Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)
Department of Electronics & Communication Engineering
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. IIIrd YEAR (SEMESTER –VI)
Choice Based Credit Scheme w.e.f. 2020-21

S. No.	Course No.	Course Title	Teaching Schedule			Marks of Class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	ECE302C	Control Systems	3	0	0	25	75	-	100	3	3
2	ECE304C	VLSI Design	3	0	0	25	75	-	100	3	3
3	ECE384C	VLSI Design Lab	0	0	2	25	-	75	100	1	3
4	ECE306C	Verilog Based Digital System Design	3	0	0	25	75	-	100	3	3
5	ECE386C	Verilog Based Digital System Design Lab	0	0	2	25	-	75	100	1	3
6	ECE308C	Wireless Communication System	3	0	0	25	75	-	100	3	3
7		Program Elective -2	3	0	0	25	75	-	100	3	3
8		Open Elective-I	3	0	0	25	75	-	100	3	3
Total			**18**	**0**	**4**	**200**	**450**	**150**	**800**	**20**	

Note:

1. At the end of semester-VI each student has to undergo Professional Training (level-3) of at least four weeks from industry, institute, research lab, training centre during summer vacation and its evaluations shall be carried out in the semester-VII.
2. Students will be permitted to opt for any one elective from the list of **Program Elective-2** given below. The minimum strength of the students should be 20 to run an elective course.

S. No.	Course No.	Course Title	Teaching Schedule			Marks of Class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	ECE322C	Speech and Audio Processing	3	0	0	25	75	-	100	3	3
2	ECE324C	Introduction to MEMS	3	0	0	25	75	-	100	3	3
3	ECE326C	Scientific Computing	3	0	0	25	75	-	100	3	3
4	ECE328C	mization Techniques	3	0	0	25	75	-	100	3	3

3. Students will be permitted to opt for any one **Open Elective-I** course run by other department, from group of subjects given in table below. However, the department shall offer those elective for which they have expertise. The choice of the students for any elective shall not be binding for the department to offer, if the department does not have expertise. The minimum strength of the students should be 20 to run an elective course.

S. No.	Course No.	Course Title	Teaching Schedule			Marks of Class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	HUM350C	Communication Skills for Professionals (Except BME & BTE)	3	0	0	25	75	-	100	3	3
2	HUM352C	Soft Skills And Interpersonal Communication	3	0	0	25	75	-	100	3	3
3	MGT402C	Human Values, Ethics And IPR	3	0	0	25	75	-	100	3	3
4	MGT404C	Human Resource Management	3	0	0	25	75	-	100	3	3
5	HUM354C	Introduction To French Language	3	0	0	25	75	-	100	3	3
6	HUM356C	Introduction To German Language	3	0	0	25	75	-	100	3	3

Subject : Control Systems **Subject Code:ECE302C**

B.Tech. 3rd YEAR (SEMESTER –VI)
Electronics & Communication Engineering

L	T	P	Credits
3	0	0	4

Class work	**:25**
Examination	**:75**
Total	**:100**
Duration of exam	**:3 Hours**

Unit 1: Input / Output Relationship:
TOPIC NO1 System / Plant model, illustrative examples of plants & their inputs outputs
TOPIC NO1 Open loop & closed loop control system & their illustrative examples
TOPIC NO2 Mathematical modeling and representation of physical systems, Concept of transfer function
TOPIC NO3 Relationship between transfer function and impulse response, order of a system
TOPIC NO4 Block diagram algebra, signal flow graphs: Mason's gain formula & its application
TOPIC NO5 Characteristic equation, derivation of transfer functions of electrical and electromechanical systems

Unit 2: Time Domain Analysis:
TOPIC NO6 Typical test signals, time response of first order systems to various standard inputs
TOPIC NO7 Time response of 2nd order system to step input, time domain specifications
TOPIC NO8 Steady state error and error constants, concept of stability
TOPIC NO9 Pole-zero configuration and stability
TOPIC NO10 Necessary and sufficient conditions for stability, Hurwitz stability criterion
TOPIC NO11 Routh stability criterion and relative stability
TOPIC NO12 Root locus concept, development of root loci for various systems, stability considerations

Unit 3: Frequency Domain Analysis:
TOPIC NO13 Relationship between frequency response and time-response for 2nd order system, polar,
TOPIC NO14 Nyquist, Bode plots, stability, Gain-margin and Phase Margin
TOPIC NO15 Relative stability, frequency response specifications

Unit 4
TOPIC NO16 Compensation: Necessity of compensation, compensation networks, application of lag and lead
TOPIC NO17 Compensation, basic modes of feedback control, proportional, integral and derivative controllers
TOPIC NO18 Control Components**:** Synchros, servomotors, stepper motors, magnetic amplifier

Text book:
1. Control System Engineering: I.J. Nagrath& M. Gopal; New Age Publishers.

