



# **Eklavya University**

SESSION

2023-24

**B.Sc. (Computer Application)**

III YEAR

**SYLLABUS**

OF

**NEP**

**School of Basic and Applied Sciences**

**EKLAVYA UNIVERSITY, DAMOH (M.P.)**  
**School of Basic and Applied Sciences**  
**Scheme of Examination B.Sc III Year (Discipline Specific Elective (DSE)) (Major)**  
**For batch admitted in Academic Session 2023-24**  
**Subject wise distribution of marks and corresponding credits**

S. No.	Subject Name	DSE GROUP	Subject Code	Paper Name	Maximum Marks Allowed										Total Marks	Contact Periods Per week			Total Credits
					Theory Slot				Practical Slot							L	T	F	
					External Assessment (End Term Exams)	Internal Assessment I	Internal Assessment II	Internal Assessment III	Class test/ Laboratory	Attendance	Assignment/ Presentation	Viva Voce	Practical Record	Lab Work/ Sectional					
1	Botany	DSE GROUP A	EUS3-BOTA10	Plant Physiology and Metabolism	70	10	10	10							100	4	-	0	4
			EUS3-BOTA1Q	Plant Physiology and Metabolism Practical					10	10	10	10	10	50	100	-	-	2	2
			EUS3-BOTA2Q	Ecology and Forestry	70	10	10	10							100	4	-	0	4
		DSE GROUP B	EUS3-BOTA2Q	Ecology and Forestry Practical					10	10	10	10	10	50	100	-	-	2	2
			EUS3-BOTA3Q	Cytology, Plant Breeding and Biotechnology	70	10	10	10							100	4	-	0	4
			EUS3-BOTA3Q	Cytology, Plant Breeding and Biotechnology Practical					10	10	10	10	10	50	100	-	-	2	2
			EUS3-BOTA4Q	Biodiversity and Economic Botany	70	10	10	10							100	4	-	0	4
EUS3-BOTA4Q	Biodiversity and Economic Botany Practical					10	10	10	10	10	50	100	-	-	2	2			
2	Zoology	DSE GROUP A	EUS3-ZOOL1Q	Aquaculture	70	10	10	10							100	4	-	0	4
			EUS3-ZOOL1Q	Applied Aquaculture					10	10	10	10	10	50	100	-	-	2	2
			EUS3-ZOOL2Q	Wild Life Conservation and Management	70	10	10	10							100	4	-	0	4
		DSE GROUP B	EUS3-ZOOL2Q	Importance of Wild Life					10	10	10	10	10	50	100	-	-	2	2
			EUS3-ZOOL3Q	Insect Taxonomy and Applied Entomology	70	10	10	10							100	4	-	0	4
			EUS3-ZOOL3Q	Applied Entomology					10	10	10	10	10	50	100	-	-	2	2
			EUS3-ZOOL4Q	Ecology, Biodiversity and Evolution	70	10	10	10							100	4	-	0	4
DSE GROUP A	EUS3-ZOOL4Q	Environmental Biology					10	10	10	10	10	50	100	-	-	2	2		
	EUS3-PHYS1D	Quantum, Atomic and Molecular Physics	70	10	10	10							100	4	-	0	4		
	EUS3-PHYS1Q	Quantum, Atomic and Molecular Physics Lab					10	10	10	10	10	50	100	-	-	2	2		
	EUS3-PHYS2Q	Solid State Physics and Electronics	70	10	10	10							100	4	-	0	4		
DSE GROUP B	EUS3-PHYS2Q	Solid State Physics and Electronics Lab					10	10	10	10	10	50	100	-	-	2	2		
	EUS3-PHYS3D	Astronomy and Space Physics	70	10	10	10							100	4	-	0	4		
3	Physics	DSE GROUP A	EUS3-PHYS4D	Nuclear and Particle Physics	70	10	10	10							100	4	-	0	4
			EUS3-PHYS4D	Nuclear and Particle Physics											100	4	-	0	4
		DSE GROUP A	EUS3-MATH1D	Numerical Methods and Scientific Computation	70	10	10	10							100	4	-	0	4
			EUS3-MATH2D	Elements of Discrete Mathematics	70	10	10	10							100	4	-	0	4
			EUS3-MATH3Q	Probability and Statistics	70	10	10	10							100	4	-	0	4
		DSE GROUP B	EUS3-MATH4D	Integral Transform	70	10	10	10							100	4	-	0	4
			EUS3-CHEM1D	Green and Agriculture Chemistry	70	10	10	10							100	4	-	0	4
DSE GROUP A	EUS3-CHEM1Q	Green and Agriculture Chemistry					10	10	10	10	10	50	100	-	-	2	2		
	EUS3-CHEM2D	Laboratory Skill, Techniques and Management	70	10	10	10							100	4	-	0	4		

