BHAKTA KAVI NARSINH MEHTA UNIVERSITY, JUNAGADH
(Established vide Government of Gujarat Act No. 23/2015)
ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી, જૂનાગઢ
(ગુજરાત અધિનિયમ નં. ૨૩ / ૨૦૧૫ દ્વારા સંચાલિત)

Azadi Ka Amrit Mahotsav

G20 भारत 2023 INDIA

પરિપત્ર:

    ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટીની સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજોનાં આચાર્યશ્રીઓને સવિનય જણાવવાનું કે સાયન્સ વિદ્યાશાખા હેઠળનો NEP-૨૦૨૦ અંતર્ગતનો કોમ્પ્યુટર સાયન્સ વિષયનો (બી.સી.એ વિથ ઓનર્સ) નો સેમેસ્ટર-૩ અને સેમેસ્ટર-૪ નો અભ્યાસક્રમ આ સાથે સામેલ છે.

    માનનીય કુલપતિશ્રીની મંજુરી અનુસાર સદર અભ્યાસક્રમ શૈક્ષણિક વર્ષ જુન,૨૦૨૪ થી અમલવારી કરવાની રહે છે. સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજો દ્વારા તેની અમલવારી કરવા જણાવવામાં આવે છે.

ખાસ ફરજ પરના અધિકારી
(એકેડેમિક)

ક્રમાંક/બીકેએનએમયુ/ એકેડેમિક/૭૧૦/૨૦૨૪
ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી,
સરકારી પોલીટેકનિક કેમ્પસ,
ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી રોડ,
ખડીયા, જૂનાગઢ-૩૬૨૨૬૩
તા.૧૯/૦૬/૨૦૨૪

પ્રતિ,
- ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી સંલગ્ન સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમો ચલાવતી તમામ કોલેજોના આચાર્યશ્રીઓ તરફ....

નકલ સાદર રવાનાઃ-
- માન.કુલપતિશ્રી/કુલસચિવશ્રીનાં અંગત સચિવશ્રી.
- પરીક્ષા નિયામકશ્રી, ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી, જુનાગઢ

નકલ રવાના જાણ તથા યોગ્ય કાર્યવાહી અર્થેઃ
- સીસ્ટમ મેનેજરશ્રી, આઇ.ટી.સેલ વિભાગ (વેબસાઇટ ઉપર પ્રસિદ્ધ થવા અર્થે.)

સરકારી પોલિટેકનિક કેમ્પસ,
ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી રોડ, ખડીયા,
જૂનાગઢ – ૩૬૨૨૬૩, ગુજરાત (ભારત).
ફોન નં. ૦૨૮૫ – ૨૬૮૧૪૦૦ ફેક્સ નં.૦૨૮૫–૨૬૮૧૫૦૩

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BHAKTA KAVI NARSINH MEHTA UNIVERSITY JUNAGADH

BOARD OF COMPUTER SCIENCE STUDIES

FACULTY OF SCIENCE

SYLLABUS FOR

B.C.A (HONOURS) PROGRAMME

(SEMESTER- III & IV)

MAJOR/MINOR/MULTIDISCIPLINARY

EFFECTIVE FROM JUNE, 2024

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Syllabus of B.C.A.(Honors) as per NEP-2020
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Effective from June 2024
Subject: Computer Science
SEMESTER-III & IV

SUMMARY OF THE SYLLABUS

Sem No.	Sr. No.	Category of Course	Course Title	Course Level	Credit	Teaching Hrs.	SEE Marks	CCE Marks	Total Marks	Exam Duration
Sem-3	1	Major-5	OOP Concepts using C++ (Theory)	5.0	Theory 4 Practical 0	Theory-60 Practical-0	50	50	100	2:00 Hrs
	2	Major-6	OOP Concepts using C++ (Practical)	5.0	Theory 0 Practical 4	Theory-0 Practical-120	50	50	100	2:00 Hrs
	3	Major-7	DBMS - I	5.0	Theory 3 Practical 1	Theory- 45 Practical-30	50	50	100	2:00 Hrs
	4	MDC-3	Mathematics	5.0	Theory 4 Practical 0	Theory- 60 Practical-0	50	50	100	2:00 Hrs
				Total	**16**					

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SEMESTER- IV

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Course Level	5.0	Internal Marks	50
Programme	Bachelor of Computer Application	External Marks	50
Semester	IV	Practical Internal	0
Category of Course	Major-8	Practical External	0
Course Credit	4	Prac. External Exam Duration	-
Teaching Hours	Theory-60 Practical-0	Total	100
Course Code		Exam Duration	2:00 Hrs
Course Title	**Programming in Java (Theory)**		

