Integral University, Lucknow

Effective from Session: 2024-25							
Course Code	DMA-201	**Title of the Course**	APPLIED MATHEMATICS-II	**L**	**T**	**P**	**C**
Year	I[ST]	**Semester**	II[nd]	**03**	**01**	**00**	**-**
Pre-Requisite	DMA-201	**Co-requisite**	NA				
Course Objectives	To know the basic concepts of Mathematics with their Applications in Engineering.						

Course Outcomes	
CO1	Definite and Indefinite integral knowledge makes students wide in solving problems related to big summations and areas related problems.
CO2	Applications of Integration will lead students to get a good knowledge of finding areas, volume etc.
CO3	Some different rules like Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's 1/3rd rule and 3/8th rule, Students will be able to solve big Integral problems in a very easy pattern.
CO4	2D Coordinate Geometry has application in the field of construction. The sketch of a building is a pure geometry. It is also used for finding the distance between places and in geography also it has many applications. It is also used in Astrophysics to find the distance between planets
CO5	Three dimensional geometry is used in various fields like in computer graphics, biotechnology and medical sciences and in different projects also.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	i). Integral Calculus-I ii). Indefinite Integral	**Integral Calculus – I:** Definition of Integration (anti-derivative), Integration of standard functions. Rule of integration (Integration of sum, difference and Scalar multiplication). **Indefinite Integral:** Integration by substitution, Integration by parts, Integration by partial fraction.	07	1
2	i). Integral Calculus-II ii). Application of Integral Calculus	**Integral Calculus - II:** **Definite Integral:** Definition of definite integral, properties and evaluation of definite integral. **Application of Integral Calculus:** Finding areas bounded by sample curves.	08	2
3	i). Numerical Integral & Error	**Numerical Integration & Error:** Introduction, Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's 1/3rd rule and 3/8th rule. Concept of error for simple function.	08	3
4	i). Coordinate Geometry (2Dimention)	**Coordinate Geometry (2-Dimension):** Circle, Equation of circle in standard form. Centre - Radius form, Diameter form, Two intercept form.	08	4
5	i). Coordinate Geometry (3-Dimention)	**Co-ordinate Geometry (3 Dimension):** Straight lines and planes in space, Distance between two points in space, direction cosine and direction ratios, Finding equation of a straight line (without proof).	09	5

References Books:

1. Applied Mathematics: Kailash Sinha, Meerut publication.
2. Applied Mathematics: P. K. Gupta, Asian Publication.
3. Applied Mathematics: H. R. Loothara, Bharat Bharti Publication.
4. Mathematics for Polytechnic: S.P. Deshpande, Pune Vidyarthi Griha.

e-Learning Source:

https://www.youtube.com/watch?v=syLIPtxjN0E&list=PLn78sdsv0QoXBxWmyGp5SQdg-F_AlyB05&pp=iAQB

https://www.youtube.com/watch?v=rBNQ0r7CN2c&list=PLn78sdsv0QoXUdre4aCAobj3cxACkNeLL&pp=iAQB

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

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

Name & Sign of Program Coordinator	Sign & Seal of HoD

Effective from Session: 2010							
Course Code	DPH-201	**Title of the Course**	Applied Physics-II	**L**	**T**	**P**	**C**
Year	I	**Semester**	I	**3**	**1**	**0**	
Pre-Requisite	None	**Co-requisite**	None				
Course Objectives	To equip learners with the foundational concepts of units, dimensions, dimensional analysis, measurement accuracy, and vector operations, enabling them to analyze physical equations, perform unit conversions, estimate errors, and apply vector algebra in solving scientific and engineering problems.						

