BACHELOR OF ENGINEERING (FOUR YEARS DEGREE COURSE IN FACULTY OF SCIENCE & TECHNOLOGY)
TEACHING AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

VII - SEMESTER B.E.(INFORMATION TECHNOLOGY)

Course Code	Course Title	Teaching Scheme Hours per week L	T	P	No. of Credits	Theory Duration of Paper (Hrs.)	Max. Marks ESE	Max. Marks Sessional MSE	IE	Total	Min. Passing Marks	Practical Max. Marks TW	Max. Marks POE	Total	Min. Passing Marks
7BEIT01	Computer Networks	3	1	0	3	3	80	10	10	100	40	-	-	-	-
7BEIT02	Software Testing and Quality Assurance	3	1	0	3	3	80	10	10	100	40	-	-	-	-
7BEIT03	Data Mining & Data Warehousing	3	1	0	3	3	80	10	10	100	40	-	-	-	-
7BEIT04	Wireless Communication	3	1	0	3	3	80	10	10	100	40	-	-	-	-
7BEIT05	Core Elective-I 1) Advanced Computing Techniques 2)Information Retrieval System 3) Embedded Systems 4) Software Testing	3	1	0	4	3	80	10	10	100	40	-	-	-	-
7BEIT06	Computer Networks	0	0	2	2	-	-	-	-	-	-	25	25	50	25
7BEIT07	Wireless Communication	0	0	2	2	-	-	-	-	-	-	25	25	50	25
7BEIT08	Project Phase - I	0	0	2	4	-	-	-	-	-	-	25	25	50	25
		15	5	06	24	-				500				150	

Course Code: **7BEIT01**

Title of the Course: **Computer Networks**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	**Introduction:-**Introduction, Computer networks & Distributed systems, Uses of Computer Networks, Network Hardware, Network Software, , Layered Architecture, The ISO OSI Reference Models, Protocols and Service Interface, Connection Oriented and Connection Less Service ,TCP/IP Protocol Stack.	9
II	**The Physical Layer:-**Guided Transmission Media, Wireless Transmission, Public Switched Telephone Network, Packet Switching, Message Switching & Packet Switching, ISDN Architecture. **Medium Access Control Sub layer:-**Introduction to MAC, LLC, Channel Allocation Problem, Multiple Access Protocols, Encoding Techniques, IEEE 802.3 Ethernet, IEEE 802.4 Token Bus, IEEE 802.5 Token Ring, Bluetooth, Connecting Devices: Repeater, Bridge, Hubs, Router, Gateways.	9
III	**The Data Link Layer:-**Introduction, Design Issues, Error Detection, Cyclic Redundancy Code, Error Correction, Hamming Distance Method, Elementary Data Link Protocols, Sliding Window Protocols	9
IV	**The Network Layer:-**Introduction**,** Design Issues, Routing Algorithms, Congestion Control Algorithms, Open Loop & Closed Loop algorithms, The IP Version 4 Protocol, IP Addresses, Subnetting, IP Version 6.	9
V	**The Transport and Application Layer:-**The Transport Service, Elements of Transport Protocols, UDP, TCP, Difference between TCP & UDP **Application Layer & Session Layer:** DNS, Electronic Mail, World Wide Web	9
Total		45

Text Book:
1. Andrew Tanenbaum, ―Computer Networks‖ 4th /5th Edition ,Prentice Hall Publications

Reference Books:
1. James F. Kuross, Keith W. Ross, ―Computer Networking, A Top-Down Approach Featuring the Internet‖, 3rd Edition, Addison Wesley, 2004
2. Nader F. Mir, ―Computer and Communication Networks‖, Pearson Education, 2007
3. Comer, ―Computer Networks and Internets with Internet Applications‖, 4th Edition, Pearson Education, 2003
4. William Stallings, ―Data and Computer Communication‖, 6th Edition, Pearson, Education, 2000

Course Code: **7BEIT02**

Title of the Course: **Software Testing and Quality Assurance**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Defect Classes – The Defect Repository and Test Design – Defect Examples – Developer/Tester Support for Developing a Defect Repository.	9
II	Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing Requirements based testing – positive and negative testing -–Boundary Value Analysis – decision tables - Equivalence Class Partitioning state-based testing– cause effect graphing – error guessing - compatibility testing – user documentation testing –domain testing Using White–Box Approach to Test design – Test Adequacy Criteria –static testing vs. structural testing – code functional testing - Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White–box Based Test Design –code complexity testing – Evaluating Test Adequacy Criteria.	9
III	The Need for Levels of Testing – Unit Test – Unit Test Planning –Designing the Unit Tests. The Test Harness – Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – scenario testing –defect bash elimination -System Testing – types of system testing - Acceptance testing – performance testing - Regression Testing – internationalization testing – ad-hoc testing -Alpha – Beta Tests – testing OO systems – usability and accessibility testing	9
IV	People and organizational issues in testing – organization structures for testing teams –testing services - Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process - Reporting Test Results – The role of three groups in Test Planning and Policy Development – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group	9
V	Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation Test metrics and measurements –project, progress and productivity metrics – Status Meetings – Reports and Control Issues – Criteria for Test Completion – SCM – Types of reviews – Developing a review program – Components of Review Plans– Reporting Review Results. – evaluating software quality – defect prevention – testing maturity model	9
Total		45

Text Book/s:

1. Srinivasan Desikan and Gopalaswamy Ramesh, ― Software Testing – Principles and Practices‖,Pearson education, 2006.

2. Aditya P.Mathur, ―Foundations of Software Testing‖, Pearson Education,2008.

Reference Book/s:

1. Boris Beizer, ―Software Testing Techniques‖, Second Edition,Dreamtech, 2003

2. Elfriede Dustin, ―Effective Software Testing‖, First Edition, Pearson Education, 2003.

Course Code: **7BEIT03**

Title of the Course: **Data Mining & Data Warehousing**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Data Warehousing: Basic Concepts, Data Warehouse Design: Architecture, data marts, meta data repository, introduction to ETL process, Multidimensional data analysis, Data Warehouse Modeling: Data Cube, OLAP and OLAP operations, Different OLAP Servers, Data Warehouse Usage	9
II	Data Mining : Need of data mining technique, Introduction to KDD process , A Multi-Dimensional View of Data Mining, Data Mining Functionalities Applications of data mining, classification of data mining techniques, Major Issues in Data Mining	9
III	Data objects and Preprocessing: Data Objects and Attribute Types, Data Preprocessing: Data Cleaning, Data Integration and Transformation, Data Reduction, Data Discretization and Concept Hierarchy Generation. Basic Statistical Descriptions of Data, Data Visualization Measuring Data Similarity and Dissimilarity	9
IV	Classification and Association rule mining Classification basics, supervised Vs unsupervised learning, and Prediction. Issues Regarding Classification and Prediction. Classification by Decision Tree Introduction: what is decision tree? Algorithm for Decision Tree Induction, Attribute Selection Measure, Extracting Classification Rules from Trees, Approaches to Determine the Final Tree Size, Enhancements to basic decision tree induction. Association rule mining : Basics, Mining single-dimensional Boolean association rules from transactional databases, Mining multilevel association rules from transactional databases Mining multidimensional association rules from transactional databases and data warehouse	9
V	Cluster analysis Cluster Analysis: Introduction, applications of clustering, examples of clustering, requirements of clustering in data mining, A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods – Density: Based Methods – Grid: Based Methods – Model: Based Clustering Methods – Clustering, Outlier Analysis.	9
Total		45

Text Book/s:
1. Data Mining – Concepts and Techniques - Jiawei Han & Micheline Kamber, Morgan Kaufmann Publishers, Elsevier,2nd Edition, 2006.
2. Introduction to Data Mining – Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson education.
Reference Book/s:
1. Data Mining Techniques – Arun K Pujari,2nd edition, Universities Press.
2. Data Warehousing in the Real World – Sam Aanhory & Dennis Murray Pearson Edn Asia.
3. Insight into Data Mining,K.P.Soman,S.Diwakar,V.Ajay,PHI,2008.
4. Data Warehousing Fundamentals – Paulraj Ponnaiah Wiley student Edition.
5. Data Mining & Warehousing by Sunita Tiwari & Neha Choudhary Dhanpat Rai & Company.

Course Code: **7BEIT04**

Title of the Course: **Wireless communication**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Digital Modulation Techniques: Binary Phase-Shift Keying (BPSK), Differential Phase-Shift Keying, Quadrature Phase-Shift Keying (QPSK), Quadrature Amplitude Shift Keying (QASK), Binary Frequency-Shift Keying (BFSK), Similarity of BPSK and BFSK, M-ary FSK, Minimum Shift Keying (MSK).	9
II	Probability, random variables & stochastic processes, review of probability theory, random variables, probability density & distribution function, random processes, periodic processes stationary, auto correlation cross correlation applications to signal analysis	9
III	TDMA, FDMA, SDMA AND CDMA, Spread Spectrum, Direct sequence and frequency hopping, Slow and fast frequency hopping, Comparison of multiple access techniques	9
IV	GSM Architecture, Frequency Management & Channel Assignment. Hand Off & Dropped Calls. Frequency management, fixed channel assignment, non-fixed channel assignment, traffic & channel assignment. Why hand off, types of handoff and their characteristics, dropped call rates & their evaluation. Forward link and reverse link. CDMA system.	9
V	Information Theory and Coding: Discrete messages, The concept of amount of information, Entropy, Information rate, Shannon's theorem, Coding: Parity check bit coding for error detection, Coding for error detection and error correction, Block codes (coding and decoding), Convolution codes (coding and decoding),Comparison of error rates in coded and uncoded transmission, Hamming weight and Hamming Distance	9
Total		45

Text Book/s:
1. Mobile communication Engg- Lee W.C.Y
2. Wireless Communication, principles & practice-T.S.Rappaport
3. Digital Communication – Chitode, Tech Max Publication.

Reference Book/s:
1. Mobile communication‖, Pearson Education- Schiller.
2. Mobile & Wireless Communication by Vipul Dixit, Dhanpat Rai & Company.

Course Code: 7BEIT05

Title of the Course: CE I: Advance Computing Techniques

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	System models for Advanced Computing, clusters of cooperative computing, Software systems for advanced computing, services oriented software, Basics of parallel computing, cloud computing, grid computing, mobile computing, pervasive computing, Quantum computing. Advancement in system development using these computing techniques.	9
II	Cloud computing, SAAS, PAAS, IAAS, Administering & Monitoring cloud services, Deploy application over cloud. Virtualization Technology: Virtual machine technology, virtualization applications in enterprises, Pitfalls of virtualization Multitenant software: Multi-entity support, Multi-schema approach, Multitenance using cloud data stores, Data in the cloud, cloud security fundamentals.	9
III	Introduction to grid computing, Grid Architecture and Service modeling, Grid resource management, Grid Application trends. Grid Portals-First-Generation Grid Portals-Second-Generation Grid Portals. Grid monitoring architecture. Grid Scheduling with QoS. Basics of quantum computing, Benefits of grid computing.	9
IV	Mobile computing devices characteristics, architecture ,Adaptation – Data dissemination and management. Heterogeneity, Interoperability, Context awareness – Language localization issues – User interface design issues – Difference between UI design for mobile devices and conventional systems – Mobile agents – Security issues, Mobile device technology overview – Windows CE ,Symbian, J2ME, Pocket PC , BREW	9
V	Pervasive computing infrastructure-applications- Device Technology - Hardware, Human-machine Interfaces, Biometrics, and Operating systems– Device Connectivity – Protocols, Security, and Device Management- Pervasive Web Application architecture-Access from PCs and PDAs - Access via WAP	9
Total		45

