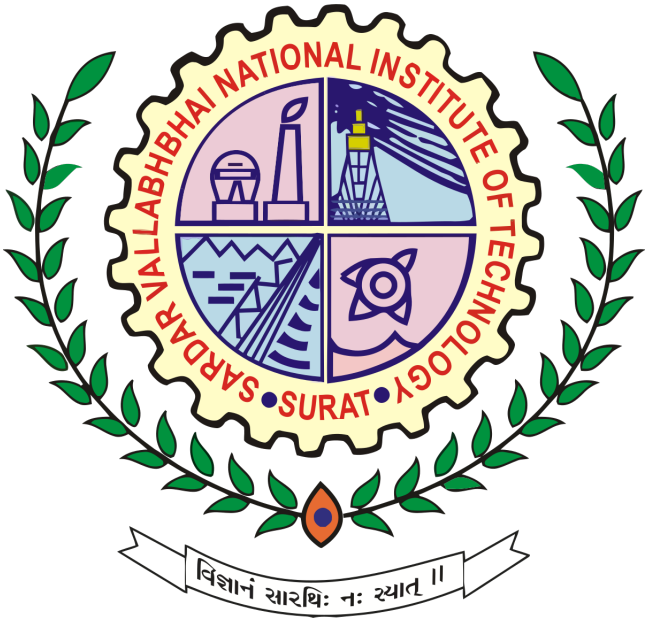
5 YEARS INTEGRATED MASTER OF SCIENCE

MATHEMATICS

2022-27

HANDBOOK



Department of Mathematics & Humanities
Sardar Vallabhbhai National Institute of Technology
Surat-7, Gujarat, India

This handbook applies to students starting the course in November 2022. The information in this handbook may be different for students starting in other years. This handbook is intended as a guide and reference throughout your Mathematics Course at SVNIT. Please keep it as a handy guide.

If there is a conflict between Regulations of handbook and Authorities of the Institute[1] then you should follow their Regulations and Information mentioned by the Authorities and in such cases this Handbook will become Null and Void. If you have any concerns please contact Dr. Jayesh M. Dhodiya, Head of the Department of Mathematics & Humanities (hod@amhd.svnit.ac.in).

The information in this handbook is accurate as of September 2022, however it may be necessary for changes to be made in certain circumstances, as explained above. Please visit `https://svnit.ac.in/`. If such changes are made the department will publish a new version of this handbook together with a list of the changes and student will be informed about the same.

[1]Board of Governors, Building & Works Committee, Finance Committee, Purchase Committee, Senate, Standing Executive Committee, Academic Performance Review Committee, Institute Academic Advisory Committee, Industrial & Consultancy Sponsored Research Committee, Department Academic Advisory Committee, Director etc.

DEPARTMENT OF MATHEMATICS AND HUMANITIES

Welcome note from the Head of Department

Dear Students,

Welcome to the Department of Mathematics and Humanities at SVNIT. On behalf of the faculty members and staff of the Department, I congratulate you all for being selected in one of the premier Institute of our country, SVNIT Surat. I welcome you all to the family of DoMH. You will be a part with us for the next five years and you will get numerous opportunities to develop academic as well as non-academic skills.

The Department of Mathematics and Humanities has got its present status in August, 2021. Earlier, it was The Department of Applied Mathematics & Humanities since 2009. Before that it is one of the section of Applied Sciences and Humanities Department. Over the years, the department has evolved as one of the epicenter of research in Gujarat, India. Growing steadily, today the department not only teaches various topics in Mathematics, English and Management to undergraduate students of different engineering disciplines but also runs its own 5 Year Integrated M.Sc Degree Programme in Mathematics, in which admission is made through Joint Seat Allocation Authority (JoSAA). The alumni of this department have attained prestigious positions in teaching and research, spread over India and abroad.

The department has highly qualified faculty members consisting of 3 Professors, 3 Associate Professors and 12 Assistant Professors. In their pursuit for research the faculty members have covered a vast area such as: Numerical & Classical Methods in Fluid Mechanics (Flow through Porous Media), Mathematical Analysis, Operations Research and Optimization, Special Functions, Integral Transforms, Approximation Theory, Mathematical Modeling, Magnetic Fluid Dynamics, Mathematical and Computational Biology, Bioinformatics/Biomathematics/Biocomputing, Finite Element Modeling, Data Mining, Image Mining, Techno Innovation to Techno Entrepreneurship, General Management, Entrepreneurship, Marketing, Post Modern Fiction and Indian English Fiction. The entire teaching faculty is actively engaged in research in their respective fields.

In the Department, a total of 250+ students are enrolled for Five Years Integrated M.Sc Program. Presently, 64 Ph.D. students are doing their research work. Till now, total 671 papers are published by the Department in well reputed SCI/SCIE and Scopus Index Journals. During last five years, research papers H-Index is 106, i10 Index is 85. In last five years, Department have handled INR 1,30,63,700 /- projects of various agencies like Department of Science and Technology, NBHM, ISRO, GUJCOST etc. Department has produced 89 Ph.D. Students in Mathematics, Management and English.

This handbook aims to provide useful information about the department, course structure, academic rules and regulations. It also provides the achievements of our students as well as research areas of faculty members. This information will help design your career goal. If you have any other questions, please feel free to contact me or any other faculty member of the department for any purpose.

I wish you, All the Best for your Journey in SVNIT and also for your Academic Endeavour!

Dr. Jayesh M Dhodiya
Head of Department

SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT

ACADEMIC CALENDAR FOR B.Tech- Ist Year and M.Sc-Ist Year

(AUTUMN SEMESTER (ODD SEMESTER): A.Y. 2022 - 23)

	Activity	Week	Duration
1	Orientation programme	0	Nov. 07(Mon.) – Nov. 11(Fri.), 2022
2	Commencement of teaching	1	Nov. 14 (Mon.), 2022
3	Mid Semester examination	8	Jan. 02 (Mon.) – Jan. 07 (Sat.), 2023
4	Submission of the XX grades	15	Feb. 24 (Fri.), 2023
5	Sparsh and Mindbend	15	Feb. 23 (Thu.)- Feb. 26 (Sun.), 2023
6	Make up tests for Mid-Sem./ Practical examinations	16	Feb. 27 (Mon.) – Mar. 04 (Sat.) 2023
7	Last day of teaching	16	Mar. 04 (Sat.), 2023
8	End-Semester examinations	17	Mar. 06 (Mon.) – Mar. 13 (Mon.), 2023
9	Semester break	--	Mar. 14 (Tue.)- Mar. 17 (Fri.), 2023
10	Last date of submission of grade sheets to the examination sections	--	Mar. 20 (Mon.), 2023
11	Declaration of results	--	Mar. 27 (Mon.), 2023

Note: (1) Six-day teaching schedule, including Saturdays, would be followed for 'ten' weeks w.e.f. November 26, 2022.
(2) The mode of teaching would be offline.

