**Detailed Syllabus**
**Lab-wise Breakup**

| | | | | | |
|---|---|---|---|---|---|
| **Course Code** | 24B15EC111 | **Semester:** Odd **(specify Odd/Even)** | | **Semester:** 1st **Session** 2025-26 **Month from:** July to December | |
| **Course Name** | Basic Electronics Lab | | | | |
| **Credits** | 1 | | **Contact Hours** | 2 | |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Hemant Kumar, Abhishek Kashyap |
| | **Teacher(s) (Alphabetically)** | Aastha Sharma, Aanchal Agarwal, Abhijeet Uppadhay, Abhishek Kashyap, Ankur Bhardwaj, Ajit Kumar, Bhartendu Chaturvedi, Bhuvneshwari, Divya Kaushik, Hemant Kumar, Ishwar Chandra Yadav, Jyothi Mishra, Kapli Dev Tyagi, Mandeep Narula, Madhu Jain, Megha Aggarwal, Nitin Munchal, Nilufar Yasmin, Parul Arora, Ramanand Bisauriya, Rituraj, Samriti Kalia, Salman Khan,Vimal Kumar Mishra, Vinay Tikkiwal |

| **COURSE OUTCOMES -** At the end of the course, students will be able to: | | **COGNITIVE LEVELS** |
|---|---|---|
| EBEC141.1 | Recall various electronic components and working of basic measuring instruments | Remembering (C1) |
| EBEC141.2 | Understand the input-output characteristics of BJT | Understanding (C2) |
| EBEC141.3 | Verify Kirchhoff's laws and apply network theorems to solve DC circuit | Applying (C3) |
| EBEC141.4 | Analyze operational amplifier in various configurations and characteristics of basic diodes including their applications | Analyzing (C4) |

| **Module No.** | **Title of the Module** | **List of Experiments** | **CO** |
|---|---|---|---|
| **1.** | Introduction to basic electrical equipment and components | Introduction to various components (Resistor, Capacitor, Inductor, and IC) and instruments Multimeter, Bread board, Regulated D.C. power supply, and CRO. | C141.1 |
| **2.** | Basic Circuit Analysis | Verification of KVL and KCL using a given circuit. | C141.3 |
| **3.** | Basic Circuit Analysis | Verification of Superposition theorem. | C141.3 |
| **4.** | PN Junction diode and Applications | To study the forward bias I-V (current-voltage) characteristics of a simple p-n junction diode. Also determine the forward resistance of the diode | C141.4 |
| **5.** | PN Junction diode and Applications | To observe the output waveform of half/full wave rectifier and calculate its ripple factor and efficiency | C141.4 |

| | | | |
|---|---|---|---|
| **6.** | Zener diode and Applications | To study the reverse bias I-V (current-voltage) characteristics of a Zener diode. Also determine the breakdown voltage, static and dynamic resistances. | C141. 4 |
| **7.** | Bipolar Junction Transistors | To plot input characteristics of a common emitter NPN BJT | C141. 2 |
| **8.** | Bipolar Junction Transistors | To plot output characteristics of a common emitter NPN BJT | C141. 2 |
| **9** | Operational Amplifier | To realize inverting and non inverting amplifier configuration using Op-Amp IC- 741 | C141. 4 |
| **10.** | Operational Amplifier | To realize adder and subtractor circuits using Op-Amp IC-741 | C141. 4 |
| **11.** | Basic Circuit Analysis | Verification of Thevenin's Theorem | C141. 3 |
| **12.** | PN Junction diode and Applications | Realization of desired wave shapes using clipper and clamper circuits | C141. 4 |
| **13.** | Virtual Lab Experiments | To plot input characteristics of a common collector NPN BJT. | C141. 2 |
| **14.** | Virtual Lab Experiments | To plot output characteristics of a common collector NPN BJT. | C141. 2 |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Mid Sem Viva | 20 |
| End Sem Viva | 20 |
| Day-to-day performance, Lab Record | 60 |
| **Total** | **100** |

**Project Based Learning:** Students will learn working of basic electronic equipment and applications of basic circuit theorems and different semiconductor devices including diodes and transistors to design circuits for various applications.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| 1. | R. L. Boylestad, and L. Nashelsky, "Electronic Devices and Circuit Theory", 11th Ed., Prentice Hall of India, 2014. |
| 2. | D.C. Kulshreshtha, "Basic Electrical Engineering", Revised 1st Ed., Tata McGraw Hill, 2017 |

| | |
|---|---|
| 3. | S.M. Sze, K.K. Ng, "Physics of Semiconductor Devices", Wiley India, 3rd Ed., 2006. |
| 4. | R. A. Gayakwad, "Op-Amps and Linear Integrated Circuits", 4th Ed., Pearson, 2000. |


**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | | |
|---|---|---|---|---|
| **Course Code** | 15B11HS112 | **Semester**: Odd | **Semester**: I **Session** 2025-26 **Month:** July-December | |
| **Course Name** | English | | | |
| **Credits** | 2 | | **Contact Hours** | 1-0-2 |
| **Faculty (Names)** | **Coordinator(s)** | Dr.Harleen Kaur (Main Campus) & Dr.Deepak Verma(Wishtown Campus) | | |
| | **Teacher(s) (Alphabetically)** | Dr Anshu Banwari, Dr Chander Shekhar, Dr Deepak Verma, Dr Ekta Singh, Dr Ekta Srivastava, Dr Harleen Kaur, Dr Kanupriya, Dr Mohua Dutta, Dr Monali Bhattacharya, Dr Nilu Choudhary, Dr Shubhayan Chakraborty | | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C114.1** | Show proficiency in basic concepts of grammar and phonetics usage. | Remembering (C1) |
| **C114.2** | Demonstrate an understanding of the basic aspects of English as a communication tool. | Understanding (C2) |
| **C114.3** | Apply grammar concepts, vocabulary skills and phonetics for effective communication and also develop effective professional writing skills. | Applying (C3) |
| **C114.4** | Analyze rhetorical devices and literature for enhancing communication skills. | Analyzing (C4) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | English as a Communication Tool | Basic aspects of English: LSRW: Listening, Speaking, Reading, Writing<br>Non-Verbal Communication: Body Language, Voice Modulation, Posture<br>Presentation Skills<br>Phonetics: Transcription, Pronunciation | 6 |
| **2.** | Grammar & Vocabulary | Tense, Aspect, Mood and Voice<br>Vocabulary Enrichment strategies | 1 |
| **3** | Language through Literature | Forms of Literature & Rhetorical Devices<br>One act Play<br>Refund by Fritz Karinthy<br>Famous Speech<br>Swami Vivekanand's Chicago Speech | 3 |
| **4.** | Professional Application/Writing | Textual Organization<br>·Notice, Agenda and Minutes<br>·Format of Report Writing | 4 |
| **Total number of Lectures** | | | **14** |

**Syllabus of Practical:**

| **Syllabus for Reading Modules** | **No. of Hours in Lab: 7** |
|---|---|
| **Practical for Learning Comprehension Strategies of Reading:**<br>Summarizing<br>Inferencing<br>Newspaper reading and comprehension<br>Relating background knowledge<br>Distinguishing between fact and opinion<br>Finding the main idea, important facts, and supporting details | 5 Hrs |
| **Practice Quick Reading through SKY Read up-Speed Up Software or SAT/CAT/IELTS exercises.** | 2 Hrs |
| **Syllabus for Listening Modules** | No. of Hours in Lab: 7 |
| **Practical for Mastering the Skill of Listening:**<br>Listening for the Main Idea; Listening for Detail: 5 Ws and H questions; Listening in sequence: for order following Through Ted Talks<br>Listening for understanding personal & social connotations through News Brief, Interviews.<br>Listening for non-verbal connotations through Audio-Videos and Movie Clips<br>Listening for Functional Language: understanding choice of words for same situation. | 5 Hrs |
| **Practice Listening through software of Sky IELTS Listening Exercises or Podcasts** | 2 Hrs |
| **Syllabus for Speaking Modules** | **No. of Hours in Lab: 7** |
| **Activities for Vocabulary Enrichment and learning Public Speaking:**<br>Practice through JAM Session- Situational Dialogues – Greetings – Taking; Leave – Introducing Oneself and Others. Making Requests and Seeking Permissions.<br>Exposure to Structured Talks - Non-verbal Communication: Practice. Practice of Phonetics, Stress and Intonation while Making a Short Speech, Extempore and Making a Presentation | 3 Hrs |
| **Practice Speaking through software of Sky Pronounce and Sanako Pronounce** | 4 Hrs |

| **Syllabus for Writing Modules** | **No. of Hours in Lab: 7** |
|---|---|
| **Grammar Practice & Exercises:**<br><br>Jumbled Paragraphs for grammar learning<br>Picking the Out of Context sentence in a Jumbled Paragraph for proper communication.<br>Application of right grammar concepts | 2 Hrs |
| **Cohesion in Writing**<br>Practical on Different forms of writing, like persuasive writing, expository, narrative, descriptive | 2 Hr |
| **Practice of Professional Writing**<br>Notice, Agenda. Minutes<br>Memorandum and Letter Format Report Writing | 3 Hrs |
| | |

| | |
|---|---|
| **Evaluation Criteria** | |
| **Components** | **Maximum Marks** |
| Mid Term | 30 |
| End Semester Examination | 40 |
| TA | 30 (Project, Lab Assessment) |
| **Total** | **100** |

**PBL Component**: Students will be asked to form groups, with a maximum of five students per group, and will be assigned a project topic on which they will submit a project report.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | C.L.Bovee, J.V.Thill, M.Chaturvedi, *Business Communication Today*,9th Ed, Pearson Education, Pvt Ltd, 2021. |
| **2.** | A. Tiwari, *Communication Skills in English*. Khanna Publishers, 2022. |
| **3.** | K. M. Quintanilla and S. T. Wahl, *Business and Professional Communication*, Sage Publications Pvt India Ltd, 2011. |
| **4.** | ] S. Kumar and P. Lata, *Communication Skills*, 1st ed. Oxford University Press, 2011. |
| **5.** | R. K. Bansal and J. B. Harrison, *Spoken English for India*, Orient Longman, 2018. |
| **6.** | M. A. Yadugiri, *The Pronunciation of English: Principles and Practice*, India: Viva Books Pvt. Ltd, 2015. |
| **7.** | A. R. Rizvi, *Effective Technical Communication*, 2nd ed. Chennai, India: McGraw Hill Education Private Limited, 2018. |
| **8.** | R. Murphy, *English Grammar in Use*, 5th ed. Cambridge, UK: Cambridge University Press, 2019. |
| **9.** | K. Mohan and N. P. Singh, *Speaking English Effectively*, 2nd ed. Delhi: Macmillan Publishers India Ltd., 2011. |
| **10.** | E. Suresh Kumar and P. A. Sreehari, *A Handbook for English Language Laboratories*. New Delhi: Foundation, 2009. |
| **11.** | F. Karinthy, "The Refund," Online. Available: https://egyankosh.ac.in/bitstream/123456789/27478/1/Unit-4.pdf. |
| **12.** | Swami Vivekananda and S. Srinivasan, "Sisters & Brothers of America: Speech at World Parliament of Religions, Chicago, 1893," Creative Space Independent Publishing Platform, 2015. |

**Detailed Syllabus**

**(**Lecture-wise Breakup)

| | | | | |
|---|---|---|---|---|
| **Course Code** | 24B11EC111 | **Semester:** ODD **(specify Odd/Even)** | **Semester:** I, **Session:** 2025 -2026 **Month from** July to December | |
| **Course Name** | BASIC ELECTRONICS | | | |
| **Credits** | 4 | **Contact Hours** | 3-1-0 | |
| **Faculty (Names)** | **Coordinator(s)** | Nidhi Tewari, Priyanka Kwatra | | |
| | **Teacher(s) (Alphabetically)** | Ajay Kumar, Amrita Kaul, Astha Sharma, Atul Kumar, Bajrang Bansal, Bhartendu Chaturvedi, Bhuwneshwari, Jaismine Saini, Jitendra Mohan, Jyoti Yadav, K. Nisha, Mohit Kumar, Megha Agarwal, Nidhi Tewari, Priyanka Kwatra, Rahul Sharma, Ravi Prakash Verma, Richa Gupta, Ruchi Singh, Shweta Srivastava, Vineet Khandelwal. | | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| EBEC120.1 | Recall the concepts of various circuit elements and Kirchhoff's laws. | Remembering Level (C1) |
| EBEC120.2 | Understand the basics of semiconductor PN junction diodes and Op-Amp, and their applications. | Understanding Level (C2) |
| EBEC120.3 | Apply network theorems to effectively solve complex DC circuits. | Applying Level (C3) |
| EBEC120.4 | Explain the operation of transistors (BJT and MOSFET) and analyze their biasing techniques. | Analyzing Level (C4) |

| Module No. | Title of Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| 1 | Basic Circuit Analysis | Kirchhoff's Laws, Voltage Divider rule, Current Divider Rule, DC circuit analysis (Nodal, Mesh), Superposition and Thevenin/Norton Theorem | 10 |
| 2 | PN Junction diode and Applications | PN Junction, Biasing the PN Junction, Current–Voltage Characteristics of a PN Junction, PN Junction Diodes, Half Wave Rectifier & Full Wave Rectifier Clipper & Clamping Circuits | 8 |
| 3 | Zener Diode and Applications | Zener Diode and applications, Line and Load Regulations of reference circuits. | 4 |
| 4 | Introduction to BJT | Introduction to BJT, operation, characteristics, Biasing and Stability | 6 |
| 5 | Introduction to MOSFET | Introduction to MOSFET, operation, characteristics and biasing | 6 |
| 6 | Op-amps and applications | Block Diagram Representation of Typical Op-Amp, Schematic Symbol, Op-Amp parameters, Ideal Op-Amp, Equivalent Circuit of Op-Amp, Op-Amp Applications: Inverting Configuration, Non-Inverting Configuration, Voltage Follower, summer, comparator, difference Amplifier, Integrator, Differentiator | 8 |
| | **Total number of Lectures** | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Mid Semester Examination | 30 |
| End Semester Examination | 40 |
| TA | 30 (Assignments, Attendance, Quiz) |
| **Total** | **100** |

**Project-based learning:** Students will learn fundamental concepts, working and applications of different semiconductor devices to develop aptitude among students to design minor and major projects. Also, the students with knowledge of BJT, MOSFETs, and OP-AMP, can design and analyze the circuits for the signal processing applications

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

Text Books


| | |
|---|---|
| **1.** | R. L. Boylestad, and L. Nashelsky, "Electronic Devices and Circuit Theory", 11th edition, Prentice Hall of India, 2014. |
| **2.** | D.C. Kulshreshtha, "Basic Electrical Engineering", Revised 1st edition, Tata McGraw Hill, 2017 |


Reference Books


| | |
|---|---|
| **3.** | R.C. Dorf and James A. Svoboda, "Introduction to Electric Circuits", 9th edition, John Wiley & Sons, 2013. |
| **4.** | Charles K. Alexander (Author), Matthew N.O Sadiku, "Fundamentals of Electric Circuits", 6th edition, Tata McGraw Hill, 2019. |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 15B11PH211 | **Semester: Even** | **Semester: II Session** 2024-25<br>**Month from: January to May** |
| **Course Name** | PHYSICS-2 | | |
| **Credits** | 4 | **Contact Hours** | 4 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | **Prof. Manoj Kumar, Dr Ravi Gupta**<br>**Prof S K Awasthi, Dr Narender** |
| | **Teacher(s)** | Prof. R. K. Dwivedi, Prof. Navendu Goswami, Prof. Sandeep Chhoker, Prof Vikas Malik, Dr P K Chauhan, Dr. Anuj Kumar, Dr. B C Joshi, Dr. Dinesh Tripathi, Dr. Manoj Tripathi, Dr. Guruprasad Kadam, Dr. Sandeep Mishra, Dr. Vaibhav Rawoot, Dr. Indrani Chakraborty, Dr Ashish Bhatnagar, Dr. Sudip Kumar Haldar, Dr R K Gopal, Dr Narinder Kaur, Dr Narender |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | Recall the basic concepts relating to electromagnetic theory, lasers, fibre optics and solid state physics. | Remembering (C1) |
| **CO2** | Illustrate the various physical phenomena with interpretation based on the mathematical expressions involved. | Understanding (C2) |
| **CO3** | Apply the basic principles in solving a variety of problems related to lasers, electromagnet theory, fiber and solid-state physics. | Applying (C3) |
| **CO4** | Analyze and examine the solution of the problems using physical and mathematical concepts involved in the course. | Analyzing (C4) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | **Electromagnetism** | Introduction of electromagnetism, Basic idea of Cartesian, Spherical polar and cylindrical coordinate systems, Basics of fields, Gradient, Divergence and Curl, Coulomb's law, Electric Flux & Gauss's law , Applications of Gauss law for Spherical and Cylindrical symmetries (all important cases), Electric field due to charged conductor, Force per unit area on the surface of the charged conductor, Laplace and Poisson's equations and their applications to solve electrostatic problems in Cartesian and cylindrical systems, Treatment of electrostatic problems using Laplace and Poisson's equations in spherical coordinate system, Maxwell's correction to Ampere's law, Displacement current, Maxwell's equations in free space and dielectric media (both differential and integral forms) Poynting's theorem (derivation) and Poynting vector, Electromagnetic waves in free space (equations and solutions) and Transverse nature of EM waves, Energy and momentum in EM waves, Radiation pressure, Propagation of EM waves through boundary, Boundary Conditions across the medium ,Reflection and Transmission of EM waves at normal incidence, Reflection and Transmission at oblique incidence- Laws of Reflection and Refraction , Oblique incidence-p polarization, Fresnel's equations, Total internal Reflection and Brewster's Law for EM waves | 19 |
| **2.** | **Lasers, Optical Fiber and their applications** | Introduction to Laser, spontaneous and stimulated emission, population inversion, Einstein A and B coefficients, Principles and working of lasers, Three level Laser Scheme, Ruby laser, Applications of lasers, Concept of optical fiber and Principle of Total Internal Reflection in optical fiber, Numerical aperture and Single, multistep & graded index fiber, Attenuation coefficient, Transmission losses in optical fiber, Applications of optical fiber: Endoscopy and sensing applications (discussion of one specific example) of an optical fiber. | 06 |
| **3.** | **Solid State Physics** | Basic ideas of Bonding, Ionic bonding, covalent bonding and Metallic Bonding, Inter-atomic coulomb forces in ionic crystals and Determination of equilibrium separation, Minimum Potential energy and determination of Madelung constant 'α 'for NaCl crystal in 1D , Lattice points and space lattice, Basis and crystal structure, Unit cell and Primitive cell, Seven crystal systems and Fourteen, Bravais space lattice, Coordination number, nearest neighbor distance, atomic radius and packing factor in crystal structure, Calculation of lattice constant, Lattice planes and Miller indices, Separation between lattice planes, Derivation and examples, X-ray diffraction, Bragg's law of X- ray diffraction, Electrical properties of metals: Classical free electron theory of conduction in metals, Quantum mechanical treatment: Quantum theory of electronic conduction in metals, Band Theory of Solids: Kronig Penney Model, Periodic Potential and Allowed Energies, Emergence of Bands, Brillouin zone: Relation with Lattice Structures, Types of Brillouin zones, Energy and Momentum , Brillouin zone: Origin of Forbidden Bands, Effective Mass, Distinction between metals, Semiconductors and insulators, intrinsic-extrinsic and direct-indirect band gap semiconductors. | 15 |
| **Total number of Lectures** | | | **40** |

| **Evaluation Criteria** | |
|---|---|
| **Components** | **Maximum Marks** |
| T1 | **20** |
| T2 | **20** |
| End Semester Examination | **35** |
| TA | **25 [**Quizzes /class tests (06 M), Attendance (05 M), Internal Assessment (04), Assignments in PBL mode (10 M)] |
| **Total** | **100** |

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Textbooks, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | D. J. Griffiths, Introduction to Electrodynamics, Prentice-Hall India. |
| **2.** | Jerrold Franklin, Classical Electromagnetism, Pearson India. |
| **3.** | G. Keiser, Optical Fiber Communications, Tata Mc Graw Hill Education. |
| **4.** | A. Beiser, Concepts of Modern Physics, McGraw Hill International. |
| **5.** | S. O. Pillai, Solid State Physics, New Age International (P) Limited. |
| **6.** | B. G. Streetman and S. Banerjee, Solid State Electronic Devices, Prentice-Hall India. |

**Project-Based Learning**: The students will do projects on applications of electromagnetic theory, lasers, fibre optics and solid-state physics. This will help them identify the role of physics in industries related to optical communication, medicine and electronics.

## Detailed Syllabus
## Lab-wise Breakup

| | | | |
|---|---|---|---|
| **Course Code** | 18B15GE111 | **Semester:** Even | **Semester:** II**; Session** 2024-25<br>**Month from:** January - June |
| **Course Name** | Engineering Drawing and Design | | |
| **Credits** | 1.5 | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Satya Narayan Patel **(Main Campus)**, Dr. Piyush Sharma **(Wish Town Campus)** |
| | **Teacher(s) (Alphabetically)** | Mr. Chandan Kumar, Dr. Gorav Gugliani, Dr. Harish Bishwakarma, Dr. Niraj Kumar, Mr. Nitesh Kumar, Dr. Piyush Sharma, Dr. Prabhakar Jha, Mr. Rahul Kumar, Dr. Satya Narayan Patel, Mr. Shwetabh Singh, Dr. Sumit Mahajan, |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C178.1** | Recall various instruments used in engineering drawing and the significance of BIS and ISO code of practice. | Remembering Level (C1) |
| **C178.2** | Illustrate the concepts of geometrical constructions and curves used in engineering practice. | Understanding Level (C2) |
| **C178.3** | Apply methods of projection to draw Orthographic projection of objects. | Applying Level (C3) |
| **C178.4** | Analyze the geometry of an object using Isometric views. | Analyzing Level (C4) |
| **C178.5** | Evaluate the technical model within computer-aided design software employing the principles of engineering drawing. | Evaluating Level (C5) |

| **Module No.** | **Title of the Module** | **List of Experiments** | **CO** |
|---|---|---|---|
| 1. | Basic Elements of Engineering Graphics | Principles of engineering graphics; conventional drawing instruments and CAD software; Convention of lines and their applications; Representative Fractions; Engineering Scales: Plain, Diagonal and Vernier Scales; Dimensioning techniques as per SP-46:2003. | **C178.1** |
| 2. | Computer Aided Drafting Interface | System requirements and User Interface- Application Menu, Quick Access Toolbar, Ribbon, Editor elements, Status Bar, Command Palette, File Tabs, Layout Tabs, Shortcut Menu, Drop-down Menus; File features: New file, Saving the file, opening an existing drawing file, creating templates; Setting up new drawing: Units, Limits, Grid, Snap, workspace.<br>Method of Specifying points: Absolute coordinates, Relative Cartesian and Polar coordinates; Draw andModify commands; Annotations; layering; Blocks; Text; Selecting VariousplottingparameterssuchasPapersize,Paper layout,drawingorientation, plot scale, plot offset,plot area,print preview. | **C178.1** |
| 3. | Geometrical and Engineering Curves Constructions | Geometrical construction of polygons; Engineering Curves: Conic sections, Cycloid and Involute. | **C178.2** |
| 4. | Orthographic Projections | Introduction of projections-orthographic, perspective, axonometric and oblique: concept and applications; First angle and Third angle method of orthographic projection and their symbols. Projection of points and straight lines including side views- auxiliary views; Line inclined to one plane, inclined with both the | **C178.3** |

| | | | |
|---|---|---|---|
| | | plane, methods for determining true Length, true Inclinations, and Traces of straight lines. | |
| 5. | Orthographic Projections of Planes and Regular Solids | Projection of Planes like circle and polygons in different positions including their traces and side views; Projection of right regular polyhedrons like prisms, pyramids and solids of revolutions like cylinder, cones inclined to both the planes- auxiliary views. | **C178.3** |
| 6. | Isometric Projections | Principles of Isometric projection – Isometric Scale, Isometric Views, Conventions; Isometric views of Lines, Planes, Simple and Compound Solids; Conversion of Isometric Views to Orthographic Views and Vice-versa. | **C178.4** |
| 7. | Branch Specific Design Project | Geometry and topology of engineered components: creation of engineering models and their presentation in standard 2D blueprint form and as 3D wire-frame and shaded solids. Basic and complex branch specific components drawing in 2D; Basic and Complex branch specific components drawing in 3D. | **C178.5** |

**Evaluation Criteria:**

| **Components** | **Maximum Marks** |
|---|---|
| Mid Viva | 20 |
| End Viva | 20 |
| TA/ Day to Day Assessment | 60 |
| **Total** | **100** |

**Project based learning**: Auto-CAD is a computer-aided software used for creating 2D/3D models of different machine & structures along with all their components to visualize and analyze the feasibility of the same well before the actual manufacturing/construction. The laboratory mainly focused on engaging the students by replicating 2D and 3D models of common engineering equipment and instrumentation diagrams that enhances student's perception of their graphic expression skills.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| 1. | Bhatt N.D., Panchal V.M. & Ingle P.R., Engineering Drawing, Fiftieth Edition, Charotar Publishing House, 2011. |
| 2. | Jain P., Gautam A. P., Maheshwari, A., Engineering Graphics and Design, Second Edition, Khanna Publishing House, 2021. |
| 3. | Kirstie P., Engineering Graphics Essentials, Fifth Edition,SDC Publications, 2016. |
| 4. | Kulkarni, D. M., Rastogi, A. P., Sarkar, A. K., Engineering Graphics With AutoCAD, 2010, PHI, 2010. |

**Software Development Lab - II**

**Detailed Syllabus**
**Lab-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 24B15CS121 | **Semester:** Even | **Semester: II Session: 2024-25**<br>**Month from:** Jan to June |
| **Course Name** | Software Development Lab - II | | |
| **Credits** | 1 | **Contact Hours** | 2 hrs |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | (J62) Lalita Mishra and Diksha Chawla<br>(J128) Aditi Sharma and Himani Bansal |
| | **Teacher(s) (Alphabetically)** | Amanpreet Kaur, AkanshaMehdiratta, Amarjeet Prajapati, Amit Mishra, Amitesh, Ankit Saini, Ankita Jaiswal, Anuja Arora, Anuja Shukla, Anupama Padha, Arti Jain, Ashish Mishra, Asmita Yadav, Bhawna Saxena, Deepika Varshney, Deepti, DevpriyaSoni, Diksha Chawla, Hema N, Himanshu Agrawal, Jasmin, Kapil Madan, Kavita Pandey, MeghSinghal, MeghaRathi, Mradula Sharma, Mukesh Saraswat, Neetu Sardana, Niveditta Batra, NiyatiAggrawal, Parul Agarwal, Prashant Kaushik, Prateek Soni, Rashmi Kushwah, Sakshi Gupta, Satya Prakash Patel, Sayani Ghosal, ShardhaPorwal, Shariq Murtuza, Shruti Gupta, Silki, Sonal Saurabh, Suma Dawn, Taj Alam, Tarkeshwar Singh, Vikas Sharma |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C173.1** | Make use of the concepts related to objects, classes, constructor, destructor, and friend function for solving real-world problems. | Apply Level (Level 3) |
| **C173.2** | Apply the principles of encapsulation, inheritance, polymorphism and abstraction in different programming problems. | Apply Level (Level 3) |
| **C173.3** | Utilize the Standard Template Library to optimize the object-oriented programming solutions. | Apply Level (Level 3) |
| **C173.4** | Develop solutions using exception handling for programming problems. | Apply Level (Level 3) |
| **C173.5** | Implement linear data structures and recursive algorithms. | Apply Level (Level 3) |

| Module No. | Title of the Module | List of Experiments | No. of Labs for the module |
|---|---|---|---|
| **1.** | OO Concepts using C++ | Write output-based C++ programs to implement the concepts of Objects, Classes, Internal representations of Objects, encapsulation, Constructors, Destructors, Function and Operator Overloading, Static and Friend Functions. | 3 |
| **2.** | Inheritance using C++ | Write programs in C++ to implement concepts of Base Class, Derived class, Method Overriding, Private and Public Inheritance, Multiple Inheritance. | 2 |
| **3.** | Polymorphism using C++ | Write programs in C++ using Virtual Functions, Pure Virtual Functions, Abstract Classes, Dynamic Dispatch, Internal representations of method tables, Operator overriding. | 1 |
| **4.** | UML/Relationship Implementation in C++ | Write programs in C++ using based on Class diagram, Relationships of Association, Aggregation, Composition, and Inheritance. | 2 |
| **5.** | Exceptions, Templates, and STL in C++ | Write programs in C++ using Exceptions, Try, Catch and Throw, Re-throwing exceptions, Exception and Inheritance, Function Templates, Overloading Functions Template, Class Templates, Collection classes and iteration protocols (STL) | 2 |
| **6.** | Introduction to Data Structures | Write programs in C++ using templates and STL to implement linear data structures like Array, Linked List, Stack and Queue and recursive algorithms to solve different problems | 4 |
| **Total number of Labs** | | | **14** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Evaluation 1 | 10 |
| Lab Test1 | 20 |
| Evaluation 2 | 15 |
| Lab Test 2 | 20 |
| Mini Project | 15 |
| Attendance | 15 |
| TA | 5 |
| **Total** | **100** |