Text Book/s:

1. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wile, 2011.
2. J. Joseph & C. Fellenstein: Grid Computing, Pearson Education.
3. J. Burkhardt etaval : Pervasive Computing, Pearson Education.
4. Stojmenovic and Cacute, ―Handbook of Wireless Networks and Mobile Computing‖, Wiley, 2002, ISBN

Reference Book/s:

1. ―Fundamentals of Mobile and Pervasive Computing‖, ISBN: 0071412379, McGraw-Hill Professional, 2005.
2. A networking approach to Grid Computing, Minoli, Wiley.
3. Raj Kumar Buyya: High performance cluster computing, Person Education.
4. Cloud computing, John W. Ritting House and James F. Ramsome.

Course Code: 7BEIT05

Title of the Course: CE I: Information Retrieval System

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses. Information Retrieval System Capabilities: Search, Browse, Miscellaneous	9
II	Cataloging and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction. Data Structures: Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure.	9
III	Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages	9
IV	Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters.	9
V	User Search Techniques: Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, Weighted searches of Boolean systems, Searching the Internet and hypertext. Information Visualization: Introduction, Cognition and perception, Information visualization technologies.	9
Total		45

Text Book/s:

1. Kowalski, Gerald, Mark T Maybury: Information Retrieval Systems: Theory and Implementation, Kluwer Academic Press, 1997.
2. Information Storage & Retrieval By Robert Korfhage – John Wiley & Sons.

Reference Book/s:

1. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.
2. Modern Information Retrieval By Yates Pearson Education.

Course Code: **7BEIT05**

Title of the Course: **CE I: Embedded Systems**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	Introduction to Embedded Systems, Review of Microprocessors and Micro-controllers, CISC and RISC Processor architecture. Components of Embedded System & its Classification, Characteristic of embedded system. Challenges in Embedded System design	9
II	Memory mapped I/Os, ARM and THUMB instruction set, ARM Programmer's model, addressing modes,Instruction set in detail and programming, data processing instructions, datransfer instructions, control flow instructions, simple assembly language program.	9
III	Overview of 8051 microcontroller , architecture, basic assembly language programming concept, program counter, data types , flag bits PSW register, register banks, stack instruction sets addresiing modes, arithmetic and logical instructions, programming of 8051, timers & conter programming.	9
IV	8051 Programming concepts using, C/C++/Java, Assembly language V/s High Level Language and its suitability for applications development, C program elements – Micros and functions, data types, data structure, modifiers, statements, loops and pointers, queues and stacks, List & Order List and their use in the implementation of Embedded System Software. Process of Converting assembly language program and C language program to ROM image. Difference between Compliers & Cross Compliers. Embedded System testing. Simulation and debugging tools – simulators,	9
V	I/O interfacing and Communication Buses, Serial Data Communication using USB/CAN/RS-232C and Comparison. I/O devices, ADC/ADC, Optical Devices such as LED / LCD Display devices, Opto- Isolator, Relay & Stepper motor, Timers/Counters. Parallel v/s serial communication. Parallel ports their uses in device interfacing.	9
Total		45

Text Book/s:
1. Rajkamal, ―Embedded System Architecture Programming Design‖ Tata Graw Hill Publication Second
   Edition, 2008.
2. Dr. K.V.K.K Prasad, ―Embedded / real time system: Concepts, Design, & Programming – Black Book‖
   Dreamtech Press Publication.
3. Andrew N. Sloss, Domic Symes, Chris Wright, ― ARM System Developer's Guide – Designing and Optimizing Software‖, Elsevier Publication, 2004.

Reference Book/s:
1. Rajkamal, ―Embedded System Architecture Programming Design‖
2. Tata Graw Hill Publication first Edition.
3. Dr. K. V. K.K. Prasad, Gupta Dass, Verma ―Programming for Embedded system‖ Wiley Dreamtech India Pvt. Ltd.
4. Can Specification Version 2.0 Protocol Standard.
5. USB Specification Version 2.0 Protocol Standard.

