Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DEC-401	**Title of the Course**	Principle of Communication Engineering	**L**	**T**	**P**	**C**
Year	II	**Semester**	IV	**3**	**1**	**0**	
Pre-Requisite		**Co-requisite**					
Course Objectives	After undergoing the subject, the students will be able to Understand communication & their significance, understand and describe type of communication, compare different types of communication.						

Course Outcomes	
CO1	Perform various modulation and demodulation techniques on analog signals for radio communication.
CO2	Compare the performance of AM, FM and PM schemes.
CO3	Co-Evaluate the performance of PCM, DPCM and DM.
CO4	Perform characteristics evaluation of AM Trans-receiver system
CO5	Analyze concept of various modulation schemes for digital communication

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Amplitude Modulation	Introduction of communication system, Need of modulation and demodulation in communication system, Types of modulation. Amplitude Modulation: Introduction, SSB and VSB modulation and demodulation schemes, AM transmitters and receivers, super heterodyne receiver, frequency division and time division multiplexing	8	1
2	Angle Modulation	Angle Modulation: Frequency modulation, phase modulation, FM receiver and demodulators. Noise: Signal to Noise ratio, Noise calculation, Internal and external noise, Noise in AM and FM system. Radio Wave Propagation: Electromagnetic waves, properties of Radio waves, propagation of wave	8	2
3	Pulse Modulation	Pulse Communication: Sampling process, Pulse Amplitude Modulation, Pulse Width Modulation, Pulse Position Modulation and Pulse Code Modulation, Delta modulation.	8	3
4	Radio Receiver	Radio Receivers: Types of Receivers, characteristics of Radio Receiver, AM receiver, communication receiver, FM receiver, Basic FM demodulators.	8	4
5	Digital Modulation	Digital Modulation: Brief description of phase shift keying, Differential phase shift keying (DPSK), Frequency shift keying. Demodulation of AM wave using diode detector circuit, Demodulation of FM wave.	8	5

References Books:

1 Kennedy & Davis- Electronic Communication System, Tata Mcgraw Hill.

2 Simon Haykin- Communication System- John Wiley & Sons.

3 B.P. Lathi, “Modern Digital and Analog communication Systems”, 3rd Edition, Oxford University Press.

4 H. Taube, D L Schilling, Goutom Saha, “Principles of Communication”, 3rd Edition, Tata McGraw-Hill Publishing Company Ltd.

e-Learning Source:

http://swayam.gov.in

http://spoken-tutorial.orgs

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	**1**	**2**	**-**	**-**	**1**	**-**	**-**	-	-	-	1
CO2	**2**	**2**	**-**	**-**	**2**	**-**	**-**	-	-	-	-
CO3	**-**	**1**	**-**	**-**	**3**	**-**	**-**	-	-	2	-
CO4	**-**	**-**	**-**	**-**	**-**	**2**	**-**	2	-	-	-
CO5	**1**	**-**	**-**	**-**	**2**		**3**	-	-	2	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD

Effective from Session: 2024-25

Integral University, Lucknow

Course Code	DEC-402	Title of the Course	Electronics Devices & Circuits-II	L	T	P	C
Year	II	Semester	IV	3	1	0	
Pre-Requisite		Co-requisite					
Course Objectives	After undergoing the subject, the students will be able to Understand OP-AMP & their significance, understand and describe type of Integrated Circuit, compare different types of IC.						

