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DEEN DAYAL UPADHYAY KAUSHAL KENDRA
BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	BVS04MAC01	Title of the Course	Object Oriented Programming with JAVA
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	To understand 1. To introduce basic programming concepts and necessary constructs of the Java programming language. 2. To understand the fundamental concepts of object-oriented programming using Java. 3. To describe exception handling and Input Output Management. 4. To understand Applet programming using Abstract Windows Toll Kit (AWT).

Course Content		
Unit	**Description**	**Weightage *(%)**
1.	**Introduction** – History of Java, features, the Java environment, the Java Virtual Machine (JVM) – Structure of a Java program, a simple Java program, implementing a Java program – Tokens, comments, constants, variables and data types – Scope of variables, type casting – Operators: arithmetic, relational, logical, assignment, increment/decrement, conditional, ternary operator & special operators – Decision making: if statement, if…else statement, nesting of if…else, the else if ladder, switch statement – Looping: while, do…while, for, for each loop jumps in loops, labeled loops – Arrays: one, two dimensional arrays	25%
2.	**Classes, Objects, Interfaces and Inheritance** – Defining a class, members of a class: variables and methods,	25%

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		creating objects, constructors, accessing class members – Static members v/s instance members – Introduction to inheritance, super keyword – Interfaces: introduction – Final variables, methods and classes, abstract methods and classes – Introduction to method overloading and overriding	
3.		**Exception Handling, I/O Management and Packages** – Managing errors & exceptions: introduction, types of errors, exceptions syntax of exception handling construct, multiple catch statements, the finally clause, defining and throwing user-defined exceptions, the throw statement – Managing I/O files : introduction, concept of streams, Character stream classes – Introduction to the concept of package, Java API packages, using the System package – Using java.lang (String, Math)	25%
4.		**Applet Programming and JDBC** – Applet architecture and skeleton – Java.awt package (Button, CheckBox, CheckBoxGroup, Choice, Color, Label, List, TextArea, TextField) – HTML applet tag, display techniques (DrawString, Lines, Rectangle, Ellipses, Circles, Arcs, Polygons, Color) – Introduction to event handling – Introduction to JDBC, types of drivers – java.sql package – Retrieving, inserting, deleting and updating data though Java	25%

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.

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Evaluation Pattern		
Sr. No.	**Details of the Evaluation**	**Weightage *(%)**
1.	Internal Written/Practical Examination	50%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments.	
3.	External Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Understanding of the basic programming concepts and necessary constructs of the Java programming language.
2.	Understanding of the fundamental concepts of object-oriented programming using Java.
3.	Ability to describe exception handling and Input Output Management.
4.	Understanding of Applet programming using Abstract Windows Toll Kit (AWT)

Suggested References:	
Sr. No	References
1.	Programming with Java- A Primer by E. Balaguruswami, 3rd Edition, TMH Publication.
2.	The Complete Reference – Java 2 7th Edition Herbert Schildt. TMH Publication.
3.	Saba Zame , Handbook of Object technology, CRC Press, Washington DC, 1999.
4.	Mary Campion and Kathy Walrath, Java tutorial, Second Edition, Addison Wesley Pun. 1998.
5.	Java 2 Programming Black Book, Steven Holzner.

On-line resources to be used if available as reference material
On-line Resources
1.   https://www.tutorialspoint.com/
2.   https://www.w3schools.com/

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3.	https://www.javatpoint.com/

DEEN DAYAL UPADHYAY KAUSHAL KENDRA
BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	**BVS04MAC02**	Title of the Course	**Object Oriented Programming with JAVA Practical Lab**
Total Credits of the Course	**4**	Hours per Week	**4**

Course Objectives:	1. To solve problems using Java programming language. 2. To implement Applet Programming. 3. To implement various data structures using Java programming.

Description	Weightage *(%)
o Operators o Decision making statements o Looping and Array o To Create Class, Object, methods o Inheritance o Exception o Applet Program	100%

Teaching – Learning Methodology	Project-based learning in small groups and Hands on training through required ICT tools.