Project based leaning: Groups of 3-4 students will choose a project topic. They will use the concepts of OOP and/or database to execute their project. In a team, they will learn how to apply the concepts for problem solving in a meaningful way.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **Text Books** | |
| 1 | Herbert Schildt, C++: The Complete Reference, McGraw-Hill Osborne Media, 4th Edition, 2017 |
| 2 | RamezElmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Pearson, 7th Edition, 2016 |
| 3 | Walter Savitch, Kenrick Mock," Absolute C++", Pearson, 6th Edition, 2016 |
| 4 | E BALAGURUSAMY, Object Oriented Programming with C++, McGraw-Hill Education (India), 8th Edition, 2020 |
| 5 | AviSilberschatz, Henry F. Korth, and S. Sudarshan, "Database System Concepts", McGraw-Hill, 7th edition, 2019. |
| **Reference Books** | |
| 1 | Cay S. Horstmann, Big C++: Late Objects, Wiley, 3rd edition, 2017 |
| 2 | Stroustrup B., The C++ Programming Language, Addison Wesley, 4th Edition, 2015 |
| 3 | Robert Lafore, Object Oriented Programming in C++, SAMS, 4th Edition, 2002 |
| 4 | John Hubbard, Schaum's Outline of Programming with C++, McGraw-Hill, 2nd Edition, 2000 |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 24B16HS111 | **Semester: Even** | **Semester: II Session: 2024-25**<br>**Month: January-June** |
| **Course Name** | LIFE SKILLS & PROFESSIONAL COMMUNICATION LAB | | |
| **Credits** | 0 | **Contact Hours** | 0-0-2 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr Kanupriya Misra Bakhru, Dr Purwa Srivastava & Dr Anshu Banwari |
| | **Teacher(s) (Alphabetically)** | Dr Amba Agarwal, Dr Anshu Banwari, Dr Ekta Singh, Dr Ekta Srivastava, Dr Harleen Kaur, Dr Kanupriya Misra Bakhru, , Dr Manas Ranjan Behera, Dr Mohua Dutta, Dr Namreeta, Dr Neha Singh, Dr Nilu Chaudhary, Dr Praveen Sharma, Dr Purwa Srivastava, Dr Shikha Kumari, Dr Yogita Naruka |

| **CO Code** | **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|---|
| C180.1 | Understand the role of Life Skills and Professional Communication for shaping a better future | Understanding (C2) |
| C180.2 | Identify one's strengths and frame professional goals. | Applying(C3) |
| C180.3 | Analyze different organizational situations and apply appropriate skills for personal and professional excellence | Analyzing(C4) |
| C180.4 | Evaluate ethical implications of decisions taken in case of ethical dilemma | Evaluating (C5) |

| Module No. | Title of the Module | List of Activities | CO |
|---|---|---|---|
| **1.** | Introduction and Overview of Life Skills and Professional Communication for lifelong success | 1. Pair and Introduce yourself<br>2. Elevator Pitch<br>3. Johari Window | **CO1** |
| **2.** | Intrapersonal Communication: Self-exploration, Setting Personal, Professional Goals with Holistic Perspectives | 4. Discover your personality<br>5. SWOC Analysis and Smart Goals | **CO2** |
| **3.** | Interpersonal Communication : Extending Intrapersonal influence for enhancing social competence to achieve win-win approach | 6. Role Play<br>7. Role Play (Lab Test 1 Evaluation) | **CO3** |
| **4.** | Workplace communication: Enhancing Creative and Critical thinking abilities and Learning to effectively communicate in a professional manner | 8. How to be Assertive?<br>9. Creativity Vs Critical Thinking<br>10. Resume Writing<br>11. Topical Group Discussion<br>12. Case Study Group Discussion (Lab Test 2 Evaluation) | **CO3** |
| **5.** | Professional Ethics : Enhancing Ethical Awareness and evaluate ethical implications | 13. Case Studies on ethical dilemma<br>14.Complete the situation | **CO4** |
| | | | |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| **Lab test 1** | **20** |
| **Lab Test 2** | **20** |
| **D2D** | **60** |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


**1.** Wadkar Alka, Life Skills for Success, Sage Publication Pvt Ltd, 2019

**2.** Kumar Sanjay, Lata Pushp, Communication Skills, Oxford University Press,1st, Ed., 2011

**3.** *Bovee, Courtland, Thill, John, Business communication Essentials: A Skills-Based Approach to Vital Business English, Pearson India, 4th Ed., 2020*

4. Bell, Arthur H, Smith, Dayle M, Islam Baharul M K, Business Communication (An Indian Adaption), Wiley India, 3rd Ed., 2022

5. Fernando, A.C, Business Ethics: An Indian Perspective, Pearson Education, 2009

6. Kamatchi, P, Business Ethics : Foundation for Corporate Social Responsibility and Governance, Wiley, 2019


**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 15B11HS211 | **Semester :ODD (specify Odd/Even)** | **Semester** :III **Session 2025-26** Month from: July-December |
| **Course Name** | Economics | | |
| **Credits** | 03 | **Contact Hours** | 2-1-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Neha Singh (Sec 62) and Dr. Anshu Banwari (Sec 128) |
| | **Teacher(s) (Alphabetically)** | Dr. Alok Kumar Singh<br>Dr. Amba Aggarwal<br>Dr. Amandeep Kaur<br>Dr. Anshu Banwari<br>Dr. Kanupriya Misra Bakhru<br>Dr.Mahima Mukhija<br>Dr. Manas Behera<br>Dr. Mukta Mani<br>Dr. Neha Singh<br>Dr. Praveen Sharma<br>Dr.Purwa Srivastava<br>Dr.Priya<br>Dr. Sakshi Varshney<br>Dr. Vandana Sehgal |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C206.1** | *Understand* the fundamental concepts of micro and macro economics. | Understanding Level(C2) |
| **C206.2** | *Apply* the concepts of opportunity cost, national income accounting and various business forecasting methods. | Applying Level (C3) |
| **C206.3** | *Analyze* the concepts of demand, supply, market equilibrium, consumer choices and production in micro-economic decision making. | Analyzing Level (C4) |
| **C206.4** | *Evaluate* the different market structures and their implications on the behavior of the firm. | Evaluating Level(C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Introduction | Economics Definition, Basic economic problems, Resource constraints and welfare maximization. Micro and Macro economics. Production Possibility Curve. Circular flow of economic activities. | 2 |
| **2.** | Basics of Demand, Supply and Equilibrium | Demand side and supply side of the market. Factors affecting demand & supply. Elasticity of demand & supply – price, income and cross-price elasticity. Market equilibrium price. | 6 |
| **3.** | Theory of Consumer Choice | Theory of Utility and consumer's equilibrium. Indifference Curve analysis, Budget Constraints, Consumer Equilibrium. | 2 |
| **4.** | Demand forecasting | Regression Technique<br>Time-series<br>Smoothing Techniques: Exponential, Moving Averages Method | 4 |
| **5.** | Production theory and analysis | Production function. Isoquants, Isocostlines, Optimal combination of inputs. Stages of production, Law of returns, Return to scale. | 2 |
| **6.** | Cost Theory and Analysis | Nature and types of cost.<br>Cost functions- short run and long run<br>Economies and diseconomies of scale | 2 |
| **7.** | Market Structure | Market structure and degree of competition<br>Perfect competition<br>Monopoly<br>Monopolistic competition<br>Oligopoly | 6 |
| **8** | National Income Accounting | Overview of Macroeconomics, Basic concepts of National Income Accounting, | 2 |
| **9** | Macro Economics Issues | Introduction to Business Cycle, Inflation-causes, consequences and remedies: Monetary and Fiscal policy. | 2 |
| **Total number of Lectures** | | | 28 (lectures) |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz+ Project+ Class Participation) |
| **Total** | **100** |

**Project based learning:** Students have to form a group (maximum 5 students in each group) and have to do an economic analysis on the topic assigned. An economic impact analysis assesses the impact of an event on the economy in a particular area. It generally measures the effect on revenue, profits, wages and jobs. The knowledge gained in conducting economic analysis will enhance student's decision-making skills.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

| | |
|---|---|
| 1. | H.C. Petersen, W.C. Lewis, *Managerial Economics*, 4th ed., Pearson Education 2001. |
| 2. | D. Salvatore, Managerial Economics in a Global Economy, 8th ed., Oxford University Press, 2015. |
| 3. | S. Damodaran, Managerial Economics, 2 nd ed., Oxford University Press, 2010. |
| 4. | M. Hirschey, Managerial Economics, 12th ed., Cengage India, 2013. |
| 5. | P.A. Samuelson, W.D. Nordhaus, S. Nordhaus,Economics,18th ed., Tata Mc-Graw Hill, 2006. |
| 6. | S.K. Misra& V. K. Puri, Indian Economy, 38th ed., Himalaya Publishing House, 2020. |


## Revised Detailed Syllabus
## Lecture-wise Breakup

| | | | |
|---|---|---|---|
| **Course Code** | 16B1NHS332 | **Semester: Even (specify Odd/Even)** | **Semester**: IV<br>**Session** 2024 -2025<br>**Month from:** January-June |
| **Course Name** | Quantitative Methods for Social Sciences | | |
| **Credits** | **03** | **Contact Hours** | **2-1-0** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Priya |
| | **Teacher(s) (Alphabetically)** | Dr. Priya |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| After pursuing the above-mentioned course, the students will be able to: | | |
| C206-3.1 | *Demonstrate* the key concepts of different quantitative methods used in social sciences. | Understanding Level- (C2) |
| C206-3.2 | *Apply* the theoretical concept to perform basic data analysis in social sciences. | Applying Level – (C3) |
| C206-3.3 | *Examine* different statistical methods and be able to discuss the merits and limitations of a particular method | Analyze Level – (C4) |
| C206-3.4 | Evaluate Multivariate techniques to assess and interpret complex datasets | Evaluation Level- (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction | Overview of quantitative research; Basic statistical concepts: population, sample, variables, and scales of measurement; Classification & Presentation of Data: Tabulation-Types of Table, Diagrammatic and Graphical presentation. Data visualization | 6 |

| | | | |
|---|---|---|---|
| **2.** | Statistical Concepts | Measures of Central Tendency, Measures of Dispersion, Measures of Association, Sampling and sample size estimation, Point estimation, Statistical Intervals based on Single sample. | 4 |
| **3.** | Hypothesis Testing | Hypothesis Testing based on single sample, Inferences based on Two samples, t, Z and chi- square and F tests | 8 |
| **4.** | Regression Analysis | Simple Linear Regression and Correlation, Multiple Regression Model | 3 |
| **5.** | Time Series Analysis | Trend Projection, Moving averages and Exponential smoothing Techniques, Index Numbers | 3 |
| **6.** | Multivariate Analysis | ANOVA, MANOVA, Factor Analysis, Discriminant Analysis | 4 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz+ Assignment+Viva-voce) |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | R. M. Sirkin, *Statistics for the Social Sciences*, 3rd ed., Thousand Oaks, CA: Sage Publications, 2006. |
| **2.** | D. C. Montgomery and G. C. Runger, *Applied Statistics and Probability for Engineers*, 3rd ed., Hoboken, NJ: Wiley, 2014. |
| **3.** | J. F. Healey, *Statistics: A Tool for Social Research*, 9th ed., Belmont, CA: Wadsworth Cengage Learning, 2012. |
| **4.** | C. R. Kothari, *Research Methodology: Methods and Techniques*, 4th ed., New Delhi, India: New Age International Publishers, 2019. |


**COs-POs Mapping:**

| CO Code | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C206-3.1 | 3 | 2 | | | | | | | | | | 2 |
| C206-3.2 | | 3 | 2 | 2 | 2 | | | | | | | 3 |
| C206-3.3 | | 3 | | 2 | | | | | | | | 3 |
| C206-3.4 | | 3 | | 3 | 2 | | | | | | | 3 |
| Average | 3.00 | 2.75 | 2.00 | 2.33 | 2.00 | | | | | | | 2.75 |

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 18B11EC213 | **Semester** Even | **Semester** IV **Session** 2024-25<br>**Month from** Jan-June |
| **Course Name** | DIGITAL SYSTEMS | | |
| **Credits** | 4 | **Contact Hours** | 3+1 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Megha Agarwal, Dr. Mandeep Narula |
| | **Teacher(s) (Alphabetically)** | Dr. Anchal, Dr. Atul Kumar , Dr. Bajrang Bansal, Dr. Bhuvneshwari, Dr. Hemant Kumar, Dr. Jasmin Saini, Dr. Monika, Dr. Vaishali, |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **EBEC207.1** | Understand the fundamentals of number system, Boolean algebra and Boolean function minimization techniques. | Understanding Level (C2) |
| **EBEC207.2** | Applying the concepts of Boolean algebrato implement combinational circuits and flip flopsusing logic gates. | Applying Level (C3) |
| **EBEC207.3** | Analyze state diagram and construct sequential logic circuits using flip flops. Also, classify the signals & systems and analyse the signals using Fourier transform. | Analyzing Level (C4) |
| **EBEC207.4** | Determine the various steps involved in the digitization and transmission of signals and evaluate their performance parameters. | Evaluating Level (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Number systems and Combinational Circuits | Number systems (Binary, Octal, Hexadecimal) conversion, BCD numbers, gray code, excess–3 code. Binary addition and subtraction, signed and unsigned binary numbers, 1's and 2's complement representation. Boolean Theorem, Canonical Forms: SOP & POS Karnaugh Map, Quine-McCluskey method, Prime Implicants, Essential Prime implicants Introductions to Logic gates, Adder, Subtractor, Multiplexer, Demultiplexer, Encoder, Decimal to BCD Encoder, Decoder, Comparator | 12 |
| **2.** | Flip Flops | SR, JK, Master Slave JK, T And D; Excitation Tables,Conversion of Flip-Flops | 3 |
| **3.** | Counters | Synchronous and Asynchronous Counters, Design ofCounters Using Flip- Flops, Registers, Shift Registers,Counters Using Shift Registers; State Diagram Design,Analysis of Sequential Circuits Using Flip-Flops | 9 |
| **4.** | Signals and systems | Signals and classification of signals: Continuous time anddiscrete time, Even and odd, periodic and non-periodic,Energy and Power signals, Basic signals: unit impulse, unitstep and unit ramp. Basic operations of signals: timescaling,time- shifting, etc. Systems and classification ofsystems: continuous and discrete, Linear and non-linear,causal and non-causal. | 5 |
| **5.** | Fourier Analysis | Fourier Series, Fourier Transform Fourier Transform pair of standard signals and properties of Fourier transform. | 3 |
| **6.** | Sampling and Pulse code modulation | Introduction to Modulation, Need of Modulation, Analogue Modulation techniques,Sampling theorem, Nyquist rate and Nyquist interval. Quantization (Mid-rise and Mid- tread) | 7 |

| | | | |
|---|---|---|---|
| **7.** | Digital modulation techniques and Line coding | PCM (modulator and demodulator), Transmission bandwidth in PCM, Signal to quantization noise ratio of PCM. ASK, FSK and PSK modulation techniques. | 3 |
| | | **Total number of Lectures** | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignment = 15, Attendance = 10 ) |
| **Total** | **100** |

**Program Based Learning:** Students will be able to design and implement the projects using decoders, comparators and multiplexers. Desiging of new flip flops, counters and shift resistors enhance the application ability in students. Analog to digital signal transimission techniques and several digital communication techniques develop latest knowledge for wireless communication based Industries.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | S. Salivahanan, and S. Arivazhagan,"Digital circuits and design", Vikas publishing house PVT Limited.Fifth edition (March 2018) |
| **2.** | Oppenheim, Alan V., Alan S. Willsky, and Syed Hamid Nawab. "Signals and Systems," Prentice-HallEnglewood Cliffs 2 edition (2015) |
| **3.** | S. Haykin,"Digital Communications Systems", John Wiley & Sons, 1 edition,2013 |
| **4.** | H. Taub & D. L. Schilling, "Principles of Communication Systems", 2nd edition, McGraw-Hill HigherEducation. 3 edition (September 2007) |

# Course Description

| | | | |
|---|---|---|---|
| **Course Code** | 18B15EC213 | **Semester -:** Even 2025 (specify Odd/Even) | **Semester-:** IV, **Session** 2024 -2025 **Month- :** Jan - June |
| **Course Name** | Digital System Lab | | |
| **Credits** | 1 | **Contact Hours** | 2 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Monika Singh (Sec – 62) , Dr. Bajrang Bansal (Sec – 128) |
| | **Teacher(s)** | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C208.1** | Recall the basics of combinational digital circuits and their implementation. | Remembering Level (C1) |
| **C208.2** | Recall the basics of sequential digital circuits and its implementation. | Understanding Level (C2) |
| **C208.3** | Apply the theory of signals & systems and digital signal processing | Applying Level (C3) |
| **C208.4** | Apply the concepts of digital communication. | Applying Level (C3) |

| **Module No.** | **Title of the Module** | **List of Experiments** | **COs** |
|---|---|---|---|
| 1. | Introduction to basic logic gates | Write Matlab programs for the verification of truth tables of basic logic gates and their realization using universal logic gates. | C208.1 |
| 2. | Basics of adder and subtractor circuits | Write Matlab programs for half-adder, half-subtractor, full-adder, and full-subtractor. | C208.1 |
| 3. | Decoder logic circuits | Write Matlab programs for the design of 2-to-4 decoder and 3-to-8, decoder.. | C208.1 |
| 4. | Multiplexer logic circuits | Write Matlab programs for the design of 2-to-1, 4-to-1, and 8-to-1 multiplexers. | C208.1 |
| 5. | Introduction to sequential circuit: SR-Latch, D and JK Flip Flop | (a) Realization of SR Latch using using Matlab.<br>(b) Realization of D flip flop using using Matlab.<br>(c) Realization of JK flip flop using using Matlab | C208.2 |
| 6. | Continuous time and discrete time signals | Write Matlab programs for the generation of elementary continuous time signals and discrete time signals. | C208.3 |
| 7. | Sampling and reconstruction process | Write Matlab program to study the sampling and reconstruction process. | C208.3 |

| | | | |
|---|---|---|---|
| 8. | Quantization process of the signals. | Write Matlab program to study the quantization process of sinusoid signals. | C208.3 |
| 9. | Digital Modulation Techniques | Write Matlab programs to study the binary phase shift keying and frequency shift keying modulation process. | C208.4 |
| 10. | Introduction to Discrete Fourier Transform (DFT) and Inverse Discrete Fourier Transform (IDFT) | Write Matlab programs to compute Discrete Fourier Transform (DFT) and Inverse Discrete Fourier Transform (IDFT) for the spectral analysis of signals. | C208.3 |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Mid Term Viva | 20 |
| End Term Viva | 20 |
| Report file, Attendance, and D2D | 60 |
| **Total** | **100** |

**Project based learning:** Students will learn about Combinational and Sequential logic circuits and design them using open source software Matlab. Additionally, students in group sizes of two-three will realize various applications of Digital Systems employing these circuits.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Salivahanan, S., and S. Arivazhagan. Digital circuits and design. Vikas publishing house PVT Limited. Fifth edition ( March 2018) |
| **2.** | Oppenheim, Alan V., Alan S. Willsky, and Syed Hamid Nawab. "Signals and Systems", Prentice-Hall Englewood Cliffs 2 edition (2015) |
| **3.** | S. Haykin Digital Communications Systems John Wiley & Sons, 1 edition,2013 |
| **4.** | H. Taub & D. L. Schilling, Principles of Communication Systems, 2nd edition, McGraw-Hill Higher Education. 3 edition (September 2007) |

## Course Description
## Detailed Syllabus

| | | | |
|---|---|---|---|
| **Course Code** | **23B12HS211** | **Semester: Even** | **Semester: 2024-2025**<br>**Month: Jan 2025 to June 2025** |
| **Course Name** | **Introduction to Political Science** | | |
| **Credits** | **3 (2-1-0)** | **Contact Hours** | **3** |
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Namreeta Kumari** | |
| | **Teacher(s) (Alphabetically)** | **Dr. Namreeta Kumari** | |
| **COURSE OUTCOMES** | | | **COGNITIVE LEVELS** |
| **CO1** | Demonstrate an understanding concept of Political Science. | | Understand (C2) |
| **CO2** | Apply different models & different theories of democracy. | | Applying (C3) |
| **CO3** | Analyze the concept of state and different theories of state. | | Analyze (C4) |
| **CO4** | Assess the different political ideologies. | | Evaluate (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Understanding Political Science | ● Evolution<br>● Nature and Scope<br>● Is Political Science a Science?- Political Science as an art, Political Science as a Science<br>● Importance of Studying Political Science | 6 |
| **2.** | Analyzing the Ideological Discourse | ● Liberalism: Individualism, Justice, Equality, & Reason<br>● Conservativism: Authoritarian Conservatism, Paternalistic Conservatism, Libertarian Conservatism<br>● Socialism: Classical Marxism, Orthodox Communism, Ethical Socialism, Revisionist Socialism, Neo revisionism & the third way<br>● Anarchism: Collectivist Anarchism, Induvial Anarchism, Anarcho-Capitalism.<br>● Nationalism: Liberal nationalism, Conservative Nationalism Expansionist Nationalism, Anti Colonial post-colonial nationalism.<br>● Feminism: Redefining Political, Waves of Feminism, Strands of Feminism<br>● Multiculturalism: Politics of Recognition, Liberal multiculturalism, Pluralist Multiculturalism, Cosmopolitan Multiculturalism, Critiques of Multiculturalism | 8 |
| **3.** | State | ● What is State: Idea of state<br>● Theories of State: Evolutionary theory of state, Marxist theory of state, Liberal Theory of State<br>● Role of State | 8 |
| **4.** | Democracy | ● Defining Democracy<br>● Models of Democracy- David Held's Model<br>● Rival Theories of Democracy | 6 |
| **Total number of Lectures** | | | **28** |
| **Evaluation Criteria Components** | | **Maximum Marks** | |

| | |
|---|---|
| T1 | 20 |
| T2 | 20 |
| T3 | 35 |
| TA | 25 (Attendance, Quiz, Project) |
| **Total** | **100** |

**Project Based learning:** Each student would form a group of 3-4 students and to make projects on issues related with Indian Political System. The project will facilitate students to comprehend the everyday politics of the country.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | A. Heywood, Political Ideologies: An Introduction, New York: Palgrave Macmillan, 2017. |
| **2.** | D. Held, Models of Democracy, Stanford: Standford University Press, 2006. |
| **3.** | B. O'Leary and P. Dunleavy, Theories of the State: The Politics of Liberal Democracy, London: Macmillan Education Ltd., 1987. |


| **COs** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C01 | | | | | | **3** | | | **2** | | | **2** |
| CO2 | | | | | | **3** | | | **2** | | | **2** |
| C03 | | | | | | **3** | | | **2** | | | **2** |
| CO4 | | | | | | **3** | | | **2** | | | **2** |
| **Avg.** | | | | | | **3** | | | **2** | | | **2** |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | **15B1NHS431** | **Semester: EVEN** | **Semester IV** Session **2024-25**<br>**Month: January 2025 to June 2025** |
| **Course Name** | **Introduction to Literature** | | |
| **Credits** | **3** | **Contact Hours** | **3 (2-1-0)** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Monali Bhattacharya (Sector 62)<br>&<br>Dr. Ekta Srivastava (Sector 128) |
| | **Teacher(s) (Alphabetically)** | Dr. Ekta Srivastava, Dr. Monali Bhattacharya |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C206-5.1** | Understand figurative language to demonstrate communication skills individually and in a group. | Understanding level (C2) |
| **C206-5.2** | Develop a critical appreciation of life and society through a close reading of select texts. | Applying level (C3) |
| **C206-5.3** | Analyse a literary text thematically and stylistically and examine it as representing different spectrum of life, human behavior and moral consciousness of society. | Analyzing level (C4) |
| **C206-5.4** | To interpret Literature as reflection of cultural and moral values of life and society. | Evaluating level (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction to Literature & Genres | Introduction<br>Literary Genres<br>Literary Devices<br>Learning Communication Skills through Literature | 5 |
| **2.** | Poems | On His Blindness: John Milton<br>My Last Duchess: Robert Browning<br>"Hope" is the thing with feathers: Emily Dickinson<br>A Prayer before Birth: Louis MacNeice<br>Goodbye Party for Miss Pushpa T.S.: Nissim Ezekiel | 6 |
| **3.** | Prose & Short Stories | The Spectator Club: Richard Steele<br>Evidence: Isaac Asimov<br>Toba Tek Singh: Saadat Hasan Manto | 6 |
| **4.** | Plays & Drama | Andher Nagari Chaupat Raja: Bhartendu Harishchandra<br>The Characters of Macbeth & Lady Macbeth as Universal Characters.<br>Arms & The Man: G B Shaw | 7 |
| **5.** | Novel | To Sir with Love: E.R. Braithwaite | 4 |
| **Total number of Lectures** | | | 28 |

| **Evaluation Criteria** | |
|---|---|
| **Components** | **Maximum Marks** |
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Quiz and class participation) |
| **Total** | **100** |

Project Based Learning:

The students will create a story out of a song in groups and analyse their own creativity applying Freitag's narrative technique, identify literary devices and interpret their work thematically highlighting language, cultural and moral learnings, one would get on reading their story. The created works will be exchanged, and peer review will be undertaken, and reports will be submitted as Part B of the project.

| Recommended Reading material: | |
|---|---|
| 1 | John E. Eck, '*Writing with Sweet Clarity'* 1st Edition. Routledge. 2022https://doi.org/10.4324/9781003167532 |
| 2 | M.H. Abrams, Geoffrey Harpham *'A Glossary of Literary Terms'*, 11th Edition, Cengage Learning, 2014. |
| 3 | Mark William Roche, *'Why Literature matters in the 21st Century'*, 1st Edition, Yale University Press, 2014. |
| 4 | E.R. Braithwaite, *'To Sir With Live'*, First Edition, Bodley Head, UK, 1959.<br>Susie Thomas(Ed), "E. R. Braithwaite: 'To Sir, with Love' – 1959", Available at http://www.londonfictions.com |
| 5 | Khalid Hasan (Translator), *'Saadat Hasan Manto : Toba Tek Singh'* Reprint, Penguin Books, India, 2008. |
| 6 | G.B Shaw, '*Arms & The Man'*, Paperback, 2013<br>https://onemorelibrary.com/index.php/en/?option=com_djclassifieds&format=raw&view=download&task=download&fid=10428 |
| 7 | Anon, (a.n.d.). *The Spectator Club. Sir Richard Steele*. 1909-14. Available at: https://www.bartleby.com/27/7.html |
| 8 | *All poems online: http://www.poetryfoundation .org* |
| 9 | WolfgangClemen, '*Shakespeare's Soliloquies'*, Paperback Edition, Routledge, London, 2010. |

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | **15B1NHS433** | **Semester** EVEN **(specify Odd/Even)** | **Semester** IV **Session** 2024 -205 Month: Jan 2025- June 2025 |
| **Course Name** | **INTRODUCTION TO SOCIOLOGY** | | |
| **Credits** | **3(2-1-0)** | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Suraj Das |
| | **Teacher(s) (Alphabetically)** | Dr. Suraj Das |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C206-7.1 | Demonstrate an understanding of sociological perspectives and concepts. | Remembering (C1) |
| C206-7.2 | Explain the concept of social stratification and types of stratification as class, caste and gender. | Understanding (C2) |
| C206-7.3 | Apply the major sociological perspectives, social concepts and methods in the systematic study of society | Applying(C3) |
| C206-7.4 | Analyze the relevance of various social Institutions and how it shapes and influences social interactions. | Analyzing (C4) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction | Emergence of Sociology- forces and historical background, nature and scope, relationship with other social sciences, difference between common sense and sociology, Major sociological perspective and methods, the sociological imagination | 5 |
| **2.** | Basic Concepts of Sociology | Society, Culture, Groups, sub-groups, Communities, Association, Organization, social interaction and social structure: status and role | 4 |
| **3.** | Social stratification | Stratification-concept, theories and type. Basis of stratification caste, class, gender and race, status and Roles | 4 |
| **4.** | Sociology of Institutions | Kinship, Family ,Religion, Education &Economy in Society | 5 |
| **5.** | Process of Change and Mobility | Concept, theories and Agents of Social Change, Process of Social Change in Indian Society: Sanskritization, Westernization, Modernization, Urbanization | 6 |
| **6.** | Politics and Society | Power, Elite, Bureaucracy, Pressure groups, Political parties, nation, state and civil society, protest, agitation and Social Movements | 4 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 (Project based) |
| End Semester Examination | 35 |
| TA | 25 (Presentation, assignment, quiz and tutorial participation) |
| **Total** | **100** |

Each student will be assigned a project based on primary data collection through in-depth interviews with their parents, grandparents and other relatives

Topic of the project- the students will conduct a multidimensional analysis of their class with the Occupation, Education, Income, and Wealth variable, using their parents, grandparents, and themselves as examples to find out how do these variables relate to Social Class and social mobility? How has the Social Class of their family changed (or not) over the past three generations?