(SPRING SEMESTER (EVEN SEMESTER): A.Y. 2022 - 23)

	Activity	Week	Duration
1	Registration and fee payment	1	Mar. 20 (Mon.)-Mar. 24 (Fri.), 2023
2	Commencement of teaching	1	Mar. 20 (Mon.), 2023
3	Supplementary examination (Odd Sem.)	4	Apr. 10 (Mon.)- Apr. 17 (Mon.), 2023
5	Mid Semester examination	8	May. 08 (Mon.) – May. 13 (Sat.), 2023
6	Submission of the XX grades	13	June 16 (Fri.), 2023
7	Make up tests for Mid-Sem / practical Examinations	14	June 19 (Mon.) – June 24 (Sat.) 2023
8	Last day of teaching	14	June 23(Fri.), 2023
9	End-Semester examinations	15-16	June 26 (Mon.) – July 03 (Mon.), 2023
10	Semester break	16	July 04 (Tue) – July 21 (Fri.), 2023
11	Last date of submission of grade sheets to the examination sections	--	July 17 (Mon.), 2023
12	Declaration of results	--	July 24 (Mon.), 2023
13	Commencement of next Semester	--	July 24 (Mon.), 2023
14	Supplementary examination (Odd and Even)	--`	Aug. 07 (Mon.) – Aug. 21 (Mon.), 2023

Note: (1) Six-day teaching schedule, including Saturdays, would be followed for 'ten' weeks w.e.f. April 01, 2023.
(2) The mode of teaching would be offline.

Accepted 14.10

Deputy Registrar (Academic)

Associate Dean (Academic)

Dean (Academic)

Director 14.10.22.

Teaching schedule to be followed on Saturdays

The following Saturdays will be 'working Saturdays' and teaching (classes) will be conducted as per the time table mentioned below.

(AUTUMN SEMESTER (ODD SEMESTER): A.Y. 2022 - 23)

Sr. No.	Date	Time table to be followed
1.	26-11-2022 (Saturday)	Time table of Monday
2.	03-12-2022 (Saturday)	Time table of Tuesday
3.	10-12-2022 (Saturday)	Time table of Wednesday
4.	17-12-2022 (Saturday)	Time table of Thursday
5.	24-12-2022 (Saturday)	Time table of Friday
6.	21-01-2023 (Saturday)	Time table of Monday
7.	28-01-2023 (Saturday)	Time table of Tuesday
8.	04-02-2023 (Saturday)	Time table of Wednesday
9.	11-02-2023 (Saturday)	Time table of Thursday
10.	18-02-2023 (Saturday)	Time table of Friday

(SPRING SEMESTER (EVEN SEMESTER): A.Y. 2022 - 23)

Sr. No.	Date	Time table to be followed
1.	01-04-2023 (Saturday)	Time table of Monday
2.	08-04-2023 (Saturday)	Time table of Tuesday
3.	15-04-2023 (Saturday)	Time table of Wednesday
4.	29-04-2023 (Saturday)	Time table of Thursday
5.	06-05-2023 (Saturday)	Time table of Friday
6.	20-05-2023 (Saturday)	Time table of Monday
7.	27-05-2023 (Saturday)	Time table of Tuesday
8.	03-06-2023 (Saturday)	Time table of Wednesday
9.	10-06-2023 (Saturday)	Time table of Thursday
10.	17-06-2023 (Saturday)	Time table of Friday

The Faculty members associated with B.Tech.- Ist and M.Sc.-Ist(AY 2022-23) teaching are requested to take a note of this and engage the class as per the above mentioned schedule.

Accepted 14.10

Deputy Registrar (Academic)

14/10/2022

Associate Dean (Academic)

14/10/2022

Dean (Academic)

Director 14.10.22.

Contents

[2]Mandatory Subjects
[3]Subjects may differ for 2022-23 Batch
[4]Tentative, Please contact: Dean Academic dean_acad@svnit.ac.in

1 About SVNIT

Sardar Vallabhbhai National Institute of Technology established by Parliament of India in 1961. It is one of 31 National Institute of Technology in India recognized by Government of India as an Institute of National Importance under NITSER Act, 2007[5].

In order to serve the growing demand for trained quality technical manpower, the Government of India has established fourteen Regional Engineering College and Technology between 1959 and 1965, and Surat being one of those. It was established as a co-operative venture between the Government of India and the Government of Gujarat. In 2002, Union Ministry of Human Resource Development, Government of India has upgraded, all the seventeen Regional Engineering Colleges to National Institute of Technology. On 4 December 2002, SVRECT was granted Deemed University status with the approval of the UGC/AICTE and was renamed as SVNIT. On 5 June 2007, Parliament of India passed the National Institutes of Technology Science Education and Research Act declaring SVNIT as an Institute of National Importance and which came into affect on 15 August 2007.

Initially, SVNIT had Civil, Mechanical, Electrical Engineering programs. In the year 1983-84 UG Program in Electronics Engineering and in the year 1988-89 UG Program in Computer and Production Engineering and in the year 1995-96 Chemical Engineering were started. Five Year Integrated M.Sc Program in Physics, Chemistry and Mathematics were started with effect from the year 2007-08. Now, SVNIT offers 6 UG Programmes, 3 Int. M.Sc. Programmes[6], 19 PG Programmes and Doctoral Programmes in all major areas of Engineering and Sciences.

Motto
Vigyanam Saarthi Nah $\text{Syatt}_{\text{gujarati}}$
Charioteer of Science

In recent National Institute of Ranking Framework, we stood at 58[7] in Engineering Category and stood between 101-150[8] in Overall Category. At present SVNIT has an intake of 1091[9] Students for B.Tech, Integrated M.Sc through Joint Seat Allocation Authority 2022. In addition to above[10], 21 Students are admitted through Government of India from other countries and 130 Students through the DASA (Direct Admission Students Abroad). 75[11] Students are admitted through JoSAA for Integrated M.Sc Mathematics.