Evaluation Pattern

Sr. No	Details of the Evaluation	Weightage *(%)
1.	Internal Written/Practical Examination	50%
2.	Internal Continuo us Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance	
3.	External Examination	50%

Course Outcomes : Having completed this course, the learner will be able to	
1.	Gain knowledge to solve problems using Java programming language
2.	Gain knowledge to implement Applet Programming

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3.	Gain knowledge to implement various data structures using Java programming.

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BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	**BVS04MAC03**	Title of the Course	**Web Development using PHP**
Total Credits of the Course	**4**	Hours per Week	**4**

Course Objectives:	1. To introduce students to fundamental concepts related to PHP programming.
	2. To impart basic knowledge of working with advanced features of PHP and interaction with forms.
	3. To provide basic understanding of database access.

Course Content		
Unit	**Description**	**Weightage *(%)**
1.	**Introduction to PHP and Language basics** − Intro to PHP for Web Development − History & Future Scope of PHP − Intro to JSP, Advantage of PHP over JSP − Variables, Language Construct, Type Juggling, Deleting a Variable, Operators, Comments, echo, print, conditional statement , Loops (for, while), switch	25%
2.	**Datatypes, Arrays and Functions** − What is Datatype, Types of Datatype, Type Casting, Garbage Value − Arrays: What is an Array, Types of Array, print_r(), foreach − Important Built-in functions of array : explode(), implode(), shuffle(), rand(), count(), array_key_exists(), 2 array_reverse(), sort(), ksort(), rsort(), array_push(), array_pop(), array_merge(), array_key_exists(), array_reverse() − Multi-dimensional Arrays − Functions : function , Types of Function, return statement	25%

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	– How to call a function – Function without parameters, Function with parameters – Static Variable, Difference between Call By Value and Call By Reference. – Important Built-in functions of array : ceil(), floor(), round(), fun_get_args(), fun_num_args()	
3.	**Working with forms, regular expressions, session and cookie** – Important HTML Tags,Super-Global Variable – Different ways to carry form data (GET, POST) ,isset(), isempty() – Regular Expression: Regular Expression, Important Symbols used in regular expression withexplanation, Validations – Session : Creating a Session, Use of Session, Destroying a Session, Login/Logout – Cookie: Difference between Session & Cookie, Types of Cookie, Creating a Cookie, Fetching value of Cookie, Deleting a Cookie	25%
4.	**Introduction to MySQL** – Database, SQL Injection – Different kinds of Datatypes used in MySQL – Connecting PHP with MySQL – Creating a Database, Creating a Table-Insert, update, delete, select – Truncate, alter, drop, grant, revoke, commit, rollback, rename	25%

Teaching - Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	**Weightage *(%)**
1.	Internal Written/Practical Examination	50%
2.	Internal Continuous Assessment in the form of Practical, Viva -voce, Quizzes, Seminars, Assignments, Attendance	

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3.	External Examination	50%

Course Out comes : Having completed this course, the learner will be able to	
1.	Understanding of the fundamental concepts related to PHP programming
2.	Basic knowledge of working with advanced features of PHP and interaction with forms.
3.	Understanding of database access in PHP.

Suggested References:	
Sr. No	References
1.	PHP – A Beginner's guide, Vikram Vaswani, TMH, 2009.
2.	Web enabled commercial application development using HTML, Javascript, DHTML and PHP by Ivan Bayross, BPB Publication, 2010.
3.	Beginning PHP5 By Dave Mercer, Allan Kent, Steven Nowicki, David Mercer, DanSquier, Wankyu Choi, Wrox Publication, 2004.
4.	Professional PHP by Castagnetto Jesus, Shroff Publication, 1999.

On-line resources to be used if available as reference material	
On-line Resources	
1.	https://www.tutorialspoint.com/
2.	https://www.w3schools.com/
3.	https://www.javatpoint.com/

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SEMESTER – IV

Course Code	**BVS04MIC04**	Title of the Course	**Web Development using PHP Practical Lab**
Total Credits of the Course	**4**	Hours per Week	**4**

Course Objectives:	1. To study the concepts of web programming using PHP.NET.

Description	Weightage *(%)
o Operators o Conditional statements o Loops and switch o Array o Functions o Expressions and session o Database connectivity	100%

Teaching-Learning Methodology	Hands on training through required ICT tools.

