

Open Elective Courses Offered by Arts and Science Departments

It is mandatory for the students studying Engineering programs to choose minimum two open elective courses from basic Science and Mathematics.

OEE18R001	SCIENCE FICTION	L	T	P	C
		3	0	0	3

Syllabus

- 1. Brave New World** - Aldous Huxley
Publisher: Aldous Huxley; Perennial, Reprint edition, 1 September 1998; ISBN 0-06-092987-1
- 2. Hyperion** - Dan Simmons
Publisher: Doubleday, 1989, ISBN-0-385-24949-7
- 3. The Handmaid's Tale** -Margaret Atwood
Publisher: McClelland and Stewart, 1985, ISBN-0-7710-0813-9
- 4. Jurassic Park** -Michael Crichton
Publisher: Alfred A.Knopf, November 20, 1990, ISBN: 0-394-58816-9
- 5. The Art of Story Telling** -Know your audience – Make them care – Set the scene – Be creative with chronology – Know your punchline – Engage your audience – Use tension – End with a grand finale – Don't be limited by words – Enjoy the process.

OEE18R002	PHONETICS FOR EFFECTIVE COMMUNICATION	L	T	P	C
		3	0	0	3

- Unit I** An Overview of Articulatory Phonetics
The Airstream Mechanism, The Organs of Speech
- Unit II** The Consonants of English Classification of Consonants Sounds, Place of
Articulation, Manner of Articulation, Description of Consonants.
- Unit III** The Vowel Sounds of English
Articulation of Vowels, Cardinal Vowels, Classification and Description of Vowels, Vowel Length, Diphthongs or Vowel Glides
- Unit IV** Phonology and Phonetic Description
The Phonology of English, Transcription of Words
- Unit V** The Syllable and Consonant Clusters in English
Composition of the Syllable, Consonant Clusters in English; Accent in English
-Segment English, Word Accent, Accent and Rhythm, Strong and Weak Forms

Practical Classroom Interaction

Texts Prescribed:

Daniel Jones. **An Outline of English Phonetics**. New York, G.E Stechert & Co. 1922.

Daniel Jones. **The Pronunciation of English**. New York, G.E Stechert & Co. 1932.

Colin McIntosh: **Cambridge Advanced Learner's Dictionary**. Fourth Edition.

T.Balasubramanian: English Phonetics for Indian Students. Third Edition, 2013.

OEE18R003	Mathematical Biology	L	T	P	C
		3	1	0	3

Course Objective:

To enable the students to understand the concepts of models for single species, interacting populations and dynamics of marital interaction.

Course Outcomes:

Upon successful completion of this course, students will be able to

CO1. learn continuous population models for single species

CO2. learn discrete population models for a single species

CO3. understand models for interacting populations

CO4. Analyze the various competitive models..

CO5. model the dynamics of marital interaction.

Unit-I: Continuous Population Models for Single Species

Continuous Growth Models, Insect Outbreak Model: Spruce Budworm, Delay Models. Linear Analysis of Delay Population Models: Periodic Solutions, Real Life Problems related to Growth Model.

Unit-II: Discrete Population Models for a Single Species

Introduction: Simple Models, Cob webbing: A Graphical Procedure of Solution, Discrete Logistic-Type Model: Chaos, Stability, Periodic Solutions. Discrete Delay Models, Tumor Cell Growth.

Unit-III: Models for Interacting Populations

Predator-Prey Models: Lotka-Volterra Systems, Complexity and Stability, Realistic Predator-Prey Models, Analysis of Predator-Prey Model with Limit Cycle, Periodic Behavior: Parameter Domains of Stability.

Unit-IV: Competitive Models

Competition Models: Competitive Exclusion Principle, Mutualism or Symbiosis, General Models and Cautionary Remarks, Threshold Phenomena, Discrete Growth Models for Interacting Populations, Predator- Prey Models : Detailed Analysis.

Unit-V: Modelling the Dynamics of Marital Interaction: Divorce Prediction and Marriage Repair

Psychological Background and Data: Gottman and Levenson Methodology, Maital Typology and Modelling Motivation, Modelling Strategy and the Model Equations, Steady States and Stability.