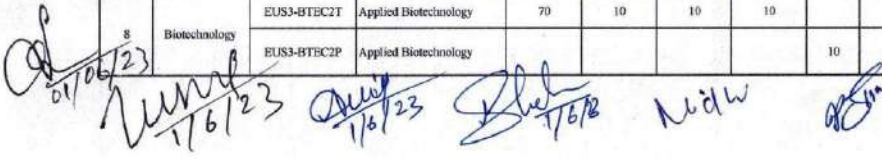
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5	Chemistry	DSE GROUP B	EUS3-CHEM30	Exercise for development of Lab Skill							10	10	10	10	10	50	100	-	-	2	2		
			EUS3-CHEM30	Instrumental Techniques in Chemistry	70	10	10	10											100	4	-	0	4
			EUS3-CHEM30	Instrumental Analytical Techniques in Chemistry									10	10	10	10	10	50	100	-	-	2	2
			EUS3-CHEM40	Bio Physical, Bio Inorganic and Organometallic Chemistry	70	10	10	10											100	4	-	0	4
			EUS3-CHEM40	Synthesis and Analytical Techniques									10	10	10	10	10	50	100	-	-	2	2
6	Computer Application	DSE Group A	EUS3-COAP10	Operating System	70	10	10	10										100	6	-	0	6	
			EUS3-COAP20	Computer Networks	70	10	10	10											100	6	-	0	6
		DSE Group B	EUS3-COAP30	Programming in Java	70	10	10	10											100	4	-	0	4
			EUS3-COAP30	Programming in Java								10	10	10	10	10	50	100	-	-	2	2	
			EUS3-COAP40	Multi Media Tools and Applications	70	10	10	10											100	4	-	0	4
			EUS3-COAP40	Multi Media Tools and Applications								10	10	10	10	10	50	100	-	-	2	2	
7	Industrial Microbiology	DSE GROUP A	EUS3-INMB10	Molecular Biology and Genetics of Microbes	70	10	10	10										100	4	-	0	4	
			EUS3-INMB10	Practical Molecular Biology and Genetics of Microbes								10	10	10	10	10	50	100	-	-	2	2	
			EUS3-INMB20	Environmental Microbiology and Bioremediation	70	10	10	10											100	4	-	0	4
			EUS3-INMB20	Practical Environmental Microbiology and Bioremediation								10	10	10	10	10	50	100	-	-	2	2	
		DSE GROUP B	EUS3-INMB30	Bacteriology and Virology	70	10	10	10											100	4	-	0	4
			EUS3-INMB30	Practical in Bacteriology and Virology								10	10	10	10	10	50	100	-	-	2	2	
			EUS3-INMB40	Agricultural Microbiology	70	10	10	10											100	4	-	0	4
			EUS3-INMB40	Practical in Agricultural Microbiology								10	10	10	10	10	50	100	-	-	2	2	
8	Biotechnology	DSE GROUP A	EUS3-BTEC10	Industrial Biotechnology	70	10	10	10										100	4	-	0	4	
			EUS3-BTEC12	Industrial Biotechnology								10	10	10	10	10	50	100	-	-	2	2	
			EUS3-BTEC20	Agriculture Biotechnology	70	10	10	10											100	4	-	0	4
			EUS3-BTEC20	Agriculture Biotechnology								10	10	10	10	10	50	100	-	-	2	2	
		DSE GROUP B	EUS3-BTEC30	Environmental Biotechnology	70	10	10	10											100	4	-	0	4
			EUS3-BTEC30	Environmental Biotechnology								10	10	10	10	10	50	100	-	-	2	2	
			EUS3-BTEC40	Bioinformatics	70	10	10	10											100	4	-	0	4
			EUS3-BTEC40	Bioinformatics								10	10	10	10	10	50	100	-	-	2	2	

**EKLAVYA UNIVERSITY, DAMOH (M.P.)**  
**School of Basic and Applied Sciences**  
**Scheme of Examination B.Sc III Year (Minor)**  
**Session 2023-2024**

