612 503



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## Justification on Major Based Elective Selection

### Operations Research

Operations Research can be applied to a variety of use cases including,

- Scheduling and time management
- Urban and agricultural planning
- Network optimization and Engineering

### Graph Theory

Graphs are used to represent the routes between the cities with the help of tree that is a type of Graph, using we can create hierarchical ordered information such as family tree.

### Astronomy

Astronomy has contributed many, even a large applications have come from studying Space, including advances in medicine, physics, chemistry and biology and also extend its impact in every other major scientific discipline.

**HOD**

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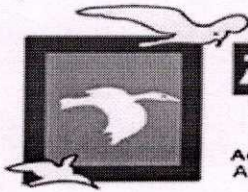
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## DEPARTMENT OF MATHEMATICS

PG

Choice Based Credit System (CBCS)-File

Mode of Elective Papers Chosen

BATCH: 2019 - 2021

*B. D. Raja*

**HOD**

Head, Department of Mathematics  
Annai College of Arts & Science,  
Kovilacheri, Kumbakonam-612 503

*L. Lakshmi*

**IQAC**

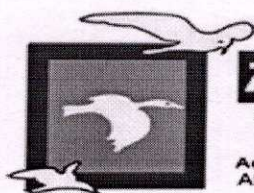


*G. M. Srinivasan*

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## Department of Mathematics

### Elective Papers

Batch: 2019-2021

| No | Name of the Major Based Elective | Year I/II | Semester Odd/Even | No. of Students | Credit Hours |
|----|----------------------------------|-----------|-------------------|-----------------|--------------|
| 1  | Mathematical Modeling            | I         | II                | 09              | 05           |
| 2  | Stochastic Processes             | I         | II                | 09              | 05           |
| 3  | Discrete Mathematics             | II        | III               | 09              | 05           |
| 4  | Advanced Operations Research     | II        | III               | 09              | 05           |
| 5  | Algebraic Topology               | II        | IV                | 09              | 05           |

*B. Dey*  
**HOD**

Head, Department of Mathematics  
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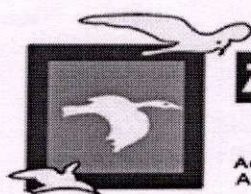
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*G.M. Srinivasan*  
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## DEPARTMENT OF MATHEMATICS

Date: 20.01.2020

### CIRCULAR

This is to inform you that our department is planned to conduct meeting on 20.01.2020 regarding the selection of Elective Papers for PG students (Batch: 2019-2021). The students are instructed to attend the meeting at 10.00 A.M in the Hall No. 203 without fail.

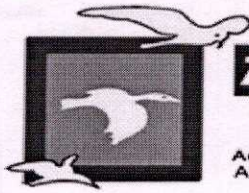
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## DEPARTMENT OF MATHEMATICS

### MINUTES OF MEETING

Date: 21.01.2020

### AGENDA

The selection of Elective Papers for PG students (Batch: 2019-2021), HOD has arranged a meeting for class representatives through a circular dated on 21.01.2020.

The following points were discussed in the meeting.

1. Discussed the list of Elective papers with the students.
2. Student Cleared the doubts regarding the scope of each paper with staff members
3. Finally they selected the Elective papers.

  
**HOD**

Head, Department of Mathematics  
Annai College of Arts & Science,  
Kovilacheri, Kumbakonam-612 503



  
**PRINCIPAL**

Principal  
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Kovilacheri, Kumbakonam-612 503

# ANNEXURE I





(For the candidates admitted from the academic year 2016-2017 onwards)