Course Objectives:
1. To impart the knowledge of Java language components and to teach how to use them together in building applications
2. To make the learners aware about design and implementation aspects of java OOP platform
3. To impart the know how about how GUI can be created using java

Course Learning Outcomes:
1. Having ample knowledge about the design and development of problem solutions in java
2. Being able to develop the stand-alone applications in java
3. Developing capability of creating GUI based applications

Course Contents

Sem	Unit No.	Syllabus	Teaching Hours

4	1	• **overview:**
		   o History and Features of Java
		   o JDK, JVM and JRE
		   o JDK Tools
		   o JIT compiler
		   o Java IDE (NetBeans and Eclipse)
		   o Byte code and machine code
		• **Basic building blocks:**
			15

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		o Data Type (Integer, Float, Character, Boolean)
		 o Java Tokens (Keyword, Literal, Identifier, Whitespace, Separators, Comments)
		 o Operators (Arithmetic, Relational, Boolean Logical, Bitwise Logical, Assignment, Unary, Shift, Special operators)
		
		 • **Basics of Java programming:**
		    o Writing, Compiling and Executing basic Java Program
		    o Java variable and scope of variables
		    o Decision Statements (if, switch)
		    o Looping Statements (for, while, Do-While)
		    o Jumping Statements (break, continue, return)
		    o Array (One Dim., Rectangular, Jagged)
		    o Command Line Argument
		
		 • **OOP Concepts:**
		    o Definition and concepts of Class, Object, Encapsulation, Inheritance, Polymorphism
		    o Creating and using Class with members
		    o Static and Non-Static Members
		    o Constructor
		    o finalize () method
		    o Constructor overloading and Method overloading	

	2	• **Inheritance:**
		    o Definition, concept and types
		    o Universal Class (Object Class)
		    o Access Specifies (public, private, protected, default, private protected)
		    o Constructors in inheritance
		    o Method Overriding
		
		 • **Interface:**
		    o Definition and concept
		    o Defining Multiple Interface in a single program
		    o Execution of interface in simple application
		    o implementing Hybrid Inheritance program using Interface
		
		 • Nested and Inner Class
		 • Abstract and Final Class
			15

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		• Normal import and Static Import
		 • **Java API packages and important classes:**
		     o Introduction to API packages
		     o Various packages (java.lang, java.util, java.io, java.net, java.awt, java.awt.event, java.applet, java.swing)
		     o java.lang Package Classes (Math, Wrapper Classes, String, String Buffer, Number, Package)
		     o java.util Package Classes (Random, Date, GregorianCalendar, Vector, HashTable, StringTokenizer, SimpleTimeZone, Stack, Scanner)
		     o Creating and Using User Defined package and sub-package
		 • **Exception Handling:**
		     o Definition and concept
		     o try, catch, finally, throw, throws
		     o Creating user defined Exception class	

	3	• **Threads:**
		     o Definition, concept and life cycle (Various states)
		     o Thread Class and its methods
		     o Multithreading implementation and Synchronization
		     o Deamon Thread, Non-Deamon Thread
		 • **Stream:**
		     o Introduction
		     o Types (Input, Output,Character, Byte)
		 • **Applets:**
		     o Introduction to Applet
		     o Applet Life Cycle
		     o Implement & Executing Applet with Parameters
		         ▪ Playing Audio Example
		     o Graphics class
		 • **Layout Managers:**
		     o FlowLayout
		     o BorderLayout
			15

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		o CardLayout o GridLayout o GridBagLayout o Introduction to other layouts(BoxLayout, SpringLayout, GroupLayout) o Using NO LAYOUT Manager	

	4	• **Creating GUI using swing:**
		  o Introduction to AWT and Swing
		  o Difference Between AWT and Swing
		  o Swing Components (JFrame, JPanel, JLabel, JButton, JRadioButton, JcheckBox, JTextField, JpasswordField, JTextArea, JScrollBar, JComboBox, JList, JToggleButton, JTabbedPane, JSlider, JProgressBar, JTextPane)
		  o Menus (JMenuBar, JMenu, JMenuItem)
		• **Event handling:**
		  o Introduction and concept
		  o Event Delegation Model
		  o Event Packages (AWT Event Package, Swing Event Package)
		  o Event Classes (ActionEvent, ItemEvent, FocusEvent, MouseEvent, MouseWheelEvent, TextEvent)
		  o Listener Interfaces (ActionListener, ItemListener, FocusListener, KeyListener, MouseListener, MoutMotionListener, TextListener, WindowListener)
		  o Adaptor Classes (FocusAdaptor, KeyAdaptor, MouseAdaptor, MouseMotionAdaptor)
			15

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Suggested Reading:

Reference Books: No.	Name	Author / Publication
1	Java: A Beginner's Guide	Herbert Schildt
2	Java The Complete Reference	Herbert Schildt
3	The Java Programming Language	Ken Arnold, James Gosling, David Holmes

Web site References:

https://www.tutorialspoint.com/java/
https://www.w3schools.com/java/
https://www.javatpoint.com/java-tutorial

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Course Level	5.0		Internal Marks	0
Programme	Bachelor of Computer Application		**External Marks**	0
Semester	IV		**Practical Internal**	50
Category of Course	Major-9		**Practical External**	50
Course Credit	4		**Prac. External Exam Duration**	2:00 Hrs
Teaching Hours	Theory-0 Practical-120		**Total**	100
Course Code			**Exam Duration**	-
Course Title	**Programming in Java (Practical)**			

Course Objectives:
1. To impart the knowledge of Java language components and to teach how to use them together in building applications
2. To make the learners aware about design and implementation aspects of java OOP platform
3. To impart the know how about how GUI can be created using java

Course Learning Outcomes:
1. Having ample knowledge about the design and development of problem solutions in java
2. Being able to develop the stand-alone applications in java
3. Developing capability of creating GUI based applications

Course Contents

Sem	Unit No.	Syllabus	Teaching Hours

4	1	• **overview:**
		     o History and Features of Java
		     o JDK, JVM and JRE
		     o JDK Tools
		     o JIT compiler
		     o Java IDE (NetBeans and Eclipse)
		     o Byte code and machine code
		 • **Basic building blocks:**
			30

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		o Data Type (Integer, Float, Character, Boolean)
		o Java Tokens (Keyword, Literal, Identifier, Whitespace, Separators, Comments)
		o Operators (Arithmetic, Relational, Boolean Logical, Bitwise Logical, Assignment, Unary, Shift, Special operators)
		• **Basics of Java programming:**
		   o Writing, Compiling and Executing basic Java Program
		   o Java variable and scope of variables
		   o Decision Statements (if, switch)
		   o Looping Statements (for, while, Do-While)
		   o Jumping Statements (break, continue, return)
		   o Array (One Dim., Rectangular, Jagged)
		   o Command Line Argument
		• **OOP Concepts:**
		   o Definition and concepts of Class, Object, Encapsulation, Inheritance, Polymorphism
		   o Creating and using Class with members
		   o Static and Non-Static Members
		   o Constructor
		   o finalize () method
		   o Constructor overloading and Method overloading	

	2	• **Inheritance:**
		   o Definition, concept and types
		   o Universal Class (Object Class)
		   o Access Specifies (public, private, protected, default, private protected)
		   o Constructors in inheritance
		   o Method Overriding
		• **Interface:**
		   o Definition and concept
		   o Defining Multiple Interface in a single program
		   o Execution of interface in simple application
		   o implementing Hybrid Inheritance program using Interface
		• Nested and Inner Class
		• Abstract and Final Class
		• Normal import and Static Import
			30

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		• **Java API packages and important classes:**	
		○ Introduction to API packages	
		○ Various packages (java.lang, java.util, java.io, java.net, java.awt, java.awt.event, java.applet, java.swing)	
		○ java.lang Package Classes (Math, Wrapper Classes, String, String Buffer, Number, Package)	
		○ java.util Package Classes (Random, Date, GregorianCalendar, Vector, HashTable, StringTokenizer, SimpleTimeZone, Stack, Scanner)	
		○ Creating and Using User Defined package and sub-package	
		• **Exception Handling:**	
		○ Definition and concept	
		○ try, catch, finally, throw, throws	
		○ Creating user defined Exception class	
	3	• **Threads:**	30
		○ Definition, concept and life cycle (Various states)	
		○ Thread Class and its methods	
		○ Multithreading implementation and Synchronization	
		○ Deamon Thread, Non-Deamon Thread	
		• **Stream:**	
		○ Introduction	
		○ Types (Input, Output,Character, Byte)	
		• **Applets:**	
		○ Introduction to Applet	
		○ Applet Life Cycle	
		○ Implement & Executing Applet with Parameters	
		■ Playing Audio Example	
		○ Graphics class	
		• **Layout Managers:**	
		○ FlowLayout	
		○ BorderLayout	
		○ CardLayout	
		○ GridLayout	
		○ GridBagLayout	
		○ Introduction to other layouts(BoxLayout,	

