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**Department of Mathematics**  
**Pavanatma College, Murickassery**  
**Idukki-685604**

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**Curriculum Implementation Plan**



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**FOUNDATION OF MATHEMATICS**

**1.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM1CRT01
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	4
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)



## 1.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Basic Logic	Chalk and talk,	20	5
2	Set theory	Chalk and talk	12	3
3	Relations	Chalk and talk, ICT	20	5
4	Theory of Equations	Chalk and talk	20	5

## 1.3 Continuous Evaluation Schedule

### 1.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 1.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

### 1.3.3 Seminar

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# **ANALYTIC GEOMETRY, TRIGONOMETRY AND DIFFERENTIAL CALCULUS**

## **2.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM2CRT02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	4
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 2.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Conic Sections	Chalk and talk	22	6
2	Polar Co-ordinates	Chalk and talk	15	4
3	Trigonometry	Chalk and talk	17	5
4	Differential Calculus	Chalk and talk	18	5

## 2.3 Continuous Evaluation Schedule

### 2.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 2.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**2.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**CALCULUS****3.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM3CRT03
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 3.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Differential Calculus	Chalk and talk, ICT	27	6
2	Partial Differentiation	Chalk and talk, ICT	18	4
3	Integral Calculus	Chalk and talk	20	4
4	Multiple Integrals	Chalk and talk	25	5

## 3.3 Continuous Evaluation Schedule

### 3.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 3.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**3.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture



**VECTOR CALCULUS, THEORY OF NUMBERS AND LAPLACE TRANSFORM**

**4.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM4CRT04
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 4.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Vector Differentiation	Chalk and talk, ICT	25	5
2	Vector Integration	Chalk and talk, ICT	30	6
3	Theory of Numbers	Chalk and talk, ICT	15	3
4	Laplace transforms	Chalk and talk	20	4

## 4.3 Continuous Evaluation Schedule

### 4.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 4.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

### 4.3.3 Seminar

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**MATHEMATICAL ANALYSIS**

**5.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM5CRT05
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	108
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	25
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 5.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Real Numbers	Chalk and talk	30	6
2	Sequences	Chalk and talk	30	6
3	Series	Chalk and talk	24	5
4	Limits	Chalk and talk	24	5

## 5.3 Continuous Evaluation Schedule

### 5.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	8	20	1 Hours	Assessment Test
2	16	20	1 Hours	Assessment Test
3	25	80	3 Hours	Model Examination

### 5.3.2 Assignments

No.	Week	Duration	Assignments type
1	8	1 Week	Problem solving
2	16	1 Week	Problem solving
3	25	1 Week	Problem solving

**5.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	8	3	20 Minute	Lecture
2	16	3	20 Minute	Lecture
3	25	3	20 Minute	Lecture

# DIFFERENTIAL EQUATIONS

## 6.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	MM5CRT06
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	108
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	25
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 6.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	What is a differential equation	Chalk and talk	26	6
2	Second order linear equations	Chalk and talk	26	6
3	Power Series solutions and special functions	Chalk and talk	26	6
4	Partial Differential equations	Chalk and talk	30	6

## 6.3 Continuous Evaluation Schedule

### 6.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	8	20	1 Hours	Assessment Test
2	16	20	1 Hours	Assessment Test
3	25	80	3 Hours	Model Examination



### 6.3.2 Assignments

No.	Week	Duration	Assignments type
1	8	1 Week	Problem solving
2	16	1 Week	Problem solving
3	25	1 Week	Problem solving

### 6.3.3 Seminar

No.	Week	Number of seminars	Time duration	Delivery method
1	8	3	20 Minute	Lecture
2	16	3	20 Minute	Lecture
3	25	3	20 Minute	Lecture

# ABSTRACT ALGEBRA

## 7.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	MM5CRT07
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 7.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Introduction to Groups	Chalk and talk	25	5
2	Permutation Group	Chalk and talk	25	5
3	Homomorphisms and Factor groups	Chalk and talk	20	4
4	Rings and Fields	Chalk and talk	20	4

## 7.3 Continuous Evaluation Schedule

### 7.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 7.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**7.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# APPLICABLE MATHEMATICS

