Department of Computer Science

Semester: VI

Name of the Course: Mobile Computing

Subject Code: SC1764

No. of hours per week	No. of credits	Total no. of hours	Total marks
5	**5**	**75**	**100**

Objectives:

1. To develop system and application level software for small, battery powered terminals equipped with the wireless network connection.
2. To develop the professional ethics in computing and able to implement the logic and techniques in information technology.

Course Outcome

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO -1	understand the basic concepts and principles in mobile computing	**PSO – 1**	**U**
CO -2	describe the concepts of Bluetooth, RFID, WiMAX	**PSO - 1**	**U**
CO -3	acquire and apply the knowledge of GSM and GPRS	**PSO – 4**	**U, AP**
CO -4	understand the process of CDMA,3G,Wireless LAN	**PSO – 4**	**U**
CO -5	describe and implementing the security techniques	**PSO – 9**	**AP**

Modules

Total contact hours: 75 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Introduction**:, **Mobile Computing Architecture, Mobile Computing Through Telephony**					
	1.	Mobile Computing	2	To learn the basic structure of mobile computing	Lecture with PPT	Evaluation through: short test

	2.	Dialogue Control , Networks	2	To recall the types of networks	Lecture with PPT	Multiple choice questions
	3.	Architecture of Mobile Computing , Three Tier Architecture	2	To illustrate the structure of mobile computing and learn all the tiers.	Lecture, PPT	Formative Assessment
	4.	Mobile Computing through Internet.	1	Able to learn how mobile computing work through internet	Lecture, PPT	
	5.	Evolution of Telephony	2	To recall the evolution of telephony systems.	Lecture, PPT	
	6.	Multiple Access Procedures	2	To study how to access the mobile computing	PPT, Demonstration	
	7.	Mobile Computing through Telephone	1	Able to learn how mobile computing work through telephone		
II	**Emerging Technologies, Global System for Mobile Communications[GSM]:**					
	1.	Introduction, Bluetooth	2	To explain the different types of files and recall about Bluetooth technology	Lecture with PPT	Short test Quiz Formative Assessment
	2.	Radio Frequency Identification [RFID]	2	Able to know the RFID and all the frequencies	Lecture, PPT, Demonstartion	
	3.	Wireless Broadband [WIMAX]	1	To learn how the world move towards wireless technology	Lecture, Discussion, PPT	

				and know all the categories.		
	4.	Internet Protocol Version 6[IPV6]	2	Able to study the IPV6 protocol and connections	Lecture, Demonstration Discussion	
	5.	GSM Architecture	2	Able to recall the GSM methods and study the hierarchy of the architecture	Lecture, PPT	
	6.	GSM Entities	2	To study all the GSM entities	Lecture, PPT	
	7.	Call Routing in GSM, PLMN Interfaces	2	To recall the GSM routing and study the interfaces how work with the GSM	Lecture, Demonstration Discussion	
	8.	GSM Addresses and Identifiers, Network Aspects in GSM, GSM Frequency Allocation.	2	To learn all types of addresses and identifiers with the help of GSM networks and know the call frequency.	Lecture, PPT	
III	**Short Message Service , General Packet Radio Services [GPRS]**					
	1.	Computing Over SMS , Short Message Service	2	To recall the SMS structure and know how SMS will transfer one station to another station	Lecture, PPT, Demonstration	Short test Formative Assessment
	2.	GPRS and the Packet	3	Able to know	Lecture,	

