Plan of Action and Achieved of the Department of Mathematics for the session 2018-19

Serial No.	Plan of Action	Details of the Plan	Achieved or not	Reason/ Remarks
1	Induction Programme	a) Overview of curriculum based on CBCS pattern and evaluation pattern (CGPA and SGPA), feedback mechanism is given, as the system is a new concept for the students b) The induction programme is conducted to familiarize the students to the college environment, its facilities and infrastructure including hostels, library as well as brief overview of the college website is presented before the students. c) The programme will provide a scope of interaction with the faculty members and peer group d) Briefing on extensive social activities through NSS and NCC, extracurricular and cultural events. e) Addressing the queries of new joiners.	Yes	Induction Programme conducted on 21/08/2018
2	Curriculum Module Allocation	a) The department follows the curriculum and syllabus as prescribed by the affiliating universities (Bankura University and Burdwan University). In each semester the syllabus is distributed in modules and the stipulated syllabus is completed, and the topics are taught as per the credits allocated to each	Yes (Annexures 1 and 2 stating Syllabus Allocation and CO, PO respectively are attached)	Syllabus Module Allocation for Semesters I, II, III and IV (BKU) and 3rd year of BU is done at Departmental Meeting held on on 14/08/2018

		topic.		
		b) Distribution of syllabus in modules and unitization of syllabus were prepared well before the commencement of classes and executed in a planned and systematic manner. c) Course Outcome, Programme Outcome and Programme Specific Outcome are also formulated		
3	Maintenance of Students Attendance Register	Day to day attendance is recorded in the Student Attendance Registers.	Yes	
4	Continuous Assessment of Students	Continuous assessment is carried out by the department in the form of Test (in written format) for the courses of Burdwan University. Internal assessment examinations are held prior to every end semester examinations for the courses of Bankura University.	Yes	Test for 3rd year was held from 8th February to 13th February 2019. Internal Examination of Semester I was held on 28th and 29th September 2018. Internal Examination of Semester III was held on 26th , 27th and 29th September 2018. Internal Examination of Semester II was held on 28th and 29th March 2019. Internal Examination of Semester IV was held on 26th ,27th and 29th March 2019.

5	Completion of syllabus	Syllabus is covered for all courses of UG program within the stipulated time period.	Yes	
6	Result Analysis	Result analysis is done according to result sheet provided by the Universities. After critical analysis of the results, the students are advised about how to improve in University examination.	Yes (Annexure 3 stating result analysis of Semester I,II,III and IV and 3rd year of BU students are attached)	
7	Remedial Classes	Remedial classes are conducted for each semester on the basis of suggestions provided by the student representatives who propose the topics that require special attention. Sometimes in the remedial classes, evaluated and assessed answer scripts are shown to the students for their self-analysis and better understanding of the subject.	Yes	
8	Students Support Facilities	a) Spacious airy clean classrooms b) Clean and maintained toilets c) Clean drinking water facilities d) Concessions and free-ship to economically weak students. e) Ragging free campus f) Free wi fi facilities g) Career guidance h) Curricular and extra-curricular activities i) NCC training opportunity j) Sports and Gym facilities k) Library and Labs l) Prize Awarded as encouragement to achievers in studies or sports m) Merit-based scholarships	Yes	
9	Library Facilities	a) Central Library is a rich in collection of books of different branches of Mathematics. b) The central library is automated and students have bar-coded library	Yes	

		cards.		
		c) The central library has a spacious reading hall. d) Departmental Library operates with limited resource, and caters primarily to financially weak students.		
10	Student Seminar	Students-seminar are organized to ensure a) Develop communication skills of students b) Boost their confidence c) Develop their presentation skills d) Overcome the fear of facing the audience Topics of the seminar may be departmental syllabi based.	Yes	
11	Co-curricular Activities	Students of the department participate in various co-curricular activities such as Quiz contest and other cultural programmes organized in the college. .	Yes	Students of the department also participated in various cultural programmes held in the college
12	Students Feedback	Feedback is taken from students for individual teachers and analysed for future improvement.	Yes	
13	Research & Publications	Faculty members are constantly engaged in paper publications, book chapters and paper presentations in seminars.	Yes (Annexure 4 stating departmental publications in the session 2018-2019 is attached)	
14	Developing E-Content	Faculty Members upload e-notes at Study Materials Section in College ERP which the students can access free. Besides e-materials on important topics are uploaded in the college website as well.	Yes	

Annexure 1: Syllabus Module Allocation of Mathematics Semester I and Semester II (2018-19) under Bankura University

SYLLABUS MODULE

Mathematics Honours

Semester I (BKU)

Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
SH/MTH/101/C1	Calculus, Geometry & Differential Equation	AI,SD	50	6	60 (Tentatively)
SH/MTH/102/C2	Algebra	MN	50	6	60
SH/MTH/103/GE1	Calculus, Geometry & Differential Equation	AI,SD	50	6	60 (Tentatively)