## 8.1 Course Overview

1	Course	Open Course
2	Course Type	Theory
3	Course Code	MM5GET02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	4
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 8.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Introduction to Numbers	Chalk and talk	18	5
2	Trigonometry	Chalk and talk, ICT	18	5
3	Simple Interest and Compound Interest	Chalk and talk, ICT	18	5
4	Introduction to Calculus	Chalk and talk, ICT	18	5

## 8.3 Continuous Evaluation Schedule

### 8.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 8.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**8.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**HUMAN RIGHTS AND MATHEMATICS FOR  
ENVIORNMENTAL STUDIES**

**9.1 Course Overview**

1	Course	Environmental Maths
2	Course Type	Theory
3	Course Code	MM5CRT08
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	4
10	Number of Modules	5
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)



## 9.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Multidisciplinary nature of environmental studies	Chalk and talk, ICT	18	5
2	Biodiversity and its conservation	Chalk and talk, ICT	26	7
3	Fibonacci Numbers in nature	Chalk and talk, ICT	10	3
4	Golden Ratio	Chalk and talk, ICT	10	3
5	Human rights	Null	8	2

## 9.3 Continuous Evaluation Schedule

### 9.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

**9.3.2 Assignments**

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**9.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**REAL ANALYSIS****10.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM6CRT09
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 10.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Continuous Functions	Chalk and talk	30	6
2	Differentiation	Chalk and talk	24	5
3	The Reimann Integral	Chalk and talk	24	5
4	Sequences and Series of Functions	Chalk and talk	24	5

## 10.3 Continuous Evaluation Schedule

### 10.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 10.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**10.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**GRAPH THEORY AND METRIC SPACES**

**11.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM6CRT10
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	108
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	25
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 11.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Graph Theory	Chalk and talk, ICT	36	8
2	Graph Theory	Chalk and talk, ICT	30	6
3	Metric Spaces	Chalk and talk, ICT	24	5
4	Metric Spaces	Chalk and talk	18	4

## 11.3 Continuous Evaluation Schedule

### 11.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	8	20	1 Hours	Assessment Test
2	16	20	1 Hours	Assessment Test
3	25	80	3 Hours	Model Examination

### 11.3.2 Assignments

No.	Week	Duration	Assignments type
1	8	1 Week	Problem solving
2	16	1 Week	Problem solving
3	25	1 Week	Problem solving

**11.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	8	3	20 Minute	Lecture
2	16	3	20 Minute	Lecture
3	25	3	20 Minute	Lecture



**COMPLEX ANALYSIS**

**12.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM6CRT11
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 12.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Analytic functions	Chalk and talk	32	7
2	Integrals	Chalk and talk	25	5
3	Series	Chalk and talk	15	3
4	Residues and poles	Chalk and talk	18	4

## 12.3 Continuous Evaluation Schedule

### 12.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 12.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**12.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**LINEAR ALGEBRA**

**13.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	MM6CRT12
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 13.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Introduction to Matrices	Chalk and talk	25	5
2	Vector Spaces	Chalk and talk	25	5
3	Null	Chalk and talk	20	4
4	Null	Chalk and talk	20	4

## 13.3 Continuous Evaluation Schedule

### 13.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 13.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**13.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# **BASIC PYTHON PROGRAMMING AND TYPESETTING IN LATEX**

## **14.1 Course Overview**

1	Course	Choice Based Course
2	Course Type	Theory
3	Course Code	MM6CBT02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	18
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 14.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Beginning Python Programming	Chalk and talk	16	4
2	Advanced features	Chalk and talk	20	4
3	Beginning typesetting with using LaTeX	Chalk and talk	16	4
4	Typesetting Mathematics	Chalk and talk	20	4

## 14.3 Continuous Evaluation Schedule

### 14.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	6	20	1 Hours	Assessment Test
2	12	20	1 Hours	Assessment Test
3	18	80	3 Hours	Model Examination

### 14.3.2 Assignments

No.	Week	Duration	Assignments type
1	6	1 Week	Problem solving
2	12	1 Week	Problem solving
3	18	1 Week	Problem solving



### 14.3.3 Seminar

No.	Week	Number of seminars	Time duration	Delivery method
1	6	3	20 Minute	Lecture
2	12	3	20 Minute	Lecture
3	18	3	20 Minute	Lecture