Reference books:
1. Automatic Control Systems: B.C. Kuo, PHI. Publishers.
2. Modern Control Engg: K. Ogata; PHI. Publishers.
3. Control Systems - Principles & Design: Madan Gopal; Tata Mc Graw Hill. Publishers.
4. Modern Control Engineering, R.C. Dorf & Bishop; Addison-Wesley Publishers.

Course Outcomes: At the end of the course, students will demonstrate the ability to:
1. Understand the important aspect of classical control system which will provide the opportunity to control machine & industrial process for benefit of society.
2. In order to efficiently ensure a certain level of security, and organization with valuable assets should have an automated key control system with the help of this student will be able to gain the knowledge regarding automated control system.
3. It will help to understand how to mange command direct or regulate the behavior of devices or system using control loop. It is the most important aspect of any industry which will help the student to perform this duty properly.
4. Practically all system requires stability and control thereby ensure that stability is achieved. It will help to understand the control system of single home heating controller using a thermostat controlling and also the large industrial control system which are used for controlling processes or ma

Code: **VLSI Design** **Subject Code ECE304C**

B.Tech. 3rd YEAR (SEMESTER –VI)
Electronics & Communication Engineering

L	T	P	Credits
3	0	0	4

Class work	**:25**
Examination	**:75**
Total	**:100**
Duration of exam	**:3 Hours**

Unit 1: Introduction to MOSFET
TOPIC NO1 **Introduction to MOSFET:** Structure and cross-sectional view of a MOSFET
TOPIC NO2 Enhancement and Depletion mode MOSFETs
TOPIC NO3 Operation of Enhancement and Depletion mode MOSFETs
Device Modelling:
TOPIC NO4 DC MOSFET Model, Small Signal MOSFET Model
TOPIC NO5 High Frequency MOSFET Model, Measurement of MOSFET Model Parameters

Unit 2: Basic Integrated Circuit Building Blocks:
TOPIC NO6 Introduction, Switches, Active Resistors, Current Sources and Sinks
Digital Circuits:
TOPIC NO7 Introduction, Characteristics of Digital Circuits
TOPIC NO8 Logic Level Standards, Inverter Pair Characteristics
TOPIC NO9 Logic Fan-Out Characteristics, Digital Logic Analysis

Unit 3: MOS/CMOS Inverters
TOPIC NO10 MOS/CMOS Inverters: Basic Single Channel Inverters, Inverter Device Sizing
TOPIC NO11 Enhancement Load versus Depletion Load Inverter
TOPIC NO12 A Basic CMOS Inverter, CMOS Inverter Logic Levels, Device Sizing
TOPIC NO13 NMOS/ CMOS NOR and NAND Logic Gates: Basic NMOS NOR Logic Circuits
TOPIC NO14 Basic NMOS NAND Logic Circuits, Multi-Input NMOSNOR and NAND Logic Gates
TOPIC NO15 NMOS Pass Transistor, CMOS NOR Logic Circuits
TOPIC NO16 CMOS NAND Logic Circuits, Multi-Input CMOS NOR and NAND Logic Gates, CMOS Transmission Gates

Unit 4: Signal Propagation Delays and Power Dissipation
TOPIC NO.17 Signal Propagation Delays and Power Dissipation: Ratio-Logic Models
TOPIC NO18 Process Characteristics Time Constant, Inverter-Pair Delay
TOPIC NO19 Super buffers, NMOS NAND and NOR Delays, Enhancement versus Depletion Loads
TOPIC NO20 CMOS Logic Delays, Interconnection Characteristics, NMOS Power Dissipation
TOPIC NO21CMOS Power Dissipation, Clocked CMOS Logic: C2MOS, Precharge-Evaluate Logic, Domino CMOS
TOPIC NO22 Semiconductor Memories: Memory Organization, Erasable Programmable Read-Only Memory
TOPIC NO23 Electrically Erasable Programmable Read-Only Memory
TOPIC NO24 Static RAM Memories, Dynamic RAM Memory

