

**WBSCTVESD Curriculum for full time  
Syllabus For Diploma in 3D Animation And Graphics**

**3D Animation And Graphics: Semester II**

Sl No.	Category of courses	Code no.	Course Title	L	T	P	Contact Hours	Credit	Marks
1	Basic Science		Mathematics II	3	1	0	4	4	100
2	Basic Science		Applied Physics II	2	1	0	3	3	100
3	Engg. Science		Introduction to IT Systems	2	0	0	2	2	100
4	Engg. Science		Introduction to Multimedia Application	2	1	0	3	3	100
5	Engg. Science		Introduction to Graphics Design	2	1	0	3	3	100
6	Basic Science		Applied Physics II Lab	0	0	2	2	1	100
7	Engg. Science		Introduction to IT Systems Lab	0	0	4	4	2	100
8	Engg. Science		Multimedia Application Lab	0	0	2	2	1	100
9	Engg. Science		Introduction to Graphics Design Laboratory	0	0	2	2	1	100
10	Audit		Indian Constitution	2	0	0	2	0	100
<b>Total Credits</b>								<b>20</b>	<b>1000</b>

## Syllabus of Mathematics-II

Course Title:	Engineering Mathematics-II
Course Code:	BS102/M-II
Number of Credits:	4(L: 3+T: 1) P: 0
Pre-Requisites:	Knowledge of the basic Co-ordinate Geometry, Statistics & Differential calculus
Total Contact Hours:	60 hrs.

**Aim:** Mathematics is the backbone of engineering students. The curriculum of mathematics has undergone changes from time to time in accordance with the need of engineering branches. The syllabus has been designed in keeping view the emerging needs of all categories of students. Great emphasis has been given on the application of various contents. This course will develop analytical abilities to make exact calculations and provide a continuing educational base for the students.

**Course Objectives:** After the completion of the course, the students will be able to

- i) apply the knowledge of Cramer's rule and matrix inversion for finding the solutions of Linear Simultaneous Equations.
- ii) apply the equations of a straight line, circle, conic section in solving the practical problems.
- iii) apply the various techniques of evaluating integration and various methods of finding complete primitive of ordinary differential equations of 1<sup>st</sup> order and second order for solving engineering problems.
- iv) use the concept of partial differentiation in solving physical problems.
- v) analyze the Statistics and Probability in a real situation.

### Unit-1

#### Determinants & Matrices

10 Hours

##### 1.1 Determinant:

4

1.1.1 Definition and expansion of determinants of order 2 & 3. Minors and cofactors

1.1.2 Elementary properties of Determinants (statements only) & simple problems

1.1.3 Chios Method for 4<sup>th</sup> order determinant

1.1.4 Solution of linear simultaneous equations (up to 3 unknowns) by Cramer's Rule.

##### 1.2 Matrix:

6

1.2.1 Definition of Matrix and its order.

1.2.2 Different types of Matrices.(rectangular, square, row, column, upper triangular, lower triangular, diagonal, scalar, identity, null)

1.2.3 Equality of two matrices

1.2.4 Addition, subtraction, multiplication of a matrix by a scalar and multiplication of two matrices

1.2.5 Transpose of a matrix, symmetric & skew symmetric matrices, simple problems

1.2.6 Singular & non-singular matrices, adjoint and inverse of a matrix of order 3

# Syllabus of Mathematics-II

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## Unit-2

Co-ordinate Geometry (only 2-dimension) 13 Hours

2.1 Coordinate System 3

2.1.1 Cartesian & Polar Coordinate system & their relations.

2.1.2 Distance between two points, internal & external division of a line segment & simple problems.

2.1.3 Area of a triangle and condition of collinearity.

2.2 Straight Line 4

2.2.1 Gradient (slope) of a straight line

2.2.2 Equations of straight line in various standard forms (no proof) (slope-intercept form, slope-point form, intercept form, two point form) & simple problems

2.2.3 Angle between two straight lines- conditions of parallelism and perpendicularity & simple problems

2.2.4 Perpendicular distance from a given point to a line, perpendicular distance between two parallel lines

2.3 Circle: 2

2.3.1 Equation of a circle - centre-radius form, diameter form, simple problems

2.3.2 General equation of a circle and its centre and radius. Simple problems

2.4 Conic Section: 4

2.4.1 Definition of conic section, vertex, axis, eccentricity, focus, directrix, latus rectum & problem

2.4.2 Standard equations of parabola and ellipse, simple problems

## Unit-3

Integral Calculus 15 Hours

3.1 Indefinite integral 8

3.1.1 Definition of Integration as inverse process of differentiation.

3.1.2 Rules for integrations (sum, difference, scalar multiple)

3.1.3 Integration of standard functions

3.1.4 Integration by substitution

3.1.5 Integration by parts

3.1.6 Integration by partial fraction

3.2 Definite Integral 7

3.2.1 Definition of definite integral & simple problems

3.2.2 Properties of definite integral with simple problems.

3.2. Application of definite integral -i) area of bounded region ii) Volume and surface area of solid generated by revolving an area about x and y-axis

# Syllabus of Mathematics-II

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## Unit-4

Ordinary Differential Equation	10 Hours
4.1 Definition of ordinary differential equation, order & degree.	1
4.2 Solution of Differential equation of First order and first degree	5
4.2.1 Separation of Variables	
4.2.2 Homogeneous type	
4.2.3 Exact type	
4.2.4 Linear type	
4.3 Solution of Linear Second order Differential equations with constant coefficients	4
4.3.1 Complementary Functions (C.F)	
4.3.2 Particular Integral for polynomial function, $e^{ax}$ , $\sin$ and $\cos$ , $[(-) \neq 0]$ , where V is a polynomial function. Simple problem.	