2 Introduction

At present, Department[12] has 3 Professors, 3 Associate Professors and 12 Assistant Professors. They are helped by 7 Teaching Assistants who are being recruited from time to time.

Current Head of Department
Dr. Jayesh M Dhodiya
E-Mail Id: hod@amhd.svnit.ac.in

Dr. A. K. Shukla
Professor (Mathematics)
Area of Research:
Special Functions
Integral Transforms & Fractional Calculus
E-Mail Id: aks@amhd.svnit.ac.in

Dr. V. H. Pradhan
Professor (Mathematics)
Area of Research:
Fluid Dynamics in porous media with relevance to ground water flow and petroleum recovery
Numerical Techniques
E-Mail Id: vhp@amhd.svnit.ac.in

Dr. Neeru Adlakha
Professor (Mathematics)
Area of Research:

[5] https://www.mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/NITact2007.pdf
[6] Item 8, https://www.svnit.ac.in/Data/minutes/bog/BOG.Minutes.11.pdf
[7] https://www.nirfindia.org/2022/EngineeringRanking.html
[8] https://www.nirfindia.org/2022/OverallRanking150.html
[9] https://josaa.admissions.nic.in/applicant/seatmatrix/InstProfile.aspx?enc=rJ7jj1MaSzS7LV27N32+hRCkQtH3K8IGQDTnOMmiid4=
[10] AY 2019-20
[11] https://josaa.admissions.nic.in/applicant/seatmatrix/InstProfile.aspx?enc=rJ7jj1MaSzS7LV27N32+hRCkQtH3K8IGQDTnOMmiid4=
[12] https://www.svnit.ac.in/web/department/maths/faculty.php

Mathematical and Computational Biology
Bioinformatics/ Biomathematics/ Biocomputing
Data Mining
Finite element modelling
E-Mail Id: nad@amhd.svnit.ac.in

Dr. Hemanth P Bulsara
Associate Professor (Management)
Area of Research:
Techno Innovation to Techno Entrepreneurship through Techno Business Incubation
Marketing
Entrepreneurship
Strategy
Supply Chain Management(SCM)
General Management
E-Mail Id: hbulsara@amhd.svnit.ac.in

Dr. Sushil Kumar
Associate Professor (Mathematics)
Area of Research:
Mathematical Modelling
Bio-Mechanics
Fractional Differential Equations
Moving Boundary Problems
Numerical Techniques
Radial Basis Function
Chebyshev Polynomials
E-Mail Id:sushilk@amhd.svnit.ac.in

Dr. Jayesh M Dhodiya
Associate Professor (Mathematics)
Area of Research:
Advance Operation Research
Optimization Technique
Mathematical Modelling and Simulation Knowledge Based System
Data Mining
E-Mail Id: jmd@amhd.svnit.ac.in

Dr. Urvashi Kausal
Assistant Professor (English & Communication Skills)
Area of Research:
Post Modern Fiction
Indian English Fiction and Feminist Literature
Themes in Diaspora Literature
E-Mail Id: k.urvashi@amhd.svnit.ac.in

Dr. Twinkle R Singh
Assistant Professor (Mathematics)
Area of Research:
Fluid Flow through Porous Media
Non-Linear Partial Differential Equations
Burger's Equations
Groundwater Recharge Phenomenon
Analytical Approximate Methods
Mathematical Modelling
E-Mail Id: trpatel@amhd.svnit.ac.in

Dr. Ranjan Kumar Jana
Assistant Professor (Mathematics)
Area of Research:
Special Functions and Integral Transform
Operations Research
Mathematical Physics
Fractional Calculus
Mittag-Leffler Function
Numerical Weather Prediction
Ramanujan's Mathematics
E-Mail Id: rkj@amhd.svnit.ac.in

Dr. Ramakanta Meher
Assistant Professor (Mathematics)
Area of Research:
Differential Equations
Fractional Differential Equations
Fluid Dynamics
Fluid Flow through Porous Media
Approximation Theory
Numerical Analysis
E-Mail Id: rm@amhd.svnit.ac.in

Dr. Indira P Debnath
Assistant Professor (Mathematics)
Area of Research:
Mathematical Programming Problems
Non-Smooth Optimization
Fractional Programming Problems
Interval-Valued Optimization
Generalized Convexity
I-Fuzzy/ Fuzzy Optimization
Variational Control Problems
E-Mail Id: ipd@amhd.svnit.ac.in

Dr. Shailesh Kumar Srivastava
Assistant Professor (Mathematics)
Area of Research:
Trigonometric Approximation Theory
E-Mail Id: shailesh@amhd.svnit.ac.in

Dr. Raj Kamal Maurya
Assistant Professor (Mathematics)
Area of Research:
Reliability Theory and Survival Analysis
Estimation under various Censoring
Competing Risk
Optimum Plan
E-Mail Id: rkm@amhd.svnit.ac.in

Dr. Amit Sharma
Assistant Professor (Mathematics)
Area of Research:
Algebraic Coding Theory: Constructions of error-correcting codes such as linear codes over finite rings
Skew Codes
Quantum Codes
E-Mail Id: amitsharma@amhd.svnit.ac.in

Dr. Sudeep Singh Sanga
Assistant Professor (Mathematics)
Area of Research:
Queueing Theory
E-Mail Id: ssanga@amhd.svnit.ac.in

Dr. Saroj R. Yadav
Assistant Professor (Mathematics)
Area of Research:
Mathematical Modeling
Non-Linear Partial Differential Equations
Fractional Differential Equations
Analytical Approximate Methods
Numerical Methods
Fluid Dynamics
Fluid Flow through Porous Media
E-Mail Id: sry@amhd.svnit.ac.in

Dr. Vaishali S Dhingra
Assistant Professor (Management)
Area of Research:
Time Series Analysis
Econometrics
Quantitative Analysis
Stock Market
Portfolio Management
Financial Management
E-Mail Id: vsdhingra@amhd.svnit.ac.in