Course Code: **7BEIT05**

Title of the Course: **CE I: Software Testing**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	Principles of Testing Software development life cycle model: Phases of software project assurance and quality control Life cycle models Principles of Testing Software development life cycle model: Phases of software project	9
II	White Box Testing (WBT) and Black Box Testing: Static testing, Structural testing, Challenges in WBT. Black box testing: Black box testing process. Integration Testing: Definition, As a type of testing: Top-down integration, Bottom-up integration, Bidirectional integration, System integration, Choosing integration method, As a phase of testing, Scenario testing: System scenarios, Use case scenarios, Defect bash.	9
III	System and Acceptance Testing, Functional Vs non Functional, Functional system testing, Non-functional system testing, Acceptance testing.	9
IV	Performance testing, Regression testing, Internationalization testing, Adhoc testing. Factors governing performance of testing, Methodology, tools and process for performance testing. Regression Testing: Introduction, Types of Regression testing, Regression testing process. Adhoc testing: Introduction, Buddy testing, Pair testing, exploratory testing, Iterative testing, Agile and Extreme testing, XP work flow, Defect seeding.	9
V	Testing Object Oriented Software: Introduction, Comparison of object oriented and procedural software, System testing example, Unit testing of classes, Tools for testing object oriented software, Testing web applications.	9
Total		45

Text Books
1. Srinivasan Desikan, Gopalaswamy Ramesh, *"Software Testing: Principles and Practices"*, Pearson publication, 2nd Edition, 2006.
Reference Books:
1. Loise Tamres, *"Introducing Software Testing"*, Pearson publication, 2002.
2. Boris Beizer, *"Software Testing Techniques"*, Dreamtech press, 2nd Edition, 2014

Course Code: **7BEIT06**
Title of the Course: **Computer Networks**

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	2	2	2	25	25	50

Practical based on above mentioned Syllabus.

Course Code: **7BEIT07**
Title of the Course: **Wireless Communication**

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	2	2	2	25	25	50

Practical based on above mentioned Syllabus.

Course Code: **7BEIT08**
Title of the Course: **Project Phase I**

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	2	2	4	25	25	50

Project based on above mentioned Syllabus/recent technologies.

BACHELOR OF ENGINEERING (FOUR YEARS DEGREE COURSE IN FACULTY OF SCIENCE & TECHNOLOGY)
TEACHING AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

VIII - SEMESTER B.E.(INFORMATION TECHNOLOGY)

Course Code	Course Title	Teaching Scheme Hours per week L	T	P	No. of Credits	Examination Scheme Theory Duration of Paper (Hrs.)	Max. Marks ESE	Max. Marks Sessional MSE	IE	Total	Min. Passing Marks	Practical Max. Marks TW	Max. Marks POE	Total	Min. Passing Marks
8BEIT01	Compiler Design	3	1	0	3	3	80	10	10	100	40	-	-	-	-
8BEIT02	Soft Computing Techniques	3	1	0	3	3	80	10	10	100	40	-	-	-	-
8BEIT03	TCP/IP	3	1	0	3	3	80	10	10	100	40	-	-	-	-
8BEIT04	Core Elective-II 1) Optimization Techniques 2) Natural Language Processing 3) Web Data Management 4) Information Security System	3	1	0	4	3	80	10	10	100	40	-	-	-	-
8BEIT05	Open Electives-I 1.Cyber Laws and Ethics 2. Fundamentals of Management for Engineers 3. Entrepreneurship	3	1	0	2	3	80	10	10	100	40	-	-	-	-
8BEIT06	Compiler Design	0	0	2	2	-	-	-	-	-	-	25	25	50	25
8BEIT07	Soft Computing Techniques	0	0	2	2	-	-	-	-	-	-	25	25	50	25
8BEIT08	Project Phase -II	0	0	2	6	-	-	-	-	-	-	75	75	150	25
		15	5	06	25	-				500				250	

Course Code: 8BEIT01
Title of the Course: Compiler Design

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Introduction to Compilor: Compilers and Translators, why to write compiler, The structure compiler, phases of compiler, Bookkeeping, Error detection and handling, compiler construction tools, Interpreter and the related issues, Cross compiler, Incremental compiler, Boot strapping, Lexical Analyzer(LEX), LEX specification details	9
II	Syntax Analysis Introduction: Role of parsers & issues of separating lexical & syntax analysis, parsing technique: Top down parser, Problem with Top down parsing, Backtracking, Predictive parser: Recursive descent, LL(1) parser ,Bottom up parsing, LR parse (SLR, CLR & LALR etc), Implementation of LR parser. Automatic constructions of parser (YACC), YACC specification file details.	9
III	Intermediate code Generation: Syntax-directed translation schemes: Intermediate code, postfix notation, parse tree and syntax tree, Three address codes, quadruples, triples, translation of assignment statements, Boolean expression, Array references in arithmetic expression, procedure calls, Declaration, case statement	9
IV	Symbol Tables: Contents, Data structure for symbol tables, representing scope information. Error detection and recovery: Error handling: Lexical-phase, Syntactic phase and semantic phase Code Generation Introduction: Issues in code generation, Target machine, Run-time storage management, Basic blocks and flow graphs, Next-use information, A simple code generator, Register allocation and assignment, The dag representation of basic blocks, Peephole optimization, Generating code from dags	9
V	Code Optimization: Introduction, Principle sources Of Optimization, optimization of basic blocks, Loop in flow graphs, Introduction to global data flow analysis, Iterative solution of data-flow equations, code improving transformation.	9
Total		45

Text Book/s:
1. Aho, A. V., R. Sethi and J. D. Ulman, Compiler principle, techniques and tools-, Addison wesley.
2. Aho&Ullman ,Principles of compiler Design.

