



Re-Accredited 'B++' 2.86 CGPA by NAAC

VEER NARMAD SOUTH GUJARAT UNIVERSITY

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વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી

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ક્રમાંક :ઓથો./પરિપત્ર/૧૨૨૬૪/૨૦૨૫

તા.૩૧/૦૫/૨૦૨૫

પ્રતિ,
વડાશ્રી,
જે.પી.દાવર ઈન્સ્ટીટ્યૂટ ઓફ ઈન્ફોર્મેશન
સાયન્સ એન્ડ ટેકનોલોજી,
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી,
સુરત.

**વિષય:- પ્રથમ વર્ષ બાદ અને દ્વિતીય વર્ષ બાદ Exit થનાર વિદ્યાર્થીઓ માટે Vocational Exit
Course નો અભ્યાસક્રમ અંગે.**

સુજા શ્રી,

સવિનય જણાવવાનું કે, શૈક્ષણિક વર્ષ- ૨૦૨૫-૨૬ થી M. Sc. (IT) પાંચ વર્ષીય ઈન્ટીગ્રેટેડ અભ્યાસક્રમનાં B.Sc. (IT) માં NEP-2020 અંતર્ગત પ્રથમ વર્ષ બાદ Exit થનાર વિદ્યાર્થીઓને સર્ટિફિકેટ એનાયત કરવા સંદર્ભે ૪ ક્રેડિટના Vocational Exit Course અને દ્વિતીય વર્ષ બાદ Exit થનાર વિદ્યાર્થીઓને ડિપ્લોમાં એનાયત કરવા સંદર્ભે ૪ ક્રેડિટના Vocational Exit Course ઈન્ફોર્મેશન એન્ડ કોમ્યુનિકેશન ટેકનોલોજી વિષયની અભ્યાસ સમિતિના ચેરમેનશ્રીએ અભ્યાસ સમિતિ વતી મંજૂર કરી કોમ્પ્યુટર સાયન્સ વિદ્યાશાખાને કરેલ ભલામણ સ્વીકારી કોમ્પ્યુટર સાયન્સ વિદ્યાશાખા તથા કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસ સમિતિની સંયુક્ત તા.૩૦/૦૪/૨૦૨૫ની સભાનાં ઠરાવ ક્રમાંક: ૧૨ થી કરેલ ભલામણ સ્વીકારી એકેડેમિક કાઉન્સિલની તા.૦૫/૦૫/૨૦૨૫ની સભાનાં ઠરાવ ક્રમાંક: ૧૫૭ થી મંજૂર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

બિડાણ: ઉપર મુજબ

W. H. S.
કુલસચિવ

પ્રતિ,
૧) ઈ.ચા.ડીનશ્રી, કોમ્પ્યુટર સાયન્સ વિદ્યાશાખા.
૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.
.....તરફ જાણ તેમજ અમલ સારૂ.

Vocational Course : Exit After 2nd Year B.Sc. (I.T.)

Course Code	Vocational Course
Course Title	Android Application Development
Credit ...	4
Teaching per Week	4 Hrs
Purpose of Course	This course helps students to understand android based smart device application development. The course also gives students an idea about various components of Android application development tools.
Course Outcomes	CO1: Explain the fundamental concepts of Android-based mobile application development and analyze the Android ecosystem, including development frameworks and guidelines. CO2: Apply knowledge of various Android development tools, including Android Studio, Java/Kotlin, and UI components, to develop interactive and user-friendly applications. CO3: Demonstrate the process of deploying and publishing Android applications on the Google Play Store while ensuring compliance with Google's policies and best practices.
Prerequisite	Object Oriented Programming knowledge
Course Objective	The objective of the course is to provide a thorough introduction to the Android environment, Tools for creating Android applications, The Android approach to structuring applications, Basic user interfaces, and Application life cycles.
Course Content	<p>Unit : 1 : Introduction to Kotlin</p> <ol style="list-style-type: none"> 1.1 Kotlin Overview 1.2 Environment setup in Android Studio 1.3 Variables, Data types, Arrays, Array list in Kotlin 1.4 Operators in Kotlin 1.5 Control flow and Looping statements in Kotlin 1.6 Functions and Lambda expressions in Kotlin 1.7 Object Oriented Programming in Kotlin <p>Unit : 2 : Android Application development</p> <ol style="list-style-type: none"> 2.1 Android Application architecture 2.2 AVD, Gradle, Manifest, Resources 2.3 Android Activity and Activity lifecycle 2.4 Android Views and Layouts 2.5 Button, TextView, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, Spinner, etc... 2.6 Event Handling in Kotlin 2.7 User Interactions - Toast, Dialog, Menus - Types of Menus 2.8 List & Views(RecyclerView, Card View, etc...) 2.9 Intents & Intent Life Cycle - Types of Intents 2.10 Navigation between screens <p>Unit : 3 : Working with Data and Background Services</p> <ol style="list-style-type: none"> 3.1 Shared preferences 3.2 Working with SQLite database 3.3 Working with Firebase - CRUD operations 3.4 Background Services and its Life cycle 3.5 Broadcast Receivers <p>Unit : 4 : Working with Google Play Services and API</p>