Evaluation Pattern		
Sr. No	Details of the Evaluation	Weightage *(%)
1.	Internal Written/Practical Examination	50%
2.	Internal Continuous Assessment in the form of Practical, Viva -voce, Quizzes, Seminars, Assignments, Attendance	
3.	External Examination	50%

Course Outcomes : Having completed this course, the learner will be able to	
1.	Gain the knowledge of PHP Programming.

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BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	**BVS04AEC05**	Title of the Course	**System Analysis Design**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	1. To study the concept of a system and learn the System Development Life Cycle (SDLC). 2. To impart knowledge on fact finding techniques, input/output design and Data Flow Diagrams.

Course Content		
Unit	**Description**	**Weightage *(%)**
1.	**Introduction to System Analysis and Design** – System and Characteristic of System – System Elements and System Concepts, – Types of Systems and Integrated system, – Systems Analyst – Knowledge and Qualities and Objective – Role of Systems Analyst, – Systems Approach and Systems Analysis, – Fact Gathering Techniques – (Interviews, Questionnaires, Record Inspection and Observation)	50%
2.	**System Development Model** – Introduction to Various Methodologies of Systems Development – SDLC(System Development Life Cycle) Model, Prototype Model – Difference between System Analysis and System Design, – Decision Tree Decision Table	50%

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| | – DFDs and Symbolsused, Rules for drawing DFDs,
 – Physical and Logical DFDs ,Examples of DFD | |

| Teaching-Learning Methodology | Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools. |

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage *(%)
1.	Internal Written/Practical Examination	50%
2.	InternalContinuousAssessmentintheformofPractical,Viva-voce,Quizzes,Seminars,Assignments,Attendance	
3.	External Examination	50%

Course Out comes : Having completed this course, the learner will be able to	
1.	Gain knowledge about Systems and System Development Life Cycle (SDLC).
2.	Understand the concepts of fact finding techniques, input/output design and Data Flow Diagrams.

Suggested References :	
Sr. No.	References
1.	Prof. S. ParthaSarathy, Prof. B. W. Khalkar, "System Analysis, Design And Introduction to Software Engineering (SADSE)", 9th Ed.
2.	James A.Senn:"Analysis & Design of Information System", 2nd Ed.,McGraw-Hill Int.

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On-line Resources	
1.	https://www.tutorialspoint.com/
2.	https://www.w3schools.com/
3.	https://www.javatpoint.com/

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BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	**BVS04SEC06**	Title of the Course	**Computer Networking**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	1. To understand the basic concepts of computer networks and data communication.
	2. To acquire knowledge of basic concepts related to network protocols and standards.
	3. To learn fundamentals of wireless networking.

Course Content		
Unit	**Description**	**Weightage *(%)**
1.	**Introduction and Data Communication Fundamentals** – Computer networks : definition and advantages – Classification of computer networks – Introduction and differences among Local Area Networks (LANs), Metropolitan Area Networks (MANs), Wide Area Networks (WANs) – Uses of Computer Networks – Meaning of the basic terms : topology, data rate, modulation rate, spectrum, bandwidth, server, host – Various types of transmission media - guided transmission media magnetic media, twisted pair, coaxial cables, fiber optics – Introduction to the concept of modulation, types of modulation, serial transmission vs. parallel transmission, synchronous transmission v/s asynchronous transmission, circuit switching, packet switching – The concept of multiplexing, Frequency Division Multiplexing (FDM) vs. Time Division Multiplexing (TDM)	50 %

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2.	**Layered Protocols and Satellite Communication, Local Area Network Technology and Networking Devices** – Protocol significance and hierarchies – Design issues for the layers – The OSI Reference model – Examples of protocols for different layers of the OSI model – Introduction to wireless networks – Communication satellites – Introduction to geosynchronous satellites – Types and characteristics of Local Area Networks – LAN Topologies : Bus, Star, Ring, Tree, Complete (Mesh) – Introduction to Carrier Sense Multiple Access (CSMA) protocol for LAN functions of various networking components : modems, amplifiers, repeaters, hubs, switches, bridges, routers, gateway	50 %

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	**Weightage *(%)**
1.	Internal Written/Practical Examination	50%
2.	InternalContinuousAssessmentintheformofPractical,Viva-voce,Quizzes,Seminars,Assignments,Attendance	
3.	External Examination	50%

Course Out comes : Having completed this course, the learner will be able to	
1.	Ability to describe the significance and functioning of computer networks.
2.	Understanding of the fundamental concepts related to data communication.
3.	Knowledge of various network protocols and standards.
4.	Knowledge of basic concepts related to wireless networking.