Course Outcomes

CO1	Realize various multivibrator circuits using BJT
CO2	Evaluate the technical parameters of inverter and their effect on transistor switching time
CO3	Realize different linear and non-linear application of Op-amp
CO4	understand various process used in the manufacturing of IC

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	MULTIVIBRATOR	MULTIVIBRATOR CIRCUITS: Ideal transistor switch; explanation using C.E. output characteristics, calculation of component values (collector and base resistors) for a practical transistor switch, Transistor switching time. Basic concept of working of collector coupled bistable, monostable and stable multivibrator circuits including principle of triggering, Operation of Schmitt trigger, calculation of upper trigger potential (UTP) and lower trigger potential (LTP). Transistorised voltage-controlled oscillator (basic principle only).	8	1
2	OP-AMP	OPERATIONAL AMPLIFIERS: Specifications of ideal operational amplifier and its block diagram, Definition of inverting and noninverting inputs, differential voltage gain and input and output off set, voltage input offset current, input bias current, common mode rejection ratio (CMMR), power supply rejection ratio (PSRR) and slew rate, use of op.amp. as an adder, subtractor, differential amplifier, buffer amplifier, differentiator, integrator, comparator, Schmitt Trigger, Generation of Square and Triangular Waveform, log and anti-log amplifiers, PLL and its application	8	2
3	555 Timer	Timer IC: Block diagram of IC timer (such as NE 555) and its working, use of 555 timer as monostable and astable multivibrator, and waveform generator. Regulated Power Supply, Concept of regulation, Basic regulator circuits (using Zener diode), OP-AMP regulators, IC regulators, Fixed Voltage regulators, (78/79, XX) 723 IC regulators (Current Limiting, Current Fold Back), SMPS.	8	3
4	Integrated Circuit	Introduction to Microelectronics: Advantages of integration, Types of integrated circuits, Monolithic and Hybrid circuits, Different stages of fabrication of ICs- Epitaxial Growth, Oxidation and film deposition, Diffusion and Ion Implantation, Lithography & Etching. (Only brief idea of all)	8	4
5	Very Large-Scale Integration	Masking, Selective doping, Fine-line lithography and isolation for Monolithic circuits, Introduction to monolithic device elements such as BJT, MOS, transistor and integration of other circuit elements, Very large scale integration (V.L.S.I.).	8	5

References Books:

1 Basic Electronics & Linear Circuits: Bhargava, Kulshreshtha & Gupta, Tata Mcgraw-Hill

2 Micro Electronics Circuits: Sedra, Adel S. Smith, Kenneth. C., Oxford University Press 5th Edition

3 Neamen D A, “Electronics Circuits”, 3rd Ed TMH

4 Jacob Millman and Arvin Grabel, “Microelectronics”, 2nd Ed TMH

e-Learning Source:

http://swayam.gov.in

http://spoken-tutorial.orgs

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	3	-	-	-	-	-	-	-	-	1
CO2	2	2	2	-	-	-	-	-	-	2	-
CO3	2	3	2	-	-	-	-	-	-	-	-
CO4	-	2		-	-	-	-	-	1	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD

Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DEC-406	**Title of the Course**	Advanced Networking	**L**	**T**	**P**	**C**
Year	II	**Semester**	IV	**3**	**1**	**0**	
Pre-Requisite		**Co-requisite**					
Course Objectives	After undergoing the subject, the students will be able to Setup IP addresses in Computer network nodes, Setup IP subnetting for network, know about different routing methodologies, diagnose & solve network problems, diagnose & solve network problems remotely.						