**Subject wise distribution of marks and corresponding credits**

S. No.	Subject Name	Subject Code	Paper Name	Minor										Total Marks	Contact Periods Per week			Total Credits
				Theory Slot				Practical Slot							L	T	P	
				External Assessment	Internal Assessment (Class test (Descriptive & Objective) Assignments/ Seminar)			Internal Assessment			External Assessment							
					Minor (End Term Exam)	Internal Assessment I	Internal Assessment II	Internal Assessment III	Class test/ Interaction	Attendance	Assignments/ Presentations	Viva Voce	Practical Record					
1	Botany	EUS3-BOTA2T	Ethnobotany	70	10	10	10							100	4	0	4	
		EUS3-BOTA2P	Ethnobotany (Practical)					10	10	10	10	10	50	100	2	2	2	
2	Zoology	EUS3-ZOOL2T	Genetics	70	10	10	10							100	4	0	4	
		EUS3-ZOOL2P	Experimental Genetics					10	10	10	10	10	50	100	2	2	2	
3	Physics	EUS3-PHYS2T	Quantum Mechanics, Solid State Physics and Devices	70	10	10	10							100	4	0	4	
		EUS3-PHYS2P	Quantum Mechanics, Solid State Physics and Devices Lab					10	10	10	10	10	50	100	2	2	2	
4	Mathematics	EUS3-MATH2T	Fundamentals of Boolean Algebra	70	10	10	10							100	6	0	6	
5	Chemistry	EUS3-CHEM2T	Pharmaceuticals and Medicinal Chemistry	70	10	10	10							100	4	0	4	
		EUS3-CHEM2P	Pharmaceuticals and Medicinal Chemistry					10	10	10	10	10	50	100	2	2	2	
6	Computer Application	EUS3-COA2T	Internet and Its Applications	70	10	10	10							100	4	0	4	
		EUS3-COA2P	Internet and Its Applications					10	10	10	10	10	50	100	2	2	2	
7	Industrial Microbiology	EUS3-INMB2T	Medical Microbiology	70	10	10	10							100	4	0	4	
		EUS3-INMB2P	Practical in Medical Microbiology					10	10	10	10	10	50	100	2	2	2	
8	Biotechnology	EUS3-BTEC2T	Applied Biotechnology	70	10	10	10							100	4	0	4	
		EUS3-BTEC2P	Applied Biotechnology					10	10	10	10	10	50	100	2	2	2	


  
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**EKLAVYA UNIVERSITY, DAMOH (M.P.)**  
**School of Basic and Applied Sciences**  
**Scheme of Examination B.Sc III Year (Elective)**  
**Session 2023-2024**

**Subject wise distribution of marks and corresponding credits**

S. No.	Subject Name	Subject Code	Paper Name	Elective										Total Marks	Contact Periods Per week			Total Credits
				Theory Slot				Practical Slot										
				External Assessment	Internal Assessment (Class test (Descriptive & Objective) Assignment)			Internal Assessment			External Assessment							
					Minor (End Term Exam)	Internal Assessment I	Internal Assessment II	Internal Assessment III	Class test/ Interaction	Attendance	Assignment/ Presentation	VivaVoce	Practical Record		Lab Work/ Sessional			
1	Botany	EUS3-BOTA2T	Ethnobotany	70	10	10	10							100	4	-	0	4
		EUS3-BOTA2P	Ethnobotany					10	10	10	10	10	50	100	-	-	2	2
2	Zoology	EUS3-ZOOL2T	Genetics	70	10	10	10							100	4	-	0	4
		EUS3-ZOOL2P	Experimental Genetics					10	10	10	10	10	50	100	-	-	2	2
3	Physics	EUS3-PHYS2T	Quantum Mechanics, Solid State Physics and Devices	70	10	10	10							100	4	-	0	4
		EUS3-PHYS2P	Quantum Mechanics, Solid State Physics and Devices Labs					10	10	10	10	10	50	100	-	-	2	2

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4	Mathematics	EUS3-MATH2T	Fundamentals of Boolean Algebra	70	10	10	10							100	6	-	0	6
5	Chemistry	EUS3-CHEM2T	Pharmaceuticals and Medicinal Chemistry	70	10	10	10							100	4	-	0	4
		EUS3-CHEM2P	Pharmaceuticals and Medicinal Chemistry					10	10	10	10	10	50	100	-	-	2	2
6	Computer Application	EUS3-COAP2T	Internet and Its Applications	70	10	10	10							100	4	-	0	4
		EUS3-COAP2P	Internet and Its Applications					10	10	10	10	10	50	100	-	-	2	2
7	Industrial Microbiology	EUS3-INMB2T	Medical Microbiology	70	10	10	10							100	4	-	0	4
		EUS3-INMB2P	Practical in Medical Microbiology					10	10	10	10	10	50	100	-	-	2	2
8	Biotechnology	EUS3-BTEC2T	Applied Biotechnology	70	10	10	10							100	4	-	0	4
		EUS3-BTEC2P	Applied Biotechnology					10	10	10	10	10	50	100	-	-	2	2

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**EKLAVYA UNIVERSITY, DAMOH (M.P.)**  
**School of Basic and Applied Sciences**  
**Scheme of Examination B.Sc III Year (Vocational)**  
**Session 2023-2024**

*Subject wise distribution of marks and corresponding credits*

S. No.	Subject Name	Subject Code	Paper Name	Vocational					Total Marks	Contact Periods Per week			Total Credits
				Theory Slot				Practical Slot		L	T	P	
				External Assessment	Internal Assessment [Class test (Descriptive & Objective)/Assignment/]								
				End Term Exam	Internal Assessment I	Internal Assessment II	Internal Assessment II						
		EUV3-HSC BTYT	Skin and Facial Beauty Care	70	10	10	10	100	200	2	-	2	4
		EUV3-BOTMPLT	Plants Used in Therapy	70	10	10	10	100	200	2	-	2	4
		EUV3-FOFPPT	Food Processing: Beverages manufacturing and Management	70	10	10	10	100	200	2	-	2	4
	Vocational	EUV3-HORORGT	Process of Organic Farming	70	10	10	10	100	200	2	-	2	4
		EUV3-PSYDEVT	Personality Development	70	10	10	10	100	200	2	-	2	4
		EUV3-COMTALT	Computerized Accounting	70	10	10	10	100	200	2	-	2	4
		EUV3-ZOOVERT	Advancements in Vermi Composting	70	10	10	10	100	200	2	-	2	4

