

**JHARKHAND UNIVERSITY OF
TECHNOLOGY
Jharkhand, Ranchi**



Syllabus for

**BACHELOR OF COMPUTER
APPLICATION
(B.C.A) Programme**

Fifth Semester

Subject Code	Course Type	Subject Name	Load Allocation			Marks distribution		Total Marks	Credit
			L	T	P	Internal Marks	External Marks		
5CR01	Core	Dot Net Programming	3	0	0	30	70	100	4
5OE02	Elective- IV	Open Elective – IV	4	0	0	30	70	100	4
5OE03	Elective- V	Open Elective – V	4	0	0	30	70	100	4
5SK01	Skill Enhancement	Programming in PHP	4	0	0	30	70	100	3
5AE01	Ability Enhancement	Mini Project	0	0	2	25	25	50	2
5CR01-L	Computer Lab-1	Dot Net Lab	0	0	2	25	25	50	2
5SE02-L	Skill Enhancement Lab- 2	PHP Lab	0	0	2	25	25	50	2
Semester Total			18	0	4	195	355	550	21

Open Elective – IV

1. Internet of Things
2. Artificial Intelligence

Open Elective – V

1. Multimedia & E-Commerce
2. Computer Network Security

Course Code: 5CR01
Course Name: Dot Net Programming

Objective: To gain knowledge about the methodologies behind VB.Net and ASP.Net and helps the students to develop Dot Net based application using ADO.NET and SQL Managed Provider-OLEDB Managed Provider.

Unit I

Introduction to . NET Framework, Introducing VB.NET:

New Object Oriented Capabilities- Inheritance- Parameterized Constructors- Overriding- Overloading- Shared Members- Events- Exception Handling-.NET Framework Class Hierarchy-The System Namespace. File I/O: Using the System.IO Hierarchy- Streaming text in and out of TextFiles- Object Serialization and Deserialization.

Unit II

Introduction to ADO.NET:

Comparison between ADO & ADO.NET—The difference between Connection Model & Disconnected Model – difference between the Data Set and Record Set- The Dataset Model. Accessing Data using ADO.NET: dataset- Data Adapter Data Relation. The two Managed Providers: SQL Managed Provider-OLEDB Managed Provider.

The ADO.NET Object Model: OleDbConnection /SqlConnectionOleDbCommand/SqlCommand- OleDbDataReader/SQLDataReaderOleDbDataAdapter/SQLDataAdapter- The Data Set. Using the Binding Manager to bind controls to the data - Working with Master-Detail relationship.

Unit III

Differences between ASP and ASP.NET. ASP.NET Web Forms:

The code behind Web Form-Separations of content & Business logic-Life Cycle of a Web Form Page-Stages in Web Form Processing.

Unit IV

ASP.NET Server Controls. Web Forms Server Controls

Recommendation:

Validation Controls-Controls that incorporate logic to validate user inputs like a required field, between ranges, or pattern matching. ASP.NET Data Access: Data Binding Server Controls-Viewing Data Collections in a Grid. ASP.NET Caching Mechanism for caching Dynamic response data. Page Output Caching.

Unit V

Web Services: Introduction to web service-Architecture of Web service: Universal Discovery Description and Integration-Web Service Description Language –Accessing web service using different Clients.

Recommended Text Books:

1. Chris Ullman, John Kauffman, Beginning ASP.NET
2. ADO.NET Professional, Wrox Publication
3. Alex Homer, Dave Sussman, Professional ASP.NET
4. .NET Framework, OREILY Publication.

Reference books: 1. Crouch, ASP.NET and VB.NET Web Programming, Pearson Education
2. Richard Blair, Mathew Renolds, Beginning VB.NET 2003, 3rd edition, Wrox Publication
3. Bill Evjen, Billy, Hollis, et al, Professional VB.NET 2003, 3rd edition, Wrox Publication
4. Deitel and Deitel, Visual Basic.NET How to Program, Pearson Education, 2nd edition Greg Buczek, ASP.NET Developer's Guide, Tata McGraw-Hill, 2002.