Text Book:

1. J. D. Murray, *Mathematical Biology: I. An Introduction*, Third Edition, Springer-Verlag Berlin Heidelberg, 2002.

REFERENCE BOOKS:

1. R.M. Anderson and R. M. May, editors, *Infectious Disease of Humans : Dynamics and Control*. Oxford University Press, Oxford, 1991..
2. O. Diekmann and J. A. P. Heesterbeek. *Mathematical Epidemiology of Infectious Diseases: Model Building, Analysis and Interpretation*. John Wiley, New York, 2000.

OEE18R004	MATHEMATICAL MODELLING	L	T	P	C
		3	1	0	3

Course Objective:

To make the students to be capable of doing simple mathematical modelling using differential equations and difference equations.

Course Outcomes:

Upon successful completion of this course, Students will be able to

CO1: understand the mathematical modelling of ordinary differential equation of first order.

CO2: know about the concepts of mathematical modelling in difference equations and Linear difference equations.

CO3: know mathematical modelling through partial differential equation and study about the mass-balance equations.

CO4: know the first and second methods of obtaining partial differential equation models.

CO5: Study about the mathematical modelling through delay differential and functional equations.

Unit I:

Review of ODE and System of First Order ODE - Mathematical modelling in population dynamics-Epidemics through systems of ODE of first order - Mathematical modelling through systems of ordinary differential equations of the first order.

Unit II:

Difference Equation and its solution - Mathematical modelling through difference equations - The need for mathematical modeling through difference equations some simple models-Basic theory of linear difference equations with constant coefficients.

Unit III:

Review of PDE and solution of simple linear PDEs, Mathematical modelling through Partial differential equation -situation giving rise to Partial differential equation models-Mass-balance equations.

Unit IV:

First method of getting Partial differential equation models-Momentum balance equations the second method of obtaining PDE models.

Unit V:

Integral Equations - Solution of Simple Integral Equations - Mathematical modelling through functional Integral , delay differential and differential difference equations.

Text Book:

J.N. Kapur, Mathematical modelling, *New age international publishers*, 2005 (Reprint).

Reference Book: Frank R. Giordano, William P. Fox, Steven B. Horton , A First Course in Mathematical Modelling , *Cengage Learning Publishers*, 5th Edition, 2013.

OEE18R005	COMBINATORICS	L	T	P	C
		3	1	0	3

Course Objectives:

To enable the students to understand the concepts of permutation, combination and inclusion and exclusion principle.

Course outcomes:

Upon successful completion of this course, students will be able to

CO1. understand the rules of sum and product of permutations and combinations.

CO2. analyze the concepts of pigeonhole principle and its applications.

CO3. identify solutions by the technique of generating functions

CO4. understand the concepts of Pascal's triangle, the binomial Theorem and unimodality of binomial Coefficients.

CO5. understand the concepts of the principle of inclusion-exclusion and their applications.

Unit I - Permutations and Combinations

Four Basic Counting Principles, Permutations of sets, Combinations (Subsets) of Sets, Permutations of Multi-sets, Combinations of Multi-sets.

Unit II - The Pigeonhole Principle:

Pigeonhole Principle: Simple Form, Pigeonhole Principle: Strong Form, A Theorem of Ramsey.

Unit III - Generating Permutations and Combinations:

Generating Permutations, Inversions in Permutations, Generating Combinations, Generating r-Subsets.

Unit IV - The Binomial Coefficients:

Pascal's Triangle, The Binomial Theorem, Unimodality of Binomial Coefficients, The Multinomial Theorem, Newton's Binomial Theorem.

Unit V - The Inclusion-Exclusion Principle and Applications:The Inclusion-Exclusion Principle, Combinations with Repetition, Derangements, Permutations with Forbidden Positions, Another Forbidden Position Problem.

Text Book : Richard A. Brualdi, Introductory Combinatorics, Pearson Education, Inc, China machine press, Fifth Edition, 2009

References :

1. Miklos Bona, A walk through Combinatorics, (Second Edition), *World Scientific Publ. Co.*, 2008.
2. C. L. Liu, Introduction to Combinatorial Mathematics, *Mc Graw Hill Book Company, New York*, 1968.