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Eklavya University Damoh (M.P.)  
School of Basic and Applied Sciences  
Scheme of Examination B.Sc. III Year NEP Foundation Course  
Session - 2023-2024

Subject Wise Distribution of makes and Corresponding Credits

S.No.	Course	Subject Code	Subject Name	Foundation Course				Total Marks	Contact Periods Per Week			Total Credits
				Maximum Marks Alloted					L	T	P	
				Theory Slot								
				EA (UE)	IA/CCE (Class Test)	Assignment/Presentation)	Practical					
1	Foundation Course	EUFC-3A	Bhasha our Sanskriti(Hindi), English Language and Communication Skills	100 (50+50)	0	0	0	100	4(2+2)	0	0	4
	Foundation Course	EUFC-3B	Personality Development and Character Building, Digital Awareness - Cyber Security	100 (50+50)	0	0	0	100	4(2+2)	0	0	4

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<b>Class</b>		<b>B.Sc./B.A./B.Com.</b>	
<b>Semester/Year</b>		<b>III Year</b>	
<b>Subject &amp; Subject code</b>		<b>Computer Application - EUS3COAP1D</b>	
<b>Paper</b>	<b>(English)</b>	<b>Operating System (Theory) Group A - Paper 1</b>	
<b>Max. Marks</b>		<b>70 (ETE) + 30 (I) = 100</b>	
<b>Credits</b>		<b>Total Credits</b>	
<b>L</b>	<b>T</b>	<b>P</b>	6
4	2	0	
<b>Course Objectives:</b>			
Testing tool and mechanisms. Upon completing this course, students will be able to			
1. To understand to analyze the structure and basic architectural components involved in OS.			
2. To display competence in recognizing and using operating system features.			
3. To gain knowledge of different operating system algorithms aspect.			
4. To apply knowledge of different operating system algorithms.			
5. To create won android OS based application (Apps) and implement or install in smart phone.			
<b>Unit</b>	<b>Syllabus</b>		<b>Periods</b>
UNIT - I	<b>Introduction:</b> Evolution of operating systems, Types of operating systems, Different views of the operating system, operating system Concepts and structure. <b>Processes:</b> The process concept, systems programmer's view of processes, operating system services for process management. Scheduling algorithms. Performance evaluation.		12
UNIT - II	<b>Memory Management:</b> Memory Management without swapping or paging, Swapping, virtual memory, page replacement algorithms, Madeling paging algorithms, modeling paging algorithms, design issues for paging systems, segmentation. <b>Inter-process Communication and Synchronization:</b> The need for hardware sport for mutual exclusion, and queuing implementation of semaphores, classical problems, critical region and conditional critical region, monitors, messages.		12
UNIT - III	<b>File Systems:</b> File systems, directories, file system implementation, security protection mechanisms. <b>Input/Output: Principles of I/O Hardware:</b> I/O devices, device controllers, direct memory access. <b>Principle of I/O Software:</b> Goals interrupt handlers, device drivers, device independent I/O software. User space I/O Software.		12
UNIT - IV	<b>Disk:</b> Disk hardware, scheduling algorithms, Errorhanding, track-at-a-time caching. RAM Disks. <b>Clocks:</b> Clock hardware, memory mapped terminals, I/O software. <b>Processes and Processers in Distributed Systems:</b> Threads, System models, processor allocation, scheduling Distributed file systems: Design, Implementation, trends.		12
UNIT - V	Architecture and working of Android, IOS and windows phone 8 operating system. Comparison of Android, IOS and window phone 8. What is Android & advantages and features of Android. Android development ToolsL- Installing and using E clips with ADT Plug-in. Installing Virtual Machine for Android sandwich/Jelly bean, configuring the installed tools; Creating an Android project. <b>User Interface Design-</b> Form widgets, Text field, Basic views layouts, Button control and Images dialog. <b>User interface Architecture-</b> Application context, activity life cycle, Multiple Screens, Connecting with Database.		12

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**Suggested Readings:**

1. Android Programming- The big Nerd Ranch Guide By Philips & Brain Hardy.
2. Android Design Pattern- Interaction Design Solution for Developer By Greg Nudelman.
3. "Operating System Concepts" by Avi Silberchatz and Peter Galvin.

**Suggested digital platforms web links:**

1. <https://www.greatlearning.in>
2. <https://www.tutorialspoint.com>

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Class		B.Sc./B.A./B.Com.
Semester/Year		III Year
Subject & Subject code		Programming in Java (Practical) - EUS3COAP3Q
Paper	(English)	Operating System (Theory)
Max. Marks		70 (E) + 30 (I) = 100
Credits		2
L	T	
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**Course Objectives:**

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

1. Understand the features and application of Java
2. To Identify Java code utilities in applets, Java packages, and classes.
3. To write Java code using advanced Java features.