Course Code: 5OE02

Course Name: Internet of Things

Pre-Requisite: Basic understanding of electronics and microprocessors. **Course Objectives:** 1. The Internet of Things (IoT) is aimed at enabling the interconnection and integration of the physical world and the cyber space. 2. To learn about SoC architectures, programming Raspberry Pi and implementation of internet of things and protocols.

Expected Learning Outcomes:

1. Enable learners to understand System On Chip Architectures.
2. Introduction and preparing Raspberry Pi with hardware and installation.
3. Learn physical interfaces and electronics of Raspberry Pi and program them using practical's
4. Learn how to design IoT based prototypes.

Unit 1

System on Chip (SoC) and Internet of Things (IoT) Overview - System on Chip: What is System on chip? Structure of System on Chip. - SoC products: Field Programmable Gate Array (FPGA), General Purpose Graphics Processing Units (GPU), Accelerated Processing Unit (APU), Compute Units. -The IoT paradigm giving overview of IoT supported Hardware platforms such as: Raspberry pi, SoC on ARM 8 Processors, Arduino and Intel Galileo boards. -Network Fundamentals: Wired Networking(Router, Switches), Wireless Networking(Access Points) - Introduction to Raspberry Pi: Introduction to Raspberry Pi, Raspberry Pi Hardware, Preparing your raspberry Pi. -Raspberry Pi Boot: Learn how this small SoC boots without BIOS. Configuring boot sequences and hardware. - Introduction to IoT: What is IoT? IoT examples, Simple IoT LED Program. - IoT and Protocols -IoT Security: HTTP, UPnp, CoAP, MQTT, XMPP. -IoT Service as a Platform: Clayster, Thinger.io, SenseIoT, carriers and Node RED. -IoT Security and Interoperability: Risks, Modes of Attacks, Tools for Security and Interoperability.

Unit 2

Programming Raspberry Pi Raspberry Pi and Linux: About Raspbian, Linux Commands, Configuring Raspberry Pi with Linux Commands Programming interfaces: Introduction to Node.js, Python. Raspberry Pi Interfaces: UART,

GPIO, I2C, SPI Useful Implementations: Cross Compilation, Pulse Width Modulation, SPI for Camera.

Unit 3

Case Study & advanced IoT Applications: IoT applications in home, infrastructures, buildings, security, Industries, Home appliances, other IoT electronic equipments. Use of Big Data and Visualization in IoT, Industry 4.0 concepts. Sensors and sensor Node and interfacing using any Embedded target boards (Raspberry Pi / Intel Galileo/ARM Cortex/Arduino)

Unit 4

Internet of Things Privacy, Security and Governance Introduction, Overview of Governance, Privacy and Security Issues, Contribution from FP7 Projects, Security, Privacy and Trust in IoT-Data-Platforms for Smart Cities, First Steps Towards a Secure Platform, Smartie Approach. Data Aggregation for the IoT in Smart Cities, Security

TEXT BOOKS:

1. 6LoWPAN: The Wireless Embedded Internet, Zach Shelby, Carsten Bormann, Wiley
2. Internet of Things: Converging Technologies for Smart Environments and Integrated Ecosystems, Dr.Ovidiu Vermesan, Dr. Peter Friess, River Publishers
3. Interconnecting Smart Objects with IP: The Next Internet, Jean-Philippe Vasseur, Adam Dunkels, Morgan Kuffmann
4. Internet of Things : A hands- on Approach by Arshdeep Bahga, Vijay Madisetti
5. IoT Programming: A Simple and Fast Way of Learning IOT by David Etter

REFERENCES:

1. The Internet of Things: From RFID to the Next-Generation Pervasive Networked Lu Yan, Yan Zhang, Laurence T. Yang, Huansheng Ning
2. Internet of Things (A Hands-on-Approach) , Vijay Madisetti , Arshdeep Bahga
3. Designing the Internet of Things , Adrian McEwen (Author), Hakim Cassimally
4. "Mobile Computing," Tata McGraw Hill, Asoke K Talukder and Roopa R Yavagal, 2010.