Dr. Sourav Gupta
Assistant Professor (Mathematics)
Area of Research:
Linear Water Wave Theory
Integral Equations
Numerical Analysis
E-Mail Id: sgupta@amhd.svnit.ac.in

2.1 Useful Contacts

Name	Designation	E-Mail
Prof. Anupam Shukla	Director	director@svnit.ac.in
Prof. P. L. Patel	Deputy Director	dy_director@svnit.ac.in
Dr. Pramod Mathur	Registrar	registrar@svnit.ac.in
Dr. S. N. Sharma	Dean (Academic)	dean_acad@svnit.ac.in
Dr. Ravi Kant	Dean (Student Welfare)	deansw@svnit.ac.in
Dr. Debesh R. Roy	Asso. Dean (Academic)	adean_acad@svnit.ac.in
Dr. R. D. Shah	Asso. Dean (Academic)	adean1_acad@svnit.ac.in
Dr. Sanjay R. Patel	Asso. Dean (Student Welfare)	adean_sw@svnit.ac.in
Shri. Amit C. Patel	Dy. Registrar (Academic)[a]	dy_acad@svnit.ac.in
Dr. Sanjay Shah	Chief Medical Officer	doctor@svnit.ac.in
Dr. Neha Sharma	Medical Officer	doctornehasharma@svnit.ac.in
Prof. R. Venkata Rao	Prof. I/c. Library	ic_lib@svnit.ac.in
Shri. A. K. Sharma	Assistant Librarian	aks@svnit.ac.in
Dr. Jayesh M Dhodiya	Head of Dept. of Mathematics & Humanities	hod@amhd.svnit.ac.in
M.Sc. (PG Section)		acad_msc@svnit.ac.in
Scholarship Section		scholarship@svnit.ac.in cms@svnit.ac.in bkp@svnit.ac.in
MIS		mis.surat@iitms.co.in

3 Fee Structure

Institute Fee Structure[$]

S.No.	Particulars	M.Sc I		M.Sc II		M.Sc III		M.Sc IV		M.Sc V	
		1st Sem.	2nd Sem.	3rd Sem.	4th Sem.	5th Sem.	6th Sem.	7th Sem.	8th Sem.	9th Sem.	10th Sem.
1.	Tuition Fee* (Per Semester)	31250	31250	31250	31250	31250	31250	31250	31250	31250	31250
2.	Other Fees** (Per Semester, Inclusive of Exam, Lib., Mediclaim etc.)	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3.	Admission Fee (One Time)**	2000	–	–	–	–	–	–	–	–	–
4.	Convocation Fee**	–	–	–	–	–	–	–	–	2500	–
5.	Alumni Fee (One Time)**	–	–	–	–	–	–	–	–	1500	–
6.	Institute Development Contribution (IDC)** (one time-to-be credited to Institute's Corpus/Endowment Fund Account)	12000	–	–	–	–	–	–	–	–	–
7.	Security Deposit (Refundable)** (One Time)	5000	–	–	–	–	–	–	–	–	–
8.	Seat Rent (Double Occupancy)** (Per Annum)	4000#	–	4000#	–	4000#	–	4000#	–	4000#	–
TOTAL ···		57250	34250	38250	34250	38250	34250	38250	34250	42250	34250

[$] https://www.svnit.ac.in/Data/Notice/2020/August/M.Sc.%20fee%202019-20%20onwards.pdf

* As per 49th BOG Meeting Resolution dated 15/06/2019 vide Reso. No. 7.

** Subject to revision from time to time.

If a student avail single occupancy in Hostel additional payment of INR 3000/- will be included in the Hostel Fee Structure.

Note: There is no fee remission for most economically backward students.

Hostel Fee Structure[$$]

Year(↓) Particulars (→)	Type of Accommodation	Hostel Component		Institute Component*				Total
		Hostel Amenities Fund	Mess Advance (Per Semester)	Seat Rent (P.A.) As applicable if single occupancy	Electricity Charges	Student Activity Fund	Caution Money (Refundable)	
B.Tech & M.Sc. (Boys & Girls)	Double Seated	5800	17000	–	6000	400	2500	31700

[$$] https://svnit.ac.in/Data/Notice/2021/July/Hostel%20Fees%20Structure%20A.Y%202021-22_First%20year%20students%20of%20B.Tech-MSc-M.Tech-M.Tech(R)-PhD.pdf

* Seat rent (Double Occupancy) will be paid in the institute degree course fee structure for the Academic Year 2021-22 as per the institute norms.

4 Overall Course Structure

Course is divided into 10 Semesters under 2 Semesters per Year. Each Semester will have around 5-6 subjects in a duration of 17 weeks. Electives[13] from Institute Level is offered in Year 3 and Core Elective[14] from Department is offered from Year 4. Teaching Scheme of subjects may have Lecture(L),Tutorial(T) and Laboratory Practical(P)[15]. Each course has certain number of credits depending on Lecture/ Tutorial/ Laboratory Hours per week, which reflects it's weightage.

Attendance is Mandatory. Attendance requirement of every course should be a minimum of 75% of the scheduled classes. A student having attendance less than 75% and more than 60% will be awarded one grade lower than actual. A student having less than 60%[16] attendance, in lectures, tutorials and practicals taken together will be awarded XX grade. If a student is continuously absent from the Institute for more than four weeks without notifying the Dean(Academics) his/her name will be removed from the institute roll.

Maximum duration for completion of a degree is 16 Semesters.
Number of Credits in a course.

- Lecture/Tutorial: One Lecture/Tutorial hour per week is assigned one credit.
- Practical: One Laboratory hour per week is assigned half credit.

Degree Requirements:

1. Credit requirement should be in the range of 210-220 by the end of course.
2. student must obtain a minimum of 4.5 CGPA by the end of the course.
3. Satisfactorily completed all the non-credit courses
4. Paid all the due to Institute and Hostel
5. No Disciplinary action is pending against him/her.

Institute follows 10 Point Grading System.

Grade	Grade Points	Description of Performance
AA	10	Outstanding
AB	9	Excellent
BB	8	Very Good
BC	7	Good
CC	6	Average
CD	5	Below Average
DD	4	Marginal
FF	0	Fail
||	–	Incomplete
NA	–	Not Appeared
WW	–	Withdrawal
XX	–	Unsatisfactory Attendance in a Course
SS	–	Satisfactory Completion
ZZ	–	Non-Completion

Performance of student is evaluated in two terms i.e., Semester Grade Point Average(SGPA) and Cumulative Grade Point Average(CGPA).