Semester II (BKU)

Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
SH/MTH/201/C3	Real Anlysis	AI,MN	50	6	60 (Tentatively)
SH/MTH/202/C4	Differential Equations and Vector Calculus	CDG	50	6	60
SH/MTH/203/GE2	Real Anlysis	AI,MN	50	6	60 (Tentatively)

Semester III (BKU)

Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
SH/MTH/301/C5	Theory of Real Functions & Introduction to Metric Space	MN,SD	50	6	60 (Tentatively)
SH/MTH/302/C6	Group Theory-I	AI	50	6	60
SH/MTH/303/C7	Numerical Methods Numerical Methods Lab	MN,SD	50	6	60
SH/MTH/304/GE3	Algebra	MN,SD	50	6	60
SH/MTH / 305/SEC-1	Programming Using C	AI	50	2	20

Semester IV (BKU)

Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
SH/MTH/401/C8	Riemann Integration and Series of Functons	AI,CD	50	6	60 (Tentatively)
SH/MTH/402/C9	Multivariate Calculus	MN,AI	50	6	60
SH/MTH/403/C10	Ring Theory and Linear Algebra-I	MN,CD	50	6	60
SH/MTH/404/GE4	Differential Equations and Vector Calculus	CD	50	6	60
SH/MTH/405/SEC2	Graph Theory (SEC T4)	MN	50	6	60

3rd Year (BU)

Course Code	Course Title	Faculty Name	Full Marks	No. of Classes
Paper V	Group A+ Group B + Group C	MN	100	100
Paper VI	Group A + Group B	AI	50	50
	Group C + Group D	SD	50	50
Paper VII	Group A + Group B	AI	60	60
	Group C	SD	40	40
Paper VIII	Group A + Group B	CDG	50	50
Paper IX	Computer Aided Numerical Practical	AI	50	50

AI== DR. MD. ASIF IKBAL

SD== SRI SANDIP DERIA

MN== SRI MADHAB NANDI

SH== SRI SUMANTA HAZRA

References:

For Calculus, Geometry & Differential Equation (C1)

1. G.B. Thomas and R.L. Finney, Calculus, 9th Ed., Pearson Education, Delhi, 2005.
2. M.J. Strauss, G.L. Bradley and K. J. Smith, Calculus, 3rd Ed., Dorling Kindersley (India) P. Ltd. (Pearson Education), Delhi, 2007.
3. H. Anton, I. Bivens and S. Davis, Calculus, 7th Ed., John Wiley and Sons (Asia) P. Ltd., Singapore, 2002.
4. R. Courant and F. John, Introduction to Calculus and Analysis (Volumes I & II), SpringerVerlag, New York, Inc., 1989.
5. S.L. Ross, Differential Equations, 3rd Ed., John Wiley and Sons, India, 2004.
6. Murray, D., Introductory Course in Differential Equations, Longmans Green and Co.
7. G.F.Simmons, Differential Equations, Tata Mcgraw Hill.
8. T. Apostol, Calculus, Volumes I and II.
9. S. Goldberg, Calculus and mathematical analysis.

For Algebra(C2)

1. Titu Andreescu and Dorin Andrica, Complex Numbers from A to Z, Birkhauser, 2006.

2. Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, 3rd Ed., Pearson Education (Singapore) P. Ltd., Indian Reprint, 2005.

3. David C. Lay, Linear Algebra and its Applications, 3rd Ed., Pearson Education Asia, Indian Reprint, 2007.

4. K.B. Dutta, Matrix and linear algebra.

5. K. Hoffman, R. Kunze, Linear algebra.

6. W.S. Burnstine and A.W. Panton, Theory of equations.

For Real Analysis (C3)

1. R.G. Bartle and D. R. Sherbert, Introduction to Real Analysis, John Wiley and Sons (Asia) Pvt. Ltd.

2. Gerald G. Bilodeau , Paul R. Thie, G.E. Keough, An Introduction to Analysis, Jones & Bartlett.

3. Tom M. Apostol, Mathematical Analysis, Narosa Publishing House

4. W. Rudin, Principles of Mathematical Analysis, Tata McGraw-Hill

5. Terence Tao, Analysis I, Hindustan Book Agency.

6. S.K. Mapa, Introduction to Real Analysis, Levant Books, India

7. S.C.Mallik, Savita Arora, Mathematical Analysis, New age International Publication

For Differential Equations and Vector Calculus (C4)

1. Belinda Barnes and Glenn R. Fulford, Mathematical Modeling with Case Studies, A Differential Equation Approach using Maple and Matlab, 2nd Ed., Taylor and Francis group, London and New York.