Unit	Syllabus	Periods
	<ol style="list-style-type: none"> <li>1. Write a Java Program that takes a number as input and prints its multiplication table upto 10.</li> <li>2. Write a Java Program to print the area and perimeter of a circle. Write a java Program to test Prime Number.</li> <li>3. Write a Java program to Convert a decimal number to binary number and vice versa.</li> <li>4. Implement a Java function that calculates the sum of Digits for a given character array consisting of the digit "0" to "9". The function should return the digit sum as a long value.</li> <li>5. Write a Java program to find the smallest and largest element from the array.</li> <li>6. Designed a class Sort Data that contains the method asc() and desc()</li> <li>7. Designed a class that demonstrates the use of constructor and destructor.</li> <li>8. Write a java program to demonstrate the implementation of abstract class.</li> <li>9. Write a java program to implement single level inheritance &amp; multiple level inheritance.</li> <li>10. Write a java program to implement method Overriding.</li> <li>11. Create a package. add the necessary Classes and import the package in java Class.</li> <li>12. Write a java program to add or multiply two matrices and print the resultant matrix.</li> <li>13. Write a java program to implement the vectors.</li> <li>14. Write a java Program to implement thread life cycle &amp; Multithreading.</li> <li>15. Designing a AWT program to print the factorial for an input value.</li> <li>16. Design an AWT program to perform various string operations like reverse string, string concatenation etc.</li> <li>17. Write a program that would accept it input for the user &amp; store it in a file called Test. Java selecting a choice from the menu should display the appropriate button Use the show() method fo the layout Manager.</li> <li>19. Write a program to implement the concept of loading &amp; displaying images.</li> </ol>	

**Suggested Readings:**

1. Advanced Java Programming by Uttam Roy (Oxford University Press)
2. Effective Java by Joshua Blech (Addison Wesley).
3. Programming With Java by E Balagurusmy (McGraw-Hill)

**Suggested digital platforms web links:**

1. <https://www.javatpoint.com>
2. <https://www.w3schools.com>

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<b>Class</b>		<b>B.Sc./B.A./B.Com.</b>	
<b>Semester/Year</b>		<b>III Year</b>	
<b>Subject &amp; Subject code</b>		<b>Computer Application - EUS3COAP2D</b>	
<b>Paper</b>	<b>(English)</b>	<b>Computer Networks (Theory) Group - A - Paper 2</b>	
<b>Max. Marks</b>		<b>70 (ETE) + 30 (I) = 100</b>	
<b>Credits</b>			
<b>Total Credits</b>			
<b>L</b>	<b>T</b>		<b>P</b>
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**Course Objectives:**

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

1. To learn the basic taxonomy and terminology of computer networking area.
2. To enrich various concepts of Protocol Hierarchies, Design Issues, interfaces and Services including Connection Oriented and Connection less Services.
3. To study about OSI Layers, LAN, MAN, WAN, Internet and IEEE Standards.
4. To build network topologies and use appropriate network tools.
5. To gain skills of implementation of Network Security and Socket Programming.

<b>Unit</b>	<b>Syllabus</b>	<b>Periods</b>
UNIT - I	<b>Overviews :</b> Goal & Applications, Network Hardware: Networks, Network Software: Protocol Hierarchies, Design Issues, Interfaces and Services, Connection Oriented And Connection less Services, Service Primitives.	12
UNIT - II	<b>Introduction to Network:</b> OSI reference model, TCP/IP reference model. Transmission Media: Magnetic Media, Twisted-Pair cables, Baseband & Broadband Coaxial Cables, Fibwer Optics. Wireless Transmission: Radio Transmission, Microwave Transmission.	12
UNIT - III	<b>Data Link Layer :</b> Framing, Error Control, DLC Protocols: Simplex, Stop and Wait, Sliding Window protocol HDLC. Medium Access Sub Layer: Sliding Window Protocol. Static & Dynamic Channel Allocation in LANs MANs. ALOHA & slotted ALOHA.	12
UNIT - IV	<b>Network Layer: Design Issues:</b> Virtual Circuits and Datagram, <b>Internetworking &amp; Devices:</b> Repeaters, Hubs, Bridges, Switches, Router, Gateway; <b>Addressing:</b> Internet address, classful address. Routing algorithms: Optimality Principle, Shortest path routing- Dijkstra, dellman-ford, flooding and broadcasting, distance vector routing, link state routing flow based routing, multicasting, routing.	12
UNIT - V	Transport Layer: Services & Protocols (TCP and UDP), congestion control <b>Presentation and Application Layer:</b> Presentation concepts, Cryptography: Substitution and transposition, ciphers. Application Layer: Newwork Security, DNS, SNMP, E-mail WWW, Network Multimedia Applications.	12

**Suggested Readings:**

1. Computer Networks. A.S. Tannenbaum, 3rd Edition, PHI.
2. Data Networks, Dimitri Bertsekas & Robert Gallager, PHI.
3. Computer newtorks & Distributed Processing, Martin J., PHI.