OEE18R006	Industrial Chemistry for Engineers	L	T	P	C
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Course Outcome(s)					

- CO1 To apply the knowledge of electrochemistry to understand the working mechanism of batteries and sensors.
- CO2 To understand the process involved in refining of petroleum, cracking of crude oil and manufacturing of fuel gases and to analyze the flue gas.
- CO3 To understand the process of adsorption and colloidal state of materials.
- CO4 To understand the formulation of protective coatings and to know the process of manufacturing and cleansing action of soaps.
- CO5 To know the constituents, composition and manufacturing process of cement, glass and ceramics.

Unit - I: Energy Storage Devices and Sensors

Batteries - primary and secondary cells. Primary cell - Dry cell, Mercury cell. Secondary cell - Lead acid battery, Lithium battery. Solar cells & fuel cells (H₂-O₂, PEFC and SOFC) - principle, construction, working and application. Electrochemical sensors - working, application and merits.

Unit - II: Fuels and Combustion

Petroleum: Origin, refining, cracking - thermal and catalytic, reforming - thermal and catalytic, knocking and octane number, synthetic petrol - Fischer-Tropsch and Bergius method.

Fuel Gases: Large scale production, storage, hazards and uses of LPG, coal gas, water gas, producer gas, and oil gas. Combustion (Problems). Mass analysis from volume analysis and vice versa. Analysis of flue gas (Orsat's apparatus).

Unit- III: Applications of Adsorption and Colloidal State

Adsorption: Classification of Adsorption – Adsorption of Gases on Solids – Adsorption from Solutions – Applications of Adsorption.

Colloidal state: Types of colloidal solution –Preparation and purification of colloidal solutions – Characteristics of colloidal solution –Coagulation of sols – Origin of charge on colloids – Stability of colloids – Applications of Colloids – Protective colloids – Emulsions – Gels – Micelles.

Unit - IV: Organic Protective Coatings and Soaps

Paints & Varnishes: Requirements of a good paint. Primary constituents of paints, dispersion medium (solvent), binder, pigments, formulation of paints and varnishes.

Soaps: Classification of soap, manufacture of soaps by hot and cold process, cleansing action of soap and classification of detergents (anionic and cationic).

Unit - V: Siliceous Materials

Cement: Manufacture - Wet Process and Dry process, types, analysis of major constituents, setting of cement, reinforced concrete.

Glass: Composition and manufacture of glass .Types of glasses- optical glass, coloured glasses and lead glass.

Ceramics: Types- raw materials - white wares, manufacture and uses.

Reference Books:

- 1) Jain and Jain, *Engineering Chemistry*, 15th Edition, .Dhanpat Rai Publishing Company, New Delhi, 2005.
- 2) B.N. Chakrabarty, *Industrial Chemistry*, Oxford & IBH Publishing Co, New Delhi, 1981.
- 3) B.K. Sharma, *Industrial Chemistry*, 11th Edition, Goel Publishing House, Meerut, 2000.
- 4) P.P. Singh, T.M. Joesph, R.G. Dhavale, *College Industrial Chemistry*, 4th Edition, Himalaya Publishing House, Bombay, 1983.

OEE18R007	ANALYTICAL METHODS IN MATERIALS SCIENCE	L	T	P	C
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Course Outcome:

At the end of the course, the students will be able to

CO-1: knowledge about the crystallography to identify the structure of crystals

CO-2: gain depth knowledge about the Production of X-rays, X- ray diffraction methods

CO-3: an ability to develop the knowledge about the surface analytical techniques

CO-4: study the various structural properties of materials using various spectroscopical methods

CO-5: Impart knowledge on thermo gravimetric analyses and their usages in selected materials

Unit – I: Materials

Classification of Materials- Crystalline and amorphous- Crystal structure and their types-Lattice directions and planes – Miller indices –determination of Miller indices – symmetry and systematic absent-Polymers, Ceramics, Nanomaterials: Types, Properties and applications;

Unit – II: X-Ray Diffraction Methods

X-ray diffraction, Bragg’s law, Laue method, rotating crystal method, powder method, Debye-Scherrer camera, Scherrer formula for estimation of particle size, single crystal XRD-instrumentation

Unit – III: Morphological and Elemental study

Introduction to electron microscope - Surface techniques: SEM, X-ray photoelectron spectroscopy (XPS). Electron beam techniques: Transmission electron microscopy (TEM), Atomic Force microscopy (AFM), X-ray Fluorescence (XRF)