Text/ Reference Books:
1. Basic VLSI: Design: Douglas A. Pucknell, Kamran Eshragian.
2. CMOS VLSI: Design: Neil H.E.Weste, David Money Harris.
3. VLSI: Design: K.Lal Kishore, V.S.V. Prabhakar.
4. Digital Integrated Circuits: Rabaey, Chandrakasn, Nikolic.

Course Outcomes: At the end of the course, students will demonstrate the ability to:
1. Understand the basic concepts and operations of different types of MOSFETs and the device modelling related to MOSFEs in different types of signal Levels.
2. Understand the properties of various digital circuits used in all spheres of life and the basic building blocks to realize these digital circuits.
3. Understand the designing of the various digital gates, to calculate their sizes in the Integrated circuits and the performance in single channel and CMOS circuits.

4. Measure various performance parameters related to digital circuits realized in the Integrated Circuits and the circuits used in the realization Semiconductor Memories.

Note:

1. In Semester Examinations, the paper setter will set two questions from each unit (total 8 questions in all), covering the entire syllabus. Students will be required to attempt only five questions, selecting atleast one question from each unit.

2. The use of scientific calculator will be allowed in the examination. However, programmable calculator, mobile phones or other electrical/ electronic items will not be allowed in the examination.

3. For students admitted in B.Tech. 1st Year (C-Scheme) in 2019 & onwards and all trailing students:

Examinations and evaluations of students shall be conducted, covering the entire syllabus, as per guidelines "AICTE Examination Reforms". Students shall be informed about these reforms.

Subject: VLSI Design Lab **Subject Code ECE384C**

B.Tech. 3rd YEAR (SEMESTER –VI)
Electronics & Communication Engineering

L	T	P	Credits
3	0	0	4

Class work	**:25**
Examination	**:75**
Total	**:100**
Duration of exam	**:3 Hours**

List of Experiments:

1. Design a CMOS inverter in schematic and simulate for Transient Characteristics.
2. Design a CMOS two input NAND gate, Two input NOR gate, Two input AND gate and Two input OR gate in schematic and simulate for Transient Characteristics.
3. Design the layout of a CMOS Inverter and simulate for DC (Transfer) and Transient characteristics.
4. Design the layout for two inputs NAND gate, two input OR gate, two input AND gate and two input NOR gate and simulate for DC (Transfer) and Transient characteristics.
5. Realized a two input EXOR gate in schematic, draw its layout and simulate for DC (Transfer) and Transient characteristics.
6. To realize a 1 bit full adder in CMOS schematic, design its layout using tool option and simulate for Transient Characteristics.
7. To realize a Boolean expression Y=Not ((A+B)C) in schematic, draw its layout and simulate for Transient Characteristics..
8. To realize a 4 X 1 MUX using transmission gates in schematic and simulate for Transient Characteristics.
9. To Realize JK FLIPFLOP in CMOS schematic, design its layout and simulate for Transient Characteristics.
10. To Realize D FLIPFLOP and T FLIPFLOP in CMOS schematic, design its layout and simulate for Transient Characteristics.

Text/Reference Books:

1. Basic VLSI: Design: Douglas A. Pucknell, Kamran Eshragian.
2. CMOS VLSI: Design: Neil H.E.Weste, David Money Harris.

Course Outcomes: At the end of the course, students will demonstrate the ability to:

1. Understand the basic of digital VLSI Design.
2. Understand the schematic designing of Digital circuits and analysis these for AC ,DC, and Transient.
3. Design a gate of any given arbitrary logic function at the transistor-level.
4. Design the Layout a Basics gates in CMOS VLSI technology.

Note:

1. Each laboratory class/section shall not be more than about 20 students.
2. To allow fair opportunity of practical hands on experience to each student, each experiment may either done by each student individually or in group of not more than 3-4 students. Larger groups be strictly discouraged/disallowed.
3. Ten experiments are to be performed out of which at least seven experiments should be performed from the above list. Remaining three experiments should be performed from the above list or designed and set by the concerned department as per the scope of the syllabus.

