स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ
नांदेड– ४३१६०६ (महाराष्ट्र)
SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY
NANDED-431606, MAHARASHTRA STATE, INDIA.
Established on 17th September 1994 - Recognized by the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'A' Grade

ACADEMIC (1-BOARD OF STUDIES) SECTION

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परिपत्रक

सर्व संबधितांना या परिपत्रकान्वये कळविण्यात येते की, प्रस्तूत विद्यापीठाच्या बहीर्जी स्मारक महाविद्यालय, बसमत येथे दिनांक ०४.०८.२०१७ रोजी विज्ञान व तंत्रज्ञान विद्याशाखेतील गणित विषयाच्या अभ्यासक्रमा बाबत कार्यशाळा/चर्चा सत्र आयोजित करण्यात आले. सदरील कार्यशाळेत B.Sc. Mathematics Second Year CBCS Pattern अभ्यासक्रमात (सोबत जोडल्या प्रमाणे) कांही दुरूस्ती करण्यात येवुन शैक्षणिक वर्ष २०१७–१८ पासुन लागु करण्याची विनंती करण्यात आली.

तरी उपरोक्त प्रमाणे B.Sc. Mathematics SY CBCS Pattern चा सोबत जोडलेला सुधारीत अभ्यासक्रम शैक्षणिक वर्ष २०१७–१८ पासुन लागु करण्याकरिता मा. कुलगुरूनी विद्या परीषदेच्या वतिने मान्यता प्रदान केली आहे.

तरी उपरोक्त प्रमाणे ही बाब सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

''ज्ञानतीर्थ'' परिसर
विष्णुपूरी, नांदेड.
जा.क्र.शैक्षणिक ०१/प्रश्न पत्रीका/
२०१७–१८/९४२
दिनांक : २८/०८/२०१७

स्वा/–
उपकुलसचिव
शैक्षणिक (अभ्यासमंडळे) विभाग

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) प्राचार्य, सर्व संबंधित महाविद्यालये, प्रस्तुत विद्यापीठ.
२) संचालक, परीक्षा व मुल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
३) कुलसचिव, (निवडणूक व सभा कक्ष) यांचे कार्यालय, प्रस्तुत विद्यापीठ.
४) उपकुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
६) सिस्टीम एक्सपर्ट, प्रस्तुत विद्यापीठ. (सदरील परिपत्रक व अभ्यासक्रम विद्यापीठाच्या संकेतस्थळावर प्रसारित करावे.)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

CBCS PATTERN FOR B.1A./ B.Sc. MATHEMATICS

Credit Course Effective From 2016-17

For B.A./B. Sc I Year

Semester	Section and Paper Code	Period per week	Paper No. and Title of the papers	Marks of Semester	Internal C.A.	Total Marks	Credits
I	CCM-1 Section A	4	Paper- I Differential Calculus	40	10	50	2
	CCM-1 Section B	4	Paper-II Algebra & Trigonometry	40	10	50	2
II	CCM-2 Section A	4	Paper –III Integral Calculus	40	10	50	2
	CCM-2 Section B	4	Paper- IV Geometry	40	10	50	2
Lab Course work (Annual Pattern Practical)	CCMP-1 Based on CCM-1&2	2	Paper -V Practical on MATLAB only for B.Sc. Students	80	20 (R.B.=10 V.V=10)	100	4
				Total Credits			12

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

CBCS PATTERN FOR B.A./ B.Sc. MATHEMATICS

Credit Course Effective From 2017-18

For B.A./B. Sc II Year

Semester	Section And Paper Code	Period per week	Paper No. and Title of the papers	External Marks	Internal C.A.	Total Marks	Credits
III	CCM-3 Section A	4	Paper –VI Real Analysis -II	40	10	50	2
	CCM-3 Section B	4	Paper – VII Group Theory	40	10	50	2
	CCM-3 Section C	4	Paper –VIII Ordinary Differential Equations (NOTE:- This Paper is Only For B.Sc. Students.)	40	10	50	2
	SEC-I	3 Theory-1, Practical-2	Six skills out of which one Skill can be chosen	25	25	50	2
IV	CCM-4 Section A	4	Paper-IX Real Analysis–II	40	10	50	2
	CCM-4 Section B	4	Paper –X Ring Theory	40	10	50	2
	CCM-4 Section C	4	Paper XI Partial Differential Equation (NOTE:- This Paper is Only For B. Sc. Students)	40	10	50	2
	SEC-II	3 Theory-1, Practical-2	Six skills out of which one Skill can be chosen	25	25	50	2
				Total Credits			16