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		SpringLayout, GroupLayout)	
		o Using NO LAYOUT Manager	
	4	• **Creating GUI using swing:**	30
		o Introduction to AWT and Swing	
		o Difference Between AWT and Swing	
		o Swing Components (JFrame, JPanel, JLabel, JButton, JRadioButton, JcheckBox, JTextField, JpasswordField, JTextArea, JScrollBar, JComboBox, JList, JToggleButton, JTabbedPane, JSlider, JProgressBar, JTextPane)	
		o Menus (JMenuBar, JMenu, JMenuItem)	
		• **Event handling:**	
		o Introduction and concept	
		o Event Delegation Model	
		o Event Packages (AWT Event Package, Swing Event Package)	
		o Event Classes (ActionEvent, ItemEvent, FocusEvent, MouseEvent, MouseWheelEvent, TextEvent)	
		o Listener Interfaces (ActionListener, ItemListener, FocusListener, KeyListener, MouseListener, MoutMotionListener, TextListener, WindowListener)	
		o Adaptor Classes (FocusAdaptor, KeyAdaptor, MouseAdaptor, MouseMotionAdaptor)	

Suggested Reading:

Reference Books: No.	Name	Author / Publication
1	Java: A Beginner's Guide	Herbert Schildt
2	Java The Complete Reference	Herbert Schildt
3	The Java Programming Language	Ken Arnold, James Gosling, David Holmes

Web site References:
https://www.tutorialspoint.com/java/
https://www.w3schools.com/java/
https://www.javatpoint.com/java-tutorial

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Course Level	5.0	Internal Marks	25
Programme	Bachelor of Computer Application	**External Marks**	50
Semester	IV	**Practical Internal**	25
Category of Course	Major-10	**Practical External**	0
Course Credit	4	**Prac. External Exam Duration**	-
Teaching Hours	Theory-45 Practical-30	**Total**	100
Course Code		**Exam Duration**	2:00 Hrs
Course Title	**DBMS II**		

Course Objectives:
1. To make the learners aware about various database operations
2. To impart the know-how of how to combine database languages with procedural language
3. To disseminate the information about database backup and security

Course Learning Outcomes:
1. Enhancement in the knowledge and understanding of Database analysis and design
2. Having capability to develop procedural blocks to manipulate and use data
3. Developing understanding about the backup and recovery practices
4. Having know how about database authorization and security aspects

Course Content

Sem	Unit No.	Syllabus	Teaching Hours

4	1	• **SQL View:**
		    o Definition and concept
		    o Creating, Updating and deleting view
		 • **SQL Sequence:**
		    o Concept and features
		    o Creating, updating, deleting and using Sequence
		 • **SQL Synonym:**
		    o Definition and Concept
		    o Creating, updating and deleting Synonym
		 • **SQL Index:**
			10

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		o Definition and Concept	
		o Types (Primary, secondary, cluster)	
		o Advantages and disadvantages of indexing	
		• **Database link:**	
		o Definition and Concept	
		o Creating and using database link	
		• **SQL Cluster:**	
		o Definition and Concept	
		o Creating cluster	
		o Advantages and disadvantages of using cluster	
		• **SQL Snapshot:**	
		o Definition and Concept	
		o Types	
		o Creating snapshot	
		o Advantages and disadvantages of using snapshot	
	2	• **PL/SQL:**	15
		o Concept and Features	
		o PL/SQL Block structure	
		o Datatypes, operators and expressions	
		o Variables, constants and literals	
		o Control structures (if-then-else, case, loop, for, while, nested loops)	
		o %TYPE and %ROWTYPE	
		• **Stored procedures:**	
		o Definition and concept	
		o Creating, Updating, Deleting and Executing Procedure	
		• **Stored functions:**	
		o Definition and concept	
		o Creating, Updating, Deleting and Executing Function	
		• **Cursor:**	
		o Definition, concept and types	
		o Attributes and operations	
		o Cursor For loop	
		• **Database triggers:**	
		o Definition, concept and types	
		o Creating, Updating, Deleting and Executing triggers	
		• **Packages:**	
		o Definition, concept and types	

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		o Creating, Updating and Deleting packages	
		• **Exception Handling:**	
		o Concept and types	
		o General Syntax of exception block	
		o Raising exception	
		• **PL/SQL Collection:**	
		o Concept and use	
		o Nested tables and Varrays	
	3	• **Concurrency Control:**	10
		o Concept and Need	
		o Lock:	
		▪ Concept and need	
		▪ Types (shared lock, exclusive lock, DML lock, DDL lock, latch)	
		o Deadlock (Concept, avoidance, detection and prevention)	
		o Blocking (Concept, avoidance and prevention)	
		o Lost Update (Concept, avoidance and prevention)	
		• **Database Backup and Recovery:**	
		o Concept and importance	
		o Important files (Date file, Redo log file, Control File, Archive File)	
		o Backup strategies (full backup, incremental backup, differential backup)	
		o Recovery techniques (rollback, forward recovery, point-in-time recovery)	
	4	• **Database Security and Authorization:**	10
		o Concept and Need	
		o Database security threats and vulnerabilities	
		o User Authentication techniques	
		▪ Concept	
		▪ Username and password authentication	
		▪ Biometric authentication	
		▪ Certificate based authentication	
		▪ Operating System authentication	
		o Authorization mechanisms	
		▪ Concept	
		▪ Access control at different levels (Database, object, statement, row)	
		▪ Techniques (Access Control Lists, User role,	