**Suggested digital platforms web links:**

1. <https://nptel.ac.in>
2. <https://nptel.ac.in>

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<b>Class</b>		<b>B.Sc./B.A./B.Com.</b>	
<b>Semester/Year</b>		<b>III Year</b>	
<b>Subject &amp; Subject code</b>		<b>Computer Application - EUS3COAP2D</b>	
<b>Paper</b>	<b>(English)</b>	<b>Compuer Networks (Thoery)</b>	
<b>Max. Marks</b>		<b>70 (ETE) + 30 (I) = 100</b>	
<b>Credits</b>			
<b>Total Credits</b>			
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**Course Objectives:**

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

1. To learn the basic taxonomy and terminology of computer networking area.
2. To enrich various concepts of Protocol Hierachies, Designs Issues, interfaces and Services including Connection Oriented and Connection less Services.
3. To study about OSI Layers, LAN, MAN, WAN, Internet and IEEE Standards.
4. To build network topologies and use appropriate network tools.
5. To gain skills of implementation of Network Security and Socket Programming.

Unit	Syllabus	Periods
UNIT - I	<b>Overvies :</b> Goal & Applications, Network Hardware: Networks, Network Software: Protocol Hierachies, Design Issues, Interfaces and Services, Connection Oriented And Connection less Services, Service Primitives.	12
UNIT - II	<b>Introduction to Network:</b> OSI reference model, TCP/IP reference model. Transmission Media: Magnetic Media, Twisted-Pair cables, Baseband & Broadband Coaxial Cables, Fibwer Optics. Wireless Transmission: Radio Transmission, Microwave Transmission.	12
UNIT - III	<b>Data Link Layer :</b> Framing, Error Control, DLC Protocols: Simplex, Stop and Wait, Sliding Window protocol HDLC. Medium Access Sub Layer: Sliding Window Protocol. Static & Dynamic Channel Allocation in LANs MANs. ALOHA & slotted ALOHA.	12
UNIT - IV	<b>Network Layer: Design Issues:</b> Virtual Circuits and Datagram, Internetworking & Devices: Repeaters, Hubs, Bridges, Switches, Router, Gateway; Addressing: Internet address, classful address. Routing algorithms: Optimality Principle, Shortest path routing- Dijkstra, dellman-ford, flooding and broadcasting, distance vector rounting, link state routing flow based routing, multicasting, routing.	12
UNIT - V	Transport Layer: Services & Protocols (TCP and UDP), congestion control <b>Presentation and Application Layer:</b> Presentation concepts, Cryptography: Substitution and transposition, ciphers. Application Layer: Newwork Security, DNS, SNMP, E-mail WWW, Network Multimedia Applications.	12

**Suggested Readings:**

1. Computer Networks. A.S. Tannenbaum, 3rd Edition, PHI.
2. Data Networks, Dimitri Bertsekas & Robert Gallager, PHI.
3. Computer newtorks & Distributed Processing, Martin J., PHI.

