



**National Institute of Technology Meghalaya**  
An Institute of National Importance

**CURRICULUM**

Programme	<b>Bachelor of Technology in Computer Science and Engineering</b>	Year of Regulation	<b>2019-2020</b>
Department	<b>Computer Science and Engineering</b>	Semester	<b>VI</b>

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	INT	MID	END	Total
<b>CS 326</b>	<b>Multimedia</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>200</b>

Course Objectives	Course Outcomes	CO1		CO2		CO3		CO4		CO5	
		<p>To understand the fundamentals concepts of multimedia systems such as multimedia information collection, processing and rendering.</p> <p>To understand various technical aspects in terms of multimedia networking, signal processing, communication, file format, audio video, compression and its applications.</p> <p>To design and develop multimedia based web design and networking applications.</p> <p>To understand the real time requirement of multimedia systems, development multimedia software and performance analysis.</p>	<p>Able to describe the fundamental concepts, components of multimedia systems and multimedia tools.</p> <p>Able to do the critical analysis and evaluation of internet applications, file format such as text, audio, video and compression techniques.</p> <p>Able to design and develop the interactive multimedia systems for real time requirements.</p> <p>Able to apply the principles to understand the protocols, multimedia information transmission, various storage techniques, standards.</p> <p>Able to design and develop the applications using networking protocols and also able to evaluate applications to achieve optimal performance.</p>								

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	3	3	0	0	0	0	0	0	1	0	0	0	3	0	3
2	CO2	3	3	3	3	1	2	0	0	1	0	0	0	1	3	3
3	CO3	1	2	3	3	3	2	0	2	0	0	0	0	2	3	3
4	CO4	3	3	3	3	3	2	3	0	2	0	0	1	2	3	3
5	CO5	3	3	3	2	2	3	2	2	2	2	0	1	3	3	3

**SYLLABUS**

No.	Content	Hours	COs
I	Introduction, Uses of multimedia, Analog & digital Presentation, Digitization , Nyquist Sampling Theorem Visual Display system, Overview of Multimedia Tools	04	CO1 CO2
II	Introduction to Data compression, Huffman Coding, Shannon Fano Algorithm, Huffman Algorithms, Adaptive Huffman Coding, Dictionary based Compression, LZ78, LZW compression, compression ratio loss less & lossy compression	06	CO2 CO3
III	Introduction to Text Using text in multimedia, Hypermedia and Hypertext, Introduction to image, Graphics, Image Data Types, Image File formats, Multiple monitors, bitmaps, Vector drawing, color principles, Raster Scan principles, color pallets, Dithering	06	CO2 CO3
IV	Introduction to video, Broadcast television, HDTV, Analog display standards, digital display standards, Digital video, Video formats, Sound ,MIDI, Digital Audio, audio file formats, MIDI under windows environment Audio & Video Capture.	06	CO3 CO4
V	Introduction to Animation, Animation file formats, Basic Software Tools, Multimedia Authoring tools.	04	CO2 CO3 CO4
VI	Introduction to multimedia networks, Quality of Multimedia Data Transmission, Multimedia over IP, RTP, RTSP, RTCP, Voice over IP,	04	CO4 CO5
VII	Introduction to Image & Video Compression, J.P.EG, H.261, H.263, MPEG, Standards ( MPEG1, MPEG 2, MPEG 4),GIF,TIFF	06	CO3 CO4 CO5
<b>Total</b>		<b>36</b>	

**Essential Readings**

- Li & S.Drew "Fundamental of Multimedia "Pearson Prentice Hall, Volume 1<sup>st</sup> Edition, 2004.
- Ranjan Paarekh "Fundamentals of Multimedia" TMH, 2nd Edition, 2017.
- K.R. Rao, Zoran S. Bojkovic, Dragorad A. Milovanovic, "Multimedia Communication Systems Techniques, Standards and Networks", PHI, 1st Edition, 2002.

**Supplementary Readings**

- Tay Vaughan "Multimedia, Making IT Work" TMH, 9th Edition, 2017.
- Fred Halsal "Multimedia Communication" Pearson Education, 1<sup>st</sup> Edition, 2007.
- K.R. Rao, Zoran S. Bojkovic, Bojan M. Bakmaz, "Wireless Multimedia Communication Systems: Design, Analysis, and Implementation", CRC Press, 1<sup>st</sup> Edition, 2017.