

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B1NHS431	Semester: Even	Semester: IV Session: 2020-2021 Month from Jan 2021 to June 2021
Course Name	Introduction to Literature		
Credits	3	Contact Hours	2-1-0

Faculty (Names)	Coordinator(s)	Dr. Monali Bhattacharya (Sector 62) & 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.	Understand Level (C2)
C206-5.2	Develop a critical appreciation of life and society through a close reading of select texts.	Apply Level (C3)
C206-5.3	Analyze a literary text thematically and stylistically and examine it as representing different spectrum of life, human behavior and moral consciousness of society.	Analyze Level (C4)
C206-5.4	To interpret Literature as reflection of cultural and moral values of life and society.	Evaluate Level (C5)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction to Literature & Genres	Introduction Literary Genres Literary Devices Learning Communication Skills through Literature	5
2.	Poems	On His Blindness: John Milton My Last Duchess: Robert Browning “Hope” is the thing with feathers: Emily Dickinson A Prayer before Birth: Louis MacNeice Goodbye Party for Miss Pushpa T.S.: Nissim Ezekiel	6
3.	Prose & Short Stories	The Spectator Club: Richard Steele Evidence: Isaac Asimov Toba Tek Singh: Saadat Hasan Manto	6
4.	Plays & Drama	Andher Nagari Chaupat Raja: Bhartendu Harishchandra The Characters of Macbeth & Lady Macbeth as Universal Characters. 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 (Assignment, Project, Class participation)
Total	100

Recommended Reading material:	
1	M.H. Abrams, ' <i>A Glossary of Literary Terms</i> ', 7 th Edition, Hienle & Hienle: Thomson Learning, USA, 1999
2	Mark William Roche, ' <i>Why Literature matters in the 21st Century</i> ', First Edition, Yale University Press, 2004.
3	E.R. Braithwaite, ' <i>To Sir With Love</i> ', First Edition, Bodley Head, UK, 1959. Susie Thomas(Ed), "E. R. Braithwaite: 'To Sir, with Love' – 1959", Available at http://www.londonfictions.com
4	Khalid Hasan (Translator), ' <i>Saadat Hasan Maanto : Toba Tek Singh</i> ' Reprint, Penguin Books, India, 2008.
5	G.B Shaw, ' <i>Arms & The Man</i> ', Paperback, 2013 https://onemorelibrary.com/index.php/en/?option=com_djclassifieds&format=raw&view=download&task=download&fid=10428
6	Anon, (n.d.). <i>The Spectator Club. Sir Richard Steele. 1909-14. English....</i> [online] Available at: http://www.bartleby.com/27/7.html [Accessed 2018].
7	<i>All poems online: http://www.poetryfoundation.org</i>
8	Wolfgang Clemen, ' <i>Shakespeare's Soliloquies</i> ', First Edition, Routledge, London, 1987.

Detailed syllabus
Lecture-wise Breakup

Course Code	15B1NHS432	Semester: Even	Semester: IV Session: 2020-2021 Month from Jan 2021 to June 2021
Course Name	INTRODUCTION TO PSYCHOLOGY		
Credits	3	Contact Hours	2-1-0
Faculty (Names)	Coordinator(s)	Dr. Badri Bajaj	
	Teacher(s) (Alphabetically)	Dr. Badri Bajaj	

COURSE OUTCOMES		COGNITIVE LEVELS
C206-6.1	Demonstrate a basic understanding of different perspectives and concepts of psychology	Understand (Level 2)
C206-6.2	Apply the concepts of psychology in day to day life	Apply (Level 3)
C206-6.3	Examine the different theoretical perspectives and models of psychology	Analyze (Level 4)
C206-6.4	Develop solutions for problems related to psychology using appropriate tools/models	Create (Level 6)

Module No.	Subtitle of the Module	Topics in the module	No. of Lectures for the module
1.	Introduction to Psychology	Definition, Nature, and Scope of Psychology; Approaches: Biological, Psychodynamic, Behaviorist, and Cognitive. Methods: Experimental, Observation and Case study; Fields of application.	3
2.	Basic Concepts	Person, Consciousness, Behavior and Experience, Perception and learning	5
3.	Memory	Process of Memory: Encoding, Storage, Retrieval; Stages of Memory: Sensory, Short term and Long term	3
4.	Motivation	Motives: Intrinsic and Extrinsic Frame Work, Theories of Motivation; Techniques of Assessment of Motivations; Frustration and Conflict.	3
5.	Emotions	Concept, Development, Expression, Theories of Emotions.	2
6.	Intelligence	Nature, Theories, Measurement and Approaches - Genetic and Environmental	3
7.	Personality	Nature, Approaches, Determinants and Theories; Techniques of Assessment: Psychometric and Projective Techniques.	5

8.	Psychology of Adjustment	Psychological Disorders: Anxiety, Stress, Depression; Psychotherapies.	4
Total number of lectures			28
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25 (Project, Assignment, Oral Questions)	
Total		100	

Project based learning: Students in a group will choose a research topic from the syllabi of 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 psychology in day to day 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.	R.A. Baron and G. Misra, Psychology, 5th Ed., Pearson, 2015
2.	S. Nolen-Hoeksema, B. L. Fredrickson, G. R. Loftus, and C. Luts, Introduction to Psychology, 16th Ed., Cengage Learning, 2014.
3.	S. K. Ciccarelli and G. E. Meyer, Psychology, Pearson, 5 th Ed., 2017.
4.	Clifford Morgan, Richard King, John Weisz, John Schopler, Introduction to Psychology, 7 th Ed., McGraw Hill Education, 2017.
5.	James W. Kalat, Introduction to Psychology, 9th Ed., Wadsworth Publishing; 2010
6.	Gregory Feist and Erika Rosenberg, Psychology: Perspectives and Connections, 5th Ed., McGraw-Hill Education, 2021