Subject: Verilog Based Digital System Design **Subject Code ECE306C**

B.Tech. 3rd YEAR (SEMESTER –VI)
Electronics & Communication Engineering

L	T	P	Credits
3	0	0	4

Class work	**:25**
Examination	**:75**
Total	**:100**
Duration of exam	**:3 Hours**

Unit 1

TOPIC NO1 Basic Digital Systems: Introduction to Digital Design, Introduction to Verilog HDL
TOPIC NO2 ASIC / FPGA design flow, Advantages of HDL, Overview of digital design with Verilog HDL
TOPIC NO3 Hierarchical modeling: Basic concepts – Modules and ports
TOPIC NO4 Overview of different levels of abstractions: Gate level modeling
TOPIC NO5 Dataflow modeling, Behavioral modeling, Switch level modeling

Unit 2

TOPIC NO6 Combinational Logic Design: Modeling at Data Flow Level, Continuous Assignment Structures
TOPIC NO7 Delays and Continuous Assignments, Assignment to Vectors, Operators
TOPIC NO8Verilog HDL for combinational Circuits, Design of Adder, Subtractor
TOPIC NO9 Decoders, Encoders, Multiplexer, code Converter

Unit 3

TOPIC NO10 Sequential Logic Design: Behavioral Modeling: Operator and Assignments
TOPIC NO11 Functional Bifurcation, Initial & Always Construct, Assignments with Delays, wait construct
TOPIC NO12 Multiple always blocks, If and if-else, assign-deassign, repeat Construct
TOPIC NO13Loop Construct: for, while & forever, Parallel blocks, force-release construct, event
TOPIC NO14Design of Flip flop, Shift register and Counters using Verlilog HDL

Unit 4

TOPIC NO15Modeling Techniques: Functions, Tasks, user defined primitives, Pipeline principle
TOPIC NO16 State Machine: Moore and mealay state model, Verilog HDL code for moore-type FSM
TOPIC NO17 Specification of Mealy FSM using Verilog HDL
TOPIC NO18 Mealy-type and Moore-type FSM for Serial Adder

Text/Reference Books:

1. J. F. Wakerly, Digital Design: Principles and Practices, Prentice Hall.
2. M.G.Arnold, Verilog Digital – Computer Design, Prentice Hall (PTR), 1999.
3. S. Palnitkar , Verilog HDL – A Guide to Digital Design and Synthesis, Pearson , 2003.
4. M.D. Ciletti, Modeling, Synthesis and Rapid Prototyping with the Verilog HDL, Prentice Hall, 1999.
5. W.Wolf, FPGA- based System Design, Pearson, 2004
6. PLD, FPGA data sheets.

Course Outcomes: At the end of the course, students will demonstrate the ability to:

1. Describe Verilog hardware description languages (HDL).
2. Design Digital Circuits.
3. Write behavioral models of digital circuits.
4. Write Register Transfer Level (RTL) models of digital circuits.

Note:

1. In Semester Examinations, the paper setter will set two questions from each unit (total 8 questions in all), covering the entire syllabus. Students will be required to attempt only five questions, selecting atleast one question from each unit.

2. The use of scientific calculator will be allowed in the examination. However, programmable calculator, mobile phones or other electrical/ electronic items will not be allowed in the examination.

3. For students admitted in B.Tech. 1st Year (C-Scheme) in 2019 & onwards and all trailing students:

Examinations and evaluations of students shall be conducted, covering the entire syllabus, as per guidelines "AICTE Examination Reforms". Students shall be informed about these reforms.

