

KOLHAN UNIVERSITY

Chaibasa, Jharkhand, India

Syllabus for

Four Year Undergraduate Programme (FYUGP) of

Bachelor of Computer Application (BCA)

Semester - 3

With Effect From Academic Year 2022 - 2023

As Per Revised Curriculum and Credit Framework for the FYUGP under the provisions of NEP - 2020

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Course Structure (Semester – III) for Four Year Undergraduate Programme (FYUGP) of

Sem.	Paper Code	Paper Title	L-T-P	Credits	Contact Hours
	AEC-3	Language and Communication Skills (To be selected by the students from the list of available options)		2	
	SEC-3	Skill Enhancement Course – 3		3	
	MDC-3	Multi–Disciplinary Course – 3 (To be selected by the students from the list of available options)		3	
ш	MN-1B	Minor From Discipline–1 (To be selected by the students from the list of available options)		4	
	MJ–4 (Theory)	Relational Database Management System	3-0-0	3	45
	MJ–5 (Theory)	Java Programming Language – I	3-0-0	3	45
	MJ (Practical–3)	RDBMS (SQL) and Java Programming – I Lab	0-0-2	2	60
		Tota	al Credits	20	

Bachelor of Computer Applications (BCA)

Abbreviations:

L–T–P (Lecture–Tutorial–Practical), AEC (Ability Enhancement Course), VAC (Value Added Course), SEC (Skill Enhancement Course), MDC (Multi Disciplinary Course), MN–1 (Minor From Discipline–1), MN–2 (Minor From Vocational Studies/Discipline–2), IAP (Internship/Apprenticeship/Project), MJ (Major Disciplinary/Interdisciplinary Courses)

MJ–4 (Theory): Relational Database Management System

3 Credits | 45 Minimum Contact Hour | Semester III

Objectives:

The objective of the course is to provide an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve efficiently, and effectively information from a DBMS. It also exposes the students to advanced database concepts.

The main objectives of the course are as follows:

- Provide an introduction to the management of database systems.
- Understand the fundamentals of relational systems including data models, database architectures, and database manipulations.
- To know about the database requirements and determine the entities involved in the system and their relationship to one another.
- To know about manipulation of a database using SQL
- Understand Normalization techniques.

Learning Outcomes:

At the end of the course, students will be able to:

- Describe the fundamental elements of Relational Database Management Systems
- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra, and SQL.
- Design ER-models to represent simple database application scenarios.
- Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
- Improve the database design by normalization.

Outline of the Course

Mini	Minimum		am							Mar	ks			
Cl	ass	Ti	me	Cre	dits	Semes	ter	E	nd	F	ull	Pa	ass	Total
Ho	ours	(Ho	ours)			Internal		Semester		Mark		Marks		Marks
Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th + Pr
45	N/A	3	N/A	3	N/A	10+5=15	N/A	60	N/A	75	N/A	30	N/A	75+N/A=75

Unit	Торіс	Minimum Class Hours
Ι	Introduction to Databases	10
II	Database Design and Schema	10
III	Structured Query Language (SQL)	15
IV	Database Querying and Optimization	10
	Total	45

Detailed Syllabus

Unit I: Introduction to Databases

Introduction to Database and Database Users, Overview of Database Management Systems, Relational Database Concepts and Components, Relational Model and Relational Algebra, Relational Database Management System Architecture.

Unit II: Database Design and Schema

Entity-relationship (ER) Modeling, Relational Schema Design, Functional Dependencies and Normalization (1NF, 2NF, 3NF, BCNF, 4NF), Database Constraints and Integrity.

Unit III: Structured Query Language (SQL)

Introduction to SQL, SQL Data Types, Data Definition Language (DDL), Data Manipulation Language (DML), Data Control Language (DCL), Transaction Control Language (TCL), Views, Indexes, and Stored Procedures, Scalar (Non-Aggregate) SQL Functions - String, Numeric and Date functions.