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1** | Johnson, Harry M. *Sociology: a systematic introduction*. Routledge, 2013. |
| **2** | Rawat, H. K. *Sociology: basic concepts*. Rawat Publications, 2007. |
| **3** | Macionis, John J. *Society: the basics*. Pearson/Prentice Hall, 2009. |
| **4** | C. Wright. And Mills, *The Sociological Imagination*, Oxford: Oxford University Press, 1959. |
| **5** | Peter L Berger, *The Social Construction of Reality: a Treatise in the Sociology of Knowledge. Garden City,* New York: Anchor, 1966. |
| **6** | Conley and Dalton, *You May Ask Yourself: An Introduction to Thinking Like a Sociologist*, 2nd Ed, W. W. Norton & Company New York, 2011. ISBN: 0393935175 or 978-0393935172 |
| **7** | Ballentine and Roberts, *Our Social World: Introduction to Sociology*, 4th Edition, Sage. 2013. |
| **8** | Robert Parkinand Linda Stone, (ed.). *Kinship and Family: An Anthropological Reader*, U.S.A.: Blackwell, 2000, selected chapters |

| | | | |
|---|---|---|---|
| **Course Code** | 15B1NHS434 | **Semester:** Even | **Semester** IV **Session** 2024 -2025<br>**Month from** Jan 2025 to June 2025 |
| **Course Name** | Principles of Management | | |
| **Credits** | 3 | **Contact Hours** | 2-1-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Shikha Kumari |
| | **Teacher(s) (Alphabetically)** | Dr. Shikha Kumari |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C206-2.1 | Illustrate the functions, roles, skills and changing roles of managers in global business market | Understanding (C2) |
| C206-2.2 | Develop an understanding of how effective planning supports organizational goals and performance. | Applying (C3) |
| C206-2.3 | Analyze the scope of leadership and decision-making in the context of human factors, creativity, and innovation. | Analyzing (C4) |
| C206-2.4 | Evaluate approaches to goal setting, organizing, staffing and leading in an organization. | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| 1. | Introduction to Managers and Management | Management – An Emerging Profession, Definition, Nature, Scope, Purpose, and characteristics of Management, Functions, roles, skills of an effective Manager, Evolving job of managers in the era of globalization | **6** |
| 2. | Planning and Forecasting | Nature & Purpose, Steps involved in Planning, Objectives, Setting Objectives, Process of Managing by Objectives, Strategies, Policies & Planning Premises, Forecasting, Decision-Making. | **6** |
| 3. | Organizing and Directing | Introduction, Organizational Design, Hierarchical Systems, Organization Structure, Types of Organization Structure, Formal and Informal Organization, Factors Determining Span of Management, Centralization and Decentralization, Span of control, understanding authority and responsibility, Principles of Delegation, Authority, Developing a culture of Innovation and performance. | **6** |
| 4. | Leadership and decision making | Scope, Human Factors, Creativity and Innovation, Harmonizing Objectives, Leadership, Types of Leadership Motivation, Hierarchy of Needs, Motivation theories, Motivational Techniques, Job Enrichment, Process of Communication, Barriers and Breakdown in effective Communication, | **5** |
| 5. | Controlling | System and process of Controlling, Requirements for effective control, The Budget as Control Technique, Information Technology in Controlling, Productivity, | **5** |

| | | | |
|---|---|---|---|
| | | Problems and Management, Control of Overall Performance, Direct and Preventive Control, Reporting | |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Attendance) |
| **Total** | **100** |

**Project Based Learning:** The project will be completed in groups of 4-5 members. The focus of the project is to improve team collaboration and motivation within a virtual environment. It aims to apply key concepts such as leadership, motivation, human factors, communication, and creativity to enhance team performance and collaboration in a global business context. Students will explore critical topics like leadership styles, motivation techniques, and communication strategies in a practical, real-world scenario that reflects challenges they may face in their future careers. The project emphasizes the importance of teamwork and collaboration, which are essential skills for students pursuing careers in engineering and technology fields.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Koontz H, Weihrich H. *Essentials of Management: An International, Innovation, and Leadership Perspective*. McGraw-Hill Education, 10th Edition, 2018. |
| **2.** | Tripathi P.C. *Principles of Management*. Tata McGraw-Hill Education, 6th Edition, 2017. |
| **3.** | Durai, Pravin. *Principles of Management Text and Cases*. Pearson, 2015. |
| **4.** | Robbins, S.P. & Decenzo, David A. *Fundamentals of Management*. Pearson, 7th ed., 2010. |
| **5.** | Robbins, S.P. & Coulter, Mary. *Management*. Pearson, 14th ed., 2009. |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 16B1NHS431 | Semester **Even** (specify Odd/Even) | **Semester IV Session 2024-25** Month from **Jan-June** |
| **Course Name** | HUMAN RESOURCE MANAGEMENT | | |
| **Credits** | 3 | **Contact Hours** | 2-1-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Praveen Kumar Sharma |
| | **Teacher(s) (Alphabetically)** | Dr. Praveen Kumar Sharma |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C206-1.1** | Demonstrate a basic understanding of different functions of human resource management: Employer Selection, Training and Learning, Performance Appraisal and Remuneration, Human Relations and Industrial Relations. | Understanding Level (C2) |
| **C206-1.2** | Apply various tools and techniques in making sound human resource decisions. | Applying level (C3) |
| **C206-1.3** | Analyze the key issues related to administering the human resource management activities such as recruitment, selection, training, development, performance appraisal, compensation and industrial relation. | Analyzing Level (C4) |
| **C206-1.4** | Critically assess and evaluate different human resource & industrial relation practices and techniques and recommend solutions to be followed by the organization | Evaluating Level (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction | Introduction to Human Resource Management and its definition, HRM functions and its relation to other managerial functions, Nature, Scope and Importance of Human Resource Management in Industry, Role & position of Personnel function in the organization. Human Resource Planning | 3 |
| **2.** | Employer Selection | Recruitment Process; Selection Process - Job and Worker Analyses, Matching Job with the Person; Selection Methods - Application Blank, Biographical Inventories, References and Recommendation Letters, Interviews | 8 |
| **3.** | Training and Learning | Need Identification; Psychological Factors in Learning; Training Methods in the Workplace; Effective Training Programme | 6 |
| **4.** | Performance Appraisal and Remuneration | Different methods of Performance Appraisal, Basic concepts in wage administration, company's wage policy, Job Evaluation, Issues in wage administration, Bonus & Incentives | 6 |
| **5.** | Human Relations and Industrial Relations, Trends in Human Resource Management | Factors influencing industrial relations - State Interventions and Legal Framework - Role of Trade unions - Collective Bargaining - Workers' participation in management. Trends in Human Resource Management: Analytics, Artificial Intelligence | 5 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |

| | |
|---|---|
| TA | 25(Project, assignment, class participation, attendance) |
| **Total** | **100** |

Project-based learning: Each student in a group 4 to 5 will select a company which is registered in India. To make subject application based, the student will analyze Human Resource management policies and employed performing different functions at various levels related to recruitment, training, development, performance appraisal and compensation.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | P. M. Noe, R. A., Hollenbeck, J. R., Gerhart, B. A., & Wright, *Fundamentals of Human Resource Management*. Tata McGraw-Hill Education, 2019. |
| **2.** | B. Pattanayak, "*Human Resource Management*." PHI Learning Pvt. Ltd., New Delhi, vol. 2, 2018. |
| **3.** | D. A. DeCenzo, S. P. Robbins, and S. L. Verhulst, *Fundamentals of human resource management*. John Wiley & Sons, 2016. |
| **4.** | K. Aswathappa, *Human resource management: Text and cases*. Tata McGraw-Hill Education, 2013. |
| **5.** | V. S. P. Rao and V. H. Krishna, *Management: Text and cases*. Excel Books India, 2009. |
| **6.** | G. Dessler and B. Varrkey, *Human Resource Management, 15e*. Pearson Education India, 2005. |

**Detailed Syllabus**
**Lecture-wiseBreakup**

| | | | |
|---|---|---|---|
| **CourseCode** | 19B12HS412 | **Semester:** Even | **Semester** IVth<br>**Session** 2024-25<br>**Month from January to June** |
| **CourseName** | Industrial Economics | | |
| **Credits** | 03 | **ContactHours** | 2-1-0 |

| | | |
|---|---|---|
| **Faculty(Names)** | **Coordinator(s)** | Dr.Amba Agarwal, & Dr. Neha Singh |
| | **Teacher(s) (Alphabetically)** | Dr.Amba Agarwal, & Dr. Neha Singh |

| **COURSEOUTCOMES-** | | **COGNITIVELEVELS** |
|---|---|---|
| After pursuing the above mentioned course, the students will be able to: | | |
| **CO1** | Understand the basic framework of Industrial economics. | Understanding Level (C2) |
| **CO2** | Identify the strategic actions of producers in terms of production and cost in a completive market structure. | Applying Level (C3) |
| **CO3** | Examine the Industrial location, productivity, efficiency, industrial profile and environmental preservation. | Analyzing Level (C4) |
| **CO4** | Evaluate the role and types of institutional finance, Regional industrial imbalance & Social Security. | Evaluating Level (C5) |

| **Module No.** | **Titleofthe Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction | Introduction of Industrial Economics, Framework & Problems; SCP (Structure-Conduct-Performance) Sellers' concentration; Hrfindahl- Hirschman Index. | 3 |
| **2.** | Industrial Organization and Market Structure | Consumer & Producer Surplus; Economies of scale; Cost conditions, Market structure and profitability; Oligopoly theory versus the SCP paradigm.Game theory | 5 |
| **3.** | Industrial location and Industrial Productivity | Factors influencing Industrial location and Weber, Florence and Losch theory of industrial location. Measuring Industrial Productivity and Factors influencing Industrial Productivity. | 5 |
| **4.** | Industrial Efficiency | Factors influencing Industrial efficiency & profitability: Internal & External factors, Rostow Stages of Economic Development and Inter-relationship between Industrial Development and Economic Development. | 4 |
| **5.** | Indian Industrial GrowthandPattern | Classification of industries; Industrial policy in India, Issues in industrial proliferation and environmental preservation; Pollution control policies. | 3 |
| **6.** | Industrial Profile and Problems | Structure and Organization of Large Industries in India. Public & Private Sector Enterprises. MSME Role & Problems. | 3 |
| **7.** | Industrial Finance | Role, nature and types of Institutional Finance for industrial | 2 |

| | | | |
|---|---|---|---|
| | | development. | |

| | | | |
|---|---|---|---|
| **8.** | Industrial Imbalance & Social Security | Regional Industrial Imbalance: Causes and effects of Industrial Imbalances: Measures adopted by Government to reduce regional imbalance & Social Security system Provided by Government of India for various industries. | 3 |
| **Totalnumberof Lectures** | | | **28** |

| **EvaluationCriteria Components** | **MaximumMarks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| EndSemesterExamination | 35 |
| TA | 25(Assignment, Test, Quiz) |
| **Total** | **100** |

**Project based Learning:** Each student in a group of 4-5 will opt a topic related to a particular industry and submit a report related to growth, pattern , finance and challenges faced by the specific industries.

| **RecommendedReadingmaterial:** | |
|---|---|
| **1.** | **S. K. Singh ,** Industrial Organization and Market Structure, Vikas Publishing House, 3rd Edition, 2020 |
| **2.** | **A. S. Oberoi ,** Economics of Industrial Organization, Tata McGraw-Hill Education, 3rd Edition, 2018 |
| **3.** | **Cherunilam, F**.,IndustrialEconomics:IndianPerspective (3rdEdition),Himalaya Publishing House, 1994 |
| **4.** | **S. S. Khanka,** Industrial Economics, McGraw-Hill Education, 6th Edition, 2020 |
| **5.** | **Hay,D. and D.J. Morris**, Industrial Economics : Theory and Evidence, Oxford University Press, New Delhi, 1979 |

**Detailed syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **24B12HS213** | **Semester: EVEN** | **Semester 4th Session 2024-25**<br>**Month from Jan to June** |
| **Subject Name** | **SOCIOLOGY OF WORK** | | |
| **Credits** | **3** | **Contact Hours** | **2-1-0** |
| **Faculty (Names)** | **Coordinator(s)** | **Dr Yogita Naruka** | |
| | **Teacher(s) (Alphabetically)** | **Dr Yogita Naruka** | |

| **COURSE OUTCOMES** | | |
|---|---|---|
| **CO1** | Understand the changing notions and dimensions of work and its wider implications in contemporary world | Understanding level (C2) |
| **CO2** | Analyse the nature of lived experience of work across socio-cultural and economic context | Analysing (C4) |
| **CO3** | Evaluate the changing trajectories and notions of work from industrial revolution to contemporary context of tech enabled places | Evaluating (C5) |
| **CO4** | Develop an evolved understanding of what constitutes as 'work' amidst diverse sociological contexts | Creating (C6) |

| **Module No.** | **Subtitle of the Module** | **Topics in the module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction to concept of 'work' | Basic Concepts and terminologies related to sociological understanding of work<br>Historical evolution of work | **4** |
| **2.** | Sociological approaches to work | Marxist perspective of work<br>Weberian Perspective of work | **6** |
| **3.** | Work and contemporary society | Work in rural and urban societies, child labour, Case studies | **5** |
| **4.** | Work, identities, and inequalities | Multiple forms of work -paid, unpaid, casual, seasonal, permanent, temporary, care, economy work, formal, informal work<br>Implications of multiple forms of work on identities and inequalities | **6** |
| **5.** | Work cultures | Flexible work, work in Post-covid era, work culture, work behaviour, work ethics, work problems | **7** |
| **Total number of Hours** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |

| | |
|---|---|
| TA | 25 (Project, Assignment/Quiz) |
| **Total** | **100** |

**Project Based Learning**: In a group of 5-6 students, students will select a particular sector of work and will interview a few employees in that sector using a pre-determine and pre-approved (by faculty) semi-structured questionnaire. Students will compile their findings in the form of a report highlighting the nature, changing forms, and major challenges associated with that sector.

**Recommended Readings:**


- Volti, Rudi. 2011, "An Introduction to the Sociology of Work and Occupations" Sage Publications, Inc. (second edition), Chs. 1 and 2, Pp. 1-16 and 19-35.
- Grint, Keith. 2005, "Classical Approaches to Work: Marx, Durkheim and Weber" in The Sociology of Work: An Introduction. Polity Press. Cambridge. Pp. 90-112
- Ramaswamy E. A. and Uma Ramaswamy. 1981, Industry and Labour, New Delhi:Oxford University Press, Chapter 3, Pp.33-65
- Bell, Daniel. 1976, The Coming of Post-Industrial Society, London: Heineman, Introduction, Pp.12-45
- Kumar, Krishan.1973, Prophecy and Progress, London: Allen Lane, Ch. 6, Pp. 185-240
- Kumar, Krishan. 1999, From Post-Industrial to Post-Modern Society, Oxford: Blackwell Publishers Ltd., Chapter 2 and 6, Pp 6-35 and 154-163.


**CO-PO-PSO Mapping**

| **COs (NBA Code)** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | | | 1 | 2 | | 1 | 1 | 1 | | | | | | |
| CO2 | | | 1 | 1 | | 1 | 1 | 1 | | | | | | |
| CO3 | | | 1 | 2 | | 2 | 1 | 1 | | | | | | |
| CO4 | | | 2 | 1 | | 1 | 1 | 2 | | | | | | |
| **Avg.** | **0** | **0** | **1.25** | **1.50** | **0** | **1.25** | **1.00** | **1.25** | **0** | **0** | **0** | **0** | **0** | **0** |

## Course Description
## Detailed Syllabus

| | | | |
|---|---|---|---|
| **Course Code** | **23B12HS211** | **Semester: Even** | **Semester: 2024-2025**<br>**Month: Jan 2025 to June 2025** |
| **Course Name** | **Introduction to Political Science** | | |
| **Credits** | **3 (2-1-0)** | **Contact Hours** | **3** |
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Namreeta Kumari** | |
| | **Teacher(s) (Alphabetically)** | **Dr. Namreeta Kumari** | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | Demonstrate an understanding concept of Political Science. | Understand (C2) |
| **CO2** | Apply different models & different theories of democracy. | Applying (C3) |
| **CO3** | Analyze the concept of state and different theories of state. | Analyze (C4) |
| **CO4** | Assess the different political ideologies. | Evaluate (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Understanding Political Science | ● Evolution<br>● Nature and Scope<br>● Is Political Science a Science?- Political Science as an art, Political Science as a Science<br>● Importance of Studying Political Science | 6 |
| **2.** | Analyzing the Ideological Discourse | ● Liberalism: Individualism, Justice, Equality, & Reason<br>● Conservativism: Authoritarian Conservatism, Paternalistic Conservatism, Libertarian Conservatism<br>● Socialism: Classical Marxism, Orthodox Communism, Ethical Socialism, Revisionist Socialism, Neo revisionism & the third way<br>● Anarchism: Collectivist Anarchism, Induvial Anarchism, Anarcho-Capitalism.<br>● Nationalism: Liberal nationalism, Conservative Nationalism Expansionist Nationalism, Anti Colonial post-colonial nationalism.<br>● Feminism: Redefining Political, Waves of Feminism, Strands of Feminism<br>● Multiculturalism: Politics of Recognition, Liberal multiculturalism, Pluralist Multiculturalism, Cosmopolitan Multiculturalism, Critiques of Multiculturalism | 8 |
| **3.** | State | ● What is State: Idea of state<br>● Theories of State: Evolutionary theory of state, Marxist theory of state, Liberal Theory of State<br>● Role of State | 8 |
| **4.** | Democracy | ● Defining Democracy<br>● Models of Democracy- David Held's Model<br>● Rival Theories of Democracy | 6 |
| **Total number of Lectures** | | | **28** |
| **Evaluation Criteria** | | | |

| Components | Maximum Marks |
|---|---|
| T1 | 20 |
| T2 | 20 |
| T3 | 35 |
| TA | 25 (Attendance, Quiz, Project) |
| **Total** | **100** |

**Project Based learning:** Each student would form a group of 3-4 students and to make projects on issues related with Indian Political System. The project will facilitate students to comprehend the everyday politics of the country.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | A. Heywood, Political Ideologies: An Introduction, New York: Palgrave Macmillan, 2017. |
| **2.** | D. Held, Models of Democracy, Stanford: Standford University Press, 2006. |
| **3.** | B. O'Leary and P. Dunleavy, Theories of the State: The Politics of Liberal Democracy, London: Macmillan Education Ltd., 1987. |


| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C01 | | | | | | **3** | | | **2** | | | **2** |
| CO2 | | | | | | **3** | | | **2** | | | **2** |
| C03 | | | | | | **3** | | | **2** | | | **2** |
| CO4 | | | | | | **3** | | | **2** | | | **2** |
| **Avg.** | | | | | | **3** | | | **2** | | | **2** |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | **16B1NHS 531** | **Semester: Odd (specify Odd/Even)** | **Semester : V Session:2025 -2026 Month from: July to Dec** |
| **Course Name** | **Sociology of Youth** | | |
| **Credits** | **3 (3-0-0)** | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Shikha Kumari (Main Campus)**<br>**Prof Alka Sharma (Wish Town Campus)** |
| | **Teacher(s) (Alphabetically)** | **Dr. Shikha Kumari**<br>**Prof Alka Sharma** |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C304-13.1 | Understand Youth and youth culture in sociological perspectives | Understanding(C2) |
| C304-13.2 | Apply the concept of identity to analyze youth behavior | Applying(C3) |
| C304-13.3 | Analyze the formation of youth cultures and to interprets the same | Analyzing(C4) |
| C304-13.4 | Explain the ethical, cultural& social issues related to youth in the evolving society. | Evaluating(C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| 1. | Introduction to Youth | Meaning and characteristics of youth, demographic profile of youth in India, Challenges faced by Youth, Youth's roles and responsibilities in society | 4 |
| 2. | Youth Culture | Concept of Youth Culture, role of Popular culture in shaping youth culture, | 4 |
| 3. | Perspectives on Youth Culture | Functionalist, Conflict, Interactionist and Feminist Perspective on Youth Culture, Youth and Gender | 5 |
| 4. | Youth and Identity | Social divisions: sexuality, urban and rural youth, social identities: subcultural, digital, Experiences of youth to negotiate identities in contemporary societies | 8 |
| 5. | Socialization of Youth | Concept and processs of socialization, Internalization of norms, types of socialization, conditions of learning, internalized objects, theories of socialization, stages of socialization, adult socialization, agents of socialization, role of culture in socialization, socialization and cultural differences, importance of socialization, Failure of the socialization process | 8 |
| 6. | Problems of Youth | Role and Value conflicts, Generation Gap, Career decisions and Unemployment, Emotional adjustment, Coping with pressures of living, Unequal Gender norms, Crime | 8 |
| 7. | Changing perceptive of Youth and Youth Culture in 21st century | involvement of youth in major decision making institutions, Post-modernity and Youth, Youth Unrest | 5 |

| | | | |
|---|---|---|---|
| | | | … |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Presentation, Assignment and attendance) |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Tyyskä, V. *Youth and Society: The long and winding road*, 2nd Ed., Canadian Scholars' Press, Inc. (2008). |
| **2.** | White, Rob, Johanna Wyn and Patrizia Albanese. *Youth & Society: Exploring the Social Dynamics of Youth Experience.* Don Mills, ON: Oxford University Press, 2011. |
| **3.** | Bansal, P.*Youth in contemporary India: Images of identity and social change*. Springer Science & Business Media, 2012. |
| **4.** | Furlong, Andy. *Youth studies: An introduction*. Routledge, 2012. |
| **5.** | Blossfeld, Hans-Peter, et al., eds. *Globalization, uncertainty and youth in society: The losers in a globalizing world*. Routledge, 2006. |
| **6.** | Ruhela, Satya Pal, ed. Sociology of the teaching profession in India. National Council of Educational Research and Training, 1970. |
| **7.** | Frith, S. "The sociology of youth. Themes and perspectives in sociology." Ormskirk, Lancashire: Causeway Books ,1984. |


| | | | | | | | | | | | | | PSOs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COs** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **1** | **2** |
| C304-13.1 | | | | | | | | 2 | 2 | | | 2 | | |
| C304-13.2 | | | | | | | | 2 | 2 | | | 2 | | |
| C304-13.3 | | | | | | | | 2 | 2 | | | 2 | | |
| C304-13.4 | | | | | | | | 2 | 2 | | | 2 | | |
| **Avg.** | | | | | | | | 2.00 | 2.00 | | | 2.00 | | |

**Detailed syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **16B1NHS432** | **Semester: ODD** | **Semester V Session 2025-2026** |

| | | | |
|---|---|---|---|
| | | | **Months: from July to December** |
| **Subject Name** | **POSITIVE PSYCHOLOGY** | | |
| **Credits** | **3** | **Contact Hours** | **(3-0-0)** |
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Badri Bajaj (JIIT-62) & Dr. Shweta Verma (JIIT-128)** | |
| | **Teacher(s) (Alphabetically)** | **Dr. Badri Bajaj, Dr. Shweta Verma** | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | Demonstrate an understanding of various concepts and perspectives of positive psychology | Understanding Level (C2) |
| **CO2** | Apply the concepts of positive psychology in day-to-day life | Applying Level (C3) |
| **CO3** | Evaluate interventions and strategies for overall positive functioning | Evaluating Level (C5) |
| **CO4** | Develop solutions for personal happiness, well-being, and mental health | Creating Level (C6) |

| **Module No.** | **Subtitle of the Module** | **Topics in the module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction to Positive Psychology | Overview, Perspectives, Classification and Measures: Human Strengths and Positive Outcomes. | **6** |
| **2.** | Prosocial Behavior | Empathy and Egotism; Altruism, Gratitude, and Forgiveness. | **6** |
| **3.** | Positive Emotions and Wellbeing | Emotional and Cognitive States; Focus on Application: Finding the positive in the Negative; Positive Emotions & Well-Being; Positive Emotions & Flourishing; Flow Experiences | **6** |
| **4.** | Happiness | Happiness and its Traditions; Determinants- Subjective Well-Being Hedonic Basis of Happiness; Life Satisfaction; Self –Realization: The Eudaimonic Basis of Happiness Happiness and Emotional Experiences; Other Facts of Life- Work & Unemployment; Intelligence; Education; and Religion. | **6** |
| **5.** | Mental Health | Mental Health and Behavior; Prevent the Bad and Enhance the Good. | **6** |
| **6.** | Positive Environments | Positive Schooling, Good at Work, Balance Between ME and WE. | **6** |
| **7.** | Living Well | Mindfulness; Contours of a Positive Life: Meaning & Means; Cultural Context, Every Stage of Life, Resilience, Positive Youth Development, Life Tasks of Adulthood, Successful Aging. | **6** |
| **Total number of Hours** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Quiz) |
| **Total** | **100** |

Project based learning: Each student will think of some personal and professional goals. The student will apply the learnings from the course topics from the first five modules and make and execute plan for achievement of their goals. Each student can take help from any other student in the class. Students will devise strategies using learning from five modules of the course for reaching their goals. They will evaluate their strategies as well. Students will work on three to five goals (a mix of personal and professional goals)
Each student will make a presentation in the class and will also submit a project report.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| 1. | Snyder, C.R., Lopez, S. J., & Pedrotti, J.T. *Positive Psychology: The Scientific and Practical Explorations of Human Strengths*, 4th Ed., Sage Publications, 2018. |
| 2 | Steve, B., & Marie, C. *Positive psychology*, 1st Ed., Pearson Education India, 2014. |
| 3. | Boniwell, I., & Tunariu, A. D., *Positive Psychology: Theory, Research and Applications*, 2nd Ed., McGraw-Hill Education, 2019. |
| 4. | Zelenski, J., *Positive Psychology: The Science of Well-being*, 1st Ed., Sage Publications, 2019. |
| 5. | Snyder, C. R., Lopez, S. J., Edwards, L. M., & Marques, S. C. (Eds.), *The Oxford handbook of positive psychology*. 1st Ed., Oxford university press, 2020. |

**Detailed Syllabus**
**Lecture-wise Breakup**

| **Course Code** | **16B1NHS433** | **Semester: Odd** | **Semester: Session** 2025-2026<br>**Month from: July to Dec** |
|---|---|---|---|
| **Course Name** | Financial Management | | |
| **Credits** | 3 | **Contact Hours** | 3 (3-0-0) |

| **Faculty (Names)** | **Coordinator(s)** | Prof. Mukta Mani, Dr. Sakshi Varshney |
|---|---|---|
| | **Teacher(s) (Alphabetically )** | Prof. Mukta Mani, Dr. Sakshi Varshney |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C303-3.1 | Understand the fundamental concepts of Financial Management and its various dimensions | Understanding (Level 2) |
| C303-3.2 | Apply the knowledge of the time value of money, capital budgeting techniques, cost of capital and in taking long-term investment decisions | Applying (Level 3) |
| C303-3.3 | Analyse the leverage capacity of a business and apply it in the selection of Long-term sources of finance. | Analyzing (Level 4) |
| C303-3.4 | Evaluate the financial performance of a business through financial statements | Evaluating (Level 5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **1.** | Introduction | Basic financial concepts-Meaning of Accounting, Accounting Concepts and Conventions, Introduction to Double Entry system and Accounting equation, Definition and Objectives of Financial Management | 4 |
| **2.** | Time Value of Money | Compounding, Discounting, Annuity, Perpetuity, Loan Amortization | 5 |
| **3.** | Analysis of Financial Statements | Understanding of Balance Sheet and Income Statements, Ratio Analysis, Interpretation, Importance and Limitations | 5 |
| **4.** | Capital Budgeting: Principal Techniques | Nature of Capital Budgeting, Evaluation Techniques: Discounting (NPV, IRR, etc.) and Non-discounting Techniques (payback, ARR, etc) | 6 |
| **5.** | Long-term Sources of Finance | Definition, types, advantages and disadvantages | 4 |
| **6.** | Concept and measurement of the cost of capital | Definition, measurement of specific costs, computation of Overall Cost of Capital, | 5 |
| **7.** | Cash Flows for Capital Budgeting | Identification and determination of relevant cash flows | 5 |
| **8.** | Leverages and Capital Structure Decision and Working Capital Management | Break-Even Analysis, Operating, Financial and combined leverage, Capital structure, EBIT- EPS analysis, Concept of working capital management, practical considerations in Working capital management, Evils of Excess or Inadequate Working Capital, Cash Management – Receivables Management – Inventory Management | 8 |
| **Total number of Lectures** | | | **42** |

| **Evaluation Criteria** | **Maximum Marks** |
|---|---|
| **Components** | |
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project+ Quiz+ Class participation) |
| **Total** | **100** |

Project-based learning: Each student in a group of 4-5 will opt for a company which is listed on at least one of the stock exchanges of India. To make the subject application-based, the students analyse the latest financial data and other information of the last two years of the chosen company by the financial tool of Ratio analysis and use this financial data for decision-making. Understanding the Balance Sheet and financial statements of the business firm enhances the student's knowledge of the organisational structure of the firm, and financial analysis helps their employability in the financial sector.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Textbooks, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Chandra, P., *Financial Management Theory and Practice*,11th ed., Tata McGraw Hill, 2022. |
| **2.** | Horne, J.C.V. and Wachowicz, J.M. Fundamentals of Financial Management, 13th ed., Pearson Publication, 2009. Accessed online: https://wps.pearsoned.co.uk/ema_uk_he_wachowicz_fundfinm an_13/106/27149/6950308.cw/-/6950310/index.html |
| **3.** | Khan, M.Y. and Jain, P.K. Financial Management: Text, Problems and Cases, 8th ed., McGraw-Hill Education, 2020. |
| **4.** | Kishore, R.M., *Financial Management*, 8th ed, Taxmann, 2020 |
| **5.** | Mukherjee, M and Hanif, M., Financial Accounting, 8th ed., Tata McGraw-Hill,2008. |
| **6.** | Pandey, I.M., Financial management, 12th ed, Vikas Publishing House Pvt Ltd, 2021 |
| **7.** | Rustagi, R.P.,Taxmann's Financial Management, 7th ed., India: Taxmann Publications, 2024. |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | 16B1NHS434 | **Semester: ODD** | **Semester V Session 2025-26 July - December** |
| **Subject Name** | **Introduction to Contemporary Form of Literature** | | |
| **Credits** | **3** | **Contact Hours** | **3 (3-0-0)** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Monali Bhattacharya (Sector 62)** |
| | **Teacher(s) (Alphabetically)** | **Dr. Monali Bhattacharya** |

**Course Outcomes:**

| | **Course Outcome** | **COGNITIVE LEVELS** |
|---|---|---|
| C303-6.1 | Interpret & relate with the genres, periods, and conventional as well as experimental forms of literature. | CL-2 Understand |
| C303-6.2 | Apply literary and linguistic theories on the texts to identify them as cultural constructs. | CL-3 Apply |
| C303-6.3 | Analyze select representative texts of different cultures thematically and stylistically. | CL-4 Analyse |
| C303-6.4 | Evaluate literature as reflection of society through a research-based paper/poster presentation individually and / or in a team. | CL-5 Evaluate |
| C303-6.5 | Create literary, non-literary write-up with proper applied grammar usage. | CL-6 Create |

.

| **Module No.** | **Subtitle of the Module** | **Topics in the module** | **No. of Hours for the module** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1. | **Introducing Literary Theories** | • From Formalism to Reader Response Theory: Major Terms & Concepts<br>• Narrative Art & Narratology<br>• Language & Style: An Introduction | 12 |
| 2. | **Introducing New Forms & Sub Genres Today: Features & Portions** | • New Fiction: Graphic Novels, Cyberpunk<br>• Non-Fiction: Memoirs & Autobiographies, Biographies | 4 |
| 3. | **Modern Retellings/ Childeren's Literature** | *Cinderella* (Poem) - Roald Dahl | 3 |
| 4. | **European Lit./Travel/ Memoir/ Spiritual Literature** | *Eat, Pray & Love (Travelogue& cinematic adaptation)* | 4 |
| 5. | **Written Communication Through Non-Fiction** | *Personal Narratives (Diary, Blog, Memoirs, Travelogue)* | 4 |
| 6. | **Commonwealth / Indian Literature** | *Hayavadana(Short Play)*- Girish Karnad | 4 |
| 7. | **Afro-American Lit/ Post Colonial Literature** | *Sweetness (Short Story)* – Toni Morrison | 3 |
| 8 | **Sci-fi (Cyberpunk)** | *Neuromancer (Science Fiction) – William Gibson* | 4 |
| 9 | **Canadian Literature/ Speculative Fiction** | *The Penelopiad- Margaret Atwood* | 4 |
| Total number of Hours | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Class Test, Quiz, Project, Class Interaction) |
| **Total** | **100** |

PBL Component:

The project will be done in a group of 5-6 students. Students will either do in-depth literature review to make research proposals or create their own narratives as part of assignments taking some contemporary issue.