## Unit-5

Partial Differentiation	3 Hours
5.1 Definition & meaning of partial derivative.	
5.2 Evaluation of partial derivatives.	
5.3 Definition & examples of homogeneous functions.	
5.3 Euler's theorem (1st order) on Homogeneous functions for 2 variables (without proof). Problems.	

## Unit-6

Statistics & Probability	9 Hours
6.1 Statistics	5
6.1.1 Definition & examples of frequency distribution.	
6.1.2 Measure of Central Tendency (mean, median, mode) for ungrouped and grouped frequency distribution.	
6.1.3 Measures of dispersion-Standard deviation, Simple problems	
6.2 Probability	4
6.2.1 Definition of random experiment, sample space, event, occurrence of events & types of events (eg. Impossible, Mutually exclusive, Exhaustive, Equally likely)	
6.2.2 Classical definition of probability, simple problems	

## **Syllabus of Mathematics-II**

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### **Examination Scheme:**

#### **A. Semester Examination pattern of 60 marks:**

- 1. Objective questions- 20 marks (1 mark for each question), (At least 5 questions from each Group)**
- 2. Subjective questions- 40 marks (At least one question of 10 marks from each Group)**

**Group- A contains Unit-1 & Unit-2 (At least 20 marks); Group-B contains Unit-3 (At least 20 marks); Group-C contains Unit-4 (At least 20 marks) , Group-D contains Unit-5 & Unit-6 (At least 20 marks)**

**N.B.- Student will answer objective type questions of 20 marks and for subjective questions of 40 marks, taking one question from each group of the above four groups.**

#### **B. For the internal Assessment 40 marks:**

- 1. Class Test Examination/Internal Examination: 20 marks; choose best two out of three Class Test Examinations/ Internal Examinations**
- 2. Class Attendance: 10 marks**
- 3. Viva/ Quiz/Presentation/Assignment/Project/Report etc.: 10 marks**

## Syllabus of Mathematics-II

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### Text Books & Reference –

1. Higher Engineering Mathematics, B. S. Grewal, Khanna Publishers, New Delhi
2. Engineering Mathematics, Konch & Dey, Bhagabati Publication
3. Numerical Analysis, N. Islam, Academic Press
5. Introduction to Integral Calculus, rohde, Jain, Poddar, Ghosh, Wiley
6. Higher Algebra: Abstract And Linear, SK Mapa, Sarat Book House
7. Analytic Geometry Two & Three Dimensional and Vector Analysis, R. M. Khan, New Central Book Agency
8. Probability & Statistics for Engineers, Richard A. Jonson, Prentice Hall of India
9. An Introduction to Differential Equations, Ghosh, Maity, New Central Books Agency
10. Higher Engineering Mathematics, B. S. Grewal, Khanna Publishers, New Delhi
11. Engineering Mathematics, A. Sarkar, Naba Publication
12. Engineering Mathematics, Konch & Dey, Bhagabati Publication
13. Engineering Mathematics, Babu Ram, Pearson
14. Diploma Engineering Mathematics, B. K. Paul, U.N.Dhar & Sons
15. Engineering Mathematics, V. Sundaram, R. Balasubramanian, K.A. Lakshminarayanan, Vikas Publishing House.
16. Web portal: <https://www.ndl.gov.in/homestudy/science>  
<https://ncertbooks.ncert.gov.in/login>  
<https://epathshala.nic.in/>  
<https://webscte.co.in/>  
<https://en.wikipedia.org/wiki/>  
<https://openlibrary.org/>  
<https://www.youtube.com/>  
<http://content.inflibnet.ac.in/>  
<https://doabooks.org/>  
<https://www.oopen.org/home>  
<http://www.gutenberg.org/>
17. Apps in Google Play Store: National Digital Library e-Granthalaya  
NSDC eBook Reader: Kaushal ePustakalaya  
ePathshala  
IGNOU e-content

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## Sem-II(Theory), Applied Physics –II

<b>Course Code</b>	<b>:</b>	<b>BS104</b>
<b>Course Title</b>	<b>:</b>	<b>Applied Physics –II</b>
<b>Number of Credits</b>	<b>:</b>	<b>3 (L: 2, T: 1,P: 0)</b>
<b>Prerequisites</b>	<b>:</b>	<b>High School Level Physics</b>
<b>Course- Category</b>	<b>:</b>	<b>BS</b>

### Course Objectives

Applied Physics aims to give an understanding of this world both by observation and by prediction of the way in which objects behave. Concrete use of physical principles and analysis in various fields of engineering and technology are given prominence in the course content. The course will help the diploma engineers to apply the basic concepts and principles to solve broad- based engineering problems and to understand different technology based applications.