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		Grant/Revoke Statements)	

		o Encryption and decryption techniques (Single key, public key, hashing, application-level encryption)
		• **Database auditing and monitoring:**
		   o Database auditing
		     ▪ Concept and purpose
		     ▪ Techniques (SQL Profiling and Monitoring, Transaction Logging, third party solutions)
		   o Database monitoring
		     ▪ Concept and purpose
		    ▪ Techniques (Security and Compliance Monitoring, storage monitoring, Query Performance Monitoring, Performance Metrics Monitoring)	

Practical			30

Suggested Reading:

Reference Books: No.	Name	Author / Publication
1	Oracle Database the Complete Reference	Bob Bryla, Kevin Loney –Oracle Press
2	Oracle Database SQL	Jason Price –Oracle Press

Web site References:
https://www.geeksforgeeks.org/sql-tutorial/
https://www.javatpoint.com/sql-tutorial
https://www.tutorialspoint.com/sql/index.html

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Course Level	5.0		**Internal Marks**	25
Programme	Bachelor of Computer Application		**External Marks**	50
Semester	IV		**Practical Internal**	25
Category of Course	Minor-3		**Practical External**	0
Course Credit	4		**Prac. External Exam Duration**	-
Teaching Hours	Theory-45 Practical-30		**Total**	100
Course Code			**Exam Duration**	2:00 Hrs
Course Title	**Programming with C#.Net**			

Course Objectives:
1. To impart the knowledge of fundamental c# programming on .net platform
2. To teach the learners how to make windows and console programming on .net platform
3. To teach the learners to create the applications making use of underlying database

Course Learning Outcomes:
1. Having understanding of working with c# on .net platform
2. Enhancement in understanding of OOP concepts in developing stand alone applications
3. Capability to develop the console and GUI applications using C# .Net

Course Contents

Sem	Unit No.	Syllabus	Teaching Hours
4	1	• **.Net Framework:** o Introduction and features o Architecture o Components (CLR, CTS, CLS, BCL, FCL, IL, Metadata, Namespace, Assembly, JIT and its types, Reflection, Garbage collection) o Managed Code and Unmanaged Code • **Visual Studio:**	10

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		o Introduction and features
		o IDE
		o Types of Projects in IDE (Console, Windows, Web, Setup, etc.)
		• **Basics of C#:**
		  o Data Types (Value Type & Reference Type)
		  o Boxing and UnBoxing
		  o Operators (Arithmetic, Relational, Bitwise, etc.)
		  o Arrays (One Dimensional, Rectangular, Jagged)
		  o Strings (mutable and immutable)
		  o Decisions (If types and switch case)
		  o Loops (for, while, do..while, foreach)
		  o Structures
		  o Creating Pointer (Unsafe Code)	

2	• **OOP Concepts:**
	  o Concept of Class, Object, Encapsulation, Inheritance, Polymorphism
	  o Creating Class and Objects
	  o Methods with "ref" and "out" parameters
	  o Static and Non-Static Members
	  o Constructors and destructors
	  o Inheritance
	    ▪ Concept and types
	    ▪ Sealed Class & Abstract Class
	    ▪ Overriding Methods
	  o Polymorphism
	    ▪ Definition and concept
	    ▪ Types (Static, dynamic)
	    ▪ Implementation of static polymorphism by overloading Constructor, Method and Operator
	    ▪ Implementation of dynamic polymorphism by method overriding
	  o Interface
	    ▪ Definition and concept
	    ▪ Implementation
	• Creating and using Property
	• Creating and using Delegates (Single / Multicasting)
	• Creating and using Events with Event Delegate
		10

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		• Collections (ArrayList, HashTable, Stack, Queue, SortedList)	

	3	• **Windows programming:**
		  o Creating windows Application
		  o MessageBox With DialogResult class
		  o Basic Introduction to Form and properties
		  o Adding various Events with event parameters
		  o Different Windows Controls (Button, Label, TextBox, RadioButton, CheckBox, ComboBox, ListBox, PictureBox, ScrollBar, TreeView, Menu (MenuStrip, ContextMenuStrip), TolpStrip, Timer, Panel and GroupBox)
		  o Dialog Boxes (ColorDialog, FontDialog, SaveFileDialog and OpenFileDialog)
		  o MDI Concept with MDI Notepad (RichTextBox)
		  o Concept of inheriting forms
			10