**Suggested digital platforms web links:**

1. <https://nptel.ac.in>
2. <https://nptel.ac.in>

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<b>Class</b>		<b>B.Sc./B.A./B.Com.</b>	
<b>Semester/Year</b>		<b>III Year</b>	
<b>Subject &amp; Subject code</b>		<b>Computer Application - EUS3COAP3D</b>	
<b>Paper</b>	(English)	<b>Programming in Java (Theory) Group B - Paper 1</b>	
<b>Max. Marks</b>		<b>70 (ETE) + 30 (I) = 100</b>	
<b>Credits</b>		<b>Total Credits</b>	
<b>L</b>	<b>T</b>	<b>P</b>	4
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<b>Course Objectives:</b>			
On successful completion of his course, the students will be able to:			
1. Understand the features and application of Java			
2. To Identify Java code utilities in applets, Java packages, and classes.			
3. To write Java code using advanced Java features.			
<b>Unit</b>	<b>Syllabus</b>		<b>Periods</b>
UNIT - I	Features of Java, Security in Java, Fundamental and features of Object Oriented Programming, C Versus Java, Java Development Kit (JDK), java Virtual Machine and Java Runtime Environment (JRE), How to Set Path in Java. Keywords; Working of Java; Including Comments' Data Type in Java; Using Classes in Java; Declaring Methods in Java, Code to Display Test Value; The main() Method, Invoking a Method in Java; Saving, compiling and Executing Java Programs.		12
UNIT - II	Operators and Control Statements: Operators, Arithmetic Operators, Increment and Decrement Operators, Comparison Operators, Logical Operators, Operator Precedence; Control Flow Statements, If-else Statement, Switch Statement, For Loop, While Loop, D... While Loop, Break Statement Continue Statement Arrays and Strings: String Handling; Special String Operations; Character Extraction; String Comparison; Searching Strings; StringModification; String Buffer.		12
UNIT - III	Inheritance, Package and Interface: Inheritance, Types of Relationships, What is Inheritance? Significance of Generalization, Inheritance in java, Access Specifiers, The Abstract Class; Packages, Defining a Package, Interfaces versus Abstract Classes Exception Handling: Definition of an Exception; Exception Classes; Common Exceptions; Exception Handling Techniques. Streams in Java: Streams Basics; Abstract Streams; Stream Classes; Readers and Writers; Random Access files; Serialization.		12
UNIT - IV	Applets: What are Applets?; The Applet Class, The Applet and HTML; Life cycle of an Applet; The graphics Class; Painting the Applet; User Interfaces for Applet: adding Components to user interface; AWT Controls Event Handling: Components of an Event; Event Classes; Event Listener; Event-Handling' Adapter Classes; Inner Classes; Anonymous Classes Swing: Concept of Swing; Java Foundation Class (JFC); Swing Packages and Classes; Working with Swing- An Example; Swing Components.		12
UNIT - V	Java Data Base Connectivity; Java Data Base Connectivity; Database Management; Mechanism for Connecting to a back and database; Loading the ODBC driver RMI, COBRA and java Beans: Remote Method Invocation (RMI); RMI Terminology; Common Object Request Broker Architecture (CORBA), What is Java IDL?, Example: the Hello Client - Server; Java Beans, The Beans Box, Running the Bean Box Networking in Java: Networking in Java; URL Objects Java Server Pages and Servlets: Java Server pages(JSP), What is needed to write JSP based web application? How does JSP look? How to test a JSP? Servlets, History of Web Application, Web Architecture. Servlet Life Cycle.		12

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**Suggested Readings:**

1. Advanced Java Programming by Uttam Roy (Oxford University Press)
2. Effective Java by Joshua Blech (Addison Wesley).
3. Programming With Java by E Balagurusmy (McGraw-Hill)

**Suggested digital platforms web links:**

1. <https://www.javatpoint.com>
2. <https://www.w3schools.com>

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Class		B.Sc./B.A./B.Com.
Semester/Year		III Year
Subject & Subject code		Computer Application - EUS3COAP3Q
Paper	(English)	Programming in Java (Practical)
Max. Marks		70 (E) + 30 (I) = 100
Credits		2
Total Credits		
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**Course Objectives:**

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

1. Understand the features and application of Java
2. To identify Java code utilities in applets, Java packages, and classes.
3. To write Java code using advanced Java features.

Unit	Syllabus	Periods
	<ol style="list-style-type: none"> <li>1. Write a Java Program that takes a number as input and prints its multiplication table upto 10.</li> <li>2. Write a Java Program to print the area and perimeter of a circle. Write a java Program to test Prime Number.</li> <li>3. Write a Java program to Convert a decimal number to binary number and vice versa.</li> <li>4. Implement a Java function that calculates the sum of Digits for a given character array consisting of the digit "0" to "9". The function should return the digit sum as a long value.</li> <li>5. Write a Java program to find the smallest and largest element from the array.</li> <li>6. Designed a class Sort Data that contains the method asc() and desc()</li> <li>7. Designed a class that demonstrates the use of constructor and destructor.</li> <li>8. Write a java program to demonstrate the implementation of abstract class.</li> <li>9. Write a java program to implement single level inheritance &amp; multiple level inheritance.</li> <li>10. Write a java program to implement method Overriding.</li> <li>11. Create a package. add the necessary Classes and import the package in java Class.</li> <li>12. Write a java program to add or multiply two matrices and print the resultant matrix.</li> <li>13. Write a java program to implement the vectors.</li> <li>14. Write a java Program to implement thread life cycle &amp; Multithreading.</li> <li>15. Designing a AWT program to print the factorial for an input value.</li> <li>16. Design an AWT program to perform various string operations like reverse string, string concatenation etc.</li> <li>17. Write a program that would accept it input for the user &amp; store it in a file called Test. Java selecting a choice from the menu should display the appropriate button Use the show() method for the layout Manager.</li> <li>19. Write a program to implement the concept of loading &amp; displaying images.</li> </ol>	

**Suggested Readings:**

1. Advanced Java Programming by Uttam Roy (Oxford University Press)
2. Effective Java by Joshua Blech (Addison Wesley).
3. Programming With Java by E Balagurusmy (McGraw-Hill)

**Suggested digital platforms web links:**

1. <https://www.javatpoint.com>
2. <https://www.w3schools.com>

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<b>Class</b>		<b>B.Sc./B.A./B.Com.</b>	
<b>Semester/Year</b>		<b>III Year</b>	
<b>Subject &amp; Subject code</b>		<b>Computer Application - EUS3COAP4D</b>	
<b>Paper</b>	<b>(English)</b>	<b>Multimedia Tools and Applicatoins (Thoery) Group B - Paper 2</b>	
<b>Max. Marks</b>		<b>70 (ETE) + 30 (I) = 100</b>	
<b>Credits</b>		<b>Total Credits</b>	
<b>L</b>	<b>T</b>	<b>P</b>	4
4	0	0	

**Course Objectives:**

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

1. To gain knowledge about basics of multimedia tools and its application.
2. To understand the representations of different multimedia data and different data formats.
3. To work with all aspects of text, audio, images and video.
4. To understand the principles of multimedia authoring paradigm and tools.
5. To apply different compression principles, compression techniques and compression standards.