### Course Content

#### Unit -1: Wave motion and its applications

**Simple Harmonic Motion (SHM):** definition, expression for displacement, velocity, acceleration, time period, frequency etc. study of vibrations of cantilever and determination of its time period, Free, damped and forced vibrations with examples.

**Wave motion, transverse and longitudinal waves with examples (Sound and light waves)** definitions of wave velocity, frequency and wave length and their relationship, equation of a plane progressive wave. Principle of superposition of waves and beat formation.

**Acoustics of buildings-** reverberation, reverberation time, methods to control reverberation time , noise, coefficient of absorption of sound, Ultrasonic waves – Introduction and properties, engineering and medical applications of ultrasonic.

#### **Unit – 2: Optics**

**Basic optical laws:** reflection and refraction, refractive index, Images and image formation by thin lenses, lens & lens maker's formula, ( no deduction) power of lens, magnification simple numerical problems. Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fiber:

**Optical Instruments;** simple and compound microscope, astronomical telescope (refracting, Ray Diagram and formula for magnification). Interference and diffraction of light (Qualitative ideas only).

### **Unit – 3: Electrostatics**

**Coulombs law, unit of charge, Electric field, Electric lines of force and their properties, Electric flux, Electric potential and potential difference, Gauss law (statement only) Application of Gauss law to find electric field due to a charged sphere.**

**Capacitor and its working, types of capacitors, Capacitance and its units. Capacitance of a parallel plate capacitor (formula only), Series and parallel combination of capacitors formula (related numerical problems), dielectric and its effect on capacitance, dielectric break down.**

### **Unit – 4: Current Electricity**

**Electric Current and its units, Direct and alternating current, resistance and its units, Specific resistance, Conductance, Specific conductance, Series and parallel combination of resistances. Factors affecting resistance of a wire, carbon resistance and colour coding.**

**Ohm's law, Kirchhoff's laws, Wheatstone bridge, Carrey Foster Bridge and its applications, Concept of terminal potential difference and Electro motive force (EMF)**

**Heating effect of current, Electric power, electric energy and its units (related numerical problems) Thermoelectric effect: Seebeck &Peltier effects.**

### **Unit -5: Electromagnetism**

**Magnetic field and its origin, units**

**Lorentz force (force on moving charge in magnetic field).Biot- Savart law, Application to Straight Conductor & circular loop; concept of magnetic dipole. Force on current carrying conductor, Torque on rectangular coil placed magnetic field concept of electromagnetic induction, Faraday's Laws, Moving coil galvanometer; principle, construction and working, Conversion of a galvanometer into ammeter and voltmeter.**

**Types of magnetic materials; dia, para and ferromagnetic with their properties.**

### **Unit-6: Semiconductor Physics**

**Energy bands in solids, Types of materials (insulator, semi-conductor, conductor), intrinsic and extrinsic semiconductors, p-n junction, junction diode and V-I characteristics, Diode as rectifier- half wave and full wave rectifier (Centre taped) & circuit symbol.**

**Transistor, Block diagram types (pnp and npn)& circuit symbol, transistor as an amplifier CE mode (Circuit diagram and concept).**

**Photocells, Solar cells and LED working principle and engineering application.**

### **Unit-7: Modern Physics**

**Bohr's atom model and concept energy levels, ionization and excitation potentials, X-rays, Production (Coolidge tube) continuous and characteristic-X-rays, soft and hard X-rays, and use,**



**Laser: spontaneous and stimulated emission; Laser light; He-Ne laser elementary characteristics, applications of lasers.**

**Fiber Optics: Introduction to optical fibers, mechanism of light propagation, applications.**

**Nanoscience and nanotechnology (Introduction only).**

**Reference books:**

1. Text books of Physics for Class XI & XII (Part I & II); N.C.E.R.T., Delhi.
2. Applied Physics, Vol. I and Vol. II, TTTI Publications, Tata McGraw Hill, Delhi
3. Concepts in Physics by HC verma, Vol.I & II, Bharti Bhawan Ltd. New Delhi
4. Engineering Physics by PV Naik, Pearson Education Pvt. Ltd, New Delhi
5. Modern approach to Applied Physics-I and II, AS Vasudeva, Modern Publisers.
6. A Textbook of Optics, N Subramanyam, Brij Lal,MN Avahanulu, S Chand and Company Ltd.
7. Introduction to Fiber optics, Ajoy Ghatak and K Thyagarajan, Cambridge University Press India Pvt. Ltd, New Delhi.
8. Nanoscience and Nanotechnology, KK Choudhury, narosa Publishing House, Pvt. Ltd. New Delhi.
9. Nanotechnology: Importance and Applications, M.H. Fulekar, IK International Publishing House Pvt. Ltd., New Delhi