Course Outcomes	
CO1	Student learn to analysis to effect of building acoustic condition.
CO2	Student learn about application of ultrasound in various field like SONAR, medical and research work and sound signal etc.
CO3	The student learns to introduce and overview of optical fiber and process of transmission of signal and application of various field.
CO4	Student learns to investigate broken telegraph wire with the help of post office box.
CO5	Student learn to simplify the complicated circuit by using Kirchhoff's law.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
Unit-1	**Application of Sound Waves**	**Acoustics**: Standing waves, Closed and Open organ pipes, Resonance, End correction. Definition of pitch, loudness, quality and intensity of sound waves. Echo and reverberation and reverberation time. Sabine's formula, Control of reverberation time (problems on reverberation time). Acoustics of buildings, defects and remedy. **Ultrasonics:** Generation, Magnetostriction, Piezoelectric effect, Application in new technology	6	CO-1
Unit-2	**Fiber Optics**	Quantum nature of light, Coherence (Spatial and temporal), Duality of wave and particle, Concept of Interference, Biprism, Fraunhoffer single slit diffraction, grating, Resolving and dispersive power, Elementary concept of polarization. Critical angle, Total internal reflection, Principle of fiber optics, Optical fiber, Pulse dispersion in step-index fibers, Graded index fiber, Single mode fiber, Optical sensor	8	CO-2
Unit-3	**D.C. Circuits, Dielectrics**	Principle of Wheat Stone bridge and application of this principle in measurement of resistance (Meter bridge and Post Office Box); potentiometer, Kirchhoff's Law and their simple application. Principle of Carey-Foster's bridge. Electric potential, potential energy, Energy of a charged capacitor. Charging and discharging of capacitors. Electric dipole; effect of electric field on dielectrics, polarization. Magnetic Fields & Materials: Dia, Para and Ferro-magnetism, Ferrites, Hysteresis, Hysteresis curve of a ferro magnetic materials and their uses, Basic idea of super conductivity.	8	CO-3
Unit-4	**Semiconductor Physics, Nuclear Physics**	classification of solids into conductors, insulators and semiconductors on the basis of energy band structure. Intrinsic and extrinsic semiconductors, Electrons and holes as charge carriers in semiconductors, Effect of temperature in conduction in semiconductors, P-type and N-type semiconductors, P-N junction formation, barrier voltage, Forward and reverse biasing of a junction diode. Continuous and characteristics of X-rays, Properties & applications of X-rays. Radioactivity, Nuclear stability, Radioactive emission, radiation hazards, nuclear fission and fusion, nuclear reactors and their application, Mass-energy relation, atomic mass unit, Mass defect and binding energy.	10	CO-4
Unit-5	**Lasers and its Applications, Non-conventional energy resources**	Absorption and Emission of energy by atom, Spontaneous and Stimulated Emission, Population inversion. Main components of laser and types of lasers, Ruby Laser, He-Ne laser and their applications. Wind energy: Introduction, scope and significance, measurement of wind velocity by anemometer, general principle of wind mill, Indian wind energy program. Solar energy: Solar radiation and potentiality of solar radiation in India, unit of solar radiation. Bio fuel and Gobar gas plants Uses of solar energy: Solar Cooker, solar water heater, solar photo-voltaic cells, solar energy collector, Modern applications in technology.	8	CO-5

References Books:

1. Nootan Physics: Kumar & Mittal
2. Applied Physics: P.K. Gupta.
3. Pradeep Fundamental: Gogia & Gomber.
4. Applied Physics: P.S. Kushwaha.

e-Learning Source:

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2											1	2				
CO2	2										1	1	2				
CO3	2				2	1						2	2				2
CO4	1				2		3						1				2
CO5	2	2										1	2	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:							
Course Code	DCH-201	**Title of the Course**	Applied Chemistry	**L**	**T**	**P**	**C**
Year	I	**Semester**	II	**3**	**1**	**0**	**0**
Pre-Requisite	None	**Co-requisite**	None				
Course Objectives	1. To understand all the chemical reactions, principle and theory related to topics 2. To provide examples and unsolved problems as much as possible 3. To provide example related to industrial as well as domestic proposes						

Course Outcomes	
CO1	To acquire the foundational knowledge needed to understand the properties, combustion behaviors, and potential impacts of different fuels.
CO2	To understand the all, disperse systems used in pharmaceutical and other paint industry.
CO3	To provide knowledge about the nature of compounds and nature of bonds of organic compound as well as the possibility of chemical reaction.
CO4	To provide the fundamental understanding needed to design and optimize industrial Process
CO5	To understand the vital material which is used in a range of application across various industries. Understand manufacturing process to create sustainable material.

