

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B1NHS433	Semester EVEN (specify Odd/Even)	Semester IV Session 2020 -2021 MonthJan2021- June2021
Course Name	INTRODUCTION TO SOCIOLOGY		
Credits	3(2-1-0)	Contact Hours	3

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.	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 Institutionsand 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. <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	15B1NHS435	Semester: Even	Semester IV Session:2020-21 Month from: Jan-June
Course Name	Financial Accounting		
Credits	3	Contact Hours	3 (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.	Understanding level (C2)
C206-8.2	Apply accounting concepts for recording of business transactions.	Applying level (C3)
C206-8.3	Compare and reconcile the accounting records with other sources of information	Analyzing level (C4)
C206-8.4	Evaluate the accounting records to identify and rectify the errors made during accounting process.	Evaluating level (C5)
C206-8.5	Construct the final accounts and cash flow statement of a business	Creating (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

Subject Code	15B11HS111	Semester: EVEN	Semester IV Session 2020-2021 Month from Jan to June
Subject Name	LIFE SKILLS		
Credits	2	Contact Hours	2 (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 Bakhrui, 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	15B11EC413	Semester Even	Semester IV Month from	Session 2020 –2021 Jan to June
Course Name	DIGITAL SIGNAL PROCESSING			
Credits	4	Contact Hours	4	

Faculty (Names)	Coordinator(s)	Madhu Jain, Hemant Kumar
	Teacher(s) (Alphabetically)	Parul Arora, Smriti Bhatnagar

COURSE OUTCOMES		COGNITIVE LEVELS
C215.1	Recall the principles of z-transforms, explain the DFTs (Discrete Fourier Transform) and develop FFT (Fast Fourier Transform) algorithms for DFT.	Applying (C3)
C215.2	Construct and Analyze the digital FIR (Finite Impulse Response) and IIR (Infinite Impulse Response) filters.	Analyzing (C4)
C215.3	Demonstrate multi-rate signal processing and relate DSP (Digital Signal Processing) in various applications.	Understanding (C2)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Review of Discrete time Signals and Systems	Review of discrete-time sequences and systems, discrete time system analysis using Z transform.	3
2.	Discrete Fourier Transform and FFT	Discrete Fourier Transform (DFT) and its properties, Linear filtering methods based on DFT, Frequency analysis of signals using the DFT, Fast Fourier Transform (FFT) algorithms using decimation in time and decimation in frequency techniques.	11
3.	FIR Filter design	Basic structures of digital filters; Significance of Linear phase response, FIR filters design - Frequency sampling and Windowing techniques, Computer aided design.	8
4.	IIR Filter design	Approximation of filter functions: Butterworth, Chebyshev, Elliptic; IIR filter design based on analog filter functions- Impulse Invariant and modified invariant response techniques, Bilinear transformation method.	10
5.	Multi-rate Digital Signal Processing	Decimation & Interpolation, Filter design with sampling rate conversion by a rational factor I/D	5
6.	DSP Applications	Applications in speech and image processing, and power	7

	spectrum estimation.	
Total number of Lectures		44
Evaluation Criteria		
Components	Maximum Marks	
T1	20	
T2	20	
End Semester Examination	35	
TA	25	
Total	100	

Project based learning: Students will learn different techniques used for the generation, transformation, extraction and interpretation of information via discrete signals which is essential for smart phones, home appliances, healthcare devices, cameras and in general for many digital systems. Student shall be given various practical situation based design exercises to be implemented in MATLAB or OCTAVE. This would enable them to recall and apply various techniques and algorithms taught in course to design and analyse the required system that meets the given technical specification.