Course Code: 5OE02

Course Name: Artificial Intelligence

Unit I

Introduction: Intelligent Agents, Agents and environments, Good behaviour, The nature of environments, structure of agents, Problem Solving, problem solving agents, example problems, searching for solutions, uniformed search strategies, avoiding repeated states, searching with partial information.

Unit II

Searching Technique: Informed search and exploration, Informed search strategies, heuristic function, local search algorithms and optimistic problems, local search in continuous spaces, online search agents and unknown environments, Constraint satisfaction problems (CSP), Backtracking search and Local search for CSP, Structure of problems, Adversarial Search, Games, Optimal decisions in games, Alpha, Beta Pruning, imperfect real-time decision.

Unit III

Knowledge Representation: First order logic – representation revisited – Syntax and semantics for first order logic – Using first order logic – Knowledge engineering in first order logic - Inference in First order logic – propositional versus first order logic – unification and lifting – forward chaining – backward chaining - Resolution - Knowledge representation - Ontological Engineering - Categories and objects – Actions - Simulation and events - Mental events and mental objects.

Unit IV

Learning: Learning from observations - forms of learning - Inductive learning - Learning decision trees - Ensemble learning - Knowledge in learning – Logical formulation of learning – Explanation based learning – Learning using relevant information – Inductive logic programming - Statistical learning methods - Learning with complete data - Learning with hidden variable - EM algorithm - Instance based learning - Neural networks - Reinforcement learning – Passive reinforcement learning - Active reinforcement learning -Generalization in reinforcement learning.

Unit V

Applications: Communication ,Communication as action, Formal grammar for a fragment of English, Syntactic analysis, Augmented grammars, Semantic interpretation, Ambiguity and disambiguation, Discourse understanding, Grammar induction, Probabilistic language processing, Probabilistic language models, Information retrieval, Information Extraction, Machine Translation.

TEXT BOOK

1. Stuart Russell, Peter Norvig, “Artificial Intelligence – A Modern Approach”, 2nd Edition, Pearson Education / Prentice Hall of India, 2004

Course Code: 5OE03
Course Name: Multimedia and E-Commerce

UNIT-I

Multimedia: Needs and areas of use, Development platforms for multimedia – DOS, Windows, Linux. Identifying Multimedia elements – Text, Images, Sound, Animation and Video. Text – Concepts of plain & formatted text, RTF & HTML texts, Conversion to and from of various text formats, Text compression principles, Source Encoder and Destination Decoder. Images – Importance of graphics in multimedia, Vector and Raster graphics, image capturing methods – scanner, digital camera etc. various attributes of Images – size, color, depth etc, Various Image file format – BMP, DIB, EPS, CIF, PEX, PIC, JPG, TGA, PNG and TIF format – their features and limitations.

UNIT-II

Animation: Basics of animation, Principle and use of animation in multimedia, Effect of resolutions, pixel depth, Images size on quality and storage. Overview of 2-D and 3-D animation techniques and software. Animation on the Web – features and limitations, Software for animation.

UNIT III:

INTRODUCTION (14 Hrs) Meaning, Concepts, Features, Functions, Categories of E-Commerce, Scope, Advantages and Limitation of E-Commerce, E-Commerce practices v/s Traditional practices, E-Commerce and the Trade Cycle.

UNIT IV:

FUNDAMENTAL OF E-COMMERCE (14 Hrs) Types of e-commerce- B2B, B2C, C2C and P2P, B2B service provider, e-distributor, Procurement, Importance of E-Commerce, Internet and its role in e-commerce, procedure of registering Internet domain, Tools and Services of Internet.

UNIT V:

E-COMMERCE IN INDIA (13 Hrs) State of e-commerce in India, Problems and Opportunities in e-commerce in India, Legal Issues, Future of e-commerce, Applications in E-Commerce: E-commerce applications in Manufacturing, Wholesale, Retail and Service sector.

TEXT BOOKS

1. Multimedia: Making It Work (4 th Edition) – by Tay Vaughan, Tata Mcgraw Hills.
2. Fundamentals of Multimedia – Ze-Nian Li and Mark S. Drew, Pearson Prentice Hall.
3. Daniel Amor: “E Business R(Evolution)” Pearson Edude.
4. Krishnamurthy: “E-Commerce Management” Vikas Publishing House.

