Name of Course	**B.Sc. CS Third Year**
Semester	**VI**
Name of Subject	**Mobile Application Development**
Subject Code	**BCS-601**

Course Objectives:

- This course shall build a platform for students to start their own enterprise
- For Making Student Job Ready
- To gain an understanding of the processes that are involved in an Android developed application
- To become familiar with Android development tools and user interface.
- To understand Activity and Intends
- To understand SQLite Database.
- To Understand Web view control
- Ability to build Many simple apps that you can share with your friends

Course Outcome:

- Awareness of existing demanding trends in IT industry in order to get placement & research
- Understand the Android OS architecture.
- Install and use appropriate tools for Android development, including IDE, device emulator, and profiling tools.
- Understand the Android application architecture, including the roles of the task stack, activities, & services.
- Build user interfaces with fragments, views, form widgets, text input, lists, tables, and more.

UNIT I

I	**FUNDAMENTALS MOBILE PROGRAMMING**		**Lectures Required**
	1.1	Introduction to Mobile Programming	1
	1.2	Android: An Open Platform for Mobile Development	1
	1.3	Overview of the Operating Systems used on different mobile devices	1
	1.4	Android Operating System, Its Features and Versions	1
	1.5	Android Development Tools	1
	1.6	Introducing the Development Framework	1
	1.7	Installing Android Studio	2

UNIT II

II	ANDROID ARCHITECTURE		Lectures Required
	2.1	Android Stack	1
	2.2	Android applications structure	2
	2.3	Creating a project	1
	2.4	Configuring the Android Manifest File	1
	2.5	Understanding Activities	1
	2.6	Understanding the Components or layouts of a Screen	2

UNIT III

III	ACTIVITIES, FRAGMENTS, AND INTENTS		Lectures Required
	3.1	Understanding Activities	1
	3.2	Intents	2
	3.3	Linking Activities Using Intents	1
	3.4	Activity life cycle	1
	3.5	Fragments	1

UNIT IV

IV	BUILDING USER INTERFACES		Lectures Required
	4.1	Text controls	1
	4.2	Button controls	2
	4.3	Toggle buttons	1
	4.4	ImageButton, RadioButton, and RadioGroup Views, ProgressBar View , AutoCompleteTextView View	1
	4.5	TimePicker View, DatePicker View	1
	4.6	AnalogClock and DigitalClock Views	1
	4.7	WebView	1
	4.8	Toast notifications	1

UNIT V

V	MENUS, SMS &LOCATION-BASED SERVICES		Lectures Required
	5.1	Localization	1

	5.5	Creating the Helper Methods, Options menu and Context menu	1
	5.3	Dialogs- Alert dialog	1
	5.4	SMS Messaging	1
	5.5	Using a Content Provider	1
	5.6	Lists view	1
	5.7	Displaying Maps , Getting Location Data	2
	5.8	Monitoring a Location using GPS	1

UNIT VI

VI	**WORKING WITH INTERNET, DATABASES AND PUBLISHING APPS**		**Lectures Required**
	6.1	Shared preferences	1
	6.2	Downloading and Parsing Internet Resources, Using the Download Manager.	1
	6.3	Files access	2
	6.4	Introducing Android Databases, Introducing SQLite, Content Values and Cursors, Working with SQLite Databases.	3
	6.5	Preparing for publishing	1
	6.6	Publishing to the Android Market	2

Reference Books:-

1 Professional Android 4 Application Development, Edition 3 Reto Meier Wrox Publication

2 Beginning Android 4 Application Development, Edition illustrated Wei-Meng Lee, John Wiley & Sons WroxPublication

3 Sams Teach Yourself Android Application Development in 24 Hours, Edition illustrated Darcey& Shane Conder Sams Publishing

Name of Course	B.Sc. Computer Science (Third Year)
Semester	VI Semester
Name of Subject	Fundamentals of Image Processing
Subject code	BCS-602

Course Objectives:

1 To learn and understand fundamental concepts of digital image processing.
2 To learn basic image processing operations.
3 To understand and work on different image analysis algorithms
4 To expose students to current applications of digital image processing system.