**LINEAR PROGRAMMING****15.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM1CCT01
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	54
9	Hours per Week	3
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 15.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Mathematical Preliminaries	Chalk and talk	15	5
2	General Problem of Mathematical Programming	Chalk and talk	12	4
3	Linear programming	Chalk and talk	10	4
4	Linear programming(Cont.)	Chalk and talk	17	6

## 15.3 Continuous Evaluation Schedule

### 15.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 15.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**15.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**DUALITY, TRANSPORTATION AND ASSIGNMENT PROBLEM**

**16.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM2CCT02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	54
9	Hours per Week	3
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 16.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Linear Programming	Chalk and talk	15	5
2	Transportation Problems	Chalk and talk	10	4
3	Looping Transportation	Chalk and talk	15	5
4	Assignment Problems	Chalk and talk	14	5

## 16.3 Continuous Evaluation Schedule

### 16.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 16.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**16.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# QUEUEING THEORY

## 17.1 Course Overview

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM3CCT03
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	54
9	Hours per Week	3
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)



## 17.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Theory of Games	Chalk and talk	16	6
2	Project Management PERT and CPM	Chalk and talk	10	4
3	Project Management PERT and CPM(Cont.)	Chalk and talk	14	5
4	Queuing Theory	Chalk and talk	14	5

## 17.3 Continuous Evaluation Schedule

### 17.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 17.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**17.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**NONLINEAR PROGRAMMING**

**18.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM4CCT04
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	54
9	Hours per Week	3
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 18.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	IntegerProgramming	Chalk and talk	13	5
2	Branch and Bound Method	Chalk and talk	14	5
3	Kuhn-TuckerTheory and Non Linear Programming	Chalk and talk	15	5
4	Kuhn-TuckerTheoryandNonLinearProgramming(Cont.)	Chalk and talk	12	4

## 18.3 Continuous Evaluation Schedule

### 18.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 18.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**18.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**PARTIAL DIFFERENTIATION, MATRICES, T  
AND NUMERICAL METHODS**

**19.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM1CMT01
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	4
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 19.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	PartialDifferentiation	Chalk and talk	14	4
2	Matrices	Chalk and talk	21	6
3	Trigonometry	Chalk and talk	23	6
4	NumericalMethods	Chalk and talk	14	4

## 19.3 Continuous Evaluation Schedule

### 19.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 19.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**19.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture



# **INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS**

## **20.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM2CMT02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	72
9	Hours per Week	4
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 20.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Integral Calculus	Chalk and talk	15	4
2	Multiple Integrals	Chalk and talk	17	5
3	Ordinary Differential Equations	Chalk and talk	20	5
4	Partial Differential Equations	Chalk and talk	20	5

## 20.3 Continuous Evaluation Schedule

### 20.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 20.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**20.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA**

**21.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM3CMT03
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 21.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Vector valued Functions	Chalk and talk	15	3
2	Integration in Vector Fields	Chalk and talk	25	5
3	Analytic Geometry	Chalk and talk	25	5
4	Abstract algebra	Chalk and talk	25	5

## 21.3 Continuous Evaluation Schedule

### 21.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 21.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**21.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# **FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS**

## **22.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM4CMT04
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 22.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Fourier Series and Legendre Polynomials	Chalk and talk	25	5
2	Laplace Transforms	Chalk and talk	20	4
3	Complex Numbers and Functions	Chalk and talk	25	5
4	Complex Integration	Chalk and talk	20	4

## 22.3 Continuous Evaluation Schedule

### 22.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 22.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving



**22.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**PARTIAL DIFFERENTIATION, MATRICES, TANGENT PLANE AND NUMERICAL METHODS**

**23.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM1CMT01
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 23.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	PartialDifferentiation	Chalk and talk	23	5
2	Matrices	Chalk and talk	21	5
3	Trigonometry	Chalk and talk	23	5
4	NumericalMethods	Chalk and talk	23	5

## 23.3 Continuous Evaluation Schedule

### 23.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 23.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**23.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS

## 24.1 Course Overview

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM2CMT02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 24.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Integral Calculus	Chalk and talk	18	4
2	Multiple Integrals	Chalk and talk	20	4
3	Ordinary Differential Equations	Chalk and talk	26	6
4	Partial Differential Equations	Chalk and talk	26	6

## 24.3 Continuous Evaluation Schedule

### 24.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 24.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**24.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA**

**25.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM3CMT03
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)



## 25.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Vector valued Functions	Chalk and talk	15	3
2	Integration in Vector Fields	Chalk and talk	25	5
3	Analytic Geometry	Chalk and talk	25	5
4	Abstract algebra	Chalk and talk	25	5

## 25.3 Continuous Evaluation Schedule

### 25.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 25.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**25.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**FOURIER SERIES, LAPLACE TRANSFORM  
AND COMPLEX ANALYSIS**

**26.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM4CMT04
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 26.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Fourier Series and Legendre Polynomials	Chalk and talk	25	5
2	Laplace Transforms	Chalk and talk	20	4
3	Complex Numbers and Functions	Chalk and talk	25	5
4	Complex Integration	Chalk and talk	20	4

## 26.3 Continuous Evaluation Schedule

### 26.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 26.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**26.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**PARTIAL DIFFERENTIATION, MATRICES, T**  
**AND NUMERICAL METHODS**

**27.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM1CMT01
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 27.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	PartialDifferentiation	Chalk and talk	23	5
2	Matrices	Chalk and talk	21	5
3	Trigonometry	Chalk and talk	23	5
4	NumericalMethods	Chalk and talk	23	5

## 27.3 Continuous Evaluation Schedule

### 27.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 27.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**27.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture



# **INTEGRAL CALCULUS AND DIFFERENTIAL EQUATIONS**

## **28.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM2CMT02
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 28.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Integral Calculus	Chalk and talk	18	4
2	Multiple Integrals	Chalk and talk	20	4
3	Ordinary Differential Equations	Chalk and talk	26	6
4	Partial Differential Equations	Chalk and talk	26	6

## 28.3 Continuous Evaluation Schedule

### 28.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 28.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**28.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**VECTOR CALCULUS, ANALYTIC GEOMETRY AND ABSTRACT ALGEBRA**

**29.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM3CMT03
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 29.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Vector valued Functions	Chalk and talk	15	3
2	Integration in Vector Fields	Chalk and talk	25	5
3	Analytic Geometry	Chalk and talk	25	5
4	Abstract algebra	Chalk and talk	25	5

## 29.3 Continuous Evaluation Schedule

### 29.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 29.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**29.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# **FOURIER SERIES, LAPLACE TRANSFORM AND COMPLEX ANALYSIS**

## **30.1 Course Overview**

1	Course	Complementary
2	Course Type	Theory
3	Course Code	MM4CMT04
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	80
7	Internal Assessment	20
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	5
13	Assignment/Seminar	5
14	Assessment Test	10 (2 × 5 = 10)

## 30.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Fourier Series and Legendre Polynomials	Chalk and talk	25	5
2	Laplace Transforms	Chalk and talk	20	4
3	Complex Numbers and Functions	Chalk and talk	25	5
4	Complex Integration	Chalk and talk	20	4

## 30.3 Continuous Evaluation Schedule

### 30.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	80	3 Hours	Model Examination

### 30.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving



**30.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**Abstract Algebra****31.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010101
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 31.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Groups	Chalk and talk	25	5
2	Sylow Theorems	Chalk and talk	25	5
3	Ring Of Polynomials	Chalk and talk	20	4
4	Factor Rings	Chalk and talk	20	4

## 31.3 Continuous Evaluation Schedule

### 31.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 31.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**31.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**Linear Algebra**

**32.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010102
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 32.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Vector Space	Chalk and talk	20	4
2	Linear Transformatios	Chalk and talk	25	5
3	Determinants	Chalk and talk	20	4
4	Diagonalization	Chalk and talk	25	5

## 32.3 Continuous Evaluation Schedule

### 32.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 32.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**32.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## Basic Topology

### 33.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010103
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)



## 33.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Topological Spaces	Chalk and talk	25	5
2	Basic Concepts	Chalk and talk	25	5
3	Spaces With Special Properties	Chalk and talk	20	4
4	Spaces With Special Properties	Chalk and talk	20	4