		Data Network		how split the datas into packet and how the data will transfer.	Demonstration	
	3.	GPRS Network Architecture	2	Able to study GPRS architecture and study the techniques.	Lecture, Demonstration	
	4.	Data Services in GPRS	2	To know how to work with GPRS Services	Lecture, PPT	
	5.	Applications for GPRS	2	To recall all the applications which will work with GPRS.	Lecture, PPT	
	6.	Limitations of GPRS	2	Able to remove the meaning of metacharacter and recall the importance of 3 standard files available to every command.	Lecture, PPT	
IV	**CDMA and 3G , Wireless LAN**					
	1.	Introduction, Spread-Spectrum Technology	2	Able to recall the Technology about Spread-Spectrum	Lecture	Short test
	2.	Wireless Data , Third Generation Networks	3	Able to view all the wireless data and study the 3G technologies.	Lecture with PPT Discussion	Assignment on data types, variables
	3.	Wireless LAN Advantages	3	Able to know all the advantages of wireless	Lecture with PPT	Formative Assessment

				technologies.		
	4.	Wireless LAN Architecture	2	Able to study the Architecture of Wireless Local Area Network.	Lecture with PPT	
	5.	Mobility in Wireless LAN	2	To explain the concept of LAN mobility in Wireless	Lecture	
	6.	Mobile Ad hoc Networks and Sensor Networks, Wireless LAN Security.	3	To study the networks and sensor networks and the Local Area Network Security mechanism.	Lecture with PPT Discussion	
V	**Security Issues in Mobile Computing**					
	1.	Introduction , Information Security	3	Able to know how to secure our information form hackers and stury the security mechanisms.	Lecture, Discussion	Short test Formative Assessment
	2.	Security Techniques and Algorithm	2	To recall all the security techniques and algorithms.	Lecture with PPT	
	3.	Trust , Security Models	2	Able to study the Trust mechanism and security models.	Lecture, PPT, Discussion	
	4.	Security Framework for Mobile Environment.	3	To achieve the security for our mobile environment	Lecture, Discussion	

Course Instructor: V. Abisha **HOD:** Sr. Jothi

Teaching Plan for the Academic Year 2019-2020

Semester: VI

Name of the Course: Android Application Development

Subject Code: SC1761

No. of hours per week	No. of credits	Total no. of hours	Total marks
5	**5**	**75**	**100**

Objectives:

1. To enable the students to build own Android Apps and to use Android's Communication APIs for SMS, telephony etc.
2. To develop mobile applications with social and ethical responsibilities in a professional working discipline.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO -1	Describe the platforms upon which the Android OS will run	**PSO - 2**	**U**
CO -2	Apply the fundamental paradigms and technologies to develop mobile applications	**PSO - 5**	**AP**
CO -3	Create a simple application that runs under the Android operating system	**PSO – 4**	**C**
CO -4	Develop an application that uses multimedia under Android operating system	**PSO – 10**	**C**
CO -5	Implement various methods in Android to create mobile applications for communication network	**PSO – 9**	**AP**

Modules

Total contact hours: 75 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Fundamentals of Java for Android Application Development**					
	1.	Introduction to Java, Developing a simple Java program, Interfaces, Inheritance	2	To recall about Java and various Java programs	Lecture	Evaluation through: short test Multiple choice questions Formative Assessment
	2.	Introducing Java Dalvik Virtual Machine	2	To understand about Dalvik Virtual Machine	Lecture	
	3.	Introducing Android, Discussing about Android applications	2	To explain Android architecture and features of Android	Lecture, PPT	
	4.	The Manifest file	1	To understand the core file of Android application development	Lecture	
	5.	Downloading and Installing Android	2	To set the environment to develop Android applications	Lecture, PPT	
	6.	Exploring the Development Environment	1	To explore the various tools used for Android Application Development	Lecture	
	7.	Developing and executing the first	2	To create and execute various programs in	Lecture, Demonstration	

		Android Application		Android		
II	Using Activities, Fragments and Intents in Android					
	1.	Working with activities, Creating an Activity, Starting an Activity	3	To create and start an activity in Android	Lecture, Demonstration	Short test Quiz Formative Assessment Multiple Choice Questions
	2.	Managing the lifecycle of an Activity	1	To understand the stages with which an activity goes through	Lecture	
	3.	Applying themes and styles to an Activity	2	To be able to design the look and format of a view or window	Lecture, Discussion	
	4.	Hiding the title of the Activity	1	To be able to Hide the Title of an Android application	Lecture, Demonstration Discussion	
	5.	Using Intents, Exploring Intent Objects, Exploring Iintent Filters	3	To understand the working of intents in Android and to create Intent Objects and Filters	Lecture, PPT	
	6.	Fragments	3	To understand the lifecycle of a fragment and to implement fragments statically and dynamically in Android	Lecture	