<b>Course Title :</b>	<b>Introduction to IT Systems Theory</b>
<b>Course Code</b>	<b>ES 102</b>
<b>Number of Credits :</b>	<b>2 (L: 2, T: 0, P: 0)</b>
<b>Prerequisites</b>	<b>NIL</b>
<b>Course Category</b>	<b>ES</b>
<b>Course code : General</b>	<b>Semester : SECOND</b>
<b>Duration : 16 weeks</b>	<b>Maximum Marks : 100</b>
<b>Teaching Scheme</b>	<b>Examination Scheme</b>
<b>Theory : - 2 hrs/week</b>	<b>Continuous Internal Assessment : 20 Marks</b>
<b>Tutorial: - 1 hr/week</b>	<b>Attendance, Assignment &amp; Quiz : - 20 Marks</b>
<b>Practical : NIL</b>	<b>End Semester Examination : 60 Marks</b>
<b>Aim:</b>	<b>Develop basic concept of Computer Science</b>

**Course Objectives::** This course is intended to make new students comfortable with computing environment - Learning basic computer skills, Learning basic application software tools, Understanding Computer Hardware, Cyber security awareness.

#### **Course Content:**

<b>Contents (Theory)</b>	<b>Hrs./Unit</b>	<b>Marks</b>
<b>UNIT 1:</b>	<b>10</b>	<b>28</b>

**Basic Internet skills:** Understanding browser, efficient use of search engines, awareness about Digital India portals (state and national portals) and college portals.

**Number system and codes:** Binary, octal, hexadecimal and decimal Number systems and their inter conversion, BCD numbers (8421-2421), gray code, excess-3 code, cyclic code, code conversion, ASCII, EBCDIC codes. Binary addition and subtraction, signed and unsigned binary numbers, 1's and 2's complement representation.

**2. Boolean Algebra:** Basic logic circuits: Logic gates (AND, OR, NOT, NAND, NOR, Ex-OR, ExNOR and their truth tables, ), Universal Gates, Laws of Boolean algebra, De-Morgan's theorem

General understanding of various computer hardware components – CPU, Memory(types), Display(modern), Keyboard, Mouse, HDD, SSD and

**other Peripheral Devices.  
Types of software**

**UNIT 2:**

**10**

**28**

**Overview of Operating Systems**

What is an OS

Brief history.

**Background and Basics**

Computer System

review Types of OS

Architecture

Basic Oss

Batch

Multi-programmed

batch Timesharing

Computer System Structures

Operating System Structures

**UNIT 3:**

**2**

**8**

**Algorithm and Flowcharts**

Algorithm

Definition

Characteristics

**Advantages and disadvantages**

Flowchart

Definition

Define symbols of flowchart

Advantages and  
disadvantages Examples

**UNIT 3:**

**7**

**20**

**HTML 5: HTML – Introduction HTML – Elements HTML – Tags HTML – Text HTML – Formatting HTML – Pre HTML – Attributes HTML – Font HTML – Text Links HTML – Comments HTML – Lists HTML – Images HTML – Image Links HTML – Tables HTML – Bgcolor HTML – Color Codes HTML – Color Chart HTML – Background Web Forms HTML – Forms HTML – Input HTML – Text Fields Hidden Fields HTML – Password HTML – Reset HTML – Submit HTML – Checkboxes HTML – Radio HTML – Select HTML – Hidden Fields HTML – Upload HTML – Textarea Special Tags HTML – Body HTML – Meta HTML – Style HTML – Div HTML – Layouts HTML – Frames Formatting Tags HTML – Bold HTML – Paragraphs HTML – Headings HTML – Line Breaks**

CSS: CSS Introduction CSS Syntax CSS Id & Class CSS How CSS Styling Styling Backgrounds Styling Text Styling Fonts Styling Links Styling Lists Styling Tables CSS Box Model CSS Border CSS Outline CSS Margin CSS Display CSS Positioning CSS Floating CSS Navigation Bar CSS Image Gallery CSS Image Opacity CSS Align  
 JavaScript: Introduction JavaScript Overview JavaScript Syntax Type of JavaScript Embedding Script In HTML File Variable Operators Arithmetic Logical Comparison Assignment Conditional Conditional Statement & Looping Statement If If. Else Switch While Do/while

**UNIT 5:**

**3**

**16**

**(Network Utilities and devices tools/project)**

- 1: Introduction to Computer Security Chapter**
- 2: Networks and Internet ( DoS Tools & Techniques – Tracert, Visual Route)**
- 3: Cyber Stalking, Fraud, and Abuse**
- 4: Denial of Service Attacks ( Scanning – WireShark)**
- 5: Malware Chapter 6: Techniques Used by Hackers.**

**Reference Book**

- 1. Computer Fundamentals by Goel, Pearson;**
- 2. Computer Architecture and Maintenance. By - Dr. Sachin Publisher - Shroff Publisher;**
- 3. Introduction to Computer Science, ITL Education Solutions Limited, Pearson.**
- 4. FUNDAMENTALS OF COMPUTERS by E Balagurusamy. McGraw Hill Education;**
- 5. Express Learning - Computer Fundamentals and Programming, By Ashok Kamthane/ITL ESL. Pearson;**

**Course outcomes:**

At the end of the course student will be able to comfortably work on computer, install and configure OS, assemble a PC and connect it to external devices, basic design of web page, protect information and computers from basic abuses/attacks.