	4	• **Database Programming with ADO.NET:**
		  o Concept of Connected and Disconnected Architecture
		  o ADO.NET Architecture
		  o Data Providers in ADO.NET
		  o Connection Object
		  o Connected Architecture
		    ▪ Command, DataReader
		  o Disconnected Architecture
		    ▪ DataAdapter ,DataSet , DataTable , DataRow , DataColumn , DataRelation , DataView
		  o Data Binding
		  o GridView Programming
		• **User Controls:**
		  o Creating User Control with Property, Method, Event
		  o Using User Control in Windows, Projects as component
		• **Crystal Reports:**
		  o Creating Crystal Reports
		  o Types of Reports
		  o Report Sections
		  o Formula, Special Field and Summary in Report
		• **Setup Project:**
		  o Creating Setup Project
		  o File System Editor
			15

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		o User Interface Editor	
		o Launch Conditions Editor	
Practical			30

Suggested Reading:

Reference Book No.	Name	Author / Publication
1	Pro C# 5.0 and .NET 4.5 Framework	Andrew Troelsen
2	C#.NET Programming Black Book	steven holzner –dreamtech publications
3	Programming in C#	E Balagurusamy

Website References:
https://www.tutorialspoint.com/csharp
https://www.tutorialsteacher.com/csharp/csharp-tutorials
https://www.javatpoint.com/c-sharp-tutorial

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Subject: Computer Science
SEMESTER-III & IV

NO	Particulars	Marks
INTERNAL EVALUATION SCHEME	
1	**Mid Semester Exam (Mandatory)**	**25**
2	Class Test	05
3	Open book exam/test	05
4	Open note exam/test	05
5	Self-test/ Online test	05
6	Essay/Article writing	05
7	Quizzes/Objective test	05
8	Class assignment	05
9	Home assignment	05
10	Reports Writing	05
11	Research/Dissertation	05
12	Case Studies	05
13	Viva/Oral exam	05
14	Group Discussion	05
15	Role Play	05
16	Paper presentation/Seminar	05
17	Language Lab work	05
18	Interview	05
19	Craft work	05
20	Co-curricular work	05
21	Field Assignment	05
22	Poster Presentation	05
23	Attendance	05
24	Project Work	05
	Total	**50**

Note: Sr.No.1 is mandatory. Select any five from Sr.No.2 to 24. Each Contains five marks. Student should secure 18 Marks for passing in internal Exam.

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SEMESTER-III & IV

Paper Style (For the subject with credit 4)

Ques. No.	Particulars	From which Unit	Marks
1	Questions (Any Two Out Of Four)	1	10
2	Questions (Any Two Out Of Four)	2	10
3	Questions (Any Two Out Of Four)	3	10
4	Questions (Any Two Out Of Four)	4	10
5	Questions (Any Two Out Of Four)	From Each Unit	10
		Total Marks	**50**

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BHAKTA KAVI NARSINH MEHTA UNIVERSITY
Ability Enhancement Course (AEC)
Syllabus of English subject for Faculty of Science as per NEP
Effective from June 2024
Subject: English for Science Faculty
SEMESTER-4

Course Level	5.0	Internal Marks	25
Programme	Science	External Marks	25
Semester	4	Practical Internal	-
Course Type	Ability Enhancement Skill-4	Practical External	-
Course Credit	02	Prac.Ext.Exam Time	-
Teaching Hours	30	Total	50
Course Code		Exam Duration	1 Hour
Course Title	English Language and Grammar-2		

Course Objectives:

- To make students able to comprehend literary texts for developing their critical thinking.

- To develop basic proficiency in English Writing Skill.

- To make students able to understand usage of English language in expressing various ideas.

- To enable students for writing various kinds of essays.

- To explain essentials of grammar for strengthening students' language.

Course Learning Outcomes: After completion of the course:

- Students will be able to understand usage of English in expressing various ideas

- Students will be able to compose essays

- Students will be able to understand purpose of fiction and non-fiction writing.

- Students will be able to grasp basic grammar of changing the voice of a sentence.