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B1NHS433	Semester: Even	Semester: IV Session: 2020 -2021 Month from Jan 2021 to June 2021
Course Name	INTRODUCTION TO SOCIOLOGY		
Credits	3	Contact Hours	2-1-0

Faculty (Names)	Coordinator(s)	Prof Alka Sharma
	Teacher(s) (Alphabetically)	Prof Alka Sharma

COURSE OUTCOMES		COGNITIVE LEVELS
C206-7.1	Demonstrate an understanding of sociological perspectives and concepts.	Remember Level (C1)
C206-7.2	Explain the concept of social stratification and types of stratification as class, caste and gender.	Understand Level (C2)
C206-7.3	Apply the major sociological perspectives, social concepts and methods in the systematic study of society	Apply Level (C3)
C206-7.4	Analyze the relevance of various social Institutions and how it shapes and influences social interactions.	Analyze Level (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. <i>Sociology: a systematic introduction</i> . Routledge, 2013.
2	Rawat, H. K. <i>Sociology: basic concepts</i> . Rawat Publications, 2007.
3	Macionis, John J. <i>Society: the basics</i> . Pearson/Prentice Hall, 2009.
4	C. Wright. And Mills, <i>The Sociological Imagination</i> , Oxford: Oxford University Press, 1959.
5	Peter L Berger, <i>The Social Construction of Reality: a Treatise in the Sociology of Knowledge</i> . Garden City, New York: Anchor, 1966.
6	Conley and Dalton, <i>You May Ask Yourself: An Introduction to Thinking Like a Sociologist</i> , 2nd Ed, W. W. Norton & Company New York, 2011. ISBN: 0393935175 or 978-0393935172
7	Ballentine and Roberts, <i>Our Social World: Introduction to Sociology</i> , 4th Edition, Sage. 2013.
8	Robert Parkin and Linda Stone, (ed.). <i>Kinship and Family: An Anthropological Reader</i> , U.S.A.: Blackwell, 2000, selected chapters

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B1NHS434	Semester: Even	Semester: IV Session: 2020 -2021 Month from Jan 2021 to June 2021
Course Name	Principles of Management		
Credits	3	Contact Hours	2-1-0

Faculty (Names)	Coordinator(s)	Dr. Shirin Alavi
	Teacher(s) (Alphabetically)	Dr. Shirin Alavi

COURSE OUTCOMES		COGNITIVE LEVELS
C303-1.1	Describe the functions, roles and skills of managers and illustrate how the manager's job is evolving.	Understand Level (C2)
C303-1.2	Examine the relevance of the political, legal, ethical, economic and cultural environments in global business.	Analyze Level (C4)
C303-1.3	Evaluate approaches to goal setting, planning and organizing in a variety of circumstances.	Evaluate Level (C5)
C303-1.4	Evaluate contemporary approaches for staffing and leading in an organization.	Evaluate Level (C5)
C303-1.5	Analyze contemporary issues in controlling for measuring organizational performance.	Analyze Level (C4)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction to Managers and Management	Management an Overview: Introduction, Definition of Management, Role of Management, Functions of Managers, Levels of Management, Management Skills and Organizational Hierarchy, Social and Ethical Responsibilities of Management: Arguments for and against Social Responsibilities of Business, Social Stakeholders, Measuring Social Responsiveness and Managerial Ethics, Omnipotent and Symbolic View, Characteristics and importance of organizational culture, Relevance of political, legal, economic and Cultural environments to global business, Structures and techniques organizations use as they go international .	7
2.	Planning	Nature & Purpose, Steps involved in Planning, Objectives, Setting Objectives, Process of Managing by Objectives, Strategies, Policies & Planning Premises, Competitor Intelligence, Benchmarking, Forecasting, Decision-Making.	5
3.	Organizing	Nature and Purpose, Formal and Informal Organization, Organization Chart, Structure and Process, Departmentalization by difference strategies, Line and Staff authority- Benefits and Limitations-De-Centralization and Delegation of Authority Versus, Staffing, Managerial Effectiveness.	7
4.	Directing	Scope, Human Factors, Creativity and Innovation, Harmonizing Objectives, Leadership, Types of Leadership Motivation, Hierarchy of Needs, Motivation theories,	4

		Motivational Techniques, Job Enrichment, Communication, Process of Communication, Barriers and Breakdown, Effective Communication, Electronic media in Communication.	
5.	Controlling	System and process of Controlling, Requirements for effective control, The Budget as Control Technique, Information Technology in Controlling, Productivity, Problems and Management, Control of Overall Performance, Direct and Preventive Control, Reporting, The Global Environment, Globalization and Liberalization, International Management and Global theory of Management.	5
Total number of Lectures			28

Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Project, Viva, 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.	Koontz H, Weihrich H. Essentials of management: an international, innovation, and leadership perspective. McGraw-Hill Education; 10 th Edition 2018.
2.	Tripathi PC. Principles of management. Tata McGraw-Hill Education; 6 th Edition 2017.
3.	Principles of Management Text and Cases, Pravin Durai , Pearson ,2015
4.	Robbins, S.P. & Decenzo, David A. Fundamentals of Management,7 th ed., Pearson, 2010
5.	Robbins, S.P. & Coulter, Mary Management; 14 ed.,Pearson , 2009