### Syllabus For Introduction to Multimedia Application

Name of the Course : Diploma in 3D Animation And Graphics	
Name of the Subject : <b>Introduction to Multimedia Application</b>	
Course Code:	Semester : Second
Duration: 15 Weeks	Maximum Marks : 100
Teaching Scheme :	Examination Scheme:
Theory : 2 hours/week	Internal Examination: 20
Tutorial:	Class Assessment: 10
Practical:	Class Assignment : 10
Credit: 3	End Semester Examination: 60
Course Objective:	
This course enable the student to :	
	To develop the skill & knowledge about Multimedia.
	To understand the application of Multimedia in various fields
	To develop the knowledge about WWW
	To understand the uses of Multimedia authoring
	Explore the importance of text, graphics, video audio and animation in Multimedia
Course Outcome :	
After completion of this course, students will be able to :	
	Define the term Multimedia and its related terms
	Understand the World Wide Web , HTTP, HTML
	Understand the various tools of Multimedia Authoring
	Understand and apply various multimedia elements in artworks and design context

	<b>Content Details</b>	<b>Hours/Unit</b>
<b>Unit 1</b>	<b>Introduction to Multimedia</b>	
	<ul style="list-style-type: none"> <li>• Definition of Multimedia</li> <li>• Various Elements of Multimedia</li> <li>• Hardware and software used for Multimedia</li> <li>• Various types of media used in the industry</li> <li>• Application of Multimedia in various fields</li> <li>• History of Multimedia</li> <li>• Types of Multimedia</li> <li>• Multimedia skills</li> </ul>	9
<b>Unit 2</b>	<b>World Wide Web</b>	
	<ul style="list-style-type: none"> <li>• History of WWW</li> <li>• HyperText Transfer Protocol</li> <li>• HyperText Markup Language</li> <li>• Extensible Markup Language</li> </ul>	6
<b>Unit 3</b>	<b>Multimedia Authoring</b>	
	<ul style="list-style-type: none"> <li>• Concept of Multimedia Authoring</li> <li>• Features of Multimedia Authoring</li> <li>• Concept of some editing and authoring tools</li> </ul>	6

	<ul style="list-style-type: none"> <li>• Multimedia presentation and production</li> </ul>	
<b>Unit 4</b>	<b>Multimedia Elements: Text and Graphics</b>	
	<ul style="list-style-type: none"> <li>• Concept of text in Multimedia</li> <li>• Uses of Typography</li> <li>• Concept of Graphics in Multimedia</li> <li>• Types of Graphics</li> <li>• Various File Formats of graphics</li> </ul>	8
<b>Unit 5</b>	<b>Multimedia Elements: Video And Audio</b>	
	<ul style="list-style-type: none"> <li>• Concept of Video in Multimedia</li> <li>• Uses and applications of Video in Multimedia</li> <li>• Various Video File formats</li> <li>• Concept of Video Editing</li> <li>• Concept of Audio in Multimedia</li> <li>• Uses and application of Audio in Multimedia</li> <li>• Various Audio File Formats</li> <li>• Concept of Audio Editing</li> </ul>	8
<b>Unit 6</b>	<b>Multimedia Elements: Animation</b>	
	<ul style="list-style-type: none"> <li>• Concept of Animation</li> <li>• Types of Animation</li> <li>• Use of Animation in Multimedia</li> <li>• Application of Multimedia</li> <li>• Concept of 2D and 3D Animation</li> </ul>	8

Suggested Books :

1. Introduction to Multimedia by Ramesh Bangia Firewall Media
2. Introduction to Multimedia and its application by V.K.Jain
3. Elements Of Multimedia by Sreeparna Banerjee

## Syllabus for Introduction to Graphics Design

Name of the Course : DIPLOMA IN 3D ANIMATION AND GRAPHICS	
Name of the Subject: <b><u>Introduction to Graphics Design</u></b>	
Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks: 100
Teaching Scheme	Examination Scheme
Theory: 2 hrs./ week	Internal examination: 20
Tutorial:	Assessment: 10
Practical:	End semester examination: 70
Credit: 3	
Course Objective:	
This course enable the student to :	
	Identify the characteristics of graphic design.
	Discuss all types of visual art.
	Discuss all components of graphic design.
	Develop the knowledge of basic graphic design
Course Outcome :	
After completion of this course, students will be able to :	
	Understand fundamentals of graphic designing
	Understand the various tools of Graphic software
	To analyse problems and evaluates

Content Details		Hours/Unit	Marks
<b>Unit 1</b>	<b>Introduction to Graphic Design</b>		
	6: A comprehensive introduction to the essential and principal of design 7: History of design 8: What is graphic design/design as problem solving	6	10
<b>Unit 2</b>	<b>Fundamentals of Graphic Design</b>		
	4. Raster and vector graphics 5. Implementation of graphic design in modern era ( advertisement design , logo design etc) 6. Understanding of graphics design	6	10
<b>Unit 3</b>	<b>Colors in Graphic Design</b>		
	Understanding color theory for designing Importance of color in design for digital domain Understanding different layers of coloring and usage in multimedia	8	10
<b>Unit 4</b>	<b>Graphics Design in Advertisement</b>		