Course Code: 5OE03
Course Name: Computer Network Security

UNIT-I

Introduction: Attack, Services and Mechanism, Model for Internetwork Security. Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis; Public Key Encryption, digital Signatures and Authentication.

UNIT-II

Network Security: Authentication Application: Kerberos, X.509, Directory AuthenticationService, Pretty Good Privacy, S/Mime.

UNIT-III

IP security Architecture: Overview, Authentication header, Encapsulating Security PayLoad combining Security Associations, Key Management.

UNIT-IV

Web Security: Requirement, Secure Sockets Layer, Transport Layer Security, and SecureElectronic Transactions.

UNIT-V

Network Management Security: Overview of SNMP Architecutre-SMMPVII Communication Facility, SNMPV3.

UNIT-VI

System Security: Intruders, Viruses and Related Threats, Firewall Design Principles. Comprehensive examples using available software platforms/case tools, ConfigurationManagement

Reference Books:

1. W. Stallings, Networks Security Essentials: Application & Standards, Pearson Education, 2000.
2. W.Stallings, Cryptography and Network Security, Principles and Practice, Pearson Education, 2000.

Course Code: 5SK01
Course Name: Programming In PHP

Objective To understand the concepts of PHP and MySQL.

UNIT-I 12 hours Introduction: What is PHP? – History of PHP – Installing PHP – Language Basics: Lexical Structure – Data types – What’s a Variable?– PHP variable and value types – Using PHP Variables – Expression and Operators – #Flow Control statements#.

UNIT-II 12 hours Functions: Calling a function – Defining a function – Introduction to Strings – Comparing Strings – Manipulating and Searching strings – #Arrays: Types of Arrays# – Array functions – Storing data in Arrays.

UNIT-III 12 hours Form Handling – Form Validation – \$_GET variable – \$_POST variable – \$_REQUEST variable – Creating the Form – #Creating the Upload script# – Using your File system: File paths and permissions – Displaying directory contents – Working with fopen() and fclose().

UNIT-IV 12 hours Using Cookies: What are Cookies? – Setting Cookies – Using Cookie variables – Session Basics: What’s a session? – Understanding Session variables – Managing User preferences with Sessions – Graphics: Drawing functions – #Creating and Drawing images#.

UNIT-V 12 hours Installing and Configuring MySQL – Establishing a connection and poking around – Creating a database table – Inserting data into the table – #Selecting and displaying data#

Text Book

Julie Meloni and Matt Telles, PHP 6, Course Technology, CENGAGE Learning, India Edition, 2008. UNIT I : Chapters - 3, 5 UNIT II: Chapter 6 UNIT III: Chapters – 9,10 UNIT IV: Chapters 16, 17 UNIT V: Chapters 1,11,12,13,14 Books for Reference Kevin Tatroe, Peter MacIntyre and RasmusLerdorf, Programming PHP, O’REILLY media , 3rd edition, 2013. SEMESTER – VI :COR

Course Code: 5AE01
Course Name: Mint Project

COURSE OBJECTIVES:

To introduce the students to the methodology of solving a problem and preparing a report using the steps of software engineering.

LEARNING OUTCOMES:

Students understand the methodology of solving a problem and submit a report on completion of the same.

Creation of a Database and performing the operations given below using a Menu Driven Program to perform

- a) Insertion
- b) Deletion
- c) Modification
- d) Generating a simple Report for the following

PHP LAB (5CR01-L)

1. Write a PHP program to find the factorial of a number. 2 hours
2. Write a PHP program using Conditional Statements. 2 hours
3. Write a PHP program to find the maximum value in a given multi dimensional array. 2hours
4. Write a PHP program to find the GCD of two numbers using user-defined functions. 2 hours
5. Design a simple web page to generate multiplication table for a given number usingPHP. 3 hours
6. Design a web page that should compute one's age on a given date using PHP. 2 hours
7. Write a PHP program to download a file from the server. 2 hours
8. Write a PHP program to store the current date and time in a COOKIE and display the 'Last Visited' date and time on the web page. 2 hours
9. Write a PHP program to store page views count in SESSION, to increment the count oneach refresh and to show the count on web page. 3 hours
10. Write a PHP program to draw the human face. 3hours
11. Write a PHP program to design a simple calculator. 4 hours
12. Design an authentication web page in PHP with MySQL to check username andpassword. 3hours