Course Outcomes	
CO1	Understand the overview of TCP/IP model.
CO2	Understand various routing algorithms and their operations
CO3	Understand the working of Virtual Lan Area Network.
CO4	Understand the Basic WAN protocols
CO5	To learn basic concepts of Wireless LAN.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Internetworking Basics	TCP/IP Model, IP Addressing, IP Terminology, IP Addressing Scheme, Private IP Addresses, TCP/IP Troubleshooting utilities, Troubleshooting IP Addressing.	8	1
2	Subnetting and Routing	Subnetting Basics, How to Create Subnets, Subnet Masks, Classless Inter- Domain Routing (CIDR), Subnetting Class C Addresses, Subnetting Class B Addresses, Subnetting Class A Addresses IP Routing, Routing Basics, Static Routing, Default Routing, Dynamic Routing, Routing Protocol Basics.	8	2
3	VLAN Basics	Virtual LANs (VLANs) VLAN Basics, Broadcast Control, Security, Flexibility and Scalability, VLAN, Memberships, Static VLANs, Dynamic VLANs, Identifying VLANs, Frame Tagging, LAN, Identification Methods, Inter- Switch Link (ISL) Protocol VLAN Trunking Protocol (VTP), VTP Modes of Operation, VTP Pruning, Routing between VLANs, Configuring VLANs, Assigning Switch Ports to VLANs, Configuring Trunk Ports, Configuring Inter-VLAN Routing, Configuring VTP.	8	3
4	WAN Protocols	Introduction of WAN, Cabling the WAN, HDLC, PPP, LCP, Frame Relay, ISDN, DSL/ADSL.	8	4
5	Introduction To Wireless LAN	ISM band, 802.11a/b/g wireless standards, Adhoc, infrastructure mode of WLAN, Access Point in Repeater Mode, Security in WLAN, MAC Filtering, WEP/WPA, Evaluation of WLAN, Wireless Home Networking, IEEE 802.11 standard for WLAN.	8	5

References Books:

1. Data Communications and Networks, Achyut S. Godbole, Tata McGraw Hill
2. Computer Networking, Tularam M Bansod Dreamtech, Wiley
3. Data Communications and Networking with TCPIP Protocol Suite by Behrouz A. Forouzan
4. Computer Network by Andrew S. Tanenbaum Pearson

e-Learning Source:

http://swayam.gov.in

http://spoken-tutorial.orgs

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1		3	2	1	3	3	1	1		3	2
CO2		3			3	3	2		2	3	2
CO3		3			3	3	1			3	2
CO4		3	2		3	3				3	2
CO5		3	1		2	3				3	2

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD

Integral University, Lucknow

Effective from Session: 2017-18							
Course Code	DCS-401	**Title of the Course**	Object Oriented Programming with C++	**L**	**T**	**P**	**C**
Year	2ND	**Semester**	4th	**3**	**1**	**0**	
Pre-Requisite		**Co-requisite**					
Course Objectives	1.To make students familiar with program language and its related terminologies 2.Study of different types of programming module along with their functionality 3.To Understand the basic Concept of Programming Language						

Course Outcomes	
CO1	Use various programming constructs of object-oriented language
CO2	Apply principles of object-oriented programming to model/design real world problems.
CO3	Use exception handling mechanism to develop fault tolerant applications.
CO4	Analyze the concepts of multi-threaded programming and synchronization.
CO5	Use GUI controls and event handling mechanism to develop interactive window/desktop applications.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Introduction and Features	Fundamentals of object-oriented programming – procedure oriented programming Vs. object-oriented programming (OOP). Object oriented programming concepts –Classes, reusability, encapsulation, inheritance, polymorphism, Abstraction.	8	CO1
2	Language Constructs	Review of constructs of C used in C++: variables, types and type declarations, user defined data types; increment and decrement operators, relational and logical operators; if then else clause, conditional expressions, input and output statement, loops, switch case.	8	CO2
3	Classes and Objects in C++	**Classes and Objects: -** Class creation, Object accessing class members, Private Vs Public, Constructor and Destructor Objects. **Member Functions: -** Method definition, Inline functions implementation, Constant member functions, Friend Functions, Overloading, operator overloading, function overloading, constructor overloading.	8	CO3
4	Inheritance	Definition of inheritance, Types of inheritance, protected data, private data, public data, inheriting constructors and destructors, constructors and destructors of derived classes, virtual functions.	8	CO4
5	Polymorphism and Virtual Functions in C++	Polymorphism and Virtual Functions: - Polymorphism, Types of Polymorphism, Virtual functions, pure virtual functions, different operation on the file, creation of file streams, stream classes, header files, updating a file, opening and closing a file.	8	CO5

References Books:

1- Singh Gurupkar, Object Oriented Programming using C ++.