	3. Understanding designing for advertisement 4. Introduction to modern digital marketing 5. Role of graphic design in digital marketing	7	10
<b>Unit 5</b>	<b>Fonts &amp; Typography</b>		
	History of typography Different types of fonts and their uses Importance of fonts in graphics design	6	10
<b>Unit 6</b>	<b>Art of Graphics Design</b>		
	1. Theory of book cover design 2. The seven elements of a film poster design	6	10
<b>Unit 7</b>	<b>Graphic Design for Print /Digital media</b>		
	vi) Basic idea of graphic design for print/ digital media vii) Understanding publication elements viii) Study of various publication in print/digital media ix) Preparing graphic foe web and print	6	10

Suggested Books:

Visual Elements of Art and Design, Palmer, Frederic  
Adobe CC class room, Andrew Faulkner  
Advertising Art & Production, J. Nath  
80 challenges to sharpen your design skills, David Sherwing  
Introduction to Graphic Design, Aaris Sherin  
The non-designer design book, Robin Williams



### SEM-II(LAB), Applied Physics II Lab

Course Code	:	BS106
Course Title	:	Applied Physics II Lab
Number of Credits	:	1 (L:0, T:0, P:2)
Prerequisites	:	NIL
Course Category	:	BS

#### Course Objectives:

Concrete use of physical principles and analysis in various fields of engineering and technology is very prominent. The course aims to supplement the factual knowledge gained in the lecture by first hand manipulation of apparatus. This will develop scientific temper and help to apply the basic concepts and principles in solving engineering and technology based problems. In addition, students get necessary confidence in handling equipment and thus learn various skills in measurement.

#### List of Practicals/Activities: (To perform minimum 8 Practicals)

1. To determine and verify the time period of oscillation of a cantilever.
2. To verify laws of refraction (Snell's law) using a glass slab.
3. To determine focal length and magnifying power of a convex lens by u-v method.
4. To verify Ohm's law by plotting graph between current and potential difference.
- 5.a. To verify laws of resistances in series by P.O. box.
- 5.b. To verify laws of resistances in parallel by using Ammeter and Volt meter.
6. To verify Kirchhoff's law using electrical circuits.
7. To find resistance of a galvanometer by half deflection method.
8. To convert a galvanometer into an ammeter.
9. To convert a galvanometer into a voltmeter.
10. To verify inverse square law of radiations using a photo-electric cell.
11. To draw V-I characteristics of a semiconductor diode (Ge, Si) and determine its knee voltage.
12. To study the dependence of capacitance of a parallel plate capacitor on various factors and determine the permittivity of air at a place.

#### Recommended Books:

1. Text Books of Physics for Class XI & XII (Part-I, Part-II); N.C.E.R.T., Delhi
2. Comprehensive Practical Physics, Vol-I & II, JN Jaiswal, Laxmi Publication(P)Ltd., New Delhi
3. Practical Physics by C.L. Arora, S. Chand & Company Ltd.

<b>Course Title : Introduction to IT Systems Lab</b>	
<b>Course Code</b>	ES 108
<b>Number of Credits :</b>	<b>2 (L:, T: 0, P: 3)</b>
<b>Prerequisites</b>	<b>NIL</b>
<b>Course Category</b>	<b>ES</b>
<b>Course code : General</b>	<b>Semester : SECOND</b>
<b>Duration : 16 weeks</b>	<b>Maximum Marks : 100</b>
<b>Teaching Scheme</b>	<b>Examination Scheme</b>
	<b>Continuous Internal Assessment: 40 Marks</b>
	<b>Attendance, Assignment &amp; Quiz : - 20 Marks</b>
<b>Practical : 4 hrs/week</b>	<b>End Semester Examination: 40 Marks</b>
<b>Aim:</b>	<b>Develop basic concept of Computer Science</b>
1 Browser features, browsing, using various search engines, writing search queries	
2 Visit various e-governance/Digital India portals, understand their features, services offered	
3 <b>COMPUTER FUNDAMENDALS</b> Computer and operating system- fundamentals of computer-components of computer system-Input and Output Devices-Memory handling-Storage devices	
4 Read Wikipedia pages on computer hardware components, look at those components in lab, identify them, recognise various ports/interfaces and related cables, etc.	
5 Install Linux and Windows operating system on identified lab machines, explore various options, do it multiple times	
6 Connect various peripherals (printer, scanner, etc.) to computer, explore various features of peripheral and their device driver software.	
7 Practice HTML commands with CSS try them with various values, make your basic own Webpage	
8 MS Excel	
<b>Apply Custom Formats and Layouts</b>	<b>A Learner is able to apply skills in Advanced Excel, is able to – Format Cells, Apply Custom Values and predefined Formats Apply Borders, Design Borders Custom Formatting</b>
<b>Create advanced formulas</b>	<b>A Learner is able to Use Simple and Advanced Formulas like – Nested if, Reference formulas like –</b>