P. V. Manoj

	4.1 Location Navigation 4.2 Geocoding and Reverse Geocoding Notifications 4.3 Working with Google Maps API 4.4 Working with web Services 4.5 API integration 4.6 Publishing Apps
Reference Book	1. Android Programming with Kotlin for Beginners, by John Horton, Packt publication 2019 2. Learn Kotlin for Android Development by Peter Spath, Apress publication, 2019 3. Head First Kotlin - a brain friendly guide by Dawn Griffiths and David Griffiths, O'Reilly publication 2019 4. Learn Android Studio 3 with Kotlin by Ted Hagos, Apress publication, 2018 5. Kotlin In-Depth by Aleksei Sedunov, BPB publications, 2020 6. Mastering Kotlin by Nate Ebel, Packt publication 2019
Teaching Methodology	Class Room Teaching, Discussion, Assignment and Lab work
Mode of Examination	Practical
Total Exam Duration	4 Hours
Total Marks	100
Internal Exam Marks	50
External Exam Marks	50

P. Y. [Signature]

Vocational Course: Exit After 1st Year B.Sc. (I.T.)

Course Code	Vocational Course
Course Title	Web Development using JavaScript
Credit	4
Teaching per Week	4 Hrs
Purpose of Course	To provide knowledge of client side programming, XML, JSON and jQuery
Course Objective	To teach client side programming using JavaScript, core concepts of XML, JSON and jQuery
Course Outcomes	CO1: Students will demonstrate an understanding of client-side technologies by implementing interactive web pages using JavaScript. CO2: Students will utilize jQuery to manipulate HTML elements, modify CSS properties, apply effects, and handle user events efficiently. CO3: Students will analyze XML and JSON data structures and implement parsing techniques using JavaScript for data handling.
Pre-requisite	Basic Programming Skills
Course Content	<p>Unit : 1 : JavaScript Basics and Object Model</p> <ol style="list-style-type: none"> 1.1. Basic of JavaScript Programming 1.2. The <script> tag – Basic Syntax 1.3. Variables <ol style="list-style-type: none"> 1.3.1. Expressions 1.3.2. Data Types 1.3.3. Operators 1.4. Strict Mode, hoisting 1.5. var, let, const 1.6. Arrays 1.7. Objects and Classes 1.8. Regular Expressions 1.9. Working with Text Converting Strings – Template Strings 1.10. Conditional Loops 1.11. Functions 1.12. Math Operations 1.13. Date Object 1.14. Object Model and Event Handling <ol style="list-style-type: none"> 1.14.1. Programming Using Objects 1.14.2. Document Object Model <ol style="list-style-type: none"> 1.14.2.1. Object Hierarchy 1.14.2.2. Properties 1.14.2.3. Methods 1.14.2.4. Events 1.14.3. Events 1.14.4. Event Listeners and Handlers 1.14.5. Window Object 1.14.6. Open and Close New Windows Dynamically 1.14.7. Alert 1.14.8. Confirm 1.14.9. Prompt Windows <p>Unit : 2 : Manipulating Components</p> <ol style="list-style-type: none"> 2.1. The Keyword this 2.2. Forms 2.3. Names vs. IDs 2.4. Arrays of Elements 2.5. Manipulating the Value of a Text Field 2.6. Text Field Events

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	<p>2.7. Form Handlers 2.8. Checkboxes 2.9. Radio Buttons 2.10. Selects on Change in Various Form Elements 2.11. Hidden Text Field values 2.12. Add and remove Form elements 2.13. Dynamically Modifying Select Lists 2.14. Validating Form Entries 2.15. Processing Forms</p> <p>Unit : 3 : Image Handling and Browser Capabilities 3.1 Image Swaps and pre-caching 3.2 navigator Object 3.3 location, console and history Objects 3.4 Screen Object 3.5 Timers 3.6 Cookies, localStorage, sessionStorage</p> <p>Unit : 4 : Introduction to XML 4.1. XML Fundamentals 4.1.1. XML Syntax and rules 4.1.2. Need of XML in Application Development 4.1.3. XHTML 4.2 Parsing XML DOM using JavaScript 4.3 fetch() method to load data</p> <p>Unit : 5 : Introduction to JSON and jQuery 5.1. JSON.Data Format and its Applications 5.1.1. Fetch and process JSON data 5.2. Introduction to jQuery 5.2.1. Features of jQuery 5.2.2. jQuery Syntax and Selectors 5.2.2.1. Using the \$() function 5.3. CSS, Attribute and custom 5.4. Basic jQuery Plugins</p>
Reference Book	<ol style="list-style-type: none"> 1. JavaScript Bible, 6th Edition – by Danny Goodman, Michael Morrison, Paul Novitski, Tia Gustaff Rayl 2. JavaScript The Complete Reference 3rd Edition - By Thomas A. Powell , Fritz Schneider 3. JavaScript Quick Syntax Reference By Mikael Olsson 4. JavaScript: The Definitive Guide, 6th Edition By David Flanagan - O'Reilly Media 5. Xml: The Complete Reference By Heather Williamson – Tata McGraw-Hill Edition 6. Learning JavaScript, 3rd Edition By Ethan Brown - O'Reilly Media, Inc. 7. Web Development with PHP and jQuery, By Dr Payal Joshi, Dr Dhaval Joshi – NotionPress Publication
Teaching Methodology	Class Room Teaching, Discussion, Assignment and Lab work
Mode of Examination	Practical
Total Exam Duration	4 Hours
Total Marks	100
Internal Exam Marks	50
External Exam Marks	50

P. Y. Desai