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Suggested References :	
Sr. No.	References
1.	Behrouz Forouzan, introduction to data communications and networking, Tata McGraw-hill publishing co. Ltd., New Delhi, 1998, 4th edition.
2.	Tanenbaum A. S., computer networks, 3rd edition prentice-hall of India Pvt. Ltd., New Delhi, 1997.
3.	Stallings W., Data and Computer Communications, 3rd edition, Macmillan Pub. Company, New York, 1991.

On-line resources to be used if available as reference material	
On-line Resources	
1.	https://www.tutorialspoint.com/
2.	https://www.javatpoint.com/
3.	https://www.geeksforgeeks.org/

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DEEN DAYAL UPADHYAY KAUSHAL KENDRA
BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	**BVS04VAC01**	Title of the Course	**Advanced Operating System**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	1. To provide basic understanding of the role and functioning of an operating system. 2. To introduce the basic concepts related to processor management, memory management, process synchronization and deadlocks. 3. To impart fundamental knowledge on Linux shell environment and programming.

Course Content		
Unit	**Description**	**Weightage *(%)**
1.	**Process Synchronization, Deadlocks and Introduction to Linux** – Introduction to Cooperating process – Process Synchronization, – Critical Section Problem – Two process solution, Multiple process solution Deadlock and characterization – Introduction to Linux System & History – Features of Linux – Introduction to File System & Memory Management	50%
2.	**Basic Linux commands** – Introduction to shell scripting – Basic Commands: login, logout, date, man, pwd, who, whoami, dir, ls, cd, mkdir, rmdir – Use of Wild card characters and introduction to vi editor – Introduction to environment variable like HOME, PATH, PS1	50%

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	– Types of File access permision, use of chmod command	
	– Basic commands like cp, mv, rm, rev, file redirection,	
	– grep, cut, paste, find sort commands with example	
	– Introduction to shell script: execution of it, shell script variable, expr, test commands	
	– Control structure: if, if..else, case structure	
	– Iteration: while, for construct, break, continue, exit commands	

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage *(%)
1.	Internal Written/Practical Examination	50%
2.	InternalContinuousAssessmentintheformofPractical,Viva-voce,Quizzes,Seminars,Assignments,Attendance	
3.	External Examination	50%

Course Out comes : Having completed this course, the learner will be able to	
1.	Ability to describe the role and functioning of an operating system.
2.	Understanding of fundamental concepts related to memory management, process synchronization and deadlocks.
3.	Familiarity with Linux command-line environment.
4.	Knowledge of basic Linux commands
5.	Ability to develop Linux shell scripts.

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AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE'A^+' UGC – MHRD, Govt of India – June 2022

Syllabus as per NEP 2020 with effect from the Academic Year 2024-2025

Suggested References :	
Sr. No.	References
1.	Andrew S. Tanenbaum: Operating System deign & Implementation, Prentice Hall International.
2.	James Peterson and Abraham Silberschatz: Operating System Concept, Addition Wesley.
3.	Bryan Pfaffenberger - Linux Commands Instant reference , BPB Publication.
4.	Sumitabha Das - UNIX , Concepts and Applications – Tata McGraw-Hill Publications.
5.	Advanced Linux Programming – Samuel, Techmedia Publications.