	lookup, vlookup, hlookup, count formula with conditions Index, Match, Conditional Loops, etc
<b>Use Scenarios</b>	A Learner is able to seek use Goal Seek function, alter scenarios and values in a cell to reach a goal.
<b>Create Advanced Charts</b>	A Learner can tell where to use what type of charts, and obtain graphical Charts in various scenarios 3D-Graphs, Bar Charts, Pie Chart, Histograms, Line Graph, Sparklines, trend, etc.
<b>Pivot tables &amp; charts</b>	A Learner is able to Apply Pivot Tables, Design Pivot Table, Customize Values,
<b>Manage and Share Workbooks</b>	A Learner is able to Share Workbook Online, email, save on cloud, edit it Online in Google Sheets, Add Collaborators etc.

Create a

## 9 MS PowerPoint

Power Point presentation using slide template.  
 Create a Power Point presentation using animation.  
 Create a Power Point presentation using transition  
 Create a Power Point Presentation with Adding movie and sound.  
 Create a Power Point Presentation with Adding tables and chart etc.  
 Changing slide colour scheme in presentation.  
 Viewing the presentation using slide navigator.  
 Create, Save, Run and Print the Power Point Presentation.

## 10

Create and share files/folders in Google drive  
 Create and share Google docs.  
 Create and share Google sheets.  
 Create and share Google Forms.  
 Create and share Google slides.

### Course outcomes:

At the end of the course student will be able to comfortably work on computer, install and configure OS, assemble a PC and connect it to external devices, write documents, create worksheets, prepare presentations, web pages, protect information and computers from basic abuses/attacks.

### Reference Book

1. My Office 2016, Pearson
2. Head First Excel : A Brain-Friendly Guide. Publisher: Shroff/O'Reilly
3. My Excel 2016, Pearson

### Syllabus For Multimedia Application Lab

Name of the Course : Diploma in 3D Animation And Graphics	
Name of the Subject : <b>Multimedia Application Lab</b>	
Course Code:	Semester : Second
Duration: 15 Weeks	Maximum Marks : 100
Teaching Scheme :	Examination Scheme:
Theory & Tutorial : Nil	Attendance & Teacher Assessment: 50% of Maximum marks
Practical: 3	End semester examination: 50% of Maximum marks
Credit: 1.5	
Course Objective:	
This course enable the student to :	
	To develop the skill & knowledge about Designing and its types
	To understand the application of Designing in various fields
	To develop knowledge on Adobe Illustrator
	To create professional Designs
Course Outcome :	
After completion of this course, students will be able to :	
	Understand various types of Designing
	Understand various tools of Adobe Illustrator
	Create various Professional Designs

Content Details		Hours/Unit
<b>Unit 1</b>	<b>Concept on Designing</b>	
	<ul style="list-style-type: none"> <li>• About Designing</li> <li>• A brief history on Designing</li> <li>• Types of Graphics</li> <li>• Uses of Designing</li> <li>• Various types of software's used for Multimedia application</li> <li>• About Color</li> <li>• Concept on Color Theory</li> <li>• Use of color theory in Designing</li> </ul>	6
<b>Unit 2</b>	<b>Understanding Types of Designing</b>	
	<ul style="list-style-type: none"> <li>• Creating various types of logo on paper</li> <li>• Using typography in designing</li> <li>• Concept of Advertisement, Collage, Layout Design Social Media Post and Publication</li> </ul>	6
<b>Unit 3</b>	<b>Interface Of Adobe Illustrator</b>	
	<ul style="list-style-type: none"> <li>• Work area of Illustrator</li> <li>• Working with menus, Page setup, concept of rulers &amp; units</li> <li>• Print vs Web, Grid, Artboard, Setting preferences.</li> </ul>	6

	<ul style="list-style-type: none"> <li>• Understanding Toolbars</li> <li>• Drawing and manipulating lines, curves, arcs, etc. Pen tool and paths.</li> </ul>	
<b>Unit 4</b>	<b>Drawing with Adobe Illustrator</b>	
	<ul style="list-style-type: none"> <li>• Working with anchor points, Filling &amp; outlining.</li> <li>• Using Pencil tool, Brush Tool</li> <li>• Working with color and gradient tool &amp; Gradient meshes</li> <li>• Live Painting, Live Tracing, Converting a bitmap image into a vector image</li> </ul>	8
<b>Unit 5</b>	<b>Various Effects &amp; Text effects of Adobe Illustrator</b>	
	<ul style="list-style-type: none"> <li>• Use of various Filter Effects</li> <li>• Styles, Distortion &amp; Object creation tools.</li> <li>• Working with symbols</li> <li>• Working with transforming Objects (Scaling, Stretching, Rotating, &amp; Reflecting, Shearing)</li> <li>• Working with Pathfinder Palette</li> <li>• Working with text (formatting, fitting text to curve, wrapping, spacing, kerning, leading)</li> </ul>	8
<b>Unit 6</b>	<b>Design Making in Adobe Illustrator</b>	
	<ul style="list-style-type: none"> <li>• Creating a logo for a non-existing company with office stationery</li> <li>• Creating Brochure design for the same company</li> <li>• Designing Social Media Post</li> <li>• Designing Flyers, Flex, Banners.</li> </ul>	10

Suggested Books :

4. Adobe Illustrator 2020 in Simple Steps by DT Editorial Service
5. Adobe Illustrator Classroom in a Book 2020 by Brian Wood
6. Learn Adobe Illustrator CC for Graphic Design and Illustration by Chad Chelius & Rob Schwartz.