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B1NHS435	Semester: Even	Semester: IV Session: 2020-21 Month from Jan 2021 to June 2021
Course Name	Financial Accounting		
Credits	3	Contact Hours	2-1-0

Faculty (Names)	Coordinator(s)	Dr. Mukta Mani (Sec-62), Dr. Sakshi Varshney (Sec-128)
	Teacher(s) (Alphabetically)	Dr. Mukta Mani, Dr. Sakshi Varshney

COURSE OUTCOMES		COGNITIVE LEVELS
C206-8.1	Understand the basic concepts of Accounting.	Understand level (C2)
C206-8.2	Apply accounting concepts for recording of business transactions.	Apply level (C3)
C206-8.3	Compare and reconcile the accounting records with other sources of information	Analyze level (C4)
C206-8.4	Evaluate the accounting records to identify and rectify the errors made during accounting process.	Evaluate level (C5)
C206-8.5	Construct the final accounts and cash flow statement of a business	Create level (C6)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction to Accounting	Meaning of Accounting, Objectives of Accounting, Understanding Company Management, Stakeholders versus Shareholders, Financial Reporting Standards, Financial Reporting	2
2.	Understanding Accounting Elements	Elements of Financial Statements- Assets, Current assets, Liabilities, Current liabilities, Equity, Income, Expenses, Accounting Equation	2
3.	Accounting Concepts	Business entity concept, Money measurement concept, Going concern, Consistency, Matching concept, Cost concept, Dual aspect concept, Materiality, Full disclosure, Generally Accepted Accounting Principles (GAAP)	2
4.	Journal Transactions	Journal, Rules of Debit and Credit, Compound Journal entry, Opening entry	2
5.	Ledger Posting and Trial Balance	Ledger, Posting, relationship between Journal and Ledger, Rules regarding Posting, Trial balance	3
6.	Rectification of Errors	Different types of errors, their effect on trial balance, rectification and preparation of suspense account	5

7.	Bank Reconciliation Statement	Meaning of Bank Reconciliation Statement, technique of preparing BRS, Causes of difference	2
8.	Final Accounts	Trading account, Profit and Loss account, Balance sheet, Adjustment entries	6
9.	Cash Flow Statement	Introduction of Cash Flow Statement, Classification of Cash inflows and Cash Outflows Activities, prepare the statement of cash flows using direct and Indirect method	4
Total number of Lectures			28
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25 (Project + Class test/Quiz +Class Participation)	
Total		100	

Project Based learning: Students form a group of 4-5 students. Each group is required to choose a company listed in Indian stock exchange and download its latest annual report. Students are required to describe the company, composition of board of directors, number of company's executives, independent directors, background of independent directors. They are required to find out financing, investing and operating activities and examines the change in total assets, sales and net profit of the company. As per auditor's report, company's position and future plans for growth of the company is also analyzed.

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.	Maheshwari S. N., Financial and Management Accounting, 5 th Ed., S. Chand & Sons Publication, 2014. ISBN No.: 978-81-8054-529-0
2.	Ghosh, T.P., Financial Accounting for Managers, 4 th Ed., Taxmann Publications, 2009
3.	Tulsian, P., Financial Accounting, 1 st Ed., Pearson Education India, 2002
4.	Bhattacharya, A., Financial Accounting for Business Managers, 4 th Ed., Prentice Hall of India, 2012
5.	Weygandt, J., Kimmel, P., Kieso, D., Accounting Principles, 12th Edition, John Wiley & Sons, 2015
6.	Barton, M., Bhutta, P., S. O'Rourke, J., Satyam Computer Services Ltd: Accounting fraud in India, London, SAGE Publications Ltd, 2017,

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B11CI313	Semester: Even	Semester: IV Session: 2020 -2021 Month from Jan 2021 to June 2021
Course Name	Computer Organization and Architecture		
Credits	4	Contact Hours	3-1-0

Faculty (Names)	Coordinator(s)	Dr. Pawan Kumar Upadhayay
	Teacher(s) (Alphabetically)	Dr. Pawan Kumar Upadhayay

COURSE OUTCOMES		COGNITIVE LEVELS
C213.1	Summarize and compare the different computer systems based on RISC and CISC Architecture.	Analyze Level (Level 4)
C213.2	Categorize different types of computers based on Instruction set Architecture.	Analyze Level (Level 4)
C213.3	Apply the knowledge of performance metrics to find the performance of systems.	Apply Level (Level 3)
C213.4	Design RISC and CISC based Computer using Hardwired / Microprogrammed Controller.	Evaluate Level (Level 5)
C213.5	Create and analyze an assembly language program of RISC and CISC based systems.	Evaluate Level (Level 5)
C213.6	Apply the knowledge of pipeline, IO and cache to understand these systems. Further, analyze the performance of such systems.	Analyze Level (Level 4)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction	Levels in architecture, Virtual machine, Evolution of multi-level machines.	02
2.	Performance of Computer	Performance Measures for Computer System	02
3.	CPU Organization	Data-path and control, Instruction execution, Microinstruction.	03
4.	Data Path and Control	Hardwired designing for JC62. Micro-programmed control designing for JC62.	02
5.	Generalized Study of Instruction Set Architecture	Stack/accumulator/register-register/register-memory type of architecture. Memory addressing techniques.	02
6.	Types of Instruction	Data movement, Arithmetic/logic, Control flow, Addressing modes. Instruction format.	02
7.	Instruction Set Architecture (ISA) of 8085	8085 Architecture, 8085 Instruction Set, 8085 Instruction Format, 8085 Addressing Modes, 8085 instruction execution and datapath. 8085 Assembly programming for simple applications.	05