## 33.3 Continuous Evaluation Schedule

### 33.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 33.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**33.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## Real Analysis

### 34.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010104
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 34.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Functions of Bounded Variation And Rectifiable Curves	Chalk and talk	20	4
2	The Riemann Stieltjes Integral	Chalk and talk	20	4
3	Sequence And Series Of Functions	Chalk and talk	25	5
4	Weierstrass Approximation And Some Special Functions	Chalk and talk	25	5

## 34.3 Continuous Evaluation Schedule

### 34.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

**34.3.2 Assignments**

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**34.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Graph Theory**

### **35.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010105
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 35.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Graph Basic Concepts	Chalk and talk	20	4
2	Connectivity	Chalk and talk	25	5
3	Eulerian And Hamiltonian Graphs	Chalk and talk	20	4
4	Planarity	Chalk and talk	25	5

## 35.3 Continuous Evaluation Schedule

### 35.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 35.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**35.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture



## **Advanced Abstract Algebra**

### **36.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010201
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 36.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Extention Field	Chalk and talk	20	4
2	UFD	Chalk and talk	20	4
3	Automorphism Of Fields	Chalk and talk	25	5
4	Separable Extentions	Chalk and talk	25	5

## 36.3 Continuous Evaluation Schedule

### 36.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 36.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**36.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**Advanced Topology**

**37.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010202
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 37.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Seperation Axioms	Chalk and talk	20	4
2	Product And Coproduct	Chalk and talk	25	5
3	Embedding And Metrisation	Chalk and talk	25	5
4	Definition and Convergence of Nets	Chalk and talk	20	4

## 37.3 Continuous Evaluation Schedule

### 37.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 37.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**37.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## Numerical Analysis with Python

### 38.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010203
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 38.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Basics of Python	Chalk and talk, ICT	20	4
2	Limit of Functions	Chalk and talk, ICT	25	5
3	Interpolation And Curve Fitting	Chalk and talk, ICT	25	5
4	Gauss Elimination Method	Chalk and talk, ICT	20	4

## 38.3 Continuous Evaluation Schedule

### 38.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination



**38.3.2 Assignments**

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**38.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Complex Analysis**

### **39.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010204
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 39.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Spherica Representation Of Complex Numbers	Chalk and talk	25	5
2	Fundamental Theorems on Complex Integration	Chalk and talk	20	4
3	Higher Derivatives	Chalk and talk	20	4
4	The General Form Of Cauchy's Theorem	Chalk and talk	25	5

## 39.3 Continuous Evaluation Schedule

### 39.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 39.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**39.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## Measure And Integration

### 40.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010205
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 40.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Lebsgue Measure	Chalk and talk	25	5
2	Lebesgue Integration	Chalk and talk	25	5
3	General Measure Space And Measurable Functions	Chalk and talk	20	4
4	Integration Over General Measure Space And Product Measures	Chalk and talk	20	4

## 40.3 Continuous Evaluation Schedule

### 40.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 40.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**40.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Advanced Complex Analysis**

### **41.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010301
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)



## 41.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Harmonic Function	Chalk and talk	20	4
2	Power Series Expansions	Chalk and talk	25	5
3	Riemann Zeta Function	Chalk and talk	25	5
4	The Riemann Mapping Theorem	Chalk and talk	20	4

## 41.3 Continuous Evaluation Schedule

### 41.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 41.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**41.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Partial Differential Equations**

### **42.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010302
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 42.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Solutions Of Pde	Chalk and talk	20	4
2	Linear Equation Of First Order	Chalk and talk	25	5
3	Jacobi's Method	Chalk and talk	20	4
4	Separation Of Variables	Chalk and talk	25	5

## 42.3 Continuous Evaluation Schedule

### 42.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 42.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**42.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

# Multivariate Calculus And Integral Trans- form

## 43.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010303
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 43.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Weirstrass Theorem	Chalk and talk	20	4
2	Multivariable Differential Calculus	Chalk and talk	22	5
3	Mixed Partial Derivatives	Chalk and talk	28	6
4	Intgration Of Differential Forms	Chalk and talk	20	4

## 43.3 Continuous Evaluation Schedule

### 43.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 43.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**43.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture



## Functional Analysis

### 44.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010304
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 44.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Completion Theorem	Chalk and talk	20	4
2	Linear Oeerators	Chalk and talk	25	5
3	Inner Product Spaces	Chalk and talk	25	5
4	Hilbert Space	Chalk and talk	20	4

## 44.3 Continuous Evaluation Schedule

### 44.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 44.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**44.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Optimization Technique**

### **45.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010305
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 45.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Linear Programming	Chalk and talk	25	5
2	Integer Programming	Chalk and talk	25	5
3	Goal Programming And Flow and Potential in Networks	Chalk and talk	15	3
4	Non-Linear Programming	Chalk and talk	25	5

## 45.3 Continuous Evaluation Schedule

### 45.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 45.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**45.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## Spectral Theory

### 46.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010401
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 46.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Convergence Of Sequence Of Operators And Functionals	Chalk and talk	20	4
2	Banach Fixed Point Theorem	Chalk and talk	25	5
3	Banach algebra	Chalk and talk	25	5
4	Spectral Properties Of Self Adjoint Linear Operator	Chalk and talk	20	4

## 46.3 Continuous Evaluation Schedule

### 46.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination



**46.3.2 Assignments**

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**46.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Analytic Number Theory**

### **47.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME010402
4	Credit	4
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 47.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Arithmetic Functions	Chalk and talk	30	6
2	Some Elementry Theorems On The Distribution Of Prime Numbers	Chalk and talk	15	3
3	Congruances	Chalk and talk	25	5
4	Quadratic Residues	Chalk and talk	20	4

## 47.3 Continuous Evaluation Schedule

### 47.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 47.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**47.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## Differential Geometry

### 48.1 Course Overview

1	Course	Core
2	Course Type	Theory
3	Course Code	ME800401
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 48.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Graph And Level Set	Chalk and talk	20	4
2	Gauss Map	Chalk and talk	20	4
3	Weingartn Map	Chalk and talk	25	5
4	Curvature Of Surfaces	Chalk and talk	25	5

## 48.3 Continuous Evaluation Schedule

### 48.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 48.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**48.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

## **Algorithmic Graph Theory**

### **49.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME800402
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)



## 49.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Introduction to Graph And Algorithms	Chalk and talk	24	5
2	Trees And Distances	Chalk and talk	22	5
3	Networks	Chalk and talk	22	5
4	Matchings And Factorization	Chalk and talk	22	5

## 49.3 Continuous Evaluation Schedule

### 49.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

### 49.3.2 Assignments

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**49.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

**Combinatorics**

**50.1 Course Overview**

1	Course	Core
2	Course Type	Theory
3	Course Code	ME800403
4	Credit	3
5	Duration of External Examination	3 hours
6	External Assessment	150
7	Internal Assessment	25
8	Total hours	90
9	Hours per Week	5
10	Number of Modules	4
11	Total Week to complete	21
<b>Distribution of Internal Marks</b>		
12	Attendance	0
13	Assignment/Seminar	0
14	Assessment Test	0 (0 × 0 = 0)

## 50.2 Implementation Schedule

Module	Module Title	Delivery Methods	Total hours	Number of Weeks to complete
1	Permutations And Combinations	Chalk and talk	22	5
2	Pigeonhole Principle And Ramsey Number	Chalk and talk	18	4
3	The Principle of Inclusion And Exclusion	Chalk and talk	25	5
4	Generation Functions and Recurrence Relations	Chalk and talk	25	5

## 50.3 Continuous Evaluation Schedule

### 50.3.1 Test paper

No.	Week	Total marks	Time duration	Exam type
1	7	20	1 Hours	Assessment Test
2	14	20	1 Hours	Assessment Test
3	21	150	3 Hours	Model Examination

**50.3.2 Assignments**

No.	Week	Duration	Assignments type
1	7	1 Week	Problem solving
2	14	1 Week	Problem solving
3	21	1 Week	Problem solving

**50.3.3 Seminar**

No.	Week	Number of seminars	Time duration	Delivery method
1	7	3	20 Minute	Lecture
2	14	3	20 Minute	Lecture
3	21	3	20 Minute	Lecture