### Syllabus for Introduction to Graphics Design Laboratory

Name of the Course : DIPLOMA IN 3D ANIMATION AND GRAPHICS	
Name of the Subject: <b><u>Introduction to Graphics Design Laboratory</u></b>	
Course Code:	Semester: Second
Duration: 15 weeks	Maximum Marks:
Teaching Scheme	Examination Scheme
Theory & Tutorial: NIL	Attendance & Teacher Assessment: 50% of Maximum marks
Practical: 2hrs./week	End semester examination: 50% of Maximum marks
	Credit: 1
Course Objective:	
This course enable the student to :	
	Identify the characteristics of graphic design.
	Discuss all types of visual art.
	Discuss all components of graphic design.
	Develop the knowledge of basic graphic design
Course Outcome :	
After completion of this course, students will be able to :	
	Understand fundamentals of graphic designing
	Learning the various tools of Graphic software

Content Details		Hours/Unit
<b>Unit 1</b>	<b>Designing</b>	
	Learning basic drawing for graphic designing Making of geometric/organic shapes and 3D forms Colour -wheel making ( with paper, board , color) Freehand practice of different types of fonts	4
<b>Unit 2</b>	<b>Fundamental of Layout Design</b>	
	Making layouts and Logo design Layout design for advertisement (poster, banner, corporate logo, letter head, business card) All types of vehicle body-part design layout Packaging design	4
<b>Unit 3</b>	<b>Manual Designing</b>	
	10. Learning designs with paper cutting, color, ink or photo cutting 11. Comics and story boarding 12. Book cover layout design 13. Film, OTT , documentary posters layout design	4

<b>Unit 4</b>	<b>Digital Design-I</b>	
	6. Logo design 7. Big size Hoarding Advertisement layout design 8. Car & vehicle body -part design layout 9. Packing of fountain designs (different type of cold drinks bottle, glass, packages design ) 10. Magazine cover design	6
<b>Unit 5</b>	<b>Digital Design-II</b>	
	14. Learning designs for digital domains 15. Comics and story boarding 16. Book cover layout design 17. Film, OTT , documentary posters layout design	6
<b>Unit 6</b>	<b>Design for Online platforms/ Social media</b>	
	Making designs for various websites Making advertisement design for different platforms/ social media Web-page layout design	6

Suggested Books:

4. Visual Elements of Art and Design, Palmer, Frederic
5. Adobe CC class room, Andrew Faulkner
6. Advertising Art & Production, J. Nath
7. 80 challenges to sharpen your design skills, David Sherwing
8. Introduction to Graphic Design, Aaris Sherin
9. The non-designer design book, Robin Williams

## INDIAN CONSTITUTION

<b>Course Code</b>	AU302
<b>Course Title</b>	Indian Constitution
<b>Number of Credits and L-T-P</b>	0 [L - 2, T - 0, P - 0]
<b>Prerequisites</b>	None
<b>Course Category</b>	AU

### Course Content

#### Unit 1 – The Constitution – Introduction

- The History of the Making of the Indian Constitution
- Preamble and the Basic Structure, and its interpretation
- Fundamental Rights and Duties and their interpretation
- State Policy Principles

#### Unit 2 – Union Government

- Structure of the Indian Union
- President – Role and Power
- Prime Minister and Council of Ministers
- Lok Sabha and Rajya Sabha

#### Unit 3 – State Government

- Governor – Role and Power
- Chief Minister and Council of Ministers
- State Secretariat

#### Unit 4 – Local Administration

- District Administration
- Municipal Corporation
- Zila Panchayat

#### Unit 5 – Election Commission

- Role and Functioning
- Chief Election Commissioner
- State Election Commission

### Suggested Learning Resources:

Sl. No.	Title of Book	Author	Publication
1	Ethics and Politics of the Indian Constitution	Rajeev Bhargava	Oxford University Press, New Delhi, 2008
2	The Constitution of India	B.L. Fadia	Sahitya Bhawan; New edition (2017)
3	Introduction to the Constitution of India	DD Basu	Lexis Nexis; Twenty-Third 2018 edition



**Suggested Software/Learning Websites:**

- a. <https://www.constitution.org/cons/india/const.html>
- b. <http://www.legislative.gov.in/constitution-of-india>
- c. <https://www.sci.gov.in/constitution>
- d. <https://www.toppr.com/guides/civics/the-indian-constitution/the-constitution-of-india/>