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.	L. Tan and Jean Jiang , Digital Signal Processing Fundamentals and Applications, Third Edition, Academic Press, 2013
2.	J. G. Proakis & D. G. Manolakis, Digital Signal Processing, Principles, Algorithms and Applications, Fourth edition, PHI, 2007.
3.	S. K. Mitra, Digital Signal Processing: A Computer Based Approach, Fourth Edition, McGraw Hill, 2013.
4.	L. R. Rabiner, B. Gold, Theory and application of digital signal processing, Third Edition, PHI, 2012
5.	A. Antoniou, Digital Signal Processing: Signals, Systems, and Filters, TMH, 2006

Detailed Syllabus
Lab-wise Breakup

Course Code	15B17EC473	Semester Even	Semester IV Session 2020 -2021 Month from Jan – Jun
Course Name	Digital Signal Processing (DSP) Laboratory		
Credits	1	Contact Hours	0-0-2

Faculty (Names)	Coordinator(s)	Dr. Bajrang Bansal, Dr. Madhu Jain	
	Teacher(s) (Alphabetically)	Dr. Bajrang Bansal, Dr. Kuldeep Baderia, Dr. Sajai Vir Singh, Dr. Madhu Jain, Dr. Vineet Khandelwal, Dr. Abhinav Gupta, Dr. Rahul Kaushik, Mr. Ritesh Sharma, Ms. Smriti Bhatnagar	

COURSE OUTCOMES		COGNITIVE LEVELS
C277.1	Recall and interpret discrete time signals and systems in time domain and in frequency domain	Understanding Level (C2)
C277.2	Develop and demonstrate coding skills from basic mathematical operations to complex operations like DFT and FFT.	Applying Level (C3)
C277.3	Identify and examine different digital filter structures.	Analyzing Level (C4)
C277.4	Determine and observe magnitude and phase characteristics (Frequency response Characteristics) of digital IIR-Butterworth, Chebyshev filters and digital FIR filters using window techniques for various applications of DSP.	Evaluating Level (C5)

Module No.	Title of the Module	List of Experiments	CO
1.	Introduction to MATLAB	Introduction to the MATLAB and its features.	C277.1
2.	Introduction to applications of MATLAB	Introduction to the different applications of MATLAB.	C277.1
3.	Discrete-Time Signals	Generation of discrete time signals with different operation on independent and dependent variable.	C277.1
4.	LTI Systems	Write your own MATLAB function to implement linear convolution as an operation to analyze discrete time LTI system.	C277.1
5.	Z-transform	Compute z- transform and inverse z-transform of a discrete time signals and systems. Plot pole-zero map of the same using symbolic tool box.	C277.1
6.	Discrete Fourier Transform (DFT)	Write your own MATLAB function to compute DFT (Discrete Fourier Transform) and IDFT (Inverse Discrete Fourier Transform) for the spectral analysis of signals.	C277.2
7.	Spectral Analysis	To determine magnitude and power spectrum of given signal.	C277.2
8.	Circular Convolution	Write your own MATLAB function 'mycirconv' to compute circular convolution of two sequences.	C277.2

9.	FFT	Develop radix-2 butterfly FFT (Decimation in Time) algorithm for the computation of N-point dft.	C277.2
10.	FIR Filter	Write MATLAB program to design digital FIR filter employing windowing technique.	C277.4
11.	IIR Filter	Write MATLAB program to design IIR digital filter for a given specification using bilinear transformation and impulse invariant method.	C277.4
12.	IIR Structures	Write MATLAB program for realization of digital IIR filter using direct form-I & II, cascade and parallel method.	C277.3
13.	DFT Properties	Virtual Lab: Study of Transform domain properties and its use.	C277.2
14.	FIR Filter Study	Virtual Lab: Study of FIR filter design using window method.	C277.4
15.	IIR Filter Study	Virtual Lab: Study of Infinite Impulse Response (IIR) filter.	C277.4

Evaluation Criteria

Components	Maximum Marks
V1	20
V2	20
AC	25
Attendance	15
Report	15
Virtual Lab Exp	5
Total	100

Project based learning: Students will design Digital filters (FIR and IIR) for the given design specifications using MATLAB programming as well Filter Design Analysis tool. Additionally, students in group sizes of two-three will realize various applications of DSP employing digital filters.