Unit IV: Database Querying and Optimization

Basic and Advanced SQL Queries, Joins and Subqueries, Aggregate Functions and Grouping, Query Optimization Techniques.

Recommended Books:

- Abraham Silberschatz, Henry F. Korth, S. Sudharshan; **Database System Concepts** (7th Edition); Tata McGraw Hill, 2019
- Elmasri and Navathe; Fundamentals of Database Systems (7th Edition); Addison Wesley, 2016

Further Readings:

- C.J. Date, A. Kannan, S. Swamynatham; An Introduction to Database Systems (8th Edition); Pearson education, 2009
- Raghu Ramakrishnan and Johannes Gehrke; **Database Management Systems** (3rd Edition); McGraw-Hill, 2003
- Ivan Bayross; **PL/SQL Programming**; BPB
- SQL and PL/SQL Tutorial https://www.w3schools.com/sql/, http://www.plsqltutorial.com/



(10 Hours)

(15 Hours)

(10 Hours)

(10 Hours)

MJ–5 (Theory): Java Programming Language-I

3 Credits | 45 Minimum Class Hours | Semester III

Objectives:

The Java Programming Language course is designed to provide students with a comprehensive understanding of the Java programming language and its application in software development. The course aims to equip students with the necessary skills to design, implement, and debug Java programs. Students will learn the fundamental concepts of object-oriented programming and gain hands-on experience in developing Java applications. The main objectives of the course are as follows–

- Understand the basic concepts of Java programming language.
- Design and implement Java programs using object-oriented principles.
- Apply control structures, data types, and operators in Java programming.
- Use Arrays for data storage and manipulation.
- Apply packages to organize the group of classes, interfaces etc.

Learning Outcomes:

By the end of the course, students will be able to:

- Design and implement Java programs that demonstrate a clear understanding of objectoriented programming principles.
- Apply control structures, data types, and operators effectively in Java programming to solve problems.
- Utilize arrays for efficient data storage, retrieval, and manipulation.
- Implement packages to organize classes and interfaces into a single unit.

Mini	imum	Ex	am							Mar	ks			
Cl	ass	Ti	me	Cre	edits	Semes	ter	E	nd	F	ull	Pa	ass	Total
Ho	ours	(Ho	ours)			Intern	nal	Sem	ester	M	ark	Ma	rks	Marks
Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th + Pr
45	N/A	3	N/A	3	N/A	10+5=15	N/A	60	N/A	75	N/A	30	N/A	75+N/A=75

Outline of the Course

Unit	Торіс	Minimum Class Hours
Ι	Introduction and Fundamentals of Java	15
II	Arrays and Strings	10
III	Class, Objects and Methods	15
IV	Packages	05
	Total	45

Kolhan University, Chaibasa

Detailed Syllabus

Unit I: Introduction and Fundamentals of Java

Introduction to Java and its features, Java Runtime Environment, Java Virtual Machine, Java Development Kit, Java Program Structure, Tokens- Keywords, Identifiers, Constants, Primitive and reference data types in Java, Variable declaration & initialization, Types of variables such as local, instance, and static variables, Input/ Output in Java, Java Operators and Expressions, Operator Precedence and Associativity, Type Conversion in Expressions, Mathematical Functions, Wrapper classes.

Control Structures: Decision-making, Branching and Looping statements.

Unit II: Arrays and Strings

Array: Introduction, One Dimensional Arrays, Declaration, Creation, Initialization of Arrays, Two Dimensional Arrays.

String: Fundamentals of Characters and Strings, The String Class and its methods, String Operations.

Unit III: Class, Objects and Methods

Introduction, Defining a Class, Fields declaration, Method declaration, Creating object, Accessing class members, Access or Visibility Modifier, this keyword, Method overloading, Constructors, Constructor overloading, Garbage Collection, The Finalize () Method.

Inheritance and Polymorphism: Inheritance Basics, Super and Sub class, Types of Inheritance, Overriding methods, super keyword, final keyword, Static and Dynamic Binding, Abstract methods and classes, Compile-time Polymorphism and Runtime Polymorphism.