**Recommended Reading material:**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

| | |
|---|---|
| 1. | M.H. Abrams, 'A Glossary of Literary Terms'.7th Edition, Hienle&Hienle: Thomson Learning, USA, 1999.<br>For online version:<br>https://mthoyibi.files.wordpress.com/2011/05/a-glossary-of-literary-terms-7th-ed_m-h-abrams-1999.pdf |
| 2. | Mark William Roche, 'Why Literature matters in the 21st Century', 1st Edition, Yale University Press, 2004. |
| 3 | https://allpoetry.com/poem/8503199-Cinderella-by-Roald-Dahl<br><br>Online video version: https://www.youtube.com/watch?v=dLmNG5EbHvc.<br><br>An interview with Dahl: https://www.youtube.com/watch?v=pA7kUPStmPE |
| 4 | Elizabeth Gilbert, 'Eat, Pray & Love. 1st Edition, Penguin,US, 2006.<br>For online version:<br>http://mrs-sullivan.com/wp-content/uploads/Eat-Pray-Love-Book-on-pdf.pdf<br>An interview with Elizabeth :https://www.youtube.com/watch?v=m9B9zFo4RFw |
| 5 | William Zinsser, 'On Writing Well: The Classic Guide to Writing Nonfiction', Harper Perennial; 30th Anniversary ed. Edition, 2016<br>For Online version:<br>http://richardcolby.net/writ2000/wp-content/uploads/2017/09/On-Writing-Well-30th-Anniversa-Zinsser-William.pdf |
| 6 | Girish Karnad, 'Hayavadana', 1st Edition, Oxford University Press, Delhi, 1975 (30th Impression, 2012).<br>For online version:<br>https://pdfcoffee.com/hayavadana-girish-karnadpdf-pdf-free.html<br>An interview with Karnad: https://www.youtube.com/watch?v=laL7oWWuLGI |
| 7 | https://www.newyorker.com/magazine/2015/02/09/sweetness-2<br>Audio version:<br>https://www.youtube.com/watch?v=ltKXTZTBmPs.<br>An interview with Morrison:<br>https://www.youtube.com/watch?v=DQ0mMjII22I&list=RDDQ0mMjII22I&start_radio=1&rv=DQ0mMjII22I&t=107 |
| 8 | William Gibson, 'Neuromancer', 1st Edition, The Berkley Publishing Group, New York, 1984.<br>For online version<br>http://index-of.es/Varios-2/Neuromancer.pdf |
| 9 | Margaret Atwood, 'The Penelopiad', 1st Edition, Canongate Series, Knopf, Canada, 2005.<br>For online version:<br>https://www.langhamtheatre.ca/wp- content/uploads/2010/09/The-Penelopiad.pdf<br>An interview with Atwood: https://www.youtube.com/watch?v=D5Wj_JQ6NhY |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **16B1NHS435** | **Semester : ODD** | **Semester: V Session: 2025-26**<br>**Month: July 2025 to December 2025** |
| **Subject Name** | **SOCIOLOGY OF MEDIA** | | |
| **Credits** | **3** | **Contact Hours** | **(3-0-0)** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | **Dr Nibha Sinha** |
| | **Teacher(s) (Alphabetically)** | **Dr Nibha Sinha** |

| CO Code | COURSE OUTCOMES | COGNITIVE LEVELS |
|---|---|---|
| C303-2.1 | Demonstrate a basic understanding of different concepts used in the systematic study of Sociology of Media | Understanding (C 2) |
| C303-2.2 | Apply various sociological theoretical orientations towards media and society. | Applying (C 3) |
| C303-2.3 | Analyze the key issues related to the processes of Production of Media, Popular Culture and consumer culture. | Analyzing (C 4) |
| C303-2.4 | Critically evaluate the Cultural Consumption, Social Class & the process of construction of subjectivities and audience reception in new Media | Evaluating (C 5) |
| C303-2.5 | Create positive and critical attitude towards the use of new media and understanding of threats of Digital Age | Creating (C 6) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Introduction | Introduction to the Course | 1 |
| **2.** | Theoretical Orientation | • Functionalist Approach to the Sociology of Media and Popular Culture<br>• Critical Approach to the Sociology of Media and Popular Culture<br>• Symbolic Interactionist Approach to the Sociology of Media and Popular Culture<br>• Different theories of Media | 8 |
| **3.** | Concept of Popular Culture and its critical analysis | • What is popular culture?<br>• Difference between 'pop' culture and 'high' culture<br>• What distinguishes popular culture from other kinds of culture (art, folk culture)? Is there a distinction at all anymore?<br>• Visualizing Society through 'pop' culture/ media<br>• Risks and rituals that come with Popular Culture | 8 |
| **4.** | New media | • Difference between tradition media and new media<br>• New media as technology<br>• New Information Technology (brief history in case of India) | 5 |
| **5.** | | • Mediatization of Society | 5 |

| | | | |
|---|---|---|---|
| | Media & State | • Free-speech Media | |
| **6.** | Consumption of Media and Media reception | • Social Actors as Audience/ Audience as market– Theory<br>• Media effects: Media and representations (gender, ethnic)- the under-representation and misrepresentation of subordinate groups.<br>• Media and the construction of reality: media logic and cultivation analysis theory<br>• Information Society vs Informed Society<br>• Cultural Consumption and Social Class | 8 |
| **7.** | Media in Global Age | • Rise of Network Society- Manuel Castells<br>• Global Media: impact of market & state<br>• Global Perspectives: The world on our doorstep<br>• Marketing and aesthetics in everyday life | 7 |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Presentation and assignments) |
| **Total** | **100** |

PBL: Each student will review research papers applying assumptions of different media theories studies in the course and submit a project.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication, etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1** | Deana A. Rohlinger (ed.), Sarah Sobieraj (ed.), "The Oxford Handbook of Digital Media Sociology" Publisher:<br>Oxford University Press, 2020 |
| **2** | Danielle Antoinette Hidalgo, *Dance Music Spaces: Clubs, Clubbers, and DJs Navigating Authenticity, Branding, and Commercialism*, Lexington Books, 2023. |
| **3.** | Joseph Turow, *Media Today: An Introduction to Mass Communication*,3rd Ed., Taylor & Francis. UK. (2008). |
| **4.** | JA Fisher 'High Art v/s Low Art, in Berys Nigel Gaut& Dominic Lopes (eds.), *The Routledge Companion to Aesthetics*. Routledge2001 |
| **5.** | G.Ritzer, 'McDonaldization of Society,. *The Journal of American Culture*. Volume 6, Issue 1. (2001 [1983])Pp. 100-107. |
| **6.** | Manuel. Castells,'Introduction', in *Rise of Network Society: The Information Age: Economy, Society and Culture*, 2nd Ed (1996). |


**Detailed Syllabus**
**Lecture-wise Breakup**

| CourseCode | 16B1NHS532 | Semester: ODD (specify Odd/Even) | Semester: 5th Month: from July 2025 to Dec. 2025 |
|---|---|---|---|
| **CourseName** | **Planning and Economic Development** | | |
| **Credits** | **03** | **ContactHours** | **3-0-0** |

| **Faculty (Names)** | **Coordinator(s)** | Dr. Amba Agarwal |
|---|---|---|
| | **Teacher(s) (Alphabetically)** | Dr. Amba Agarwal |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | Understand the economic growth, economic development and sustainable development. | Understanding Level (C2) |
| **CO2** | Apply concepts of national income accounting, human and gender development indices. | Applying Level (C3) |
| **CO3** | Analyze macroeconomic stability & policies, inflation, business cycle and demographic characteristics to understand the development process. | Analyzing Level (C4) |
| **CO4** | Evaluate federal development and decentralization, rural and urban local bodies. | Evaluating Level (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| 1. | Economic Development and its Determinants | Economic growth and development. Indicators of development. Approaches to economic development. Rostows Stages of Growth. | 4 |
| 2. | National Income Accounting | National Income Accounting, Green GNP and Sustainable development | 5 |
| 3. | Indicators of development | Physical quality of life index (PQLI), Human Development Index (HDI) and gender development index (GDI). | 5 |
| 4. | Demographic Features, Poverty and Inequality | Demographic features of Indian population; Rural-urban migration; Growth of Primary, Secondary and Tertiary Sector. | 5 |
| 5. | Inflation and Business Cycles | Inflation. Business cycle. Multiplier and Accelerator Interaction. | 6 |
| 6. | Macro-Economic Stability & Policies | Monetary Policy. Fiscal Policy. Role of Central Bank & Commercial banks in the development of the country. Balance of payments; currency convertibility and Issues in export-import policy. | 6 |
| 7. | Federal Development | The Federal Set-up - The Financial Issues in a Federal Set-up, Principles for Efficient Division of Financial Resources between Governments.<br>Financial Federalism under Constitution. Finance Commissions in India, Terms of References and its Recommendations | 6 |
| 8. | Planning and Development | Need for planning, Decentralisation, Rural and Urban local bodies. | 5 |

| Total number of Lectures | 42 |
|---|---|

**Evaluation Criteria**

| Components | Maximum Marks |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignment + Quiz) |
| **Total** | **100** |

**Project-based Learning**: Each student in a group of 4-5 will opt a topic and submit a report related to India's Development Indicators based on following parameters; National Income, State Income, Human Development Index (HDI), Gender Development Indices (GDI), Demographic Profile, Migration, Sectoral contributions of income and employment, Poverty, Income Inequality & literacy, Federal Structure, Budgetary estimates, Tax and Monetary Policy, Distribution of financial resources from central to state to local bodies. Understanding fundamental development indicators will upgrade student's knowledge on various Economic Development front and improve mechanism to formulate suitable policy design, which further strengthen their employability into public and private decision-making body.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| 1. | Todaro, M.P., Stephen C. Smith, *Economic Development*, 12th edition, Pearson Education, 2017 |
| 2. | Thirwal, A.P., *Economics of Development*, Palgrave, 2011 |
| 3. | Ahuja, H. L., *Development Economics*, 1st edition,S Chand publishing, 2023 |
| 4. | Meier, G.M., *Leading Issues in Economic Development*, 8th edition, Oxford University Press, New Delhi, 2008 |
| 5. | Thirlwall, A. P., & Wells, J.,*The Economics of Development Theory and Evidence*, 8th ed., Palgrave Macmillan, 2003 |


| Program Objectives | | | | | | | | | | | | | CSE/ECS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO Code | **PO1** | **PO2** | **PO 3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO 10** | **PO 11** | **PO 12** | **PSO1** | **PSO2** |
| C303-4.1 | | | 1 | | | | 2 | | | | 1 | 2 | | |
| C303-4.2 | | | 1 | | | | 2 | | | | 1 | 2 | | |
| C303-4.3 | | | 1 | | | | 2 | | | | 1 | 2 | | |
| C303-4.4 | | | 1 | | | | 2 | | | | 1 | 2 | | |
| Average | | | 1.00 | | | | 2.00 | | | | 1.00 | 2.00 | | |

**Detailed Syllabus**
**Lecture-wise Breakup**

| Subject Code | 19B12HS311 | Semester: ODD | Semester V Session 2025-26<br>Month from July to December 2025 |
|---|---|---|---|
| Subject Name | ENTREPRENEURSHIP DEVELOPMENT | | |
| Credits | 3 | Contact Hours | 3(3-0-0) |

| Faculty (Names) | Coordinator(s) | Dr Deepak Verma |
|---|---|---|
| | Teacher(s) (Alphabetically) | Dr Deepak Verma |

| COURSE OUTCOMES: | | COGNITIVE LEVELS |
|---|---|---|
| C303-8.1 | Understand entrepreneurial fundamentals and considerations for developing a business idea | Understand Level (C2) |
| C303-8.2 | Apply the entrepreneurial fundamentals to establish and develop business ventures and develop an entrepreneurial mindset | Apply Level (C3) |
| C303-8.3 | Examine the importance of various critical business aspects such as marketing, finance and strategic planning in developing business | Analyze Level (C4) |
| C303-8.4 | Assess strategies for resource hiring, Team management and leading a business venture | Evaluate Level (C5) |

| Module No. | Subtitle of the Module | Topics in the module | No. of Lectures for the module |
|---|---|---|---|
| 1. | Entrepreneurial perspective | Foundation, Nature and development of entrepreneurship, importance of entrepreneurs, Entrepreneurial Mind, Individual entrepreneur Types of entrepreneurs, Entrepreneurship in India | 8 |
| 2. | Beginning Considerations | Creativity and developing business ideas; Creating and starting the venture; Building a competitive advantage; Opportunity recognition, Opportunity assessment; Legal issues | 14 |
| 3. | Developing Marketing Plans | Developing a powerful Marketing Plan, E-commerce, Integrated Marketing Communications | 6 |
| 4. | Developing Financial Plans | Sources of Funds,<br>Managing Cash Flow,<br>Creating a successful Financial Plan<br>Developing a business plan | 11 |
| 5. | Leading Considerations | Developing Team, inviting candidates to join team, Leadership model | 3 |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| Components | Maximum Marks |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignment, Project, Class Participation, Attendance) |

| | |
|---|---|
| **Total** | **100** |

**Project based learning:** Each student in a group of 4-5 will work on developing business plan around a new idea. They will include the major business consideration in the plan. The students will present the business plans. Discussions on these practical issues will enhance students' understanding of entrepreneurship. The students will learn from other groups as well through other groups' presentations.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | Robert D Hisrich, Michael P Peters & Dean A Shepherd, "Entrepreneurship" 10th Edition, McGraw Hill Education, 2018 |
| **2.** | Norman M. Scarborough and Jeffery R. cornwell, "Essentials of entrepreneurship and small business management" 8th Edition, Pearson, 2016 |
| **3.** | Rajiv Roy, "Entrepreneurship", 2nd Edition, Oxford University Press, 2011 |
| **4.** | Sangeeta Sharma, "Entrepreneurship Development", 1st Edition, Prentice-Hall India, 2016 |
| **5.** | John Mullins, "The New Business Road Test: What entrepreneurs and investors should do before launching a lean start-up" 5th Edition, Pearson Education, 2017 |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | **20B13HS311** | **Semester: Odd** | **Semester: V Session: 2025-26 Month: July-December** |
| **Course Name** | **Indian Constitution and Traditional Knowledge** | | |
| **Credits** | **AUDIT** | **Contact Hours** | **2-0-0** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Ila Joshi (Sec 62) & Dr.Praveen Kumar Sharma (Sec 128) |
| | **Teacher(s) (Alphabetically)** | Dr. Ila Joshi, Dr. Namreeta Kumari, Dr. Yogita Naruka, Dr. Shikha Kumari, Dr.Praveen Kumar Sharma , Dr. Shweta Verma, Dr. Himanshi Lahmore |

| **CO Code** | **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|---|
| C305.1 | Develop an understanding of the historical background of the Constitution, its salient features, fundamental rights, fundamental duties and directive principles of the state policy. | Understanding (C2) |
| C305.2 | Apply the traditional theories of Indian traditional political thought to the contemporary working of the state and its governance structures. | Applying (C3) |
| C305.3 | Analyze the working of Indian federalism with reference to centre-state relations and cooperative federalism. | Analyzing (C4) |

| | | |
|---|---|---|
| | | |
| C305.4 | Evaluate nature and working of the different organs of the government. | Evaluating (C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | The Indian Constitution | ● Historical Background to the Indian Constitution<br>● Salient features of the Indian Constitution<br>● Fundamental Rights (Part III of the Indian Constitution)<br>● Fundamental Duties (Part IVA of the Indian Constitution)<br>● Directive Principles of the State Policy (Part IV of the Indian Constitution)<br>● Amendments to the constitution | 8 |
| **2.** | Organs of the Government | ● The Executive: President, Prime Minister and Governor- appointment, powers and functions<br>● The Legislature: Parliament and its components- Lok Sabha and Rajya Sabha (composition and functions)<br>● The Judiciary: Supreme Court-composition, functions, appointment and jurisdiction | 8 |
| **3.** | Nature of Federalism in India | Centre-State Legislative Relations<br>Centre-State Administrative Relations<br>Centre-State Financial Relations<br>Special Provisions of some state and the 5th and 6th schedule<br>Emergency provisions | 6 |
| **4.** | Traditional knowledge | ● Kautilya- Theory of state<br>● Mandala theory<br>● Saptanga theory | 6 |
| | | | |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T2 | 30 |
| End Semester Examination | 40 |
| TA | 30 (Attendance, Quiz, Project) |
| **Total** | **100** |

Project Based Learning: Projects based on important Supreme Court judgments have to be submitted by the students as a part of the project-based learning method. This would help the students to know about

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | A.A. George, *Important Judgements that transformed India*, New Delhi: McGraw Hill, 2020 |
| **2.** | B. Chakraborty, *Indian Constitution: Text, Context and Interpretation,* New Delhi: Sage Publications, 2017 |
| **3.** | B.K.Sharma, *Introduction to the Constitution of India*, New Delhi: Prentice Hall of India, 2002 |
| **4.** | M.Laxmikanth, *Indian Polity*, 6th edition, Noida: McGraw Hill, 2019 |
| **5.** | M.P.Singh and R. Saxena, R, *Indian Politics: Contemporary Issues and Concerns*, New Delhi: PHI Learning, 2008 |
| **6.** | R. Kangle, *Arthashashtra of Kautilya*, New Delhi: Motilal Publishers, 1997 |
| **7.** | Videos- Samvidhan series produced by Rajya Sabha Television<br>.https://www.youtube.com/watch?v=0U9KDQnIsNk |

the interpretation of the various rights interpreted by Supreme Court which would help them in their workplace as well as in general life.

## CO-PO-PSO Mapping:

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C402-8.1 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.2 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.3 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.4 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.5 | | | | | | **3** | | | **2** | | | **2** | | | |
| **Avg.** | | | | | | **3.0** | | | **2.0** | | | **2.0** | | | |

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| Course Code | 21B12HS312 | Semester: Odd (specify Odd/Even) | Semester: 5th Session: 2025 -2026 Month from: July-December |
| Course Name | **Management Accounting** | | |
| Credits | 03 | Contact Hours | 3-0-0 |

| | | |
|---|---|---|
| Faculty (Names) | Coordinator(s) | Dr. Purwa Srivastava |
| | Teacher(s) (Alphabetically) | Dr Purwa Srivastava |

| COURSE OUTCOMES | | COGNITIVE LEVELS |
|---|---|---|
| C303-10.1 | Understand various aspects of the management accounting system including ethical conduct for accountants | Remembering (C1) |
| C303-10.2 | Understand cost behaviour and apply cost-volume-profit analysis in decision making | Understanding (C2) |
| C303-10.3 | Understand basic accounting concepts and analyze financial statements of a business organization | Applying (C3) |
| C303-10.4 | Analyze various costing systems for cost allocation and pricing decisions | Analyzing (C4) |
| C303-10.5 | Evaluate the master budget and carry out variance analysis for planning and management control decisions | Evaluate (C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Basic Accounting concepts and financial statements | Accounting Concepts, principles, accounting equation, analysis of Balance sheet, Income statement, statement of changes in stockholders' equity, statement of cash flows. Common size statement, trend analysis and ratio analysis | 7 |
| **2.** | Management accounting system | Meaning of Management Accounting, Influences on accounting systems, Ethical conduct for accountants | 7 |
| **3.** | Cost Concepts and cost behaviour | Identifying resources, Activities, Costs and Cost drivers; Variable and Fixed cost behaviour; Cost-Volume-Profit Analysis | 7 |
| **4.** | Cost Management Systems | Direct, Indirect cost; Cost allocation; Traditional and Activity Based costing systems, special orders, pricing | 7 |

| | | | |
|---|---|---|---|
| | | decision, cost-plus pricing, target costing, make or buy decision | |
| **5.** | Budgetary Control | Introduction to budgets; Functional budgets, Master budgets, Fixed and flexible budgets, Budgets as financial planning models, Variance analysis | 8 |
| **6.** | Management control system | Organizational goal and performance measures, designing a management control system | 6 |
| **Total number of Lectures** | | | **42** |

| **Evaluation Criteria** | |
|---|---|
| **Components** | **Maximum Marks** |
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (assignments, class test, project) |
| **Total** | **100** |

**Project-based learning-** The students will be given a group project to identify a simple business, one with at least two products, two services or one product & one service. They will estimate the fixed and variable costs related to the business and carry outa Cost-Volume-Profit analysis to determine the Break-even sales of the business. Also, they will determine the cost of products/services using Activity-based Costing. Lastly, the students will prepare a projected master budget for the next three years which includes the sales budget, operating expenses budget, cash budget, purchase budget, projected balance sheet, profit and loss account and so on.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Charles T. Horngren, Gary L. Sundem, Jeff O. Schatzberg, Dave Burgstahler, Introduction to Management Accounting, 16th Edition, Pearson Publication, 2014. |
| **2.** | Anthony A. Atkinson, Robert S. Kaplan, Ella Mae Matsumura, S. Mark Young, G. Arun Kumar, Management Accounting, 5th Edition, Pearson Publication, 2009. |
| **3.** | Arora, M.N. Cost and Management Accounting, Himalaya Publishing, 4th Edition, 2018. |
| **4.** | Hingorani, Ramanathan and Grewal, Management Accounting, S. Chand Publications, 2003. |
| **5.** | Ghosh, T. P., Financial Accounting for Managers, 4th Edition, Taxmann Publications, 2009. |
| **6.** | Maheshwari, S.N., Maheshwari, S.K., Financial Accounting, 10th ed, Vikas Publishing House. |
| **7.** | Pandey, I.M., Financial management, 11th ed, Vikas Publishing House Pvt Ltd, 2015 |
| **8.** | Chandra, P., Financial Management Theory and Practice, 7th ed., Tata McGraw Hill, 2007. |
| **9.** | Chawla, M, Chawla, C and Gupta, A. "India: Anti-corruption Compliance in India" Mondaq, January, 2021. Accessed on: 30th October 2021. Link: https://www.mondaq.com/india/white-collar-crime-anti-corruption-fraud/1022326/anti-corruption-compliance-in-india |
| **10.** | Tangdall, S. "The CEO of Starbucks and the Practice of Ethical Leadership", Santa Clara University, 29th August 2018. Accessed on: 30th October 2021. Link: https://www.scu.edu/leadership-ethics/resources/the-ceo-of-starbucks-and-the-practice-of-ethical-leadership/ |

| Detailed Syllabus | | | | |
|---|---|---|---|---|
| **Subject Code** | **24B12HS314** | **Semester: ODD** | **Semester: V** | **Session: 2025-26<br>Month: July to Dec** |
| **Subject Name** | **Contemporary India: A Sociological Perspective** | | | |
| **Credits** | **3** | **Contact Hours** | **3-0-0** | |

| | | |
|---|---|---|
| **Faculty Name** | **Course Coordinator (s)** | **Dr Yogita Naruka** |
| | **Teacher(s) (Alphabetically)** | **Dr Yogita Naruka** |

| CO Code | Course Outcomes | Cognitive Levels |
|---|---|---|
| C304-18.1 | Understand the significance of key events and movements that changed the history of India's development experience. | Understanding, C2 |
| C304-18.2 | Apply sociological perspectives to analyze and interpret contemporary issues and challenges facing Indian society. | Applying, C3 |
| C304-18.3 | Critically analyze the impact of colonialism, independence, and liberalization on various aspects of Indian society, including culture, economy, politics, and social structure. | Analysing, C4 |
| C304-18.4 | Evaluate the processes that have resulted in the social and political changes in contemporary India | Evaluating, C5 |

| Module No. | Module Title | Topics | No. of lectures |
|---|---|---|---|
| 1 | Emergence of India as a Nation-State | Introduction to the course, idea of a nation-state, rise of India as a nation-state - Socio-political ramifications of Colonialism and Indian National Movement | 7 |
| 2 | Indian Sociological Perspectives -I | Indological Perspective (GS Ghurye), Structural Functionalist Perspective (MN Srinivas), Marxist Perspective (AR Desai) | 9 |
| 3 | Contemporary Changes in Indian Society | Green Revolution, Indian Emergency Period, Liberalisation reforms, impact on key events on India social, cultural and economic fabric | 9 |
| 4 | Indian Sociological Perspectives - II | Subaltern perspective and Dalit Perspective, Feminist Perspective | 8 |
| 5 | Concerns of contemporary Indian Society | Caste in 21st century, Contemporary women's movements, Contemporary Agrarian crisis, Environmental movements | 9 |
| **Total number of hours** | | | **42** |

| Evaluation Criteria |
|---|

| Components | Maximum Marks |
|---|---|
| Mid term | **30** |
| End Sem | **40** |
| TA | **30 (Project, quiz, assignment)** |
| **Total** | **100** |

| **Project Based Learning** |
|---|
| Students will be required to develop a detailed critical review of an Indian social movement (contemporary)/ Indian movie/ Indian Advertisements (at least 10) that focusses on any significant social issues discussed during the course. |

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| 1. | Bhaduri, Amit and Nayyar, Deepak. *The Intelligent Person's Guide to Liberalization*, Penguin Books India, New Delhi, 1996. |
| 2. | Dubey, S.C. *Indian Society*, National Book Trust, New Delhi, 2001 (Reprint) |
| 3. | Heehs, Peter. *India's Freedom Struggle 1857-1947: A short history,* Oxford University Press, New York, 1988. |
| 4. | Centre for Science and Environment, *State of India's Environment: A citizens Report*, CSE, New Delhi, Updated ed. |
| 5. | Srinivas, M. N., *Social Change in Modern India*, Orient Longman, New Delhi, 1995. |

| **COs** | **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO10** | **PO11** | **PO12** | **PSO 1** | **PSO 2** | **PSO 3** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | | | | | | 1 | | 1 | | | | 1 | | | |
| CO2 | | | | | | 2 | 1 | 2 | 1 | 1 | | 1 | | | |
| CO3 | | | | | | 1 | 1 | | 1 | 1 | | 2 | | | |
| CO4 | | | | | | 1 | 2 | 2 | | | | 2 | | | |
| **Avg.** | | | | | | **1.25** | **1.00** | **1.25** | **1.00** | **1.00** | | **1.50** | | | |

**Syllabus**

| **Course Code** | 24B12HS315 | **Semester** ODD **(specify Odd/Even)** | **Semester** V **Session** 2025 -2026 **Month from** July-December |
|---|---|---|---|
| **Course Name** | **Civil Society, Political Regimes and Conflict** | | |

| | | | |
|---|---|---|---|
| **Credits** | 3 | **Contact Hours** | **3-0-0** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Ila Joshi (62) |
| | **Teacher(s) (Alphabetically)** | Dr Ila Joshi |

| **CO Code** | **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|---|
| CO1 | Demonstrate an understanding of the basic concepts and elements of civil society and its intersection with state and globalization. | Understanding (C2) |
| CO2 | Compare the working of NGOs in various fields through their methods and strategies. | Applying (C3) |
| CO3 | Analyze the contribution of civil society in Indian and global peace movements. | Analyzing (C4) |
| CO4 | Evaluate the Gandhian notion on civil society and its relevance | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Understanding Civil Society | • Civil Society: Concepts and Perspectives<br>• Elements of Civil Society<br>• Civil Society in India<br>• Role of Civil Society<br>• Issues in the Working Civil Society Organizations | 8 (CO2) |
| **2.** | Civil Society and the State | • State and Civil Society<br>• Civil Society and Globalization: Resistance and Protest<br>• Civil Society and Political Regimes | 9 (CO2, CO3) |
| **3.** | Role of NGO's in Peace Process | • NGO: Definition and Types<br>• Methods and Strategies Used by NGOs<br>• Case Studies of Some Prominent NGOs | 8 (CO3) |
| **4** | Civil Society and Peace Building | • Global Peace Movements<br>• The Underlying Causes of Violence and War, Lasting World Peace<br>• Peace Movements in India | 8 (CO3, CO4) |
| **5** | Gandhian Civil Society for Global Peace | • Gandhian Notion of Civil Society<br>• Gandhi, Capacity Building and Empowerment<br>• Gandhian Civil Society and Globalization<br>• Gandhian Civil Society for Global Peace | 9 (CO5) |

| Total number of Lectures | 42 |
|---|---|

**Evaluation Criteria**

| Components | Maximum Marks |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project/ Class Test/ Quiz) |
| **Total** | **100** |

**Project:** Students are expected to evaluate the work of various NGOs and other civil society organizations in addressing the social problems. The projects will evaluate the role of civil society organizations in national and international peace building process.