8.	ISA of MIPS	MIPS Architecture, MIPS Instruction Set, MIPS Instruction Format, MIPS Addressing Modes, MIPS instruction execution and datapath. MIPS Assembly programming for simple applications.	05
9.	ISA of 8086	8086 Architecture, 8086 Instruction Set, 8086 Instruction Format, 8086 Addressing Modes, 8086 instruction execution and datapath. 8086 Assembly programming for simple applications.	05
10.	Memory Organization	Hierarchical memory structure, Cache memory and organization. Memory interfacing for 8085 and 8086.	05
11.	I/O Organization	Programmed/Interrupt driven I/O, Direct memory access	04
12.	Pipelining	Introduction To Pipelining System and Pipelining in RISC based Systems (MPIS)	03
13.	Multicore Architecture	Generalized study of Multicore Machines.	02
Total number of Lectures			42

Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Attendance = 07, Class Test or/and Quizzes, etc = 07, Internal assessment = 05, Assignments in PBL mode = 06).
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.	M. Morris Mano, Computer System Architecture, Prentice Hall of India Pvt Ltd, 3 rd Edition (updated) , 30 June 2017.
2.	William Stallings, Computer Organization and Architecture–Designing for Performance, Ninth Edition, Pearson Education, 2013.
3.	John L. Hennessy and David A Patterson, Computer Architecture A quantitative Approach, Morgan Kaufmann / Elsevier, Sixth Edition, 23rd November 2017
4.	Ramesh Gaonkar, Microprocessor Architecture Programming and Applications with the 8085, Prentice Hall, Eight Edition, 2013.
5.	Barry B. Brey, The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions : Architecture, Programming, and Interfacing. Pearson Education India, Eighth Edition, 2019.
6.	Nicholas Carter, Schaum’s outline of Computer Architecture, Tata McGraw Hill, Second Edition, 2014.

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B11HS111	Semester: Even	Semester: IV Session: 2020-2021 Month from Jan 2021 to June 2021
Course Name	LIFE SKILLS		
Credits	2	Contact Hours	1-1-0
Faculty (Names)	Coordinator(s)	Dr. Praveen Sharma & Dr. Deepak Verma	
	Teacher(s) (Alphabetically)	Dr. Akarsh Arora, Dr. Amandeep Kaur, Dr. Badri Bajaj, Dr. Kanupriya Bakhru, Dr. Praveen Sharma, Dr. Anshu Banwari, Dr. Deepak Verma, Dr. Ekta Shrivastava, Dr. Nilu Choudhary	

COURSE OUTCOMES		COGNITIVE LEVELS
C209.1	Understand Life Skill required to manage self and one's environment	Understand (C2)
C209.2	Apply comprehensive set of skills for life success for self and others	Apply (C3)
C209.3	Analyze group dynamics for its effective functioning	Analysing (C4)
C209.4	Evaluate the role of women leadership and gender issues	Evaluate (C5)

Module No.	Subtitle of the Module	Topics in the module	No. of Lectures for the module
1.	Introduction	Introduction to Life Skills; basic Concepts and Relevance for Engineers	1
2.	Individual-1	Emotional Intelligence, Stress Management, Goal Setting	4
3.	Individual-II	Dimensions of Personality, Values and Attitudes, Assertiveness, Well being,	3
4.	Group Dynamics	Group, Group types, Group Relationship, Social Loafing, Social Facilitation	3
5.	Women Leadership	Gender Sensitization, Women Leadership.	3
Total number of Hours			14
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25 (Assignment & Project)	
Total		100	

Project Based Learning: Students are supposed to form a group (Maximum 5 students in each group) and identify a Women leader of their choice. They are supposed to do the in-depth study on the leadership style of their identified leader and explain it. They are also supposed to explain identified women leader's personality traits by referring the Big five personality traits model. The project provides understanding to students on Women leadership and personality traits.

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.	Stephen P. Robbins, Organizational Behaviour, 9 th Edition, Prentice-Hall India 2001
2.	Smith, E., Hoeksema, S., Fredrickson, B., & Loftus, G. Introduction to Psychology. Thompsons and Wadsworth Co, 2003
3.	Daniel Goleman, Working With Emotional Intelligence, Bantom Books 1998
4.	Sue Bishop, Assertiveness Skills Training, Viva Books, New Delhi, 2004
5.	Adele B. Lynn 50 Activities for Developing Emotional Intelligence, Ane Books, 2003
6.	Sivasailam Thiagarajan, Glenn M. Parker; Teamwork and Teamplay, Games and Activities for Building and Training Teams., Jossey-Bass, 1999
7.	Kaul A.& Singh M., " <i>New Paradigms for Gender Inclusivity</i> ", PHI Pvt Ltd 2012

