

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB
Syllabus of B. Sc. Gaming & Mobile Application Development
(Effective for 2020-2021 Admission Session)
Choice Based Credit System
140 Credit (3-Year UG) MAKAUT Framework
w.e.f 2020-21

2nd Semester

Subject Type	Course Name	Course Code	Credit Distribution			Credit Points	Mode of Delivery			Proposed Moocs
			Theory	Practical	Tutorial		Offline	Online	Blended	
CC 3	Digital Visualisation	GAM 201	5	0	1	6	✓			As per MAKAUT Notification
CC 4	Object Oriented Programming	GAM (T) 202	4	0	0	6	✓			
		GAM 292	0	2	0					
GE 2	Students will have to select from the GE Basket					6			✓	
AECC 2	Environmental Science	GAM 265	2	0	0	2	✓			
Semester Credits						20				

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Paper: Digital Visualisation

Credits- 5T +1L

Course Objective: The course is designed to introduce the students to core concepts of design, Photoshop and Flash. The students will then be able to learn more advanced concepts of 3D animation. On successful completion of the course, the students will have the requisite design and animation understanding to apply in the design of gaming and mobile applications.

SI	Course Outcome	Mapped modules
1	Remember the basic concept of design	M1
2	Remember and understand the analysis of design	M1, M2
3	Understand the methodology and process of visual design	M2, M3
4	Understand and apply the of process of visual thinking for graphic communication.	M3, M4
5	Understand and apply the practical experience of Photoshop and Flash.	M5
6	Understand and apply the practical expose of 3D with Maya	M6

Module Number	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	10	20	1	
M 2	10	25	1,2	
M 3	10	25	2	
M 4	5	10	2,3	
M 5	10	10	2,3	

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M 6	10	10	2,3	
	55	100		

Detailed Syllabus

Paper: Digital Visualization
Contact Hours / Week: 5T+1L
Credits: 6

Module1: History and evolution of Design. Understanding the historical perspective of design. Design Basics- Elements and principles of Design. Relational interaction of elements and principles in design implementation. Layout basics- Alignment and hierarchy of order. Gestalt laws of organization.
 [BMAGD – 101]

Module 2: Figure/Ground, Balance, Emphasis, Proportion, Rhythm, Unity, Motifs Meaning and mood of color; Color Principles, learning from nature Understanding color in different media; Concepts of RGB and CMYK Perspective, Atmospheric perspective, movement (With examples from paintings, sculpture, cartoons, photographs, fresco, graffiti, logo, motif, symbols, icon)
 [BMS-201]

Module 3: Design Methodology and process, Introduction to basic Design theories in the context of design. Need finding, Affinity mapping. Introduction to ideation and conceptualization. Mind-mapping, idea development and solution exploration.
 [BMAGD – 102]

Module 4: Introduction to visual cognition and Design cognition, The process of visual thinking for graphic communication.
 [BMAGD – 181]

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Module 5: Introduction of interface in Photoshop, menu and tool box, Image manipulation of Photoshop, Introduction to Flash: tools, and techniques.
Design & Animation
[BMAGD – 191, 291 practical]

Module 6: Introduction to 3D Animation tools and Techniques, 3D Modelling & Texturing. Specialized modelling and animation, Lighting & rendering, Advanced lighting.
[BMAGD – 491, practical]

Suggested Readings:

1. Graphic design history by Steven Heller & Georgetta Balance
2. A History of Graphic Design, Meggs, Philip; John Wiley & Sons
3. The Adobe Photoshop CS6 Book for Digital Photographers by Scott Kelby
4. Foundation Flash CS5 for Designers by Tom Green and Tiago Dias
5. Getting Started in 3D with Maya: Create a Project from Start to Finish - Model, Texture, Rig, Animate, and Render in Maya by Adam Watkins
6. Experiences in visual thinking by Robert H McKin

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Course: Object Oriented Programming

Credits- 4T+2P

Course Objective: The course is designed to introduce the concepts of Object Oriented Programming and to understand develop and implement efficient programs using java. You will learn how to use these object-oriented programming concepts in code examples, discover how these concepts are used in applications that require user input, and understand the benefits of these concepts in Java.

Sl	Course Outcome	Mapped modules
1	Remember & Understand how the Object-oriented programming aims to implement real-world entities like inheritance, hiding, polymorphism etc. in programming.	M1
2	Remember & Understand how to solve problems using the concept of Object Oriented data types.	M4, M5
3	Understand and identify the ability to design, implement, and evaluate a program using different control and iterative statements.	M1, M2, M3, M4, M5, M6
4	Understand & Apply the appropriate method parameters and string functions to understand the concept.	M2 M3,M4, M5, M6
5	Analyse the ability to create packages, interfaces with exception handling.	M2, M5, M6
6	Application & Analysis using stream, multithread and Applet.	M4, M5 ,M6

Theory- GAM (T) 202

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	OOP concept	4	10	1,2	
M 2	Overview of Java and Data concept	6	20	1,2	
M 3	Control, iteration statements and array	6	20	2	
M 4	Method parameters, Inheritance and String	5	20	2,3	

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M5	Packages, Interfaces and Exception Handling	6	20	2,3	
M6	Stream, Multithreaded Programming, Applets, Concept of Abstract Window Toolkit	8	10	2,3	
		35	100		