**Recommended Reading material:**


| | |
|---|---|
| 1. | Asian Development Bank, Overview of Civil Society Organizations: India, retrieved from https://www.adb.org/publications/overview-civil-societyorganizations-india, November 1, 2017 |
| 2. | Bratton, Michael, 1994, Civil Society and Political Transition in Africa, Boston, MA: Institute for Development Research |
| 3. | Angi, D. (2005). Beyond the Boundaries of Nation-State: Images of Global Civil Society. Polish Sociological Review. 149: 15-29. |
| 4. | Chandhoke, N. (2002). The Limits of Global Society. In M.Glaus (Ed.). Global Civil Society. Oxford: Oxford University Press. |
| 5. | Korten, D.C. 1990. Getting to the 21st Century: Voluntary Action and Global Agenda. West Hartford, CT: Kumarian |
| 6. | Elliot, C., 'Some Aspect of Relations between the North and South in the NGO Practices', Annual Review of Anthropology 26:439-64, 1987. |
| 7. | George, S. Jacob., Intra and Inter-State Conflicts in South Asia, South Asian Publishers, New Delhi, 2001 |
| 8. | Roger, C., A Just and Lasting Peace: The US Peace Movement from the Cold War to Desert Storm, The Noble Press, Chicago, 1991 |
| 9. | Abiew, F.K., and T.Keating. 2004. "Defining a Role for Civil Society". In Building Sustainable Peace. Ed. T. Keating and W.A.Knight, 93-117. Edmonton: University of Alberta Press. |
| 10. | Shah, Ghanshyam and H.R. Chaturvedi., Gandhian Approach to Rural Development: The Valod Experiment, New Delhi: Ajanta Prakasha, 1983. |

**CO-PO-PSO Mapping:**

| | | | | | | | | | | | | | BT | BT | BT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COs** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| CO1 | | | 1 | | | 1 | 1 | | | | | | | | 1 |
| CO2 | | | 1 | | | 1 | 1 | | | | | | | | 1 |
| CO3 | | | 1 | | | 1 | 1 | | | | | | | | 1 |
| CO4 | | | 1 | | | 1 | 1 | | | | | | | | 1 |
| | | | | | | | | | | | | | | | |
| **Avg.** | | | **1.00** | | | **1.00** | **1.00** | | | | | | | | 1.00 |

# DETAILED SYLLABUS AND EVALUATION SCHEME

| **Course Code** | **25B12HS311** | **Semester: ODD (specify Odd/Even)** | **Semester: V Session:2025-26** Month from: July-December |
|---|---|---|---|
| **Course Name** | Consumer Behaviour | | |
| **Credits** | 03 | Contact Hours | 3-0-0 |

| **Faculty(Names)** | **Coordinator(s)** | Prof. Monika Suri |
|---|---|---|
| | **Teacher(s) (Alphabetically)** | Prof. Monika Suri |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C306-3.1** | Understand the basic principles of consumer behaviour and its relevance in product design, marketing, and user experience. | Understanding (C2) |
| **C306-3.2** | Analyze the key psychological, social, and environmental factors that influence consumer decision-making in a digital and technological context. | Analyzing (C4) |
| **C306-3.3** | Apply consumer behaviour insights to optimize product features, improve user interfaces, and enhance customer engagement. | Applying(C3) |
| **C306-3.4** | Evaluate ethical concerns and responsible practices in influencing consumer behaviour through technology and marketing strategies. | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1. | Understanding Consumer Behaviour | Introduction to consumer Behaviour in tech-driven industries- Importance for engineers: user behavior, product design, user experience- Differences between user and consumer | 5 |
| 2. | Key Psychological Drivers | Motivation (Maslow's relevance in tech products)- Perception and attention in digital interfaces- Memory and decision shortcuts (heuristics)- Emotions in product interaction | 8 |
| 3. | Consumer Decision-Making | Stages of decision-making: need recognition to post-purchase- Influence of UX/UI on decisions- Digital buying behavior vs offline behavior- Introduction to nudges and default options | 7 |
| 4. | Influence of Social & Digital Environments | Role of peer influence, reviews, and social media- Impact of online communities- Cultural aspects in global tech markets- Influence of advertising and branding | 7 |
| 5. | Applications in Technology & Design | Applying behavior insights to product/app/website design- Personalized recommendation systems- Case studies: successful user-centric products (Amazon, Netflix, etc.)- Consumer feedback and product iterations | 8 |
| 6. | Ethics in Consumer Engagement | - Persuasive design vs manipulative design- Dark patterns in apps and e-commerce- Data privacy and trust in digital platforms- Ethical marketing and transparency | 7 |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz, Project, Viva, Attendance) |
| **Total** | **100** |

**Project-based Learning:** The **AdMad Show** is a group live project wherein students, working in teams of 6–8 members, are assigned established brands and challenged to diversify them into completely mismatched product categories (for example, Nike entering organic foods or Amul launching luxury watches). Each group conceptualizes and presents a creative advertisement while developing a complete marketing mix (7Ps)—product, price, place, promotion, people, process, and physical evidence—along with consumer behavior strategies such as segmentation, targeting, positioning, consumer perception, motivational triggers, and cultural or lifestyle influences. The project provides a practical platform for students to apply marketing concepts, analyze consumer psychology, and demonstrate creativity, innovation, teamwork, and persuasive communication, while also understanding how brand equity can be stretched, repositioned, or challenged.

| **Recommended Reading material:** | |
|---|---|
| 1. | M. R. Solomon, *Consumer Behavior: Buying, Having, and Being*, 13th ed. London, U.K.: Pearson, 2020 |

| | |
|---|---|
| 2. | N. Eyal, *Hooked: How to Build Habit-Forming Products*. New York, NY, USA: Penguin, 2014. |
| 3. | D. Bridger, *Consumer Psychology in Behavioral Design*. London, U.K.: Kogan Page, 2017. |
| 3. | "Articles on consumer behavior and behavioral design," *Harvard Business Review*, *Journal of Consumer Research*, and *UX Collective*, [Online]. Available: https://hbr.org, https://academic.oup.com/jcr, https://uxdesign.cc |
| 4. | N. Eyal, *Hooked: How to Build Habit-Forming Products*. New York, NY, USA: Penguin, 2014. |

## Society and Sustainability

## Course Description

| | | | | |
|---|---|---|---|---|
| **Course Code** | 25B12HS312 | **Semester-ODD** | **Semester V Session** 2025-26<br>**Month** July – December 2025 | |
| **Course Name** | **Society and Sustainability** | | | |
| **Credits** | 3 | **Contact Hours** | 3-0-0 | |
| **Faculty (Names)** | **Coordinator** | Dr. Suraj Das | | |
| | **Teacher(s) (Alphabetically)** | Dr. Suraj Das | | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | Explain key concepts, history, and debates in sustainability and climate change | Understanding (C2) |
| **CO2** | Apply tools to measure and monitor sustainability efforts | Applying (C3) |
| **CO3** | Analyse societal and stakeholder influences on sustainability | Analyzing (C4) |
| **CO4** | Evaluate sustainable transition and policy frameworks for future implications | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Introduction to Sustainable Development | Climate change and Sustainability, MDGs, SDGs, Brundtland Commission, Anthropogenic causes, Global warming, Tipping points, IPCC reports, Climate change debates, 3Ps (People, Planet, Profit), 5Ps (People, Planet, Prosperity, Peace, Partnership), Rio Summit, Paris Agreement, CoPs. | 9 |
| **2.** | Societal Impact and Stakeholder Responsibilities | Social Theory of climate change, Social Dimensions of Sustainability, Stakeholders in Sustainability, Environmental Justice & Marginalized Communities, Corporate Social Responsibility and Sustainability, Role of Local Communities and Indigenous Knowledge; Issues around Sustainable Development, Public Perception of Climate Change | 8 |
| **3.** | Tools and Techniques for Sustainable Policy and Practice | Ecological and Carbon footprints, SDG impact assessment tools for sustainability measurements, Indicators & Indices, ESG Reporting and Corporate Sustainability Metrics, Existing measures and constraints, Multi-Criteria Decision Making (MCDM) in Policy Case Study: Applying Tools in a Real-world Context | 9 |
| **4.** | Engineering and Social Solutions | Green Financing, Circular Economy, Smart Cities and Sustainable Infrastructure, Carbon Markets, Behavioural Change & Community-led Interventions, Nature-Based Solutions (NbS) & Ecosystem Services, Waste Management and Water Sustainability, Corporate Innovation & Product Design for SDGs | 8 |
| **5.** | Sustainability Policies and | India's National Action Plan on Climate Change (NAPCC), State-level and Local Governance Mechanisms, Global Treaties: UNFCCC, Paris Agreement, CoPs, Climate Financing Mechanisms: | 8 |

| | | | |
|---|---|---|---|
| | Future Outlook | GCF, Adaptation Fund; Environmental Law and Governance, the Future of Sustainable Development; Emerging Trends: AI, Big Data, Digital Sustainability | |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| **Test-1 Examination (1 Hr)** | **20 Marks** |
| **Test-2 Examination (1 Hr)** | **20 Marks** |
| **End Term Examination (2 Hr)** | **35 Marks** |
| **Teacher's Assessment (Assignments, Quizzes, Regularity in lectures and Tutorials, etc.)** | **25 Marks** |
| **Total** | **100** |

**Project based learning:** A group of 4 to 5 students will be formed. Each group will have a group leader to develop coordination among the group members. Each group will be assigned a topic related to Future Perspectives: Developing Sustainable Development. The group leader of each group will submit a report of 10-12 pages and then finally each member of the group will be evaluated through a viva voce.

**Recommended Reading material:**


| | |
|---|---|
| **1.** | J. A. Elliott, *An Introduction to Sustainable Development*, 4th ed. London, U.K.: Routledge, 2012 |
| **2.** | I. B. Franco and J. Tracey, "Community capacity-building for sustainable development: Effectively striving towards achieving local community sustainability targets," *Int. J. Sustain. High. Educ.*, vol. 20, no. 4, pp. 691–725, 2019. |
| **3.** | P. P. Rogers, K. F. Jalal, and J. A. Boyd, *An Introduction to Sustainable Development*, London, U.K.: Earthscan, 2012. |
| **4.** | G. Nhamo and V. Mjimba, *Sustainable Development Goals and Institutions of Higher Education*. Cham, Switzerland: Springer, 2020. |
| **5.** | S. Bell and S. Morse, *Sustainability Indicators: Measuring the Immeasurable*, London, U.K.: Routledge, 2012. |


## CO-PO and CO-PSO Mapping:

| **CO** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PSO** |
|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | | 2 | | 1 | | 3 | 1 | | | |
| **CO2** | | 2 | | 3 | | 2 | 2 | | | |
| **CO3** | | 3 | | 2 | | 3 | 2 | | | |
| **CO4** | | 1 | | 3 | | 2 | 3 | | | |
| **Avg** | | **2.00** | | **2.25** | | **2.50** | **2.00** | | | |

| | | | |
|---|---|---|---|
| **Course Code** | 25B12HS313 | **Semester** ODD **(Specify Odd/Even)** | **Semester** V **Session** 2025-2026 **Month from** July-December 2025 |
| **Course Name** | Indian English Literature | | |
| **Credits** | 3 | **Contact Hours** | 3-0-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Mohua Dutta (Sec. 62) |
| | **Teacher(s) (Alphabetically)** | Dr. Mohua Dutta |

| CO Code | Course Outcomes | Cognitive Levels |
|---|---|---|
| **C306-1.1** | Understand the history and development of Indian English Literature | Understanding Level (C2) |
| **C306-1.2** | Identify the major figures of Indian English Literature through a close study of select literary texts | Applying Level (C3) |
| **C306-1.3** | Analyze politico-socio-cultural contexts of Indian English Literature | Analyzing Level (C4) |
| **C306-1.4** | Assess themes and contexts of diasporic writings | Evaluating Level (C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures in the module |
|---|---|---|---|
| **1.** | Introduction & Historical Background | • Introduction to Indian English Literature<br>• Colonial and Postcolonial Contexts | 3 (CO1) |
| **2.** | Indian English Poetry | • Henry Derozio: Freedom to the Slave<br>• Toru Dutt: Our Casuarina Tree<br>• Nissim Ezekiel: The Night of the Scorpion<br>• Kamala Das: An Introduction<br>• Aga Shahid Ali: Postcard from Kashmir<br>• Meena Alexander: House of a Thousand Doors | 12 (CO2, CO3, CO4) |
| **3.** | Indian English Fiction- Short Stories | • Rabindranath Tagore: The Postmaster<br>• Mulk Raj Anand: The Cobbler and the Machine<br>• R.K. Narayan: An Astrologer's Day<br>• Ruskin Bond: Time Stops at Shamli<br>• Salman Rushdie: The Free Radio<br>• Rohinton Mistry: Swimming Lesson | 15 (CO2, CO3, CO4) |
| **4** | Indian Theatre in English | • Mahesh Dattani: *Dance Like a Man* | 6 (CO2, CO3, CO4) |

| | | | |
|---|---|---|---|
| **5** | Indian English Fiction- Novel | • Jhumpa Lahiri: *The Namesake* | 6 (CO2, CO3, CO4) |
| | | **Total number of Lectures** | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester | 35 |
| TA | 25 |
| [Quiz- 10 Marks; Project Based Learning & Group Presentation- 15 Marks] | |
| **Total** | **100** |

For PBL, a group of 5-6 students are expected to write a detailed assignment of about 2500-3000 words on any of the following topics:

1. From colonized to cosmopolitan: Evolution of themes and contexts in Indian English Literature
2. The aesthetics of Indian English Poetry
3. The role of women and feminine voice in Indian English Writing
4. Themes of postcolonial identity and diasporic alienation in Indian English Literature
5. Indian English Literature as medium of self-expression and assertion of identity
6. Tradition vs. modernity in Indian English Literature

Students will be graded based on their research, analytical, writing, and presentation skills.

**Recommended Readings**


- Ashcroft, Bill, Gareth Griffiths, and Helen Tiffin. *The Empire Writes Back: Theory and Practice in Post-Colonial Literatures*. London: Routledge, 1989.
- Bhabha, Homi K. ed. *Nation and Narration*. New York: Routledge and Keegan Paul, 1990.
- Bhabha, Homi K. *The Location of Culture*. London & New York: Routledge, 1994.
- Das, Sisir Kumar. *A History of Indian Literature*, Vols VIII & IX. New Delhi: Sahitya Akademi, 2005.
- Devy, G.N. *After Amnesia: Tradition and Change in Indian Literary Criticism.* Michigan: Orient Longman, 1995.
- Iyengar, K.R Srinivasa. *Indian Writing in English*. New Delhi: Sterling, 1984.
- Jaidka, Manju and Tej N. Dhar eds. *The Routledge Encyclopedia of Indian Writing in English*. New York: Routledge, 2023.
- King, Bruce. *Modern Indian Poetry in English*. Oxford: Oxford University Press, 2005.
- Mehrotra, Arvind Krishna, ed. *A History of Indian Literature in English*. New York: Columbia University Press, 2003.
- Mukherjee, Meenakshi. *The Perishable Empire: Essays on Indian Writing in English*. Oxford:

Oxford University Press, 2000.

- Naik, M.K. *A History of Indian English Literature*. New Delhi: Sahitya Academy, 1982.
- Naik, M.K. *Aspects of Indian Writing in English*. Madras: Macmillan 1979.
- Sethi, Rumina. *Myths of the Nation: National Identity and Literary Representation.* Oxford: Oxford University Press, 1999.
- Walsh, William. *Indian Literature in English.* Michigan: Orient Longman, 1990.

## CO-PO-PSO Mapping

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COs** | **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** |
| **C306-1.1** | | | | | | 1 | | | | 1 | | 2 |
| **C306-1.2** | | | | | | 1 | | | | 1 | | 2 |
| **C306-1.3** | | | | | | 1 | | | | 1 | | 2 |
| **C306-1.4** | | | | | | 1 | | | 2 | 2 | | 2 |
| **Avg.** | | | | | | 1.00 | | | 2.00 | 1.00 | | 2.00 |

**Detailed Syllabus**

| | | | |
|---|---|---|---|
| **Course Code** | 16B1NPH634 | **Semester:** Even | **Semester:** VI **Session: 2024-25**<br>**From:** January 2025 to June 2025 |
| **Course Name** | Applied Statistical Mechanics | | |
| **Credits** | 3 | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Indrani Chakraborty |
| | **Teacher(s) (Alphabetically)** | Dr. Indrani Chakraborty |

| **COURSE OUTCOMES**<br>After completion of the course, students will be able to: | | **COGNITIVE LEVELS** |
|---|---|---|
| **C302-15.1** | Define the fundamental parameters of Thermodynamics and Statistical Mechanics. | Remember Level (Level 1) |
| **C302-15.2** | Explain the Thermodynamic potentials, Maxwell's equations and Heat equations. | Understand Level (Level 2) |

| | | |
|---|---|---|
| **C302-15.3** | Apply the concepts of thermodynamics and statistical ensembles to understand the phase space and distribution functions. | Apply Level (Level 3) |
| **C302-15.4** | Determine the distribution functions in case of various types of physical and chemical ensembles. | Analyze Level (Level 4) |
| **C302-15.5** | Evaluate the ideas of Entropy with respect to Probability and Information Theory; and conclude Liouville's equation. | Evaluate Level (Level 5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Basic Thermodynamics | Overview of basic laws of Thermodynamics; Microscopic and macroscopic parameters, Thermodynamic potentials; Introduction to equilibrium and non-equilibrium systems and related problems; Entropy and probability; | 3 |
| **2.** | Statistical Ensembles | Concept of Statistical ensembles, Density of States; Micro canonical, Canonical, Grand-canonical ensembles | 5 |
| **3.** | Distribution functions | Maxwell-Boltzmann, Bose-Einstein, Fermi-Dirac and their applications | 6 |
| **4.** | Non-equilibrium systems | Liouville's equation, von Neumann equation; Random walk, Stochastic methods; | 6 |
| **5** | Modeling and Simulations | Ising model and its applications, Molecular dynamics, Monte-Carlo simulations and Multi-scale modeling for materials properties and engineering applications. | 15 |
| 6 | Applications | Applications of ensemble formalism in dynamics of neural networks, ensemble forecasting of weather, propagation of uncertainty over time, regression analysis of gravitational orbits etc., | 5 |
| **Total number of Lectures** | | | **40** |

| **Evaluation Criteria** | |
|---|---|
| **Components** | **Maximum Marks** |
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 |
| **Total** | **100** |

**CO-PO MAPPING:**

**3: Strongly Related 2: Moderately Related 1: Weakly related Left Blank: Not related**

**Employability:** The course mainly focuses on the basic learning and applications of statistical mechanics in different spheres of Physics as well as beyond the scope of Physics.

| Program Outcomes/ Course Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO 10 | PO 11 | PO 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C309.1 | 3 | 3 | - | - | - | - | - | - | - | - | - | 1 |
| C309.2 | 3 | 3 | - | - | - | - | - | - | - | - | - | 1 |
| C309.3 | 3 | 3 | - | - | - | - | - | - | - | - | - | 1 |
| C309.4 | 3 | 3 | - | - | - | - | - | - | - | - | - | 1 |
| C309.5 | 3 | 3 | - | - | - | - | - | - | - | - | - | 1 |
| C309 | 3.00 | 3.00 | - | - | - | - | - | - | - | - | - | 1.00 |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Frederick Reif , *Fundamentals of Statistical and Thermal Physics*, Waveland Pr Inc, 2008. |
| **2.** | Kerson Huang , *Statistical Mechanics*, Wiley, 2nd Ed., 1987. |
| **3.** | R K Pathria, Paul D. Beale, *Statistical Mechanics*, Academic Press, 3rd Ed., 2011. |
| **4.** | Daniel V. Schroeder, *An Introduction to Thermal Physics*, Addison-Wesley, 1st Ed., 1999 |
| **5.** | L D Landau, *Statistical Physics, Part 1: Volume 5 (Course of Theoretical Physics)*, Butterworth-Heinemann, 3rd Ed., 1980 |


**Project Based earning:** Different groups of students with 5-6 students in each group may be formed. Students will be encouraged to do interesting projects on the applications of Statistical mechanics. Within each of these problem domains, the students will learn to work in a team. It will improve their analytical skills and the students will learn to achieve their common goal through mutual discussion and sharing of knowledge, information & understanding.

## Detailed Syllabus

### Lecture-wise Breakup

| | | | |
|---|---|---|---|
| **Course Code** | **21B13PH311** | **Semester:** Even | **Semester: 6th Session:** 2024 -2025 **Month from: January to June** |
| **Course Name** | Rechargeable Battery Science and Technology | | |
| **Credits** | 2 | **Contact Hours** | 2 |

| | | |
|---|---|---|
| **Faculty (Name)** | **Coordinator(s)** | Ashish Bhatnagar |
| **Faculty (Name)** | **Teacher** | Ashish Bhatnagar |

| COURSE OUTCOMES | | COGNITIVE LEVELS |
|---|---|---|
| **CO1** | Define the types of batteries and the materials aspect of components in batteries | Remember Level (C1) |
| **CO2** | Understand the basic physical concepts of thermodynamics and kinetics of battery materials | Understand Level (C2) |
| **CO3** | Apply the method to characterize the battery | Apply Level (C3) |
| **CO4** | Analyze the rechargeable battery development (Li-ion battery), safety issues and design | Analyze Level (C4) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Basic Concepts, Fundamental and Definitions | Overview of different batteries: Lead acid batteries, Ni-Cd, Ni-MH, Li-ion batteries, Li-air batteries, conventional and all-solid-state lithium-ion batteries, basic concepts, and definitions of rechargeable batteries, different components of batteries (materials aspect): electrodes, separators, binder, electrolyte, additives | 6 |
| **2.** | Thermodynamics and Kinetics of Battery Materials | Ion insertion/de-insertion, electrode-electrolyte interphase formation, degradation, thermodynamics: electrochemical Equilibrium, electrochemical potential, applications to different material systems, kinetics and other interfacial phenomena | 10 |
| **3.** | Characterization Methods of Battery | Charge/discharge cycles, open circuit voltage measurement, overpotential, battery capacity, state of charge, state of health, electrochemical impedance spectroscopy | 9 |
| **4.** | Rechargeable Battery Architecture and Design Guideline | Rechargeable battery (Li-ion) development and safety issues (thermal runaway, short-circuiting, fire/explosion hazard), battery requirements and design considerations; overview of application of rechargeable (Li-ion) battery: principles of operation including cell design example packaging; pack/module design. | 5 |
| **Total number of Lectures** | | | **30** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Midterm Examination | 30 |
| End Semester Examination | 40 |
| TA | 30 [2 Quiz (10 M), Attendance (5 M), PBL and class performance (15 M)] |
| **Total** | **100** |

**Recommended Reading material:**

| | |
|---|---|
| **1.** | Rechargeable Batteries: Materials, Technologies and New Trends by Zhang, Zhengcheng, Zhang, Sheng Shui, Springer, 2015 |
| **2.** | Rechargeable Batteries: History, Progress, and Applications by Rajender Boddula, Inamuddin Inamuddin, Ramyakrishna Pothu, Abdullah M. Asiri, John Wiley & Sons, 2020 |
| **3.** | MSE 597GM: Introduction to Rechargeable Batteries," https://nanohub.org/resources/15014 |
| **4.** | Linden's Handbook of Batteries by Kirby W. Beard, 2019 |
| **5** | Modern Battery Engineering: A Comprehensive Introduction by Kai Peter Birke, World Scientific, 2015 |

# Detailed Syllabus

## Lecture-wise Breakup

| | | | |
|---|---|---|---|
| **Subject Code** | **24B12EC312**<br>OE | **Semester: EVEN** | **Semester 6th** **Session** 2024-25<br>**Month from** Jan 2025 to June 2025 |
| **Subject Name** | **Introduction to Information Theory** | | |
| **Credits** | **3** | **Contact Hours** | **3** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Richa Gupta |
| | **Teacher(s) (Alphabetically)** | Richa Gupta |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **EBEC333-2.1** | Understand the concept of probability, its relation with information, entropy and their application in communication systems. | Understanding Level (C2) |
| **EBEC333-2.2** | Applying source coding algorithms and identifying their importance in data communications. | Applying Level (C3) |
| **EBEC333-2.3** | Analyzing B.W & channel capacity trade off and its implication on data communications. Examining channel coding and its importance in data communications | Analyzing Level (C4) |
| **EBEC333-2.4** | Evaluating error correcting algorithms for error detection and correction. | Evaluating Level (C5) |

| **Module No.** | **title of the Module** | **Topics in the module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Review of Basic Probability | Probability mass function, probability distribution function, Random variables. Mean, standard deviation, cumulative distribution function. Bayes theorem. | 3 |
| **2.** | Information Measure | Discrete memoryless source, continuous source, measuring Information. Entropy and information rate, joint and conditional entropies. Differential entropy, entropy of AWGN. Source extension. | 5 |

| | | | |
|---|---|---|---|
| **3.** | Data Compression | Uniquely decipherable and instantaneous codes. Kraft- McMillan inequality. Source coding theorem, encoder efficiency. Huffman codes, Shanon Fano, Arithmetic and Lempel Ziv coding methods for data compression. | 4 |
| **4.** | Data Transmission | Discrete memoryless channel. Channel diagram, channel matrix, various types of channels. Mutual information and channel capacity. Capacity of a bandlimited AWGN channel. Limits to communication – Shannon limit. | 5 |
| **5.** | Error Control Coding | Concept of error control coding. Error detection and correction codes. Hamming distance, Hamming weight, condition for error detection and detection codes and evaluating their capabilities. Hard Vs soft decision decoding. ML decoding. | 3 |
| **6.** | Linear Block Codes | Hamming bound, systematic and non-systematic codes, linear block codes, generator matrix and parity check matrix generation, error detection using linear block codes | 8 |
| **7.** | Cyclic Codes | Polynomial representation, Systematic encoding. Cyclic encoding, Syndrome decoding. | 6 |
| **8.** | Convolutional Codes | Generator Sequences. Structural properties. Convolutional encoders. Optimal decoding of convolutional codes- the Viterbi algorithm. | 8 |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Attendance, Performance. Assignment/Quiz) |
| **Total** | **100** |

**Project Based Learning:** Students will learn about the design and implementation of compression algorithms as well as error-correcting codes with the help of assignments. Additionally, students in group sizes of two-three required to prepare a review of any one application of information theory using one or more research publications.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | R. BOSE: Information theory, coding and cryptography, Mcgraw Hill 2016. |
| **2.** | R.W. YEUNG: Information Theory and Network Coding, Springer, 2010. |
| **3.** | S. LIN & D.J. COSTELLO: Error Control Coding, 2nd Edn, Pearson, 2011. |
| **4.** | T.K. MOON: Error Correction Coding, Wiley, 2006. |


**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **24B12HS313** | **Semester: Even** | **Semester: VI Session: 2023-24**<br>**Month: Jan 2024 to June 2024** |
| **Subject Name** | **Political Philosophy** | | |
| **Credits** | **3** | **Contact Hours** | **(2-1-0)** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Namreeta Kumari** |
| | **Teacher(s) (Alphabetically)** | |

| CO Code | COURSE OUTCOMES | COGNITIVE LEVELS |
|---|---|---|
| CO1 | **Understand** how to read and decode the classics and use them to solve contemporary socio-political problems | Understanding (C2) |
| CO2 | **Demonstrate** how the ancient philosophers, like Plato & Aristotle, responded to the political problems of their times. | Analyzing (C4) |
| CO3 | A**nalyze** and appraise the modern state and constitutional government, featuring the work of Machiavelli, Hobbes, John Locke, & Rousseau. | Analyzing (C4) |
| CO4 | **Evaluate** & assess the texts of political philosophers of from enlightenment era. | Evaluating (C5) |
| | | |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | **Introduction** | • Text and Interpretation<br>• Meaning and Context: The Importance of Language | 4 |
| **2.** | **Ancient Political Philosophy** | • Plato- Context of the *Republic,* Philosopher Ruler, Justice, Education Community of Wives and Property<br>• Aristotle- Conception of Human Nature and State Nature of Happiness or Eudaimonia, Household (Slaves, Women and Property) Rule of Law and Constitution | 6 |
| **3** | **Modern Political Philosophy** | • Machiavelli- Renaissance and Its Impact, Machiavelli's Political Theory Science of Statecraft<br>• Hobbes- Human nature, Women and the Gender Question<br>• Locke - Locke and the Glorious Revolution, state of nature, Human nature | 10 |

| | | | |
|---|---|---|---|
| | | • Rousseau- Analysis of Inequality, Institution of Private Property, Civil Society, General Will and Individual Freedom | |
| **4.** | **Enlightenment and Liberalism** | • Immanuel Kant- Political Ideas, Philosophy of History<br>• J S Mill- Critique of Utilitarianism, Defence of Individual Freedom and Individuality, Equality within the Family and between the Sexes, Democracy and Representative Government | 8 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project/Term Paper, Presentation and Attendance) |
| **Total** | **100** |

**Project Based Learning:**

**Students will prepare project in a group (3-4 students). The projects will focus on reading of political thought or original texts which will facilitate student in thinking critically and trying to link the thoughts of the political thinkers and the relevance in contemporary times.**

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | T. . Ball, "History and Interpretation," in C. Kukathas and G. Gaus, Eds., Handbook of Political Theory. London: Sage Publications Ltd., 2004, pp. 18-30 |
| **2.** | Q. Skinner, "Meaning and understanding in the history of ideas," History and Theory, vol. 8, pp. 3–53, 1969. |
| **3.** | S. Mukherjee and S. Ramaswamy, *A History of Political Thought*, PHI Learning Pvt. Ltd., 2004. |
| **4.** | A.K. Mukhopadhyay, *Western Political Thought*, Calcutta: KP Bagchi and Company, 1990. |
| **5.** | B. R. Nelson, *Western Political Thought*, 2nd ed, 1996. |


| | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | | | 2 | | | 2 | | 3 | | | | 2 | | |
| CO2 | | | 2 | | | 2 | | 3 | | | | 2 | | |
| CO3 | | | **2** | | | 2 | | 3 | | | | 2 | | |
| CO4 | | | 2 | | | 2 | | 3 | | | | 2 | | |
| CO5 | | | 2 | | | 2 | | 3 | | | | 2 | | |
| **Avg** | | | 2 | | | 2 | | 3 | | | | 2 | | |

**Detailed Syllabus**

| **Course Code** | 20B16CS324 | **Semester:** Even | **Semester** VI **Session** 2024 -2025<br>**Month from Jan 2025 to Jun 2025** |
|---|---|---|---|
| **Course Name** | Non-linear Data Structures & Problem Solving | | |
| **Credits** | | **Contact Hours** | 1- 0 - 2 |

| **Faculty (Names)** | **Coordinator(s)** | Dr. Tarun Agrawal (J62), Bhavana Bansal (J128) |
|---|---|---|
| | **Teacher(s) (Alphabetically)** | (J62): Ankita Wadhwa, Rohit Kumar Sony, Sherry Garg, Shobhit Tyagi, Tarun Agrawal, Vivek Kumar Singh<br>(J128): Pulkit Mehndiratta, Rashmi Kushwaha, Bhavana Bansal |

| **COURSE OUTCOMES**<br>At the completion of the course, students will be able to, | | **COGNITIVE LEVELS** |
|---|---|---|
| **C305-10.1** | Understand and Differentiate Non-linear Data Structures and its operation on different data structure | Understand Level (C2) |
| **C305-10.2** | Use critical thinking skills and creativity to choose the appropriate data structure and solve the given problem. | Apply Level (C3) |
| **C305-10.3** | Design and implement advance graph algorithm for constructing different test cases. | Apply Level (C3) |
| **C305-10.4** | Explore and Implement Advanced Non-linear Data Structures B-trees, Trie, and Skip List | Apply Level (C3) |
| **C305-10.5** | Develop solutions to real world problems by incorporating the knowledge of data structures | Create Level (C6) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **COs** | **No. of Lectures** |
|---|---|---|---|---|
| **1.** | Review of Problem Solving and Data Structures | Concepts of Problem Solving, Performance metrics for Algorithm Analysis, Why study Data structures and Abstract Data Types.<br>Practice problems on Sparse Matrix | | **1** |
| **2.** | Practice problems on advanced list structures | Multi-list, skip list, XOR linked list, self-organizing list, unrolled linked list, skip list | | **2** |
| **3.** | Practice problems on point and range queries using tree structures | Suffix array and suffix tree, Trie and persistent trie, Segment tree and persistent segment tree, Interval tree, K dimensional tree, Binary indexed tree, Splay tree, Treap (randomized BST), Order statistics tree | | **4** |
| **4.** | Practice problems on optimization problems using tree structures. | Tournament tree, Decision tree, Cartesian tree | | **2** |
| **5.** | Practice problems on heaps and sets | Sparse set, Disjoint set, Leftist heap, K-ary heap | | **2** |
| **6.** | Problem solving using graphs | Social graphs, Transportation system graphs, Resource allocation graphs | | **3** |
| **Total number of Lectures** | | | | **14** |

| | | |
|---|---|---|
| | **Evaluation Criteria** | |
| | **Components** | **Maximum Marks** |
| | Mid Tern Evaluation | 30 |
| | End Semester Examination | 40 |
| | TA | 30 (Attendance – 15, Quizzes/Mini Project – 15) |
| | **Total** | **100** |