Course Outcome:

1 Review the fundamental concepts of digital image processing system.
2 Evaluate the techniques for image enhancement.
3 Evaluate the techniques for Image restoration.
4 To develop color based image processing applications.
5 To evaluate different filtering method.

UNIT I

Sr. No.	Introduction	Lectures Required
1	Introduction to Digital image processing	1
2	Applications of image processing	1
3	Fundamental steps in digital image processing	2
4	Elements of visual perception, Brightness, Discrimination and adaptation	2

UNIT II

Sr. No.	Introduction to Digital Image Representation	Lectures Required
1	Components of an image processing system	1
2	Representing digital images, co-ordinate convention system,	2

	Matrix representation,	
3	Reading, displaying and writing of images	2
4	Data class, Image types, sampling and quantization	2

UNIT III

Sr. No.	Color Image Processing	Lectures Required
1	Color fundamentals, Basics of full color image processing,	2
2	Color models and color spaces,	1
3	RGB color model, HSV color model, CMY color model,	2
4	Pseudo color image processing, Color image representation, MATLAB functions for color model conversions.	2

UNIT IV

Sr. No.	Intensity Transformation and spatial filtering techniques	Lectures Required
1	Background, basic intensity transformation function using imadust()	2
2	Histogram processing and function plotting, histogram equalization, histogram type	2
3	Fundamentals of filtering, neighbourhood,	2
4	Linear spatial filtering, Non linear spatial filtering, fspecial() and imfilter().	2

UNIT V

Sr. No.	Image Restoration	Lectures Required
1	A model of image degradation and restoration process	1
2	Noise models	2
3	Geometric transformation function, image registration.	2
4	Restoration techniques.	1

UNIT VI

Sr. No.	Introduction to MATLAB	Lectures Required
1	Advantages and disadvantages of MATLAB	1
2	Using MATLAB scratch pad, MATLAB environment	2
3	Variables and arrays, scalar and array operation,	1
4	MATLAB operator, Multidimensional array, Introduction to M function programming.	2

Reference books:-

1. Digital Image Processing using MATLAB R.C. Gonzalez, R.E.Woods and S.L.Eddins Second Edition, Pearson Education.
2. Fundamentals of Image Processing A.K. Jain PHI publication.
3. MATLAB Programming for Engineers Stephen J. Chapman Third Edition, Thomson Learning.

Name of Course	B.Sc. Computer Science (Third Year)
Semester	VI Semester
Name of Subject	Linux Administration (Elective)
Subject code	BCS-604 B

Course Objectives:

- This course shall build a platform for students to start their own enterprise
- For Making Student Job Ready
- To become familiar with open source software and user interface.
- To securely handle OS without any viruses and malwares.
- For easily use free software available on internet.
- To understand the basic operating system command.
- To understand the basic concept of Linux operating system administration

Course Outcomes:

- Awareness of existing demanding trends in IT industry in order to get placement & research in open source market.
- Understand the Linux OS architecture.
- Install and use different types of distributions available in market.
- Understand the different Linux administration commands.

UNIT I

Sr. No.	System Administration	Lectures Required
1	Managing User Accounts, Managing Groups.	2
2	Managing Users, Managing Permissions	2
3	Managing Passwords	1
4	Granting System Administrator Privileges to Regular Users , Disk Quotas	2

UNIT II

Sr. No.	Automating Tasks	Lectures Required

1	Running Services at Bootup:- Beginning the Boot Loading Process, Booting into the Default Run level,	2
2	Understanding init Scripts and the Final Stage of Initialization, Controlling Services at Boot with Administrative Tools	2
3	Starting and Stopping Services Manually	1
4	Scheduling Tasks	2

UNIT III

Sr. No.	System-Monitoring Tools	Lectures Required
1	Console-Based Monitoring, Using the kill Command to Control Processes	2
2	Using Priority Scheduling and Control.,	1
3	Graphical Process and System Management Tools	1
4	KDE Process- and System-Monitoring Tools	1

