SCHEME OF COURSE WORK

Course Details:

Course Title	**: MULTIMEDIA AND APPLICATION DEVELOPMENT**		
Course Code	**: 13IT2107**	**L T P C**	**:4 0 0 3**
Program:	**: M.Tech.**		
Specialization:	**: SOFTWARE ENGINEERING**		
Semester	**: I**		
Prerequisites	**: none**		
Courses to which it is a prerequisite	**: none**		

Course Outcomes (COs):

1	Understand fundamental concepts of multimedia
2	Understand different issues in multimedia data communication and storage.
3	Learn action script programming skills required for development of multimedia applications using Flash.
4	To effectively use and produce multimedia elements and products.
5	To understand the intricacies of multimedia communications.

Program Outcomes (POs):

A graduate of Information Technology will be able to

1	Demonstrate in-depth knowledge of Software Engineering with analytical and synthesizing skills.
2	Analyze complex problems critically and provide viable solution.
3	Evaluate potential solutions to a problem and arrive at optimal solutions
4	Apply research methodologies to develop innovative techniques for solving complex Information Technology related problems.
5	Apply techniques and tools to solve complex problems.
6	Effective team member in a collaborative and multidisciplinary project to achieve common goal
7	Manage a software team and to maintain financial records as per standard
8	Effectively communicate with clients, peers and society at large
9	Take up lifelong learning to be in tune with the fast-changing software related technologies
10	Follow ethical practices in the software industry and accept social responsibilit
11	Learn independently from mistakes and surge forward with positive attitude and enthusiasm.

Course Outcome Versus **Program Outcomes:**

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO-1	M											
CO-2		M	M									
CO-3					M							
CO-4								S				
CO-5												

S - Strongly correlated, *M - Moderately* correlated, *Blank - No correlation*

Assessment Methods:	Seminar / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	**INTRODUCTION TO MULTIMEDIA:** What is Multimedia? Multimedia and Hypermedia, World Wide Web, Overview of Multimedia Software Tools. **Graphics and Image Data Representations:** Graphics/Image Data Types.	CO-1 & CO-2	List various multimedia software tools.	▫ Lecture	Mid –Test 1
2	**ACTION SCRIPT 3.0 CORE CONCEPTS:** Tools for writing action script code, Flash client runtime environments, compilation, just in time compilation, classes and objects, creating a program, packages, defining a class, variable and values, constructor parameters and arguments.	CO-3	Write an action script program to calculate the percentage of a student (consider 6 subjects , Max Marks 100 in each subject).	▫ Lecture / ▫ Demonstration	Mid –Test 1
3	**COLOR IN IMAGE AND VIDEO:** color science, color models in images, color models in video.	CO-1	What are the different color models? How they work.	▫ Lecture	Mid –Test 1
4	**ACTION SCRIPT 3.0 CONDITIONALS, LOOPS AND FUNCTIONS:** conditionals, loops, Boolean logic. Package-level functions, nested functions, source-file-level functions, accessing definitions from within a function, functions as values.	CO-3	Write an action script program to find whether a given number is prime or not by using functions.	▫ Lecture / ▫ Demonstration	Mid –Test 1 Seminar
5	**FUNDAMENTAL CONCEPTS IN VIDEO AND DIGITAL AUDIO:** Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.	CO-1 & CO-2	How is sound converted into digital form?	▫ Lecture	Mid –Test 1
6	**ACTION SCRIPT 3.0 DATA TYPES AND TYPE CHECKING:** Data types and type annotations, un typed variables, parameters, return values, strict modes three special cases, warnings for missing type annotations, detecting reference errors at compile time, casting, conversion to primitive types, default variable values, null and undefined.	CO-3	Explain the type checking mechanism in Action Script 3.0	▫ Lecture / ▫ Demonstration	Mid –Test 1 Seminar
7	**MULTIMEDIA DATA COMPRESSION :** Lossless compression algorithms: Run-Length Coding, Variable Length Coding, and Dictionary Based Coding. Lossy compression algorithms: Quantization, Transform Coding, Wavelet-Based Coding.	CO-2 & CO-4	Differentiate between Run-Length Coding and Variable Length Coding.	▫ Lecture ▫ Problem solving	
8	**ACTION SCRIPT 3.0 INHERITANCE :** A primer on inheritance, overriding instance methods, constructor methods in sub classes, preventing classes from being extended and methods from being overridden.	CO-3	Write a Action Script to demonstrate the concept of Inheritance	▫ Lecture / ▫ Demonstration	
9	**Mid-Test 1**	CO-1			Mid-Test 1 (Week 9)
10	**BASICS OF VIDEO COMPRESSION :** Introduction to Video Compression, Video Compression with Motion Compensation, Search for Motion Vectors.		Explain the video compression with motion compensation.	▫ Lecture	Mid-Test 2 Seminar
11	**ACTION SCRIPT 3.0 INTERFACES :** The case for interfaces, interfaces and multiple data type classes, interface syntax and use, another multiple type example.	CO-3	Write an Action Script program to demonstrate the use of interfaces.	▫ Lecture / ▫ Demonstration	Mid-Test 2
12	**VIDEO CODING :** Overview of MPEG-1, MPEG-2 and MPEG-4. Motion compensation in MPEG-1,	CO-2	Discuss about Motion compensation in MPEG-1	▫ Lecture ▫ Discussion	Mid-Test 2

	MPEG-2 Profiles, Object-based Visual Coding in MPEG-4, Synthetic Object Coding in MPEG-4, MPEG- 4 Object types, Profile and Levels.				Seminar
13	**ACTION SCRIPT 3.0** ARRAYS : What is an array?, the anatomy of an array, creating an array, using single dimensional and, multi dimensional arrays.	CO-3	Write and Action script program to create a matrix of integer elements.	▫ Lecture	Mid-Test 2
14	**MULTIMEDIA NETWORKS :** Basics of Multimedia Networks, Quality of Multimedia Data Transmission.	CO-5	Evaluate various multimedia networks.	▫ Lecture ▫ Discussion	Mid-Test 2
15	**ACTION SCRIPT 3.0 EVENTS AND EVENT HANDLING :** Action script event basics, accessing the target Object, Accessing the object that registered the listener, preventing default event behavior, Event Listener priority, Event listeners and memory management.	CO-3 & CO-4	Write and Action script program that listens to the change of events with respect to an object and responds accordingly.	▫ Lecture ▫ Demonstration	Mid-Test 2
16	**MULTIMEDIA COMMUNICATION :** Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-on Demand (MOD).	CO-5	How multimedia is transferred over ATM Networks.	▫ Lecture	Mid-Test 2
17	**ACTION SCRIPT 3.0 :**The exception handling cycle, handling multiple types of exceptions, exception bubbling, The finally block, nested exceptions.	CO-3	Why Exception handling is required in a software?	▫ Lecture ▫ Demonstration	Mid-Test 2
18	**Mid-Test 2**				Mid-Test 2 (Week 18)
19/20	**END EXAM**				