Interfaces: Defining Interfaces, Implementing Interfaces, Extending Interfaces, Accessing Interface variable, Multiple Inheritance through Interfaces.

Unit IV: Packages

Introduction, Java API Packages, Naming Convention, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes.

Recommended Books:

- E. Balagurusamy; **Programming with JAVA**; McGraw Hill, New Delhi
- Joel Murach, Michael Urban; Murach's Beginning Java with Net Beans; SPD

Further readings:

- Herbert Schildt; Java: The Complete Reference; McGraw Hill
- Raj Kumar Buyya; Object Oriented Programming with JAVA; McGraw Hill
- Ken Arnold, James Gosling; The Java Programming Language; Addison Wisely
- Wiley; Java 6 Programming Black Book; Kogent Learning Solutions



Page 7 of 12

(5 Hours)

(15 Hours)

(10 Hours)

(15 Hours)

MJ (Practical-3): RDBMS (SQL) and Java Programming-I Lab

2 Credits | 60 Minimum Class Hours | Semester III

Objectives:

The main objectives of the course are as follows-

- To know about the database requirements and determine the entities involved in the system and their relationship to one another.
- To know about the manipulation of database using SQL commands.
- To teach the students basics of JAVA programs and its execution.
- Use Arrays for data storage and manipulation.
- To organize classes and interfaces in to a single unit using packages.
- To make the students learn concepts Object Oriented Programming.

Learning Outcomes:

After completion of this course, a student will be able to-

- Gain knowledge on how to use SQL for Creating, Modifying and Accessing tables in Database.
- Implement Order by and Group by clauses.
- Use Java compiler and other platform to write and execute java program.
- Utilize arrays for efficient data storage, retrieval, and manipulation.
- Understand and Apply Object oriented features and Java concepts.

Outline of the Course

Mini	mum Evom Timo								Ma	rks										
Class	Hours	(Hours)		(Hours)		Exam Time		Exam Time		Cre	dits	Sem	ester	Er	nd	Fı	ıll	Pass N	Aarks	Total Marks
	livuis	(110)	uisj			Inte	rnal	Seme	ester	Ma	ırk	1 ass wialks								
Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th + Pr						
N/A	60	N/A	3	N/A	2	N/A	N/A	N/A	50	N/A	50	N/A	20	N/A+50=50						
	Marks Distribution of End Semester Practical Examination																			
• Experiments – 30 Marks • Viva-Voce – 10 Marks • Practical File – 10 Marks					10 Marks															

Experiment List

Group - 'A': RDBMS (SQL)

Unit I: CREATE, ALTER and DROP Statements

Create a table **Employee** with the following fields: (Employee_Id, First_Name, Last_Name, Hire_Date, Job_Id, Salary, Manager_Id, Department_Id)

1. Use appropriate data type and perform following task-

- (a) Add a new field 'Address Char(10)'.
- (b) Modify the size of Address column to 20.

(c) Insert any 5 records into the table.

(d) Insert a record in Employee_Id, First_Name and Salary field only.

- (e) Display the structure of Employee table.
- (f) List out details of all employees.
- (g) Remove the field 'Address' from the table.
- (h) Copy Employee table to Emp_backup.
- (i) Remove the table Employee from the database.

Change the name of the table from Emp_backup to Employee.

Unit II: UPDATE and DELETE Statements

Create an Emp table with the following fields: (EmpNo, EmpName, Job, Basic, DA, HRA, PF, GrossPay, NetPay) (Calculate DA as 30% of Basic and HRA as 40% of Basic and PF as 12.5% of Basic)

- (a) Insert Five Records in the following fields (EmpNo, EmpName, Job, Basic)
- (b) Calculate DA, HRA, PF, GrossPay (Basic+DA+HRA) and NetPay (GrossPay-PF) of all employees.
 - (c) Display all records.

2.

