Yogoda Satsanga Mahavidyalaya
JAGANNATHPUR, DHURWA, RANCHI – 834004
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(NAAC Accredited, Grade: B++, CGPA: 2.89)

COURSE PLAN

NAME OF THE DEPARTMENT: **Computer Application**

NAME OF THE FACULTY: **Prof. Goutam Sanyal, Prof. Khushbu Kumari**

ACADEMIC SESSION: **2023-24**

YEAR: **2024**

PROGRAMME: **BCA/IT**

SEMESTER: **II**

COURSE TYPE: **Core**

COURSE: **Discrete Mathematics**

COURSE CODE: **C-4**

TOTAL CREDIT: **6**

PROGRAMME OUTCOMES (POs):

PO1: Scientific & Computational Knowledge: - Apply the information on scientific & computational ideas, software engineering and innovation basics.

PO2: Problem Analysis, Design & Implementation: - Identify, formulate and analyze real world problem. Design solution for Software, Hardware & Networking problems and implementation using Software & Network tools.

PO3: Modern tool usage: - Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.

PO4: Project Management: - Show information and comprehension of the Software Engineering and Technology standards and apply these to one's own work, as a part and pioneer in a group, to oversee projects and in multidisciplinary conditions.

PO5: Carrier Development and Entrepreneurship: Classify opportunities, private enterprise dream and use of original thoughts to build worth and means for the betterment of the human being and the world.

PO6: Communication Skill: Communicate effectively on computational & information Technology activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO7: Professional Ethics: Ability to apply and commit professional Ethics, cyber regulations & control on software piracy in a global economic environment.

PO8: Preparation of student for future aspects

PO9: Life Long Learning

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: Explore technical comprehension in varied areas of Computer Applications and experience a conducive environment in cultivating skills for thriving career and higher studies.

PSO2: Application of modern technology Critical understand the concept of Programing logic, Web designing logic, Signal processing, Image processing, Mobile Applications, Multimedia Media.

PSO3: Preparing students in various disciplines of technologies such as Server side Web applications, computer networking, software engineering, database concepts and programming.

COURSE OUTCOME

CO1: Ability to understand and construct precise mathematical proofs

CO2: Ability to use logic and set theory to formulate precise statements

CO3 : Ability to analyze and solve counting problems on finite and discrete structures

CO4 : Ability to analyze algorithm

CO5 : Ability to apply graph theory in solving computing problems

Course Completion Plan

UNIT	NO. OF LECTURES		TEST	QUIZ	ASSIGNMENT
	THEORY	PRACTICAL/TUTORIAL			
1	15	4			
2	8	4			
3	10	4			
4	15	4			
5	12	20			6

UNIT	TOPIC/SUBTOPIC	LECTURE REQUIRED	CO ADDRESSED	ASSIGNMENT/TEST/QUIZ
1	Introduction sets ,operations on sets ,basic operations , properties common to logic and sets , Relations and cartesian product, relations and their types , property of relations ,Functions ,operations on functions	19	1,2	2
2	Asymptotic Notations, Summation formulas and properties, Bounding Summations, approximation by Integrals	12	1,3	2

3	Recurrence Relations, generating functions, Linear Recurrence Relations with constant coefficients and their solution, Substitution Method, Recurrence Trees, Master Theorem	14	1,3,4	2
4	Basic Terminology, Models and Types, multigraphs and weighted graphs, Graph Representation, Graph Isomorphism, Connectivity, Euler and Hamiltonian Paths and Circuits, Planar Graphs, Graph Colouring, Trees, Basic Terminology and properties of Trees, Introduction to Spanning Trees	19	1,5	2
5	Logical Connectives, Well-formed Formulas, Tautologies, Equivalences	32	2	6

	ASSESSMENT			REMARKS
COURSE OUTCOME	QUIZ	TEST	MID SEMESTER	
CO1	Function and Relation	1		
CO2	Asymptotic notation	1		
CO3	Substitution Tecnique	1		
CO4	Graph coloring	1		
CO5	Conversion of sentence to logic	2		

Text Books: Busby, Discrete Mathematics and Its Applications

Reference: Book Kenneth Rosen, Discrete Mathematics and Its Applications

Video Resource: Discrete Mathematics by Dr K.Kritivasan , IIT Madras

https://www.youtube.com/watch?v=xlUFkMKSB3Y&list=PL0862D1A947252D20

E-Resources: https://drive.google.com/drive/u/0/folders/1hGczI73ebd9TefwpI4yCbLE_ra0Aj1Io