Unit – IV: Atomic And Molecular Spectroscopy

Atomic Absorption and Atomic Fluorescence Spectrometry-X-Ray Fluorescence - Principles - Instrument Components – Methods. Molecular spectroscopy: UV/Visible Molecular Absorption Spectrometry - Photo acoustic Spectroscopy. IR, Raman Spectroscopy – principles, Instrumentation, Applications

Unit – V: Heat treatment methods and thermal analytical techniques

Heat treatment methods: Calcination-sintering-annealing-quenching - Principle of differential thermal analysis, differential scanning calorimetry and thermo gravimetric analysis –instrumentation and applications

Text Books

1. Elements of X-ray diffraction, B. D. Cullity, S.R. Stock, Prentice Hall, 3rd Edition, New York, 2001.
2. Atomic and Molecular Spectroscopy: Basic concepts and Applications, Rita Kakkar, Cambridge India, 2017.

Reference Books

1. Outline of Crystallography for Biologists, David Blow, Oxford University Press, oxford, 2004
2. Surface Analysis: Principle Techniques, John C. Vickerman, Ian Gilmore, John Wiley & Sons, 2nd Edition, 2009
3. Principles of Instrumental Analysis, D.A. Skoog, F.J.Holler, S.R. Crouch, Cengage Learning US, 2017.
4. Instrumental Methods of Analysis, Hobarth Willard, Lynne Merritt, John , Wadsworth Publishing Company, 7 Sub edition, California, 1988.
5. Atomic spectroscopy, J. W. Robinson, 2nd Edition, CRC Press, Florida 1996.
6. Molecular spectroscopy, Banwell & McCash, 4th Edision, McGraw-Hill India, 2017.

OEE18R008	PHOTONICS AND OPTOELECTRONIC DEVICES	L	T	P	C
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Course Outcomes:

At the end of the course, the students will be able to

CO-1: Have the knowledge on fundamental of fibre based optical devices

CO-2: Basics of Integrated optical devices

CO-3: Learn about the opto-electronic devices

CO-4: Understanding of nanostructured materials

CO-5: Understanding of quantum devices with applications

Unit – I: Optical Fibre based Devices

Introduction to optical Fibre - Fused single mode fibre directional coupler, Polished single mode fibre directional coupler - Fibre polariser; Wavelength multiplexer and demultiplexer - Optical fibre switches and intensity modulators - Optical fibre phase modulator - Optical fibre frequency modulator - Optical fibre amplifiers

Unit – II: Integrated Optics based Devices

Optical directional coupler - directional coupler wavelength filter, polarisation splitting directional coupler - Polarisers: leaky mode polariser , metal clad polariser; Phase modulator - Optical switch - Acousto-optic devices : mode converter , tunable wavelength filter, Bragg type modulator, Bragg type deflector - Magneto-optic devices : TE-TM mode converter, modulators and switches, Ti/LiNbO₃ based optical devices.

Unit – III: Optoelectronic Devices

Semiconductor Lasers: homojunction, heterojunction and surface emitting lasers, quantum well lasers - Modulation of lasers - Photodetectors: PIN, Avalanche photodiodes - Optoelectronic modulation and switching devices - Electro-optic Devices - Optoelectronic Integrated circuits - SiO₂ / Si based optoelectronic devices.

Unit – IV: Nanophotonics

Nanocomposites: Nanocomposite Waveguides, Random Lasers, Nanocomposites for optoelectronics-Basics of nano-photonics-Introduction to MEMS and NEMS-Working principles: as micro sensors-biosensors, chemical sensors and optical sensors. MEMS/NEMS applications: Applications in automotive industry-health care-aerospace-industrial product-consumer products.

Unit – V: Quantum Devices

Low-dimensional structures: Quantum wells, Quantum wires, and Quantum dots - Density of states in low-dimensional structures - Resonant tunneling phenomena in diodes and transistors - Applications of quantum devices: quantum well and quantum dot lasers, ultra-fast switching devices, high density memories, dc and rf squids, multi-state logic circuits, long wavelength detectors - Quantum Computing (Qualitative)

Text Books:

1. Niloy K Dutta, Xiang Zhang , Optoelectronic Devices, World Scientific Publishing Company, Singapore, 2018.
2. Arthur McGurn, Nanophotonics, 1st Edition, Springer, 2018.