- (d) If NetPay is less than <Rs. 10,000 add Rs. 1200 as special allowances.
- (e) Delete all 'Clerks' having Basic 5000 or less.

Unit III: Integrity Constrains

	Chit III. Integrity Constituins
3.	Create a table named Library with appropriate data type of following structure: (Book_id, Title, Author, Subject, Publisher, Quantity, Price, Student_id) Apply following constraints on the field (i) Book_id must be Primary Key (ii) Title must be Unique (iii) Quantity should be more than 100 (iv) Price should be between Rs. 10 and Rs. 5000 (a) View all the constraints from the data dictionary (b) Add Foreign Key constraints to Student_id column which references to Student(Student_id). [Create Student(Roll, Name, Book_id(PK)) before adding the Foreign Key constraints] (c) Describe the structure of the table. (d) Insert records to verify the constraints.
	Unit V: SELECT Statement
4.	 A company wishes to maintain a database to automate its operations. Company is divided into certain departments and each department consists of employees. The following two tables describes the automation schemas: Dept (deptno, dname, loc) Emp (empno, ename, job, mgr, hiredate, sal, comm, deptno) (a) Create above tables with appropriate data types (b) Insert details of three departments and details of 5 employees. (c) List the employee's name and salary, whose experience is greater than 10 years. (d) Display unique jobs from the table. (e) Display employees of department no. 20 and 30 who have salary between 20000 and 30000.
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Unit VII: Join and Sub-Query
nsider the table
pt (deptno, dname, loc)
p (empno, ename, job, mgr, hiredate, sal, comm, deptno)
ated earlier, write following query:
(a) Display the manager who is having maximum number of employees working under him?
(b) List the names of employees, who take highest salary in their departments.
(c) Create a view Emp Dept, which contains Employee name, job, salary and departmen
name.
Unit IV: ROLLBACK, COMMIT, GRANT and REVOKE Statement
ate Teacher table with the following fields (Name, DeptNo, Date_of_joining, DeptName,
(a) Insert five records
(a) Insert five fecolds. (b) Cive Increment of 25% colory for Mathematics Department
(b) Give increment of 25% salary for Mathematics Department.
(d) Give Increment of 15% salary for Commerce Department
(d) Give increment of 15% satary for Commerce Department. (e) Perform commit command
(a) Create a new user 'ku' having password 'ku123'
(a) Grant all privileges to the user 'ku'
(c) Create a table BCA(adm id name)
(d) Revoke all privileges from the user 'ku'
(e) Grant only CREATE and SELECT privilege from user 'ku' on table BCA
(c) Grant only Greatile and GEELECT privilege non-user ku on able Der

Group -	'B':	Java	Programm	ing – I
Oroup				

	Unit I: Data Types, Operators and Expressions, Selection and Loop Statements
1.	Write a program to input and display different types of data values using Scanner or Stream class.
2.	Write a program to create a simple calculator which can perform basic arithmetic operations like addition, subtraction, multiplication or division, exponent (x^y) , and square root depending upon the user input.
3.	Write a program to convert primitive to wrapper class and wrapper to primitive.
4.	Write a program to input length of three sides of a triangle. Then check if these sides will form a triangle or not. If sides form a triangle, then display the type of the triangle with its area and perimeter.
5.	Write a program to find factorial of a number. Input the number as command line argument.
6.	Write a menu-based program to check Prime, Armstrong, and Perfect number.
7.	 Write a menu-based program to convert following – Decimal to Binary Number Binary to Decimal Number
	Unit II: Arrays, Strings
8.	Write a java program to check whether the elements of an array are sorted or not. If sorted, display the order, otherwise sort elements in ascending order or descending order as per user's choice.
9.	Write a program to input order of two matrices and check if it satisfies the condition for product of the matrices or not. If it satisfies the condition then find the product of the matrices. (<i>Hint: Two matrices can be multiplied if and only if they satisfy the following condition: The number of columns present in the first matrix should be equal to the number of rows present in the second matrix.</i>)
10.	Write a program to input a string and display number of vowels and consonant in each word. For example, if the string is "Kolhan University Chaibasa", then the output will be – Kolhan: Vowels = 2, Consonants = 4 University: Vowels = 4, Consonants = 6 Chaibasa: Vowels = 4, Consonants = 4
	Unit III: Class, Objects and Methods
11.	Write a program in Java with class Rectangle with the data fields width, length, area and color. The length, width and area are of double type and color is of string type .The methods are set_ length (), set_width (), set_ color(), and find_ area (). Create two object of Rectangle and compare their area and color. If area and color both are same for the objects then display "Matching Rectangles" otherwise display "Non matching Rectangle".
12.	Create a class Account with two overloaded constructors. First constructor is used for initializing, name of account holder, account number and initial amount in account. Second constructor is used for initializing name of account holder, account number, addresses, type of account and current balance. Account class is having methods Deposit (), Withdraw (), and Get_Balance(). Make necessary assumption for data members and return types of the methods. Create objects of Account class and use them.
13.	Write a Java program to create a shape class and derive, square and circle classes from shape class. Define appropriate constructor for all the three classes. Define a method Area() to calculate