2- John R. Hubbard, Schaum's Outline of Programming with C++.

e-Learning Source:

1- https://www.geeksforgeeks.org/object-oriented-programming-in-cpp/

2- https://www.edx.org/learn/object-oriented-programming

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	2	1	-	-	-	-	-	-	-	-
CO2	-	2	-	1	1	-	-	-	1	-	-
CO3	-	2	-	3	-	-	-	-	1	1	-
CO4	-	2	2	-	-	-	-	-	1	-	-
CO5	-	2	-	3	-	-	-	-	-	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD

Integral University, Lucknow

Effective from Session: 2017-18							
Course Code	DCS-405	**Title of the Course**	Web Technology & Multimedia	**L**	**T**	**P**	**C**
Year	2ND	**Semester**	4th	**3**	**1**	**0**	
Pre-Requisite		**Co-requisite**					
Course Objectives	1.To make students familiar with program language and its related terminologies 2.Study of different types of programming module along with their functionality 3.To Understand the basic Concept of Programming Language						

Course Outcomes	
CO1	WEB TECHNOLOGY: HTML:Elements of HTML, HTML sources & Rules of nesting, syntax conventions, HTML Categories, text tags, Formatting WebPages by using Styles, adding pictures, image attribute , Introduction to forms, tables and models, advantages & limitations of tables, frames, links. SS cascading style sheets, XHTML, XML, Client Side Scripting, Server Side Scripting, Managing data with SQL. DYNAMIC WEB PAGES: The need of dynamic web pages; an overview of DHTML, Cascading Style Sheet (CSS), Comparative studies of different technologies of dynamic page creation.
CO2	To learn and understand technical aspect of Multimedia Systems.Apply CSS and JavaScript Constructs to perform Client side validation and designing of dynamic web pages
CO3	Apply various PHP construct to develop server side applications and also familiar of transporting data among applications using XML
CO4	Understand how to configure Web servers and deployment of applications.
CO5	Design server side; Database and MVC based applications using Servlet, JSP and JDBC.

Unit No.	**Title of the Unit**		**ContactHrs.**	**MappedCO**
1	Introduction	Fundamentals of object-oriented programming – procedure oriented programming Vs. object-oriented programming (OOP). Object oriented programming concepts –Classes, reusability, encapsulation, inheritance, polymorphism, Abstraction.	8	CO1
2	JavaScript in web development	JSP:JSP architecture, JSP servers, JSP tags, understanding the layout in JSP, declaring variables, methods in JSP, inserting java expression in JSP, processing request from user and generating dynamic response for the user, inserting applets and java beans into JSP, using include and forward action, comparing JSP and CGI program, comparing JSP and ASP program; Creating ODBC data source name, introduction of JDBC, prepared statement and callable statement. JAVA SCRIPTS: What is a Java Scripts, adding, Java scripts to documents, embedding java scripts, linking java scripts, creating a page program with scripts?	8	CO2
3	Multimedia Sphere	Introduction to multimedia, Evolution of Multimedia, Objects of Multimedia, hypertext, hyper graphics, animation, Scope of Multimedia in Business, Multimedia H/W & S/W.	8	CO3
4	Media Technologies	Multimedia Hardware: OCR, touch-screen, scanners, digital cameras, speakers, printers, plotters, optical disks and drives as CD-ROM and DVD. Multimedia networks, text, sound (MIDI), Audio, and Video. Image and sound file formats, multimedia file formats, compression, standards and techniques, Macromedia products, Basic drawing techniques, multimedia operating systems.	8	CO4
5	Multimedia authoring tools and processes.	Multimedia Authoring Tools: - Types of Authoring programmes –Icon based, Time-based, object-oriented working in macromedia flash, exploring interface using selection of PEN tools. Working with drawing and painting tools, applying colour viewing and manipulating time line, animating, processing, guiding layers, importing and editing sound and video clips in flash.	8	CO5

References Books:

1- Patrick Naughton &Herbert Schildt - The Complete Reference Java 2 (Third Edition) -TMH

2- William Casanova and Molina, Multimedia An Introduction; Prentice Hall of India, New Delhi

e-Learning Source:

1- https://ahsec.assam.gov.in/wp-content/uploads/2022/03/Multimedia-and-Web-Technology-1.pdf

2- https://cbseacademic.nic.in/web_material/Curriculum17/SrSecondary/16%20Multimedia%20and%20web%20%20technology.pdf

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	2	1	-	-	-	-	-	-	-	-
CO2	-	2	-	1	1	-	-	-	1	-	-
CO3	-	2	-	3	-	-	-	-	1	1	-
CO4	-	2	2	-	-	-	-	-	1	-	-
CO5	-	2	-	3	-	-	-	-	-	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DCS-408	**Title of the Course**	PC & Peripheral Architecture	**L**	**T**	**P**	**C**
Year	II	**Semester**	IV	**3**	**1**	**0**	
Pre-Requisite		**Co-requisite**					
Course Objectives	After undergoing the subject, the students will be able to Assemble Computer System & it's peripherals, repair & Maintenance of Computer System & it's peripherals, understanding of various components of a computer system.						

Course Outcomes	
CO1	Understand the overview of Computer system and its's peripheral.
CO2	Understand the different types of drives and cards used in computer system.
CO3	Understand the different types of Monitors and their basic working.
CO4	Understand the various operation related to hard disk drive.
CO5	Understand the basic operation and maintenance of printer.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Basic building blocks of a computer system	Block diagram of a computer, Input & Output devices, CPU, Arithmetic & Logical Unit, Memory & it's Types. Study of PC-AT/ATX System, Basics of Processor and CPU Clock, Motherboards, Chipset and Controllers, BIOS and the Boot Process.	8	1
2	IDE and SATA Devices	Hard Disk Drive and CD/DVDs Drives, SCSI Devices, Floppy Disk, Flash Drive, Solid State Drives, Backup Drive, Expansion Cards- LAN Card, IDE Card, VGA and SVGA Cards, Sound Card, Interface Cards, I/O cards, Video Cards, USB Card, Fire-Wire Cards, Internal Ports, Cables and Connector Types.	8	2
3	Monitors and keyboard	Monitors: - CRT, LCD and LED, Touch Screen Displays, CRT construction and working, 9 pin input type monitor. Block diagram of keyboard circuit	8	3
4	Hard Disk Drive	Its construction, basic principle of operation, disk drive types, installation, cables, connectors and jumper details, formatting and managing hard disk drive. Various interface standards.	8	4
5	Printer	Types & components of printers, printer interface with computer, function block diagram for various subassemblies of printer. Principle of operation of Laser and Inkjet printers, various mechanical subassemblies, general maintenance aspects.	8	5

References Books:

1. Electronics and Radio Engineering M.L. Gupta Dhanpat rai & Sons, New Delhi
2. PC And Clones Hardware, Troubleshooting and Maintenance B. Govinda rajalu, Tata Mc-graw-Hill Publication
3. PC Troubleshooting and Repair Stephen J. Bigelow Dream tech Press, New Delhi

e-Learning Source:

1. http://swayam.gov.in
2. http://spoken-tutorial.org

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1		3	2				2			3	2
CO2		3	2		3		2		2	3	2
CO3		3	2	1			2			3	2
CO4		3	2		3		2			3	2
CO5		3	2				2			3	2

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DEC-451	**Title of the Course**	Principle of Communication Engineering Lab	**L**	**T**	**P**	**C**
Year	II	**Semester**	IV	**0**	**0**	**3**	
Pre-Requisite		**Co-requisite**					
Course Objectives	After undergoing the subject, the students will be able to Understand communication & their significance, understand and describe type of communication, compare different types of communication.						