Unit No.	**Title of the Unit**		**Contact Hrs.**	**Mapped CO**
Unit-1	**Fuels**	Definition, its classification, high and low calorific value. Determination of calorific value of solid and liquid fuels by Bomb calorimeter. Liquid fuel- Petroleum and its refining, distillates of petroleum (Kerosene oil, Diesel and Petrol), Benzol and power alcohol. Knocking, Anti-knocking agents, Octane number and Cetane number. Cracking and its type, Gasoline from hydrogenation of coal (Bergius process and Fischer Tropsch's process) Gaseous Fuel- Coal gas, Oil gas, Water gas, Producer gas, Biogas, LPG and CNG. Numerical problems based on topics.	10	1
Unit-2	**Colloidal State of Matter Lubricants**	Concept of colloidal and its types, different system of colloids, dispersed phase and dispersion medium. Methods of preparation of colloidal solutions, Dialysis and electrodialysis. Properties of colloidal solution with special reference to absorption, Brownian movement, Tyndal effect, Electrophoresis and Coagulation. Relative stability of hydrophilic and hydrophobic colloids. Protection and protective colloids. Emulsion, types, preparation, properties and uses. Application of colloids chemistry in different industries.	06	2
Unit-3	**Hydrocarbons**	Definition, classification, necessity and various kinds of lubricants. Function and mechanism of action of lubricants and examples. Properties of lubricants, importance of additive compounds in lubricants, Synthetic lubricants and cutting fluids. Industrial application, its function in bearing.	10	3
Unit-4	**Organic Reactions and Mechanism:**	A. Classification and IUPAC nomenclature of organic compounds homologous series (Functional Groups). B. Preparation, properties and uses of Ethane, Ethene, Ethyne (Acetylene), Benzene and Toluene. Fundamental aspects- A. Electrophiles and nucleophiles, Reaction intermediates, Free radicals, Carbocation, Carbanion. B. Inductive effect, Mesomeric effect, Electrometric effect. Mechanism- A. Mechanism of addition reaction (Markovnikov's Rule, Cyanohydrin and Peroxide effect). B. Mechanism of substitution reactions; (Nucleophilic) hydrolysis of alkyl halide, electrophilic substitution halogenations, Sulphonation, Nitration and Friedel- Craft reaction. C. Mechanism of Elimination reaction- Dehydration of primary alcohol, Dehydrohalogenation of primary alkyl halide.	07	4
Unit-5	**Polymers and Synthetic Materials**	Polymers and their classification. Average degree of polymerization, Average molecular weight, Free radical polymerisation (Mechanism). Thermosetting and thermoplastic A. Addition polymers and their industrial applications- Polythene, Polystyrene, PVA, PVC, PAN, PMMA, Buna-S, Buna-N, Teflon. B. Condensation polymers and their industrial applications- Nylon 6, Nylon 6,6, Bakelite, Melamine formaldehyde, Urea formaldehyde, Terylene or Dacron, Polyurethanes. General concept of Bio polymers, Biodegradable polymers and Inorganic polymers (Silicon). Synthetic Materials- A. Introduction- Fats and Oils B. Saponification of fats and oils, Manufacturing of soap C. Synthetic detergents, types of detergents and its	07	5

		manufacturing. Explosives: TNT, RDX and Dynamite, Paint and Varnish.		

References Books:

1. Applied Chemistry: R. S. Katiyar and J. P. Chaudhary
2. Applied Chemistry: Rakesh Kapoor
3. Principles of general and inorganic chemistry: O. P. Tandon
4. Engineering Chemistry: S. Chandra
5. Applied Chemistry: M. Gupta

e-Learning Source:

https://drive.google.com/file/d/176P2RihIzLCSWmWqeMf5W1ja5uYcqRXn/view?usp=drive_link
https://drive.google.com/file/d/1HkrXSpQw7_Y5FZPf8iq0T92DRyuGrms3/view?usp=drive_link
https://drive.google.com/file/d/1lsZHgt7nlIdB0iReCbTaP53JZjgzjOZ3/view?usp=drive_link
https://drive.google.com/file/d/176OiA-haF34K1Bzg_xA2PwSXkwGb-FMD/view?usp=drive_link

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	03	-	01	-	-	-	01				
CO2	03	-	-	-	-	-	-				
CO3	03	-	01	-	-	-	02				
CO4	03	01	02	-	-	-	02				
CO5	03	-	-	-	-	-	02				

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

Dr. Rida Sagheer **Name & Sign of Program Coordinator**	**Sign & Seal of HoD**

Integral University, Lucknow

Effective from Session:							
Course Code	DED-201	**Title of the Course**	Engineering Drawing	**L**	**T**	**P**	**C**
Year	I	**Semester**	II	**3**	**1**	**0**	
Pre-Requisite	10th	**Co-requisite**	-				
Course Objectives	To instill students about the importance of engineering drawing so students can understand the installation plan and can take different projects in their professional life.						