Detailed Syllabus

Lecture-wise Breakup

Course Code	15B11MA301	Semester: Even	Semester: IV Session: 2020-2021 Month from Jan 2021 to June 2021
Course Name	Probability and Random Processes		
Credits	4	Contact Hours	3-1-0
Faculty (Names)	Coordinator(s)	Dr. Pato Kumari	
	Teacher(s) (Alphabetically)	Dr. Pato Kumari, Dr. Neha Singhal, Prof. B.P. Chamola, Dr. Himanshu Agarwal, Dr. Amita Bhagat, Dr. Pinkey Chauhan, Dr. Mohd. Sarfaraz	
COURSE OUTCOMES:			COGNITIVE LEVELS
C201.1	Explain the basic concepts of probability, conditional probability and Bayes' theorem		Understand Level (C2)
C201.2	Identify and explain one and two dimensional random variables along with their distributions and statistical averages		Apply Level (C3)
C201.3	Apply some probability distributions to various discrete and continuous problems.		Apply Level (C3)
C201.4	Solve the problems related to the component and system reliabilities.		Apply Level (C3)
C201.5	Identify the random processes and compute their averages.		Apply Level (C3)
C201.6	Solve the problems on Ergodic process, Poisson process and Markov chain.		Apply Level (C3)
Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Probability	Three basic approaches to probability, conditional probability, total probability theorem, Bayes' theorem.	5
2.	Random Variables	One dimensional random variables (discrete and continuous), distribution of a random variable (density function and cdf). MGF and characteristic function of a random variable and its utility. Bivariate random variable, joint, marginal and conditional distributions, covariance and correlation.	8
3.	Probability Distributions	Bernoulli, binomial, Poisson, negative binomial, geometric distributions. Uniform, exponential, normal, gamma, Earlang and Weibull distributions.	8
4.	Reliability	Concept of reliability, reliability function, hazard rate function, mean time to failure (MTTF). Reliability of series, parallel, series-parallel, parallel-series systems.	6
5.	Random	Introduction, Statistical description of random	7

	Processes I	processes, Markov processes, processes with independent increments. Average values of random processes. Strict sense and wide sense stationary processes, their averages. Random walk, Wiener process. Semi-random telegraph signal and random telegraph signal process. Properties of autocorrelation function.	
6.	Random Processes II	Ergodic processes. Power spectral density function and its properties. Poisson processes. Markov chains and their transition probability matrix (TPM).	8
Total number of Lectures			42
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25 (Quiz, Assignments, Tutorials)	
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.	Veerarajan, T., Probability, Statistics and Random Processes, 3 rd Ed. Tata McGraw-Hill, 2008.		
2.	Papoulis, A. & Pillai, S.U., Probability, Random Variables and Stochastic Processes, Tata McGraw-Hill, 2002.		
3.	Ross, S. M., Introduction to Probability and Statistics for Engineers and Scientists, 4th Ed., Elsevier, 2004.		
4.	Palaniammal, S., Probability and Random Processes, PHI Learning Private Limited, 2012.		
5.	Prabha, B. and Sujata, R., Statistics, Random Processes and Queuing Theory, 3rd Ed., Scitech, 2009.		

Detailed Syllabus

Course Code	15B17CI373	Semester: Even	Semester: IV Session: 2020-2021 Month from Jan 2021 to June 2021
Course Name	Computer Organization and Architecture Lab		
Credits	1	Contact Hours	2

Faculty (Names)	Coordinator(s)	Taj Alam
	Teacher(s) (Alphabetically)	Pawan K. Upadhyay, Tal Alam

COURSE OUTCOMES		COGNITIVE LEVELS
C273.1	Implementation basic ALU of 2-bit and 4-bit computer using hardwired simulation tool	Apply (Level 3)
C273.2	Initialization and fetching of data from specific memory using various addressing mode of 8085 and 8086	Understand (Level 2)
C273.3	Develop 8086 assembly language programs using software interrupts and various assembler directives.	Apply (Level 3)
C273.4	Develop Microprocessor Interfacing program using PPI for various external devices	Apply (Level 3)
C273.5	Develop MIPS assembly language programs using software interrupts and various assembler directives.	Apply (Level 3)
C273.6	Create of application and its software using 8085/8086 microprocessor or microcontrollers	Create (Level 6)

Module No.	Title of the Module	List of Experiments	CO
1.	COA Hardwired simulation tool	Realize the truth table of various gates like as AND, OR, NOT, XOR, NAND and NOR., Conversion of universal gates, Design the half adder and full adder circuits, Ripple	C273.1

