Module No.	Unit No.	Topics	Hrs.
1.0		**Introduction to Data Compression**	**06**
	1.1	Data compression, modelling and coding, Lossless and Lossy Compression, Arithmetic Coding – Decoding, Dictionary Based Compression, Sliding Window Compression: LZ-77, LZ-78, LZW.	
	1.2	Image Compression DCT, JPEG, JPEG – LS, Differential Lossless Compression, DPCM, JPEG – 2000 Standards.	
2.0		**Video and Audio Compression**	**06**
	2.1	Video compression: Motion compensation, temporal and spatial prediction, MPEG-4, H.264 encoder and decoder.	
	2.2	Sound, Digital Audio, μ-Law and A-Law Companding, MPEG –4 Audio Layer, Advanced Audio Coding (AAC) standard.	
3.0		**Data Security**	**10**
	3.1	Security Goals, Cryptographic Attacks and Techniques	
	3.2	Symmetric Key: Substitution Cipher, Transposition Cipher , Stream and Block Cipher	
	3.3	DES, double DES and triple DES, AES	
4.0		**Number Theory**	**04**
	4.1	Prime Numbers, Fermat's and Euler's Theorem.	
	4.2	Chinese Remainder Theorem	
5.0		**Asymmetric Key Cryptography**	**09**
	5.1	Principles of Public Key Crypto System, RSA, Key Management, Deffie-Hellman Key Exchange.	
	5.2	Message Integrity, Message Authentication and Hash Functions, SHA, HMAC, Digital Signature Standards.	
6.0		**System Security**	**04**
	6.1	Intrusion Detection System, Secure Electronic Transactions.	
	6.2	Firewall Design, Digital Immune systems, Biometric Authentication, Ethical Hacking.	
		Total	**39**