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

CBCS PATTERN FOR B.A./ B.Sc. MATHEMATICS

Credit Course Effective From 2018-19

For B.A./B. Sc III Year

Semester	Section Paper Code	Period per week	Title of the papers	External Exam	Internal C.A.	Total Marks	Credits
V	CCM-5 Section A	4	Paper-XII Metric Spaces	40	10	50	2
	CCM-5 Section B	4	Paper-XIII Linear Algebra	40	10	50	2
	CCM-5 Section C	4	Choose any one of the Following Electives papers XIV(A) Topology XIV(B)Number Theory XIV(C) Operation Research XIV(D)Introduction to Fuzzy logic	40	10	50	2
	SEC-III	3 Theory (1), Practical (2)	Six skills out of which one Skill can be chosen	25	25	50	2
VI	CCM -6 Section A	4	Paper-XV Numerical Analysis	40	10	50	2
	CCM -6 Section B	4	Paper-XVI Integral Transforms	40	10	50	2
	CCM -6 Section C	4	Choose any one of the Following Electives papers XVII(A) Complex Analysis XVII(B)Discrete Mathematics XVII(C)Mechanics XVII(D)Fundamentals of applied Statistics	40	10	50	2
	SEC-IV	3 Theory (1), Practical (2)	Six skills out of which one Skill can be chosen	25	25	50	2
				Total Credits			16

SWAMI RAMANAND TEERTH MARATHWADA
UNIVERSITY NANDED (M.S.)

CBCS PATTERN FOR B.A./B.Sc. MATHEMATICS

Credit Course Effective From 2017-18

For B.A./B.Sc. II Year

Salient Feature

This course will assess student's prior knowledge of mathematics at UG Level and will refresh mathematical learning of these topics with these Key Stages. The emphasis will be getting students to reinforce mathematical knowledge and also develop a deeper conceptual understanding of the UG level mathematics which is basic as well as applied ,

Utility

- To Solve problems from Calculus like Differential equations, Ordinary as well as Partial, Graphically to realize their. geometrical Interpretations.
- To handle higher order Matrices.
- Basic knowledge about the application of Mathematics in Physical Sciences and Biological sciences.
- Application of basic Mathematics to technical fields.

Learning Objectives

- To provide with the opportunity to acquire Mathematics to reach it to at least Key Stage UG Level
- To enable us to start the postgraduate basic training of mathematics as it is a requirement of the training of Basic applications of Mathematics
- To improve Students chances of employment.

Prerequisites:

1. Set Theory
2. Logic
3. Algebra & Trigonometry
4. 2D and 3D Geometry
5. Differential Calculus
6. Integral Calculus
7. MATLAB & similar Software Working knowledge

Note: ESE of SECM-1, SECM-2, should be evaluated at Annual Website displayed draft of B.Sc. S.Y.(C.B.C.S.) in the subject Mathematics syllabus after discussion on various suggestions is finalized and Approved.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED (M.S.)

CBCS PATTERN FOR B.A./B.Sc. MATHEMATICS

Credit Course Effective From 2017-18

For B.A./B.Sc. II Year

Semester	Paper Code and Section	Periods per week	Paper No. and Title of the papers	External Exam	Internal C.A.	Credits
III	CCM-3 Section A	4	Paper –VI Real Analysis -I	40	10	2
	CCM-3 Section B	4	Paper – VII Group Theory	40	10	2
	CCM-3 Section C	4	Paper –VIII Ordinary Differential Equations (NOTE:- This Paper is Only For B.Sc. Students.)	40	10	2
	SEC-I	3 Theory (1), Practical (2)	Six skills out of which one Skill can be chosen amongst three optionals	25	25	2
IV	CCM-4 Section A	4	Paper-IX Real Analysis–II	40	10	2
	CCM-4 Section B	4	Paper –X Ring Theory	40	10	2
	CCM-4 Section C	4	Paper XI Partial Differential Equations (NOTE:- This Paper is Only For B.Sc. Students.)	40	10	2
	SEC-II	3 Theory (1), Practical (2)	Six skills out of which one Skill can be chosen amongst three optionals	25	25	2
Total Credits						16

Swami Ramanand Teerth Marathwada University Nanded
B.A./B.Sc. Second Year
New Syllabus (Mathematics)
Semester III and IV
Effective from June–2017

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B.A./B.Sc. Second Year Semester–III
Paper VI (MT 201) : Real Analysis–I
(CCM-3(Section A) For 2 Credits) (Effective from June–2017)
(No. of Periods : 60 ; Max.Marks : 50)

Unit–I : Sets and Functions

Sets and Elements; Operations on sets, Functions, real valued functions, Equivalence, Real numbers, Least upper bounds.