Reference Book/s: 1. Lex and Yece-O'relly.
1. Dhamdhere.Compiler Construction , McMillan India
2. Compiler Design , A. A. Puntambekar 4. Muchnlk -Advanced compiler design & Implementation

| Course Code: | 8BEIT02 |
| Title of the Course: | Soft Computing Techniques |

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	INTRODUCTION TO SOFT COMPUTING: Evolution of Computing – Soft Computing Constituents – From Conventional AI to Computational Intelligence – Machine Learning Basics	9
II	GENETIC ALGORITHMS: Introduction, Building block hypothesis, working principle, Basic operators and Terminologies like individual, gene, encoding, fitness function and reproduction, Genetic modelling: Significance of Genetic operators, Inheritance operator, cross over, inversion & deletion, mutation operator, Bitwise operator, GA optimization problems, JSPP (Job Shop Scheduling Problem), TSP (Travelling Salesman Problem),Differences & similarities between GA & other traditional methods, Applications of GA.	9
III	NEURAL NETWORKS: Machine Learning using Neural Network, Adaptive Networks – Feed Forward Networks – Supervised Learning Neural Networks – Radial Basis Function Networks – Reinforcement Learning – Unsupervised Learning Neural Networks – Adaptive Resonance Architectures – Advances in Neural Networks.	9
IV	FUZZY LOGIC: Fuzzy Sets – Operations on Fuzzy Sets – Fuzzy Relations – Membership Functions – Fuzzy Rules and Fuzzy Reasoning – Fuzzy Inference Systems – Fuzzy Expert Systems – Fuzzy Decision Making	9
V	NEURO – FUZZY MODELING: Adaptive Neuro – Fuzzy Inference Systems – Coactive Neuro – Fuzzy Modeling – Classification and Regression Trees – Data Clustering Algorithms – Rule base Structure Identification – Neuro – Fuzzy Control – Case Studies.	9
Total		45

Text Book/s:
1. Jyh Shing Roger Jang, Chuen ,Tsai Sun, Eiji Mizutani, ―Neuro-Fuzzy and Soft Computing‖, Prentice – Hall of India, 2003
2. Kwang H.Lee, ―First course on Fuzzy Theory and Applications‖, Springer – Verlag Berlin Heidelberg,
3. George J. Klir and Bo Yuan, ―Fuzzy Sets and Fuzzy Logic – Theory and Applications‖, Prentice Hall,.
4. James A. Freeman and David M. Skapura, ―Neural Networks Algorithms, Applications, and Programming Techniques‖, Pearson Edn., 2003.
5. David E. Goldberg, ―Genetic Algorithms in Search, Optimization and Machine Learning‖, Addison Wesley, 2007.

Reference Book/s:
1. Mitsuo Gen and Runwei Cheng,‖Genetic Algorithms and Engineering Optimization‖, Wiley Publishers 2000.
2. Mitchell Melanie, ―An Introduction to Genetic Algorithm‖, Prentice Hall, 1998.
3. S.N.Sivanandam, S.N.Deepa, ―Introduction to Genetic Algorithms‖, Springer, 2007.
4. A.E. Eiben and J.E. Smith ―Introduction to Evolutionary Computing‖ Springer, 2003

Course Code: 8BEIT03

Title of the Course: TCP/IP

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	INTRODUCTION AND ADDRESSES Introduction, The TCP/IP Architecture, protocol & layering, The Internet Protocol: IP Packet, IP Addressing, Subnet Addressing, IP Routing, Classless Inter-Domain Routing (CIDR), Address Resolution(ARP), Reverse Address Resolution(RARP), Internet Message Control Protols(ICMP) Error and Control Messages, Dynamic Host Configuration Protocol (DHCP), BOOTP; Domain Name System(DNS), NAT	9
II	NETWORK LAYER PROTOCOLS: Router functionality, Dynamic versus Static routing, Routing tables, Unicast routing: Routing Information Protocol (RIP), Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Routing algorithms (link state, distance vector), Multicast Routing: Routing protocols (MOSPF, DVMRP, CBT, and PIM), MBONE, IGMP, End-to-end datagram delivery, and Flow control	9
III	TRANSPORT LAYER PROTOCOLS & NEXT GENERATION IP: Transmission Control Protocol (TCP): TCP Reliable Stream Service, TCP Operation, TCP Protocol, User Datagram Protocol (UDP), Stream Control Transmission Protocol (SCTP), IPv6, ICMPv6, Transitioning from IPv4 to IPv6.	9
IV	APPLICATION LAYER PROTOCOLS: Client-Server Interaction: The Client-Server Paradigm, The Socket Interface. Naming With The Domain Name System, Electronic Mail Representation And Transfer, File Transfer And Remote File Access, World Wide Web Pages And Browsing,	9
V	MULTIMEDIA INFORMATION & NETWORKING: Introduction to Digital Audio, Audio compression, Streaming Audio, Internet Radio, Voice over IP, Introduction to video, Video compression, Video on demand The Real time transport Protocol: RTP Scenarios and terminology, RTP Packet format, RTP Control Protocol(RTCP) Session control Protocols: Session initiation Protocol, H.323 Multimedia communication systems, Media Gateway Control Protocols	9
Total		45

Text Book/s:
1. TCP/IP Protocol Suite, 4th Edition, by Behrouz A Forouzan (Tata Mcgraw Hill 2010)

Reference Book/s:
1. Internetworking with TCP/IP, Volume 1: Principles, Protocols, and Architecture, by Douglas Comer, 5th edition, Prentice Hall.
2. Computer Networking with Internet Protocols and Technology, 1/e -- © 2003 William Stallings
3. Communication networks, Leon-Gracia & Widjaja,2001, TMH
4. TCP/IP Illustrated, Volume 1 : The Protocols, 1/e -- © 2000, W. Richard Stevens, Person education
5. TCP/IP Illustrated, Volume 2 : The Implementation, 1/e -- © 1996, Gary R. Wright
6. An Engineering approach to computer networking, S. Keshav, Addison Wesley, 2001