Reference Books:

1. Joachim Piprek, Semiconductor optoelectronic devices: Introduction to Physics and Simulation, Academic Press, United States, 2003.
2. A.K. Ganguly, Optoelectronic devices and circuits, Narosa Publications, New Delhi, 2012
3. Ray Tricker, Optoelectronics and Fiber Optic Technology, Newnes, United States, 2002
4. K Krishna Reddy M Balakrishna Rao, Nanostructures & Quantum Devices, Campus, Books International, India, 2007
5. Rahman Faiz, Nanostructures in Electronics and Photonics, Pan Stallion press, United Kingdom, 2008.
6. Guozhong Cao, Nano structures & nano materials: synthesis, properties & applications, Imperial College Press, United Kingdom, 2004
7. Todd D. Steiner, Semiconductor nanostructures for optoelectronic application, Artech House, INC., USA, 2004
8. Jia- Ming Liu, Photonic Devices, Cambridge University Press, United States, 2010 (Online publication).

OEE18R009	LASER TECHNOLOGY	L	T	P	C
		3	0	0	3

Course Outcomes:

At the end of the course, the students will be able to

CO-1: enhance the modern technological aspects in laser

CO-2: correlate the basic concept of theoretical principles in laser

CO-3: an ability to improve the knowledge of various types of laser

CO-4: enormous interest to study the various properties of laser.

CO-5: knowledge of laser applications in various engineering fields

Unit - I: Absorption and Emission of Radiation

Concept of coherence – spatial and temporal - Conditions for Producing Laser - spontaneous and stimulated emission - Population Inversion-different methods- Einstein coefficients – negative absorption – Gain and Gain saturation - Saturation intensity - shape and width of spectral lines.

Unit - II: Threshold Condition and Resonators

Rate equations – optical excitation in three and four level lasers – standing waves in laser – cavity theory – dichroic filter – modes, diffraction theory of the Fabry – Perot interferometer – Types of resonators – stability diagram

Unit - III: Types of Lasers

Principle, construction, working- Gas lasers : He-Ne laser, CO₂ laser - Liquid lasers: dye lasers - Solid state laser: Ruby laser, Nd-YAG laser.

Unit - IV: Ultrafast Photonics and Laser Q Switching

Introduction to ultrashort pulse lasers and amplifiers – wavelength conversion – time-resolved experiments – applications of ultrashort pulses – Mode locking – second harmonic generation – theory and experiment – materials for optical second harmonic generation

Unit - V: Applications

Measurement of distance, velocity, rotation with lasers – laser in communications and computer technology– holography – industrial applications – cutting, drilling & welding – lasers in medicine – lasers in research and development.

Text Books:

1. M N Avadhanulu and P S Hemne, An Introduction to Laser Physics, 1st Edition, S. Chand Publication, India, 2012.
2. Leon Goldman, Applications of Laser, 1st Edition, CRC Press, United States, 2018.

Reference Books:

1. Simon Hooker & Colin Webb “Laser Physics” Oxford Press, United Kingdom, 2010.
2. William T. Silfvast “Laser Fundamentals” Cambridge University Press, Second Edition, United Kingdom, 2008.
3. William S. C. Chang “Principles of Lasers and Optics” Cambridge University Press, United Kingdom, 2007.
4. Yehoshua Y. Kalisky “The Physics and Engineering of Solid State Lasers” SPIE Press, United States, 2006.
5. Mark Csele “ Fundamentals of light sources and lasers” John Wiley and sons, New Jersey, 2004

OEE18R010	PRINCIPLES OF TAXATION	L	T	P	C
		3	1	0	3

Unit-1

Meaning of Tax – Definition of Tax - Types of Tax- Objectives of Taxation - Difference between Direct tax and Indirect Tax – Tax Authorities.

Unit-2

Characteristics of tax -Canons of taxation- Characteristics of good tax system - Tax Avoidance - Tax Evasion - Tax Planning - Impact of tax - Incidence of Tax.

Unit-3

Income tax - Important Definitions - Residential status of Assessee - Incomes Exempt from tax –Deductions - Advance tax - PAN.

Unit-4

Heads of Income of Individual – Income from Salary – Income from House property – Income from Business or Profession – Income from Capital gain – Income from other Sources – Filing of Returns.