SGPA is calculated on the basis of grades obtained in all courses registered for the semester.

$$\text{SGPA} = \frac{\sum_{\text{Sem}} (\text{Course Credit} * \text{Grade Point})}{\sum_{\text{Sem}} (\text{Course Credit})}$$

[13]They are published before hand. For more Details, Please Contact Dean(Academic) about Electives offered in that year
[14]They are published before hand. For more Details, Please Contact Head of Department about Core Electives offered in that Year
[15]If Applicable
[16]Please Contact Dean(Academic) for more Information.

CGPA is calculated on the basis of all pass grades obtained in all completed semesters.

$$\text{CGPA} = \frac{\sum_{\text{All Sems Completed}} (\text{Course Credits*Grade Point})\text{in passed courses}}{\sum_{\text{All Sems completed}} (\text{Course Credits}) \text{ in passed courses}}$$

For Entire Curriculum, Please Visit `https://www.svnit.ac.in/web/department/computer/pdf/curriculum/btech_cse_1st.pdf`(for 1^{st} Year) and `https://www.svnit.ac.in/web/department/maths/pdf/M.Sc.%20Syllabus%20(NEW)%201st%20to%205th%20year.pdf`(for 2^{nd} Year to 5^{th} Year)

For More Information, Please Visit `https://www.svnit.ac.in/Data/minutes/senate/Annexure-IIIA37th%20senate_REGULATIONS%20FOR%205Years%20Integrated%20MScProgrammes.pdf`

5 Curriculum[17]

5.1 Year 1[18]

Mathematics-I
MA 101

Foundation Course in Mathematics-I
MAMA 102

Mechanics, Lasers and Fiber Optics
PH 103

Applied Chemistry
CY 104

Engineering Drawing
CEME 105

Energy and Environmental Engineering
CEME 106

Holistic Empowerment and Human Values
HU 107

Engineering Mechanics
AM 108

Fundamentals of Computer & Programming
CS 109

English & Professional Communication
HU 110

Workshop Practice
ME 111

Physics of Material and Nuclei
PH 112

Foundation Course in Mathematics-II
MAMA 113

Mathematics-II
MA 114

[17]Mandatory Subjects
[18]Subjects may differ for 2022-23 Batch

5.2 Year 2

English & Professional Communication-II
HU 201

Elements of Analysis
MA 201

Analytical Geometry
MA 203

Discrete Mathematical Structure
MA 205

Electromagnetics and Relativity
PH 207

Mathematical Software Lab
MA 207

Communication Skills for Employability
HU 202

Numerical Analysis MA 202

Linear Algebra
MA 204

Elementary Number Theory
MA 206

Computational Life Science
MA 208

Data Structures
CS 210

5.3 Year 3

Probability & Statistics-I
MA 301

Mechanics
MA 303

Ordinary Differential Equations
MA 305

Computer Networks
CS 303

Complex Analysis
MA 302

Continuum Mechanics
MA 304

Metric Spaces
MA 306

Artificial Intelligence
CS 308

Mini Project
MA 308

Mini Project:-
Students will work on a research topic in a group under the guidance of faculty members. At the end of the semester students will be able to discover various research fields, develop collaborative skills and model some real world problems in mathematical form.

5.4 Year 4

Topology
MA 401

Abstract Algebra
MA 403

Fluid Dynamics
MA 405

Optimization Techniques
MA 407

Functional Analysis
MA 402

Higher Transcendental Functions
MA 404

Partial Differential Equations
MA 406

Calculus of Variations & Integral Equations
MA 408

5.5 Year 5

Measure Theory & Integration
MA 501

Probability & Statistics-II
MA 503

Mathematical Modelling & Simulation
MA 505

Academic Writing
HU 501

Dissertation Preliminaries
MA 507

Dissertation
MA 502

Dissertation Preliminaries and Dissertation:-
In Dissertation Preliminaries (9^{th} Semester) students will identify the problem for dissertation and make a literature survey on the chosen research topic. Depending on the problem identified, a supervisor will be assigned. Student will continue the work in his/her dissertation in 10^{th} semester and will write a dissertation.

6 Teaching

Teaching Scheme of a subject in general may have Lecture(L), Tutorial(T) and Laboratory(P) components. Credits are assigned as follows:-

1 Credit One Lecture(L)/Tutorial(T) hour per week.

0.5 Credit One Laboratory(P) hour per week.

0.5 Credit For Seminar and Project, one hour per week per semester.[19]

7 Examinations and Evaluations

Institute follows 1 Mid Semester and End Semester Examinations. Students who are unable to appear in Examinations due to serious illness or special circumstances will be given || Grade(Medical Grounds) and NA Grade(Non-Medical Grounds). Students will be permitted to appear supplementary Examination such that he/she has paid all institute and hostel dues of semester will be eligible for appearing in the examination.

Mid Semester Examinations are of 1 Hour and End Semester Examinations are of 3 Hour duration.

Evaluation Pattern for Theory Courses shall be under[20]:

- Mid Semester Examination: 30 Marks
- Assignment/Quiz(es): 10 Marks
- Tutorial(if applicable): 25 Marks per one hour per week load for tutorial
- End Semester Examination: 50 Marks

The question paper for the end semester examination in a subject will be prepared for 100 Marks with a duration of 3 Hours. However, subsequently, the marks obtained by the student in the end semester examination shall be scaled down to half and the marks shall be awarded out of 50.

Evaluation Pattern for Laboratory/Practical Courses[21] shall be under Continuous Evaluation and End Semester Evaluation[22].

- Turn to turn supervision and viva will be given 40% Weightage
- Laboratory Journal/Drawing Sheets/Workshop Jobs/Calculations/Reports will be given 20% Weightage
- Semester End Examinations will be given 40% Weightage

If one fails in practical/laboratory, it does not affect the score of theory+tutorial and vice-versa.