	area of circle and square in respective class. Assume $PI = 3.14$ and declare it as a final variable in circle class.						
14.	Define an Employee class with suitable attributes having getSalary() method, which returns salary withdrawn by a particular employee. Write a class Manager which extends a class Employee, override the getSalary() method, which will return salary of manager by adding traveling _allowance, house rent allowance etc. Use default and parameterized constructors to initialize data.						
15.	Write a java program which creates an interface having 2 methods add () and sub(). Create a class which implements the above interface for addition and subtraction of two numbers respectively.						
16.	Write a program to demonstrate the multiple inheritance using interfaces.						
Unit IV: Packages							
17.	Create and implement a package having two public classes.						

Note: Additional lab assignments may be included based on topics covered in the theory paper.





KOLHAN UNIVERSITY

Chaibasa, Jharkhand, India

Syllabus for

Four Year Undergraduate Programme (FYUGP) of

Bachelor of Computer Application (BCA)

Semester - 3

Minor From Discipline-1

With Effect From Academic Year 2022 - 2023

As Per Revised Curriculum and Credit Framework for the FYUGP under the provisions of NEP - 2020

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Course Structure (Semester – III) for Four Year Undergraduate Programme (FYUGP) of

Minor of Bachelor of Computer Applications (BCA)

Sem.	Paper Code	Paper Title	L-T-P	Credits	Contact Hours
III	MN-1B	Fundamentals of Digital Electronics	3-1-0	4	60

Abbreviations:

L-T-P (Lecture-Tutorial-Practical), MN-1 (Minor From Discipline-1)

MN–1B: Fundamentals of Digital Electronics

4 Credits | 60 Minimum Class Hours | Semester III

Objective:

The objective of the course is to enable students to-

- Understand how to represent Binary, Octal, Decimal, and Hexadecimal data and perform the conversion among different number systems.
- Understand the application of Logic Circuit and Boolean algebra in Computer Science and Applications.
- Understand the design of various functional units and digital components of a computer.

Learning Outcome:

After completion of this course, a student will be able to-

- Analyze the performance of commercially available computers.
- Build simple logic circuits using basic logic gates such as AND, OR, NOT, NAND, and NOR.
- Understand the architecture of various digital components, like Integrated Circuits, Decoders, Encoders, Multiplexers, De-multiplexers, Registers, Shift Registers, and Binary Counters.

Outline of the Course

Minimum Exam					Marks										
Class Time		Credits Seme		ter End		Full		Pass		Total Marka					
Hours		(Ho	Hours)			Internal		Semester		Mark		Marks		Total Marks	
Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th	Pr	Th + Pr	
60	N/A	3	N/A	4	N/A	20+5=25	N/A	75	N/A	100	N/A	40	N/A	100+N/A=100	

Unit	Торіс	Minimum Class Hours			
Ι	Data Representation	10			
II	Digital Logic Circuits	25			
III	Digital Components	25			
	Total	60			

Detailed Syllabus

Unit I: Data Representation

Number System: Binary number system, Octal number system, Decimal number system, Hexadecimal number system, Conversion from one number system to another, Binary Arithmetic (Addition, Subtraction, Multiplication, and Division).

