Title	**Syllabus Distribution (CBCS)**
Session	**2019-20 (Odd Semester)**
Department	**B.Sc General in Mathematics**
Institution Name	**Hiralal Bhakat College, Nalhati, Birbhum, W.B.**
Coordinator	**Dr. Banshidhar Sahoo, Assistant Professor in Mathematics**

Details of Courses of B.Sc. General under CBCS

Sl.	Course	Credit		Marks
1.	Core Course (12 Papers) 4 core papers each in 3 disciplines of choice	Theory+Practical 12×(4+2)=72	Theory+Tuitorial 12×(5+1)=72	12×75=900
2.	Elective Course DSE (6 Papers)	6×(4+2)=36	6×(5+1)=36	6×75=450
3	Ability Enhancement Core Course (AECC) AECC-1 (ENVS) AECC-2 (English/MIL)	 4×1=4 2×1=2	 4×1=4 2×1=2	 100 50
4.	SEC (4 Papers)	4×2=8	4×2=8	4×50=200
	Total Credit:	122	122	1700

B.Sc. Mathematics General Course Structure

Semester	Course Course (CC)	Discipline Specific Elective (DSE)	Ability Enhancement Course	
			AECC (2)	SEC (4)
I	CC1A (Mathematics) CC2A (Physics) CC3A (Computer Sc.)		AECC-1	
II	CC1B (Mathematics) CC2B (Physics) CC3B (Computer Sc.)		AECC-2	
III	CC1C (Mathematics) CC2C (Physics) CC3C (Computer Sc.)			SEC-1 (Mathematics) or SEC-1 (Computer Sc.)
IV	CC1D (Mathematics) CC2D (Physics) CC3D (Computer Sc.)			SEC-2 (Mathematics) or SEC-2 (Computer Sc.)
V		DSE1A (Mathematics) DSE2A (Physics) DSE3A (Computer Sc.)		SEC-3 (Mathematics) or SEC-3 (Physics)
VI		DSE1B (Mathematics) DSE2B (Physics) DSE3B (Computer Sc.)		SEC-4 (Mathematics) or SEC-4 (Physics)

Semester-I

Core Course (CC 1A): Differential Calculus (Marks: 75)

Syllabus	Number of Lecture	Name of Teacher
Limit and Continuity, Types of discontinuities, Differentiability of function, Successive derivative, Leibnitz's Theorem, Partial differential, Euler's Theorem.	20 L	Dr. Banshidhar Sahoo
Tangent and Normal, Curvature, Asymptotes, Singular Points, Tracing of Curves. Polar Coordinates and tracing of curves in polar coordinates.	15 L	
Rolles's Theorem, MVT, Taylor's theorem with Lagrange's and Cauchy's form of remainder. Taylor's series, Maclaurin's series of sin(x), cos(x), e^x, log(1+x). Maxima and minima. Indeterminate form.	25 L	

Reference Books:

1. G.B. Thomas and R.I. Finney: Calculus, Pearson Education, 2007
2. U.L.Rohde, G.C.Jain, A.K. Poddar and A.K.Ghosh: Introduction to differential Calculus, John Wiley & Sons Inc.
3. R.K.Ghosh and K.C.Maity: An Introduction to Analysis: Differential Calculus (Part I), New Central Book Agency.
4. S.K.Mapa: Introduction to Real Analysis, Sarat Book Distributor, 2019.

Semester-III

Core Course (CC 1C): Real Analysis (Marks 75)

Syllabus	Number of Lecture	Name of Teacher
Finite and infinite sets, countable and uncountable sets. Real line, bounded sets, supremum and infimia, completeness, property of R. Archimedean property of R, intervals. Concept of cluster points and statement of Bolzano-weierstrass theorem.	**15 L**	**Dr. Banshidhar Sahoo**
Real sequence, Bounded sequence, Cauchy convergent critarion for sequences. Cauchy's theorem on limits, monotone sequences and their convergence.	**15 L**	
Infinite series, Cauchy convergence criterion for series, positive term series, geometric series, comparison test, convergence of p-series. Root test, alternating series. Leibnitz's test. Definition and example of absolute and conditionally convergent series.	**15 L**	
Sequence and series of functions, Pointwise and uniform convergence, M_n –test, M-test. Statement of theresult about uniform convergence and integrability and differentiability of function. Power series and radius of convergence.	**15 L**	

Reference Books:

1. **T.M. Apostol: Calculus (Vol. 1), John Wiley and Sons (Asia) P. Ltd., 2002.**
2. **R.G. Bartle and D.R. Sherbert: Introduction to real Analysis. John Wiley and Sons (Asia) P. Ltd., 2000.**
3. **R.K.Ghosh and K.C.Maity: An Introduction to Analysis: Differential Calculus (Part I), New Central Book Agency.**
4. **S.K.Mapa: Introduction to Real Analysis, Sarat Book Distributor, 2019.**

Skill Enhancement Course (SEC 1): Integral Calculus (Marks 50)

Syllabus	Number of Lecture	Name of Teacher
Integration by Partial fractions, integration of rational and irrational functions. Properties of definite integrals. Reduction formulae for integrals of rational, trigonometric, exponential and logaritmmic function and their properties.	**25 L**	**Dr. Banshidhar Sahoo**
Areas and length of curves in the plane, volumes and surfaces of solids of revolution. Doublend triple integrals.	**15 L**	

Reference Books:

1. **S. Narayan and P.K. Mittal: Integral Calculus, S. Chand.**
2. **J Edwards: Integral Calculus for Beginners, Arihant Publishers.**
3. **R.K. Ghosh and K.C. Maity: Integral Calculus, New Central Book Agency**

Head
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Teacher- in- Charge
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