	7.	Using Intent object to invoke built-in application	2	To call built-in applications such as contacts, messaging and phone calls	Lecture, Demonstration	
III	**Working with the User Interface using Views and View Groups**					
	1.	Working with View Groups	2	To understand the grouping of one or more views in Android	Lecture, Demonstration	Short test Formative Assessment Multiple Choice Questions Assignment on various layouts
	2.	The LinearLayout Layout	3	To create and define the LinearLayout Layout	Lecture, Demonstration	
	3.	The RelativeLayout	2	To be able to work with the Relative Layout Layout	Lecture, Demonstration	
	4.	The FrameLayout	2	To be able to understand how to position the views using FrameLayout	Lecture, PPT	
	5.	Working with Views	2	To be able to create different views in Android	Lecture, Demonstration	
	6.	Binding data with the AdapterView class	2	To be able to bind the stored data and display the data in a	Lecture	

				specific manner		
	7.	Designing the AutoTextComplete View	2	To create and understand the AutoText Complete View	Lecture, Demonstration	
	8.	Implementing the Screen Orientation	1	To be able to switch to various screen orientations such as portrait and lansdcape modes	Lecture, Demonstration	
	9.	Creating Menus	2	To add different types of menus to your applications	Lecture, Demonstration	
IV	**Handling Pictures and Menus with Views**					
	1.	Working with Image Views	3	To be able to work with applications in GalleryView, GridView and ImageSwitcher View	Lecture, Demonstration	Short test Formative Assessment Quiz
	2.	Designing Context Menu for Image View	2	To be able to design a Context Menu for an ImageView	Lecture with PPT Discussion	
	3.	Notifying the User	3	To discuss the various notification techniques used such as Toast, Status Bar and Dialog notification	Lecture	

	4.	Storing data persistently, Introducing data storage options	3	Introduce various data storage options in Android	Lecture	
	5.	Using Internal Storage, Using External Storage	2	To write data to files and read data from an existing file,To be able to explore the various methods used for data storage	Lecture	
	6.	Using SQLite Database	1	To be able to use the SQLite database to create applications	Lecture, Discussion	
	7.	Building an Application to send Email	1	Able to create an Android Application for sending Email	Lecture, Demonstration	
V	**Working with Graphics and Animation**					
	1.	Working with Graphics, Using the Drawable object, Using ShapeDrawable object	3	To create graphics directly to the Canvas, To draw various shapes and images and 2-D Graphics	Lecture, Discussion	Short test Formative Assessment Multiple Choice Questions
	2.	Working with Animations	2	To implement various Animation Systems	Lecture	
	3.	Audio, Video and	2	To be able to play Audio	Lecture,	

		Playback, Role of Media Playback, Using Media Player		and Video files	Discussion	
	4.	Preparing Audio and Video for Playback, Using Camera for taking Pictures	3	To design an Android application for playing Audio and Video files, To design an Android application for taking pictures using Camera	Lecture, Discussion	

Course Instructor: Pillai Archana Baburajendranath **HOD:** Sr. Jothi

Teaching Plan for the Academic Year 2019-2020

Semester: VI

Name of the Course: **Computer Graphics and Multimedia**

Subject Code: SC1762

No. of hours per week	No. of credits	Total no. of hours	Total marks
5	**5**	**75**	**100**

Objectives:

1. To acquire the knowledge of computer graphics and multimedia.
2. To extend creativity and innovation in various fields of computing technology.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO -1	Understand fundamental principles of computer graphics	**PSO – 12**	**U**
CO -2	Discuss algorithms for 2D and 3D transformations	**PSO – 9**	**U**
CO -3	Interpret simple problems in the basic representation and handling of multimedia data (images, audio and animation	**PSO - 4**	**AP**
CO -4	Create simple 2D animations, 3D animations	**PSO – 5**	**AP**