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.	Sanjit K. Mitra, Digital Signal Processing: With DSP Laboratory Using MATLAB: A Computer-Based Approach, 4 th Edition, TMH, 2013.
2.	Vinay K. Ingle, John G. Proakis, Digital Signal Processing Using MATLAB, 3rd Edition, Cengage Learning, 2012.

Detailed Syllabi Lecture-wise Breakup

Subject Code	18B11EC212	Semester EVEN	Semester 4th Session 2020-21 Month from Jan to June
Subject Name	ANALOG AND DIGITAL COMMUNICATION		
Credits	4	Contact Hours	3-1-0

Faculty (Names)	Coordinator(s)	ReemaBudhiraja, , Yogesh Kumar
	Teacher(s) (Alphabetically)	Bhawna Gupta, Raghvendra Kumar

COURSE OUTCOMES		COGNITIVE LEVELS
C211.1	Understand need of modulation and differentiate among various amplitude modulation schemes and design simple systems for generating and demodulating amplitude modulated signals.	ApplyingLevel (C1)
C211.2	Analyze the generation and detection of FM signal and design basic systems for the indirect and direct generation of FM signals.	Analyzing Level (C4)
C211.3	Understand the concepts of transmitters and receivers for analog modulations, Sampling process, time division multiplexing and GSOP.	Understanding Level (C2)
C211.4	Understand the concepts of waveform coding techniques, Line coding schemes and analysis of ISI Mitigation Techniques	Analyzing Level (C4)
C211.5	Understand the concepts of digital modulation techniques and evaluate their probability of error and bandwidth efficiency.	Evaluating Level (C5)

Module No.	Subtitle of the Module	Topics	No. of Lectures
1.	Introduction	Elements of a communication system;Analog and digital signals, bandlimited signals and systems, bandwidth	2
2.	Amplitude modulation	Introduction to modulation; AMSC,DSB, SSB, VSB Communication. Detection of AM signals: Coherent detection, Envelope detection,Costas receiver.	7
3.	Angle modulation	Concepts of FM and PM,Narrowband and wideband FM, Direct and indirect methods of FM generation, Detection of FM signals	6
4.	Transmitters , Receivers and Multiplexing Techniques	AM and FM Transmitters, Superheterodyne AM and FM Receivers. FDM,TDM, Interchannel crosstalk and bandwidth effects	3
5.	Sampling and Quantization techniques	Time and frequency domain sampling with aperture effects, Reconstruction of signals, Quantization process and mean square quantization error, GSOP.	5

6.	Speech Coding ,Line Coding and Baseband Digital Transmission	Pulse Code modulation,Line Codes: Unipolar-NRZ, polar-NRZ, Unipolar-RZ, Bipolar-RZ, Manchester Code, DPCM, DM, Bit rate and bandwidth of digital signals, ISI Mitigation Techniques	11
7.	Digital Modulation Techniques	ASK, FSK ,PSK, QPSK Modulation, 16-QAM, Demodulation, Constellation diagrams, BER and their BW calculation,	9
Total number of Lectures			43
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25	
Total		100	

Project based learning: Here, students will learn the process of analog and digital modulation schemes as it is of the utmost importance to understand the process of communication system and to design the same. Student will be able to design the communicationsystem as per requirements and some simulation on Matlab can also be performed to analyze the same . Understating of these techniques will further help to work in any communication based industry.

Recommended Reading (Books/Journals/Reports/Websites etc.: Author(s), Title, Edition, Publisher, Year of Publication etc. in IEEE format)	
1.	LathiB.P, Modern Digital and Analog CommunicationSystems, 5 th /ed ,Oxford University Press,2018
2.	H. Taub, D. L. Schilling and GautamSaha, Principles of Communication Systems, 4 th /ed,TMH, 2017
3.	S.Haykin, Digital Communication Systems,John Wiley & Sons, 2013

Detailed Syllabus Lecture-wise Breakup

Subject Code	18B11EC215	Semester Even	Semester IV Session 2020-21 Month from January to June
Subject Name	Digital Circuit Design		
Credits	4	Contact Hours	3-1-0
Faculty Members	Coordinator(s)	Bhartendu Chaturvedi, Jasmine Saini	
	Teacher(s)	Akansha Bansal, Jitendra Mohan	