On-line resources to be used if available as reference material	
On-line Resources	
1.	https://www.tutorialspoint.com/
2.	https://www.w3schools.com/
3.	https://www.javatpoint.com/

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

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DEEN DAYAL UPADHYAY KAUSHAL KENDRA
BACHELOR OF VOCATION (SOFTWARE DEVELOPMENT)
SEMESTER – IV

Course Code	**BVS04VAC02**	Title of the Course	**NCC-II**
Total Credits of the Course	**2**	Hours per Week	**2**

Course Objectives:	– Course Content Part (I) Theory – Course Content Part (II) Practical – Course Objectives: – Cadets will be able to:- Know about the history of NCC and Awareness of Nation. – Its organization and incentives of NCC for their career prospects. – Acquire knowledge of duties and conduct of NCC cadets – Understand about different NCC camps and their conducts. – Understand the concept of national integration and its importance. – Understand the concept of self-awareness and emotional intelligence. – Understand the concept of critical & creative thinking. – Understand the process of decision making & problem solving. – Understand the concept of team and its functioning. – Understand the concept and importance of Social service.

Course Content Course Content Part (I) Theory		
Unit	**Description**	**Weightage *(%)**
1.	**Anatomy and Physiology of human body** – Skeleton system, Muscular system, Digestive System, Respiratory system, Circulatory system, Nervous system, reproductive system, Function of body, Excretory system, Glandular system, Necessity of food, Balance diet. – Haying and sanitation ,Personal body ,Classification of diseases Brief introduction of important disease ,Water	25%

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	reservoir and ITS cleanness ,Arrangement of sanitation in camp	
2.	**First aid:** – Fist and equipment, Artificial respiration, Pressures points, Wound, Haemorrhage of bleeding, Fisted aid for internal haemorrhage, Fist and for External haemorrhage. – Unconsciousness, Poisons, Burns and Scalds, Heat stroke, Frost bite, Drowning. – Snake bite ,Dog bite, Insect bite, Foreign bodies in eye, Ear and nose, Methods of caring Carriages of sick/Wounded person	25%

Course Objectives:	o Course Content Part (I) Theory o Course Content Part (II) Practical o Course Objectives:
	– Understand that drill as the foundation for discipline and to command a group for common goal.
	– Understand the importance of a weapon its detailed safety precautions necessary for prevention of accidents.
	– Develop awareness about different types of terrain and how it is used in battle craft.
	– Develop the concept of various markings on the map and how they are co-related to the ground features.

Course Content Course Content Part (II) Practical		
Unit	**Description**	**Weightage (%)**
1.	**Home Nursing** – Introduction, Quality of a nurse, Duties of nurse, Common Nursing Instrument – Sick Room, observation of the sick , Signs and symptoms to be noted, Taking pules, Respiration & Temperature – Relationship between temp Pulse and respiraion , Setting of blood pressure apparatus	**25 %**

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2.	**YOGASANS** – Advantage from asanas-1, Hints for successful yogasanas, Types of yogasanas, Madiative asanas , Physical asanas.	**25 %**

Teaching-Learning Methodology	Classroom teaching and learning
	Ground –Based learning (Practical)
	Project-Based Learning
	Problem-Based Learning
	Inquiry-Based Learning
	Group Discussion.
	Collaborative Learning
	Ground work practical.
	Army Wing Camps Taring.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	**Weightage *(%)**
1.	Internal Written	15%
2.	Internal Continuous Assessment in the form of Practical & Viva	15%
3.	External Examination Written	35%
4.	External Examination Practical & Viva	35%

Course Out comes : Having completed this course, the learner will be able to	
1.	After completing this course, the cadets will be able to: - Imbibe the conduct of NCC cadets.
2.	Respect the diversity of different Indian culture.
3.	Practice togetherness and empathy in all walks of their life.
4.	Do their own self-analysis and will work out to overcome their weakness for better performance in all aspects of life.

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5.	Understand creative thinking & its components.
6.	Think divergently and will try to break functional fixedness.
7.	Make a team and will work together for achieving the common goals.
8.	Do the social services on different occasions.

Suggested References :	
Sr. No.	References
1.	NCC Hand Book
2.	DG NCC App
3.	NCC DG Pressy
4.	NATIONAL CADET CORPS (S.GAUR)

On-line resources to be used if available as reference material	
On-line Resources	
1.	https://indiancc.nic.in/ncc-general-elective-subject-course-design/