2. C.H. Edwards and D.E. Penny, Differential Equations and Boundary Value problems Computing and Modeling, Pearson Education India.

3. S.L. Ross, Differential Equations, John Wiley and Sons, India.

4. Martha L Abell, James P Braselton, Differential Equations with MATHEMATICA, Elsevier Academic Press.

5. G.F.Simmons, Differential Equations, Tata Mc Graw Hill

6. Marsden, J., and Tromba, Vector Calculus, McGraw Hill.

7. Maity, K.C. and Ghosh, R.K. Vector Analysis, New Central Book Agency (P) Ltd. Kolkata (India).

8. M.R. Speigel, Schaum's outline of Vector Analysis

For Theory of Real Functions & Introduction to Metric Space (C5)

1. R. Bartle and D.R. Sherbert, Introduction to Real Analysis, John Wiley and Sons.

2. K.A. Ross, Elementary Analysis: The Theory of Calculus, Springer.

3. Tom M. Apostol, Mathematical Analysis, Narosa Publishing House.

4. W. Rudin, Principles of Mathematical Analysis, Tata McGraw-Hill

5. Terence Tao, Analysis II, Hindustan Book Agency.

6. S. Kumaresan, Topology of Metric Spaces, 2nd Ed., Narosa Publishing House.

7. G.F. Simmons, Introduction to Topology and Modern Analysis, McGraw-Hill.

8. Joydeep Sengupta, Metric Space, U. N. Dhur Publication

For Group Theory-I(C6)

1. M. Artin, Abstract Algebra, 2nd Ed., Pearson.

2. Joseph A. Gallian, Contemporary Abstract Algebra, Narosa Publishing House.

3. Joseph J. Rotman, An Introduction to the Theory of Groups, Springer.

4. I.N. Herstein, Topics in Algebra, Wiley Eastern Limited, India.

5. D.S. Malik, John M. Mordeson and M.K. Sen, Fundamentals of abstract algebra, McGraw-Hill.

For Numerical Methods Numerical Methods Lab (C7)

1. M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, 6th Ed., New age International Publisher, India.

2. C.F. Gerald and P.O. Wheatley, Applied Numerical Analysis, Pearson Education, India.

3. S.A. Molla, Numerical Analysis and Computational Proceedures, Books & Allied Ltd.

For Riemann Integration and Series of Functons (C8)

1. K.A. Ross, Elementary Analysis, The Theory of Calculus, Undergraduate Texts in Mathematics, Springer (SIE), Indian reprint.

2. R.G. Bartle D.R. Sherbert, Introduction to Real Analysis, John Wiley and Sons (Asia) Pvt. Ltd.

3. Santi Narayan, Dr. P. K. Mittal, Integral calculus, S. Chand.

4. T. Apostol, Calculus I, II, Wiley Student Edition.

For Multivariate Calculus (C9)

1. E. Marsden, A.J. Tromba and A. Weinstein, Basic Multivariable Calculus, Springer (SIE), Indian reprint.

2. James Stewart, Multivariable Calculus, Concepts and Contexts, Brooks /Cole, Thomson Learning, USA.

3. Tom M. Apostol, Mathematical Analysis, Narosa Publishing House

4. Courant and John, Introduction to Calculus and Analysis, Vol II, Springer

5. W. Rudin, Principles of Mathematical Analysis, Tata McGraw-Hill

6. Marsden, J., and Tromba, Vector Calculus, McGraw Hill.

7. Maity, K.C. and Ghosh, R.K. Vector Analysis, New Central Book Agency (P) Ltd. Kolkata (India).

8. Terence Tao, Analysis II, Hindustan Book Agency, 2006

9. M.R. Speigel, Schaum's outline of Vector Analysis.

For Ring Theory and Linear Algebra-I (C10)

1. M. Artin, Abstract Algebra, 2nd Ed., Pearson.
2. Joseph A. Gallian, Contemporary Abstract Algebra, 4th Ed., Narosa Publishing House, New Delhi.
3. S. Lang, Introduction to Linear Algebra, Springer
4. Kenneth Hoffman, Ray Alden Kunze, Linear Algebra, Prentice-Hall of India Pvt. Ltd.

For Graph Theory(SEC 2)

1. Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, Pearson Education (Singapore) P. Ltd.
2. Swapan Kumar Sarkar, A Textbook of Discrete Mathematics, S. Chand
3. RM. Somsundaram, Discrete Mathematics, Prentice Hall Of India

For Paper V (BU)

Analysis-III

10. Introduction to Real Analysisby R. G. Bartle and D. R. Sherbert

11. Principal of Mathematical Analysis by Walter Rudin

12. Mathematical Analysis by S. C. Malik & S. Arora.

Complex Analysis

13. Complex Analysis by U.C De

14. Complex Variables: Theory and Applications by H.S.Kasana

15. Functions of one complex variable by J.B. Conway

Metric spaces

16. Metric Space by Joydeep Sengupta

17. Metric Space and Complex Analysis by A. K. Banerjee and A. Dey

For Paper VI (BU)

Elements of Continuum Mechanics

1. N.C. Rana and P.S. Joag

Classical Dynamics, Dynamics of a system of particles and rigid body

1. Analytical Dynamics Of A Particle Including Elements Of Statics, by S Ganguly, S Saha.
2. Advanced Analytical Dynamics, by J. G. Chakravorty and P. R. Ghosh.