COURSE OUTCOMES- At the end of the course, students will be able to:		COGNITIVE LEVELS
C212.1	Understand the representation and conversion of various number systems and binary codes.	Applying Level (C3)
C212.2	Understand the fundamental concepts and techniques used in digital electronics which in turn form a digital logic.	Applying Level (C3)
C212.3	Analyze and construct combinational and sequential logic circuits. Develop skill to troubleshoot digital circuits using Finite state machines. Study and Implement combinational and sequential circuits using VHDL.	Analyzing Level (C4)
C212.4	Classify different semiconductor memories and analyze digital system design using PLDs. Classify and analyze wave shaping circuits and digital logic families.	Analyzing Level (C4)

Module No.	Subtitle of the Module	Topics in the Module	No. of Lectures
1	Introduction to Digital Systems, Binary Codes and Boolean Algebra	Digital systems, Importance, Analog vs. digital world; Conversion of bases, Representation of negative numbers, 9's and 1's complements, 10's and 2's complements, Arithmetic using 1's and 2's complements; Hexadecimal code, BCD, Excess-3 code, Gray code and Alphanumeric code; Basic theorems and properties of Boolean algebra; Digital logic gates.	4
2	Boolean Function Representation and Minimization Techniques	Canonical and standard forms; Prime implicants and essential prime implicants; Minimization of Boolean functions using Karnaugh map and Quine-McCluskey technique; Two-level gate implementation.	5
3	Combinational logic circuits	Binary adders and subtractors: Half adder, full adder, half subtractor, full subtractor, full adder using half adder, parallel adder, adder cum subtractor, look ahead carry adder; Circuit delay calculation; Magnitude comparator; Decoder and encoder; Multiplexer and demultiplexer; Binary multiplier; Code converters .	9
4	Sequential logic circuits	Latches and flip-flops: SR, JK, master-slave JK, T	10

		and D; Conversion of flip-flops; Synchronous and asynchronous counters; Registers and shift registers; Counters using shift registers; State diagram; Analysis of sequential circuits using flip-flops.	
5	State machines	Finite state machine of sequential circuits - Moore and Mealy machines.	3
6	Programmable logic devices	RAMs- DRAM, SRAM and ROM. PLDs: PLAs, PALs and PROMs.	3
7	Wave shaping circuits	Linear wave shaping circuits, Schmitt trigger, Square wave generator, IC-555 based multivibrators.	2
8	Introduction to digital logic families	Parameters of logic families, Types- DTL, RTL, TTL, CMOS.	3
9	Introduction to VHDL	Basic language elements, Different modeling styles: Dataflow, structural and behavioral.	3
Total Lectures			42
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25	
Total		100	
<p>Project based learning: Digital Circuit Design is a fundamental course in Electronics and Communication Engineering. In this course, a description of the effective and innovative logic circuit design is presented, which can be utilized to design various logic circuits. The project based exercises using Boolean logic functions, constructing a truth table, assembling the logic gates, counters design and FSM are also included. In addition to understand digital era, this course also delivers VHDL based basic learning methods that bring knowledge to drive state of art projects.</p>			

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, "Digital logic and computer design," 5th ed., Pearson Prentice Hall, 2013.
2.	M. Morris Mano and Michael D. Ciletti, "Digital Design with an Introduction to the Verilog Hdl," 5 th Edition, Pearson Education, 2013.
3.	J. Bhasker, "A VHDL Primer," 3rd ed., Pearson Education, 2015.
4.	R. P. Jain, "Modern Digital Electronics," 4 th Edition, Tata McGraw-Hill Education, 2009.
5.	A. Anand Kumar, "Fundamentals of Digital Circuits," PHI; 4th Revised edition, 2016.