**Project based Learning:** Each student in a group of maximum 3 will develop a simulator with the help of various advanced data structures. Students will be able to understand and apply algorithms and advanced data structures properly; know how to evaluate, choose appropriate algorithms or data structures; know how to design and implement algorithms or data structures to serve the purpose of designing solution. Selecting t**he appropriate** data **structure** is an integral part of the programming and problem-solving process. The project typically incorporates various advanced data structure concepts to enable the synthesis of knowledge from real-life experiences.

| **Recommended Reading material:** | |
|---|---|
| **Text Books** | |
| **1.** | Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Fourth Edition (2014). |
| **2.** | Handbook of Data Structures and Applications, 2nd Edition by Sartaj Sahni, Dinesh P. Mehta, CRC Press (2018). |
| **3.** | Problem solving with algorithms and data structures, Miller, B., & Ranum, D. (2013). |
| **References** | |
| **1.** | Data Structures and Algorithms Made Easy, by Narasimha Karumanchi, CareerMonk Publications; 5th edition (2016) |
| **2.** | An Introduction to Data Structures with Application, by Jean-Paul Tremblay, Paul Sorenson, McGraw Hill Education; 2 edition (2017) |
| **3.** | Data Structures and Algorithms in C++, Adam Drozdek, Cengage Learning; 4th edition (2012) |
| **4.** | Data structures and algorithms in Python, Goodrich, Michael T., Roberto Tamassia, and Michael H. GoldwasserWiley Publishing (2013). |

**DETAILED SYLLABUS**
**LECTURE-WISE BREAKUP**

| | | | |
|---|---|---|---|
| **Course Code** | 16B1NHS631 | **Semester:** Even | **Semester:** VI **Session:** 2024 -2025 **Month from January to June 2025** |
| **Course Name** | PROJECT MANAGEMENT | | |
| **Credits** | 3 | **Contact Hours** | 3-0-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Deepak Verma |
| | **Teacher(s) (Alphabetically)** | Dr. Deepak Verma |

| **COURSE OUTCOMES- Revised** | | **COGNITIVE LEVELS** |
|---|---|---|
| C304-5.1 | Understand the basic concepts of project management such as features, objectives, life cycle, model and management. | Understanding Level (C2) |

| | | |
|---|---|---|
| C304-5.2 | Apply the understanding of various theoretical frameworks, non-numerical and numerical models to identify project related risks and make correct project selection decisions | Applying Level (C3) |
| C304-5.3 | Analyze the project deliverables and use the planning and scheduling techniques for different stages of project. | Analyzing Level (C4) |
| C304-5.4 | Evaluate management approaches for budgeting, controlling and terminating projects in order to achieve overall project success | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Project Management: Introduction | Characteristics of project; Life Cycle of Project; Project Model; Project Management as discipline; Contemporary aspects of Project Management | 6 |
| **2.** | Project Selection | Theoretical Models; Non-numeric models; Numeric Models; Financial Models; Project Portfolio process, Significance and applicability of Monte Carlo simulation | 8 |
| **3.** | Project Organization, Manager and Planning | Pure Project organization; Functional Organizations; Mixed organizations; Matrix organizations; Role, Attitudes and Skills of Project Manager, Project Coordination, Systems Integration, Work Breakdown Structure, Linear Responsibility Charts. | 6 |
| **4.** | Risk Management | Theoretical Aspects of risk, Risk Management process, Numeric Techniques, Hillier model, Sensitivity Analysis, Certainty Equivalent approach and Risk adjusted discount rates, Game theory. | 6 |
| **5.** | Project Scheduling and Resource Allocation | Theoretical aspects-Importance, Focus Area-PERT/CPM, AOA and AON charts, Probability Analysis, Gantt Charts, Crashing of Projects- Time and Cost tradeoff, Basics-Resource Leveling and Loading. | 8 |
| **6.** | Budgeting, Control and Project Termination | Estimating Project Budgets, Improving the process of cost estimation, Basics, Importance, Purpose of control, Types of Control, Desirable features of Control, Control Systems, Critical Ratio Method, Control of creative activities, Control of change and scope creep, Why Termination, Types of termination, typical termination activities. | 8 |
| **Total number of Lectures** | | | **42** |

**Project Based Learning:** Students are supposed to form a group (Maximum 5 students in each group) and identify a real-life project. They are supposed to do the in-depth study of this project and assess it in terms of project objectives. They are supposed to do the detailed study of project planning and project organization. They must highlight the various tools and techniques of Project planning, which are used in their chosen project. The fundamentals of Project management are very important in today's corporate world and certainly this subject enhances student's employability in every sector.

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignment, Project) |

| | |
|---|---|
| **Total** | **100** |

| | |
|---|---|
| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
| **Text Book** | |
| **1.** | Jack R. Meredith, Scott M. Shafer, Samuel J. Mantel, Jr., Project Management-A Managerial Approach, 12th Edition, Wiley Publications ,2021 |
| | **Reference Books:** |
| **1.** | Timmothy Kloppenborg, Vittal S. Anantatmula, and Kathryn Wells. *Contemporary Project Management*, 4th Edition, Cengage Learning, 2019 |
| **2.** | Wysocki, R.K. *Effective Project Management: Traditional, Agile, Extreme, Hybrid*. 8th Edition, Wiley Publications, 2018 |
| **3.** | Harold Kerzner**.** *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, 12th Edition, Wiley Publications, 2017 |
| **4.** | Meredith & Mantel. *Project Management: A Managerial Approach*. 11th Edition, Wiley Publications, 2017 |
| **5.** | Vohra, N. D. *Quantitative Techniques in Management*. 5thEdition, Tata McGraw Hill Publishing Company, 2017 |

**Detailed syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **16B1NHS632** | **Semester: EVEN** | **Semester 6th Session 2024-25**<br>**Month from Jan to June** |
| **Subject Name** | **COGNITIVE PSYCHOLOGY** | | |
| **Credits** | **3** | **Contact Hours** | **2-1-0** |
| **Faculty (Names)** | **Coordinator(s)** | **Dr. Shweta Verma** | |
| | **Teacher(s) (Alphabetically)** | **Dr. Shweta Verma** | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C304-4.1** | Understand the concept of cognitive psychology | Understanding (CL2) |
| **C304-4.2** | Apply the principles of cognitive psychology in day to day life | Applying (CL3) |
| **C304-4.3** | Analyze each situation rationally and take decisions better and faster than others | Analyzing (CL4) |
| **C304-4.4** | Evaluate the effectiveness of different problem solving strategies | Evaluating Level (CL5) |

| Module No. | Subtitle of the Module | Topics in the module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Introduction to Cognitive Psychology | Historical Background: Emergence of modern cognitive Psychology; Concept of cognition; Research Methods | **3** |
| **3.** | Perceptual Processes | Top-down approach, Bottom-up approach, Perceptual Organizations, Deficits in Perception, Face recognition Perceptual learning and development; perception of shape, space, and movement. | **4** |
| **3.** | Attention | Selective Attention and Divided Attention: Meaning, Definition, and Theories. | **3** |
| **4.** | Memory | Working memory, semantic, episodic, procedural, eye-witness and flashbulb memory, traumatic and false memory, everyday memory; Approaches to memory- information processing & connectionist approach, Forgetting: Concept and Theories | **4** |
| **5.** | Imagery | Properties of mental images; Representation of images and cognitive maps. | **3** |
| 6. | Language | Structure of language and its acquisition, speech perception, factors affecting comprehension. | **4** |
| **7.** | Thinking and Problem Solving | Types of thinking; Classification of problems; Problems solving approaches, Problems space theory by Newell and Simon, Creativity | **4** |
| **8.** | Decision Making | Logical reasoning types and errors in reasoning processes.<br>Concept formation and categorization; Judgment and decision making | **3** |
| **Total number of Hours** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |

| | |
|---|---|
| TA | 25 (Project, Assignment/Quiz) |
| **Total** | **100** |

Project based learning: Students in a group will choose a research topic from the syllabi of cognitive psychology. Students will cover the following points to prepare project reports: Understanding of concept, related theories and perspectives; Describe the relevance of the chosen concept for personal growth; Discuss the application of chosen topic for your professional life; Elaborate the relevance of the topic at group level and societal level. Discussions on these practical aspects will enhance students' understanding & application of concepts of cognitive psychology in everyday life.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| 1. | Ronald T. Kellogg, Fundamentals of Cognitive Psychology, 2nd Ed., Sage Publishing, 2012 |
| 2. | Robert Solso, Otto Maclin, M. Kimberly Maclin, Cognitive Psychology, 8th Ed., Pearson Education, 2013 |
| 3. | Katheen M. Galotti, Cognitive Psychology, 5th Ed., Sage Publishing, 2014 |
| 4. | Michael W. Eysenck, Mark T. Keane, Cognitive Psychology: A Student's Handbook , 7th Ed, Psychology Press, 2015 |
| 5. | Robert Sternberg, Karin Sternberg, Cognitive Psychology, 6th Ed, Wadsworth/Cengage Learning, 2011 |
| 6. | Edward E. Smith, Stephen M. Kosslyn, Cognitive Psychology: Mind and Brain, Ist Ed, Pearson Education India; 2015 |
| 7. | Eysenck, M. W., & Keane, M. T. (2023). Cognitive Psychology: A Student's Handbook (8th ed.). Psychology Press. |
| 8. | Gazzaniga, M. S. (2022). The Consciousness Instinct: Uncovering the Mystery of How the Brain Makes the Mind. Farrar, Straus and Giroux. |
| 9. | Baddeley, A. D., & Hitch, G. J. (2021). Working Memory: Theories, Models, and Applications. Taylor & Francis. |

## CO-PO and CO-PSO Mapping:

| COs | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C304-4.1** | | | 2 | 1 | | 2 | | 1 | 2 | 1 | | 2 | | |
| **C304-4.2** | | | 1 | 1 | | 2 | | 1 | 2 | 1 | | 2 | | |
| **C304-4.3** | | | 2 | 1 | | 2 | | 1 | 2 | 1 | | 2 | | |
| **C304-4.4** | | | 2 | 1 | | 2 | | 1 | 2 | 1 | | 2 | | |
| **Avg.** | | | 2 | 1 | | 2 | | 1 | 2 | 1 | | 2 | | |

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | **16B1NHS634** | **Semester Even VI (specify Odd/Even)** | **Semester Session :** 2024 -2025 **Month from Jan** 2025 to June2025 |
| **Course Name** | **Theatre and performance (Value added)** | | |
| **Credits** | **0** | **Contact Hours** | **1-0-2** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr Nilu Choudhary |
| | **Teacher(s) (Alphabetically)** | Dr Nilu Choudhary |

| CO Code | COURSE OUTCOMES | COGNITIVE LEVELS |
|---|---|---|
| C304-14.1 | Demonstrate problem solving ability and effective life skills through theatrical performance. | Understanding level(C2) |
| C304-14.2 | Develop an awareness of the tools, materials and equipment used in scenic production and collaborative nature of the theatre arts. | Applying level(C3) |
| C304-14.3 | Analyze the social significance through skills of listening, articulation and collaboration. | Analyzing level(C4) |
| C304-14.4 | Design and construct a dramatic literature and theatrical production. | Creating level(C6) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Introduction of Theatre | History of theatre: role of theatre in human culture with special reference to India | **2** |
| **2.** | Characterization | Tips for developing character, thinking about thoughts, Flash –back Performance | **2** |
| **3.** | Script Writing & Back-stage work | Tips for writing a one Act, setting the scene, character, stage direction, Dialogues Management, planning, execution | **4** |
| **4.** | School of Drama | Nadya-Shastra, Stanislavsky and Brecht | **3** |
| **5.** | Text and its interpretation | Mother Courage, Galileo, Aadhe Adhure (any one) | **3** |
| | | **Total number of Lectures** | **14** |

| Module No. | Title of the Module | List of Experiments/Activities | CO |
|---|---|---|---|
| **1.** | Moving in Space. | Students will be moving around the room, filling up the space, changing pace, changing direction, being aware of other people but not touching them. Find new ways of moving, with a different emphasis each time – smooth, jagged, slow, fast, heavy, light, high up, low down and so on. Every now and again Teacher will shout “Freeze! And Students need to freeze every muscle in your body. | **C304-14.1** |

| | | | |
|---|---|---|---|
| | | Absolutely NO LAUGH, LOOKING AROUND, OR MOVING. You will be out. | |
| **2.** | Mirror Activity | A great way to get students aware of body movement and working together. | **C304-14.1** |
| **3.** | Characterization | Developing and analyzing characters to reveal the special qualities and personalities of the characters in a story, making character believable. | **C304-14.2** |
| **4.** | Script Writing | The more passionate you feel about your idea, the more attractive your play will be. Divide the idea into a beginning, middle and end. | **C304-14.3** |
| **5.** | Role Assignment | No acting or movement at this point – just sit together to speak and hear the script carefully. Discuss and clarify any confusing aspects of the script and any apparent challenges in bringing the script to the stage. Division of script into small "units" and rehearsed separately | **C304-14.3** |
| **6.** | Turning story into a play | Read thru each episode or unit separately "on its feet". Actors moving around the stage space. Set blocking for each episode. Use ideas generated from Mini-Episodes and Staging with Images. Make sure the gestures, movements, and stage pictures tell the story clearly. | **C304-14.3** |
| **7.** | Stage blocking | Practice the blocking and the lines so that everyone knows what happens when and what their performance responsibilities are. Memorize lines. Work on making characters, relationships, and dialogue clear. This is a good place in which to use the Creating the Character lessons. Pay attention to vocal projection and articulation. Generate ideas about any technical elements you want to incorporate using the Transformation of Objects. | **C304-14.3** |
| **8.** | Script to performance | Finalize and run the entire play from beginning to end without stopping to check any additional rehearsal required to get everything running smoothly or not. Finally Perform!! | **C304-14.4** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Mid Term | 30 |
| End Term | 40 |
| TA | 30 (Script writing, End term stage performance) |
| **Total** | **100** |

**Project Based Learning:** Students will be given a project in a group of 5-6 to create own imagination in the form of story and in which students create character, emotions, Vocal projection and articulation, props, background. Developing and analyzing characters to reveal the special qualities and personalities of the characters in a story, making character believable. With the help of this subject students will understand and experience the importance of these (Human)qualities or arts in human life.

| Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | David Roesner, Tamara Yasmin Quick, *Music and Sound in European Theatre Practices, Performances, Perspectives*, 1st Edition Routledge 2024 |
| **2** | Angeliki Avgitidou, *Performance Art Education and Practice*, 1st Edition, Routledge 2023 |
| **3** | Mark Fontier, *Theory/ Theatre: An Introduction*, 3rd Edition New York: Routledge, 2020 |
| **4** | *Natyashastra*, tr. By Adya Rangacharya, New Delhi Munshiram Manoharlal, 2014 |
| **5** | Michael Holt, *Costume and Make-up*, Oxford: Phaidon, January 1994 |
| **6** | Eric Bentley, *The Theory of the Modern Stage: An Introduction to Modern Theatre and Drama*, Penguin Books, 1992 |
| **7** | Michael Holt, *Stage Design and Property*, Oxford: Phaidon, 1991 |

**Detailed Syllabus**
**Lecture-wise Breakup**

| **Course Code** | **16B1NHS636** | **Semester: Even** | **Semester VI Session 2024 -2025**<br>**Month: January 2025 to June 2025** |
|---|---|---|---|
| **Course Name** | **Literature & Adaption** | | |
| **Credits** | **3** | **Contact Hours** | **2-1-0** |

| **Faculty (Names)** | **Coordinator(s)** | Dr. Paridhi Chaudhary (Sector 62) & Dr. Ekta Srivastava (Sector 128) |
|---|---|---|
| | **Teacher(s) (Alphabetically)** | Dr. Ekta Srivastava, Dr. Monali Bhattacharya & Dr. Paridhi Chaudhary |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C304-3.1** | Understand and outline the elements and theories of adaption and its various forms. | Understanding Level (C2) |
| **C304-3.2** | Utilize visual literacy to identify the language and style adopted in filmed texts through Readers' and Audience' values and perceptions. | Applying Level (C3) |
| **C304-3.3** | Analyze texts and their adaptations stylistically beyond the surface level of narrative and audience interpretation. | Analyzing Level (C4) |
| **C304-3.4** | Evaluate, interpret and document source texts and adaptations thematically as reflections of value systems, various cultures and times. | Evaluating Level (C5) |
| **C304-3.5** | Compose and make an effective presentation of a literary/non literary piece in any genre and design an ethical adaption of any literary/non literary piece in another form individually and in groups. | Creating Level (C6) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Introduction Literary Devices | Figures of speech, Character, Plotline, Conflict, Point of View | 2 |
| **2.** | Literature & Adaptation | Understanding Cultural Contexts<br>Forms of Adaption<br>Cinematography & Narratology | 4 |
| **3.** | Framework | Adaptation Theories; Reader Response & Audience Response Theories<br>Case study of the Classic Fairy Tale The Sleeping and its contemporary adaptation Maleficent | 7 |
| **4.** | Play & adaptations | The Pygmalion: George Bernard Shaw<br>Hamlet : William Shakespeare | 6 |
| **5.** | Novel & Adaptations | Pride & Prejudice: Jane Austen<br>The Giver: Lois Lowry<br>The Godfather: Mario Puzo | 9 |
| **Total number of Lectures** | | | 28 |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Quiz and class participation ) |
| **Total** | **100** |

**Project Based Learning**: The Group Project will consist of 2 parts: Part A: creation of a story based on the symbols assigned to different groups. The groups will be formed by the teacher based on the marks of T1, with every group having students with lower and higher marks. The students are required to use various literary perspectives to use the symbols in their story and create a narrative with exposition, conflicts, rising and falling action as well as climax and resolution. Part B will be a power point presentation analyzing the archetypal theory and narrative technique employed.

| **Recommended Reading material:** | |
|---|---|
| **1.** | **Linda Hutcheon**, *A Theory of Adaptation*, Routledge, 2012 |
| **2.** | **Mark William Roche**, *Why Literature matters in the 21st Century*, 1st edition, Yale University Press 2014 |
| **3.** | **George Bernard Shaw**, *Pygmalion,* Electronic Version, Bartleyby.com, New York, 1999 |
| **4.** | http://shakespeare.mit.edu/hamlet/full.html |
| **5.** | https://www.sparknotes.com/film/sleepingbeauty/ |
| **6.** | **Jane Austen**, *Pride & Prejudice*, Reprint, Thomas Egerton, 2013 |
| **7.** | **Mario Puzo,** *The Godfather*, 1stEdition, G. P. Putnam's Sons, USA, 1969 |
| **8.** | **Lois Lowry,** *The Giver, 1st Edition,* Houghton Mifflin Harcourt Publishing Company, USA, 1993 |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 18B12HS611 | **Semester: EVEN (specify Odd/Even)** | **Semester** VI **Session** 2024 -2025 **Month from: Jan2025 – June2025** |
| **Course Name** | Marketing Management | | |
| **Credits** | **3(2-1-0)** | **Contact Hours** | 42 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Prof. Monika Suri, Dr. Deepak Verma, |
| | **Teacher(s) (Alphabetically)** | Prof. Monika Suri, Dr. Deepak Verma |

| **Revised-COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **C304-7.1** | Understand the fundamentals of marketing, marketing environment and market research | Understanding Level (C2) |
| **C304-7.2** | Utilize market opportunities while considering stakeholders interests and business environment. | Applying Level (C3) |
| **C304-7.3** | Analyze the emerging marketing trends and social media marketing | Analyzing Level (C4) |
| **C-304-7.4** | Determine marketing strategies for businesses to gain competitive advantage. | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | **Understanding New Age Marketing** | Defining Marketing For 21st Century<br>The importance of marketing and marketing's role in business and society.<br>Introduction to Digital Marketing.<br>Online Communication Tools.<br>The Social Media-Conversations, Community and Content.<br>Affiliate Marketing and Mobile Engagement.<br>The Digital Campaigns | 5 |
| **2** | **Marketing Environment and Market Research and insights** | Internal and external forces impacting marketers.<br>Marketing and Customer Value.<br>Gathering Information and Scanning the environment.<br>Company's Micro and Macro Environment<br>Responding to the Marketing Environment | 3 |
| **3** | **Strategic Planning and the marketing Process** | Explore the impact of social forces on marketing actions.<br>Describe how technological change affects marketing.<br>Designing the business Portfolio<br>Discuss the Strategic Planning Process and Strategic Marketing Process. | 5 |

| | | | |
|---|---|---|---|
| **4** | **Consumer and Business Buyer Behavior** | Consumer Markets and consumer buyer behavior.<br>The buying decision process.<br>Business Markets and business buyer behavior.<br>Discuss the modern ethical standards. | 5 |
| **5** | **Branding** | Brand Image, Identity and Association.<br>Product brands and Branding decisions.<br>Product line and mix decisions.<br>Consumer Brand Knowledge.<br>New Product Development and Product life cycle strategies. | 4 |
| **6** | **Pricing products: Pricing considerations and strategies** | Factors to consider when setting prices.<br>New product pricing strategies.<br>Product mix pricing strategies.<br>Price adjustments and changes. | 4 |
| **7** | **The New Age Social Marketing** | Ethics and social responsibility in marketing.<br>Ethical behavior in business.<br>Ethical decision making.<br>Social forces affecting marketing.<br>Impact of culture on marketing.<br>Discuss modern ethical standards.<br>Importance of marketing in CSR and business sustainability. | 2 |
| **Total number of Lectures** | | | **28** |

**Project Based Learning**: Students will be assessed on a Project report. The students will present a business plan for a prospective business idea focusing on its marketing strategies applying all the concepts taught in the course

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Assignment) |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | G.Shainesh Philip Kotler, Kevin lane Keller, Alexander Chernev, Jagdish N. Sheth, Marketing Management, 16th Edition, New Delhi, Pearson Education, 2022. |
| **2.** | Saxena Rajan, Marketing Management, 6th Edition, Mc Graw Hills., 2019. |
| **3.** | Winer, Russell S.,Dhar Ravi, Marketing Management, 4th Edition, Prentice Hall,2020. |
| **4.** | Kotler, Philip and Gary Armstrong, Principles of Marketing, 13th Edition, New Delhi, Pearson Education, 2011. |
| **5.** | Dalrymple, Douglas J ., and Leonard J. Parsons, 2nd Edition, Wiley Publication, 2000. |

## CO-PO-PSO Mapping:

| COs | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO1 | PSO2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C304-7.1 | | | | | | 1 | | | | | | 1 | | |
| C304-7.2 | | | | | 1 | | | | | | | 1 | | |
| C304-7.3 | | | | | | | 1 | | | | | 1 | | |
| C304-7.4 | | | 1 | | | | | | | | 1 | 1 | | |
| **Avg.** | | | 1.00 | | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | | |

## SYLLABUS AND EVALUATION SCHEME

**Lecture-wise Breakup**

| **Course Code** | 19B12HS611 | **Semester : EVEN (specify Odd/Even)** | **Semester:** VI **Session** 2024-25 **Month from:** January-June |
|---|---|---|---|
| **Course Name** | Econometric Analysis | | |
| **Credits** | 3 | **Contact Hours** | 2-1-0 |

| **Faculty (Names)** | **Coordinator(s)** | Manas Ranjan Behera |
|---|---|---|
| | **Teacher(s) (Alphabetically)** | Manas Ranjan Behera |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | *Demonstrate* the key concepts from basic statistics to understand the properties of a set of data. | Understanding Level - C2 |
| **CO2** | *Apply* Ordinary Least Square method to undertake econometric studies. | Apply Level - C3 |
| **CO3** | *Examine* whether the residuals from an OLS regression are well-behaved. | Analyze Level - C4 |
| **CO4** | *Evaluate* different model selection criteria for forecasting. | Evaluation Level - C5 |
| **CO5** | *Create* models for prediction from a given set of data. | Creation Level - C6 |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Statistical Inference | Point and interval estimation; ;The Z distribution ;The Null and Alternate hypotheses ;The chi-square distribution; The F distribution; The t distribution | 3 |
| **2.** | Regression Analysis | Two variable regression model; The concept of the PRF; Classical assumptions of regression; Derivation of the OLS estimators and their variance; Properties of | 7 |

| | | | |
|---|---|---|---|
| | | OLS estimators under classical assumptions; Gauss-Markov Theorem; Tests of Hypothesis, confidence intervals for OLS estimators; Measures of goodness of fit: R square and its limitations; Adjusted R square and its limitations | |
| **3.** | Econometric Model Specification | Identification: Structural and reduced form; Omitted Variables and Bias; Misspecification and Ramsay RESET; Specification test; Endogeneity and Bias | 5 |
| **4.** | Failure of Classical Assumptions | Multi-collinearity and its implications; Auto-correlation: Consequences and Durbin-Watson test ;Heteroskedasticity: Consequences and the Goldfeld - Quandt test | 2 |
| **5.** | Forecasting | Forecasting with a)moving averages b) linear trend c) exponential trend CAGR; Forecasting with linear regression; Classical time series decomposition; Measures of forecast performance: Mean square error and root mean square error; Limitations of econometric forecasts | 5 |
| **6.** | Time Series Analysis | Univariate Time Series Models: Lag Operator, ARMA , ARIMA models, Autoregressive Distributed Lag Relationship | 3 |
| **7.** | Linear Programming | Linear programming; Dual of a linear programming problem; Simplex method Transportation | 3 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz+Project+Viva -Voce) |
| **Total** | **100** |

**Project based Learning:** Students have to form a group (maximum 5 students in each group) and have to do an econometric analysis on the topic assigned. Students will use the different statistical methods using quantitative data to develop theories or test existing hypothesis. Students will also be encouraged to forecast future economic trends.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Gujarati, D.N. (2002), Basic Econometric (4th ed.), New York: McGraw Hill. |
| **2.** | Greene, W.H. (2003), Econometric Analysis, New Jersey: Prentice Hall. |
| **3.** | Madala, G.S. (1992), Introduction to Econometrics (2nd ed.), New York: Macmillan. |

| | |
|---|---|
| **4.** | Wooldridge,J (2010),Econometric Analysis of Cross Section and Panel Data(2nd ed.), Cambridge, The MIT Press. |
| **5.** | Stock, J. H., and M. W. Watson. (2015). Introduction to Econometrics, (Third Update), Global Edition. Pearson Education Limited. |


**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 19B12HS613 | **Semester:** Even | **Semester** VI<br>**Session** 2024-25<br>Month from: Jan 2025-June 2025 |
| **Course Name** | International Trade and Finance | | |
| **Credits** | 03 | **Contact Hours** | 2-1-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Amba Agarwal, Dr. Vandana Sehgal |
| | **Teacher(s) (Alphabetically)** | Dr. Amba Agarwal, Dr. Vandana Sehgal |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| After pursuing the above mentioned course, the students will be able to: | | |
| **C304-8.1** | Understand the foundations of international trade and finance in the era of globalization. | Understanding Level (C2) |
| **C304-8.2** | Apply the major models and theories of international trade. | Applying Level (C3) |
| **C304-8.3** | Analyze the impact of trade barriers and dynamics on macroeconomic equilibrium. | Analyzing Level (C4) |
| **C304-8.4** | Evaluate the role of regional blocs and international organizations in economic integration. | Evaluating Level (C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| **1.** | Introduction | International trade and globalization. | 2 |
| **2.** | Theory of International Trade | The pure theory of international trade -Theories of absolute advantage, comparative advantage and opportunity costs, modern theory of international trade; Theorem of factor price equalization; Theory of absolute cost and comparative cost. | 5 |
| **3.** | Economic Growth and International Trade Policy | Terms of trade, Welfare implications (Tariffs, Quotas and non-tariff barriers); Technical progress, Growth and Trade. | 4 |
| **4.** | Balance of Payments | Meaning and components of balance of payments; balance of trade, equilibrium and disequilibrium in the balance of payments; Measuring Deficit or Surplus in BOP, Measures to correct it. | 4 |
| **5.** | Fixed and Flexible Exchange Rate | Fixed exchange rates and flexible exchange rates; Expenditure-reducing and expenditure-switching policies. | 4 |
| **6.** | International Economic Integration | Foreign Trade Multiplier, Devaluation, Theory of Custom Unions, Trade policy. | 3 |
| **7.** | The Theory of Regional Blocs & International organization | Rationale and economic progress of SAARC/SAPTA and ASEAN regions. Regionalism (EU, NAFTA); Functions of GATT/WTO (TRIPS, TRIMS), IMF and World Bank. | 6 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz, Assignment, Project) |
| **Total** | **100** |

**Project Based Learning:** The students in a group of 4-5 are required to prepare a project report (selecting two or more countries) to analyze the direction and trade composition between the countries. The students are also required to analyze the areas of potential expansion using different trade indices.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | **Krugman, Paul.**, International Economics: Theory and Policy, 10th edition, Pearson, 2017 |
| **2.** | SCHAUMS Outline Of International Economics 4ed, 2020 |
| **3.** | **Kindleberger, C.P.,** International Economics, 6th edition, R.D. Irwin, Homewood, 1978 |
| **4.** | **Salvatore, D.**, International Economics, 13th edition , Prentice Hall, Upper Saddle River, N.J., New York, 2019 |
| **5.** | **Soderston, Bo**, International Economics, 3rd edition, The Macmillan Press Ltd., London, 1999 |
| **6.** | **Roy Malbika and Sinha, Saket,** International Trade and Finance, 1st edition, Springer, 2017 |


## 1. CO-PO-PSO Mapping:

| | | | | | | | | | | | | | Biotech PSOs | | | CSE PSOs | | ECE PSOs | | IT PSOs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COs (NBA Code)** | **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** | **PSO 1** | **PSO 2** | **PSO 1** | **PSO 2** | **PSO 1** | **PSO 2** |
| **C304-8.1** | | | | | | 1 | 1 | 1 | | | 2 | 2 | | | | | | | | | |
| **C304-8.2** | | | | | | 1 | 1 | 1 | | | 2 | 2 | | | | | | | | | |
| **C304-8.3** | | | | | | 1 | 1 | 1 | | | 2 | 2 | | | | | | | | | |
| **C304-8.4** | | | | | | 1 | 1 | 1 | | | 2 | 2 | | | | | | | | | |
| **Avg.** | | | | | | **1.00** | **1.00** | **1.00** | | | **2.00** | **2.00** | | | | | | | | | |