NET PROGRAMMING LAB (5CR02-L)

1. Dynamic Polymorphism
2. Exception Handling
3. File Handling
4. Serialization
5. Array list
6. Fetch data from database using disconnected architecture
7. Fetch data from database using data binding and navigation
8. Fetch data from database using active connection
9. Login page
10. Display number of bits
11. Register page
12. Combo box
13. Output caching
14. Fetch data from XML
15. Web service to perform calculations
16. Client application connected to web services to perform calculation
17. Web service to display data structure
18. Web application using web service data

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Syllabus for

BACHELOR OF COMPUTER APPLICATION
(B.C.A) Programme

Sixth Semester

Subject Code	Course Type	Subject Name	Load Allocation			Marks distribution		Total Marks	Credit
			L	T	P	Internal Marks	External Marks		
5OE01	Elective- VI	Open Elective – VI	3	0	0	30	70	100	4
	Elective- VII	Open Elective – VII	4	0	0	30	70	100	4
5OE01	Skill Enhancement	Android Programming	4	0	0	30	70	100	3
5SE01	Ability Enhancement	Mentoring and Professional Development	0	0	2	25	25	50	2
5CR01-L	Skill Enhancement Lab- 2	Android Programming Lab	0	0	2	25	25	50	2
5CR02-L	Skill Enhancement Lab- 3	Project Work	0	0	2	25	25	50	2
Semester Total			18	0	4	165	285	450	17

Open Elective – VI

1. Organization Behaviour
2. Principles of Management

Open Elective – VII

1. Business Communication
2. Unix and Shell Programming

Course Code: 5OE01

Course Name: Organization Behaviour

Module-1

OB: Learning objectives, Definition & Meaning, Why to study OB, An OB model, New challenges for OB Manager **LEARNING:** Nature of learning, How learning occurs, Learning & OB Case Study Analysis

Module-2

PERSONALITY: Meaning & Definition, Determinants of Personality, Personality Traits, Personality & OB **PERCEPTION:** Meaning & Definition, Perceptual process, Importance of Perception in OB **MOTIVATION:** Nature & Importance, Herzberg's Two Factor theory, Maslow's Need Hierarchy theory, Alderfer's ERG theory Case Study Analysis

Module-3

COMMUNICATION: Importance, Types, Barriers to communication, Communication as a tool for improving Interpersonal Effectiveness **GROUPS IN ORGANISATION:** Nature, Types, Why do people join groups, Group Cohesiveness & Group Decision Making- managerial Implications, Effective Team Building **LEADERSHIP:** Leadership & management, Theories of leadership- Trait theory, Behavioural Theory, Contingency Theory, Leadership & Followership, How to be an Effective Leader **CONFLICT:** Nature of Conflict & Conflict Resolution **TRANSACTIONAL ANALYSIS:** An Introduction to Transactional Analysis Case Study Analysis

Module-4

ORGANISATIONAL CULTURE: Meaning & Definition, Culture & Organisational Effectiveness **HUMAN RESOURCE MANAGEMENT:** Introduction to HRM, Selection, Orientation ,Training & Development, Performance Appraisal, Incentives **ORGANISATIONAL CHANGE:** Importance of Change, Planned Change & OB Techniques **INTERNATIONAL OB:** An Introduction to Individual & Interpersonal Behaviour in Global Perspectives Case Study Analysis.