Unit–II : Sequence of Real Numbers

Definition of sequence and subsequence, Limit of a sequence,Convergent sequences, Divergent sequences, Bounded sequences, Monotone sequences, Cauchy sequences.

Unit–III : Series of Real Numbers

Convergence and divergence, Series with non-negative terms,Alternative series, Conditional convergence and absolute convergence, General test for convergence,Tests for absolute convergence.

Recommended Text Book:-

Methods of Real Analysis : By Richard R.Goldberg. Pub Oxford and IBH Publishing Company

Scope : **Unit-I : Chapter 1 :** 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7
Unit-II : Chapter 2: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.10
Unit-III : Chapter 3: 3.1, 3.2, 3.3, 3.4, 3.5,3.6

Reference Books:

1) Introduction to Real Analysis, By R.G. Bartle.(John Wiley and Sons)
2) Mathematical Analysis, By S.C.Malik, Savita Arora Pub New Age (Delhi)
3) Elements of Real Analysis, By Shanti Narayan and M.D. Raisinghania. (S. Chand and Co).
4) Introduction to Real Analysis, By William F. Trench, Pearson Education Pub.
5) Mathematical Analysis, By Tom Apostol,N\arosa Pub. House, New Delhi.
6) Undergraduate Analysis, By Serage Lang Pub. Springer.
7) Real Analysis, By H.L. Royden Third Edition, Pub. PHI.
8) Principles of Real Analysis, By S. L. Gupta and N.R. Gupta ,Pub. Pearsons Education.
9) Real Analysis, By Dr Harikishan and Dr. Megha Rani , Pub. Pragati Prakshan .
10) An Introduction to Sequences, Series and improper Integrals, By O. E. Stanaitis , Pub. Holden-Dey , Inc. San Francisco, California.
11) Infinite series, By Earl D. Rainville, Pub, The Macmillan Co., New York.
12) A Course of Mathematical Analysis, By Shanti Narayan , Pub. S. Chand & Co., New Delhi.
13) A First course in Mathematical Analysis, By D. Somasundaram and B.Choudhary:, Pub Narosa Publ. House.
14) Real Analysis, By Carothers, Pub. Cambridge University Press .

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B.A./B.Sc. Second Year Semester–III
Paper VII (MT 202) : Group Theory
(CCM-3(Section B) For 2 Credits) (Effective from June–2017)
(No. of Periods : 60 ; Max.Marks : 50)

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Unit–I :

Mapping, examples of mappings, the integers, group theory, definition of a group, some examples of groups, some preliminary lemmas.

Unit–II :

Subgroups, cyclic groups, cyclic subgroups, A counting principle (Statement only of Lemma 2.5.1, Corollary and Theorem 2.5.1), Normal Subgroups and Quotient groups, Properties and examples.

Unit–III :

Homomorphism's, Definitions, Examples and Properties, Cauchy's Theorem for Abelian groups, Sylow's, Theorem for Abelian groups (Statement Only), Automorphisms, definitions, Cayley's theorem, permutation groups.

Recommended Text Book : Topic in Algebra, by I.N. Herstein, John Wiley and Sons (New York) (Second Edition)

Scope : – **Unit–I :** 1.2, 1.3, 2.1, 2.2, and 2.3
Unit–II : 2.4, 2.5, 2.6
Unit–III : 2.7 (Delete applications, Cauchy's theorem on wards), 2.8 2.9,2.10.

Reference Books :