Subject: Wireless Communication System **Subject Code ECE308C**

B.Tech. 3rd YEAR (SEMESTER –VI)
Electronics & Communication Engineering

L	T	P	Credits
3	0	0	4

Class work	**:25**
Examination	**:75**
Total	**:100**
Duration of exam	**:3 Hours**

Unit 1

Topic no.1 Introduction to Wireless Communication Systems:
Topic no 2 Evolution of Mobile Radio Communications
Topic no 3 Introduction, First Generation (1G), Second Generation (2G), Generation (2.5G) ,
Topic no 4 Third Generation (3G), Evolution from 2G To 3G, Fourth Generation (4G),
Topic no 5 Examples of Wireless Communication Systems ,
Topic no 6 Difference Between Fixed Telephone Network and Wireless Telephone Network,
Topic no 7 Wireless Local Loop [WLL], Wireless Local Area Networks (WLAN) ,
Topic no 8 Personal Area Network(PAN), Bluetooth, GSM and CDMA System.
Topic no 9 The Cellular Concept-System Design Fundamentals: Introduction, Frequency Reuse
Topic no 10 Channel Assignment Strategies, Hand-Off Strategies,
Topic no 11 Interference and System Capacity, Trunking and Grade of Service
Topic no 12 Improving Coverage and Capacity in Cellular Systems.

Unit 2

Topic no 13 Large Scale Path Loss**:** Introduction to Radio Wave Propagation,
Topic no 14 Free Space Propagation Model
Topic no 15 Practical Link Budget Design Using Path Loss Models
Topic no 16 Outdoor Propagation Models, Indoor Propagation Models,
Topic no 17 Signal Penetration into Buildings.
Topic no 18 Small Scale Fading and Multipath: Small Scale Multipath Propagation,
Topic no 19 Impulse Response Model of a Multipath Channel, Small Scale Multipath Measurements,
Topic no 20 Parameters of Mobile Multipath Channels ,
Topic no 21 Types of Small Scale Fading, Rayleigh and Ricean Distributions.

Unit 3

Topic no 22 Equalization and Diversity :Fundamentals of Equalization,
Topic no 23 Equalizer in a Communication Receiver,
Topic no 24 Linear Equalizer, Non Linear Equalization,
Topic no 25 Diversity Techniques, Rake Receiver, Interleaving
Topic no 26 Multiple Access Techniques for Wireless Communication
Topic no 27 Introduction, Frequency Division Multiple Access (FDMA),
Topic no 28 Time Division Multiple Access (TDMA), Spread Spectrum Multiple Access,
Topic no 29 Space Division Multiple Access (SDMA), Capacity of Cellular System.

Unit 4

Topic no 30 Wireless Networking **:**Introduction to Wireless Networks,
Topic no 31 Development of Wireless Networks,
Topic no 32 Traffic Routing in Wireless Networks, Wireless Data Services,
Topic no 33 Common Channel Signaling,
Topic no 34Integrated Services Digital Network (ISDN), Signalling System No.7(SS 7),
Topic no 35 Personal Communication Services/Networks.(PCS/PCN)
Topic no 36 Advance Intelligent Networks: Introduction, Intelligent Networks and its architecture,
Topic no 37 Advanced Intelligent Networks and its application.

Text/Reference Books:

1. V.K.Garg, J.E.Wilkes, "Principle and Application of GSM", Pearson Education, 5th edition, 2008.
2. Rajeshwar Dass, "Wireless Communication Systems," I.K International Pvt. Ltd
3. Mobile Communication: Jochen Schiller Pearson Education.
4. V.K.Garg, "IS-95 CDMA & CDMA 2000", Pearson Education, 4th edition, 2009.
5. T.S.Rappaport, "Wireless Communications Principles and Practice", 2nd edition, PHI,2002.
6. William C.Y.Lee, "Mobile Cellular Telecommunications Analog and Digital Systems", 2nd edition, TMH, 1995.
7. Asha Mehrotra, "A GSM system Engineering" Artech House Publishers Bosten, London,1997.

Course Outcomes: At the end of the course, students will demonstrate the ability to:

1. Understand basics of wireless communication and propagation mechanism in cellular networks.
2. Understand various propagation and fading models prevalent in wireless networks.
3. Identify various diversity techniques and multiple access techniques available in wireless networks.
4. Understand various standards or services available in wireless communication systems .

Note:

1. In Semester Examinations, the paper setter will set two questions from each unit (total 8 questions in all), covering the entire syllabus. Students will be required to attempt only five questions, selecting atleast one question from each unit.

2. The use of scientific calculator will be allowed in the examination. However, programmable calculator, mobile phones or other electrical/ electronic items will not be allowed in the examination.

3. For students admitted in B.Tech. 1st Year (C-Scheme) in 2019 & onwards and all trailing students:

Examinations and evaluations of students shall be conducted, covering the entire syllabus, as per guidelines "AICTE Examination Reforms". Students shall be informed about these reforms.