8 Resources and Student Activities

8.1 Library

Central Library[23]:-
The Central Library, SVNIT Surat is one amongst major technological libraries in the area of science, engineering and technology. The Library was established in 1968. It has completed nearly 52 Years and has built a large collection of books, journals and non-book materials. It also has a rich collection of resources in electronic media available locally on the Institute Intranet and accessible on the web. It caters to the need of large groups of users across the campus and available to all Students, Faculty and Research Scholars and large supporting staff. It has computerized all its house keeping activities using a global software that is being maintained and updated regularly. It also facilitates industries, individual consultants and corporates to access online database and journals. At present, Central Library has 70,000+ Books, 7,025+ Bound Volumes of Journals, 15,830+ Standards, 295+ Dissertation and Thesis, 648+ Reprints, 1,044+ Video Cassettes, 1,340+ Compact Discs etc

[19] If Applicable
[20] You can contact Course Co Ordinator for more information
[21] Laboratory Manual is provided during beginning of every course
[22] You can contact Course Co Ordinator for more information
[23] `https://www.svnit.ac.in/web/library/library.php`

and we have also subscribed to 156 Current Journals. It uses state-of-the-art technology in its functioning and services. Not only having a very good reference section, Library has been subscribed to access INDEST by MoE.

Departmental Library:-
Our Department has started it's own library maintained at First Floor of DoMH New Department. There are various collection of books in the field of Mathematics, It is funded by National Board of Higher Mathematics(NBHM). Almost all the topics are covered by not limited to those topics. At present, Departmental Library has 700[24]+ Books/Research Papers/Monographs/Magazines in the field of Mathematics. One can ask Department to purchase a book by writing a letter and submitting it in Office Section mentioning the purpose of book. One can also refer `https://aimath.org/textbooks/approved-textbooks/` as Electronic Resources.

8.2 Pramiti

Pramiti is Department Annual Magazine which is published Annually with all the necessary information regarding ongoings in the previous academic year.

8.3 National Mathematics Day

To commemorate the birthday of famous Indian mathematician Dr. Srinivasa Ramanujan, Government of India has started celebrating National Day of Mathematics on December 22. As a response, DoMH has organized National Mathematics Day during 22-23 December, 2022. More than 250 participants have taken part in various activities.

8.4 International Day of Mathematics

To celebrate the beauty and importance of Mathematics and its essential role in everyone's life the International Mathematical Union (IMU) has led the project to have UNESCO proclaim March 14 as the International Day of Mathematics. March 14 is previously known as π day. We at DoMH have released the first issue of newsletter during the year 2022.

8.5 Newsletter

DoMH has a part to innovate and inculcate new ideas has started releasing Newsletter periodically. Newsletter consists of ongoings of department during the past three month and released tri-annually.

8.6 SCOSH

Society for Cultivation of Science and Humanities (SCOSH) was formed in 2007 with generous support from Student Council of SVNIT and highly ignited minds of Science student. A lot of events are in pipeline. Be in touch!!. They conduct various events like InQuest, Workshops etc. For more information, Please visit their website `https://scoshsvnit.com/`. One can even contact them through svnit.scosh@gmail.com

8.7 IntERAct Seminar

IntERAct Seminar is started by Dr. R. K. Jana by a Group of Final Year Students during 2017. It hosts Seminar Series from students to discuss about Internship Experiences and now began an Open Discussion Series on any topic. They host talk during Evening. For more information, Please visit their website `https://sites.google.com/svnit.ac.in/interact-seminar/home`. If you have any topic to discuss feel free to contact

Faculty Co-Ordinator	Student Co-Ordinator
Dr. R. K. Jana	**Sagar Saini**
rkj@amhd.svnit.ac.in	i19ma011@amhd.svnit.ac.in
(+91)9904003868	(+91) 7015327507

8.8 AMaThing

AMaThing is Department own E-Magazine which is published Bi-Annually with all the Achievements, Placements and some Fascinating Articles.

[24]More Books will be available soon

9 Important Policies and Instructions

9.1 IT

Whole campus has connectivity of the internet with Fiber Optic Network including Faculty Quarters and Student Hostels. Every student must take an undertaking with respect to SVNIT-SURAT IT Usage Policy[25]. Student with authorized accounts may use the IT infrastructure for academic purposes, official Institute work and for personal purposes so long as such use

- does not violate any law, Institute Policy or IT act of the Government of India
- does not interfere with the performance of Institute duties or work of an academic nature
- does not result in commercial gain or private profit other than that allowed by the Institute

9.2 Anti-Ragging

Ragging in any form is punishable offence and the same is banned by the Court of Law[26]. Institute follows Strict Anti Ragging measure in whole over Institute by one committees & two squads. They are Institute level Anti-Ragging Committee, Institute level Anti-Ragging Squads and Hostel Level Anti-Ragging Squads. Any type of Ragging in any form at any place if found, shall be abide by the rules/laws prescribed by the Courts, Govt. of India and the Institute authorities for the purpose from time to time[27].

9.3 Sexual Harassment of Women

We believe that Surat as well as Institute is a very safe place for Women. We abide by the rules of Govt. of India and Institute[28]. Institute constitute the Institute Level Complaints Committee(ICC)[29] and Complaints can be directed to them.

10 Achievements

10.1 Department

Our Department is performing World Class Research in various aspects of Mathematics, English and Management. This Year 7 Students will be awarded with Doctor of Philosophy and 6 of them are from Mathematics. This year

- The following activities were conducted
  - International Conference on Mathematical Sciences 2021
  - 2nd International Conference on Mathematical Modelling and Simulation in Physical Sciences
  - STTP on Mathematical Tools and Techniques for Scientists & Engineers
  - STTP on Data Analysis for Quantitative & Qualitative Research
  - STTP on Writing Quality Research Paper and Proposal
  - National Mathematics Day 2021
  - New Faculty Joining Program
  - Personal Website Development Workshop
  - Expert Lecture on Basics of Investment and their importance
  - International Day of Mathematics 2022
  - Panel Discussion

[25] `https://www.svnit.ac.in/web/forms/IT_Policy_Form.pdf`

[26] Directives of the Supreme Court of India, dated May 16, 2007 in SLP No.(s) 24295 of 2006 University of Kerala Vs Council, Principals', Colleges, Kerala & Ors(with SLP(C) N. 24296-99/2004 & W.P(Crl) No. 173/2006 and SLP(C) No. 14356/2005)

[27] `https://www.svnit.ac.in/web/antiragging.php`

[28] In accordance with Government of India Gazette, Extraordinary. Part-II, Section-1, The Sexual Harassment of Women at Workplace(Prevention, Prohibition and Redressal) Act, 2013(No. 14 of 2013) issued by Ministry of Law and Justice dated 24 April 2013, as per Supreme Court of India Judgement in case of Visakha and letter from MHRD Govt of India(F.No.21-74/2014-TS-III) C. 36011/1/2010.PG

[29] `https://www.svnit.ac.in/web/icc.php`

– Final Year Farewell Program

- 56 Research Papers were published in Various International Journals .
- 4 Research Papers were published in Various National Journals.
- 53 Research Papers were published in Conference Proceedings/Papers presented in the International Conferences/Workshops/Seminars.
- 4 Research Paper was published in Conference Proceedings/Papers presented in the National Conferences/Workshops/Seminars.
- 38 Expert Lectures were delivered by the Faculty Members at SVNIT/Other Institute/Organizations.