Course Outcomes	
CO1	Students' ability in legible writing letters and numbers will be improved.
CO2	Students' ability to perform basic sketching techniques and mechanical component drawing will be improved.
CO3	Students will be able to draw orthographic projections of different objects irrespective of number of dimensions and to develop pictorial views.
CO4	Students' ability to produce engineered drawing of any newly designed object will be improved.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	**Drawing, instruments and their uses and Introduction to Scales**	Introduction to various drawing, instruments.Correct use and care of Instruments. Sizes of drawing sheets and their layouts. Lettering Techniques 1 Sheet Printing of vertical and inclined, normal single stroke capital letters. Printing of vertical and inclined normal single stroke numbers. Stencils and their use. **Introduction to Scales :** 1 Sheet Necesssity and use, R F Types of scales used in general engineering drawing. Plane, diagonal and chord scales.	7	2
2	**Conventional Presentaion, Principles of Projection and Dimensioning Techniques**	Thread (Internal and External), Welded joint, Types of lines, Conventional representation of materials, Conventional representation of machine parts. **Principles of Projection :** Orthographic, Pictorial and perspective. Concept of horizontal and vertical planes. Difference between I and III angle projections. **Dimensioning Techniques:** Projections of points, lines and planes. 2 Sheet Orthographic Projections of Simple Geometrical Solids Edge and axis making given angles with the reference planes. Face making given angles with reference planes. Face and its edge making given angles withreferance planes. Orthographic views of simple composite solids from their isometric views.Exercises on missing surfaces and views.	7	3
3	**Section of Solids and Isometric Projection**	Concept of sectioning Cases involving cutting plane parallel to one of the reference planes and prependicular to the others. Cases involving cutting plane perpendicular to one of the reference planes and inclind to the others plane,true shape of the section **Isometric Projection :** 1 Sheet Isometric scale Isometric projection of solids.	8	2

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4	**Free hand sketching and Development of Surfaces**	Use of squared paper Orthographic views of simple solids Isometric views of simple job like carpentary joints **Development of Surfaces :** 1 Sheet Parallel line and radial line methods of developments. Development of simple and truncated surfaces (Cube, prism, cylinder, cone and pyramid).	8	4
5	**Assembly and Disassembly Drawings, Orthographic Projection of Machine Parts and Practice on AUTO CAD**	**Assembly and Disassembly Drawings :** 2 Sheet Plummer block Footstep bearings Couplings etc. Rivetted & Welded Joints Screw and form of screw thread **Orthographic Projection of Machine Parts :** 1 Sheet Nut and Bolt, Locking device, Wall bracket **Practice on AUTO CAD :** To draw geometrical figures using line, circle, arc, polygon, ellipse, rectangle - erase and other editing commonds and osnap commands (two dimensional drawing only) (Printouts of figures)	10	3

References Books:

1. Engineering Drawing : ND Bhatt
2. Engineering Drawing : R.K. Dhawan
3. Engineering Drawing : B.K.Goel.

e-Learning Source:

https://www.youtube.com/watch?v=gp3oKSEnEFM&list=PLDN15nk5uLiD3MEUiqsYPnZOHcVu7um6_

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	2	2		2		1	-	2	1	-
CO2	3	3	2			2	2	2	3	-	2
CO3	2	3			2		1	3	-	2	1
CO4	2	3	2		2		2	-	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: 2016 /17							
Course Code	DCS-202	**Title of the Course**	Programming in C and C++	**L**	**T**	**P**	**C**
Year	Ist	**Semester**	II nd	**3**	**1**	**0**	
Pre-Requisite	None	**Co-requisite**	None				
Course Objectives	To learn about Programming concepts and languages.						