Course Code: **8BEIT04**

Title of the Course: **CE II: Optimization Techniques**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	UNIT – I Introduction and Classical Optimization Techniques: Statement of an Optimization problem – design vector – design constraints – constraint surface – objective function – objective function surfaces – classification of Optimization problems. Classical Optimization Techniques: Single variable Optimization – multi variable Optimization without constraints – necessary and sufficient conditions for minimum/maximum – multivariable Optimization with equality constraints. Solution by method of Lagrange multipliers – Multivariable Optimization with inequality constraints – Kuhn – Tucker conditions.	9
II	UNIT – II Linear Programming: Standard form of a linear programming problem – geometry of linear programming problems – definitions and theorems – solution of a system of linear simultaneous equations – pivotal reduction of a general system of equations – motivation to the simplex method – simplex algorithm. Transportation Problem: Finding initial basic feasible solution by north – west corner rule, least cost method and Vogel's approximation method – testing for optimality of balanced transportation problems.	9
III	UNIT – III Unconstrained Nonlinear Programming: One dimensional minimization methods, Classification, Fibonacci method and Quadratic interpolation method Unconstrained Optimization Techniques: Univariant method, Powell's method and steepest descent method.	9
IV	Module 4 Dynamic Programming Dynamic programming multistage decision processes – types – concept of sub optimization and the principle of optimality – computational procedure in dynamic programming – examples illustrating the calculus method of solution – examples illustrating the tabular method of solution. Integer Programming Pure and mixed integer programming problems, Solution of Integer programming problems – Gomory's all integer cutting plane method and mixed integer method, branch and bound method, Zero-one programming.	9
V	Queuing Models : Essential features of queuing systems, operating characteristics of queuing system, probability distribution in queuing systems, classification of queuing models, solution of queuing M/M/1 : /FCFS,M/M/1 : N/FCFS, M/M/C : /FCFS, M/M/C : N/FCFS.	9
Total		45

TEXT BOOKS:
- Singiresu S. Rao, Engineering Optimization: Theory and Practice by John Wiley and Sons, 4th edition, 2009.
- H. S. Kasene & K. D. Kumar, Introductory Operations Research, Springer (India), Pvt. Ltd., 2004
  REFERENCE BOOKS:
- George Bernard Dantzig, Mukund Narain Thapa, "Linear programming", Springer series in operations research 3rd edition, 2003.
- H.A. Taha, "Operations Research: An Introduction", 8th Edition, Pearson/Prentice Hall, 2007.
- Kalyanmoy Deb, "Optimization for Engineering Design – Algorithms and Examples", PHI Learning Pvt. Ltd, New Delhi, 2005.

Course Code: **8BEIT04**

Title of the Course: **CE II: Natural Language Processing**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	**UNIT I INTRODUCTION** Origins and challenges of NLP – Language Modeling: Grammar-based LM, Statistical LM – Regular Expressions, Finite-State Automata – English Morphology, Transducers for lexicon and rules, Tokenization, Detecting and Correcting Spelling Errors, Minimum Edit Distance	9
II	**UNIT II WORD LEVEL ANALYSIS** Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff – Word Classes, Part-of-Speech Tagging, Rule-based, Stochastic and Transformation-based tagging, Issues in PoS tagging – Hidden Markov and Maximum Entropy models.	9
III	**UNIT III SYNTACTIC ANALYSIS** Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar – Dependency Grammar – Syntactic Parsing, Ambiguity, Dynamic Programming parsing – Shallow parsing – Probabilistic CFG, Probabilistic CYK, Probabilistic Lexicalized CFGs – Feature structures, Unification of feature structures.	9
IV	**UNIT IV SEMANTICS AND PRAGMATICS** Requirements for representation, First-Order Logic, Description Logics – Syntax-Driven Semantic analysis, Semantic attachments – Word Senses, Relations between Senses, Thematic Roles, selectional restrictions – Word Sense Disambiguation, WSD using Supervised, Dictionary & Thesaurus, Bootstrapping methods – Word Similarity using Thesaurus and Distributional methods.	9
V	**UNIT V DISCOURSE ANALYSIS AND LEXICAL RESOURCES** Discourse segmentation, Coherence – Reference Phenomena, Anaphora Resolution using Hobbs and Centering Algorithm – Coreference Resolution – Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet, Brown Corpus, British National Corpus (BNC).	9
Total		45

TEXT BOOKS:
1. Daniel Jurafsky, James H. Martin―Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech, Pearson Publication, 2014.
2. Steven Bird, Ewan Klein and Edward Loper, ―Natural Language Processing with Python, First Edition, OReilly Media, 2009.

REFERENCES:
1. 1. Breck Baldwin, ―Language Processing with Java and LingPipe Cookbook, Atlantic Publisher, 2015.
2. Richard M Reese, ―Natural Language Processing with Java, OReilly Media, 2015.
3. Nitin Indurkhya and Fred J. Damerau, ―Handbook of Natural Language Processing, Second Edition, Chapman and Hall/CRC Press, 2010.
4. Tanveer Siddiqui, U.S. Tiwary, ―Natural Language Processing and Information Retrieval, Oxford University Press, 2008.