**Detailed Syllabus**

| **Course Code** | 20B12HS311 | **Semester** Even **(specify Odd/Even)** | **Semester Session** 2025 **Month from** January-June 2025 |
|---|---|---|---|
| **Course Name** | Global Politics | | |
| **Credits** | 3(2-1-0) | **Contact Hours** | **3** |

| **Faculty (Names)** | **Coordinator(s)** | Dr. Ila Joshi (62) & Dr. Gaurika Chugh (128) |
|---|---|---|
| | **Teacher(s) (Alphabetically)** | Dr. Gaurika Chugh<br>Dr. Ila Joshi |

| **CO Code** | **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|---|
| **C304-9.1** | Demonstrate an understanding of the meaning and nature of globalization by addressing its political, economic, cultural and technological dimensions | Understanding (C2) |
| **C304-9.2** | Analyzing the significance of contemporary global issues such as the proliferation of nuclear weapons, ecological issues, international terrorism, and human security to global governance | Analyzing (C4) |
| **C304-9.3** | Applying the impact of globalization on the working of developed and developing states | Applying (C3) |
| **C304-9.4** | Evaluate the working of the global economy, its anchors and resistances offered by global social movements | Evaluating (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Globalization: Conceptions and Perspectives | Political Dimension of globalization<br>Globalization and Culture<br>Technological Dimensions<br>Debates on territoriality and sovereignty<br>World Systems Theory | 6 |

| | | | |
|---|---|---|---|
| **2.** | Global Economy | Its Significance and Anchors of Global Political Economy:<br>IMF- history and India's benefit from its membership of IMF<br>WTO- History and India's experience with WTO and reform proposals<br>World Bank- history and role of world Bank in India<br>Rise of TNCs and role of TNCs in globalization<br>Global resistances (Global Social Movement and NGOs)- their nature and characteristics, prominent movements and their impact | 8 |
| **3.** | Contemporary Global Issues-I | Ecological Issues: historical overview of international environmental agreements-UNSCD, Paris agreement, climate change- Copenhagen summit to post Copenhagen summit policies of India, climate change and global initiatives<br>global commons debate<br>Proliferation of Nuclear Weapons-history of nuclear proliferation, threat of proliferation with increase in globalization | 8 |
| **4.** | Contemporary Global Issues-II | International Terrorism: globalization and global terrorism, impact of terrorism on globalization, role of non-state actors and state terrorism; the US and war on terrorism<br>Migration and Human Security- globalization, violent extremism and migration; new global regime | 6 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz/ Project/Assignment) |
| **Total** | **100** |

Project Based learning: Each student would form a group of 3-4 students and to make projects on issues such as climate change, terrorism and proliferation of nuclear weapons. This project would help the students in having a better idea about the contemporary global issues and how with the revolution in information and technology as a result of globalization has impacted the world. This would improve their research skills and enhance their knowledge about the impact of globalization on various sectors of the economy.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

| | |
|---|---|
| 1. | C. Hay, Ed. *New Directions in Political Science: Responding to the Challenges of an Interdependent World.* New York, USA: Palgrave Macmillan Education, 2010 |
| 2. | D.Held& A. McGrew, *Globalization/Anti-globalization: Beyond the Great Divide*. Cambridge, UK: Polity Press, 2007 |
| 3. | F. Halliday, "Terrorism in Historical Perspective".,*Open Democracy*. 22 April, 2004 [Online] Avaliable: http://www.opendemocracy.net/conflict/article_1865.jsp |
| | H.Shukla, *Politics of Globalization*. Indore, India: Mahaveer Publication, 2021 |
| 4. | J. Baylis and S. Smith, Ed.*The Globalization of World Politics: An Introduction to International Relations*. Oxford, UK: Oxford University Press, 2017 |
| 5. | L.Gordon and S. Halperin, "Effective Resistance to Corporate Globalisation" in *Contesting Global Governance,* R.O'Brien, A.M. Goetz, J.C. Scholte &M.Williams. Cambridge, UK: Cambridge University Press,2000 |
| | R.Dattagupta, *Global Politics*. Chennai, India: Pearson, 2020 |


| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COs** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| **C304-9.1** | | | | | | **3** | | | **2** | | | **2** | | |
| **C304-9.2** | | | | | | **3** | | | **2** | | | **2** | | |
| **C304-9.3** | | | | | | **3** | | | **2** | | | **2** | | |
| **C304-9.4** | | | | | | **3** | | | **2** | | | **2** | | |
| **Avg.** | | | | | | **3.00** | | | **2.00** | | | **2.00** | | |

# DETAILED SYLLABUS AND EVALUATION SCHEME

| | | | |
|---|---|---|---|
| **CourseCode** | 21B12HS311 | **Semester: EVEN (specify Odd/Even)** | **Semester: VI Session:2024-25** Month from: January-June |
| **CourseName** | Development Issues and Rural Engineering | | |
| **Credits** | 03 | Contact Hours | 2-1-0 |

| | | |
|---|---|---|
| **Faculty(Names)** | **Coordinator(s)** | Dr. Amandeep Kaur |
| | **Teacher(s) (Alphabetically)** | Dr. Amandeep Kaur<br>Dr. Suraj Das |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C304-10.1 | Understand the concept, philosophy and determinants of rural development | Understanding Level (C2) |
| C304-10.2 | Apply the concept of local self-governance to the planning and development of rural areas. | Applying Level (C3) |
| C304-10.3 | Assess the impact of public policies and recent policy changes and schemes on rural development | Analyzing Level (C4) |
| C304-10.4 | Evaluate the issue and challenges through possible determinants of rural development. | Evaluating Level (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1. | Rural Development: An Introduction | Rural Development Philosophy, Concepts, Principles, Traditional and Modern Concept of Development, Trends and Pattern of micro as well as macro indicators of Rural Development. | 4 |
| 2. | Public Policies and Rural Development | Policies related to Employment Generation, Poverty Reduction, Skill Development and, Infrastructure such as MGNGEGA, DDUGKY, Atam Nirbhar Bharat rojgar yojna and schemes related to MSMEs etc. | 6 |
| 3. | Rural Development Administration and Panchayat Raj Institutions | Rural Development administration: Panchayat Raj System (73rd Amendment Act), functions of Panchayat Raj System, Financial Distribution of Resources in Rural India through Panchayat Raj System, merits and demerits of Panchayat system, Ways to strengthen the existing system by overcoming the flaws. | 6 |
| 4. | Rural Development Issues and Challenges | Issues and challenges of Rural development: Employment in line with sectoral distribution (GDP and Employment), Poverty and Migration Issue, Rural and Urban Consumption and Production Linkages. | 7 |
| 5. | Recent Advancements and changes | Recent packages and schemes implemented in Rural India, Budget Allocation for Rural Development - 2022-23 and 2023-24: For Employment Generation, poverty reduction, infrastructure and MSMEs. | 5 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignment, Quiz, Project) |
| **Total** | **100** |

**Project-based Learning:** Students are required to collect the data related to different indicators of rural development (related to agriculture, health and education infrastructure, literacy levels, population density, poverty, employment etc.). They also need to check the compatibility of data (data mining and data refining process) and then analyse the contribution of these indicators in rural development of particular state/country as whole. Moreover, they are required to analyse the extent of progress and failure of programmes/schemes implemented in rural areas for poverty reduction, employment generation and MSMEs. Collecting information and analysing the data related to development indicators and policies will upgrade students' knowledge regarding the development issues and strengthen their skills to tackle multiple data handling and measuring issues.

**Recommended Reading material:**


| | |
|---|---|
| 1. | **Singh, Katar.** Rural Development: Principles, Policies and Management *(3e).*2009 |
| 2. | **Coke, P., Marsden, T. and Mooney, P.** Handbook of Rural Studies. Sage Publications, 2006 |
| 3. | **Todaro, M.P**., **Stephen C. Smith,** Economic Development, Pearson Education, 2017 |
| 3. | **Ahuja, H. L.**, Development Economics, S Chand publishing, 2016 |
| 4. | **Musgrave, R. A., Musgrave, P. B.,** Public Finance in Theory and Practice, McGraw Hill Education,2017 |

# Detailed Syllabus
# Lecture-wise Breakup

| | | | |
|---|---|---|---|
| **Course Code** | 23B18HS311 | **Semester:** Even | **Semester Session** 2024-2025<br>**Month from** January to June 2025 |
| **Course Name** | **Introduction to Workplace Communication (Value added)** | | |
| **Credits** | **0** | **Contact Hours** | **2-0-0** |
| **Faculty (Names)** | **Coordinator(s)** | Dr. Ekta Singh | |
| | **Teacher(s) (Alphabetically)** | Dr. Ekta Singh | |

| CO Code | COURSE OUTCOMES | COGNITIVE LEVE |
|---|---|---|
| C305-14.1 | Describe different types of communication—verbal, non-verbal, written, and visual—and explain how they support information sharing, collaboration, and decision-making in the workplace. | Understanding Level |
| C305-14.2 | Apply effective written communication techniques to shape how individuals are perceived by others in workplace interactions. | Applying Level (C3) |
| C305-14.3 | Analyze the key skills necessary for effective oral communication in the workplace, considering their role in enhancing clarity, engagement, and professional relationships. | Analyzing Level (C4) |
| C305-14.4 | Evaluate the role of effective communication in overcoming team-based workplace challenges, considering its impact on collaboration, conflict resolution, and overall team performance.. | Evaluating Level (C5 |
| C303-14.5 | Reflect on current interpersonal communication skills and how these can be developed and used more successfully. | Creating Level (C6) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures |
|---|---|---|---|
| **1.** | **Introduction to Work Place Communication** | Concept and mechanism of communication, understanding of effective communication at work place, understanding corporate communication and its importance, Different levels of communication at workplace, Different kinds of communication employed in workplace | 5 |
| **2.** | **Written Communication Skills** | Effective and appropriate use of email, email etiquettes, report writing, memo writing, proposals and questionnaire, preparation of PowerPoint presentation slides proofreading of the document, Document drafting and designing, outlining before writing and document design | 8 |
| **3.** | **Oral Communication Skills** | Non-Verbal Communication and Cultural Competence, Public speaking vs. Small group communication, Pitching ideas and products, Investor presentations and demos | 6 |
| **4.** | **Team Work** | Contribution to Teams, Communication with peers, managers, clients and customers, Managing global teams, Handling PR crises and media relations, Damage control and response strategies<br>Cultural sensitivity and inclusivity | 6 |
| **5.** | **Visual and Electronic Communication Skills** | Introduction to Visual and electronic communication, asynchronous communication best practices, Cybersecurity and data privacy in communication | 4 |
| **Total number of hours** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| Midterm examination | 30 |
| End Semester Examination | 40 |
| TA | 30 (Technical presentation, class participation, Project) |
| **Total** | **100** |

**Project Based Learning:** Students form a group of 4-5 students. Each group is required to choose an internal communication case study of corporate organizations which shows and describes the cost of poor communication. Students are required to:

**1-** Present the case and reflect on the related communication barriers
**2-** Submit a report on the same

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | D. L. Lewis, *Effective Communication in the Workplace: A Practical Guide to Improve Interpersonal Communication in the Wo for Better Environment, Client Relationships, and Employee Engagement*. Independently Published, 2019. |
| **2.** | L. M. and M. Valo, *Workplace Communication*, vol. 1. New York: Routledge, 2019. |
| **3.** | M. S. and A. Aira, "Technology-Mediated Communication in the Workplace," in *Workplace Communication*. New York: Routl 2019, p. 5. |
| **4.** | J. Mizrahi, *Writing for the Workplace: Business Communication for Professionals*. Business Expert Press, 2015. |
| **5.** | B. K. Mitra, *Personality Development & Soft Skills*. New Delhi: Oxford University Press, 2012. |
| **6.** | S. Kumar and Pushp Lata, *Communication Skills*, 1st ed. Oxford University Press, 2011. |
| **7.** | M. Raman and S. Sharma, *Technical Communication: Principles & Practices*, 29th Impression. New Delhi: Oxford University 2009. |
| **8.** | P. M. and R. A. Luecke, *Interpersonal Communication Skills in the Workplace*. United States of America: American Manageme Association, 2008. |
| **9.** | S. Khera, *You Can Win*. New York: Macmillan Books, 2003. |


**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| Course Code | **24B12HS311** | Semester: Even (specify Odd/Even) | Semester: 6th Session: 2024 -2025 Month from: January-June |
| Course Name | **Investment management** | | |

| Credits | 03 | Contact Hours | 2-1-0 |
|---|---|---|---|

| Faculty (Names) | Coordinator(s) | Dr. Purwa Srivastava |
|---|---|---|
| | Teacher(s) (Alphabetically) | Dr Purwa Srivastava |

| COURSE OUTCOMES | | COGNITIVE LEVELS |
|---|---|---|
| C206-11.1 | To Understand and getting acquainted with the securities market and its investment instruments. | Understand (C2) |
| C206-11.2 | To Apply the concept of fundamental analysis of company and Investment Planning | Apply (C3) |
| C206-11.3 | To Analyze the relationship between risk and return by applying various models | Analyze (C4) |
| C206-11.4 | To Evaluate the value of financial assets, equities and bonds. | Evaluate (C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures for the module |
|---|---|---|---|
| 1. | **Introduction to Financial Investments** | Concept and Definition of Investment – Investment Decision and Process – Types –Investment Vs Speculation-Role of Speculator – Source of Investment Information – Opening Demat account -Securities Market-Primary and Secondary Market –Stock Exchanges – Investment Planning and investment avenues | 6 |
| 2. | **Fundamental Analysis** | **Economic analysis** -Factors in Domestic and International economy – **Industry Analysis**: Industry classification schemes –Classification by product and according to business cycle – Key characteristics in industry analysis – Industry life cycle – Sources of information for industry analysis. **Company Analysis**: Sources of information for company analysis (Internal, External) – Factors in company analysis – Operating analysis – Management analysis – Financial analysis – Earnings quality. | 5 |
| 3. | Basic Concepts and Methods | Capital Asset Pricing Model - Assumptions – Inputs Required for Applying CAPM, The Capital Market Line - Security Market Line, Pricing of Securities with CAPM. Arbitrage pricing theory (APT). | 5 |
| 4. | Equity Valuation | Equity Valuation: Balance Sheet Techniques- Book value, Liquidation value, Replacement cost. Discounted Cash Flow Techniques: Dividend discount model, Free cash flow model. Relative | 5 |

| | | | |
|---|---|---|---|
| | | Valuation Techniques: Price-earnings ratio, Price-book value ratio, Price-sales ratio. | |
| **5.** | Bond Valuation | Overview of fixed-income securities – Risk factors in fixed-income securities (Systematic and unsystematic) – Bond analysis – Types of bonds – Major factors in bond rating process – Bond returns – Holding period return - Concept of yield – Current yield – Yield-to-Maturity – Price-yield relationship – Convexity - Term structure of interest rates and yield curve – Duration - Valuation of preference shares. | 7 |
| **Total number of Lectures** | | | **28** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (assignments, class test, project) |
| **Total** | **100** |

**Project-based learning-** The student will be given a group project to do the fundamental analysis of one Industry. They will perform economic analysis,

Industry analysis and company analysis. Basis this analysis they will shortlist top five companies fit for investing in that particular sector. They will prepare a rating chart for the companies for the top companies selected for investing.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Luenberger, D. G. (2017), Investment Science,Oxford University Press. |
| **2.** | Bodie, Kane, and Marcus (2019), Investments,McGraw Hill. |
| 3. | Damodaran, A.(2014), Applied Corporate Finance, Wiley India |
| **4.** | ZviBodie, Alex Kane, Alan J Marcus, Pitabas Mohanty (2014) Investments, (10th Edition), Tata McGraw Hill. |
| **5.** | Punithavathy Pandian, Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd. |
| **6.** | Jordan, R. J, and Fisher, D. E: (1995), Security Analysis and portfolio, (6th Edition), Pearson. |


## 1. CO-PO and CO-PSO Mapping:

| | | | | | | | | | | | | | CSE | | ECE | | IT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO1** | **PSO2** | **PSO1** | **PSO2** |
| **C206-11.1** | | | | | | 2 | | 2 | | | 3 | 1 | | | | | | |
| **C206-11.2** | | | | | | 2 | | 2 | | | 3 | 1 | | | | | | |
| **C206-11.3** | | | | | | 2 | | 2 | | | 3 | 1 | | | | | | |
| **C206-11.4** | | | | | | 2 | | 2 | | | 3 | 1 | | | | | | |
| **Average** | | | | | | 2.00 | | 2.00 | | | 3.00 | 1.00 | | | | | | |

| | | | |
|---|---|---|---|
| **Course Code** | 24B12HS316 | **Semester** Even **(Specify Odd/Even)** | **Semester** V I **Session** 2024 -2025 **Month from** January-June |
| **Course Name** | Popular Literature | | |
| **Credits** | 3 | **Contact Hours** | 3-0-0 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Mohua Dutta (Sec. 62) |
| | **Teacher(s) (Alphabetically)** | Dr. Mohua Dutta |

| COs | Course Outcomes | Cognitive Levels |
|---|---|---|
| C390. 1 | Outline the different facets of popular literature and illustrate the differences between the “popular” and “canonical” literature | Understanding Level (C2) |
| C390. 2 | Identify the different frameworks, conventions, formulas, themes and styles of popular genres such as science fiction, detective fiction, children’s literature and graphic novels | Applying Level (C3) |
| C390. 3 | Categorize graphic novels as a genre of literary texts | Analyzing Level (C4) |
| C390. 4 | Assess the connection of politics, materialism, and technology with Science Fiction | Evaluating Level (C5) |

| Module No. | Title of the Module | Topics in the Module | No. of Lectures in the module |
|---|---|---|---|
| 1 | Introduction | • What is popular literature?<br>• How is popular literature different from canonical literature? | 6 |
| **2** | Science Fiction | • Jules Verne: *Journey to the Centre of the Earth*<br>• Isaac Asimov: *Foundation*<br>• Politics, materiality, and technology in Science Fiction | 9 |
| **3** | Detective Fiction | • Essentials of Detective Fiction<br>• Arthur Conan Doyle: *A Study in Scarlet*<br>• Agatha Christie: *The Murder of Roger Ackroyd* | 9 |

| | | | |
|---|---|---|---|
| **4** | Children's Literature | • Lewis Carroll: *Through the Looking Glass*<br>• Antoine de Saint-Exupery: *The Little Prince*<br>• Ethics and Education in Children's Literature | 9 |
| **5** | Graphic Novels | • Evolution of Graphic Novels<br>• Marjane Satrapi: *Persepolis*<br>• Durgabai Vyam and Subhash Vyam: *Bhimayana* | 9 |

| **Total number of Lectures** | 42 |
|---|---|

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester | 35 |
| TA | 25 [Project Based Learning & Group Presentation, Video Assignment] |
| **Total** | **100** |

For **PBL**, a group of 5–6 students are expected to write a research paper and deliver a group presentation on any two graphic novels that are not part of the syllabus. Students are expected to analyze the texts stylistically, thematically, and contextually. Students will be graded based on their research, analytical, writing and presentation skills.
For **Video Presentation**, each student is expected to choose a topic of their liking (from the given list), conduct thorough research and create an outline/script, which will be submitted along with the video presentation. Embedding PPTs or animations into the video is highly encouraged. This assignment has been designed to enhance the communication skills of BTech students, their engagement with and understanding of the subject matter, as well as a chance to demonstrate their research, analysis, and presentation skills. The intention is to offer a dynamic learning experience to the students, fostering creativity, innovation and technical skill development (scripting, editing, etc.)

**Recommended Readings (Some of these will also be shared in the classroom as essential readings)**


- S. Chakraborty, "Unpacking caste politics through the multimodal communicative landscape of *Bhimayana: Experiences of Untouchability*." *Rupkatha Journal on Interdisciplinary Studies in Humanities*, vol 12, no. 4, July-September 2020.
- N. R. Sankar and D Changmai. 'Between Solidarity and Complicity: The Politics of Representation in *Bhimayana*." *The Journal of Asian Studies*, vol. 79, no. 2, 2020.
- K. Hyland, "New and Old Twists on Old and New Forms: *Bhimayana* and the People's Archive of Rural India." *Bioethics Research Showcase*, Georgetown University, 2018.
- R. Sinha, "Aesthetics, Gender, and Canon in Anti-Caste Graphic Narratives, *A Gardener in the Wasteland*, and *Bhimayana*." *South Asian Review*, vol. 39, no. 1–2, 2018.
- P. K. Nayar, "Radical Graphics: Martin Luther King Jr, BR Ambedkar, and Comics Auto/ Biography." *University of Hawaii Press*, vol 39, no.2, Spring 2016.
- S. Anand and V. Vellanki, "*Bhimayana*: Caste, Ambedkar, Art and Pedagogy," *Contemporary Education Dialogue*, vol. 12, no. 2, 2015. https://doi.org/10.1177/0973184915581932
- S. Khilnani, "The Case of *Bhimayana* and the Search for a New Dalit Aesthetic." *Lapis Lazuli*, vol. 5, no.2, 2015.
- R. Kothari, "Caste in a Casteless Language? English as a Language of 'Dalit' Expression." *Economic and Political Weekly*, vol 48, no. 39, 2013.
- P. K. Nayar, 'Towards a Postcolonial Critical Literacy: *Bhimayana* and the Indian Graphic Novel." *Studies in South Asian Film and Media*, vol 3, no.1, March 2012.
- V. Oza, "Questions of Reading and Readership of Pictorial Texts: The Case of *Bhimayana*, a Pictorial Biography of Dr. Ambedkar," *Journal of Writing in Creative Practice*, vol. 4, no. 3, 2012. https://doi.org/10.1386/jwcp.4.3.351_1

- M. Bould and S. Vint, *The Routledge Concise History of Science Fiction*. London: Routledge, 2011.
- R. Lakshmi, “Indian graphic artists draw outside the box for nonfiction: *Bhimayana*.” *Washington Post*, 19 August 2010.
- S. Mccracken, *Pulp: Reading Popular Fiction*. Manchester: Manchester Univ. Press, 2007.
- D. Johnson, *The Popular & the Canonical: Debating Twentieth-century Literature 1940-2000*. London: Routledge, 2005.
- J. Storey, *Cultural Theory and Popular Culture: An Introduction*. England: Prentice Hall, 2001.
- B. Ashley, *The Study of Popular Fiction: A Source Book*. London: Pinter Publishers, 1989.
- L. M. Shires, "Fantasy, nonsense, parody, and the status of the real: The example of Carroll." *Victorian Poetry* 26, no. 3, 1988.
- D. Suvin, “On Teaching SF Critically.” *Positions and Presuppositions in Science Fiction*. London: Macmillan, 1988.
- C. Pawling, “Popular Fiction: Ideology or Utopia?” *Popular Fiction and Social Change*, ed. C. Pawling. London: Macmillan, 1984.
- U. C. Knoepflmacher, "The Balancing of Child and Adult: An Approach to Victorian Fantasies for Children." *Nineteenth-Century Fiction* 37, no. 4, 1983.
- F. A. Hughes, “Children’s Literature: Theory and Practice.” *English Literary History*, vol. 45, 1978. https://doi.org/10.2307/2872651
- T. Todorov, “The Typology of Detective Fiction.” *The Poetics of Prose,* trans. R. Howard. Ithaca: Cornell University Press, 1977.
- J. G. Cawelti, *Adventure, Mystery, Romance: Formula Stories as Art and Popular Culture*. Chicago: University of Chicago Press, 1976.
- L. Fiedler, “Towards a Definition of Popular Literature.” *Super Culture: American Popular Culture and Europe*, ed. C.W.E. Bigsby. Ohio: Bowling Green University Press, 1975.

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | **15B1NHS831** | **Semester Even (specify Odd/Even)** | **Semester VI Session 2024-2025 Month from Jan-June** |
| **Course Name** | **Effective tools for Career Management and Development** | | |
| **Credits** | **3** | **Contact Hours** | **2-1-0** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr Kanupriya Misra Bakhru |
| | **Teacher(s) (Alphabetically)** | Dr Kanupriya Misra Bakhru |
| | | |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C304-17.1 | Understand one's personal priorities, skills, interests, strengths, and values using a variety of contemporary assessment tools and reflection activities. | Understanding Level (C 2) |
| C304-17.2 | Apply knowledge of all the Career Stages in managing career effectively. | Applying Level (C 3) |
| C304-17.3 | Examine and maximize one's potential for achieving the desired career option. | Analyzing Level (C4) |
| C304-17.4 | Develop the competencies required by the job market | Creating Level (C 6) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures and Tutorial for the module** |
|---|---|---|---|
| **1.** | Introduction to Career Development | Introduction to Professional Career Development-Role and importance of human resource in an organization, Introduction to Career Planning: Self-Concept. | 4 (CO1) |
| **2.** | Self-Assessment and strategies for Recruitment and Selection | Introduction to complete cycle of Recruitment and Selection, various tools used for assessment and testing candidates-aptitude test, personality test etc. Introduction to Workforce planning, Job Analysis, Job Description and Job Specification. | 6 (CO2) |
| **3.** | Self-Branding, Social Media and Personnel Development | Pitch your Brand (Elevator pitches and their use), Personal Branding, creating a Positive Professional Image (Business etiquette) – Social Media and your online image, Using Social Media to Find Job. Introduction to various techniques used for learning and development, training effectiveness, Transactional Analysis-Parent, Adult and Child Ego States. | 6 (CO3) |
| **4.** | Managing Career -Performance Review and Compensation | Transitioning from college to work Strategies to thrive at work- Performance Management: Key Result Areas, Key Performance Indicators, Different Performance Review Methods. Compensation Strategy and trends- Compensation package, ESOPs, Performance based pay, Recognition, and Rewards. | 6 (CO3) |

| | | | |
|---|---|---|---|
| **5.** | Individuals and Job Markets | The New Employment Reality and Job Market Trends, Developing Competencies and Abilities, Human Resource Management Practices in India, Internationalization of Human Resource Management Commonly Used Jargons. | 6 (CO4) |
| **Total number of Lectures** | | | **28** |

| **Evaluation Criteria Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Term | 35 |
| TA | 25(Project-15 Marks, Quiz-10 Marks) |
| **Total** | **100** |

**Project Based Learning:** Students, in groups of 3-4, are required to select a company that has come for Campus placement at JIIT, Noida. Students have to study the Recruitment and Selection process of the Company selected. The information can be collected with the help of an interview or some kind of questionnaire pertaining to the Recruitment and Selection process from seniors who have been placed in the given company.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| **1.** | Dessler and Varkkey, *Human Resource Management*, Pearson, Seventeenth Edition, 2023 |
| **2.** | Mathur, *Mastering interviews and group discussions*, CBS Publishers& Distributors Pvt. Ltd., New Delhi, 2018 |
| **3.** | Pareek and Purohit, *Training Instruments in HRD and OD*, Sage Publications India Pvt. Ltd., 2018 |
| **4.** | Joshi, *Campus to Corporate, Your Roadmap to Employability*, Sage Publications India Pvt. Ltd., 2015 |
| **5.** | Pande and Basak*, Human Resource Management- Text and Cases*, Pearson, 2012 |
| **6.** | Mitra, *Personality Development and soft skills*, Oxford University Press, New Delhi, 2011 |

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 18B12PH811 | **Semester Even (specify Odd/Even)** | **Semester VIII Session** 2024 -2025 **Month from** January to June |
| **Course Name** | Photonics and Applications | | |
| **Credits** | 3 | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Navneet Kumar Sharma |
| | **Teacher(s) (Alphabetically)** | Navneet Kumar Sharma |

| **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|

| | | |
|---|---|---|
| **C402-3.1** | Recalling the fundamental properties and the processes involved in the generation of light | Remember Level (C1) |
| **C402-3.2** | Thorough understanding of fiber optics and holography | Understand Level (C2) |
| **C402-3.3** | Ability to apply the fundamentals of various nonlinear optical effects in technology and interpret applications of photons | Apply Level (C3) |
| **C402-3.4** | Analysis of characteristics, trade-offs of optical detectors and modulators of light | Analyze Level (C4) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Lasers | Review of different types of laser systems. LEDs, Semiconductor lasers, Quantum well lasers, Modes of laser cavity, Q-switching and Mode locking in lasers. | 8 |
| **2.** | Fiber Optics | Numerical aperture, Step and graded index multimode fibers, attenuation and dispersion, modes in optical fibers. Single mode fiber, mode cutoff and mode field diameter. Connector and splice losses, Erbium doped fiber amplifier and Characterization techniques including OTDR. | 10 |
| **3.** | Photo detectors | Semiconductor photo detectors. | 5 |
| **4.** | Optical Electronics | Wave propagation in anisotropic media, Electro-optic effect: phase and amplitude modulation. Acousto-optic effect: modulators, deflectors and tunable filters, Magneto-optic effect: modulators. | 4 |
| **5.** | Optical devices | Electro-optical device, Acousto-optical device, Magneto-optical device, Voice communication, Optical communication. | 2 |
| **6.** | Nonlinear Optics | SHG, Sum and Difference frequency generation, parametric amplification, wavelength converters, Self focusing with lasers. | 6 |
| **7.** | Holography | Recording and Reproduction of Hologram, Applications of holography. | 4 |
| **8.** | Applications of Photons in Memory devices | CD, VCD, DVD. | 1 |
| **Total number of Lectures** | | | **40** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 [Attendance (05 M), Class Test, Quizzes *etc* (06 M), Assignments in PBL mode (10 M) and Internal assessment (04 M)] |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | R. P. Khare, *Fiber Optics and Optoelectronics*, Oxford University Press. |
| **2.** | A. K. Ghatak and K. Thyagarajan, *Optical Electronics*, Cambridge university Press. |

| | |
|---|---|
| **3.** | A. K. Ghatak and K. Thyagarajan, *An Introduction to Fiber Optics*, Cambridge university Press. |
| **4.** | B. B. Laud, *Lasers and Nonlinear Optics*, New Age International. |


**Project based learning:** Each student in a group of 4-5 students will opt a topic and will do the theoretical study in detail. The students will submit their report. To make the subject application based, the students analyze the optical fiber applications, holography applications and use of photons in memory devices. This shall improve the skills and employability of the students in laser and photonic industries.