		adder logic circuit, 4 x1 multiplexor circuit and realize the various input output logic based on control, 4X1 multiplexor with NAND gates logic circuits	
2.	Combinational circuits	Design the subtractor circuits with defined bit logic, Adder-subtractor logic circuits, The odd frequency divider circuits, Carry lookup adder, Carry select and carry save, Adder circuits by modifying the ripple carry adder logic given in module-1., Timing diagram of all four adder circuits and compare their performance, Decoder circuits with defined logic, 4-bit ALU circuits with defined operation logic.	C273.1
3.	8085 Simulator Introduction	Understanding Hardware Specification of the 8085 Simulator in detail, Add two 8-bit numbers from load sample program from file menu, assemble and execute it step by step and view the contents of registers and memory., Basic Data transfer instructions, Arithmetic instructions, Logical instruction of 8085 using sample programs with note changes in flags.	C273.2
4.	8085 Programming (Simple)	8085 Assembly Programming: Basic Arithmetic (like addition, subtraction, multiplication, division etc), Array (sum , reverse, average copy etc) etc and explore more about Arithmetic , Logical and Flow control Instructions	C273.2
5.	8085 Programming (Complex)	8085 Assembly Programming: Logical and Data transfer (like Min, Max, Even/odd, Sorting etc), more complex program (like Factorial, Link list etc) , String etc and explore more about Arithmetic, Logical and Flow control Instructions, Interfacing with 8255	C273.2, C273.4
6.	8086(MASM/emu 86)	8086 Assembly Programming: Arithmetic (like addition, subtraction, multiplication, division etc), Logical and Data transfer (like Min, Max, Even/odd, Sorting etc), BIOS interrupt (I/O for read and write), String etc and explore more about Arithmetic, Logical, Flow control and Software Interrupt Instructions using MASM/emu86	C273.3
7.	MIPS(MARS) simulator	MIPS Assembly Programming: Arithmetic (like addition, subtraction, multiplication, division etc), Logical and Data transfer (like Min, Max, Even/odd, Sorting etc), Complex program (Factorial, Fibonacci etc), String etc and explore more about Arithmetic, Logical, Flow control Instructions using MARS Simulator.	C273.5
8.	Projects	Students are expected to create an hardware and software co-designed application based on 8085/ 8086/ MIPS/ Other controller (like Arduino) / Small Size computer (like Raspberry Pi)programming either in assembly or high level language.	C273.6

Project based learning: Project in COA lab is an integral part of the lab. Student form group size 3-4, and discuss the project idea with their lab faculty before finalizing. All projects are based on hardware and hardware components like microprocessor microcontrollers (like Arduino), microcomputer (like Raspberry pi), various sensors (like temperature sensor, humidity sensor etc), cams (like webcam), etc. are used. Programming language is used as per processor/controller. Students develop projects/prototypes to interact with physical environment, control physical object with software which is base of IoT and embedded system. Students learn various processor architecture as well as their programming languages. This helps students to understand how to develop IoT based products and embedded systems.

Evaluation Criteria	
Components	Maximum Marks
Evaluation 1	10
Lab Test 1	20
Evaluation 2	10
Lab Test 2	20
Project	25
Attendance	15
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.	William Stallings, Computer Organization and Architecture–Designing for Performance, 9th Edition, Pearson Education, 2013.
2.	Nicholas Carter, Schaum’s outline of Computer Architecture, Tata McGraw Hill, 2017
3.	John L. Hennessy and David A Patterson, Computer Architecture A quantitative Approach, Morgan Kaufmann / Elsevier, Sixth Edition, 2017
4.	M. Morris Mano, Computer System Architecture, Prentice Hall of India Pvt Ltd, Fourth edition, 2002. ISBN: 81-203-0855-7.
5.	Microprocessor Architecture Programming and Applications with the 8085 [HB]-6/e. 25 September 2014. by Ramesh Gaonkar .
6.	The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro-Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions : Architecture, Programming, and Interfacing. Barry B. Brey, Pearson Education India, 2009.
7.	http://nptel.ac.in/courses/Webcourse-contents/IIT-%20Guwahati/comp_org_arc/web/
8.	http://cs.nyu.edu/~gottlieb/courses/2010s/2011-12-fall/arch/class-notes.html
9.	http://www.cse.iitm.ac.in/~vplab/courses/comp_org/LEC_INTRO.pdf
10.	http://www.cs.iastate.edu/~prabhu/Tutorial/title.html
11.	http://www.cag.csail.mit.edu/
12.	http://www.research.ibm.com/compsci/arch

Detailed Syllabus
Lecture-wise Breakup

Course Code	16B1NHS332	Semester: Even	Semester: IV Session: 2020-21 Month from: Jan 2021 to June 2021
Course Name	Quantitative Methods for Social Sciences		
Credits	3	Contact Hours	2-1-0
Faculty (Names)	Coordinator(s)	Manas Ranjan Behera	
	Teacher(s) (Alphabetically)	Manas Ranjan Behera	

COURSE OUTCOMES		COGNITIVE LEVELS
C206-3.1	Demonstrate the key concepts of different quantitative methods used in social sciences.	Understand Level (C2)
C206-3.2	Classify and summarize the data to be used for analysis.	Understand Level (C2)
C206-3.3	Apply the theoretical concept to perform basic data analysis in social sciences.	Apply Level (C3)
C206-3.4	Examine different statistical methods and be able to discuss the merits and limitations of a particular method	Analyze Level (C4)
C206-3.5	Recommend appropriate conclusions following empirical analysis	Evaluation Level (C5)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction	Introduction to Quantitative Methods, Classification & Presentation of Data: Tabulation-Types of Table, Diagrammatical and Graphical presentation.	3
2.	Mathematical Concepts	Mathematical basis of Managerial Decision-Concepts, Frequency Distribution and their Analysis	3
3.	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
4.	Hypothesis Testing	Hypothesis Testing based on single sample, Inferences based on Two samples, t, Z and chi- square and F tests	8

5.	Regression Analysis	Simple Linear Regression and Correlation, Multiple Regression Model	3
6.	Time Series Analysis	Trend Projection, Moving averages and Exponential smoothing Techniques, Index Numbers	3
7.	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 + Project + Viva-voce)
Total	100

Project based Learning: Students have to form a group (maximum 5 students in each group) and have to do a project on quantitative research techniques and strategies. The project emphasizes on objective measurement and the statistical analysis of data collected through surveys, questionnaires and polls. The students will gain a first-hand experience of data analysis which will help them in entering an analytical or research career.