Modules

Total contact hours: 75 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment / Evaluation
I	**Introduction, Graphical Input/output Devices, Raster Scan Video Principles, Random scan Devices**					
	1.	Applications of Computer Graphics, Operations of Computer Graphics	2	Understand fundamental principles of computer graphics.	Lecture with PPT	Evaluation through: short test
	2.	Graphics Packages, Requirements of a Graphical System	2	Able to know about software packages and display adaptor cards	Lecture with PPT	Multiple choice questions
	3.	Graphical User Interfaces.	1	To explain Graphical User Interfaces	Lecture, PPT	Formative Assessment
	4.	Common Input Devices - Graphics Output Devices	2	Able to distinguish the difference between Graphical Input Output Devices	Lecture, PPT	
	5.	Plasma Panel Display , LCD Panels.	2	To illustrates the types of Displays	Lecture, PPT	
	6.	Memory Tube Displays, Plotters Graphics Accelerators and Coprocessors.	3	To explain the uses of Displays and Plitters	PPT, Demonstration	
II	**Scan Conversions, DDA Algorithms, Bresenham's Algorithms, Scan Conversion of Solids, Solid Area Filling Algorithm.**					
	1.	Scan Conversions Methods, Polynomial Method	2	To explain the different types of conversion methods	Lecture with PPT	Short test Quiz
	2.	DDA for Line, DDA for Circle Generation,	4	To explain DDA Algorithms	Lecture, PPT,	Formative Assessment

		Ellipse, Parabola.			Demonstartion	
	3.	Bresenham's Line Drawing Algorithm, Bresenham's Circle Algorithms.	2	To explain Bresenham's Algorithms	Lecture, Discussion, PPT	
	4.	Solid Areas or Polygons **,** Inside Outside Test	2	To explain Polygons, Odd-Even Methods and Winding Number Method	Lecture, Demonstration Discussion	
	5.	Boundary Fill Algorithm - Flood Fill Algorithm - Scan Line Fill Algorithm.	3	Able to explain Filling Algorithms	Lecture, PPT	
III	**2-D Geometrical Transformation**, **Homogenous Coordinate Systems, Other Transformations, 3-D Geometrical Transformation, Other 3D Transformations**					
	1.	Translation , Scaling, Rotation, Transformation of Points and Objects.	4	To explain 2D Transformation.	Lecture, PPT, Demonstration	Short test Formative Assessment
	2.	Scaling about a Reference Point, Rotation about an Arbitrary Point.	2	To explain about reference point and arbitrary point	Lecture, Demonstration	
	3.	2DReflection , 2DShearing	2	Recall about reflection and shearing	Lecture, Demonstration	

	4.	3D Translation, 3DScaling, 3D Rotation	3	Recall abut Transformation.	Lecture, PPT	
	5.	3DReflection ,3D Shearing	2	To recall about Reflection and Shearing	Lecture, PPT	
IV	**2-D Viewing and Clipping, 3-D Viewing and Clipping.**					
	1.	Windows and Viewports, Viewing Transformations	2	Able to explain windows and viewports	Lecture	Short test
	2.	Cohen Sutherland Clipping Algorithm in 2D ,Midpoint Subdivision Method, Concepts of Parametric Clipping, Liang-Barsky Clipping Algorithm in 2D	4	Able to explain clipping lines algorithms	Lecture with PPT Discussion	Assignment on data types, variables Formative Assessment
	3.	Polygon Clipping, Clipping against Concave Windows.	2	Recall about Clipping algorithms	Lecture with PPT	
	4.	Clipping of Lines in 3D ,Cohen Sutherland Clipping Algorithm in 3D, Liang-Barky 3D Clipping Algorithm.	3	Recall about Viewing and Clipping	Lecture with PPT	
V	**Multimedia Basics, Graphics Image File Format, Animation and Flash Overview**					