Fixed–Point Number (i.e., Integer) Representation: Unsigned integers, Signed integers (Sign–magnitude, 1's complement, and 2's complement representation).

(10 Hours)

Floating–Point Number Representation: 32–bit single–precision floating–point numbers, 64–bit double–precision floating–point numbers.

Character Encoding: Bit, Byte, Word, BCD, EBCDIC, ASCII, ANSI, Unicode, UTF, ISCII.

Unit II: Digital Logic Circuits

Logic Circuit: Logic Gates (AND, OR, NOT, NAND, NOR, Exclusive–OR, Exclusive–NOR), Converting expressions to logic circuits.

Boolean Algebra: Fundamental concepts of Boolean algebra, Postulates of Boolean algebra, Representation of Boolean expressions using truth tables, The principle of Duality/Perfect induction, De–Morgan's theorem, Simplification of Boolean expression, Canonical forms for Boolean expressions (Sum–of–Product and Product–of–Sum), Conversion between canonical forms.

Combinational Circuits: Half adder, Full adder.

Flip–Flops: Latches, Edge triggered flip–flops (SR flip–flops, D flip–flops, JK flip–flops, and T flip–flops), Pulse triggered flip–flops (Master slave JK flip–flop).

Unit III: Digital Components

Integrated Circuits (Types of Integrated Circuits Based on Number of Gates, Types of Integrated Circuits Based on Circuit Technology), Decoders, Encoders, Multiplexers, Demultiplexers, Registers {Modes of Operation (SISO, SIPO, PISO and PIPO)}, Shift Registers, Binary Counters {Asynchronous counters (Four bit ripple counter), Synchronous counter (Four bit synchronous counter)}.

Recommended Books:

- M. Morris Mano; Computer System Architecture (Third Edition); New Delhi: Prentice-Hall India, 2002
- Donald P Leach, Albert Paul Malvino, Goutam Saha; **Digital Principles and Applications** (Seventh Edition); New Delhi: Tata McGraw Hill Education Pvt. Ltd., 2011
- Mostafa Abd–El–Barr, Hesham El–Rewini; Fundamentals of Computer Organization and Architecture; John Willy and Sons, Inc. Publication, 2005
- Thomas L. Floyd; **Digital Fundamentals** (Fifth Edition); New Delhi: Pearson Education, 2002

Further readings:

- William Stallings; Computer Organization and Architecture (Sixth Edition); New Delhi: Prentice-Hall India, 2002
- B. Ram, Sanjay Kumar; Computer Fundamentals: Architecture and Organization (Fifth Edition); New Age International Pvt. Ltd.. 2018



(25 Hours)

(25 Hours)

AEC-III Language Through Literature - I

SEMESTER- III (2 Credits - 50 marks)

Course Level Learning Outcomes

- To use literature as a medium to teach/learn grammar, reading, spelling, vocabulary, writing mechanics, creative writing and thinking skills
- To strengthen contextual understanding of the language through textsrelevant to specific disciplines and offer scope for imaginative involvement and self-expression
- To stimulate interest in acquiring twenty first century skills
- To engage in self-assessment activities for self- development
- To help absorb the values, ethics and attitudes of life and culture expressed in literature

Course Content Essays

Humanities vs Sciences	S. Radhakrishnan
Wings of Fire (An Extract)	A. P. J. Abdul Kalam
On the Rule of the Road	A. G. Gardiner
The Muse in the Machine	John Thornhill
Facebook Is Making Us Miserable	Daniel Gulati
One World OneCulture	Kenneth J. Pakenham, Jo McEntire, Jessica Williams
Portion Size is the Trick!!	Ranjani Raman

Source Books:

Confluence, Edited by KN Sobha, Cambridge University Press

Semester Examination and distribution of marks:-End Semester Examination (ESE): 50 Marks

Group A

- 1. *Ten* Objective Type Questions $(1 \times 10 = 10)$ [MCQs not to be set]
- 2. *Two* Short Answer Type Questions $(5 \times 2 = 10)$
 - (Two questions to be answered out of a choice of Four)

Group B

Three Long Answer Type Questions $(10 \times 3 = 30)$ (Three questions to be answered out of a choice of Six)

KOLHAN UNIVERSITY, CHAIBASA FYUGP SEMESTER –III UNDER NEP SEC-III (SKILL ENHANCEMENT COURSE) Course Title: MATHEMATICAL & COMPUTATIONAL THINKING AND ANALYSIS

Total Marks: 75 CREDITS: 03 Pass Marks: 30 Total Lecture: 45 Hours

UNIT I: Logic: Introduction, Statement, Truth value of a statement, Negation of a statement, Compound or mixed statements. Logical Connectives and Tautologies, Implications / Conditional statements, Converse statement, Positive statement, Validating statement.

(10 Lecture hours)

UNIT II: Elementary Arithmetic: Number System and Rapid Method of Calculation, Approximation, Decimalisation, Ratio, Proportion. **Advanced Arithmetic:** Percentages, Simple Interest, Compound Interest, Surface areas and volumes.

(10 Lecture hours)

UNIT III: Mathematical Induction: Introduction, Motivation, The Principle of Mathematical Induction, Progression: Elementary idea of A.P., G.P., and H.P.

(10 Lecture hours)

UNIT IV: Statistics: Definition of Statistics, Characteristics of Statistical data, Nature of Statistics, Limitation of Statistics, Collection of data, Diagrammatic presentation of data, Calculation of frequency distribution.

Measures of Central Tendency: Mean, Median, Mode, Quartiles, Deciles and percentiles.

Measures of dispersions: Range, Inter-quartile range, Quartile Deviation, Mean Deviation, Standard Deviation.

Measures of Skewness, Correlation, Probability.

(15 Lecture hours)

Suggested Books:

- 1. "Mathematical and Computational Thinking and Analysis": Dr R. K. Tiwary, Dr. Y. K. Mishra & Dr. B. N. Gupta.
- 2. "Arithmetic": Lalji Prasad. Students' Friends.

JHARKHAND NEP, FYUGP 2022-23 ONWARDS

MAJOR IN SOCIOLOGY



Revised Curriculum and Credit Framework for the Four-Year Undergraduate Programmes (FYUGP). As per Provisions of NEP-2020, implemented from the Academic Year 2022-23 onwards (KU Ref.No.KU/R397/23 dated-14/03/23)

KOLHAN UNIVERSITY, CHAIBASA, JHARKHAND

Revised Courses of Study for Four Year Undergraduate Programme 2022-23, Major in Sociology

w.e.f. 2022-23 Academic Year

Major in Sociology

Revised Draft Syllabus

Kolhan University, Chaibasa, Jharkhand

Jharkhand, NEP, FYUGP 2022-23 onwards							
Table 6: Semester wise Course Code and Credit							
Points for	Single Ma	ajor:					
Semester	Comm Major, 1 & Int	on, Introductory, Minor, Vocational ernship Courses					
	Code	Papers	Credits	F.M •	P.M •	Internal Exam.F.M.	University Exam.F.M.
Ι	AEC-1	Language and Communication Skills (MIL- 1)(Modern Indian Language including TRL) Hindi(50 Marks)	2	50	20	No Internal Exam	50
	VAC-1	Value added Course-1 Section-A- Understanding India Section-B- Environmental Science	2+2 =4	50 50	20 20	No Internal Exam	50 50
	SEC-1	Skill Enhancement Course-1 Digital Education	3	75	30	No Internal Exam	75
	MDC- 1	Multi- disciplinary Course-1 Basic concepts Sociology	3	75	30	No Internal Exam.	75
	MN- 1A	Minor from Discipline-1 Basic concepts Sociology	4	100	40	25	75
	MJ-1	Major paper 1 Introduction of Sociology	4	100	40	25	75