Subject: Scientific computing **Subject Code ECE326C**

B.Tech. 3rd YEAR (SEMESTER –VI)
Electronics & Communication Engineering

L	T	P	Credits		
3	0	0	3	**Class Work**	**: 25**
				Examination	**: 75**
				Total	**: 100**
				Duration of Exam	**: 3 Hours**

Unit 1
Topic no.1 Introduction**:** Sources of Approximations, Data Error and Computational,
Topic no.2 Truncation Error and Rounding Error, Absolute Error and Relative Error,
Topic no.3 Sensitivity and Conditioning, Backward Error Analysis, Stability and Accuracy.
Topic no.4 Nonlinear equations: Fixed Point Iteration, Newton's Method,
Topic no.5 Inverse Interpolation Method, Interpolation: Purpose for Interpolation,
Topic no.6 Choice of Interpolating, Function, Polynomial Interpolation,
Topic no.7 Piecewise Polynomial Interpolation

Unit 2
Topic no.8 System of liner equations: Linear Systems, Solving Linear Systems,
Topic no. 9 Gaussian elimination,Pivoting, Gauss-Jordan, Norms and Condition Numbers,
Topic no.10 Symmetric Positive Definite Systems and Indefinite System,
Topic no.11 Iterative Methods for Linear Systems.
Topic no.12Linear least squares: Data Fitting, Linear Least Squares,
Topic no.13 Normal Equations Method, Orthogonalization Methods,
Topic no.14 QR factorization, Gram-Schmidt Orthogonalization, Rank Deficiency,
Topic no.15 And Column Pivoting, Nonlinear Least Squares.

Unit 3
Topic no.16 Eigen values and singular values: Eigen values and Eigenvectors,
Topic no.17 Methods for Computing All Eigen values, Jacobi Method,
Topic no.18 Methods for Computing Selected Eigen values, Singular Values Decomposition,
Topic no. 19 Application of SVD.
Topic no.20 Optimization: One-Dimensional Optimization, Multidimensional Unconstrained Optimization.
Topic no.21 Numerical Integration and Differentiation: Quadrature Rule,
Topic no.22 Newton-Cotes Rule, Gaussian Quadrature Rule, Finite Difference Approximation.
Topic no.23 Partial Differential Equations: Time Dependent Problems,
Topic no.24Time Independent Problems, Solution for Sparse Linear Systems, Iterative Methods.

Unit 4
Topic no.25 Initial Value Problems for ODES: Euler's Method, Taylor Series Method,
Topic no.26 Runga-Kutta Method, Extrapolation Methods.
Topic no.27 Boundary Value Problems for ODES: Finite Difference Methods,
Topic no.28 Finite Element Method, Eigenvalue Problems.
Topic no.29 Fast Fourier Transform: FFT Algorithm, Limitations, DFT,
Topic no.30 Fast polynomial Multiplication,Wavelets, Random Numbers and Simulation,
Topic no.31 Stochastic Simulation, Random Number Generators, Quasi-Random Sequences.

Text Books:
1. Heath Michael T., "Scientific Computing: An Introductory Survey", McGraw-Hill, 2nd Ed., 2002
2. Press William H., Saul A. Teukolsky, Vetterling William T and Brian P. Flannery,"Numerical Recipes: The Art of Scientific Computing", Cambridge University Press,3rd Ed., 2007
3. Xin-she Yang (Ed.). "Introduction to Computational Mathematics", World Scientific Publishing Co., 2nd Ed.

Reference Books:

1. Kiryanov D. and Kiryanova E., "Computational Science", Infinity Science Press, 1stEd., 2006
2. Quarteroni, Alfio, Saleri, Fausto, Gervasio and Paola, "Scientific Computing With MATLAB and Octave", Springer, 3rd Ed., 2010

Course Outcomes: At the end of the course, students will demonstrate the ability to:

1. Students will understand different types of errors and several necessary functions of scientific computing.
2. Students will have a clear understanding of system of linear equations.
3. Understand the significance of computing methods, their strengths and application areas.
4. Perform the computations on various data using appropriate computation tools.