For more information, please visit Pramiti, Newsletters.

10.2 Placements

Please visit, 2022-23 DoMH Brochure and `https://www.svnit.ac.in/web/t&p/about.php`

The following Students of M.Sc Mathematics 2017-22 Batch have received Placements.

1. **Vishal Choudhary**-Searce Ltd.
2. **Vatsal Moradiya**-Searce Ltd.
3. **Ishika Bhatt**-Searce Ltd.
4. **Purva Sehgal**-Searce Ltd.
5. **Ashwany Kumar Verma**-Deloitte USI Ltd.
6. **Vishal Agarwal**-Deloitte USI Ltd.
7. **Urvashi Joshi**-Akash Institute
8. **Rutvij Tole**-Byju's
9. **Shubham Vnit**-Byju's
10. **Anjali Pal**-TCS NINJA Ltd.
11. **Shashank Gupta**-WIPRO Ltd.
12. **Priyanka Bhatter**-Kantar Analytics Ltd.
13. **Chaluvagali Meghna**-UGAM Ltd.
14. **Akshay Kishore**-Federal Bank
15. **Parvathy A**-UGAM Ltd.
16. **Harsh Kale**-UGAM Ltd.
17. **Jordan Nitanware**-UGAM Ltd.
18. **Baisane Jaykumar Haribhai**-Infosys Ltd.
19. **Shaurya Khandelwal**-Samsung Ltd.
20. **Sangani Bhavin Pravinbhai**-TCS R & D
21. **Ronak Sharma**-Myclassroom
22. **Saubhagya Tripathi**-Myclassroom

INSPIRE Fellows:- **Innovation in Science Pursuit for Inspired Research**(INSPIRE) is an innovation program sponsored and managed by the Department of Science & Technology for attraction to talent to science. The basic objective of INSPIRE is to communicate to the youth of the country the excitements of creative pursuit of science, attract talent to the study of science at any early age and thus build the required critical human resources pool for and expanding the Science & Technology and R & D base.

One of INSPIRE Programme is Scholarship for Higher Education(SHE), Every year around 10,000 Scholarships are provided to students studying B.Sc or Int M.Sc(equivalent) Programs. Students studying Int. M. Sc Mathematics in our Institute are eligible and can apply. Every Year INR 80,000 is provided in which INR 60,000 is cash payable and INR 20,000 is paid as summer time[30]. For More Information, Please visit `http://www.online-inspire.gov.in/`

Following Students in our Department are recipient of INSPIRE Scholarship for Higher Education.

2018-23 Batch

- **Patel Tulsi Hiteshbhai**
- **Singh Priya Birendra**
- **Nakrani Dhruvi Babubhai**
- **Nalumasu Sri Harshitha**

2019-24 Batch

- **Rathod Mitalbahen Chandrakant**
- **Sanghani Kaushik Chimanbhai**

2020-25 Batch

- **Fatema Maksood Bhatt**
- **Pansuriya Tarang Bharatbhai**
- **Unnatiben Sureshbhai Parmar**

2021-26 Batch[31]

- **Vidhi Panchal**
- **Vidhi Parmar**

11 Surat City

Surat known as "The Silk City", "The Diamond City", "The Green City" is a large city beside the Tapi River is the west Indian State of Gujarat. Once known for Silk Weaving, Surat remains a commercial center for textiles and the New Textile Market area is lined with fabric shops. Overlooking the river, Surat Castle was built in the 1500s to defend the city against Portuguese colonists. Nearby, the Dutch, Armenian and English Cemeteries contains elaborate colonial-era tombs. It is eight largest city and ninth largest urban agglomeration in India. There are many places to visit in Surat like Dutch Garden, Dumas Beach, Hajira Village, Sardar Patel Museum, Sarthana Nature Park, Science Center, Swami Narayanan Temple etc. Vadodara which is approximately 150 Km also has many visiting locations like Lakshmi Vilas Palace, Baroda Museum Picture Gallery etc. One can find Buses going to Statue of Unity for visiting purpose. There are lot's of Visiting Places to visit during your stay in SVNIT for 5 Year Period.

[30]Institute is not responsible about Selection Procedure, If there is some contradiction between website and details mentioned above, One should follow details provided in Website **ONLY**

[31]Conditional

12 Teaching Scheme[32]

DIVISION-G/O

Semester-I

S.No.	Subject	Code	Scheme	Credit
1	Mathematics-I	MA 101 S1	3-1-0	4
2	Foundation Course in Mathematics-I	MAMA 102 S1	3-1-0	4
3	Mechanics, Lasers and Fiber Optics	PH 103 S1/S2	3-0-2	4
4	Applied Chemistry	CY 104 S1/S2	3-0-2	4
5	Engineering Drawing	CEME 105 S1/S2	2-0-4	4
6	Energy and Environmental Engineering	CEME 106 S1/S2	3-0-2	4
7	Holistic Empowerment and Human Values*	HU 107 S1/S2	3-0-0	0
		Total	**20-1-10=32**	24

* Audit Course (Attendance would be compulsory as per Institute Norms)

Semester-II

S.No.	Subject	Code	Scheme	Credit
1	Engineering Mechanics	AM 108 S2/S1	3-0-2	4
2	Fundamentals of Computer & Programming	CS 109 S2/S1	3-0-2	4
3	English & Professional Communication	HU 110 S2/S1	3-0-0	3
4	Workshop Practice	ME 111 S2/S1	0-0-4	2
5	Physics of Material and Nuclei	PH 112 S2/S1	4-0-0	4
6	Foundation Course in Mathematics-II	MAMA 113 S2	3-1-0	4
7	Mathematics-II	MA 114 S2	3-1-0	4
		Total	**19-2-8=29**	**25**