Statics

1. E.J.Routh

Hydrostatics

1. J.M. Kar

For Paper VII (BU)

Mathematical Probability

1. Mathematical Probability by Banerjee, De & Sen.
2. Fundamentals of Mathematical Statistics by S.C. Gupta V.K. Kapoor.
3. Mathematical Probability by N.G. Das

Statistics

4. Mathematical Statistics by Banerjee, De & Sen.
5. Statistics by N.G. Das
6. Fundamentals of Mathematical Statistics by S.C. Gupta V.K. Kapoor.

Operations Research

7. Introduction to Operations Research by F.S. Hillier and G.J. Lieberman
8. Linear Programming And Game Theory by Chakraborty &Ghosh
9. Operations Research by A.Taha

For Paper VIII (BU)

Numerical Analysis

1. Numerical Methods for Scientific and Engineering by M.K. Jain, S.R.K. Iyengar and R.K. Jain.
2. Introductory Methods of Numerical Analysis by S. S. SASTRY.
3. Numerical Methods by S.A. Molla

Computer programming

4. Let us C by Kanetkar

For Paper IX (BU)
Computer Aided Numerical Practical

1. Numerical Methods for Scientific and Engineering by M.K. Jain, S.R.K. Iyengar and R.K. Jain.

KHATRA ADIBASI MAHAVIDYALAYA

SYLLABUS MODULE

Mathematics Programme

Semester I

Semester	Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
I	SP/MTH/101/C -1A	Calculus, Geometry & Differential Equation	AI, SD	50	6	60 (Tentatively)

Semester II

Semester	Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
II	SP/MTH/201/C -1B	Real Analysis	AI, SD	50	6	60 (Tentatively)

Semester III

Semester	Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
III	SP/MTH/301/C -1C	Algebra	AI, SD	50	6	60 (Tentatively)
III	SP/MTH/304/ SEC-1	Logic and Sets				

Semester IV

Semester	Course Code	Course Title	Faculty Name	Full Marks	Credit	No. of Classes
IV	SP/MTH/401/C -1D	Differential Equations and Vector Calculus	AI, SD	50	6	60 (Tentatively)
IV	SP/MTH/404/ SEC-2	Graph Theory				

AI== DR. MD. ASIF IKBAL

SD== SRI SANDIP DERIA

References:

1. Das, Mukherjee, Differential Calculus, U.N.Dhur & Sons Pvt. Ltd.
2. Shantinarayan, Mittal, Differential Calculus, S, Chand Publications
3. Chakraborty, Ghosh, Advanced Analytical Geometry, U.N.Dhur & Sons Pvt. Ltd.
4. Maity, Ghosh, Differential Equations, New Central Book Agency

Annexure 3: Result Analysis of the Department of Mathematics for the session 2018-2019

Result Analysis of Economics Department 2018-2019:

Name of the Course/programme	Total No. of Students Appeared	1st Class	2nd Class	P. Div	No of Students Passed	Pass Percentage
U.G. 3rd Year (Hons) Burdwan Univarsity	10	00	01	00	05	50%
U.G. 2nd Year (Hons) Burdwan Univarsity	04	00	04	00	04	100%
U.G. 1st Semester (Hons) Bankura Univarsity	10	--	--	--	04	40%
U.G. 2nd Semester (Hons) Bankura Univarsity	10	10	00	00	10	100%
U.G. 3rd Semester (Hons) Bankura Univarsity	09	--	--	--	05	55.5%
U.G. 4th Semester (Hons) Bankura Univarsity	08	--	--	--	08	100%

Annexure 4: Departmental Research and Publications in the session 2018-2019

Publications

Sl. No.	Title of the publication with page no. and year of publication	Name of the of publisher	ISSN/ ISBN No.	No. of Co-author	Whether you are the main author
01	Viscoelastic blood flow through stenosed artery in the presence of magnetic field (Page No. 1-15): Md Asif Ikbal	*Int. J. Biomedical Engineering and Technology* (Vol. 30, No. 01), June 2019	ISSN: 1752-6418 (Print) Web of Science, Scopus Journal, I. factor: 0.285	Single Author	Yes

- **Participate in National level workshop on Advance Mathematics (WEM 2019): June 13-22, 2019: Organised by Calcutta Mathematical Society**