1) A first course in abstract algebra, By J.B. Fraleigh, Narosa Publications.
2) Contemporary Abstract Algebra, By Joseph Gallion, Narosa Publications.
3) Modern Algebra, By A.R. Vasistha, Krishna Prakashan Media.
4) Modern Algebra, By R.P. Rohtatgi, Dominant Publishers and Distributors, New Delhi.
5) Modern Algebra, By Goyal and Gupta, Pragati Prakashan Meerut
6) College Mathematics, By N.R. Jayaram and R.V. Prabhakara, Himalaya Publishing House.
7) Elements of Logic and Modern Algebra, By M.V. Bhat and M.L. Bhave, S. Chand and Company Ltd. Ramnagar, New Delhi 110055
8) Abstract Algebra, By Vijay K. Khanna, Vikas Publication Company
9) Basic Algebra,Vol. I and II, By N.Jocobson : W.H.Freeman,1980(Hindustan Publishing Co.
10) A Text Book Of Modern Abstract Algebra, By Shanti Narayan :, S. Chand and Co., New Delhi
11) Matrix and Linear Algebra, By K.B.Datta: Prentice Hall of India Pvt.Ltd.New Delhi,2000
12) Basic Abstract Algebra, By P.B.Bhattacharya, S.K.Jain and S.R.Nagpal : (II Edition) Cambridge University Press Indian Edition,1997.
13) Algebra, By Vivek Sahai and Vikas Bisht :, Narosa Publishing House ,1997.
14) Fundamentals of Abstract Algebra, By D.s.Malik,J.N.Mordeson and M.K.Sen, McGraw
Hill International Edition 1997
15) Lectures on Abstract Algebra, By T.M.Karade, J.N.Salunke, K.S.Adhav, M.S.Bendre, Sonu Nilu Publication.Nagpur (II Publication)
16) Algebra, By M Artin , Pub, PHI New Delhi 1994.

17) University Algebra, By N. S. Gopalakrishnan, New Age. Delhi.

B.Sc. Second Year Semester–III

Paper VIII (MT 203): Ordinary Differential Equations

(CCM-3(Section C) For 2 Credits) (Effective from June–2017)

(No. of Periods: 60; Max. Marks : 50)

NOTE:-This Paper is only For B.Sc. Students.

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Unit–I : Preliminaries:

Polynomials, Determinants, Linear Equations of the First Order Differential Equation, Linear Equation of the First Order, The Equation $y¢ + ay = 0$, the equation $y¢ + ay = b(x)$, The general linear equations of the first order.

Unit–II: Linear Equations with Constant Coefficients.

The second order homogeneous equations, IVPs for second order homogeneous equations, Linear dependence and independence, A formula for the Wronskian, The non-homogeneous, The non-homogeneous equations of order two.

Unit–III: Linear Equations with Variable Coefficients.

IVPs for homogeneous equation, Solution of the homogeneous equation, The Wronskain and linear independence.

Text Book: Introduction to Ordinary Differential Equations, By. E. A. Coddington, Prentice Hall of India.

Scope:

Unit–1 : Chapter 0 : Articles 4, 6; Chapter 1 : Complete

Unit–2 : Chapter 2 : Articles 1 to 6.

Unit–3 : Chapter 3 : Articles 1 to 4.

Reference Books:

1) Differential Equations with Applications and Historical Notes, By G. F. Simmons Second Edition, Mc Graw Hill.
2) Ordinary Differential Equations, By Purna Chandra Biswal pub.PHI Learning private Ltd., New Delhi
3) Ordinary Differential Equations, By G. Birkhoff and G. C. Rota, John Wiley and Sons.
4) Introductory Course on Differential Equations, By D.A. Murray, Orient Longman India
5) Differential Equations, By Raisinghania, S. Chand. Co.
6) Differential Equations, By J N Sharma, Krishna Prakashan , Meerut
7) Theory and Problems of Differential Equations, By Frank Ayres, Mc Graw Hill
8) Lectures on Differential Equations, By T.M. Karade, Sonu-Nilu Pub. Nagpur.

B.A./B.Sc. Second Year Semester–IV
Paper IX (MT 204) : Real Analysis–II
(CCM-4(Section A) For 2 Credits) (Effective from June–2017)
(No. of Periods : 60 ; Max. Marks : 50)

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Unit–I : The Riemann Integral.

Definitions and Existence of the integral, Refinement of partitions; Darboux's theorem, Conditions of integrability, Intergrability of the sum and difference of Integrable functions, The integral as a limit of sums (Riemann Sums).Some Integrable Functions ,

Unit–II

Integration and Differentiations, Fundamental Theorem of Calculus, Mean value Theorem.

Improper Integrals

Introduction, Integration of unbounded functions with Finite Limits of Integration,

Comparison Tests for Convergence at a of $\int_a^b f dx$, Absolute Convergence.