Referential Books:

1. Organizational Behavior Text, Cases and Games- By K.Aswathappa, Himalaya Publishing House, Mumbai, Sixth Edition (2005)
2. Organizational Behavior Human Behavior at Work By J.W. Newstrom, Tata McGraw Hill Publishing Company Limited, New Delhi, 12th Edition (2007)
3. Organizational Behavior - By Fred Luthans 4 Organizational Behavior - By Super Robbins

Course Code: 5OE01
Course Name: Principles of Management

UNIT – I

Management: Meaning & concept, Management principles (Fayol & Taylor), Management process (in brief), Managerial levels, Roles & skills of a manager, Management Theories (Classical, Neo classical, Behavioral, Systems & Contingency)

UNIT – II:

Planning: Meaning, Purpose & process, Decision making: Concept & process, Organizing: Process, Departmentation, Authority & Responsibility relationships, Decentralization. Staffing: Nature & Importance

UNIT-III

Staffing: Concept, nature & importance of staffing. Directing: Motivation: concept & theories (Maslow's, Herzberg Two factor, McGregor's theory X & Y), Leadership: Concepts & styles. Controlling: Nature, Importance, significance & Process of control.

UNIT – IV:

Managing People - Meaning, Need of understanding human behavior in organization, Models of OB, Major concepts in OB (elementary)- Personality, Learning, Perception & Attitude Building.

UNIT – V:

Management of Change: Models for Change, Force for Change, Need for Change, Alternative Change Techniques, New Trends in Organization Change, Stress Management.

Reference Books:

1. Essential of Management – Horold Koontz and Itainz Weibrich- McGraw-Hill's International
2. Management Theory & Practice – J.N.Chandan
3. Essential of Business Administration –K.Asawthapa, Himalaya Publishing House
4. Principles & practice of management – Dr. L.M.Prasad,, Sultan Chand & Sons – New Delhi
5. Business Organization & Management – Dr. Y.K.Bhushan
6. Management: Concept and Strategies by J.S. Chandan, Vikas Publishing
7. Principles of Management, ByTripathi, Reddy Tata McGraw Hill
8. Business organization and Management by Talloo, Tata McGraw Hill

Course Code: 5OR02
Course Name: Business Communication

UNIT-I

Means of Communication: Meaning and Definition – Process – Functions – Objectives – Importance – Essentials of good communication – Communication barriers, 7C's of Communication

UNIT-II

Types of Communication: Oral Communication: Meaning, nature and scope – Principle of effective oral communication – Techniques of effective speech – Media of oral communication (Face-to-face conversation – Teleconferences – Press Conference – Demonstration – Radio Recording – Dictaphone – Meetings – Rumour – Demonstration and Dramatisation – Public address system – Grapevine – Group Discussion – Oral report – Closed circuit TV). The art of listening – Principles of good listening.

UNIT-III

Written Communication Purpose of writing, Clarity in Writing, Principle of Effective writing, Writing Techniques, Electronic Writing Process.

UNIT-IV

Business Letters & Reports: Need and functions of business letters – Planning & layout of business letter – Kinds of business letters – Essentials of effective correspondence, Purpose, Kind and Objective of Reports, Writing Reports.

UNIT-V

Drafting of business letters: Enquiries and replies – Placing and fulfilling orders – Complaints and follow-up Sales letters – Circular letters Application for employment and resume

UNIT-VI

Information Technology for Communication: Word Processor – Telex – Facsimile(Fax) – E-mail – Voice mail – Internet – Multimedia – Teleconferencing – Mobile Phone Conversation – Video Conferencing – SMS – Telephone Answering Machine – Advantages and limitations of these types of communication

Reference Books :

- 1) Business Communication – K.K.Sinha – Galgotia Publishing Company, New Delhi.
- 2) Media and Communication Management – C.S. Rayudu – Hikalaya Publishing House, Bombay.
- 3) Essentials of Business Communication – Rajendra Pal and J.S. Korlhalli- Sultan Chand & Sons, New Delhi.
- 4) Business Communication (Principles, Methods and Techniques) Nirmal Singh – Deep & Deep Publications Pvt. Ltd, Delhi.
- 5) Business Communication – Dr.S.V.Kadvekar, Prin.Dr.C.N.Rawal and Prof.Ravindra Kothavade- Diamond Publications, Pune.
- 6) Business Correspondence and Report Writing – R.C. Sharma, Krishna Mohan – Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Code: 5OR02

Course Name: Unix And Shell Programming

Course Objectives: This course will enable students to:

- Learn basic commands to interact with UNIX System and VI editor.
- Understand the history, origin, features and architecture of UNIX Operating System.
- The usage of various commands in UNIX environment.
- Develop the ability to evaluate regular expressions and use them for pattern matching.
- Apply essential facets of SHELL programming in order to solve the SHELL script problems.

Module - I

INTRODUCTION: The UNIX operating system, Linux and GNU, The UNIX architecture, features of UNIX, POSIX and Single UNIX specification, Internal and External commands, Command structure, man browsing and manual pages on-line. File System: The parent – child relationship, the HOME variable, pwd, cd, mkdir, absolute pathname, relative pathname. 08 Hours Mod

Module – II

Vi editor: Basics, input mode, saving text and quitting, searching for a pattern (| and ?), substitution-search and replace(:s). Basic file attributes: ls: listing directory contents, the UNIX file system, ls -l, -d option, file ownership, file permissions, chmod, directory permissions, changing file ownership. More file attributes: File systems and inodes, hard links, symbolic links and ln, the directory, umask, modification and access times, find.

Module – III

Process basics: ps: process status, system processes(-e or -a), mechanism of process creation, process states and zombies, running jobs in background, nice:job execution, job control. Simple filters: pr, head, tail, cut, paste, sort, uniq, tr. Filters using regular expressions – grep and sed: grep, Basic Regular Expressions (BRE), Extended Regular Expressions (ERE) and egrep.

Module – IV

Simple filters: sed: the stream editor, line addressing using multiple instructions (-E and -F) context addressing, writing selected lines to a file (w), text editing, substitution (s), basic regular expression revisited. The shell: The shell's interpretive cycle, shell offerings, pattern matching, escaping and quoting, redirection, pipes, tee, command substitution, shell variables.

Module – V

Essential shell programming: Shell scripts, read using command line arguments, exit and exit status of command, the logical operators and ||, the if conditional, using test and {} to evaluate expression. The case conditional, expr, \$0, while, for, debugging.

Text Book:

1. Sumitabha Das: “UNIX – Concepts and Applications”, (Chapters 1,2,4,6- 9,11-14,17,19), Tata McGraw Hill, Noida, 4th Edition, 15th Reprint, 2011, ISBN-13: 978- 0-07-063546-3. Reference Books: 1. Behrouz A. Forouzan and Richard F. Gilberg: “UNIX and Shell programming”, Cengage Learning, India, 1st Edition, 2005, ISBN: 81-35-0325-9.
2. M G Venkatesh Murthy: “UNIX and Shell programming”, Pearson Education, Delhi, 1st Edition, 2005, ISBN: 81-7758-745-5.

Course Code: 5OR02

Course Name: Android Programming

Unit 1

Introduction: What is Android?, Android Architecture, Setting Android Environment, Android SDK Manager & required Packages, Using Android Studio, Android Virtual Device(AVD), Creating First Android Application, Package Structure

Unit 2

Introduction to Gradle, Running the Application, Views, Layouts and more. Introduction to Views: Text View, Edit Text View, Radio Button and Check Box View, Button View, Image View and Image Button View, Toast, Notifications.

Unit 3

Introduction to Layouts/View Groups: Linear Layout, Relative Layout, Tabular Layout, Hierarchical Layout Arrangements, Adapter and Adapter View, Using List View and Grid View, SQ Lite Database.

Unit 4

Spinner in Android, Working with Spinners, Margin and Padding, Working with Edit Text and Text View, Radio Group, Radio Button and Check Box, Auto Complete Text View in Android, Android Core and Projects.

Unit 5

Location Based Services: Sending Email, Sending SMS, Phone Calls Activity in Android, Intents in Android, Introduction to Fragments, Working with Fragments

Suggested Readings: Android Programming for Beginners by John Horton Publisher: Packt Publishing

- Learn Java for Android Development (2nd edition) by Jeff Friesen Publisher: Apress
- Android application development for java programmers. By James C. Sheusi. Publisher: Cengage Learning, 2013. Beginning Android Programming with Android Studio, Fourth Edition by Jerome F.
- DiMarzio Publisher: John Wiley & Sons Android Programming: The Big Nerd Ranch Guide by Kristin Marsicano , Chris
- Stewart ,Bill Phillips Publisher: Big Nerd Ranch Guides