Unit-5

Service Tax - Custom Duty – Entry Tax (Octroi) - Purchase Tax - GST - Goods & Services Tax Act 2017 (GST) – Registration - Accounts & Records –Assessment - Payment of tax & Refund - Search &Seizure-Appeals &Revision.

Reference Books:

1. Income tax Law and Practice – V.P.Gaur, D.B.Narang, Puja Gaur and Rajeev Puri, Kalyani Publications.
2. Business Taxation –T.S.Reddy and Y.Hariprasad Reddy, Margham Publications.
3. Direct Taxes -Dr.Vinod Singhania.
4. Business Taxation – Dinakar Pagare, Sultan Chand Publications.
5. Taxman, Basis of GST
6. Hand book of GST in India-Rakesh Garg, Sandeep Garg

OEE18R011	CYBER SECURITY	L	T	P	C
		3	1	0	3

UNIT- I: Introduction to Cybercrime: Introduction, Cybercrime, and Information Security, Who are Cybercriminals, Classifications of Cybercrimes, And Cybercrime: The legal Perspectives and Indian Perspective, Cybercrime and the Indian ITA 2000, A Global Perspective on Cybercrimes.

UNIT – II: Cyber Offenses: How Criminals Plan Them: Introduction, How Criminals plan the Attacks, Social Engineering, Cyber stalking, Cyber cafe and Cybercrimes, Botnets: The Fuel for Cybercrime, Attack Vector, Cloud Computing.

UNIT – III: Cybercrime: Mobile and Wireless Devices: Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices, Authentication service Security, Attacks on Mobile/Cell Phones, Mobile Devices: Security Implications for Organizations, Organizational Measures for Handling Mobile, Organizational Security Policies an Measures in Mobile Computing Era, Laptops.

UNIT IV: Tools and Methods Used in Cybercrime: Introduction, Proxy Servers and Anonymizers, Phishing, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan Horse and Backdoors, Steganography, DoS and DDoS attacks, SQL Injection, Buffer Overflow.

UNIT V: Cyber Security: Organizational Implications Introduction, Cost of Cybercrimes and IPR issues, Web threats for Organizations, Security and Privacy Implications, Social media marketing: Security Risks and Perils for Organizations, Social Computing and the associated challenges for Organizations.

TEXT BOOK:

Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole and Sunil Belapure, Wiley INDIA.

REFERENCE BOOKS:

1. Cyber Security Essentials, James Graham, Richard Howard and Ryan Otson, CRC Press.
2. Introduction to Cyber Security, Chwan-Hwa(john) Wu,J.David Irwin.CRC Press T&F Group

OEE18R012	CLOUD COMPUTING AND SERVICES	L	T	P	C
		3	1	0	3

Unit-I:

Understanding Cloud Computing: Beyond the Desktop: An Introduction to Cloud Computing – Are you ready for Computing the Cloud – Developing Cloud Services.

Unit-II:

Cloud Computing for Everyone: Cloud Computing for the Family – Cloud Computing for the Community– Collaborating on Group Projects and Events – Cloud Computing for the Corporation.

Unit-III:

Using Cloud Services: Collaborating on Calendars, Schedules and Task Management – Collaborating on Event Management – Collaborating on Contact Management – Collaborating on Project Management.

Unit-IV:

Collaborating on Word Processing - Collaborating on Spreadsheets - Collaborating on Databases – Collaborating on Presentations – Storing and Sharing Files and other Online Content – Sharing Digital Photographs – Controlling it all with Web-Based Desktops.

Unit-V:

Outside the Cloud: Other Ways to Collaborate Online: Collaborating via Web-Based Communication Tools - Collaborating via Social Networks and Groupware - Collaborating via Blogs and Wikis.

Text Book:

“Cloud Computing” Michael Miller, Pearson publication, 2013

Reference;

“Cloud Computing” , Dr.Kumar Saurabh ,Wiley India ,2011

OEE18R013	ANIMATION TECHNIQUES	L	T	P	C
		3	0	0	3

Prerequisite: Basic Knowledge in Computer Graphics.

Course Description:

An introduction to the practice, theory, and history of animation within art and independent media through labs, lecture, readings and project critiques.

Course Outcome:

CO1: Understanding the need of animation.

CO2: Understanding the techniques in 2D Animation.