ADC LAB PROPOSAL FOR SPECIAL SEM 2021

Course Code	18B15EC212	Semester (special sem)	Semester IV Session 2020-2021 Month from Jan to June
Course Name	<i>Analog and Digital Communication Lab</i>		
Credits	1	Contact Hours	2 Hrs per week

Faculty (Names)	Coordinator(s)	Bhawna Gupta, Atul Kumar
	Faculty involved in deciding mode of conduction	Ashish Goel, Neetu Joshi, Reema Budhiraja, Richa Gupta, Bajrang Bansal, Kapil Dev Tyagi

COURSE OUTCOMES		COGNITIVE LEVELS
CO1	Analyse and construct various analogue modulation/ demodulation techniques	Analyzing (Level IV)
CO2	Understand the concepts of sampling process and time division multiplexing.	Applying (Level III)
CO3	Analyze and verify various digital modulation techniques.	Analyzing (Level IV)
CO4	Utilize Scilab/Octave to implement and understand the concept of Pulse code modulation and Delta modulation.	Analyzing (Level IV)

Module No.	List of Experiments	COs
1.	Study and simulation of amplitude modulation with full carrier for all three cases of modulation indices.	CO1
2.	Study and simulation of double side band suppressed carrier (DSB SC) modulation.	CO1
3.	Study and simulation of frequency modulation schemes NBFM and WBFM.	CO1
4.	Study and simulation of Sampling and signal reconstruction.	CO2
5.	Study and simulation of time division multiplexing (TDM).	CO2
6.	Study and simulation of binary amplitude shift keying (BASK) modulation scheme.	CO3
7.	Study and simulation of the binary phase shift keying (BPSK) modulation scheme.	CO3
8.	Study and Simulation of binary frequency shift keying (BFSK) modulation scheme.	CO3
9.	Study and simulation of generation and demodulation of pulse code modulation	CO4

	(PCM).	
10.	Study and simulation of generation of delta modulation.	CO4
Evaluation Criteria	Day to day breakup	Assessment Components
Components		AC 1- Lab record
Maximum Marks	Assessment Components 45	AC 2- Day to day work
Viva 1(Mid Sem Viva) 20	Attendance 15	AC 3- Teacher Assessment
Viva 2(End Sem Viva) 20	Total 60	AC 4- Execution of experiment
Day to day 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.	LATHI,B.P, Modern Digital and Analog Communication Systems, Oxford University Press,3 rd edition,2005.
2.	S.Haykin, Communication Systems, John Wiley & Sons, Intl. Ed, 2004.
3.	Online platform: GNU Octave or SciLab
4.	Octave tutorials: https://www.youtube.com/watch?v=8gczfvuwnf8 https://www.youtube.com/watch?v=mvvmJLmfwNw Scilab tutorials: https://youtu.be/AzEIVPaS71U Scilab software download: https://www.scilab.org/download/6.1.0
5	Supporting links: sampling and reconstruction: https://youtu.be/sC1cLeme6fU

Detailed Syllabus
Lab-wise Breakup

Course Code	18B15EC215	Semester: Even (specify Odd/Even)	Semester: 4 th Session 2020-21 Month from: January to June
Course Name	Digital Circuit Design Lab		
Credits	1	Contact Hours	2

Faculty (Names)	Coordinator(s)	Dr. Jitendra Mohan, Dr. Richa Gupta
	Teacher(s) (Alphabetically)	Dr. Abhishek Kashyap, Dr. Ashish Goel, Dr. Bajrang Bansal, Dr. Bhartendu Chaturvedi, Dr. Vimal Kumar Mishra, Mr. B.suresh, Ms. Bhawna Gupta

COURSE OUTCOMES - At the end of the course, students will be able to:		COGNITIVE LEVELS
C271.1	Learn the nomenclature of digital ICs, familiarize and verify the truth tables of logic gates using ICs.	Applying Level (C3)
C271.2	Analyze, construct and verify various combinational circuits and their functionalities.	Analyzing Level (C4)
C271.3	Identify basic requirements to analyze, construct and verify sequential circuits.	Analyzing Level (C4)
C271.4	Utilize VHDL to implement and simulate the combinational and sequential logic circuits.	Applying Level (C3)