Course Contents

Sem	Unit No.	Syllabi	Teaching Hours

4	1	**Short stories:**
		   1. The Story of an Hour by Kate Chopin (https://archive.vcu.edu/english/engweb/webtexts/hour/)
		   2. The Seventh Pullet by H. H. Munro (Saki) (https://www.arvindguptatoys.com/arvindgupta/ruskin-stories.pdf)
		Essays:
		   1. On the Phenomenon of Bullshit Jobs: A Work Rant by David Graeber (https://www.strikemag.org/bullshit-jobs/)
		   2. The Medium Really is the Message by Ezra Klein (https://www.nytimes.com/2022/08/07/opinion/media-message-twitter-instagram.html)
			15

	2	**Comprehension:**
		   1. Proverbs
		Composition:
		   1. Essay writing
		(List of topics has been given)
			15

Suggested Reading:

1. Intermediate English Grammar: Reference and Practice for South Asian Students by Raymond Murphy. Cambridge University Press

2. Business Communication by Urmila Rai and S.M. Rai. Himalaya Publishing House

3. Effective Technical Communication by M Ashraf Rizvi. Tata Mc Graw hill

4. Spoken English: A Foundation Course by Kamlesh Sadanand and Susheela Punitha (Part I and Part II)

List of topics for essay writing: (in 350 to 450 words)
Personal Topics:
The Influence of Family on My Life: Discuss how your family has impacted your values, beliefs, and aspirations.
A Memorable Travel Experience: Describe a memorable trip you've taken and its impact on your perspective.
My Dreams and Ambitions: Reflect on your dreams and aspirations for the future and how you plan to achieve them.
Critical Topics:
The Impact of Social Media on Society: Analyze the effects of social media on individuals and communities.
Media Influence on Body Image: Critically examine the portrayal of body image in the media and its impact on self-esteem.
The Impact of online shopping on the lifestyle: Critically evaluate the consequences of online shopping on the individuals and society.

Contemplative Topics:
The Meaning of Success: Contemplate what success means to you and how you measure it.
Embracing Change: Reflect on the inevitability of change and how to adapt to it.
The Beauty of Simplicity: Reflect on the value of simplicity in a complex world.

List of Proverbs:

1. A bird in the hand is worth two in the bush.
2. Absence makes the heart grow fonder.
3. Actions speak louder than words.
4. All good things must come to an end.
5. All is fair in love and war.
6. All that glitters is not gold.
7. An apple a day keeps the doctor away.
8. As you sow, so shall you reap.
9. Beggars can't be choosers.
10. Better late than never.
11. Better safe than sorry.
12. Birds of a feather flock together.
13. Blood is thicker than water.
14. Charity begins at home.
15. Cleanliness is next to godliness.
16. Curiosity killed the cat.
17. Don't bite the hand that feeds you.
18. Don't count your chickens before they hatch.
19. Don't cry over spilled milk.
20. Don't put all your eggs in one basket.
21. Easy come, easy go.
22. Every cloud has a silver lining.
23. Every dog has its day.
24. Every man for himself.
25. Fortune favors the bold.
26. Haste makes waste.
27. Honesty is the best policy.
28. If the shoe fits, wear it.
29. If you can't beat them, join them.
30. Ignorance is bliss.
31. It's never too late to learn.
32. It's raining cats and dogs.
33. Kill two birds with one stone.
34. Let sleeping dogs lie.
35. Money doesn't grow on trees.

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	**Mid Semester Exam (Mandatory)**	**13**
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	**25**

Note: Sr.No.1 is mandatory. Select <u>any Four</u> from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam.

Paper Style

Ques. No.	Particulars	From which Unit	Marks
1	Students will answer <u>two</u> questions from given four, each carrying 5 marks.	1	10
2	(A) Identify the meaning of given proverbs and write it in one sentence, any 5 from given 7. (B) Write an essay in around 350 to 450 words, any one from given three.	2	10
3	Students will answer <u>5 MCQ/One liner</u> question from seven asked, each carrying 1 mark.	From each Unit (3/4 from Unit-1 and 3/4 from Unit-2)	05
		Total Marks	**25**

Course Level	5.0	**Internal Marks**	12	
Programme	**B.Sc (Honours)**	**External Marks**	25	
Semester	4	**Practical Internal**	13	
Course Type	**Skill Enhancement Course-4**	**Practical External**	-	
Course Credit	02	**Prac. Ext. Exam Time**	-	
Teaching Hours	Theory-15 Practical-30	**Total**	50	
Course Code		**Exam Duration**	1 Hour	
Course Title	**Operating System**			

Course Objectives: On successful completion of the course, the students will be able to:

1. To disseminate the information about basic operating system objectives, functions and features
2. To impart the know-how of process management and memory management
3. To teach the basics of how to write simple programs to be run on unix/linux OS

Course Learning Outcomes: On successful completion of the course, the students will be able to:

1. Enhance the understanding of OS concepts
2. Developing know how of manipulating files and directories on disc
3. Having knowledge of developing program applications on Unix/Linux

