



Nallamuthu Gounder Mahalingam College

Department of Computer Science (SF)



Value Added Course **2022 -2023**

22PCSVAI- " Virtual Reality"

Duration : 30 Hours

Course Objective

To impart knowledge in Virtual Reality (VR) technology in terms of used devices, building of the virtual environment and modalities of interaction and modeling and its various applications.

Dr.M.Sakthi
HoD

Module 1

Introduction, Interface in Virtual Reality, Tracker, Sensor, Digital Glove.

Module 2

Computer Graphics., Advanced Techniques in CG, Interactive Techniques.

Module 3

Development Tools and Frameworks in Virtual Reality, Application of VR in Digital Entertainment.

Dr.S. Saravanababu
Dean - Academic



Dr. R. Muthukumaran
Principal

VALUE ADDED COURSE

Programme Code:		M.Sc CS	Programme Title:		Master of Science (Computer Science)	
Course Code:	22PCSVA1	Course Title:	VAC I: Virtual Reality		Batch :	2022-2024
Lecture Hrs./Week Or Practical Hrs./Week		1	Total Hours	30	Semester:	III
					Credits:	2

Course Objective

To impart knowledge in Virtual Reality (VR) technology in terms of used devices, building of the virtual environment and modalities of interaction and modeling and its various applications.

Course Outcomes (CO)

On successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the fundamentals of Virtual Reality and its design in different applications	K1
CO2	Understand the foundations of modelling in VR and various sensing Gloves	K2
CO3	Apply the VR technology in digital entertainment – films, TV Production and games	K3
CO4	Analyze the design of VR- specific input & output devices , their principles, capacities and design tradeoffs of the current commercial VR output interfaces	K4
CO5	Analyze human factor issues, user performance, sensorial conflict aspects of VR	K4

MAPPING

PO\PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	H	M	H	M	M	H	H	M	M	H	M	M	M	H	M
CO2	H	M	M	H	H	M	M	M	M	H	H	M	M	H	M
CO3	H	H	H	M	M	M	M	M	M	H	M	M	M	M	M
CO4	H	H	H	H	M	H	M	M	M	M	H	M	M	H	M
CO5	H	H	M	H	M	H	M	H	M	M	H	M	M	M	H

H: High; M: Medium; L: Low.

Units	Contents	Hrs
UNIT I	Introduction of Virtual Reality: Fundamental Concept and Components of Virtual Reality. Primary Features and Present Development on Virtual Reality. Multiple Models of Input and Output Interface in Virtual Reality: Input -- Tracker, Sensor, Digital Glove, Movement Capture, Video-based Input, 3D Menus & 3DScanner etc. Output -- Visual /Audit ory / Haptic Devices.	10
UNIT II	Visual Computation in Virtual Reality: Fundamentals of Computer Graphics. Software and Hardware Technology on Stereoscopic Display. Advanced Techniques in CG: Management of Large-Scale Environments & Real Time Rendering. Interactive Techniques in Virtual Reality: Body Track, Hand Gesture, 3D Manus, Object Grasp.	10
UNIT III	Development Tools and Frameworks in Virtual Reality: Frameworks of Software Development Tools in VR. X3D Standard; Vega, MultiGen, Virtools etc. Application of VR in Digital Entertainment: VR Technology in Film & TV Production. VR Technology in Physical Exercises and Games.	10
	Total Contact Hours	30

Pedagogy and Assessment Methods:

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS/EDITION	YEAR OF PUBLICATION
1	Burdea, G. C. and P. Coffet	Virtual Reality Technology	Wiley-IEEE Press, Second Edition	2003
2	Alan Craig, William Sherman and Jeffrey Will	Developing Virtual Reality Applications, Foundations of Effective Design	Morgan Kaufmann Publishers	2009

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS/ EDITION	YEAR OF PUBLICATION
1	John Vince	Virtual Reality Systems	Pearson Education Asia	2007
2	Adams	Visualizations of Virtual Reality	Tata McGraw Hill	2000
3	M. LaValle	Virtual Reality	Cambridge University Press	2016

Web References

1. <https://www.softwaretestinghelp.com/what-is-virtual-reality/>
2. https://www.tutorialspoint.com/a_frame_web_vr_programming_tutorial_series_virtual_reality/index.asp
3. <https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/what-is-virtual-reality>
4. <https://learn.unity.com/project/vr-beginner-the-escape-room>
5. <https://www.udemy.com/course/vr-in-unity-a-beginners-guide/>

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name with Signature	CDC	COE
Name: N.Arulkumar	Name: Dr.M. Sakthi	Name: Mr. K. Srinivasan	Name: Dr.R.Manicka Chezian
Signature:	Signature:	Signature:	Signature:

M. S. S.


PRINCIPAL**Dr. R. MUTHUKUMARAN,****M.A., M.Phil., B.Ed., Ph.D.,****PRINCIPAL****N.G.M. College, Pollachi - 642 001
Coimbatore District**

CELEBRATING
THE INSPIRING LIFE OF
ARUTCHELVAR DR.N.MAHALINGAM



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NGM COLLEGE

(Autonomous), Pollachi

Re-Accredited by NAAC and ISO 9001 : 2015 Certified Institution
Ranked 72nd among Colleges in India by MHRD - NIRF
Affiliated to Bharathiar University, Coimbatore.



Value Added Course

This is to certify that Mr./Ms. Gayathri . R (22-MC-14)

of M.Sc Computer Science department

has successfully completed a Value Added Course

entitled Virtual Reality (22PCSVAI) and

secured a mark of 84 out of 100

N.08

COURSE TEACHER

hm

DEAN - ACADEMIC

B. S. S.

IQAC CO-ORDINATOR

fm

PRINCIPAL

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Value Added Course

This is to certify that Mr./Ms. Bhoopathi . R. S. (22-MC-02)

of M.Sc. Computer Science department

has successfully completed a Value Added Course

entitled Virtual Reality (22PLSVA1) and

secured a mark of 53 out of 100

N.08
COURSE TEACHER

[Signature]
DEAN - ACADEMIC

[Signature]
IQAC CO-ORDINATOR

[Signature]
PRINCIPAL