Unit III Fourier Series

Trigonometric Series, Fourier Series , Some Preliminary Theorems, Periodic Function, Some Definitions, Some Theorems, The Main Theorem ,Fourier Series of Even and Odd Functions , Half Range Series

Text Book : Mathematical Analysis, By S. C. Malik, Savita Arora, New Age. (Delhi)

Scope :

Unit I Chapter 9 Articles 1, 1.1, 1.2, 2, 3 ,4 ,5, 5.1, 6, 6.2, 7.
Unit II Chapter 9 Articles 8, 9, 10.
Chapter 11 Articles 1, 2, 3 3.1, 3.2 3.3 3.4, 3.5.
Unit III Chapter 14 Articles 1. 1.1, 2, 2.1, 2.2, 2.3, 3, 3.1, 3.2.

Reference Books:

1) Introduction to Real Analysis, By R.G. Bartle. (John Wiley and Sons)
2) Differential calculus, By Shanti Narayan.(S. Chand and Co.)
3) Elements of Real Analysis, By Shanti Narayan and M.D. Raisinghania.
(S. Chand and Co).
4) Introduction to Real Analysis, By William F. Trench, Pearson Education Pub.
5) Mathematical Analysis, By Tom Apostol,N\arosa Pub. House, New Delhi.
6) Undergraduate Analysis, By Serage Lang Pub. Springer.
7) Real Analysis, By H.L. Royden Third Edition, Pub. PHI.
8) Principles of Real Analysis, By S. L. Gupta and N.R. Gupta, Pub. Pearsons Education.
9) Real Analysis, By Dr Harikishan and Dr. Megha Rani , Pub. Pragati Prakshan .
10) An Introduction to Sequences, Series and improper Integrals, By O. E. Stanaitis , Pub. Holden-Dey, Inc. San Francisco, California.
11) Infinite series, By Earl D. Rainville, Pub, The Macmillan Co., New York.
12) A Course of Mathematical Analysis, By Shanti Narayan, Pub. S. Chand & Co., New Delhi.
13) First course in Mathematical Analysis, By D. Somasundaram and B. Choudhary, Pub Narosa Publ. House.
14) Real Analysis, By Carothers, Pub. Cambridge University Press.
15) Methods of Real Analysis, By Richard R.Goldberg, Pub Oxford and IBH Publishing Company.

B.A./B.Sc. Second Year Semester–IV
Paper X (MT 205) : Ring Theory
(CCM-4(Section B) For 2 Credits) (Effective from June–2017)
(No. of Periods: 60; Max. Marks : 50)

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Unit–I :

Ring, Definition and examples of rings, some special classes of Rings, Homomorphisms, Isomorphism

Unit–II :

Ideals and Quotient Rings, More Ideals and Quotients rings, The field of quotients of an integral domains. Euclidean Rings

Unit–III :

A particular Euclidean Ring, Polynomial Rings, Polynomial over the Rational field, Polynomial Rings over commutative Rings

Text Book : Topics in Algebra, By I.N. Herstein, John Wiley and Sons (New York) (Second Edition)

Scope : – **Unit–I :** 3.1, 3.2, 3.3
Unit–II : 3.4, 3.5, 3.6, 3.7
Unit–III : 3.8, 3.9, 3.10, 3.11 (Lemma 3.11.1 and its corollary only)

Reference Books :

1) Modern Algebra, By A.R. Vasishtha, Krishna, Prakashan Media.
2) A first course in abstract Algebra, By J.B. Fraleigh, Narosa Publication.
3) Contemporary Abstract Algebra, By Joseph Gallion, Narosa Publications.
4) Modern Algebra, By R.P. Rohtagi, Dominant Publishers and Distributors, New Delhi.
5) Modern Algebra, By Goyal and Gupta, Pragati Prakashan Meerut.
6) Basic Algebra, Vol. I and II, By N.Jocobson, W.H.Freeman,1980 (Hindustan Publishing Co.
7) A Text Book of Modern Abstract Algebra, By Shanti Narayan, S. Chand and Co., New Delhi
8) Matrix and Linear Algebra,,By K.B.Datta: Prentice Hall of India Pvt.Ltd.New Delhi,2000
9) Lectures on Abstract Algebra, By T.M.Karade, J.N.Salunke, K.S.Adhav, M.S.Bendre, Sonu Nilu Publication.Nagpur(IInd Publication)
10) Algebra, By M Artin , Pub, PHI New Delhi 1994.
11) University Algebra, By N. S. Gopalakrishnan, New Age. Delhi.
12) Rings and Modules, By C. Musili , Narosa Publishing House , 1992.

B.Sc. Second Year Semester–IV
Paper XI (MT 206): Partial Differential Equations
(CCM-4(Section C) For 2 Credits) (Effective from June–2017)
(No. of Periods: 60; Max. Marks : 50)
NOTE:-This Paper is Only For B. Sc. Students

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Unit–I :

Partial differential equations, order, method of forming partial differential equations, solution of equations by direct integration, Lagrange's linear equation, working rule, method
of multipliers.