Semester-III

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
							Theory	Tutorial	Practical		
			L	T	P				Cont. Eval.	End Sem	
1	English & Professional Communication-II	HU 201	3	0	0	3	100	0	0	0	100
2	Elements of Analysis	MA 201	3	2	0	5	100	50	0	0	150
3	Analytical Geometry	MA 203	3	2	0	5	100	50	0	0	150
4	Discrete Mathematical Structure	MA 205	3	1	0	4	100	25	0	0	125
5	Interdisciplinary Subject (Physics/Chemistry): Electromagnetics and Relativity	PH 207	3	1	0	4	100	25	0	0	125
6	Computer Lab: Mathematical Software Lab	MA 207	0	0	4	2	0	0	60	40	100
			15	6	4	23					
Total contact Hours per week=25						**Total Credits=23**				**Total Marks=750**	

[32]Tentative, Please contact: Dean Academic dean_acad@svnit.ac.in

Semester-IV

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
							Theory	Tutorial	Practical		
			L	T	P				Cont. Eval.	End Sem	
1	Communication Skills for Employability	HU 202	3	0	0	3	100	0	0	0	100
2	Numerical Analysis	MA 202	3	1	2	5	100	25	30	20	175
3	Linear Algebra	MA 204	3	2	0	5	100	50	0	0	150
4	Elementary Number Theory	MA 206	3	1	0	4	100	25	0	0	125
5	Computational Life Sciences	MA 208	3	0	0	3	100	0	0	0	100
6	Data Structures	CS 210	3	1	2	5	100	25	25	25	175
			18	5	4	25					
Total contact Hours per week=27						**Total Credits=25**				**Total Marks=825**	

Semester-V

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
							Theory	Tutorial	Practical		
			L	T	P				Cont. Eval.	End Sem	
1	Probability & Statistics-I	MA 301	3	2	0	5	100	50	0	0	150
2	Mechanics	MA 303	3	1	0	4	100	25	0	0	125
3	Ordinary Differential Equations	MA 305	3	2	0	5	100	50	0	0	150
4	Computer Networks	CS 303	3	1	2	5	100	25	25	25	175
5	**Institute Elective-I**										
	Advanced Mathematical Methods	MA 361	3	0	0	3	100	0	0	0	100
	Stochastic Differential Equations	MA 363									
			15	6	2	22					
Total contact Hours per week=23						**Total Credits=22**				**Total Marks=700**	

Semester-VI

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
							Theory	Tutorial	Practical		
			L	T	P				Cont. Eval.	End Sem	
1	Complex Analysis	MA 302	3	2	0	5	100	50	0	0	150
2	Continuum Mechanics	MA 304	3	1	0	4	100	25	0	0	125
3	Metric Spaces	MA 306	3	1	0	4	100	25	0	0	125
4	Artificial Intelligence	CS 308	3	0	2	4	100	0	25	25	125
5	**Institute Elective-II**										
	Integral and Wavelet Transform	MA 362	3	0	0	3	100	0	0	0	100
	Mathematical Finance	MA 364									
	Fuzzy Set Theory	MA 366									
6	Mini Project	MA 308	0	0	4	2	0	0	40	60	100
			15	4	6	22					
Total contact Hours per week=25						**Total Credits=22**				**Total Marks=750**	

Semester-VII

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
			L	T	P		Theory	Tutorial	Practical		
									Cont. Eval.	End Sem	
1	Topology	MA 401	3	1	0	4	100	25	0	0	125
2	Abstract Algebra	MA 403	3	1	0	4	100	25	0	0	125
3	Fluid Dynamics	MA 405	3	2	0	5	100	50	0	0	150
4	Optimization Techniques	MA 407	3	2	0	5	100	50	0	0	150
5	**Core Electives**		3	0	0	3	100	0	0	0	100
	Sobolev Space	MA 421									
	Data Science	CS 491									
	Block Chain Technology	CS 423									
			15	6	0	21					
Total contact Hours per week=21					**Total Credits=21**				**Total Marks=650**		

Semester-VIII

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
			L	T	P		Theory	Tutorial	Practical		
									Cont. Eval.	End Sem	
1	Functional Analysis	MA 402	3	1	0	4	100	25	0	0	125
2	Higher Transcendental Functions	MA 404	3	1	0	4	100	25	0	0	125
3	Partial Differential Equations	MA 406	3	2	0	5	100	50	0	0	150
4	Calculus of Variations & Integral Equations	MA 408	3	2	0	5	100	50	0	0	150
5	**Core Electives**		3	0	0	3	100	0	0	0	100
	Multiobjective Optimization	MA 422									
	Natural Language Processing	CS 492									
			15	6	0	21					
Total contact Hours per week=21					**Total Credits=21**				**Total Marks=650**		

Semester-IX

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
			L	T	P		Theory	Tutorial	Practical		
									Cont. Eval.	End Sem	
1	Measure Theory & Integration	MA 501	3	1	0	4	100	25	0	0	125
2	Probability & Statistics-II	MA 503	3	1	0	4	100	25	0	0	125
3	Mathematical Modelling & Simulation	MA 505	3	1	2	5	100	25	50	0	175
4	Academic Writing	HU 501	3	0	0	3	100	0	0	0	100
5	Dissertation Preliminaries	MA 507	0	0	8	4	0	0	80	120	200
6	**Core Elective**		3	1	0	4	100	25	0	0	125
	Advanced Operations Research	MA 521									
	Fluid Dynamics in Porous Media	MA 523									
	Advanced Numerical Analysis	MA 525									
	Linear Operators and Approximation Theory	MA 527									
			15	4	10	24					
Total contact Hours per week=29					**Total Credits=24**				**Total Marks=850**		

Semester-X

S. No.	Course	Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				Total Marks
			L	T	P		Theory	Tutorial	Practical		
									Cont. Eval.	End Sem	
1	Dissertation	MA 502	0	0	24	12	0	0	160	240	400
			0	0	24	12					
Total contact Hours per week=24					**Total Credits=12**				**Total Marks=600**		