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.	Sirkin, RM. Statistics for the Social sciences. 3rd ed. Thousand Oaks, Calif: Sage Publications; 2006.
2.	Montgomery, DC. , George C. Runger. Applied statistics and probability for engineers. 3rd ed. Hoboken, NJ: Wiley.,2007
3.	Healey, JF. Statistics: A Tool for Social Research. 9th ed. Calif: Wadsworth Cengage Learning; 2012.
4.	Stockemer, D.Quantitative Methods for Social Sciences: A Practical Introduction with examples in SPSS and STATA 1 st ed., Springer International Publishing, 2019
5.	Kaplan, DW. The SAGE Handbook of Quantitative Methodology for the Social Sciences. 1st ed. SAGE Publications Inc,2004

Detailed Syllabus
Lecture-wise Breakup

Course Code	16B1NHS431	Semester: Even	Semester: IV Session: 2020-21 Month from Jan 2021 to June 2021
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.	Understand Level (C2)
C206-1.2	Apply various tools and techniques in making sound human resource decisions.	Apply 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.	Analyze 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	Evaluate 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	Factors influencing industrial relations - State Interventions	5

	and Industrial Relations, Trends in Human Resource Management	and Legal Framework - Role of Trade unions - Collective Bargaining - Workers' participation in management. Trends in Human Resource Management: Analytics, Artificial Intelligence	
Total number of Lectures			28
Evaluation Criteria			
Components	Maximum Marks		
T1	20		
T2	20		
End Semester Examination	35		
TA	25(Project, Quiz)		
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, compensation and industry relation.

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. Dessler and B. Varrkey, <i>Human Resource Management, 15e</i> . Pearson Education India, 2005.
2.	V. S. P. Rao and V. H. Krishna, <i>Management: Text and cases</i> . Excel Books India, 2009.
3.	K. Aswathappa, <i>Human resource management: Text and cases</i> . Tata McGraw-Hill Education, 2013.
4.	P. M. Noe, R. A., Hollenbeck, J. R., Gerhart, B. A., & Wright, <i>Fundamentals of Human Resource Management</i> . Tata McGraw-Hill Education, 2019.
5.	B. Pattanayak, "Human Resource Management, PHI Learning Pvt," Ltd., New Delhi, vol. 2, 2018.
6.	D. A. DeCenzo, S. P. Robbins, and S. L. Verhulst, <i>Fundamentals of human resource management</i> . John Wiley & Sons, 2016.

Detailed Syllabus
Lecture-wise Breakup

Course Code	18B11EC213	Semester: Even	Semester: IV Session: 2020 -2021 Month from Jan 2021 to June 2021
Course Name	DIGITAL SYSTEMS		
Credits	4	Contact Hours	3-1-0

Faculty (Names)	Coordinator(s)	Atul Kumar, Atul K Srivastava
	Teacher(s) (Alphabetically)	Amit Kumar Goyal, Kaushal Nigam, Saurabh Chaturvedi

COURSE OUTCOMES		COGNITIVE LEVELS
C207.1	Familiarize with the fundamentals of number system, Boolean algebra and Boolean function minimization techniques.	Apply Level (C3)
C207.2	Analyze and design combinational circuits using logic gates.	Analyze Level (C4)
C207.3	Analyze state diagram and design sequential logic circuits using flip flops.	Analyze Level (C4)
C207.4	Understand the classification of signals & systems and learn basic signal operations & Fourier analysis.	Analyze Level (C4)
C207.5	Understand various steps involved in digitization and transmission of a signal.	Understand Level (C2)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Boolean Function Minimization Techniques and Combinational Circuits	Number systems, Karnaugh Map, Quine-McCluskey method, Prime Implicants, Essential Prime implicants, Adder, Subtractor, Multiplexer, Demultiplexer, Encoder, Decoder, Comparator and Code Converters	9
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 of Counters 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 and discrete time, Even and odd, periodic and non-periodic, Energy and Power signals, Basic signals: unit impulse, unit step and unit ramp. Basic operations of signals: time scaling, time-shifting, etc. Systems and classification of systems: 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. Discrete Fourier Transform (DFT), Properties and DFT, standard signal pairs.	5
6.	Sampling and Pulse code modulation	Sampling theorem, Proof of sampling theorem, Nyquist rate and Nyquist interval. Quantization (Mid rise and Mid tread), Quantization error, PCM (modulator and	6

		demodulator), Transmission bandwidth in PCM, Signal to quantization noise ratio of PCM.	
7.	Digital modulation techniques and Line coding	BASK, BFSK and BPSK modulation techniques with modulator and demodulator. Linear DM and basics of ADM. Line coding formats- UNRZ, URZ, BNRZ, BRZ, AMINRZ, AMI-RZ and Manchester.	5
		Total number of Lectures	42

Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Assignment = 10, Quiz = 5, Attendance = 10)
Total	100

Program Based Learning: Students will be able to design and implement the projects using decoders, comparators and multiplexers. Designing of new flip flops, counters and shift registers enhance the application ability in students. Applying DFT and FFT to design novel systems also develop aptitude among students. Analog to digital signal transmission techniques and several digital communication techniques develop latest knowledge 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)

Detailed Syllabus
Lecture-wise Breakup

Course Code	18B15EC213	Semester: Even	Semester: IV Session: 2020 -2021 Month from Jan 2021 to June 2021
Course Name	Digital Systems Lab		
Credits	1	Contact Hours	2