CO3: Understanding the techniques in 3D Animation.

CO4: Understanding the formats in motion caption, software's and script animation language.

CO5: Understanding the content developing, story developing and 3D Animation Movies.

UNIT I:

What is mean by Animation – Why we need Animation – Types of Animation 2D & 3D – Theory of 2D Animation – Theory of 3D Animation – Difference between Graphics & Animation – Application of 2D & 3D Animation – History of Animation – Software's.

UNIT II:

Traditional 2D Animation Concept – Types of 2D Animation – Techniques of 2D Animation – Color – Text – Formation – Size – Script Animation – Timeline Effects – Application of 2D Animation – Characterization 2D – Principle of 2D Animation – Concept Development.

UNIT III:

3D Animation & its Concepts – Types of 3D Animation – Cycle & Non-Cycle Animation – Theory of Character 3D Animation – 3D Transition Animation – Skeleton & Kinetic 3D Animation – Texturing & Lighting of 3D Animation – 3D Camera Tracking – Applications & Software of 3D Animation.

UNIT IV:

Motion Caption – Formats – Methods – Usages – Motion Capture Software – Merge with Software – Expression – Formats – Methods – Usages – Expression Capture Software's

– Script Animation Usage – Different Language of Script Animation Among the Software.

UNIT V:

Concept Development – Scripting – Story Developing – Output Formats – Audio Formats & Video Formats – Colors – Color Cycle – Color Formats – 3D Production Budgets – 3D Animated Movies – Fields in 3D Animation.

TEXT BOOK:

1. Tom Meade, Shinsaku Arima, Maya 8.0: The Complete Reference, Tata McGraw Hill, 2016.

REFERENCE BOOK:

1. Adobe Creative Team, Adobe Flash Professional CS6 Classroom in a Book, Adobe Systems Incorporation, USA, 2012 .
2. Paul Wells, Basics Animation 03: Drawing for Animation, AVA Publishing, Switzerland, 2009.
3. Tony White, How to Make Animated Films, Focal Press, USA, 2009.

OEE18R014	INTRODUCTION TO WEB DESIGN AND APPLICATIONS	L	T	P	C
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Prerequisite: Basic Knowledge in Internet and Designing Skills.

Course Description:

An introduction to the Internet and Designing of web pages.

Course Outcome:

CO1: Understanding the basics of mailing features.

CO2: Understanding the concept of Internet.

CO3: Ability to know the working of Search engines.

CO4: Able to create web pages using HTML.

CO5: Understanding the applications of Internet.

UNIT I:

Fundamentals of Electronic Mail : Introduction - Email :Advantages and Disadvantages – User ids, Passwords and Email addresses - Message Components - Message Composition - Mailer Features - E mail Inner Workings - Email Management - MIME Types . Browsing and Publishing ; Introduction – Browser bare bones – Coast – to – Coast surfing – Hyber Text Markup Languages – Web page installation – Web page set up – HTML formatting and hyper link creation .

UNIT II:

The internet: Introduction – internet defined – internet history – the way the internet works – internet congestion – Internet culture – Business culture and the internet – collaborative computing and the internet. World Wide Web: introduction the web defined – web browser details – web writing styles – web presentation outline, design , and management – registering web pages.

UNIT III:

Searching the World Wide Web: introduction – directories, search engines and Meta search engines – search fundamentals – search strategies – how does a search engine works. Telnet and FTP : introduction – telnet and remote login – File transfer – Computer Viruses .

UNIT IV:

Basic HTML: introduction – semantic versus syntactic – based style types – headers and footers – lists – tables – debugging. Advanced HTML: introduction – frames – html forms – CGI scripts – dynamic documents – html tools – next generation html – cascading style sheets.

UNIT V:

News groups, Mailing Lists, Chat rooms and MUDs: introduction – news groups and mailing lists history – mailing list fundamentals – newsgroups and mailing lists availability – chat-rooms – MUDs. Electronic Publishing: introduction – electronic publishing advantages and disadvantages – copy right issues – project Gutenberg and on-line books – electronic journals, magazines and news papers – miscellaneous publishing issues.

TEXT BOOK: Raymond Greenlaw, Ellen Hepp , Fundamentals of the INTERNET and the World Wide Web, Second Edition , Tata McGRAW –Hill Edition, 2005.