Course Outcomes	
CO1	Obtain knowledge of programming concepts and languages especially C language. Provide knowledge of C programming from bottom and develop skill to build program and solve real world problems.
CO2	Illustrate the basic information of C programming likes Data Types,variables, input output functions,control statements etc
CO3	Apply programming concepts and techniques to build the basic programs of C languages as well as develop the practical approach on programming.
CO4	Illustrate the other advance programming concepts like Array, Pointer, Union, Structure and Functions
CO5	Illustrate the programming constructs and features of object oriented language, limitation of procedural language and structures of C++ program.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Introduction to programming	Introduction to programming, concept of programming, programming languages and its types, concept of Flow charts and Algorithms, Introduction to C language, history of C, procedural language.	8	1
2	Basics of C	Basics of C: keywords, constant, variables, data types, Operators with its types and expressions in C, input output functions (printf and scanf), header files, control statement: if else, while, do while, for, switch.	8	2
3	Programs in C	Addition, subtraction, multiplication and division of numbers, Calculation of areas-Square, circle, rectangle, Calculation of simple and compound interest. Even odd using if else, Use of Switch case statements, factorial of number using while do-while, Fibonacci series using for loop.	8	3
4	Advance programming concepts	Introduction to arrays (one dimensional, two dimensional), introduction to strings, functions-function declaration, definition, function calling, Introduction to Structures, Unions, Pointers.	8	4
5	Introduction to Object Oriented Programming	Introduction to Object Oriented Programming- Object oriented approach, limitation of procedural language, Difference between OOP & POP, Characteristics of object oriented language, Objects, Classes, Inheritance, Polymorphism, structure of C++ programs.	8	5

References Books:

C in Depth: S.K. Srivastava, Deepali Srivastava, BPB Publication.

Programming in ANSI C: E. Balaguruswamy, TMH Publication.

Object Oriented Programming with C++: : E. Balaguruswamy, TMH Publication.

e-Learning Source:

Geeks for Geeks

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
CO1	1	2			1					1			1		1
CO2	3	2		2	1					1			1		
CO3	1	1		3	1					3	1			2	
CO4		1		2						3				2	
CO5	1	2	1	1						3				2	1

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

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

Integral University, Lucknow

Integral University, Lucknow

Effective from Session: 2016/17							
Course Code	DCS-203	**Title of the Course**	Internet and Webpage Designing	**L**	**T**	**P**	**C**
Year	Ist	**Semester**	IInd	**3**	**1**	**0**	
Pre-Requisite	None	**Co-requisite**	None				
S Course Objectives							

Course Outcomes	
CO1	Students become familiar with internet, its history, present scenario, applications and its relevant terminologies
CO2	Knowledge of internet connectivity options and various internet protocols and Develop understanding of different services available on the internet and various threats associated with it.
CO3	Knowledge of various types of networks and network typologies with different networking standards.
CO4	Students become familiar with Email architecture, its services and protocols associated with it
CO5	Introduced with web languages and web-page designing concepts Knowledge of HTML and the ability to develop simple web pages using HTML.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	Basic Internet Knowledge	Introduction to Internet ,history ,World Wide Web, basic Internet Terminology, Internet Applications, Commerce on the Internet, Governance on the Internet, Impact of Internet on Society – Crime on/through the Internet.	8	1
2	Different Services on the Internet.	TCP/IP – Internet Technology and Internet Protocols, Internet Connectivity, ISP,ISDN, Protocol options – Shell, SLIP, PPP, Services on Internet (Definition and Functions)E-mail,WWW, Telnet, FTP, IRC and Search Engine, Overview of Internet Security, Firewalls, Internet Security.	8	2
3	Networking Standards	Internet ,Network definition, Common terminologies: LAN, WAN, Node,Host,Workstation, bandwidth, Interoperability, Types of network: Peer to Peer, Clients Server, DNS, Network topologies, Ethernet, FDDI, ATM.	8	3
4	E Mail	Electronic Mail , Email protocols –SMTP, POP3, IMAp4, MIME6, Structure of an Email – Email Address, Email Header, Body and Attachments, Internet Video, Chatting, Social Media, e-commerce.	6	4
5	Web Languages	Internet -Languages, Web Publishing and Browsing Overview, SGML, Web hosting, HTML. CGL, Documents Interchange Standards, Components of Web Publishing, Web Page Design Consideration and Principles, Search and Meta Search Engines,HTTP, HTML Programming Basics,HTML page structure, HTML Text, HTML links, HTML tables, HTML Frames, HTML Images, multimedia.	10	5

References Books:

1. Greenlaw R and Hepp E "Fundamentals of Internet and www" 2nd EL, Tata McGraw Hill,2007.
2. Ivan Bayross, "HTML, DHTML, JavaScript, Perl CGI", 3rd Edition, BPB Publications.
3. D. Comer, "The Internet Book", Pearson Education, 2009.

e-Learning Source:

1-Solo Learn

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
CO1		3	3			1							1		
CO2		3	1			1				1			1		
CO3			3		1	1		1		2				2	
CO4		2	2		1							2			
CO5		2	2			1				3	2			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:							
Course Code	DPH-151/251	**Title of the Course**	Applied Physics Lab	**L**	**T**	**P**	**C**
Year	1st	**Semester**	1st / 2nd	**0**	**0**	**3**	
Pre-Requisite	None	**Co-requisite**	None				
Course Objectives							

Course Outcomes	
CO1	To gain practical knowledge by applying the experimental methods to correlate with the Physics theory.
CO2	Experience and understand basic physical fundamentals and the key vocabulary to describe them: basic Electronics & Electrical, kinematics, dynamics, work and energy, gravitation, fluids.
CO3	Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge.
CO4	Apply conceptual understanding of the physics to general real-world situations.

Experiment No.	Title of the Experiment	Content of the Unit	Contact Hrs.	Mapped CO
1		Determination of 'g' using simple pendulum.	2	1
2		To find the surface Tension of water by the method of capillary rise.	2	1
3		To determine the frequency of A.C. mains by using a sonometer and a horse shoe magnet.	2	1
4		To determine the value of modulus of rigidity of given material of a wire by statical method using Barton's apparatus.	2	1
5		Determination of coefficient of viscosity of water by capillary flow (Poiseuille's method).	2	2
6		To determine the height of a tower by Sextant.	2	3
7		To determine the moment of Inertia of a flywheel.	2	3
8		Determination of velocity of sound by resonance tube.	2	3
9		Determination of resistivity of a given wire by Post Office Box.	2	3
10		By using Potentiometer, determination of (i) E1/E2 (ii) Internal resistance of given cell.	2	4
11		Determination of coefficient of friction on a horizontal plane.	2	1
12		Determination of viscosity coefficient of a lubricant by Stoke's law.	2	4
13		Determination of Spring Constant.	2	4
14		Verification of Kirchoff's laws.	2	2
15		To draw the characteristics of a p-n junction diode.	2	3

Note: Any ten experiments are to be performed.

References Books:

1. Nootan Physics: Kumar & Mittal
2. Applied Physics: P.K. Gupta.
3. Pradeep Fundamental: Gogia & Gomber.

e-Learning Source:

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3												1		2	3	2
CO2	3																2
CO3	2																2
CO4	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:							
Course Code	DCAD-251	**Title of the Course**	Basic Computer Aided Design Lab	**L**	**T**	**P**	**C**
Year	First	**Semester**	Second			**2**	
Pre-Requisite	10 TH PASSED	**Co-requisite**					
Course Objectives	After the successful completion, learner will develop following attributes.						

Course Outcomes	
CO1	Students will develop good communication skills and team work
CO2	Students will become familiar with office practice and standards.
CO3	Students will become familiar with Auto Cad's two dimensional drawings.
CO4	Student's ability to convert sketches into engineered drawings will increase.
CO5	Students will be able to draw orthographic projections and sections.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1	AutoCAD	To study of Auto CAD software	2	CO1
2	Sketch and drafting	Study And Sketch of drafting setting.	2	CO2
3	Dimensional sketch	Study and sketch of Dimensional setting	2	CO3
4	Draw geometrical figure	Draw geometrical figure using drawing commands	2	CO4
5	Modify figure Scaling	To modify a geometrical figure using editing comment.	2	CO5
6	Orthographic	To draw orthographic view of a geometrical figure.	2	CO1
7	Isometric view	To Draw isometric view of a geometrical figure.	2	CO2
8	Different view	To Draw top front and side view of an isometric figure.	2	CO3
9	Sectional view	To draw sectional view of a solid object.	2	CO4
10	Scaling	To do practical on page set up & scaling of drawing.	2	CO5

References Books:

Autocad book by Rohit Mongia

Integral University, Lucknow

e-Learning Source:
https://www.googleadservices.com
https://www.googleadservices.com

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	2	3	2	2	1	1	3	3	3	1
CO2	2	2	3	2	1	1	2	3	1	1	3
CO3	1	3	1	2	2	1	2	1	3	3	2
CO4	2	3	2	2	1	2	3	2	1	2	3
CO5	2	2	3	2	3	1	3	2	2	1	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: 2016-17							
Course Code	DCS- 252	**Title of the Course**	Programming in C and C++ Lab	**L**	**T**	**P**	**C**
Year	1st	**Semester**	2nd	**0**	**0**	**2**	
Pre-Requisite		**Co-requisite**					
Course Objectives	To develop basic knowledge and understanding of C and C++ programming languages.						