	1.	Concepts of Multimedia , MIDI , Image Compression Standards,Video Compression and Encoding , Virtual Reality**.**	7	Understand the basic concepts of Multimedia.	Lecture, Discussion	Short test Formative Assessment
	2.	BMP – GIF – JPEG – TIFF – MIX - PNG	1	Understand image file formats	Lecture with PPT	
	3.	Flash Basics ,Flash Work Environment, Using Layers, Creating Animation.	5	Able to create animation	Lecture, PPT, Discussion	

Course Instructor: V.R. Bithiah Blessie **HOD:** Sr. Jothi

Teaching Plan for the Academic Year 2019-2020

Semester: VI

Name of the Course: UNIX and Shell Programming

Subject Code: SC1763

No. of hours per week	No. of credits	Total no. of hours	Total marks
5	**5**	**75**	**100**

Objectives:

1. To familiarize students with the UNIX environment.
2. To learn the fundamentals of shell scripting/programming.

CO	Upon completion of this course the students will be able to :	PSO addressed	CL
CO - 1	Identify set of commands in UNIX	**PSO - 1**	**R**
CO - 2	Describe the features & functions of an operating system.	**PSO - 1**	**U**
CO - 3	Customize environment settings using a text editor	**PSO - 1**	**U**
CO - 4	Demonstrate UNIX commands for file handling and process control	**PSO - 1**	**AP**
CO - 5	Combine several simple commands in order to produce more powerful operations.	**PSO - 1**	**AP**
CO - 6	Utilize system utilities to perform administrative tasks	**PSO - 1**	**AP**
CO - 7	Analyze the working of the user defined commands and will be able to change the permissions associated with files.	**PSO - 3**	**AN**
CO - 8	Create and manage simple file processing operations, organize directory structures with appropriate security	**PSO - 3**	**C**
CO - 9	Create, delete, move and rename files and directories	**PSO - 1**	**C**

Modules

Total contact hours: 75 (Incl. lectures, assignments and test)

Unit	Section	Topics	Lecture hours	Learning Outcome	Pedagogy	Assessment/ Evaluation
I	**Getting Started, The UNIX Architecture and Command Usage and General Purpose Utilities**					
	1.	The Operating System, The UNIX Operating System	2	To recall functions of OS and UNIX OS	Lecture with PPT	Evaluation through: short test Multiple choice questions Formative Assessment
	2.	A Brief Session	2	Able to login, work with commands and exit from UNIX.	Lecture with PPT	
	3.	The UNIX Architecture, Features of UNIX	2	To explain UNIX architecture and features of UNIX	Lecture, PPT	
	4.	Locating Command, Internal and External Commands	1	Able to distinguish the difference between internal and external commands	Lecture, PPT	
	5.	Command Structure, Flexibility of Command Usage, Man Browsing the Manual Pages On-line	2	To illustrates the types of arguments that can be used in a command. Able to say the flexibility in the usage of commands	Lecture, PPT	
	6.	cal, date, echo, printf, bc, script, passwd, who, uname, tty, stty	3	To explain the uses, syntax & work with these commands.	PPT, Demonstration	
II	**The File System, Handling Ordinary Files and Basic File Attributes**					
	1.	The File, File Name,	2	To explain the different	Lecture with PPT	Short test