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 18B12PH812 | **Semester: Even** | **Semester: 8**, **Session :** 2024 -2025<br>**Month from: January to June** |
| **Course Name** | **Astrophysics** | | |
| **Credits** | 3 | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Prof. Anirban Pathak and Dr Amit Verma |
| | **Teacher(s) (Alphabetically)** | Prof. Anirban Pathak and Dr Amit Verma |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **CO1** | Relate historical development of astrophysics with the modern concepts and recall the mathematical techniques used & definition of different units | Remembering (C1) |
| **CO2** | Explain the models of universe, ideas of stellar astrophysics, life cycles of stars, physical principles that rules galaxies, and general theory of relativity | Understanding (C2) |
| **CO3** | Apply mathematical principles and laws of physics to solve problems related to astrophysical systems | Applying (C3) |
| **CO4** | Compare different models of universe and decide which one is logically acceptable and why | Analyzing (C4) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1** | Introduction to Astrophysics | Historical development of astrophysics (from mythology to contemporary astrophysics), Mass, length and time scales in astrophysics, sources of astronomical information (effect of discovery of spectroscopes and photography), astronomy in different bands of electromagnetic radiation (e.g. Optical astronomy, infra-red astronomy radio astronomy, X-ray astronomy. Gamma-ray astronomy etc. with specific | **8** |

| | | | |
|---|---|---|---|
| | | mention of Hubble space telescope). Kirchoff's law, Doppler effect and Hubble's law. | |
| **2.** | Stellar Astrophysics | Classification and nomenclature of stars. Basic equations of stellar structure, main sequence, red giants and white dwarfs, HR diagram, stellar evolution, supernovae, extra solar planets. | **8** |
| **3.** | Death of a star | End states of stellar collapse: degeneracy pressure of a Fermi gas, structure of white dwarfs, Chandrasekhar mass limit, neutron stars pulsars and black holes. | **6** |
| **4.** | Our galaxy | The shape and size of Milky way and its interstellar mater | **2** |
| **5.** | Extragalactic astrophysics | Normal galaxies, active galaxies, cluster of galaxies, large-scale distribution of galaxies. | **6** |
| **6.** | GTR and Models of Universe | Qualitative idea of general theory of relativity (without using tensor calculus) and its implications.<br>Different models of universe. Specific attention to the ideas related to big bang, cosmological constants, dark matter and dark energy. | **6** |
| **7.** | Astrobiology | Drake equation and related questions. | **2** |
| **8.** | Conclusion | Review of the present status of Astrophysics and open questions. | **2** |
| **Total number of Lectures** | | | **40** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 |
| (a) Quizes /class tests (06 M), | |
| (b) Attendance (05 M) | |
| (c) Internal Assessment (04) | |
| (d) Assignments in PBL mode (10 M) | |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | Astrophysics for Physicists, Arnab Rai Choudhuri, Cambridge University Press, Delhi, 2010. |
| **2.** | Astrophysics: Stars and Galaxies, K D Abhyankar, University Press, Hyderabad, 2009. |
| **3.** | Facts and Speculations in Cosmology, J V Narlikar and G Burbidge, Cambridge University Press, Delhi, 2009. |
| **4.** | The Cosmic Century, Malcolm Longair, Cambridge University Press, Cambridge, 2006. |
| **5.** | An Introduction to Astrophysics, Baidyanath Basu, Prentice Hall of India, Delhi 1997. |
| **6.** | Fundamentals of Equations of State, S. Eliezer, A Ghatak and Heinrich Hora, World Scientific, Singapore, 2002. Only Chapter 15. |

**Project based learning: Project report (5-7 pages in pdf format indicating Name, Enroll No. and Batch) is to be uploaded in google class room before starting of End Term Exam. Max 5 students can work on one topic given in the list (**Dark Matter, Dark Energy, Expanding Space time, Merger of Black holes, Failed stars, Detection of Gravitational Waves, Light cone in GTR, Particle production radiation era, Did big bang happened ?, Discover life: ET etc.**), however, they may prepare different reports. Report should include introduction, definition, mathematics, principle, working, figures, applications etc.**

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 18B12PH814 | **Semester: Even** | **Semester:** VIII **Session:** 2024 -2025<br>**Month: January to June** |
| **Course Name** | Plasma Physics | | |
| **Credits** | 3 | **Contact Hours** | 3 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Anuraj Panwar |
| | **Teacher(s)** | Dr. Anuraj Panwar |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C402-34.1 | Define terminology and concepts of plasma physics with various natural phenomena and engineering applications. | Remembering Level (C1) |
| C402-34.2 | Summarize plasma and explain its electric, magnetic, dielectric and thermal properties. | Understand Level (C2) |
| C402-34.3 | Develop magneto-hydrodynamic fluid and kinetic models to explain various phenomena taking place in homogeneous, isotropic and anisotropic plasma conditions. | Apply Level (C3) |
| C402-34.4 | Analyze and formulate mathematical / analytical expressions for various nonlinear processes in plasmas. | Analyze Level (C4) |
| C402-34.5 | Evaluate physical problems, estimate their numerical solutions and draw inferences from the results. | Evaluate Level (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | **Introduction to the Plasma State** | Elementary concepts, definition of temperature Debye Shielding, plasma parameters, applications of Plasma Physics, Production of Plasmas in the laboratory, Drifts of charged particles under the effect of different combinations of electric and magnetic fields and Mirror Machine. | 10 |
| **2.** | **Fluid description of plasmas** | Relations of Plasma Physics to ordinary electromagnetics, dielectric constant of a plasma, collisions, equation of continuity, macroscopic parameters of plasma, two and one fluid equations for plasma. | 04 |
| **3.** | **Nonlinear Waves in Plasmas** | Plasma oscillations, space charge waves of warm plasma, ion-acoustic waves and electromagnetic waves in magnetized plasma. | 08 |
| **4.** | **Diffusion and Resistivity** | Decay of Plasma by diffusion, diffusion across a magnetic field, single fluid MHD equations, Diffusion in fully ionized Plasmas, Bohm diffusion and Neoclassical diffusion. | 06 |
| **5.** | **Stability of fluid plasma** | The equilibrium of plasma, classification of plasma instabilities, stability analysis: Two stream instability and Gravitational instability or Rayleigh Taylor instability (Plasma supported against gravity by magnetic field). | 04 |

| | | | |
|---|---|---|---|
| **6.** | **Nonlinear effects** | Ponderomotive force, Parametric instabilities, decay instability, two plasmon decay, stimulated Raman scattering and stimulated Brillouin scattering, non linear Landau damping. | 06 |
| **7.** | **Controlled thermo-nuclear fusion** | Magnetic and inertial confinement schemes, ITER, TOKAMAK. | 02 |
| **Total number of Lectures** | | | **40** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Quiz+PBL+Attendance+class performance) |
| **Total** | **100** |

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Textbooks, Reference Books, Journals, Reports, Websites etc. in the IEEE format)


| | |
|---|---|
| **1.** | F. F. Chen., *Introduction to Plasma Physics,* Springer (2016). |
| **2.** | Krall and Trievelpiece, *Principles of Plasma Physics*, McGraw-Hill (1973). |
| **3.** | W. L. Kruer, *The Physics of laser plasma interactions*, Addison Wesley (1988). |
| **4.** | Liu and Tripathi, *Interaction of electromagnetic waves with electron beams and plasmas*, World Scientific (1994). |


**Project based Learning (PBL):** Students groups may be formed to submit project reports on natural and engineering applications of plasma physics. Students may be asked to make presentations on topics like mirror machine, plasma diffusion, Raman scattering and plasma fusion devices. Students may be asked to present recent published articles on plasma applications. Students may be asked to solve plasma physics problems by using their expertise computer language

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **19M13HS111** | **Semester: Even** | **Semester: M.Tech II & Dual degree VIIISession 2024-25**<br>**Month from January to June 2025** |
| **Subject Name** | **English Language Skills for Research Paper Writing** | | |
| **Credits** | **2** | **Contact Hours** | **2-0-0** |
| **Faculty (Names)** | **Coordinator(s)** | Dr. Ekta Singh | |
| | **Teacher(s) (Alphabetically)** | Dr. Ekta Singh | |

**Course Outcomes:**

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

| **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|

| | | |
|---|---|---|
| **C204.1** | Demonstrate an understanding of all the aspects of grammar and language needed to write a paper. | Understand Level (C2) |
| **C204.2** | Apply grammatical knowledge & concepts in writing and presentation. | Apply level (C3) |
| **C204.3** | Examine each section of a paper after careful analysis of Literature Review. | Analyze Level (C4) |
| **C204.4** | Determine the skills needed to write a title, abstract and introduction, methods, discussion, results and conclusion. | Evaluate Level (C5) |
| **C204.5** | Compile all the information into a refined research paper after editing and proofreading | Create Level (C6) |

| **Module No.** | **Subtitle of the Module** | **Topics in the module** | **No. of Lecturesand Tutorials for the module** |
|---|---|---|---|
| **1.** | Grammar & Usage | Structure of English Language<br>Voice, Aspect & Tense<br>SVOCA<br>Sense & Sense Relations in English<br>Enhancing Vocabulary<br>Connotation, Denotation & Collocation | **6** |
| **2.** | Elements of Paper Writing | Planning & Preparation<br>Word Order<br>Breaking Long Sentences<br>Structuring Paragraphs<br>Being Concise and Removing Redundancy<br>Avoiding Ambiguity and Vagueness | **4** |
| **3.** | Paraphrasing & Writing | Highlighting Your Findings<br>Hedging and Criticising<br>Paraphrasing and Plagiarism<br>Sections of a Paper<br>Abstracts; Introduction | **6** |
| 4. | Process of Writing | Review of Literature<br>Methods<br>Results<br>Discussion<br>Conclusion<br>The Final Check | **4** |
| **5.** | Key Skills Needed | Key skills needed when writing a Title<br>Key skills needed whenWriting an Abstract<br>Key skills needed when writing an Introduction<br>Key skills needed when writing a Review of the Literature<br>Key skills needed when writing Methods & Results<br>Key skills needed when writing Discussion & Conclusion | **4** |
| **6.** | Refining the Paper | Incorporating useful phrases<br>Editing<br>Proofreading<br>References<br>Annexures<br>Ensuring good quality in submission | **4** |
| **Total number of Lectures and Tutorials** | | | **28** |

| Evaluation Criteria | |
|---|---|
| **Components** | **MaximumMarks** |
| Mid Term | 30 |
| End Semester Examination | 40 |
| TA | 30 (Project, Assignment/ Class Test/ Quiz, Class Participation) |
| **Total** | **100** |

## 3. Employability/entrepreneurship/skill development

Researchers whose first language is not English write at least two-thirds of published scientific papers. Twenty percent of the comments referees make when reviewing papers for possible publication in international journals regard English language issues. In some disciplines, acceptance rate by journals of papers originating from the US/UK is 30.4%, and is higher than all other countries

Publishing your research in an international journal is key to your success in academia. This course is based on a study of some sample manuscripts and reviewers' reports revealing why papers written by non-native researchers are often rejected due to problems with English usage and poor structure and content. The course prepares the students on how to:

- prepare and structure a manuscript
- increase readability and reduce the number of mistakes you make in English by writing concisely, with no redundancy and no ambiguity
- write a title and an abstract that will attract attention and be read
- decide what to include in the various parts of the paper (Introduction, Methodology, Discussion etc)
- highlight your claims and contribution
- avoid plagiarism
- discuss the limitations of your research
- choose the correct tenses and style
- satisfy the requirements of editors and reviewers

| **Recommended Reading material:** | |
|---|---|
| 1. | R. Goldbort, *Writing for Science*. Yale University Press, 2006. [Available on Google Books]. |
| 2. | R. Day, *How to Write and Publish a Scientific Paper*. Cambridge University Press, 2006. |
| 3. | A. Wallwork, *English for Writing Research Papers*. Springer, New York, Dordrecht, Heidelberg, London, 2011. |
| 4. | M. A. Yadugari, *Making Sense of English: A Textbook of Sounds, Words & Grammar*. Revised ed., Viva Books Private Limited, New Delhi, 2013. |
| 5. | J. Strauss, *The Blue Book of Grammar and Punctuation*. Jossey-Bass, Wiley, San Francisco, 1999. |
| 6. | A. R. Rizvi, *Effective Technical Communication*. 2nd ed., McGraw Hill Education Private Limited, Chennai, 2018. |
| 7. | K. Eckert, *Writing Academic Paper in English: Graduate and Postgraduate Level*. Moldy Rutabaga Books, 2017. |
| 8 | L. O. Barros, *The Only Academic Phrasebook You'll Ever Need: 600 Examples of Academic Language*. Create Space Independent Publishing Platform, 1st ed., 2016. |
| 9 | A. Wallwork, *English for Writing Research Papers (English for Academic Research)*. 2nd ed., Springer, 2016. |
| 10 | M. Wallace and A. Wray, *Critical Reading and Writing for Postgraduates (Student Success)*. 3rd ed., SAGE Publications Ltd., 2016. |

| | |
|---|---|
| 11 | L. Butler, *Longman Academic Writing Series 1: Sentences to Paragraphs, with Essential Online Resources*. 2nd ed., Pearson Education ESL, 2016. |
| 12 | J. Saramäki, *How to Write a Scientific Paper: An Academic Self-Help Guide for PhD Students*. Independently published, 2018. |
| 13. | Purdue Online Writing Lab, "Academic Writing," Purdue University. [Online]. Available: https://owl.purdue.edu/owl/general_writing/academic_writing/index.html. [Accessed: 12-Dec-2024]. |


**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 21B12EC413 | **Semester:** Even | **Semester** 8th **Session** 2024-25 **Month** from January-May |
| **Course Name** | Solar Engineering | | |
| **Credits** | 3 | **Contact Hours** | 3L |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Nisha Venkatesh |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| **EBEC402-37.1** | Recall the basic concepts of Solar Energy and Global Energy Needs for Solar Engineering | Remembering Level (C1) |
| **EBEC402-37.2** | Interpret the Physics of the Sun and Its Energy Transport. | Understanding Level (C2) |
| **EBEC402-37.3** | Implement solar thermal and electrical system for performance estimation | Applying Level(C3) |
| **EBEC402-37.4** | Differentiate Solar Water-Heating Systems for Commercial/Industrial Applications | Analyzing Level (C4) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| 1. | Introduction to Solar Energy Conversion | Introduction , Environmental Characteristics, Heat transfer concept, Heat Transfer coefficient, Optimization of Heat Losses, Thermal analysis and effect of environment with economic analysis | 5 |
| 2 | Fundamentals of Solar Radiation | The Physics of the Sun and Its Energy Transport, Thermal Radiation Fundamentals, Sun–Earth Geometric Relationship, Extraterrestrial Solar Radiation, Estimation of Terrestrial Solar Radiation, Models Based on Long-Term Measured Horizontal Solar Radiation and Measurement of Solar Radiation | 8 |
| 3. | Solar Engineering-I: Electrical Aspect | Solar Cell materials, Single crystal solar cell or solar grade, Types of Solar Energy Collectors, Performance of Solar | 10 |

| | | | |
|---|---|---|---|
| | | Collectors, Photovoltaic Systems, Design and Modeling of Solar Systems, Solar Energy Analysis | |
| 4. | Solar Engineering-II: Thermal Aspect | Solar Thermal Power Systems, PVT air/water collectors performance, design and modeling, Thermodynamic Power Cycles, Design of Parabolic Trough–Based Power Plants, Parabolic Dish Systems, Central Receiver Tower Systems | 10 |
| 5. | Solar Heating Systems and other applications | Solar Water-Heating Systems, Solar Space Heating and Cooling, Industrial Process Heat, Solar Dryers, Solar Desalination Systems, Solar Cooling and Dehumidification and applications of Solar Energy in Electronics and communication engineering<br>Commercial/Industrial Applications | 10 |
| **Total number of Lectures** | | | 43 |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignments, Attendance & Quiz) |
| **Total** | **100** |

**Project based learning:** Students will review and prepare report on any one of the discussed application of solar energy. They can implement solar thermal and electrical system for performance estimation.

**Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. ( Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

| | |
|---|---|
| 1. | G.N. Tiwari, Solar Energy : fundamentals, Design, Modelling and applications. Narosa Publishing House, 2016. |
| 2. | Chetan Singh Solanki, Solar Photovoltaics: Fundamental, technologies and applications. Prentice Hall of India, 2015 |
| 3. | James Momoh, Smart Grid: Fundamentals of Design and Analysis, Wiley-IEEE Press, 2012. |
| 4 | Juan Bisquert, The Physics of Solar Cell, CRC Press, Taylor & Francis group, 2018 |

**Syllabus**

| | | | |
|---|---|---|---|
| **Course Code** | 15B1NHS832 | **Semester** Even **(specify Odd/Even)** | **Semester** VIII **Session** 2024 -2025 **Month from** Jan - July |
| **Course Name** | International Studies | | |
| **Credits** | 3 | **Contact Hours** | **3-0-0** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Ila Joshi (62), Dr Gaurika Chugh (128) |
| | **Teacher(s) (Alphabetically)** | Dr. Ila Joshi , Dr Gaurika Chugh |

| **CO Code** | **COURSE OUTCOMES** | **COGNITIVE LEVELS** |
|---|---|---|

| | | |
|---|---|---|
| **C402-8.1** | Demonstrate an understanding of the basic concepts and theories in the area ofinternational studies and understanding of the contemporary world issues. | Understanding (C2) |
| **C402-8.2** | Compare the changes in India's foreign policy in the Cold War era andthe post-Cold War era | Applying (C3) |
| **C402-8.3** | Analyze the major political developments and events since the 20th Century and the working of various international organizations and their influence in international relations. | Analyzing (C4) |
| **C402-8.4** | Evaluate the Indian foreign policy and its impact on ccontemporary global concerns | Evaluation (C5) |

| **Module No.** | **Title of the Module** | **Topics in the Module** | **No. of Lectures for the module** |
|---|---|---|---|
| **1.** | Basic Concepts | • Approaches to the Study of International Relations: Idealist, Realist, Neo-Realist Theory<br>• Key Concepts in International Relations:<br>1) National interest and its instruments,<br>2) Power: Hard and Soft Power<br>3) Balance of power and Collective Security | 8 |
| **2.** | An Overview of Twentieth Century International Relations History | • World War I: Causes and Consequences<br>• Fascist / Nazi Ideology<br>• World War II: Causes and Consequences<br>• Diplomacy after World Wars: Old and New | 4 |
| **3** | Cold War Politics | • Origin and Phases of the Cold War<br>• Causes of the End of the Cold War<br>• Non-Alignment Movement (NAM) | 6 |
| **4** | United Nations and World Politics | • League of Nations: Brief Introduction<br>• United Nations and its Organs: Structure and Powers.<br>• Chapter VI: United Nations and Peaceful Settlement of Disputes: Inquiry, Negotiation, Mediation, Conciliation and Arbitration<br>• Chapter VII: United Nations and Collective Security Mechanism (Case study of Korean War).<br>• United Nations and Reforms | 8 |
| **5.** | India's Foreign Policy | • Basic Determinants (Historical, Geo-Political, Economic, Domestic and Strategic)<br>• India - Look East Policy and Act East Policy<br>• India - SAARC, ASEAN<br>• India – QUAD, G20 | 8 |

| | | | |
|---|---|---|---|
| **6** | Contemporary Global Concerns | • Human Rights<br>• Role of Diaspora<br>• Terrorism<br>• Nuclear Proliferation | 8 |
| | | **Total number of Lectures** | **42** |

| **Evaluation Criteria** | |
|---|---|
| **Components** | **Maximum Marks** |
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Assignment/ Class Test/ Quiz) |
| Total | 100 |

**Project Based learning**: Each student would form a group of 3-4 students and to make projects on issues related to contemporary international relations. This project would help the students in having a better idea about the contemporary international issues and how the international organizations play a pivot role. The use of case studies will improve their research skills and enhance their knowledge about the impact of global issues globalization on foreign policies of the countries.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| 1. | Appadorai, & Rajan, M. S. (eds.) (1985). *India's Foreign Policy and Relations*. New Delhi: South Asian Publishers. |
| 2. | Baylis, J. & Smith, S. (eds.) (2023). *The Globalization of World Politics: An Introduction to International Relations*. Ninth Edition. Oxford: Oxford University Press, |
| 3. | Calvocoressi, P. (2013). *World Politics: 1945—2000*. Essex: Pearson |
| 4. | Carr, E.H. (2004). *International Relations between the Two World Wars: 1919-1939*. New York: Palgrave |
| 5. | Chatterjee. A (2018). *International Relations Today*. Noida: Pearson |
| 6. | Ganguly, S. (ed.) (2019). *India's Foreign Policy: Retrospect and Prospect*. New Delhi: Oxford University Press |

| | |
|---|---|
| 7. | Goldstein, J. and Pevehouse, J.C. (2021). *International Relations*. Twelfth Edition, New Delhi: Pearson |
| 8. | Hobsbawm, E. (1995). *Age of Extreme: The Short Twentieth Century, 1914—1991*. London: Abacus |
| 9. | Mewmillians, W.C. and Piotrowski, H. (2014). *The World Since 1945: A History of International Relations*. Eighth Edition. London: Lynne Rienner Publishers. |
| 10. | Pant, H.V. (2020). *India's Foreign Policy in the Unipolar World.* Delhi: Routledge |
| 11. | Benjamin de Carvalho, Halvard Leira, Julia Costa Lopez (2021). Routledge Handbook of Historical International Relations. United Kingdom: Taylor & Francis. |


## CO-PO-PSO Mapping:

| | | | | | | | | | | | | | BT | BT | BT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COs** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| C402-8.1 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.2 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.3 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.4 | | | | | | **3** | | | **2** | | | **2** | | | |
| C402-8.5 | | | | | | **3** | | | **2** | | | **2** | | | |
| **Avg.** | | | | | | **3** | | | **2** | | | **2** | | | |

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Subject Code** | **17B1NHS732** | **Semester: Even** | **Semester:8th Session: 2024 -2025 Month:January to June** |
| **Subject Name** | **INDIAN FINANCIAL SYSTEM** | | |
| **Credits** | **3** | **Contact Hours** | **3 (3-0-0)** |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Prof. Mukta Mani & Dr. Sakshi Varshney |
| | **Teacher(s) (Alphabetically)** | Prof. Mukta Mani & Dr. Sakshi Varshney |

| NBA Code | Course Outcomes | Cognitive Level |
|---|---|---|
| C402-31.1 | Understand the concepts, functioning and significance of various components of the financial system | Understanding (Level 2) |
| C402-31.2 | Apply knowledge of investment avenues in making a personal investment portfolio and calculation of tax liability of a salaried individual. | Applying (Level 3) |
| C402-31.3 | Examine various methods of fundraising in domestic and international financial markets | Analyzing (Level 4) |
| C402-31.4 | Evaluate financial securities for making personal investment decisions | Evaluating (Level 5) |

| Module No. | Subtitle of the Module | Topics in the module | No. of Hours |
|---|---|---|---|
| **1.** | Introduction to Financial System | Meaning, Importance, and functions of the Financial system. Informal and Formal financial systems, Financial markets, Financial Institutions, Financial Services and Financial instrument | 3 |
| **2.** | Introduction to financial markets | Features of money market Instruments: Treasury bills, commercial bills, commercial papers, certificates of deposit, call and notice money, Functions of money market, Linking of money market with Monetary policy in India<br><br>Features of Capital market instruments: Equity shares, Bonds. | 5 |
| **3.** | Fundraising in financial markets | Fundraising through Initial Public Offering, Rights issue, Preferential allotment and Private Placement. Process of IPO-Intermediaries in IPO, Book building process and allotment of shares<br><br>Fundraising from the foreign market through Foreign direct investment and foreign institutional investment, ADR, GDR, ECB, and Private equity. | 6 |
| **4.** | Stock Market | Trading in the secondary market- Stock exchanges, regulations, demutualization, broker, a listing of securities, dematerialization, trading, short selling, circuit breaker, stock market indices- methods of calculation of indices. | 4 |
| **5.** | Stock Valuation and Analysis | Investing basics: Consideration of Risk and Return, Stock Valuation and Analysis- Fundamental analysis: Economy, industry and company analysis; Technical Analysis of stocks using technical charts | 9 |

| | | | |
|---|---|---|---|
| **6.** | Investing in Mutual Funds and Insurance | Mutual Funds: Basics, Types of funds, risk and return considerations in the selection of funds; Insurance: Basics, Life insurance and health insurance, types of policies | 4 |
| **7.** | Overview of Income Tax | Basics of Income tax Concept of the previous year, assessment year, person, income. Residential Status, Calculation of Income tax liability for individuals: Income from salaries- basic, DA, HRA, leave salary, Gratuity, Pension, Allowances and Perquisites; Income from Capital Gain, Deductions under sections 80C to 80U. | 11 |
| **Total number of Lectures** | | | **42** |

**Evaluation Criteria**

| **Components** | **Maximum Marks** |
|---|---|
| T1 | 20 |
| T2 | 20 |
| End Semester Examination | 35 |
| TA | 25 (Project, Class participation) |
| **Total** | **100** |

**Detailed Syllabus**

**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 17I17CS511 | **Semester Even (specify Odd/Even)** | **Semester XI Session** 2024 -2025 **Month from** Jan' 25 to June' 25 |
| **Course Name** | Dissertation (Integrated M. Tech (CSE)) (NBA Code: C219) | | |
| **Credits** | 20 | **Contact Hours** | 32 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Taj Alam |
| | **Teacher(s) (Alphabetically)** | Dr. Taj Alam |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C219.1 | Identify and refine a research problem after critical analysis of relevant literature. | Analyze (Level-4) |
| C219.2 | Apply appropriate research methodology to design and implement the solution of research problem | Apply (Level-3) |
| C219.3 | Critically analyze and evaluate the proposed solution with respect to state-of-art | Evaluate (Level-5) |
| C219.4 | Report the research findings clearly and effectively both in written and oral form while following the research ethics. | Create (Level-6) |
| C219.5 | Demonstrate significant research contribution in relation to employability and higher studies. | Create (Level-6) |

**Evaluation Scheme**

Day to day work to be awarded by Supervisor - 40 Marks
End Semester Evaluation by a panel of Examiners - 50 Marks
Significant/special contribution to be awarded by Panel of examiners - 10 Marks

**Total Marks – 100 Marks**

**Detailed Syllabus**
**Lecture-wise Breakup**

| | | | |
|---|---|---|---|
| **Course Code** | 17I17CS512 | **Semester Even (specify Odd/Even)** | **Semester XI Session** 2024 -2025 **Month from** Jan'25 to June'25 |
| **Course Name** | Industrial Project (Integrated M. Tech (CSE)) (NBA Code: C220) | | |
| **Credits** | 20 | **Contact Hours** | 32 |

| | | |
|---|---|---|
| **Faculty (Names)** | **Coordinator(s)** | Dr. Taj Alam |
| | **Teacher(s) (Alphabetically)** | Dr. Taj Alam |

| **COURSE OUTCOMES** | | **COGNITIVE LEVELS** |
|---|---|---|
| C220.1 | Identify the real-world problems after critical analysis of existing solutions and tools in relevant industry | Analyze (Level-4) |
| C220.2 | Apply engineering knowledge to design and implement the solution | Apply (Level-3) |
| C220.3 | Critically analyze and evaluate the proposed solution with respect to alternatives | Evaluate (Level-5) |
| C220.4 | Report the project findings clearly and effectively both in written and oral form in relation to employability while following the research ethics | Create (Level-6) |

**Evaluation Scheme**

**To be awarded by Supervisor from Industry**
(i) Problems statements and identification of work plan - 10 Marks
(ii) Execution of work plan and progress made - 40 Marks

**Total (a) : 50 Marks**

**To be awarded by Supervisor from JIIT**
(iii) Interaction with Internal Supervisor upto mid semester - 10 Marks
(iv) Interaction with Internal Supervisor from mid to end semester - 10 Marks
(v) Report, Presentation and Viva-Voce at the end of semester - 30 Marks
by a panel of examiners consisting of Internal Supervisor,
a nominee of HoD and a nominee of Dean A & R /RID as
approved by VC

**Total (b): 50 Marks**

**Grand Total (a+b) : 100 Marks**

Project-BasedLearning: The students will form groups of 4-5 students. They will carry outa stock analysis of a selected company on the basis of fundamental and technical analysis techniques studied in lecture classes. Finally, they will give their recommendation about the performance of the stock.

| **Recommended Reading material:** Author(s), Title, Edition, Publisher, Year of Publication etc. (Textbooks, Reference Books, Journals, Reports, Websites etc. in the IEEE format) | |
|---|---|
| 1 | Pathak Bharti V, *Indian Financial System,* 5th Edition,Pearson Education, 2018 |
| 2 | Madura Jeff, *Personal Finance*, 6th Ed, Pearson Education, 2017. |
| 3 | Machiraju H R, *Indian Financial System*, 5th Ed, Vikas Publication, 2019 |
| 4 | Bhole L M and Mahakud, J., *Financial Institutions and Markets*, 5th ed. Tata McGraw Hill Publication, 2017. |
| 5 | Singhania & Singhania, Students Guide to Income Tax, 67th Edition, Taxmann Publication, August 2022. |
| 6 | *How to Stimulate the Economy Essay* [Online]Available:https://www.bartleby.com/essay/How-to-Stimulate-the-Economy-FKJP5QGATC |
| 7 | Reserve Bank of India, 'Money Kumar & the Monetary Policy', 2007 |
| 8 | AshiwiniKumar,Sharma,' De-jargoned: Book building process,Live Mint,2015. |
| 9 | Madhavan, N. "Pushing the accelerator instead of brakes: Can Subhiksha make a comeback?", Business Today, 28th June 2009. |
| 10 | Kaul, Vivek, "Master Move: How Dhirubhai Ambani turned the tables on the Kolkata bear cartel", The Economic Times, July 1, 2011. |

| | | | | | | | | | | | | | **Biotech PSOs** | | | **CSE PSOs** | | **ECE PSOs** | | **IT PSOs** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO Code** | **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **1** | **2** | **3** | **1** | **2** | **1** | **2** | **1** | **2** |
| **C402-31.1** | | | | | | **3** | | | **2** | | **3** | **3** | | | | | | | | | |
| **C402-31.2** | | | | | | **3** | | | **2** | | **3** | **3** | | | | | | | | | |
| **C402-31.3** | | | | | | **3** | | | **2** | | **3** | **3** | | | | | | | | | |
| **C402-31.4** | | | | | | **3** | | | **2** | | **3** | **3** | | | | | | | | | |
| **C402-31.5** | | | | | | **3** | | | **2** | | **3** | **3** | | | | | | | | | |
| **Average** | | | | | | **3.00** | | | **2.00** | | **3.00** | **3.00** | | | | | | | | | |