Course Contents

Sem	Unit No.	Syllabi	Teaching Hours

3	1	• **Operating System:**
		  o Definition and concept
		  o Functions and objectives of OS
		  o Types of OS
		• **Process Management:**
		  o Definition and concept
		  o Process and State Transition Diagram
		  o Process Scheduling algorithm (FCFS, SJN, Round Robin, Priority based Scheduling)
		  o Interposes communication and synchronization.
		• **Memory Management:**
		  o Memory allocation concept
		  o Memory allocation Strategies (Paging, segmentation)
			05

		o Physical and Virtual Memory	

	2	• **Programming with Unix/Linux operating system:**
		  o Introduction
		    ▪ History, evolution and features of Unix and Linux
		    ▪ Comparison with other operating systems
		  o File System
		    ▪ File system hierarchy
		    ▪ File & Directory Permissions
		    ▪ Login commands (passwd, logout, who, who am i, clear)
		    ▪ Basic file operations (create, delete, copy, move)
		    ▪ File and directory commands (ls, echo, cat, cd, pwd, mv, cp, rm, rmdir, mkdir, umask, chmod, chown, chgrp, find, pg, more, less, head, tail, wc, touch)
		  o Basics of Shell programming
		    ▪ Shell Keywords, Variables (Shell, User, System) and operators
		    ▪ Creating interactive shell script
		    ▪ Decision Statements (if then fi, if then else fi, if then elif else fi, case esac)
		  o Looping Statements (for loop, while loop, until loop, break, continue)
			10

	3	**Practical**	**30**

Suggested Reading:
1. Operating System by William Stallings.
2. Unix Shell Programming by Y. Kanetkar.

Website References:
1. https://www.geeksforgeeks.org/operating-systems/
2. https://www.tutorialspoint.com/operating_system/index.htm
3. https://www.geeksforgeeks.org/essential-linuxunix-commands/
4. https://www.tutorialspoint.com/unix/shell_scripting.html

INTERNAL EVALUATION SCHEME		
NO	**Particulars**	**Marks**
1	**Mid Semester Exam (Mandatory)**	**13**
2	Class Test	03
3	Open book exam/test	03

4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	**25**

Note: Sr.No.1 is mandatory. Select <u>any Four</u> from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam.

Paper Style

Ques. No.	Particulars	From which Unit	Marks
1	Questions (Any Two Out Of Four)	1	**10**
2	Questions (Any Two Out Of Four)	2	**10**
3	Questions (Any One Out Of Two)	From Each Unit	**05**
		Total Marks	**25**

BHAKTA KAVI NARSINH MEHTA UNIVERSITY
VALUE ADDED COURSE (VAC)
Syllabus for Faculty of Arts, Commerce & Science as per NEP
Effective from June 2024
SEMESTER-IV

Course Level	5.0	**Internal Marks**	25
Programme	Arts, Commerce & Science	**External Marks**	25
Semester	4	**Practical Internal**	-
Course Type	**Value Added Course-2**	**Practical External**	-
Course Credit	02	**Prac.Ext.Exam Time**	-
Teaching Hours	30	**Total**	50
Course Code		**Exam Duration**	1 Hour
Course Title	**Employability Skills**		

Course Objectives:

- To instil skills useful in getting work in current market scenario
- To provide a comprehensive atmosphere for employability skills
- To cultivate a culture of etiquette in students useful in careers
- To provide training for writing CVs and appearing in group discussions and interviews

Course Learning Outcomes: After completion of the course:

- Students will be able to understand importance of employability skills
- Students will be able to imitate etiquettes expected from a job-seeker, entrepreneur
- Students will be able to form comprehensive and attractive CVs
- Students will be able to perform well in the group discussions and interviews

Course Contents

Sem	Unit No.	Syllabi	Teaching Hours
4	1	- Importance of employability skills - Market expectations from a job-seeker/entrepreneur - Curriculum Vitae - Meaning - Structure - Language - Design and format - Practicing and reviewing	**15**
	2	- Group discussion - Meaning - Types	**15**

		3. Performance	
		• Interview	
		1. Purpose	
		2. Types	
		3. Behaviour	
		4. Questions-answers	

Suggested Reading:

1. NSQF Employability Skills by Shristi Agarwal

2. The CV Book by James Innes

3. Master the Group Discussion and Interview by Sheetal Desarda

4. Why You?: 101 Interview Questions by James Reed

INTERNAL EVALUATION SCHEME		
NO	**Particulars**	**Marks**
1	**Mid Semester Exam (Mandatory)**	**13**
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03

17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	**25**

Note: Sr.No.1 is mandatory. Select <u>any Four</u> from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam.

Paper Style

Ques. No.	Particulars	From which Unit	Marks
1	Students will answer <u>two</u> questions from given four, each carrying 5 marks.	1	10
2	Students will write a performative answer for a GD or Interview situation questions.	2	10
3	Students will answer <u>5 MCQ/One liner</u> question from seven asked, each carrying 1 mark.	From each Unit (3/4 from Unit-1 and 3/4 from Unit-2)	05
		Total Marks	**25**