Practical- GAM 292

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 2	Overview of Java and Data concept	2	10	1,2	
M 3	Control, iteration statements and array	5	30	2	
M 4	Method parameters, Inheritance and String	4	30	2,3	
M5	Packages, Interfaces and Exception Handling	5	20	2,3	
M6	Stream, Multithreaded Programming, Applets, Concept of Abstract Window Toolkit	4	10	2,3	
		20	100		

Paper: Object Oriented Programming (including Lab)

Module I: OOP concept (4L)

Object, Class, Data abstraction, Data encapsulation, Inheritance, Polymorphism, Dynamic binding

Module II: Overview of Java and Data concept (6L+2L)

Java features, JVM, Comparison between Java and C++, Idea of any Java Development Kit (JDK). Data Types, variables, scope and life time of variables, Identifiers, Literals, Keywords, Operator.

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Module III: Control, iteration statements and array (6L+5L)

Simple if statement, if...else statement, nesting of if-else statement, switch statement. For loop, while loop, Do-While loop, Arrays, 1D and 2D array

Module IV: Method parameters, Inheritance and String(5L+4L)

Methods with parameters, Methods with a return type, Method overloading, Passing Objects as Parameters, Passing Values to methods and Constructor, Abstract classes, Basic concepts, types of inheritance, use of super keyword, overriding methods, String buffer, different string functions.

Module V: Packages, Interfaces and Exception Handling (6L+5L)

User defined package, import package, Class path, how to create interface, use and extend interface, what is Exceptions and handling exception? Compile time errors Run time errors, try...catch, Using Multiple Catch Blocks, finally Block, throwing an Exception, Using the throw and throws Statement.

Module VI: Stream, Multithreaded Programming, Applets, Concept of Abstract Window Toolkit (8L+4L)

Byte Streams, Input Stream, Output Stream Character Streams (Reader, Writer), How Files and Streams Work, working with Reader classes (Input Stream Reader, Buffered Reader), Overview, Thread Life cycle, Advantages of multithreading over multi-tasking Thread Creation and simple programs, Synchronized thread, Applet vs. Application, Applet class, Advantages of Applet, Applet Lifecycle My First Applet, Applet tag, how to run applet. GUI Components Labels, Buttons, Check Boxes, Radio button, Text Area, Text Field, Scrollbar, Panels, Layout managers, Simple event driven programming with Text Field and Button.

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AECC 2- Environmental Science

Semester Credits- 2T

Course Objective: The course is designed to provide a working knowledge of environment, ecology and physical sciences for problem solving. The learner will be able to remember, understand and apply the taught concepts and methods involving social and environmental processes for betterment of environmental health and safety.

COURSE OUTCOMES (CO):

SI	Course Outcome	Mapped modules
1	Be able to remember the basic concepts related to environment & ecology	M1,M2
2	Be able to remember & understand the scientific problem related to air, water, noise & land pollution	M1, M2
3	Be able to understand environmental laws , regulations , guidelines and n applying those for maintaining quality of environmental health and safety .	M1, M2,M3

Module Number	Content	Total Hours	%age of questions	Covered CO	Blooms Level
Module 1	Environmental Concepts	7	30%	1,2	L1
Module 2	Resources & Pollution	6	30%	2,3	L1, L2
Module 3	Environment Management	7	40%	1,2,3	L2,L3

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SYLLABUS

Module 1: Environmental Concepts – Definition & basic concept of Environment & Ecology, man, society & environment, their interrelationship, Elements of ecology elements of ecology - species, population, community, definition of ecosystem- Structure & function of ecosystem (Bio geo chemical cycles, food chain, energy flow, ecological pyramid), Biodiversity & its threats and remedies. [7]

Module 2: Resources & Pollution – renewable & non-renewable resources, Bio-degradable and non-biodegradable pollutants, Sources & Effects of Pollution, Methods of Control (Air, Water, Land, & Noise)

Module 3: Environment Management - Concept & scope of environment Management, National environmental policy & Environmental Legislations in India, Environment Management System – ISO 14000, Environmental Audit, Eco mark, green Industry, Cases on Environment Impact Assessment.

REFERENCES

Suggested Readings

1. N.K. Oberoi: Environmental Management, Excel Books
2. G.N. Pandey: Environmental Management, Vikas
3. K.M. Agrawal & P.K. Sikdar: Text Book of Environment, MacMillan
4. L.W. Canter: Environmental Impact Assessment, McGraw Hill
5. M.P. Poonia & S.C. Sharma, Environmental Studies, Khanna Publishing House (AICTE Recommended Textbook – 2018)
6. Masters, G. M., “Introduction to Environmental Engineering and Science”, Prentice-Hall of India Pvt. Ltd.,1991.
7. De, A. K., “Environmental Chemistry”, New Age International
8. Fundamentals of Ecology -Odum, E.P.
9. Instant notes on Ecology -Mackenzie, A., Ball, A.S. and Virdee, S.R. (1999) Viva Books
10. G. Dasmahapatra – Basic Environmental Engineering & Elementary Biology, Vikas Publication
11. Environmental Science, Cunningham, TMH
12. Environmental Pollution Control Engineering,C.S.Rao,New Age International
13. Environmental Science, Wright & Nebel, PHI
- 14.Environmental Pollution Analysis, S.M.Khopkar, New Age International