5. Note:

6. 1. In Semester Examinations, the paper setter will set two questions from each unit (total 8 questions in all), covering the entire syllabus. Students will be required to attempt only five questions, selecting atleast one question from each unit.

7. 2. The use of scientific calculator will be allowed in the examination. However, programmable calculator, mobile phones or other electrical/ electronic items will not be allowed in the examination.

8. 3. For students admitted in B.Tech. 1st Year (C-Scheme) in 2019 & onwards and all trailing students:

9. Examinations and evaluations of students shall be conducted, covering the entire syllabus, as per guidelines "AICTE Examination Reforms". Students shall be informed about these reforms.

Subject: Communication Skills for Professionals **Subject Code HUM350C**

B.Tech. 3rd YEAR (SEMESTER –VI)

L	T	P	Credits		
3	0	0	3	Class Work	: 25
				Examination	: 75
				Total	: 100
				Duration of Exam	: 3 Hours

Unit 1

Mechanics of Report Writing:

Topic No. 1 Objectives of Report Writing;
Topic No. 2 Types of Reports on the basis of forms and content.
Topic No. 3 Introduction to Formats of Reports;
Topic No. 4 Structure of Reports: Front Matter,
Topic No. 5 Main Body, Back Matter.

Unit 2

Writing Business and Technical Report:

Topic No. 6 Preliminary Strategies for Report Writing:
Topic No. 7 Data Collection, Report Planning,Use of Illustrations,
Topic No. 8 Point Formation, Preparing Notes/Drafts. Using Appropriate Formats:
Topic No. 9 Memo Format, Letter Format,Manuscript Format, Printed Forms

Unit 3

Oral Communication and Soft Skills :

Topic No. 10 Group Discussions; Interviews for jobs: preparation and facing them.
Topic No. 11 Professional Presentations: Power Point Presentation, Oral Presentation.
Topic No. 12 Role of Kinesics (Body Language) in Communication.General
Topic No. 13 Etiquettes in Office areas, corporate lunch and dinner. Handling Telephone calls.

Unit 4

Resumes and Job application:

Topic No. 14 Writing of Resume--Chronological Resume and Functional
Topic No. 15 Resume.Request for Reference/Recommendation .
Topic No. 16 Writing Application Letters for Job;
Topic No. 17 Writing Covering letter.

Text/ Reference Books:

1. Sharma,Sangeeta, and Binod Mishra. Communication Skills for Engineers and Scientists. PHI,2009.
2. Tyagi,Kavita, and Padma Mishra. Advanced Technical Communication. PHI, 2011.
3. Rizvi, M. Ashraf. Effective Technical Communication. McGraw Hill Education, 2014.
4. Kumar, Sanjay, and PushpLata. Communication Skills. OUP, 2011.
5. Raman, Meenakshi and SangeetaSharma.Communication Skills. OUP,2011.
6. *Bhatnagar, Nitin, and MamtaBhatnagar. Communicative English for Engineers and Professionals. Pearson Education, 2013. (The soft copy of the book is available in the university library)
7. Mitra,Barun K. Personality Development and Soft Skills. OUP,2011.
8. Kaul, Asha. Business Communication. PHI, 2nd Edition.
9. Namee, Patrick Mc. Success in Interviews: How to Succeed in any Job Interview, Ist Edition.
10. Argenti, Paul. Corporate Communication.6th Edition. McGraw Hill Education, 2012.

Course Outcomes: At the end of the course, students will demonstrate the ability to:

1. Get acquainted with multiple forms and formats of various technical and business reports
2. Develop competence for report writing with a focus on its complex writing techniques and procedures.
3. Develop their speaking skills with professional proficiency.
4. Equip themselves for Letter Writing Skills.

Note:

1. In Semester Examinations, the paper setter will set two questions from each unit (total 8 questions in all), covering the entire syllabus. Students will be required to attempt only five questions, selecting atleast one question from each unit.
2. The use of scientific calculator will be allowed in the examination. However, programmable calculator, mobile phones or other electrical/ electronic items will not be allowed in the examination.
3. For students admitted in B.Tech. 1st Year (C-Scheme) in 2019 & onwards and all trailing students:

Examinations and evaluations of students shall be conducted, covering the entire syllabus, as per guidelines "AICTE Examination Reforms". Students shall be informed about these reforms.

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