| Sem                | Course                     | Course Title  | Ins. Hrs / Week | Credit    | Exam Hrs | Marks |      | Total       |
|--------------------|----------------------------|---|-----------------|-----------|----------|-------|------|-------------|
|                    |                            |   |                 |           |          | Int.  | Ext. |             |
| I                  | Core Course – I (CC)       | Algebra   | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – II (CC)      | Real Analysis   | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – III (CC)     | Ordinary Differential Equations                           | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – IV (CC)      | Graph Theory  | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course - V (CC)       | Integral Equations, Calculus of Variations and Transforms | 6               | 5         | 3        | 25    | 75   | 100         |
| <b>TOTAL</b>       |                            |   | <b>30</b>       | <b>25</b> |          |       |      | <b>500</b>  |
| II                 | Core Course – VI (CC)      | Complex Analysis  | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – VII (CC)     | Linear Algebra  | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – VIII(CC)     | Partial Differential Equations                            | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Elective Course – I (EC)   |   | 6               | 3         | 3        | 25    | 75   | 100         |
|                    | Elective Course – II (EC)  |   | 6               | 3         | 3        | 25    | 75   | 100         |
| <b>TOTAL</b>       |                            |   | <b>30</b>       | <b>21</b> |          |       |      | <b>500</b>  |
| III                | Core Course – IX (CC)      | Classical Dynamics  | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – X (CC)       | Measure and Integration                                   | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – XI(CC)       | Topology  | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Elective Course – III (EC) |   | 6               | 3         | 3        | 25    | 75   | 100         |
|                    | Elective Course – IV (EC)  |   | 6               | 3         | 3        | 25    | 75   | 100         |
| <b>TOTAL</b>       |                            |   | <b>30</b>       | <b>21</b> |          |       |      | <b>500</b>  |
| IV                 | Core Course – XII (CC)     | Functional Analysis                                       | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – XIII (CC)    | Differential Geometry                                     | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Core Course – XIV(CC)      | Advanced Numerical Analysis                               | 6               | 5         | 3        | 25    | 75   | 100         |
|                    | Elective Course – V (EC)   |   | 6               | 3         | 3        | 25    | 75   | 100         |
|                    | Project                    |   | 6               | 5         | -        | -     | -    | 100         |
| <b>TOTAL</b>       |                            |   | <b>30</b>       | <b>23</b> |          |       |      | <b>500</b>  |
| <b>GRAND TOTAL</b> |                            |   | <b>120</b>      | <b>90</b> |          |       |      | <b>2000</b> |

**List of Elective Courses (For 2016 – 2017) :**

| <b>Elective I</b>   |                                   | <b>Elective II</b> |  |
|---------------------|-----------------------------------|--------------------|--|
| 1                   | Advanced Probability Theory       | 1                  | Stochastic Processes                             |
| 2                   | Mathematical Modeling             | 2                  | Tensor Analysis and Special Theory of Relativity |
| 3                   | Fuzzy sets and their Applications | 3                  | Non linear Differential Equations                |
| <b>Elective III</b> |                                   | <b>Elective IV</b> |  |
| 1                   | Design and Analysis of Algorithms | 1                  | Financial Mathematics                            |
| 2                   | Discrete Mathematics              | 2                  | Advanced Operations Research                     |
| 3                   | Automata Theory                   | 3                  | Combinatorics                                    |
| <b>Elective V</b>   |                                   |                    |  |
| 1                   | Algebraic Topology                |                    |  |
| 2                   | Fluid Dynamics                    |                    |  |
| 3                   | Algebraic Number Theory           |                    |  |

**Note:**

Project :100 Marks  
 Dissertation : 80 Marks  
 Viva Voice : 20 Marks

Core Papers - 10  
 Core Practical - 4  
 Elective Papers - 5  
 Project - 1

**Note:**

|              |          |          |          |          |
|--------------|----------|----------|----------|----------|
| 1. Theory    | Internal | 25 marks | External | 75 marks |
| 2. Practical | "        | 40 marks | "        | 60 marks |

**Note:**

|              |          |          |          |          |
|--------------|----------|----------|----------|----------|
| 1. Theory    | Internal | 25 marks | External | 75 marks |
| 2. Practical | "        | 40 marks | "        | 60 marks |

3. Separate passing minimum is prescribed for Internal and External

- The passing minimum for CIA shall be 40% out of 25 marks (i.e. 10 marks)
- The passing minimum for University Examinations shall be 40% out of 75 marks (i.e. 30 marks)
- The passing minimum not less than 50% in the aggregate.