		The HOME Variable		types of files and recall about home directory.		Quiz Formative Assessment
	2.	pwd, cd, mkdir, rmdir, Absolute and Relative Pathnames	2	To recall the tools that handle directories. Compare absolute and relative pathnames.	Lecture, PPT, Demonstart ion	
	3.	ls: Listing Directory Content, The UNIX File System	2	To recognize the option used to list directory contents in ls command. Able to recall the structure of UNIX file system.	Lecture, Discussion, PPT	
	4.	cat, cp, rm, mv, more, lp, file, wc, od, cmp, comm., diff, gzip, gunzip, zip and unzip	3	Able to list out the uses and syntax for file-handling commands.	Lecture, Demonstrat ion Discussion	
	5.	ls -l: Listing File Attributes, File Ownership, File Permissions	2	Able to recall the options to list file attributes. Able to explain file ownership & file permissions.	Lecture, PPT	
	6.	chmod, Directory Permissions, Changing File Ownership.	2	Able to change file permissions, directory permissions and file ownership.	Lecture, PPT	
III	**The VI Editor and The Shell**					

	1.	vi Basics	1	To recall the three modes in which vi operates for sharing the workload.	Lecture, PPT, Demonstration	Short test Formative Assessment
	2.	Input Mode - Entering and Replacing Text, Saving Text and Quitting	3	Able to use the input mode to insert, replace and save text in vi editor.	Lecture, Demonstration	
	3.	The ex Mode, Navigation, Editing Text	2	Able to save your work, move around the vi editor, delete, copy and move text using operators.	Lecture, Demonstration	
	4.	Undoing Last Editing Instructions, Repeating the Last command, Searching for a Pattern, Substitution — Search and Replace	2	Able to undo the last editing action, search for a pattern, perform string substitution.	Lecture, PPT	
	5.	Shell Offerings, Pattern Matching	2	To recall shell's interpretive cycle, importance of metacharacters and their use in wild-cards for matching multiple filenames.	Lecture, PPT	
	6.	Escaping and Quoting, Redirection	2	Able to remove the meaning of metacharacter and recall the importance	Lecture, PPT	

				of 3 standard files available to every command.		
	7.	Pipes, tee, Command Substitution, Shell Variables	2	To recall how shell manipulates the default source and destination of 3 standard files streams to implement pipelines, uses of shell variables.	Lecture, PPT	
IV	**The Process, Customizing the Environment and More File Attributes**					
	1.	ps: Process Status, Mechanism of Process Creation, Running Jobs in Background	2	Able to view process attributes, run a job in background with & and nohub command.	Lecture	Short test Assignment on data types, variables Formative Assessment
	2.	nice: Job Execution with Low Priority, Killing Processes with Signals, at and batch: Execute Later, cron: Running Jobs Periodically	3	Able to reduce the priority of a job, kill command to terminate processes, schedule jobs to run periodically.	Lecture with PPT Discussion	
	3.	Environment Variables, The Common Environment Variables, Aliases	3	Able to differentiate the difference between local and environmental variables. To use aliases to call	Lecture with PPT	

				commands with short names.		
	4.	Command History, In-line Command Editing	2	Able to recall, edit and run previously executed commands.	Lecture with PPT	
	5.	File Systems and Inodes, The Directory, umask: Default File and Directory Permissions, find: Locating Files	3	To explain the concept of file system, Use of inode to store file attributes. Able to change the default file and directory permissions.	Lecture	
V	**Simple Filters, Filters Using Regular Expressions and Essential Shell Programming**					
	1.	The Sample Database, pr, head, tail, cut, paste, sort, grep	3	Able to format text i.e., to give margins, spacing, pick up lines from the beginning and ending, join two files laterally, searching for a pattern.	Lecture, Discussion	Short test Formative Assessment
	2.	Shell Scripts, read: Making Scripts Interactive, Using Command Line Arguments, exit and Exit Status of Command	2	To recall shell script and to execute it. Able to make shell scripts interactive and to make use of exit statement in terminating a script.	Lecture with PPT	

	3.	The Logical Operators && and || --Conditional Execution	2	Able to perform elementary decision making wit && and || operators.	Lecture, PPT, Discussion	
	4.	The if Conditional, The case Conditional, while: Looping, for: Looping with a List, Debugging Shell Scripts with set –x	3	To analyze the various programming constructs and implement it to perform specific task	Lecture, Discussion	

Course Instructor: J. Anto Hepzie Bai **HOD:** Sr. Jothi