Course Code: **8BEIT04**

Title of the Course: **CE II: Web Data Management**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	**Data Model** Introduction to Modeling Web Data, Semistructured data, XML, Web Data Management with XML, XML Standards, XML and syntax, XML Data Model, XLink, and XPointer. **Typing** Motivating Typing**,** Automata, Schema Languages for XML, Typing Graph Data: Graph Semistructured Data, Graph Bisimulation, Data guides.	9
II	**XPath and XQuery** Introduction, Basics of XPath and XQuery, XPath: Steps and path expressions, Evaluation of path expressions, Generalities on axes and node tests, Axes, Node tests and abbreviations, Predicates, XPath 2.0; FLWOR expressions in XQuery: Defining variables - the for and let clauses, Filtering - the where clause, The return clause, Advanced features of XQuery; XPath foundations.	9
III	**XML Query Evaluation** XML fragmentation, XML identifiers: Region-based identifiers, Dewey-based identifiers, Structural identifiers and updates; XML evaluation techniques: Structural join, Optimizing structural join queries, Holistic twig joins	9
IV	**Ontologies, RDF, and OWL** Introduction, Ontologies by example, Web resources, URI, namespaces, RDF, RDFS: RDF Schema, OWL, Ontologies and (Description) Logics. **Querying Data through Ontologies** Introduction, Querying RDF data: notation and semantics, Querying through RDFS ontologies, Answering queries through DL-LITE ontologies.	9
V	**Building Web scale applications** Web search, web crawlers, web information retrieval, Web graph mining and hot topics in web search, Distributed systems, failure management, Required properties of a distributed system, P2P networks, Hash-based structures, distributed indexing, Distributed computing with MapReduce.	9
Total		45

Reference Books:

1. Serge Abiteboul, Ioana Manolescu, Philippe Rigaux, Marie-Christine Rousset and Pierre Senellart, "Web Data Management", Cambridge University Press, 2011
2. Bhavani Thuraisingham, "Web Data Management and Electronic Commerce", CRC Press, 2000
3. Bhavani Thuraisingham, "XML Databases and the Semantic Web", CRC Press, 2002
4. Athena Vakali and George Pallis, "Web Data Management Practices: Emerging Techniques and Technologies", IGI Publishing, 2007, ISBN-10: 1599042282; ISBN-13: 978-1599042282

Course Code: **8BEIT04**

Title of the Course: **CE II: Information Security System**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	4	3	10	10	80	100

Unit	Contents	Hours
I	Introduction to Security in Networks – Characteristics of Networks – Intrusion – Kinds of security breaches – Plan of attack - Points of vulnerability – Methods of defense – Control measures – Effectiveness of controls	9
II	Basic encryption and decryption – Encryption techniques – Characteristics of good encryption systems – Secret key cryptography – Data Encryption Standard – International Data Encryption Algorithm – Advanced Encryption Standard – Hash and MAC algorithms	9
III	Public Key encryptions – Introduction to number theory - RSA algorithm – Diffie-Hellman – Digital Signature standard – Elliptic Curve cryptography - Digital signatures and authentication – Trusted intermediaries – Security handshake pitfalls	9
IV	Secure sockets – IPsec overview – IP security architecture – IPsec-Internet Key Exchanging(IKE) – IKE phases – encoding – Internet security – Threats to privacy – Packet sniffing – Spoofing - Web security requirements – Real Time communication security – Security standards– Kerberos.X.509 AuthenticationService	9
V	Security protocols – Transport layer protocols – SSL – Electronic mail security – PEM and S/MIME security protocol – Pretty Good Privacy – Web Security - Firewalls design principles – Trusted systems – Electronic payment protocols. Intrusion detection – password management – Viruses and related Threats – Virus Counter measures, Virtual Private Networks.	9
Total		45

Text Book/s:
1. William Stallings, ―Cryptography and Network Security: Principles and Standards‖, Prentice Hall India, 3rd Edition, 2003.
2. Charlie Kaufman, Radia Perlman and Mike Speciner, ―Network Security: Private Communication in a public world‖, Prentice Hall India, 2nd Edition, 2002

Reference Book/s:
1. Charles P. Pleeger, ―Security in Computing‖, Pearson Education Asia, 5th Edition, 2001.
2. William Stallings, ―Network Security Essentials: Applications and standards‖, Person Education Asia, 2000.

Course Code: **8BECS04**
Title of the Course: **OE-I : Cyber Laws and Ethics**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
02	00	--	02	02	03	10	10	80	100

Unit	Contents	Hours
I	Introduction to Computer Security: Definition, Threats to security, Government requirements, Information Protection and Access Controls, Computer security efforts, Standards, Computer Security mandates and legislation, Privacy considerations, International security activity.	09
II	Secure System Planning and administration, Introduction to the orange book, Security policy requirements, accountability, assurance and documentation requirements, Network Security, The Red book and Government network evaluations.	09
III	Information security policies and procedures: Corporate policies- Tier 1, Tier 2 and Tier3 policies - process management-planning and preparation-developing policies-asset classification policy developing standards.	09
IV	Information security: fundamentals-Employee responsibilities- information classification Information handling- Tools of information security- Information processing-secure program administration	09
V	Organizational and Human Security: Adoption of Information Security Management Standards, Human Factors in Security- Role of information security professionals.	09
	Total	45

Reference Books:
1. Debby Russell and Sr. G. T Gangemi, "Computer Security Basics (Paperback)", 2nd Edition, O' Reilly Media, 2006.
2. Thomas R. Peltier, "Information Security policies and procedures: A Practitioner's Reference", 2nd Edition Prentice Hall, 2004.
3. Kenneth J. Knapp, "Cyber Security and Global Information Assurance: Threat Analysis and Response Solutions", IGI Global, 2009.
4. Thomas R Peltier, Justin Peltier and John blackley," Information Security Fundamentals", 2nd Edition, Prentice Hall, 1996
5. Jonathan Rosenoer, "Cyber law: the Law of the Internet", Springer-verlag, 1997
6. James Graham, "Cyber Security Essentials" Averbach Publication T & F Group.

Course Code: 8BECS04
Title of the Course: OE-I : Fundamentals of Management for Engineers

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
02	00	--	02	02	03	10	10	80	100

Unit	Contents	Hours
I	**Introduction to Management:** Evolution of Management, Nature & Scope-Functions of Management Role of Manager-levels of Management-Managerial Skills - Challenges-Planning-Planning Process Types of Plans-MBO	09
II	**Organization Structure & HRM:** Organization Design-Organizational Structure-Departmentation– Delegation-Centralization - Decentralization-Recentralization-Organizational Culture- Organizational climate- Organizational change Human Resource Management-HR Planning - Recruitment & Selection - Training & Development Performance appraisal - Job satisfaction-Stress Management Practices	09
III	**Operation Management:** Introduction to Operations Management-Principles and Types of Plant Layout-Methods of production (Job Batch and Mass production) - Method study and Work Measurement-Quality Management - TQM-Six sigma - Deming's Contribution to Quality - Inventory Management – EOQ - ABC Analysis - JIT System-Business Process Re-engineering (BPR)	09
IV	**Marketing Management:** Introduction to Marketing-Functions of Marketing-Marketing vs. Selling Marketing Mix - Marketing Strategies - Product Life Cycle - Market Segmentation - Types of Marketing - Direct Marketing-Network Marketing - Digital Marketing-Channels of Distribution - Supply Chain Management (SCM)	09
V	**Project Management:** Introduction to Project Management-steps in Project Management - Project Planning - Project Life Cycle-Network Analysis-Program Evaluation & Review Technique (PERT)- Critical Path Method (CPM) - Project Cost Analysis - Project Crashing - Project Information Systems	09
	Total	45

Text Book/s:
1. Management Essentials, Andrew DuBrin, 9e, Cengage Learning, 2012.
2. Fundamentals of Management, Stephen P.Robbins, Pearson Education, 2009.
3. Essentials of Management, Koontz Kleihrich, Tata Mc - Graw Hill.
4. Management Fundamentals, Robert N Lussier, 5e, Cengage Learning, 2013.
5. Industrial Engineering and Management: Including Production Management, T.R.Banga, S.C Sharma, Khanna Publishers.

Course Code: **8BECS04**
Title of the Course: **OE-I : Entrepreneurship**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
02	00	--	02	02	03	10	10	80	100

Unit	Contents	Hours
I	**Entrepreneurial Perspectives** Introduction to Entrepreneurship – Evolution - Concept of Entrepreneurship - Types of Entrepreneurs - Entrepreneurial Competencies, Capacity Building for Entrepreneurs. Entrepreneurial Training Methods - Entrepreneurial Motivations - Models for Entrepreneurial Development - The process of Entrepreneurial Development.	09
II	**New Venture Creation** Introduction, Mobility of Entrepreneurs, Models for Opportunity Evaluation; Business plans – Purpose, Contents, Presenting Business Plan, Procedure for setting up Enterprises, Central level - Startup and State level - T Hub, Other Institutions initiatives.	09
III	**Management of MSMEs and Sick Enterprises** Challenges of MSMEs, Preventing Sickness in Enterprises – Specific Management Problems; Industrial Sickness; Industrial Sickness in India – Symptoms, process and Rehabilitation of Sick Units.	09
IV	**Managing Marketing and Growth of Enterprises** Essential Marketing Mix of Services, Key Success Factors in Service Marketing, Cost and Pricing, Branding, New Techniques in Marketing, International Trade.	09
V	**Strategic perspectives in Entrepreneurship** Strategic Growth in Entrepreneurship, The Valuation Challenge in Entrepreneurship, The Final Harvest of New Ventures, Technology, Business Incubation, India way – Entrepreneurship; Women Entrepreneurs – Strategies to develop Women Entrepreneurs, Institutions supporting Women Entrepreneurship in India.	09
	Total	45

Text Book/s:
1. Entrepreneurship Development and Small Business Enterprises, Poornima M. Charantimath, 2e, Pearson, 2014.
2. Entrepreneurship, a South – Asian Perspective, D.F. Kuratko and T. V. Rao, 3e, Cengage, 2012.
3. Entrepreneurship, Arya Kumar, 4 e, Pearson 2015.
4. The Dynamics of Entrepreneurial Development and Management, Vasant Desai, Himalaya Publishing House, 2015.

Course Code: **8BEIT06**
Title of the Course: **Compiler Design**

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	2	2	2	25	25	50

Practical based on above mentioned Syllabus.

Course Code: **8BEIT07**
Title of the Course: **Soft Computing Techniques**

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	2	2	2	25	25	50

Practical based on above mentioned Syllabus.

Course Code: **8BEIT08**

Title of the Course: **Project Phase II**

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	6	6	6	75	75	150

	Project Phase II: Work
	As the Project Phase I topic has already been chosen and Literature Review of Project has also been completed in Seventh Semester under Major Project Literature Review and Presentation, The Student is expected to carry out the following- 1. Formulation of Scope & Methodology for the proposed study. 2. Implementation of project work 3. Carry out necessary experimentation for analysis and testing of the project work On completion of above mentioned activities of project work, the student has to prepare a project report in the specified format and deliver a seminar on project work before final submission. Evaluation of project work will be on the basis of quality of work carried out, submitted Report, Seminar & Viva-Voce.