Unit–II :

Partial differential equations nonlinear in p and q, Charpit's method, linear homogeneous partial differential equations of nth order with constant coefficients, rules for finding the complementary function, rules for finding the particular integral, nonlinear homogeneous,
linear equations, Monge's method.

Unit–III :

Introduction, method of separation of variables, equation of vibrating string, solution of wave equation by D' Alembert's method, one dimensional heat flow, two dimensional heat flow,
Laplace equation in polar coordinates, transmission line equations.

Text Book : Advanced Engineering Mathematics, by H.K.Dass, S.Chand & Company Ltd.

Scope :- **Unit 1** ; Article 9.1 to 9.7
Unit II: Articles 9.8 to 9.14
Unit III: Articles 9.15 to 9.22.

Reference Books :

1) Differential Equations with Applications and Historical Notes, By G. F. Simmons, Second Edition, McGraw Hill.
2) Partial Differential Equations, By W. E. Williams, Claredon Press Oxford.
3) Partial Differential Equations, By E. T. Copson, Cambridge University Press.
4) Introductory Course on Differential Equations, By D.A. Murray, Orient Longman
5) Differential Equations, By Raisinghania , S. Chand. Co.
6) Differential Equations, By J N Sharma, Krishna Prakashan , Meerut
7) Theory and Problems of Differential Equations, By Frank Ayres, Mc Graw Hill
8) Lectures on Differential Equations, By T.M. Karade, Sonu-Nilu Pub. Nagpur.
9) Elements of Partial Differential Equations, By I.N. Sneddon, Mc Graw Hill. Co.
10) Partial Differential Equations, By A.R. Vasishtha & V. VasishthaPub. Krishana Prakashan , Meerut.
11) Partial Differential Equations, By Phoolan Prasad & Renuka Ravindran, New Age Inter. Pub.

B.A./B.Sc. Second Year Semester–III & IV
ANNUAL PATTERN EVALUATION SKILLS
(SECM-1 For 2 Credits)
(Effective from June–2017)
Continuous Assessment (CA) : 25
(Records in the form of Dissertations 10 + Seminar 10+5 Performance test)
End Semester Exam (ESE)
(No. of Periods: 2 Periods Practical, 1 Theory per week; Max. Marks : 25 +25 =50)

Note:-Amongst the following skills student can choose one for third semester

SKILLS FOR B.Sc. (Mathematics) II YEAR, SEMESTER III

SKILL – I

- Plotting of Graphs using mathematical software like Scilab, MATLAB, Mathematica, Maple etc.

SKILL – II

- Solving of Ordinary differential equations using mathematical software like Scilab, MATLAB, Mathematica, Maple etc

REFERENCES

1. Getting Started With MATLAB 7 - Rudra Pratap, Oxford University Press, (Indian Eden) www.oup.com
2. Introduction to Scilab – Michaël Baudin, Consortium Scilab, 2010.
3. Atlas - automatically tuned linear algebra software. http://math-atlas.sourceforge.net.
4. Cecill and free software. http://www.cecill.info.
5. The Scilab Consortium. Scilab. http://www.scilab.org.
6. Intel. Intel math kernel library. http://software.intel.com/en-us/intel-mkl/.
7. Sylvestre Ledru. Different execution modes of Scilab. http://wiki.scilab.org/Different_execution_modes_of_Scilab.
8. Flexdock project. Flexdock project home. https://flexdock.dev.java.net/.

B.A./B.Sc. Second Year Semester–IV
ANNUAL PATTERN EVALUATION SKILLS
(SECM-2, For 2 Credits)
(Effective from June–2017)

Continuous Assessment (CA) : 25
(Records in the form of Dissertations 10 + Seminar 10+5 Performance test)
End Semester Exam (ESE): 25
(No. of Periods: 2 Periods Pratical, 1 Theory per week; Max. Marks : 25)
Note:-Amongst the following skills student can choose one for Fourth semester

SKILLS FOR B.Sc. (Mathematics) II YEAR, SEMESTER IV

SKILL – III

- Solving problems in Calculus using mathematical software like Scilab, MATLAB, Mathematica, Maple etc

SKILL – IV

- Introduction to symbolic methods and solving problems using mathematical software like Scilab, MATLAB, Mathematica, Maple etc

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