<b>Unit</b>	<b>Syllabus</b>	<b>Periods</b>
UNIT - I	Introduction to Multimedia: Basic Concepts, Definition, Components & Applicaton of Multimedia; Hypermedia and Multimedia; Multimedia Hardware and Software; Multimedia Software Tools; Presentation Tools.	12
UNIT - II	Text: Font & Faces, Using Text in Multimedia, Font Editing & Design Tools, Hypermedia & Hypertext. Image: Still Images- bitmaps, vector drawing, 3D drawing & rendering, Basic steps for image processing, Color Management System (CMS), natural light& colors, computerized colors, color pallettes, image file formats.	12
UNIT - III	Digital Audio and Video: Characteristics of sound and Digital audio, Digital Audio systems, MIDI, Audio file format, Characteristics of digital video, Using Audio in Multimedia Applications, Quantization and Transmission of Audio: Coding of Audio; pulse Code Modulation; Differential Coding fo Audio; Lossless Predictive Coding; DPVM; DM; ADPCM.	12
UNIT - IV	Multimedia Authoring: Introduction, Features, Types of Authoring Tools: Card or Page-Based, Icon-Based, Time-Based, Object-Oriented; Multimedia tool selection, Tool Feature, Selecting the right authoring paradigm.	12
UNIT - V	Compression Techniques: Introduction, Lossless Compression Techniques, Huffman Coding , Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy Compression Techniques, JPEG image compression, Audio compression, Video Compression.	12

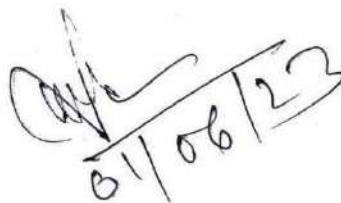
**Suggested Readings:**

1. Advanced Java Programming by Uttam Roy (Oxford University Press)
2. Effective Java by Joshua Blech (Addison Wesley).
3. Programming With Java by E Balagurusmy (McGraw-Hill)

**Suggested digital platforms web links:**

1. <https://www.javatpoint.com>
2. <https://www.w3schools.com>







<b>Class</b>		<b>B.Sc./B.A./B.Com.</b>	
<b>Semester/Year</b>		<b>III Year</b>	
<b>Subject &amp; Subject code</b>		<b>Computer Application - EUS3COAP4Q</b>	
<b>Paper</b>	<b>(English)</b>	<b>Multimedia Tools and Applicatoins (Practical)</b>	
<b>Max. Marks</b>		<b>70 (E) + 30 (I) = 100</b>	
<b>Credits</b>			
<b>Total Credits</b>			
<b>L</b>	<b>T</b>		<b>P</b>
4	0	0	4
<b>Course Objectives:</b>			
On successful completion of his course, the students will be able to:			
1. To gain knowledge about basics of multimedia tools and its application.			
2. To understand the representations of different multimedia data and different data formats.			
3. To work with all aspects of text, audio, images and video,			
4. To understand the principles of multimedia authoring paradigm and tools.			
5. To apply different compression principles, compression techniques and compression standards.			
<b>Unit</b>	<b>Syllabus</b>	<b>Periods</b>	
UNIT - I	1. Write a Program to include a paragraph in Web Page using HTML. 2. Write a Program of include image in Web page using HTML. 3. Write a Program of including video in Web page using HTML. 4. Create a web page for a clothing company which contains all the details of that company and atleast five links to other web pages. 5. Write a program to show a bitmap image on your computer screen. 6. Write a program to play "wave" or "midi" format sound files. 7. Write a program to show animation of solar system. 8. Write a program to show animatin of a ball moving in a helical path. 9. Design Banner using graphical processing tool. 10. Convert given image into different image formats. 11. Develop a webpage which shows animation with sound effects using any professional HTML editor. 12. Design wallpaper showing water drop effect in image. 13. Develop a webpage by Embedding video. 14. Develop GIF image using graphical processing tool. 15. Develop images using RGB/CMY/HSB color models.	12	

**Suggested Readings:**

1. Ramesh Bangia. "Multimedia and Web Technology", Firewall Media.
2. P.K and Leigh, Kiran Thakrar Multimedia System Design.
3. Multimedia System Design by Prabhat K. Andleign, Kiran Thakrar prentic hall Publication.

**Suggested digital platforms web links:**

1. <https://www.onlinecourses.swayam2.ac.in>
2. <https://www.egyankosh.ac.in>.
3. <https://www.vikaspedia.in>.

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