

## **CONTENTS**

## CONTENTS

	PAGE No.
LIST OF FIGURES	
LIST OF TABLES	
LIST OF GRAPHS	
<b>CHAPTER - I</b>	<b>INTRODUCTION</b>
INTRODUCTION	1
TECHNOLOGY AND EDUCATION	3
EDUCATIONAL TECHNOLOGY	4
DEFINITIONS OF EDUCATIONAL TECHNOLOGY	6
MULTIMEDIA	8
CATEGORIZATION OF MULTIMEDIA	8
FEATURES OF MULTIMEDIA	9
MULTIMEDIA - ITS APPLICATIONS	10
INTELLIGENCE	10
THEORIES OF INTELLIGENCE	11
OBJECTIVES OF TEACHING PHYSICS AT HIGHER SECONDARY STAGE	13
NEED FOR ALTERNATIVE STRATEGIES IN TEACHING PHYSICS	16
NEED FOR THE STUDY	17
STATEMENT OF THE PROBLEM	18
SCOPE OF THE STUDY	18
OBJECTIVES OF THE STUDY	20
HYPOTHESES	22
TOOLS USED IN THE STUDY	24
METHODOLOGY IN BRIEF	26
DELIMITATIONS OF THE STUDY	27
A BRIEF RESUME OF THE SUCCEEDING CHAPTERS	28

## **CHAPTER - II      MULTIMEDIA : A CONCEPTUAL FRAME - WORK**

COMPUTER - INTRODUCTION	30
COMPUTERS IN EDUCATION	30
COMPUTER MANAGED LEARNING (CML)	31
COMPUTER ASSISTED INSTRUCTION (CAI)	32
COMPUTER ASSISTED LEARNING (CAL)	33
INTERACTIVE MULTIMEDIA LESSONS FOR EDUCATION - INTRODUCTION	36
MULTIMEDIA MODULE COMPONENTS	37
Content	37
Multimedia Asset Development	39
Computer Graphics Production	39
Video Production	41
Sound Production	42
File format Conversion	43
Authering system Integration	43
Computer Animation Technology	44
Principles of Animation	45
Design of Animation Sequences	46
Conventional Animation	47
Computer Assisted Animation	48
ROLE OF MULTIMEDIA BASED COMPUTER ANIMATION COURSEWARE IN SCHOOLS.	48
CONCLUSION	49

## **CHAPTER - III      REVIEW OF RELATED LITERATURE**

INTRODUCTION	50
STUDIES ON COMPUTER ASSISTED INSTRUCTION	51
SUMMARY	69

STUDIES ON MULTIMEDIA TECHNOLOGY	69
SUMMARY	76
DISCUSSION	77
CONCLUSION	81
CHAPTER - IV	METHODOLOGY
INTRODUCTION	84
MULTIMEDIA BASED COMPUTER SOFTWARE IN PHYSICS	85
TUTORIAL INSTRUCTION ALGORITHM	86
Characteristics of Tutorials	87
Pedagogical principles involved in the Tutorials	87
THEORETICAL CONCEPTIONS ABOUT A GOOD SOFTWARE	89
DEVELOPMENT OF TUTORIAL PACKAGES	92
COMPUTER COURSEWARE EVALUATION	96
Development of Courseware Evaluation Proforma	97
VALIDATION OF THE SOFTWARE PACKAGES	101
DEVELOPMENT OF CRITERION - REFERENCED TEST IN PHYSICS	103
Advantages of CRT over Norm Referenced Tests	105
Applications of CRTs	106
Steps involved in the development of CRT	107
Reliability and Validity of the CRT in Physics	110
OTHER TOOLS USED IN THE STUDY	112
CFIT Scale 3 Form A	112
Pre - Test	114
PROCEDURE	115
Experimental Research	115
Pre - test, Post - test, Non - equivalent Groups Design	116
SAMPLING	117
ADMINISTRATION OF THE PRE - TEST	118

EXPERIMENTATION	119
Instructional Process carried out in Control and Experimental Group	120
ANALYSIS OF DATA	121
CONSLUSION	122

## CHAPTER - V      ANALYSIS AND INTERPRETATIONS OF DATA

INTRODUCTION	123
ESTABLISHING IDENTITY AMONG CONTROL AND EXPERIMENTAL GROUPS	123
TESTING OF HYPOTHESES	124
<i>NULL HYPOTHESIS</i> : 1	125
<i>NULL HYPOTHESIS</i> : 2	126
<i>NULL HYPOTHESIS</i> : 3	127
<i>NULL HYPOTHESIS</i> : 4	133
<i>NULL HYPOTHESIS</i> : 5	135
<i>NULL HYPOTHESIS</i> : 6	136
<i>NULL HYPOTHESIS</i> : 7	137
<i>NULL HYPOTHESIS</i> : 8	138
<i>NULL HYPOTHESIS</i> : 9	139
<i>NULL HYPOTHESIS</i> : 10	140
<i>NULL HYPOTHESIS</i> : 11	141
<i>NULL HYPOTHESIS</i> : 12	142
<i>NULL HYPOTHESIS</i> : 13	143
<i>NULL HYPOTHESIS</i> : 14	145
<i>NULL HYPOTHESIS</i> : 15	146
<i>NULL HYPOTHESIS</i> : 16	150

## CHAPTER - VI AN OVERVIEW OF THE STUDY

INTRODUCTION	153
EDUCATIONAL TECHNOLOGY	153
MULTIMEDIA	154
MULTIMEDIA MODULE COMPONENTS	154
ROLE OF MULTIMEDIA BASED COMPUTER ANIMATION COURSEWARE IN SCHOOLS	155
MULTIMEDIA - ITS APPLICATIONS	155
THEORIES OF INTELLIGENCE	156
COMPUTERS IN EDUCATION	157
COMPUTER ASSISTED INSTRUCTION	158
MULTIMEDIA BASED COMPUTER SOFTWARE IN PHYSICS	159
INSTRUCTIONAL STRATEGIES AVAILABLE IN THE STUDY	160
NEED FOR THE STUDY	161
STATEMENT OF THE PROBLEM	161
SCOPE OF THE STUDY	162
OBJECTIVES OF THE STUDY	163
HYPOTHESES	165
TOOLS USED IN THE STUDY	167
METHODOLOGY	169
DELIMITATIONS OF THE STUDY	170
MAJOR FINDINGS AND CONCLUSIONS OF THE STUDY	171
DISCUSSION	180
RECOMMENDATIONS	182
SUGGESTIONS FOR THE FURTHER RESEARCH	185
<b>BIBLIOGRAPHY</b>	<b>186</b>
<b>APPENDICES</b>	<b>194</b>