Module No.	Title of the Module	List of Experiments	CO
1.	Nomenclature and specifications of digital ICs	Introduction to Digital Circuit Design Lab: Nomenclature of Digital ICs, specifications, study of the data sheet, concept of V_{CC} and ground, verification of the truth tables of logic gates using ICs.	C271.1
2.	Implementation of basic logic gates	(a) To implement basic logic gates AND, OR, NOT using NAND and NOR gates (b) To implement Ex-OR gate using NOR gates only (c) To implement the Boolean expression(s) using NAND gates	C271.1
3.	Combinational Logic circuits	To design 4-bit Binary to Gray and Gray to Binary Code Converters.	C271.2
4.	Combinational Logic circuits	To realize a Half Adder, Full Adder and Half Subtractor using logic gates.	C271.2
5.	Combinational Logic circuits	To design a 2-bit Multiplier using basic logic gates.	C271.2
6.	Combinational Logic circuits	To realize and implement 2-bit Magnitude Comparator using logic gates.	C271.2
7.	Combinational Logic circuits	To realize 4:1 Multiplexer using NAND gates.	C271.2
8.	Combinational Logic circuits	To realize 2:4 Decoder using basic logic gates and to realize Half Adder using 2:4 Decoder as a block.	C271.2
9.	Seven-segment display	Display decimal digit between 0-9 on seven segment using BCD Decoder IC-7447.	C271.2
10.	Sequential Logic circuits	To realize and verify the truth table of SR, Gated SR, Gated D Latch using logic gates and of JK flip flop using IC-74LS76.	C271.3

11.*	Sequential Logic circuits	To design a Ripple Counter (Asynchronous) using JK flip flop IC-74LS76 and display the output on seven segment.	C271.3
12.*	Sequential Logic circuits	To Design and implement counting sequence 0, 7, 1, 6, 2, 5, 0, 7.... (Repeating) using IC-74LS76.	C271.3
13.*	Wave shaping circuits	Using IC-555 in Astable mode to generate a rectangular pulse of 1ms period with duty cycle 75%.	C271.3
14.*	Combinational and Sequential Logic Circuits using VHDL	(a) Write the VHDL program for the following logic circuits: Half Adder, Full Adder, 2X1 Multiplexers, 2:4 Decoder. (b) Write VHDL program for D, JK, T and RS flip flops.	C271.4

Evaluation Criteria

Components	Maximum Marks
Mid Sem Viva	20
End Sem Viva	20
Day-to-day performance	30
Attendance	15
Lab Record	15
Total	100

Project Based Learning: The main learning objective of this Lab course is that students should be able to analyze and design simple combinational and sequential circuits by means of discrete components and hardware description language. Students' opinions have been obtained by means of course exit survey at the end of the course.

* These are advanced level experiments.

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, Digital logic and computer design, 5th ed., Pearson Prentice Hall, 2013.
2.	M. Morris Mano and Michael D. Ciletti, "Digital Design with an Introduction to the Verilog Hdl," 5 th Edition, Pearson Education, 2013.
3.	J. Bhasker, A VHDL Primer, 3rd ed., Pearson Education, 2015.
4.	R. P. Jain, "Modern Digital Electronics," 4 th Edition, Tata McGraw-Hill Education, 2009.
5.	A. Anand Kumar, "Fundamentals of Digital Circuits," PHI; 4th Revised edition, 2016.

Detailed Syllabus
Lecture-wise Breakup

Course Code	15B1NHS431	Semester : EVEN	Semester IV Session 2020-2021 Month: January 2021 to June 2021
Course Name	Introduction to Literature		
Credits	3	Contact Hours	3 (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.	CL-2 Understanding
C206-5.2	Develop a critical appreciation of life and society through a close reading of select texts.	CL-3 Applying
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.	CL-4 Analysing
C206-5.4	To interpret Literature as reflection of cultural and moral values of life and society.	CL-5 Evaluating

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 Live'</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.