Course Outcomes	
CO1	Students become familiar with Algorithms and Flowchart.
CO2	Develop practical approach using input and output function.
CO3	Develop practical approach using various c operators.
CO4	Knowledge of Control Statements like if, else if, switch case, While, Do While and For loop.
CO5	Develop practical approach using Array, Pointer, Structure and Union.

Practical No.	List of Practicals	Contact Hrs.	Mapped CO
1	To write algorithms for sample programs.	02	CO1
2	To draw the flowchart for sample programs.	02	CO2
3	To write a C program for formatted input and output statements.	02	CO2
4	To write a C program for various operators in "C".	02	CO3
5	To write a C program for decision control with if else statements and switch case statement.	02	CO3
6	To write a C program for Looping statements.	02	CO4
7	To write a C program for single dimensional integer arrays.	02	CO4
8	To write a C program for two dimensional integer arrays.	02	CO-4
9	To write a C program for string functions.	02	CO-5
10	To write a C program using structure and pointers.	02	CO-5

References Books:

1.Computer fundamental- Sinha & Sinha

2.Computer Basics & 'C'- V. Rajaraman

3.Office 2007 -Ruthosky, Seguim, Ruthosky

4.Programming in ANSI- E Balagurusamy

e-Learning Source:

Geeks for Geeks

PO-PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
CO1	3	2		2	1					1			1	1	
CO2	3	2		2	1					1			1		
CO3	1			2	1					3	1			2	
CO4		1		1						3			1		
CO5		2	1	1						3	1			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: 2016-17							
Course Code	DCS- 253	**Title of the Course**	Internet & Web Page Designing Lab	**L**	**T**	**P**	**C**
Year	1st	**Semester**	2nd	**0**	**0**	**2**	
Pre-Requisite		**Co-requisite**					
Course Objectives	To develop basic knowledge and understanding of The Internet,scripting language.						

Course Outcomes	
CO1	Students become familiar with the concept of Internet and how the internet and web functions in real world scenario.
CO2	Knowledge of using Email and various services and functionalities associated with it
CO3	Students will learn the basics involved in publishing content on the world wide web.
CO4	Introduced with the basics of hyper text markup language and Students will be able to analyze a web page and identify its elements and attributes.
CO5	Develop the ability to create and design web pages using various attributes of html language.

Practical No.	List of Practicals	Contact Hrs.	Mapped CO
1	**Internet Surfing** a) Open the website of Yahoo! with the help of Internet Explorer or Netscape Browser b) Check the properties of your browser. c) Change the Home Page of your browser. d) Check the History and clear the history. e) Create a Bookmark.	02	CO1
2	**Email** a) Create your email account on any of the familiar email services like hotmail, yahoo, rediffmail etc. b) Get the email addresses of five of your classmates. Add them to the address book of your email program. Send them each an email. c) Receive an email from a friend. d) Attach a document to the email. e) Retrieve an attachment from an email received.	02	CO2
3	**Explore Search Engines** a) Open the search engines Google. b) Check the Advanced Search Options of Google. c) Open the search engines Yahoo and search for „Indian Railway"	02	CO2
4	Web Page Development -HTML Create a basic web page.	02	CO3
5	Create a web page containing information about you, your family and friends.	02	CO3
6	Format the text of your web page in different Font, Alignment styles. Move the cursor to a sub-title and set it to Heading2.	02	CO4
7	Experiment with the different heading styles.	02	CO4
8	Add a picture to your web page	02	CO-4
9	create a job application form Create an area called section one and place text boxes that receives details a) Name b) Age c) Gender d) High School e) Qualifications	02	CO-5
10	Create an area called section two and place text boxes that receives details - a) Previous Employment b)References c) Qualification d)At the end place a submit button	02	CO-5

References Books:

1.Computer fundamental- Sinha & Sinha

2.Computer Basics & 'C'- V. Rajaraman

3.Programming in ANSI- E Balagurusamy

e-Learning Source:

1. Geeks for Geeks

2. W3 School

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3	PSO4
CO1	1		3		1	1				1			1	1	
CO2	1	1	3		2	2		1		1			1		
CO3		1	2		1	3		1	2					2	
CO4			1		1				3	1	1		1		
CO5			1		1				3	3	1			2	

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

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