Course Code: 5SE01
Course Name: Mentoring And Professional Development

Guidelines regarding Mentoring and Professional Development The objective of mentoring will be development of: • Overall Personality • Aptitude (Technical and General) • General Awareness (Current Affairs and GK) • Communication Skills • Presentation Skills The course shall be split in two sections i.e. outdoor activities and class activities. For achieving the above, suggestive list of activities to be conducted are:

Part A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

1. Sports/NSS/NCC
2. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Evaluation shall be based on rubrics for Part – A & B Mentors/Faculty in charges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

Course Code: 5CR01-L
Course Name: Android Programming

COURSE OBJECTIVES: To build programming logic and thereby developing skills in Programming. • To help students in learning the basics of android studio. • To aid students in understanding how to use the android studio and use the databases

LEARNING OUTCOMES: Enable to build programming logic and thereby developing skills in Programming. • Enables the students to develop their own applications. • Enable students to develop the skills to become entrepreneurs.

PART-A

1. Create an android application to demonstrate any five types of textboxes.
2. Create an android application to demonstrate Checkboxes.
3. Create an android application to demonstrate radio buttons.
4. Create an android application to demonstrate Image View.
5. Create an android application to demonstrate Scroll View.
6. Create an android application to demonstrate List View.
7. Create an android application to demonstrate Grid View.

PART-B

1. Create an android application to demonstrate page navigation.
2. Create an android application to demonstrate any three types of layouts.
3. Create a simple calculator application.
4. Create an android application to demonstrate Map View.
5. Create an android application to demonstrate registration form.
6. Create an android application to demonstrate login form by connecting to the database.
7. Create an android application to retrieve a data from the database and display it.

Course Code: 5CR02-L

Course Name: Project Work

Practical Training and Project Work:

1. Project Work may be done individually or in groups (maximum three) in case of bigger projects. However if project is done in group each student must be given a responsibility for a distinct module and care should be taken to monitor the individual student.
2. Project Work can be carried out in the college or outside with prior permission of college.
3. The Student must submit a synopsis of the project report to the college for approval. The Project guide can accept the project or suggest modification for resubmission. Only on acceptance of draft project report the student should make the final copies.
4. The project report should be hand written.

Submission Copy: The Student should submit spiral bound copy of the project report. Format of the Project:

- (a) Paper: The Report shall be typed on White Paper of A4 size.
- (b) Final Submission: The Report to be submitted must be original.
- (c) Typing: Font:- Times New Roman Heading:- 16 pt., Bold Subheading:- 14 pt, Bold Content:- 12 pt. Line Spacing:- 1.5 line. Typing Side:- One Side Font Color: - Black.
- (d) Margins: The typing must be done in the following margin: Left : 0.75" Right: 0.75" Top: 1" Bottom: 1" Left Gutter: 0.5"
- (e) Binding: The report shall be Spiral Bound.
- (f) Title Cover: The Title cover should contain the following details: Top: Project Title in block capitals of 16pt. Centre: Name of project developer's and Guide name. Bottom: Name of the university, Year of submission all in block capitals of 14pt letters on separate lines with proper spacing and centering.
- (g) Blank sheets: At the beginning and end of the report, two white blank papers should be provided, one for the Purpose of Binding and other to be left blank.
- (h) Content:
 - I. Acknowledgement
 - II. Institute/College/Organization certificate where the project is being developed. 36 ©MGSU, Bikaner Exam 2021-2022-2023

- III. Table of contents
- IV. A brief overview of project
- V. Profiles of problem assigned
- VI. Study of Existing System
- VII. System Requirement
- VIII. Project plan o Team Structure o Development Schedule of Programming languageand Development Tools
- IX. Requirement Specification
- X. Design o Detailed DFD's and Structure Diagram o Data structure, Database and File Specification
- XI. Project Legacy o Current Status of project o Remaining Areas of concern o Technical and Managerial Lessons Learnt o Future Recommendations
- XII. Nomenclature and Abbreviations.
- XIII. Bibliography
- XIV. Source Code.