Course Outcomes	
CO1	Observe the performance of AM and FM signals.
CO2	Perform signal sampling on baseband signal and reconstruct the signals
CO3	Generate ASK, PSK and FSK schemes and observe their waveform.
CO4	
CO5	

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Amplitude Modulation	To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation.	3	1
2	Amplitude Modulation	To obtain an AM wave from a collector modulator circuit and observe the Am pattern on CRO.	3	1
3	Amplitude Modulation	To obtain modulating signal from an AM detector circuit and observe the pattern for different RC time constants and obtain its optimum value for least distortion=2	3	1
4	Amplitude Modulation	To obtain AM-SB from Balanced modulator.	3	1
5	Amplitude Modulation	To detect AM-SB by using SSB detector.	3	2
6	Radio Receiver	To identifying different stages of radio receiver and IC used at each stage and plot the sensitivity characteristics of a radio receiver and determination of the frequency for maximum sensitivity	3	2
7	Radio Receiver	To plot the selectivity characteristics of a radio receiver.	3	2
8	Radio Receiver	Tuning and alignment of radio receiver.	3	2
9	Radio Receiver	Circuit tracing and fault finding of different stages of radio receiver	3	2
10	Digital Modulation	Simple demonstration of ASK, FSK and PSK through training kits	3	3

References Books:

e-Learning Source:

http://swayam.gov.in

http://spoken-tutorial.orgs

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	-	1	-	2	-	-	1				
CO2	-	1	-	2	-	-	1				
CO3	-	1	-	2	-	-	1				
CO4	-	1	-	2	-	-	1				
CO5	-	1	-	2	-	-	1				

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DEC-456	**Title of the Course**	Advanced Networking Lab	**L**	**T**	**P**	**C**
Year	II	**Semester**	IV	**0**	**0**	**2**	
Pre-Requisite		**Co-requisite**					
Course Objectives	After undergoing the practical, the students will be able to setup IP addresses in Computer network nodes, setup IP subnetting for network, know about different routing methodologies, diagnose & solve network problems, diagnose & solve network problems remotely.						

Course Outcomes	
CO1	Setup Ip subnetting for network.
CO2	Setup & configure L2 network Switches.
CO3	Diagnose and solve network problem
CO4	Manage & Handle WAN

Experiment No.	Title of the Experiment	Content of the Unit	Contact Hrs.	Mapped CO
1	Routing Basics	To study Router & its interface. (Console port, AUI, Serial, Auxiliary, Ethernet, Fast Ethernet, BRI)	2	
2	Switching Basics	To study, Switch & its interface. (Console port, Ethernet, Fast Ethernet)	2	
3	Routing Basics	To setup up a router, logging into a router, basic commands, saving NVRAM configuration.	2	
4	Routing Basics	To configure a router for different LAN segments.	2	
5	IP subnetting	To configure IP Routing by creating Static Routes. (Static Routing).	2	
6	L2 Switches	Backing Up and Restoring the IOS, Configuration File using TFTP server.	2	
7	VLAN	To Setup up a Switch first time, logging into a switch, basic commands.	2	
8	IP Subnetting	To manage traffic using standard IP Access list.	2	
9	Wireless LAN	Wireless LAN Setup using ADHOC mode.	2	
10	Wireless LAN	Wireless LAN Setup using Infrastructure mode.	2	

References Books:

e-Learning Source:

www.vlab.co.in

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1		1			2	3	3	1		3	1
CO2		1			2	3	3		3	3	1
CO3		1			2	3	3			3	1
CO4						3	3		3	3	

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session: 2017-18							
Course Code	DCS-451	**Title of the Course**	Oops with C++ Lab	**L**	**T**	**P**	**C**
Year	2ND	**Semester**	4th	**0**	**0**	**2**	
Pre-Requisite		**Co-requisite**					
Course Objectives	1.To make students familiar with program language and its related terminologies 2.Study of different types of programming module along with their functionality 3.To Understand the basic Concept of Programming Language						

