

B.Tech(Civil Engineering) Detail Syllabus For Admission Batch 2015-16, *8th Semester*

Eighth Semester								
Theory								
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks	
1	PE	PCI8J001/ PCI8J002/	Environmental Geotechnique/ Theory Of Elasticity And Plasticity	3-0-0	3	100	50	
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50	
Total Credit (Theory)					6			
Total						200	100	
1	PSI	PCI8N201	Seminar	0-0-3	2	100		
2	PSI	PCI8N202	Major Project	0-0-6	7	400		
Total Credit (Practical)					9			
Total						500		
Total Marks = 800								
Total Semester Credit					15			

PCI8J001

ENVIRONMENTAL GEOTECHNIQUE

Module- I

Introduction: Scope, importance, waste generation, subsurface contamination, Geosynthetics: Types, manufacturing functions, applications and economics.

Module- II

Forms of waste and their properties: Municipal waste, mineral waste, industrial waste, hazardous waste, index properties, strength, compressibility and permeability of municipal and mineral waste.

Module- III

Selection of waste disposal sites, factors affecting site selection, siting criteria and siting rating method, Landfills for municipal and hazardous waste: components of land fills, layouts, daily cells, base lining systems, stability of slopes, constructing aspects.

Module- IV

Ash ponds and mine tailing impoundments: slurry deposition of mine tailing and coal ash in impoundments, layouts, components, design of tailing dam/ash dykes, slope stability. Remediation: Principle of remediation: Planning, source control, soil gas extraction, soil washing, and bioremediation.

Reference books:

1. Geotechnology of waste management, I. S. Oweis and R. P. Khera, Butterwarths, London.
2. Engineering with geosynthetics, Ed. G. V. Rao and G.V.S.S. Raju, Tata McGraw Hill
3. Geotechnical practice for waste disposal, D. E. Daniel, Chapman and Hall, London.

PCI8J002

THEORY OF ELASTICITY AND PLASTICITY

Module- I

Plane stress and plane strain problems. General stress and strain equations (Equilibrium and compatibility equations). Two dimensional problems in rectangular coordinates.

Module- II

Stress and strain components, differential equation, equilibrium equations and compatibility equations in polar coordinate. Stress distribution for axisymmetric problems. Pure bending of curved bars, thick walled cylinder. Concentrated force at a point of straight boundary. Force acting on the end of a wedge. Concentrated force acting on a beam. Effect of circular holes on stress distributions in plates.

Module- III

Stress and strain in three dimensions: Principles stresses, maximum shearing stress, principal axes of strain. Stretching of prismatical bar by its own axis. Elementary problems of elasticity in three dimension.

Module- IV

Torsion of non-circular prismatic bars. Saint Venant's theory. Various analogies. Torsion of hollow and thin section. Application of energy methods.

Module- V

Introduction to the theory of plasticity., the yield criteria of metals, stress space representation of yield criteria. stress-strain relations plastic potential, flow rules and maximum work hypothesis. Two dimensional plastic flow problems. Incompressible two dimensional flow, stresses in plastic materials in condition of plane strain, equation of equilibrium the simplest slip-line fields.

Essential Reading

1. S P Timoshenko and J N Goodier, Theory of Elasticity, Mc Graw Hill
2. Hoffman and Sachs, Theory of plasticity

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, Building Own Web Site, Internet Security

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic Payment Systems, E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

Eighth Semester								
Theory								
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks	
1	PE	PCS8J001/ PCS8J002	Algorithm for Bioinformatics/ Expert Systems	3-0-0	3	100	50	
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50	
Total Credit (Theory)					6			
Total						200	100	
1	PSI	PCS8N201	Seminar	0-0-3	2	100		
2	PSI	PCS8N202	Major Project	0-0-6	7	400		
Total Credit (Practical)					9			
Total						500		
Total Marks = 800								
Total Semester Credit					15			

PCS8J001

ALGORITHMS FOR BIOINFORMATICS

UNIT I –

[10 HOURS]

DYNAMIC PROGRAMMING ALGORITHMS (9 hours) Introduction to Algorithms, Dynamic Programming, Sequence Alignment: Edit distance, LCS. PAM and BLOSUM Scoring Matrices. Global alignments: Needleman Wunsch Algorithm, Local Alignments: Smith Waterman Algorithm, Gap Penalties.

UNIT II-

[8 HOURS]

GRAPH ALGORITHMS (9 hours) Graph Algorithms, SBH and Eulerian Paths, De-novo Peptide Sequencing: Longest Paths and Space Efficient Alignment Algorithms. Fast LCS using Table Lookup.

UNIT III-

[10 HOURS]

PATTERN MATCHING AND CLUSTERING (9 hours) Exact Pattern Matching: KMP Algorithm, Keyword Trees, Aho-Corasick Algorithm. Clustering Basics: Hierarchical Clustering, Multiple Sequence Alignment: CLUSTAL, Center-based Clustering, Clustering via Cliques.

UNIT IV-

[12 HOURS]

EVOLUTIONARY TREES AND PHYLOGENY (9 hours) Evolutionary Trees and Ultrametrics, Additive distance trees, Perfect Phylogeny Problem, Small Parsimony Problem, Nearest Neighbor Interchange. HIDDEN MARKOV MODELS, RANDOMIZED ALGORITHMS (9 hours) Hidden Markov Models: Basics, Forward and Backward (Viterbi) Algorithms, Randomized algorithms and their applications.

REFERENCES

1. Neil C. Jones and Pavel A. Pevzner, "An Introduction to Bioinformatics Algorithms", MIT Press, 2005.
2. Gusfields D, "Algorithms on strings, trees and sequences: Computer Science and Computational Biology", Cambridge University Press, 1997.
3. Steffen Schulze-Kremer, "Molecular Bioinformatics: Algorithms and Applications", Walter de Gruyter, 1996.
4. Gary Benson, Roderic Page (Eds.), "Algorithms in Bioinformatics", Springer International Edition, 2004.
5. Richard Durbin, Sean R. Eddy, Anders Krogh, Graeme Mitchison. "Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acid", Cambridge University Press, 1999.

PCS8J002

EXPERT SYSTEMS

UNIT I –

[10 HOURS]

The meaning of an expert system, problem domain and knowledge domain, the advantages of an expert system, general stages in the development of an expert system, general characteristics of an expert system, history and uses of expert systems today, rule-based expert systems, procedural and nonprocedural paradigms, characteristics of artificial neural systems. -The study of logic, difference between formal logic and informal logic, meaning of knowledge, how knowledge can be represented, semantic nets, how to translate semantic nets into PROLOG, limitations of semantic nets, schemas, frames and their limitations, how to use logic and set symbols to represent knowledge, the meaning of propositional and first order predicate logic, quantifiers, imitations of propositional and predicate logic.

UNIT II-

[10 HOURS]

Trees, lattices, and graphs, state and problem spaces, AND-OR trees and goals, methods of inference, rules of inference, limitations of propositional logic, logic systems, resolution rule of inference, resolution systems, and deduction, shallow and causal reasoning, applying resolution to first-order predicate logic, forward and backward chaining, additional methods of reference, Meta knowledge, the Markov decision process.

UNIT III-

[10 HOURS]

The meaning of uncertainty and theories devised to deal with it, types of errors attributed to uncertainty, errors associate, with induction, features of classical probability, experimental and subjective probabilities, compound and conditional probabilities, hypothetical reasoning and backward induction, temporal reasoning, Markov chains, odds of belief, sufficiency and necessity, role of uncertainty in inference chains, implications of combining evidence, role of inference nets in expert systems, how probabilities are propagated.

UNIT IV-

[10 HOURS]

Sources of uncertainty in rules, methods of dealing with uncertainty, Dempster-Shafer theory, theory of uncertainty based on fuzzylogic, commercial applications of fuzzy logic. How to select an appropriate problem, the stages in the development of an expert system, types of errors to expect in the development stages, the role of the knowledge engineer in the building of expert systems, the expected life cycle of an expert system, how to do a life cycle model.

Textbook:

1. J. Giarratano and G. Riley, "Expert Systems -- Principles and Programming". 4th Edition, PWS Publishing Company, 2004.
2. Durkin, J., Expert systems Design and Development, Macmillan, 1994 2. Elias M. Awad, Building Expert Systems, West Publishing Company 1996

B.Tech (Computer Science and Engineering) Syllabus for Admission Batch 2015-16 *8th Semester*

3. Peter Jackson, Introduction to Expert Systems, Addison Wesley Longman, 1999. ISBN 0-20187686-8.
4. Gonzalez and D. Dankel, "The Engineering of Knowledge-Based Systems", Prentice Hall, 1994.
5. Nikolopoulos, "Expert Systems", Marcel Dekker Inc. 1997. ISBN 0 8247 9927 5

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, Building Own Web Site, Internet Security

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic Payment Systems, E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech (AE & I) detail Syllabus for Admission Batch 2015-16 *8th Semester*

Eighth Semester								
Theory								
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks	
1	PE	PEI8J001/ PEI8J002	Digital Image Processing/ Embedded Systems	3-0-0	3	100	50	
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50	
Total Credit (Theory)					6			
Total						200	100	
1	PSI	PEI8N201	Seminar	0-0-3	2	100		
2	PSI	PEI8N202	Major Project	0-0-6	7	400		
Total Credit (Practical)					9			
Total						500		
Total Marks = 800								
Total Semester Credit					15			

PEI8J001 DIGITAL IMAGE PROCESSING

University level: 80%

Module: 1 (12 hours)

Introduction: Digital Image fundamentals: Image sensing and acquisition, Image sampling and quantization, relationship between pixels, Intensity transformations and spatial filtering, some basic intensity transformation functions, Histogram processing, spatial filters for smoothing and sharpening (Chapt: 2 & 3 of Text book 1)

Module: 2 (12 hours)

Filtering in the Frequency Domain: preliminary concepts, 2D DFT and its properties, basic filtering in the frequency domain, image smoothing and sharpening (Chapt: 4 of Text book 1)
Image Restoration and Reconstruction: Image restoration/degradation model, noise models, restoration in the presence of noise only, estimating the degradation function (Chapt: 5 of Text Book 1)

Module: 3 (12 hours)

Color Image Processing: color models, Color transformation (Chapt: 6 of Text book 1). Wavelets and Multi-resolution Processing: multiresolution expansions, wavelet transforms in one and two dimension (Chapt: 7 of Text book 1)

Module: 4 (12 hours)

Image Compression: Fundamentals, Error-free compression: variable length coding, LZW coding. Lossy compression: lossy predictive coding (Chapt: 8 of Text book 1)
Morphological Image Processing: Erosion and Dilation, opening and closing (Chapt: 9 of Text book 1)

Text Books:

1. R.C. Gonzalez, R.E. Woods, *Digital Image Processing*, 3rd Edition, Pearson Education
2. R C Gonzalez, Woods and Eddins, *Digital Image Processing using Matlab*, 2nd Edition, Tata McGraw Hill

Reference Books:

1. S.Sridhar, *Digital Image Processing*, Oxford University Press, 2011

PEI8J002 EMBEDDED SYSTEMS

University Level: 80%

MODULE – I 10 Hours

Embedded System: Understanding the Basic Concepts:

Introduction to Embedded System: Embedded Systems Vs General Computing Systems, History of Embedded Systems, Classification of Embedded Systems, Major Application Areas of Embedded Systems, Purpose of Embedded Systems, 'Smart' running shoes from Adidas – The Innovative bonding of Life Style with Embedded Technology.

The Typical Embedded System: Core of the Embedded System, Memory, Sensors and Actuators, Communication Interface, Embedded Firmware, Other System Components, PCB and Passive Components.

MODULE – II 12 Hours

Characteristics and Quality Attributes of Embedded System: Characteristics of Embedded System, Quality Attributes of Embedded System.

Embedded Systems – Application and Domain Specific: Washing Machine – Application Specific Embedded System, Automotive – Domain Specific Example for Embedded System.

Hardware Software Co-Design and Program Modeling: Fundamental Issues in Hardware Software Co-Design, Computational Models in Embedded Design, Introduction to Unified Modeling Language (UML), Hardware Software Trade-offs.

MODULE – III 12 Hours

Design and Development of Embedded Product:

Embedded Hardware Design and Development: Analog Electronic Components, Digital Electronic Components, VLSI and Integrated Circuit Design, Electronic Design Automation (EDA) Tools.

Embedded Firmware Design and Development: Embedded firmware Design Approaches, Embedded firmware Development Languages, Programming in Embedded 'C'.

Real Time Operating System (RTOS) based Embedded System Design: Operating System Basics, Types of Operating Systems, Tasks, Process and Threads, Multiprocessing and Multitasking, Task Scheduling, Threads, Processes and Scheduling: Putting them altogether, Task Communication, Task Synchronisation, Device Drivers, How to choose an RTOS.

MODULE – IV 14 Hours

Design and Development of Embedded Systems:

An Introduction to Embedded System Design with VxWorks and MicroC/OS-II (µCOS-II) RTOS:

B.Tech (AE & I) detail Syllabus for Admission Batch 2015-16 *8th Semester*

VxWorks, MicroC/OS-II (µCOS-II).

Integration and Testing of Embedded Hardware and Firmware: Integration of Hardware & Firmware, Board Power up.

The Embedded System Development Environment: Integrated Development Environment (IDE), Types of files generated on cross-compilation, Disassembler/Decompiler, Simulators, Emulators & Debugging, Target Hardware Debugging, Boundary Scan.

Product Enclosure Design & Development: Product Enclosure Design Tools, Product Enclosure Development Techniques

Text Book:

1. Shibu K.V., *Introduction to Embedded Systems*, Tata McGraw Hill Education Private Limited, New Delhi, 2009.

Reference Book:

2. J.K.Peckol, *Embedded Systems, A Contemporary Design Tool*, Wiley Student edition,
3. Peter Marwedel, *Embedded System Design*, Springer, 2006 <http://ls12-www.cs.uni-dortmund.de/~marwedel/kluwer-es-book/>
4. Wayne Wolf, *Computers as Components*, Morgan Kaufmann,
5. 2001 <http://www.ee.princeton.edu/~wolf/embedded-book>
6. Michael Barr, *Programming Embedded Systems in C and C++*, O'Reilly, 1999.
7. David E. Simon, *An Embedded Software Primer*, Addison Wesley, 1999.
8. Jack Ganssle, *The Art of Designing Embedded Systems*, Newnes, 2000.
9. K. Short, *Embedded Microprocessor System Design*, Prentice Hall, 1998.
10. C. Baron, J. Geffroy and G. Motet, *Embedded System Applications*, Kluwer, 1997.
11. Raj Kamal, *Embedded Systems – Architecture, Programming and Design*,
12. Tata McGraw Hill Publishing Company Limited, New Delhi

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, BuildingOwnWebSite,InternetSecurity

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic PaymentSystems,E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

Eighth Semester							
Theory							
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks
1	PE	PET8J001/ PET8J002/ PET8J003/ PET8J004	Mobile Computing/ Biomedical Signal Processing/ Electronic Design Automation/ Database Management System	3-0-0	3	100	50
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50
Total Credit (Theory)					6		
Total						200	100
1	PSI	PET8N201	Seminar	0-0-3	2	100	
2	PSI	PET8N202	Major Project	0-0-6	7	400	
Total Credit (Practical)					9		
Total						500	
Total Marks = 800							
Total Semester Credit					15		

PET8J001**MOBILE COMPUTING****MODULE – I****(10 Hours)**

Introduction to Personal Communications Services (PCS): PCS Architecture, mobility management, Networks signaling; Global System for Mobile Communication (GSM) System.

Overview: GSM Architecture, Mobility management, Network signaling; General Packet Radio Services (GPRS): GPRS Architecture, GPRS Network Nodes, Mobile Data Communication; WLANs (Wireless LANs) IEEE 802.11 standard.

MODULE–II**(14 Hours)**

Wireless Application Protocol (WAP): The Mobile Internet standard, WAP Gateway and Protocols, wireless mark up Languages (WML).

Wireless Local Loop (WLL): Introduction to WLL Architecture, wireless Local Loop Technologies. Third Generation (3G) Mobile Services: Introduction to International Mobile Telecommunications 2000 (IMT 2000) Vision.

MODULE–III**(4 Hours)**

Global Mobile Satellite Systems; case studies of the IRIDIUM, ICO and GLOBALSTAR systems.

MODULE-IV**(8 Hours)**

Wireless Enterprise Networks: Introduction to Virtual Networks, Blue tooth technology, Blue tooth Protocols; Server-side programming in Java, Pervasive web application architecture, Device independent example application.

ADDITIONAL MODULE (Terminal Examination-Internal) **(6 Hours)**

Wideband Code Division Multiple Access (W-CDMA) and CDMA 2000; Mobile IP.

Text Books

1. Mobile Communication, J. Schiller, Pearson Education, 2nd Edition, 2003
2. Mobile Computing, Raj Kamal, Oxford University Press
3. Pervasive Computing, Burkhardt, Pearson Education, 2002.
4. Mobile Computing, Talukder, TMH, 2nd Edition, 2010.

Reference Books

1. Wireless Communication & Networking, Garg, Elsevier, 1st Edition, 2007.
2. Mobile Computing, P.K. Patra, S.K. Dash, Scitech Publications, 2011
3. Principles of Mobile Computing, Hansmann, Merk, Springer, 2nd Edition, 2003.
4. Third Generation Mobile Telecommunication Systems, P. Stavronlakis, Springer, 1st Edition, 2001.
5. The Wireless Application Protocol, Sandeep Singhal, Pearson Education, 2000.

PET8J002**BIOMEDICAL SIGNAL PROCESSING****MODULE-I****(8 Hours)**

Introduction to Biomedical Signals:Tasks in Biomedical Signal Processing, Computer Aided Diagnosis, Examples of Biomedical signals: ECG, EEG, EMG etc., Review of linear systems, Fourier Transform and Time Frequency Analysis (Wavelet) of biomedical signals, Processing of Random & Stochastic signals, spectral estimation.

MODULE-II**(8 Hours)**

Cardio-logical Signal Processing:Pre-processing, QRS Detection Methods, Rhythm analysis, Arrhythmia Detection Algorithms, Automated ECG Analysis, ECG Pattern Recognition, Heart rate variability analysis.

MODULE-III**(8 Hours)**

Adaptive Noise Canceling:Principles of Adaptive Noise Canceling, Adaptive Noise Canceling with the LMS adaptation, Algorithm, Noise Canceling Method to Enhance ECG Monitoring, Fetal ECG Monitoring.

MODULE-IV**(8 Hours)**

Neurological Signal Processing:Modeling of EEG Signals, Detection of spikes and spindles, Detection of Alpha, Beta and Gamma Waves, Auto Regressive (A.R.) modeling of seizure EEG, Sleep Stage analysis, Inverse Filtering.

ADDITIONAL MODULE (Terminal Examination-Internal)**(6 Hours)**

Properties and effects of noise in biomedical instruments;Filtering in biomedical instruments; Least squares and polynomial modeling;

Reference Books

1. Biomedical Signal Processing: Principles and techniques, D.C.Reddy, Tata McGraw Hill, New Delhi, 2005.
2. Biomedical Signal Processing, Willis J Tompkins, Prentice Hall, 1993
3. Biomedical Signal Analysis, R. Rangayan, Wiley, 2002.
4. Biomedical Signal Processing & Signal Modeling, Eugene N. Bruce, Wiley, 2001.
5. Biomedical Signal and Image Processing, K. Najarian and R. Splinter, The CRC Press, Second Edition.

PET8J003

ELECTRONIC DESIGN AUTOMATION

MODULE-I

MOSFET small signal model, MOSFET parasitic capacitance value and modification in model. Scaling of MOS structure; SPICE level -1, level-2 and level 3 model; BSIM and CSIM models; Comparison between models. Layout generation, Design checking rules, Lamda, beta rule, routing: auto routing,

MODULE-II

Advance programming using VHDL. Component level programming. Library files, type\ declaration and usage, parameter types and overloading, types and type related issues, predefined and user-defined attributes, package declaration and usage.

MODULE-III

Introduction to CADENCE, Use of CADENCE, Basic modeling using CADENCE, Layout generation using CADENCE. Introduction to low power IC design using CAD tools,

MODULE-IV

Delta delay modeling, insertion and transport delay. Use of signal drivers. Multiple processes

ADDITIONAL MODULE (Terminal Examination-Internal)

Device floor planning basics, Case study of a low power OPAMP design and layout generation.

Text book

1. Electronics Design Automation: Synthesis, verification & Test (System on Silicon)- Laung-Terng Wang, Morgan Kaufmann,2009
2. Essential Electronics design Automation (EDA)- Mark D.Birnbaum, Prentice Hall,2004

PET8J004**DATABASE MANAGEMENT SYSTEM****MODULE-I**

Introduction - Evolution of database systems, overview of database management systems.

Entity-relationship model - Basic Concepts, Constraints, Keys, Design Issues, Entity-Relationship Diagrams, The Unified Modeling Language (UML), Class Diagrams.

MODULE-II

Relational Model - Structures of relational databases, integrity constraints; Logical database design – ER to relational, relational algebra, relational calculus, functional dependencies, multi-valued dependencies, normal forms, Decompositions into normalized relations.

MODULE-III

SQL – Simple queries, queries with more than one relation, sub queries, full relation operations, Database modifications, View definitions.

MODULE-IV

Issues in Physical Database Design – physical data storage, raid disk organization technique; file structures – sequential file organization, indices, b-trees, hash tables.

ADDITIONAL MODULE (Terminal Examination-Internal)

Details of Relational Algebra – Basic operators, extended operators, constraints.

Text Books

1. Data Base Management System Raghu Ramakrishnan, McGraw-Hill , 3rd edition,2002 .
2. Reading in Data Base Systems, Joseph M. Hellerstein, The MIT Press,4th Edition,2005.

Reference Books

1. Database system concepts, Abraham Silberschatz, Henry F Korth and Sudharshan S McGraw Hill Publishin Company Limited,1St Edition,2004.
2. Database Management System - Post, Gerald V ,Tata McGraw-Hill, 2004.
3. Fundamentals of Database Syste,Elmasri,R.A.,Navathe,Shyam B.Narosa Publishing House,2nd Edition ,1997.
4. An introduction to Database Systems - Bipin C Desai Galgotia Publication ,4th Edition, 2005

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, BuildingOwnWebSite,InternetSecurity

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic PaymentSystems,E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech (Electrical Engineering) Syllabus for Admission Batch 2015-16, 8th Semester

Eighth Semester							
Theory							
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks
1	PE	PEE8J001/ PEE8J002	Smart Grid/ PLC & SCADA	3-0-0	3	100	50
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50
Total Credit (Theory)					6		
Total						200	100
1	PSI	PEE8N201	Seminar	0-0-3	2	100	
2	PSI	PEE8N202	Major Project	0-0-6	7	400	
Total Credit (Practical)					9		
Total						500	
Total Marks = 800							
Total Semester Credit					15		

B.Tech (Electrical Engineering) Syllabus for Admission Batch 2015-16, **8th Semester**

PEE8J001

SMART GRID

Module-I:

Evolution of Electric Power Grid, introduction to smart Grid, Concept, definitions, architecture and functions of Smart Grid. Need of Smart Grid. Difference between conventional & smart grid. Opportunities & Challenges of Smart Grid,

Introduction to Smart Meters, Real Time Pricing, Smart Appliances. Automatic Meter Reading(AMR). Outage Management System(OMS). Home & Building Automation, Substation Automation, Feeder Automation, Smart Sensors, Geographic Information System (GIS). Intelligent Electronic Devices(IED) & their application for Monitoring & Protection.

Module-II:

Phasor Measurement Units (PMU), Wide Area Measurement System (WAMS), Wide-Area based Protection and Control

Micro-grid concepts, need and application, Issues of Interconnection. Protection & control systems for micro-grid.

Storage systems including Battery, SMES, Pumped Hydro. Compressed Air Energy Storage.

Module-III:

Variable speed wind generators, fuel-cells, micro-turbines. Integration of renewables and issues involved, Advantages and disadvantages of Distributed Generation.

Power Quality & EMC in smart Grid. Power Quality issues of Grid connected Renewable Energy Sources. Power Quality Conditioners for micro-grid. Web based Power Quality monitoring, Power Quality Audit.

Suggested Books:

1. Ali Keyhani, "Design of Smart power grid renewable energy systems" ,Wiley IEEE,2011.
2. Clark W. Gellings, "The Smart Grid: Enabling Energy Efficiency and Demand Response",CRCPress, 2009.
3. Stuart Borlase, " Smart Grid: Infrastructure,Technology and solutions " CRC Press.
4. Janaka Ekanayake, Nick Jenkins, KithsiriLiyanage, Jianzhong Wu, Akihiko Yokoyama, "Smart Grid: Technology and Applications", Wiley.
5. Andres Carvallo, John Cooper, "The Advanced Smart Grid: Edge Power Driving Sustainability: 1", Artech House Publishers July 2011
6. Mladen Kezunovic, Mark G. Adamiak, Alexander P. Apostolov, Jeffrey George Gilbert "Substation Automation (Power Electronics and Power Systems)", Springer

B.Tech (Electrical Engineering) Syllabus for Admission Batch 2015-16, **8th Semester**

PEE8J002

PLC and SCADA

Module: I

PLC and I/O processing: Programmable Logic Controller basics, overview of PLC systems – Architecture of PLC, Principle of Operation, input/output **Units** – power supplies and isolators, current sinking and current sourcing, types of PLC memory, fundamental PLC wiring diagram, relays, switches, transducers, sensors – seal-in circuits. Input/output units Signal conditioning. Remote connections Networks Processing inputs I/O addresses

Module: II

Programming of PLC: Fundamentals of logic, PLC programming languages. Ladder diagrams, Ladder Diagram Instruction, Logic functions, Latching, Multiple outputs.

Timer and counter- types along with timing diagrams, shift registers, sequencer function, latch instruction; Arithmetic and logical instruction with various examples.

ON/OFF switching devices, I/O analog devices, Analog PLC operation, PID control of continuous processes, simple closed loop systems, closed loop system using Proportional, Integral & Derivative (PID), PLC interface, and Industrial process example.

Module: III

PLC interface to various circuits: Encoders, transducer and advanced sensors. Measurement of temperature, flow, pressure, force, displacement, speed, level.

Developing a ladder logic for Sequencing of motors, Tank level control, ON-OFF temperature control, elevator, bottle filling plant, car parking etc.

Motors Controls: AC Motor starter, AC motor overload protection, DC motor controller, Variable speed (Variable Frequency) AC motor Drive.

Module: IV

SCADA Systems: Introduction, Communication requirements, Desirable Properties of SCADA system, features, advantages, disadvantages and applications of SCADA. SCADA Architectures (First generation - Monolithic, second generation - Distributed, Third generation – Networked Architecture), SCADA systems in operation and control of interconnected power system, Power System Automation (Automatic substation control and power distribution).

Open systems interconnection (OSI) Model, Process Field bus (Profibus). Interfacing of SCADA with PLC.

Text Books:

1. Gary Dunning, "Introduction to Programmable Logic Controllers", Thomson, 2nd Edition.
2. John R. Hackworth, Frederick D., Hackworth Jr., "Programmable Logic Controllers Programming Methods and Applications", PHI Publishers.
3. John W. Webb, Ronald A. Reis, "Programmable Logic Controllers: Principles and Application", PHI Learning, New Delhi, 5th Edition.
4. Stuart A Boyer, "SCADA supervisory control and data acquisition", ISA, 4th Revised edition
5. L.A. Bryan, E. A. Bryan, "Programmable Controllers Theory and Implementation" Industrial Text Company Publication, Second Edition.

B.Tech (Electrical Engineering) Syllabus for Admission Batch 2015-16, 8th Semester

Reference books:

1. Stuart A. Boyer: "SCADA- Supervisory Control and Data Acquisition", Instrument Society of America Publications, USA, The Instrumentation system and Automation Society, 4th Edition, 2010.
2. Gordon Clarke, Deon Reynders" *Practical Modern SCADA Protocols: DNP3, 60870.5 and Related Systems*", Newnes An imprint of Elsevier Publications, 1st Edition, 2004
3. Batten G. L., "Programmable Controllers", McGraw Hill Inc., Second Edition
4. Gordan Clark, Deem Reynders, "Practical Modern SCADA Protocols", ELSEVIER
5. P. K. Srivstava, "Programmable Logic Controllers with Applications", BPB Publications

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, BuildingOwnWebSite,InternetSecurity

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic PaymentSystems,E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech (EEE) Syllabus for Admission Batch 2015-16, 8th Semester

Eighth Semester							
Theory							
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks
1	PE	PEL8J001/ PEI8J002	Smart Grid/ PLC & SCADA	3-0-0	3	100	50
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50
Total Credit (Theory)					6		
Total						200	100
1	PSI	PEL8N201	Seminar	0-0-3	2	100	
2	PSI	PEL8N202	Major Project	0-0-6	7	400	
Total Credit (Practical)					9		
Total						500	
Total Marks = 800							
Total Semester Credit					15		

B.Tech (EEE) Syllabus for Admission Batch 2015-16, 8th Semester

PEL8J001

SMART GRID

Module-I:

Evolution of Electric Power Grid, introduction to smart Grid, Concept, definitions, architecture and functions of Smart Grid. Need of Smart Grid. Difference between conventional & smart grid. Opportunities & Challenges of Smart Grid,

Introduction to Smart Meters, Real Time Pricing, Smart Appliances. Automatic Meter Reading(AMR). Outage Management System(OMS). Home & Building Automation, Substation Automation, Feeder Automation, Smart Sensors, Geographic Information System (GIS). Intelligent Electronic Devices(IED) & their application for Monitoring & Protection.

Module-II:

Phasor Measurement Units (PMU), Wide Area Measurement System (WAMS), Wide-Area based Protection and Control

Micro-grid concepts, need and application, Issues of Interconnection. Protection & control systems for micro-grid.

Storage systems including Battery, SMES, Pumped Hydro. Compressed Air Energy Storage.

Module-III:

Variable speed wind generators, fuel-cells, micro-turbines. Integration of renewables and issues involved, Advantages and disadvantages of Distributed Generation.

Power Quality & EMC in smart Grid. Power Quality issues of Grid connected Renewable Energy Sources. Power Quality Conditioners for micro-grid. Web based Power Quality monitoring, Power Quality Audit.

Suggested Books:

1. Ali Keyhani, "Design of Smart power grid renewable energy systems" ,Wiley IEEE,2011.
2. Clark W. Gellings, "The Smart Grid: Enabling Energy Efficiency and Demand Response",CRCPress, 2009.
3. Stuart Borlase, " Smart Grid: Infrastructure,Technology and solutions " CRC Press.
4. Janaka Ekanayake, Nick Jenkins, KithsiriLiyanage, Jianzhong Wu, Akihiko Yokoyama, "Smart Grid: Technology and Applications", Wiley.
5. Andres Carvallo, John Cooper, "The Advanced Smart Grid: Edge Power Driving Sustainability: 1", Artech House Publishers July 2011
6. Mladen Kezunovic, Mark G. Adamiak, Alexander P. Apostolov, Jeffrey George Gilbert "Substation Automation (Power Electronics and Power Systems)", Springer

B.Tech (EEE) Syllabus for Admission Batch 2015-16, 8th Semester

PEL8J002

PLC and SCADA

Module: I

PLC and I/O processing: Programmable Logic Controller basics, overview of PLC systems – Architecture of PLC, Principle of Operation, input/output **Units** – power supplies and isolators, current sinking and current sourcing, types of PLC memory, fundamental PLC wiring diagram, relays, switches, transducers, sensors – seal-in circuits. Input/output units Signal conditioning. Remote connections Networks Processing inputs I/O addresses

Module: II

Programming of PLC: Fundamentals of logic, PLC programming languages. Ladder diagrams, Ladder Diagram Instruction, Logic functions, Latching, Multiple outputs.

Timer and counter- types along with timing diagrams, shift registers, sequencer function, latch instruction; Arithmetic and logical instruction with various examples.

ON/OFF switching devices, I/O analog devices, Analog PLC operation, PID control of continuous processes, simple closed loop systems, closed loop system using Proportional, Integral & Derivative (PID), PLC interface, and Industrial process example.

Module: III

PLC interface to various circuits: Encoders, transducer and advanced sensors. Measurement of temperature, flow, pressure, force, displacement, speed, level.

Developing a ladder logic for Sequencing of motors, Tank level control, ON-OFF temperature control, elevator, bottle filling plant, car parking etc.

Motors Controls: AC Motor starter, AC motor overload protection, DC motor controller, Variable speed (Variable Frequency) AC motor Drive.

Module: IV

SCADA Systems: Introduction, Communication requirements, Desirable Properties of SCADA system, features, advantages, disadvantages and applications of SCADA. SCADA Architectures (First generation - Monolithic, second generation - Distributed, Third generation – Networked Architecture), SCADA systems in operation and control of interconnected power system, Power System Automation (Automatic substation control and power distribution).

Open systems interconnection (OSI) Model, Process Field bus (Profibus). Interfacing of SCADA with PLC.

Text Books:

1. Gary Dunning, "Introduction to Programmable Logic Controllers", Thomson, 2nd Edition.
2. John R. Hackworth, Frederick D., Hackworth Jr., "Programmable Logic Controllers Programming Methods and Applications", PHI Publishers.
3. John W. Webb, Ronald A. Reis, "Programmable Logic Controllers: Principles and Application", PHI Learning, New Delhi, 5th Edition.
4. Stuart A Boyer, "SCADA supervisory control and data acquisition", ISA, 4th Revised edition
5. L.A. Bryan, E. A. Bryan, "Programmable Controllers Theory and Implementation" Industrial Text Company Publication, Second Edition.

B.Tech (EEE) Syllabus for Admission Batch 2015-16, 8th Semester

Reference books:

1. Stuart A. Boyer: "SCADA- Supervisory Control and Data Acquisition", Instrument Society of America Publications, USA, The Instrumentation system and Automation Society, 4th Edition, 2010.
2. Gordon Clarke, Deon Reynders" *Practical Modern SCADA Protocols: DNP3, 60870.5 and Related Systems*", Newnes An imprint of Elsevier Publications, 1st Edition, 2004
3. Batten G. L., "Programmable Controllers", McGraw Hill Inc., Second Edition
4. Gordan Clark, Deem Reynders, "Practical Modern SCADA Protocols", ELSEVIER
5. P. K. Srivstava, "Programmable Logic Controllers with Applications", BPB Publications

B.Tech (EEE) Syllabus for Admission Batch 2015-16, 8th Semester

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

B.Tech (EEE) Syllabus for Admission Batch 2015-16, 8th Semester

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, Building Own Web Site, Internet Security

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic Payment Systems, E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailor and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech (Environmental Engineering) Syllabus for Admission Batch 2015-16, *8th Semester*

Eighth Semester							
Theory							
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks
1	PE	PEN8J001/ PEN8J002	IndustrialWasteWater Treatment/Environmental Nanotechnology	3-0-0	3	100	50
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50
Total Credit (Theory)					6		
Total						200	100
1	PSI	PEN8N201	Seminar	0-0-3	2	100	
2	PSI	PEN8N202	Major Project	0-0-6	7	400	
Total Credit (Practical)					9		
Total						500	
Total Marks = 800							
Total Semester Credit					15		

PEN8J001 INDUSTRIAL WASTEWATER TREATMENT

Module I

Sources and characteristics of industrial wastewater; management of Industrial wastewater- volumereduction, neutralization, equalization and proportioning, treatment and disposal, Chemical Treatment.

Module II

Design and operation of advanced treatment process-adsorption, activated carbon column;, ion exchange,RO process, stripping towers (ammonia stripping), Ozonation Unit operation.

Module III

Wastewater treatmentmethodologies andenvironmental issues for specific industries - chlor-alkali, electroplating, distillery, dairy, tannery, pulpand paper, textile, dye, fertilizer, refinery, pharmaceutical, iron & steel, coke ovens, coal washeries, minewastewater.

Module IV

Management and treatment of acid mine drainage; Industrial complexing for zero pollutionattainment, Common effluent treatment plant (CETP): design, operation and maintenance aspects.

Books and References

1. Wastewater Treatment Plants: Planning, Design and Operation- S.R..Qasim, Holt, Rinehart & Winston, NY, 1985
2. Industrial Water Pollution Control –WW Eckenfelder, Jr., McGraw -Hill , 2nd Edition, NY 1989
3. Wastewater Engineering (including Air Pollution)- B.C. Punmia, Ashok Jain, Arunjain-Laxmi Publications, New Delhi, 2nd Ed.
4. Sewage disposal and air pollution Engineering,- S.K. Garg, Khanna Publishers, Delhi, 8th Ed.

PEN8J002 ENVIRONMENTAL NANOTECHNOLOGY

Module I

Nanotechnology and the environment, nanotechnology and our energy challenge; nanomaterials fabrication.

Module II

Methods for structural and chemical characterization of nanomaterials; instrumentation for nanotechnology, reactive oxygen species generation on nanoparticulate material.

Module III

Principles and procedures to assess nanomaterial toxicity; toxicological impacts of nanomaterials; nanoparticle transport, aggregation, and deposition.

Module IV

Nanomaterials for groundwater remediation; membrane processes; nanomaterials as adsorbents; assessing lifecycle risks of nanomaterials, longevity of nanoparticles.

Books & References:

1. Nanotechnology: Fundamentals and Applications by Manasi Karkare, I. K. International Pvt Ltd.
2. Nanotechnology and the environment: applications and implications by Barbara Karn. American Chemical Society.
3. Nanotechnology and the Environment by Kathleen Sellers, Christopher Mackay, Lynn L. Bergeson, Stephen R. Clough, Marilyn Hoyt, Julie Chen, Kim Henry, Jane Hamblen Press.
4. Environmental and Human Health Impacts of Nanotechnology by Jamie R. Lead, Emma Smith John Wiley & Sons.
5. Environmental Nanotechnology: Applications and Impacts of Nanomaterials- Mark Wiesner, Jean-Yves Bottero, McGraw Hill.

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, Building Own Web Site, Internet Security

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic Payment Systems, E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech(Fashion & Apparel Technology) Syllabus for Admission Batch 2015-16 *8th Semester*

Eighth Semester							
Theory							
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks
1	PE	PFT8J001/ PFT8J002/ PFT8J003	Costing in Apparel Industry /Clothing Comfort/ Textile and Apparel Exim Management	3-0-0	3	100	50
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50
Total Credit (Theory)					6		
Total						200	100
1	PSI	PFT8N201	Seminar	0-0-3	2	100	
2	PSI	PFT8N202	Major Project	0-0-6	7	400	
Total Credit (Practical)					9		
Total						500	
Total Marks = 800							
Total Semester Credit					15		

PFT8J001

COSTING IN APPAREL INDUSTRY

OBJECTIVE:

To facilitate better understanding of apparel costing and foreign exchange management

Module - 1

Costing as an aid to management-Elements of cost, treatment of stock, Cost terms related to income measurement, profit planning and cost control for apparel industry – material cost, labour cost, overhead cost.

Module – 2

Methods of costing – Job, Batch and contract costing, Process costing; waste cost and its control in a textile mill, Joint and by-product costing, Unit cost; Costing of fabrics; costing of apparel – accounting of prime costs and overhead costs, allocation of overheads; cost sheet preparation

Module-3

Techniques of cost analysis and control - Absorption and marginal costing, cost-volume-profit-analysis, break-even point, contribution margin, margin of safety, standard costing, budgetary control, productivity and value analysis,

Module -4

Foreign exchange mechanisms, exchange rates; foreign exchange exposure management – risks, strategies to reduce risk

REFERENCES:

1. Pandey I. M., “Financial Management”, Vikas Publishing House Pvt. Ltd., New Delhi, 8th Edition, 1999, 59
2. Prasanna Chandra, “Financial Management, Theory and Practice, Tata McGraw-Hill Publishing Company Ltd, 5th Edition, New Delhi, 2001
3. Aswat Damodaran, “Corporate Finance Theory and Practice”, John Wiley & Sons, 2000

B.Tech(Fashion & Apparel Technology) Syllabus for Admission Batch 2015-16 *8th Semester*

4. James C., Van Home., "Financial Management and Policy", Prentice Hall of India Pvt. Ltd.,

New Delhi, 1980

5. Thukaram Rao M.E., "Cost and Management Accounting" New Age International, Bangalore,

2004

6. Khan and Jain, "Basic financial Management & Practice", Tata McGraw Hill, New Delhi, 5th

edition,2001

PFT8J002

CLOTHING COMFORT

OBJECTIVES:

To enable the students to learn about the

- Important characteristics of the fabric responsible for its comfort properties and
- Different phenomena which take place in the fabric related to the comfort properties of the fabric

Module- I

Comfort – types and definition; human clothing system, comfort perception and preferences

Module- II

Psychological comfort; neuro-physiological comfort-basis of sensory perceptions; measurement techniques - mechanical stimuli and thermal stimuli

Module- III

Thermo physiological comfort – thermoregulatory mechanisms of the human body, role of clothing on thermal regulations

Heat and moisture transfer – moisture exchange, wearer's temperature regulations, effect of physical properties of fibres, behaviour of different types of fabrics

Module- IV

Fabric tactile and mechanical properties - fabric prickliness, itchiness, stiffness, softness, smoothness, roughness, and scratchiness; predictability of clothing comfort performance

REFERENCES:

1. Apurba Das., and Alagirusamy R., "Science in clothing comfort", Wood head Publishing India Pvt. Ltd., India, 2010, ISBN: 1845697898 | ISBN-13: 9781845697891
2. Guowen Song., "Improving comfort in clothing", Wood head Publishing Ltd., UK, 2011, ISBN: 1845695399 | ISBN-13: 9781845695392
3. Ukponmwan J.O., "The Thermal-insulation Properties of Fabrics", Textile Progress

B.Tech(Fashion & Apparel Technology) Syllabus for Admission Batch 2015-16 *8th Semester*
24:4, 1-54, Taylor and Francis, UK, 1993, ISBN: 1870812654 | ISBN-13:

9781870812658.

4. Hassan M. Behery., “Effect of Mechanical and Physical Properties on Fabric Hand”,

Wood head Publishing Ltd.,2005, ISBN: 1855739186 | ISBN-13: 9781855739185

5. Li Y., “The Science of Clothing Comfort”, Textile Progress 31:1-2, Taylor and Francis,

PFT8J003

TEXTILE AND APPAREL EXIM MANAGEMENT

OBJECTIVE:

☐ To give the students an exposure on international market for textile products, regulations with respect to export and import of textiles.

Module- I

International markets scenario of yarns, woven fabrics; apparel and knitted garments for cotton, silk, jute, wool and other fibres; export and import of textiles by India – current status, promotional activities

Module- II

International markets for carpets and home textiles – product types, market potential and statistics, India - current status and promotional activities, role of export promotional councils

Module- III

Marketing – strategies, global brand building; logistics & SCM; role of export finances & EXIM banking, ECGC, Indian council of arbitration, FERA; impact of foreign trade on Indian economy

Module- IV

Exim policy - customs act, acts relating to export/import of textile and apparel; Indian customs formalities - export documentation for excisable goods, import documentation, clearance of import goods; concepts - 100% export oriented units, export processing zones, special economic zones; duty drawback procedure; import/export incentives; licenses; case study

REFERENCES:

1. Charles W.I. Hill and Arun Kumar Jain, "International Business", 6th edition, Tata Mc Graw Hill, 2009
2. John D. Daniels and Lee H. Radebaugh, "International Business", Pearson Education Asia, New Delhi, 2000
3. K. Aswathappa, "International Business", Tata Mc Graw Hill, 2008

B.Tech(Fashion & Apparel Technology) Syllabus for Admission Batch 2015-16 *8th Semester*

4. Michael R. Czinkota, Ilkka A. Ronkainen and Michael H. Moffet, "International Business",

Thomson, Bangalore, 2005

5. Aravind V. Phatak, Rabi S. Bhagat and Roger J. Kashlak, "International Management",

Tata Mc Graw Hill, 2006

6. Oded Shenkar and Yaong Luo, "International Business", John Wiley Inc., Noida, 2004

7. Datey V.S., "Taxmann's Indirect Taxes", Taxmann Publications, 2008

8. Kapoor D.C., "Export Management", Vikas Publishing House Pvt.

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, Building Own Web Site, Internet Security

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic Payment Systems, E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech (Information Technology) Syllabus for Admission Batch 2015-16 *8th Semester*

Eighth Semester							
Theory							
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks
1	PE	PIT8J001/ PIT8J002	Algorithm for Bioinformatics/ Expert Systems	3-0-0	3	100	50
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50
Total Credit (Theory)					6		
Total						200	100
1	PSI	PIT8N201	Seminar	0-0-3	2	100	
2	PSI	PIT8N202	Major Project	0-0-6	7	400	
Total Credit (Practical)					9		
Total						500	
Total Marks = 800							
Total Semester Credit					15		

PIT8J001

ALGORITHMS FOR BIOINFORMATICS

UNIT I –

[10 HOURS]

DYNAMIC PROGRAMMING ALGORITHMS (9 hours) Introduction to Algorithms, Dynamic Programming, Sequence Alignment: Edit distance, LCS. PAM and BLOSUM Scoring Matrices. Global alignments: Needleman Wunsch Algorithm, Local Alignments: Smith Waterman Algorithm, Gap Penalties.

UNIT II-

[8 HOURS]

GRAPH ALGORITHMS (9 hours) Graph Algorithms, SBH and Eulerian Paths, De-novo Peptide Sequencing: Longest Paths and Space Efficient Alignment Algorithms. Fast LCS using Table Lookup.

UNIT III-

[10 HOURS]

PATTERN MATCHING AND CLUSTERING (9 hours) Exact Pattern Matching: KMP Algorithm, Keyword Trees, Aho-Corasick Algorithm. Clustering Basics: Hierarchical Clustering, Multiple Sequence Alignment: CLUSTAL, Center-based Clustering, Clustering via Cliques.

UNIT IV-

[12 HOURS]

EVOLUTIONARY TREES AND PHYLOGENY (9 hours) Evolutionary Trees and Ultrametrics, Additive distance trees, Perfect Phylogeny Problem, Small Parsimony Problem, Nearest Neighbor Interchange. HIDDEN MARKOV MODELS, RANDOMIZED ALGORITHMS (9 hours) Hidden Markov Models: Basics, Forward and Backward (Viterbi) Algorithms, Randomized algorithms and their applications.

REFERENCES

1. Neil C. Jones and Pavel A. Pevzner, "An Introduction to Bioinformatics Algorithms", MIT Press, 2005.
2. Gusfields D, "Algorithms on strings, trees and sequences: Computer Science and Computational Biology", Cambridge University Press, 1997.
3. Steffen Schulze-Kremer, "Molecular Bioinformatics: Algorithms and Applications", Walter de Gruyter, 1996.
4. Gary Benson, Roderic Page (Eds.), "Algorithms in Bioinformatics", Springer International Edition, 2004.
5. Richard Durbin, Sean R. Eddy, Anders Krogh, Graeme Mitchison. "Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acid", Cambridge University Press, 1999.

PIT8J002

EXPERT SYSTEMS

UNIT I –

[10 HOURS]

The meaning of an expert system, problem domain and knowledge domain, the advantages of an expert system, general stages in the development of an expert system, general characteristics of an expert system, history and uses of expert systems today, rule-based expert systems, procedural and nonprocedural paradigms, characteristics of artificial neural systems. - The study of logic, difference between formal logic and informal logic, meaning of knowledge, how knowledge can be represented, semantic nets, how to translate semantic nets into PROLOG, limitations of semantic nets, schemas, frames and their limitations, how to use logic and set symbols to represent knowledge, the meaning of propositional and first order predicate logic, quantifiers, imitations of propositional and predicate logic.

UNIT II-

[10 HOURS]

Trees, lattices, and graphs, state and problem spaces, AND-OR trees and goals, methods of inference, rules of inference, limitations of propositional logic, logic systems, resolution rule of inference, resolution systems, and deduction, shallow and causal reasoning, applying resolution to first-order predicate logic, forward and backward chaining, additional methods of reference, Meta knowledge, the Markov decision process.

UNIT III-

[10 HOURS]

The meaning of uncertainty and theories devised to deal with it, types of errors attributed to uncertainty, errors associate, with induction, features of classical probability, experimental and subjective probabilities, compound and conditional probabilities, hypothetical reasoning and backward induction, temporal reasoning, Markov chains, odds of belief, sufficiency and necessity, role of uncertainty in inference chains, implications of combining evidence, role of inference nets in expert systems, how probabilities are propagated.

UNIT IV-

[10 HOURS]

Sources of uncertainty in rules, methods of dealing with uncertainty, Dempster-Shafer theory, theory of uncertainty based on fuzzylogic, commercial applications of fuzzy logic. How to select an appropriate problem, the stages in the development of an expert system, types of errors to expect in the development stages, the role of the knowledge engineer in the building of expert systems, the expected life cycle of an expert system, how to do a life cycle model.

Textbook:

1. J. Giarratano and G. Riley, "Expert Systems -- Principles and Programming". 4th Edition, PWS Publishing Company, 2004.
2. Durkin, J., Expert systems Design and Development, Macmillan, 1994 2. Elias M. Awad, Building Expert Systems, West Publishing Company 1996
3. Peter Jackson, Introduction to Expert Systems, Addison Wesley Longman, 1999. ISBN 0-20187686-8.
4. Gonzalez and D. Dankel, "The Engineering of Knowledge-Based Systems", Prentice Hall, 1994. 5. Nikolopoulos, "Expert Systems", Marcel Dekker Inc. 1997. ISBN 0 8247 9927 5

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, Building Own Web Site, Internet Security

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic Payment Systems, E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.

B.Tech (Mechanical Engineering) detail Syllabus for Admission Batch 2015-16 *8th Semester*

Eighth Semester								
Theory								
Sl. No.	Category	Course Code	Course Title	L-T-P	Credit	University Marks	Internal Marks	
1	PE	PME8J001/ PME8J002/	Fatigue Creep & Fracture/ Mechatronics & MEMs/	3-0-0	3	100	50	
2	OE	PCP8H001/ PCP8H002/ PCP8H003	Entrepreneurship Development/E-Commerce & ERP / Business Regulatory Framework	3-0-0	3	100	50	
Total Credit (Theory)					6			
Total						200	100	
1	PSI	PME8N201	Seminar	0-0-3	2	100		
2	PSI	PME8N202	Major Project	0-0-6	7	400		
Total Credit (Practical)					9			
Total						500		
Total Marks = 800								
Total Semester Credit					15			

PME8J001

FATIGUE CREEP AND FRACTURE

(PROFESSIONAL ELECTIVE)

MODULE – I : (12 HOURS)

Design philosophy : (i) Infinite life, (ii) Safe life, (iii) Fail safe and (iv) Damage tolerant design concepts.

Fatigue Design : Cyclic stress and stress reversals, Fatigue and progressive fracture, Endurance limit, Fatigue Tests : Cantilever and Beam type of Fatigue Tests, Axial Fatigue Tests. Influence of mean stress on fatigue : Gerber, Goodman and Soderberg's criteria. Effect of compressive cyclic stress on fatigue. Fatigue design formula for axial, bending, torsional and combined loading.

Fatigue controlling factors: Effect of frequency, Temperature, size, form, stress concentration factors, Notch, sensitivity & surface conditions, residual stresses.

MODULE – II : (12 HOURS)

Improvement of fatigue strength' by chemical/metallurgical processes such as nitriding, flame hardening, case carburizing. Fatigue strength enhancement by mechanical work : cold rolling, peening, shot peening.

Effect of environment : Corrosion Fatigue, Concept of cumulative fatigue damage

Fracture Mechanics : Ductile and brittle fracture Theoretical cohesive strength of metal, Griffith Theory of brittle Fracture, Orowan's modification to Griffith Theory.

MODULE – III (14 HOURS)

Modes of fracture : Mode I, II and III, fatigue crack growth Behaviour of metals, Linear Elastic Fracture Mechanics (LEFM), Stress Intensity Factor(SIF), Stress field near the crack tip, Critical SIF and Fracture Toughness, Experimental determination of fracture toughness K_{IC} , COD gauges

and standard ASTM Tests.

Strain Energy Release Rates (SERR), Elasto-Plastic Fracture Mechanics (EPFM), Plastic zone size and its evaluation, J-Integral Method.

CREEP ANALYSIS :

Definition, Constant stress and constant, strain creep tests. Uniaxial creep tests : Bailey's Power Law, Creep relaxation : strain hardening and time hardening creep relaxation. Introduction to Creep bending and deflection of simple problems.

TEXT BOOKS:

1. George E. Dieter, Mechanical Metallurgy, - Mc Graw Hill, NY, 1988
2. Joseph Marin, Mechanical Behaviour of Engg. Materials, - Prentice Hall of India, 1966
3. Stephens, R.I. and Fuchs, H.O., Metal Fatigue in Engg. , - Wiley, NY 2001
4. Finnie, I. and Heller, W.R., Creep of Engg. Materials, - Mc Graw Hill Book Co., 1959
5. Prasant Kumar, Fracture Mechanics

B.Tech (Mechanical Engineering) detail Syllabus for Admission Batch 2015-16 *8th Semester*

REFERENCE BOOKS:

1. L.S. Srinath, Advanced Mechanics of Materials, - Tata Mc Graw Hill Ltd., ND, 2009.
2. Norman E, Dowling, Mechanical Behaviour of Materials, - Prentice Hall, NJ, 1999.
3. Lessells, J.M., strength and resistance of materials, - John wiley & sons, 1954
4. Peterson, R.E., Stress Concentration Design Factors,- John Wiley & Sons, 1953
5. Meguid, S.A., Fracture Mechanics,- John Wiley & Sons, 1996
6. Kare Hellan, Introduction to Fracture Mechanics, - Mc Graw Hill Book Co., 1985

PME8J002 MECHATRONICS AND MICRO ELECTRO MECHANICAL SYSTEMS

MODULE 1 (10 HOURS)

Evolution of Mechatronics, components of mechatronic system, types of mechatronic products, Signal theory, signal analysis and processing. Basic electronics devices: junction diodes, Bipolar transistors Basic Digital Technology: Digital number system, Binary number system, Hexadecimal number system, Binary addition, Boolean Algebra, Logic function, Universal GATES, FLIP-FLOP, Registers counters.

MODULE II (10 HOURS)

System modeling: Frequency response, Mechanical system, electrical system, Thermal system, Fluid system. Actuators- Electric motors; D.C. Motors, Stepper motor, , Hydraulic actuators, Pneumatic actuators Transducer and Sensors : Principles, difference between transducer and sensors, transducer types – photo emissive, photo conductive, photovoltaic, thermistors, Thermocouple, Inductive, capacitive, Peizoelectric,

MODULE III (10 HOURS)

Overview of MEMS and Microsystems. Micromachining Techniques: Silicon as material for micromachining, Photolithography, thin film deposition, doping, wet and dry etching, surface and bulk micromachining, Wafer bonding, packaging.

MODULE IV (10 HOURS)

Microsystem Modeling and Design: Mechanics of deformable bodies, Energy method, Estimation of stiffness and damping for different micro-structures, Modeling of electromechanical systems, Pull-in voltage. MEMS Applications: Mechanical sensors and actuators: Piezoresistive pressure sensors, MEMS capacitive accelerometer, Gyroscopes, Piezoelectric actuators.

TEXT BOOKS

1. A Text Books of Mechatronics, R.K.Rajput, S.Chand& company
2. Mechatronics, N.G. P.C Mahalik, Tata McGraw Hill
3. Micro and Smart Systems, G.K. Ananthuresh, K.J. Vinoy, S. Gopalakrishnan, K.N. Bhat and V.K. Atre, Wiley India, New Delhi, 2010.
4. N.P. Mahalik: MEMS, Tata McGraw-Hill, New Delhi, 2007.

REFERENCE BOOKS:

1. 3. Mechatronics, D.G. Alciator, M.B. Histan, Tata McGraw Hill
2. Mechatronics, A.Smaili& F Mrad, Oxford University Press
3. Mechatronics, K.P.ramchandran, G,K Vijay Raghavan, M. S Balachandran
4. Mechatronics AnIntgrated approach, Clarence W de Sliva, CRC Press
5. T. Hsu: MEMS and Microsystems: Design and Manufacture, Tata McGraw-Hill, New Delhi, 2002.

PCP8H001

ENTREPRENEURSHIP DEVELOPMENT

Module-I

Entrepreneurship: Concept of entrepreneurship and intrapreneurship, Types of Entrepreneur, Nature and Importance, Entrepreneurial Traits and Skills, Entrepreneurial Motivation and Achievement, Entrepreneurial Personality

Module II

Entrepreneurial Environment, Identification of Opportunities, Converting Business Opportunities into reality. Start-ups and business incubation, Setting up a Small Enterprise. Issues relating to location, Environmental Problems and Environmental pollution Act, Industrial Policies and Regulations,

Module III

Need to know about Accounting, Working capital Management, Marketing Management, Human Resources Management, and Labour Laws. Organizational support services - Central and State Government, Incentives and Subsidies.

Module IV

Sickness of Small-Scale Industries, Causes and symptoms of sickness, cures of sickness, Role of Banks and Governments in reviving industries.

Reference Book:

1. Entrepreneurship Development and Management, Vasant Desai, HPH
2. Entrepreneurship Management, Bholanath Dutta, Excel Books
3. Entrepreneurial Development, Sangeeta Sharma, PHI
4. Entrepreneurship, Rajeev Roy, Oxford University Press

PCP8H002

E-COMMERCE AND ENTERPRISE RESOURCE PLANNING

Module I

Overview of Electronic Commerce, Driving the Electronic Commerce Revolution, The Internet, Portals. Open Systems Inter Connection (OSI) Model, XML, Data Warehousing, BuildingOwnWebSite,InternetSecurity

Module II

E-Commerce and Internet, Electronic Market, Business to Business E-Commerce, Four C's (Convergence, Collaborative Computing, Content Management and Call Center) , Wireless Application Protocol (WAP), Intranet and Extranets. Data Interchange (EDI), Electronic PaymentSystems,E-Security

Module-III

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to consider in planning designing and implementation of cross functional integrated ERP systems. Small, medium and large enterprise vendor solutions, BPR, and best business practices - Business process Management, Functional modules.

Module IV

ERP IMPLEMENTATION: Planning Evaluation and selection of ERP systems, Implementation life cycle - ERP implementation, Methodology, Data Migration, Success and Failure factors of ERP Implementation. Extended ERP systems and ERP add-ons -CRM, SCM, Manufacturing prospective, Business analytics .

Reference Book:

1. E- Commerce and Enterprise Resource Planning ; CSV Murthy, HPH
2. Enterprise Resource Planning- Concepts and Practices ; V K Garg and N K Venkatkrishna, PHI
3. Enterprise Resource Planning; Alexix Leon ; TMH

PCP8H003

BUSINESS REGULATORY FRAMEWORK

Module – I

Overview of legal world, Law of Contract : Contract Act: Indian Contract Act, 1872, Agreement, Contract, Essentials of Contract (Offer & Acceptance, Consideration, Capacity of Parties, Free Consent, and Legality of Object), Performance and Discharge of Contract, Remedies for breach of contract, Quasi-Contract and Contingent Contract.

Module – II

Special Contracts: Contract of Agency: Mode of creating & revocation of Agency, Rights and Duties of Agents and Principals. Contract of Bailment (Rights and duties of Bailer and Bailee). Sales of Goods Act: Sale and agreement to sell, Condition and Warranty, Transfer of properties, Finder of Goods, Performance of Contract of sale, Unpaid seller and his rights.

Module- III

Consumer Protection Law: Consumers, Rights of Consumers, Redressal Machinery under the Act, Procedure of Complaint, Relief available to the consumers, Procedure of filing appeal, Powers of Redressal agencies, Unfair Trade Practices. Overview of Competition Act,

Module – IV

Company Law: Indian Companies Act 2013, Salient features and Classes of Company. Lifting of corporate veil, Procedure of Incorporation and Certificate of commencement of business, Memorandum and Articles of Association, Doctrine of ultra vires and Indoor Management, Management of Company: Qualification, Appointment of Directors, Company Meetings, Resolutions, Winding-up of Companies and their modes.

Reference Books

1. Business Regulatory Framework–Mohapatra and Patra, HPH
2. Business Law – N D Kapoor, S Chand
3. Business Law – Pathak, Tata Mc Graw Hill
4. Legal frame work, Oxford.