Semester wise Course Code, Paper name and Credit Points

Semester-1 total Credits=20

For all Semesters=160 Credits

Semester-I

Multi-disciplinary Course-1

Course Code- MDC-1

End Sem. University Exam-75

No Internal Examination

Credit-3

Paper Name - Basic Concept in Sociology

Course Objective:-The course will help the students to understand the meaning of basic concept of Sociology and how to realise this.By the end of course the student will be able to conceptualize, contextualise and problematize.

Learning outcome:-Student learn the epistemological basis of different types of knowledge basic Sociological Concept.of Sociology, Relationship of other social science, Society, Community, institutions, AssIt possible through this course to be successfull in various completive examination.

Sociology: Nature, scope and significance and growth of sociology; Relationship with History, Economics, Political Science, Anthropology and psychology.

UNIT-I

Basic concepts: Society, community, Institution, Association, Social Structure, Culture, Status & Role, Norms and Values.

Social Groups & Processes: Definition, Nature and type of groups- Primary secondary, in group-out group

Social institution: Marriage, Family, Economy, Polity Kinship and Religion; Their Functions and features.

UNIT-IV

Full Marks: 75

Pass Marks: 30

(10 Class)

(15 Class)

(05 Class)

(15 Class)

UNIT-III

UNIT-II

Readings:

Ahuja ram (2001): Indian Social System, New Delhi; Rawat Publication.

Ahuja ram (2003): **Society in India,** New Delhi; Rawat Publication.

Bottomore, T.B (1972): **Sociology: A Guide to Problems and Literature,** Bombay: George Allen and Unwin (India).

Fulcher & Scott (2003): **Sociology,** New York: Oxford University Press.

Giddens, Anthony (2005) Sociology, Polity Press.

Harlambos, M. (1998): Sociology: Themes and Perspectives, New Delhi Oxford University Press.

Harlambos & Holborn (2000): Sociology, London: Harper- Collins.

Inkeles, Alex (1987): What is Sociology? New Delhi: Prentice- Hall of India.

Jonson, Harry M. (1995): Sociology: A Systematic Introduction, New Delhi: Allied Piblications.

KOLHAN UNIVERSITY, CHAIBASA

DEPARTMENT OF STATISTICS

Proposed Syllabus for FYUGP, NEP-2020

(Effective from Academic Year-2022-23 onwards)

(Semster-1)

Multi-Disciplinary Course- (MDC)-Introduction to Statistics

Credits: Theory: 03 (Full marks: 75, Pass Marks: 30)

Unit I

Introduction: Definition and scope of Statistics, concepts of statistical population and sample. Scales of measurement -nominal, ordinal, interval and ratio. Variables and attributes, Diagrammatical Representation of Data, Summarization of Data: Frequency Distribution and Graphical Presentation.

Unit II

Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, moments, measures of skewness and kurtosis.

Unit III

Bivariatedata:Definition,scatterdiagram,simplecorrelation,rankcorrelation.Fitting of linear and quadratic regression using principle of least squares. Theory of attributesandconsistencyofdata,independenceandassociationofattributes,measuresof associationandcontingencyfor2x2andrxscontingencytables.

References:

1. Gun, A.M., Gupta, M.K. and Dasgupta, B. (2013). Fundamental of Statistics, VolI

, World Press, Kolkata.

- 2. Gun, A.M., Gupta, M.K. and Dasgupta, B. (2011). Fundamental of Statistics, Vol II, World Press, Kolkata.
- 3. Miller, I. and Miller, M. (2006). John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
- 4. Mood, A.M.Graybill, F.A. and Boes, D.C. (2011). Introduction to the Theory of Statistics, 3rd Edn., (Indian Edition), Tata McGraw-Hill Pub. Co. Ltd.