**Reference/Text Books contain the following details:**

- Name of the Author
- Title of the Book
- Name of the Publisher
- Year

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## Department of Mathematics

Batch: 2019 - 2021

### List of Elective Papers

| S.NO | Name             | Reg.NO    | List of Elective Papers-I   |                        |                                   |                      | List of Elective Papers-II  |                        |                      |                 | List of Elective Papers-III |                              |               | List of Elective Papers-IV |                         |                |                         | List of Elective Papers-V |   |  | Signature |   |  |  |               |                  |
|------|------------------|-----------|-----------------------------|------------------------|-----------------------------------|----------------------|---|------------------------|----------------------|-----------------|-----------------------------|------------------------------|---------------|----------------------------|-------------------------|----------------|-------------------------|---------------------------|---|--|-----------|---|--|--|---------------|------------------|
|      |                  |           | Advanced Probability Theory | Mathematical Modelling | Fuzzy sets and their Applications | Stochastic Processes | Tensor Analysis and Special Theory of Non Linear Differential Equations | Designs and Algorithms | Discrete Mathematics | Automata Theory | Financial Mathematics       | Advanced Operations Research | Combinatorics | Algebraic Topology         | Algebraic Number Theory | Fluid Dynamics | Algebraic Number Theory |                           |   |  |           |   |  |  |               |                  |
| 1    | ALBINA MARY.A    | P19193001 |                             |                        |                                   | ✓                    |   | ✓                      |                      |                 | ✓                           |                              |               | ✓                          |                         | ✓              |                         |                           | ✓ |  |           | ✓ |  |  | Albina Mary A |                  |
| 2    | ANU.V            | P19193002 |                             |                        | ✓                                 |                      |   |                        | ✓                    |                 | ✓                           |                              |               |                            | ✓                       |                |                         |                           | ✓ |  |           |   |  |  | ✓             | Anu.V            |
| 3    | BALAMBIGAI.S     | P19193003 |                             |                        |                                   |                      |   |                        | ✓                    |                 |                             |                              |               |                            |                         |                |                         |                           | ✓ |  |           |   |  |  |               | Balambigai.S     |
| 4    | BENJAMIN FRANKI  | P19193004 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  |               | Benjamin Franki  |
| 5    | DIVYA.S          | P19193005 |                             |                        |                                   |                      |   |                        |                      |                 |                             | ✓                            |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Divya.S          |
| 6    | KANTILIA VENDHAN | P19193006 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Kantilia Vendhan |
| 7    | KARPAGAM.M       | P19193007 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Karpagam.M       |
| 8    | MEKALA.R         | P19193008 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Mekala.R         |
| 9    | NANDHINI.S       | P19193009 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Nandhini.S       |
| 10   | PAVITHRA.R       | P19193010 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Pavithra.R       |
| 11   | PRIYA.R          | P19193011 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Priya.R          |
| 12   | SUBHASRI.P       | P19193012 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | P.Subhasri       |
| 13   | TAMIZHARASAN.P   | P19193013 |                             |                        |                                   |                      |   |                        |                      |                 |                             |                              |               |                            |                         |                |                         |                           |   |  |           |   |  |  | ✓             | Tamizharasan.P   |

HOD

Head, Department of Mathematics  
**Annai College of Arts & Science**  
 Kovilathurai, Kumbakonam-612-503



**PRINCIPAL**

Principal  
**Annai College of Arts & Science**  
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Affiliated to Bharathidasan University, Tiruchirappalli. E-Mail: acaedmn@gmail.com

### **Justification on Elective Selection**

#### **Mathematical Modeling**

Mathematical models are used in the natural sciences (such as physics, biology, earth science, chemistry) and engineering disciplines (such as computer science, electrical engineering), as well as in non-physical systems such as the social sciences (such as economics, psychology, sociology, political science).

#### **Stochastic Processes**

A method of Financial Modeling in which one or more variables within the model are Random. Stochastic Modeling is for the purpose of estimating the probability of Outcomes within a forecast to predict what conditions might be like under different situations. The random variables are usually constrained by historical data, such as past market returns.

#### **Discrete Mathematics**

All computer Data is represented using Binary. Binary digits can be grouped together into bytes.

- Discrete math in Railway planning
- Discrete math in Computer Graphics
- Discrete math in cryptography
- Discrete math in Google maps
- Discrete math in Logistics, Image processing, Networks, Voting systems etc...



## Advanced Operations Research

Operation research is the Scientific study of operations for the purpose of making better decisions. Operations Research can be applied to a variety of use cases including,

- Scheduling and time management
- Urban and agricultural planning
- Network optimization and Engineering

## Algebraic Topology

Theoretical or fundamental topology is a bit dry but the Applications part is what drives crazy once we get used . In this paper we discuss some Applications in various fields of Science of Science and Technology, like Applications of Biology, Robotics, GIS, Engineering, Computer sciences.

  
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