UNIT IV

Sr. No.	Backing Up	Lectures Required
1	Choosing a Backup Strategy ,	2
2	Choosing Backup Hardware and Media	1
3	Using Backup Software	1
4	Copying Files.	1

UNIT V

Sr. No.	Networking and TC/IP	Lectures Required
1	Using Network Configuration Tools	2
2	Advanced Wireless Networking	1
3	Dynamic Host Configuration Protocol . .	2
4	Setting Up a Telnet Server, Setting Up an SSH Server	2

UNIT VI

Sr.	Server & Printer Management	Lectures

No.		Required
1	Installing the Apache Server, Starting and Stopping Apache	2
2	Using the Network File System	1
3	Putting Samba to Work:- Configuring Samba with system-config-samba, Configuring Samba with SWAT,	2
4	Configuring and Managing Print Services, Creating Network Printers ,Creating and Configuring Local Printers ,	2

Reference book:-

5) Fedora 7 Unleashed by Andrew Hudson and Paul Hudson (SAMS publication)

Name of Course	B.Sc. Computer Science (Third Year)
Semester	VI Semester
Name of Subject	Networking Essentials
Subject code	BCS-605 B (Open elective)

Course Objectives:

- To understand the basics of wireless voice and data communication technologies.
- To study about the wireless communication Techniques.
- To understand different routing algorithms.
- To understand security and privacy issues in wireless environments.

Course Outcomes:

- Evaluate the usability of mobile devices such as smart phones.
- Select appropriate network technologies in commercial and enterprise applications.
- Assess the capabilities of next generation networks and role of network technologies.

UNIT-I

Sr. No.	**Review of Basic Concepts**		**Lectures Required**
1	1.1	What is Network, Benefits of Networking	1
	1.2	Network Architecture – Protocol Hierarchies	2
	1.3	Reference Model	2
	1.4	Connection oriented & Connectionless Services	1
	1.5	Underlying Technologies- IP Address, LAN & WAN	2

UNIT-II

Sr. No.	LAN Hardware		Lectures Required
2)	2.1	Network Interface card	1
	2.2	Ethernet Technology 10 Base 2 & 10Base 5, 10 Base T	2
	2.3	Network Device Router & Switch	1
	2.4	Repeaters	2
	2.5	Wireless LAN	1

UNIT-III

Sr. No.	The Internet Layer & Routing Protocols		Lectures Required
3)	3.1	IP-Datagram	1
	3.2	ICMP - Types of Messages	2
	3.3	BOOTP and DHCP	2
	3.4	Routing Protocol	2
	3.5	RIP, OSPF, BGP	2

UNIT-IV

Sr. No.	The Transport Layer		Lectures Required
4)	4.1	The transport service- services primitives	2
	4.2	Sockets	2
	4.3	Elements of transport protocols	2
	4.4	TCP Frame Format	2
	4.5	UDP Protocol	1

UNIT-V

Sr. No.	Introduction to Network Security		Lectures Required
5)	5.1	Network Security Overview and Policies .	2
	5.2	Network Security Devices	1
	5.3	Protecting Networks with Firewalls, Using Intrusion Detection and Prevention Systems	2
	5.3	Protecting a Network from Malware- Viruse, Worms	2
	5.5	Spyware and Spam, Malware Protection	2

UNIT-VI

Sr. No.	Wide Area Networking and Cloud Computing		Lectures Required
6)	6.1	Wide Area Network Fundamentals-WAN Devices	1
	6.2	WAN Connection methods- Circuit-Switched WANs	1
	6.3	Leased Lines, Packet-Switched WANs	2
	6.4	WANs over the Internet	2
	6.5	Cloud Computing	1

References Books :

1. Computer Networks Andrew S. Tanenbaum Prentice Hall
2. Guide to Networking Essentials (Seventh Edition) Greg Tomsho Cengage Learning
3. CCNA ICND2 (Third Edition) Wendell Odom Cisco Press
4. Data and Computer Communications Stallings Pearson Education