Faculty (Names)	Coordinator(s)	Parul Arora & Mandeep Narula
	Teacher(s)	Ankur Bhardwaj, Ashish Gupta, Kapil Dev Tyagi, Priyanka Kwatra, Raghvendra Singh, Ritesh Sharma, Shivaji Tyagi, Shruti Kalra, Smriti Bhatnagar, Varun Goel, Yogesh Kumar

COURSE OUTCOMES		COGNITIVE LEVELS
C208.1	Develop the MATLAB programs based on the concept of combinational digital circuits.	Apply Level (C3)
C208.2	Develop the MATLAB programs to apply the theory of sequential digital circuits.	Apply Level (C3)
C208.3	Experiment with MATLAB to apply the theory of signals & systems and digital signal processing.	Apply Level (C3)
C208.4	Experiment with MATLAB to apply the concept of digital communication.	Apply 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	Realization of SR Latch using MATLAB-Simulink.	C208.2
6.	Introduction to sequential circuit: D-Flip-flop	Realization of D Flip-Flop using MATLAB-Simulink.	C208.2
7.	Introduction to sequential circuit: JK-Flip-flop	Realization of JK Flip-Flop using MATLAB-Simulink.	C208.2
8.	Continuous time and discrete time signals	Write Matlab programs for the generation of elementary continuous time signals and discrete time signals.	C208.3

9.	Sampling and reconstruction process	Write Matlab program to study the sampling and reconstruction process.	C208.3
10.	Quantization process of the signals.	Write Matlab program to study the quantization process of sinusoid signals.	C208.3
11.	Digital Modulation Techniques	Write Matlab programs to study the binary phase shift keying and frequency shift keying modulation process.	C208.4
12.	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
13.	Encoder logic circuits	Write Matlab code for 8:3 encoder and priority encoder.	C208.1
14.	Code Converters	Write Matlab code for Binary to Gray and Gray to Binary Code Converter.	C208.1
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 MATLAB programming. Additionally, students in group sizes of two-three will realize various applications of Digital Systems employing these circuits.

#Due to Pandemic situation of COVID-19, All the MATLAB programs will be performed using open source SCILAB and OCTAVE, due to unavailability of licensed MATLAB software to the students.

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

Detailed Syllabus
Lecture-wise Breakup

Subject Code	19B13BT211	Semester: Even	Semester: IV Session: 2020-2021 Month from: Jan 2021 to June 2021
Subject Name	Environmental Studies		
Credits	0	Contact Hours	4

Faculty (Names)	Coordinator(s)	Prof. Krishna Sundari S
	Teacher(s) (Alphabetically)	Prof. Krishna Sundari S, Prof. Neeraj Wadhwa, Dr. Manisha Singh, Dr. Garima Mathur, Dr. Rachana, Ms. Ekta Bhat, Dr. Susinjan Bhattacharya

COURSE OUTCOMES		COGNITIVE LEVELS
C205.1	Explain diversity of environment, ecosystem resources and conservation.	Understand Level (C2)
C205.2	Identify hazards related to environmental pollution and safe management practices	Apply Level(C3)
C205.3	Apply modern techniques for sustainable Urban planning and Disaster management	Apply Level(C3)
C205.4	Recall Government regulations, Environmental Policies, Laws & ethics	Understand Level (C2)
C205.5	Survey ground situation on specific environmental aspects, examine risks involved, make a field report and present the findings	Analyze Level(C4)

Module No.	Subtitle of the Module	Topics in the module	No. of Lectures for the module
1.	The Multidisciplinary nature of environment, Biodiversity	Definition, scope and importance, Need for public awareness, Types of Ecosystems, World Biomes, Ecosystem functioning, Diversity of flora and fauna, species and wild life diversity, Biodiversity hotspots, threats to biodiversity, Case studies.	6
2.	Natural resources, Energy consumption & conservation	Water, Land, Energy (Renewable, non-renewable, wind, solar, hydro, Biomass), Mineral, Forest, & Food resources, Global Conventions on Energy, Kyoto protocol, Case studies.	10
3.	Pollution, hazardous waste management	Air, Water & Land, chemical, noise pollution, sources & causes, effects, Electronic waste, nuclear hazards, Case studies.	8
4.	Urban planning, human communities, Disaster management	Sustainable building, Disaster Management and Contingency Planning, human population, resettlement, rehabilitation	8

		environmental movements, environmental ethics, Critical issues concerning Global environment Urbanization, population growth, global warming, climate change, acid rain, ozone depletion etc Case studies.	
5.	Environmental Policies, Laws, Regulations & ethics	Regulation of technology and innovation, Policy and laws, Different Acts such as: Environmental Protection Act, Air and Water Acts, Wildlife and Forest Acts), US-EPA, National Environmental Policy; Function of pollution control boards (SPCB and CPCB), their roles and responsibilities, Case studies.	4
6	Field Work/	Explore the current environment related occurrences at national and international level, Study of successful sustainable measures, a know-how of industries in local region and their possible effects, measure of water, air and land quality, Visit to a local polluted site-Urban/Rural /Industrial / Agricultural, Study of simple ecosystems.	6
Total number of Lectures			42

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.	Benny Joseph, Environmental Studies Simplified, 3 rd Edition, McGraw Hill Education, India, Published 2 nd August, 2017
2.	Erach Bharucha, Textbook of Environmental Studies for UG Courses, 3 rd Edition, Orient Black Swan, Published 1 st Jan 2013
3.	Issues of the Journal: Down to Earth, Published by Centre for Science and Environment (CSE), Delhi