Course Outcomes	
CO1	Students become familiar with Operating System, its main components and its functionalities.
CO2	Students will learn the complete process involved in installation of an OS
CO3	Students are familiarized with the concept of process and various CPU scheduling algorithms. Familiarized with the concept of paging and various Page replacement algorithms.
CO4	Learn the concept of disk scheduling and its various algorithms.
CO5	Develop the ability to compare between Linux, Unix and Windows OS.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	EXPERIMENT 1	Write General Program in C++Write General Program in C++	2	CO1
2	EXPERIMENT 2	Write Program using if, else if, nested if and switch case in C++	2	CO2
3	EXPERIMENT 3	Write Program using Looping Statement in C++	2	CO3
4	EXPERIMENT 4	Write Program using if, else if , nested if and switch case in C++	2	CO1
5	EXPERIMENT 5	Write Program using overloading of various operators in C++	2	CO2
6	EXPERIMENT 6	Write Program using constructor and various types of constructors in C++	2	CO3
7	EXPERIMENT 7	Write Program using various forms of Inheritance in C++	2	CO4
8	EXPERIMENT 8	Write Program using virtual functions, virtual Base Class in C++	2	CO4 C
9	EXPERIMENT 9	Write Program using function overloading in C++	2	CO5
10	EXPERIMENT 10	Write Program using Friend, Inline, default arguments in C++	2	CO5

References Books:

1-Oops with C++ Lab by Walter Savitch

2-Oops with C++ Lab by Ashok N. Kamthane

e-Learning Source:

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	2	1	-	-	-	-	-	-	-	-
CO2	-	2	-	1	1	-	-	-	1	-	-
CO3	-	2	-	3	-	-	-	-	1	1	-
CO4	-	2	2	-	-	-	-	-	1	-	-
CO5	-	2	-	3	-	-	-	-	-	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session: 2017-18							
Course Code	DCS-455	**Title of the Course**	Web Technology and Multimedia Lab	**L**	**T**	**P**	**C**
Year	2ND	**Semester**	4th	**0**	**0**	**2**	
Pre-Requisite		**Co-requisite**					
Course Objectives	1.To make students familiar with program language and its related terminologies 2.Study of different types of programming module along with their functionality 3.To Understand the basic Concept of Programming Language						

Course Outcomes	
CO1	Apply various HTML tags used to design static web pages.
CO2	To learn and understand technical aspect of Multimedia Systems.Apply CSS and JavaScript Constructs to perform Client side validation and designing of dynamic web pages.
CO3	Apply various PHP construct to develop server side applications and also familiar of transporting data among applications using XML
CO4	Understand how to configure Web servers and deployment of applications. Design server side; Database and MVC based applications using Servlet, JSP and JDBC.
CO5	Understand Handling of asynchronous requests using AJAX programming

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	EXPERIMENT 1	Understand Handling of asynchronous requests using AJAX programming	2	CO1
2	EXPERIMENT 2	Development of different Websites using different tools.	2	CO1
3	EXPERIMENT 3	Installing and use of various multimedia devices, i. Scanner,ii. Digital camera, web camera iii. Mic and speakers iv. Touch screen v. Plotter and printers vi. DVD vvii. Audio CD and Video CD	2	CO3
4	EXPERIMENT 4	Reading and writing of different format on a frame CD Reading and writing of different format on a frame CD	2	CO3
5	EXPERIMENT 5	Transporting audio and video files	2	CO2
6	EXPERIMENT 6	Using various features of Director	2	CO5
7	EXPERIMENT 7	Using various features of Flash	2	CO3
8	EXPERIMENT 8	Using various features of Photo-shop	2	CO4
9	EXPERIMENT 9	Making multimedia presentations combining Director, Flash, Photo-shop, such as department Profile, lesson presentation, games and project presentations	2	CO5

References Books:

1- Web Technology and Multimedia Lab by Elisabeth Robson, Eric Freeman

e-Learning Source:

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	2	1	-	-	-	-	-	-	-	-
CO2	-	2	-	1	1	-	-	-	1	-	-
CO3	-	2	-	3	-	-	-	-	1	1	-
CO4	-	2	2	-	-	-	-	-	1	-	-
CO5	-	2	-	3	-	-	-	-	-	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD