

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
**(Formerly West Bengal University of Technology)**  
**Syllabus for B. Tech in CSE(Artificial Intelligence and Machine Learning)**  
**(Applicable from the academic session 2020-2021)**

**SEMESTER – VIII**

**Natural Language Processing**  
**Code: PEC-AIML 801A**  
**Contacts: 3L**

Name of the Course:	<b>Natural Language Processing</b>
Course Code: PEC-AIML 801A	Semester: VIII
Duration: 6 months	Maximum Marks:100
<b>Teaching Scheme</b>	<b>Examination Scheme</b>
Theory: 3 hrs./week	Mid Semester exam: 15
Tutorial: NIL	Assignment and Quiz: 10 marks
	Attendance : 5 marks
Practical:NIL	End Semester Exam :70 Marks
Credit Points:	3

Unit	Content	Hrs/Unit	Marks/Unit
1	<p><b>Regular Expressions and AutomataRecap</b> - Introduction to NLP, Regular Expression, Finite State Automata [2L]  <b>Tokenization</b> - Word Tokenization, Normalization, Sentence Segmentation, Named Entity Recognition, Multi Word Extraction, Spell Checking – Bayesian Approach, Minimum Edit Distance [5L]  <b>Morphology</b> - Morphology – Inflectional and Derivational Morphology, Finite State Morphological Parsing, The Lexicon and Morphotactics, Morphological Parsing with Finite State Transducers, Orthographic Rules and Finite State Transducers, Porter Stemmer [4L]</p>	11	
2	<p><b>Language Modeling</b> Introduction to N-grams, Chain Rule, Smoothing – Add-One Smoothing, Witten-Bell Discounting; Backoff, Deleted Interpolation, N-grams for Spelling and Word Prediction, Evaluation of language models. [4L]  <b>Hidden Markov Models and POS Tagging</b> Markov Chain, Hidden Markov Models, Forward Algorithm, Viterbi Algorithm, Part of Speech Tagging – Rule based and Machine Learning based approaches, Evaluation. [4L]</p>	8	

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3	<p><b>Text Classification</b> Text Classification, Naïve Bayes’ Text Classification, Evaluation, Sentiment Analysis – Opinion Mining and Emotion Analysis, Resources and Techniques. [4L]</p> <p><b>Context Free Grammar</b> Context Free Grammar and Constituency, Some common CFG phenomena for</p>	9	
	English, Top-Down and Bottom-up parsing, Probabilistic Context Free Grammar, Dependency Parsing [4L]		
4.	<p><b>Computational Lexical Semantics</b> Introduction to Lexical Semantics – Homonymy, Polysemy, Synonymy, Thesaurus – WordNet, Computational Lexical Semantics – Thesaurus based and Distributional Word Similarity [4L]</p> <p><b>Information Retrieval</b> Boolean Retrieval, Term- document incidence, The Inverted Index, Query Optimization, Phrase Queries, Ranked Retrieval – Term Frequency – Inverse Document Frequency based ranking, Zone Indexing, Query term proximity, Cosine ranking, Combining different features for ranking, Search Engine Evaluation, Relevance Feedback [5L]</p>	9	

**Text book and Reference books:**

1. Speech and Language Processing, Jurafsky and Martin, Pearson Education
2. Foundation of Statistical Natural Language Processing, Manning and Schutze, MIT Press
3. Multilingual Natural Language Processing Applications from Theory to Practice: Bikel, Pearson.

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**Cyber Law and Ethics**  
**Code: PEC-AIML801B**  
**Contacts: 3L**

Name of the Course:	Cyber Law and Ethics	
Course Code: PEC-AIML801B	Semester: VIII	
Duration:6 months	Maximum Marks: 100	
<b>Teaching Scheme</b>		<b>Examination Scheme</b>
Theory: 3 hrs./week		Mid Semester exam: 15
Tutorial: NIL		Assignment and Quiz : 10 marks
		Attendance: 5 marks
Practical: NIL		End Semester Exam: 70 Marks
Credit Points:	3	

Unit	Content	Hrs/Unit	Marks/Unit
1	Intellectual Property: Intellectual property, copyrights, patents, trade secrets and its laws, employees and trade secret, key intellectual property issues, plagiarism, reverse engineering, open source code, competitive intelligence, trademark infringement, cybersquatting.	8	
2	Software Development: Strategies for engineering quality software, importance of software quality, software product liability, software development process, capability maturity model integration, safety critical system, quality management standards.	8	
3	The Impact of Information Technology on Productivity and Quality of Life: Impact of IT, IT investment and productivity, digital divide, impact of it on healthcare cost, electronic health records, use of mobile and wireless technology in healthcare industry, telemedicine, medical information websites.	8	
4.	Social Networking: Social networking website, business Application of online social networking, social networking ethical issues: cyberbullying, cyber stalking, sexual predators, uploading inappropriate material. Online virtual world: crime in virtual world, educational and business uses.	8	
5	Ethics of IT Organization: Key ethical issues, non-traditional Workers, contingent workers, H-1 B workers, outsourcing, whistle blowing, green computing, ICT industry code of conduct.	8	

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**Text book and Reference books:**

1. "Ethics in Information Technology", 4th Edition, George Reynolds Strayer University, 2012.
2. "Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing", 3rd Edition, Herman T. Tavani, John Wiley & Sons, 2011.
2. "Information Technology Ethics: Cultural Perspectives", Soraj Hon ladarom, Charles Ess, Idea Group Inc (IGI), 2007.
3. "Information Security and Cyber Laws" by Gupta & Gupta, Khanna Book Publishing, New Delhi.

**Mobile Computing**

**Code: PEC- AIML801C**

**Contacts: 3L**

Name of the Course:	<b>Mobile Computing</b>
Course Code: PEC- AIML801C	Semester: VIII
Duration: 6 months	Maximum Marks: 100
<b>Teaching Scheme</b>	<b>Examination Scheme</b>
Theory:3 hrs./week	Mid Semester exam: 15
Tutorial: 3L	Assignment and Quiz: 10 marks
	Attendance: 5 marks
Practical: NIL	End Semester Exam: 70 Marks
Credit Points:	3

Unit	Content	Hrs/Unit	Marks/Unit
1	Introduction to Personal Communications Services (PCS): PCS Architecture, Mobility management, Networks signalling. Global System for Mobile Communication (GSM) system overview: GSM Architecture, Mobility management, Network signalling.	5	
2	General Packet Radio Services (GPRS): GPRS Architecture, GPRS Network Nodes. Mobile Data Communication: WLANs (Wireless LANs) IEEE 802.11 standard, Mobile IP.	5	
3	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.	7	
4.	Third Generation (3G) Mobile Services: Introduction to International Mobile Telecommunications 2000 (IMT 2000) vision, Wideband Code Division Multiple Access (W-CDMA), and CDMA 2000, Quality of services in 3G	7	

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5	Global Mobile Satellite Systems; case studies of the IRIDIUM and GLOBALSTAR systems. Wireless Enterprise Networks: Introduction to Virtual Networks, Blue tooth technology, Blue tooth Protocols.	7	
6	Server-side programming in Java, Pervasive web application architecture, Device independent example Application	8	

**Text book and Reference books:**

1. "Pervasive Computing", Burkhardt, Pearson
2. "Mobile Communication", J. Schiller, Pearson
3. "Wireless and Mobile Networks Architectures", Yi-Bing Lin & Imrich Chlamtac, John Wiley& Sons, 2001
4. "Mobile and Personal Communication systems and services", Raj Pandya, Prentice Hall ofIndia, 2001.
5. "Guide to Designing and Implementing wireless LANs", Mark Ciampa, Thomson learning, Vikas Publishing House, 2001.
6. "Wireless Web Development", Ray Rischpater, Springer Publishing,
7. "The Wireless Application Protocol", Sandeep Singhal, Pearson .
8. "Third Generation Mobile Telecommunication systems", by P.Stavronlakis, Springer Publishers,
9. Brijesh Gupta "Mobile Computing", Khanna Publishing House, New Delhi

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**Economic Policies in India**

**Code: OEC- AIML801A**

**Contacts: 3L**

**Economic Development and its Determinants**

Approaches to economic development and its measurement – sustainable development; Role of State, market and other institutions; Indicators of development – PQLI, Human Development Index (HDI), gender development indices.

**Planning in India**

Objectives and strategy of planning; Failures and achievements of Plans; Developing grass-root organizations for development – Panchayats, NGOs and pressure groups.

**Demographic Features, Poverty and Inequality**

Broad demographic features of Indian population; rural-urban migration; Urbanization and civic amenities; Poverty and Inequality.

**Resource Base and Infrastructure**

Energy; social infrastructure – education and health; Environment; Regional imbalance; Issues and policies in financing infrastructure development.

**The Agricultural Sector**

Institutional Structure – land reforms in India; Technological change in agriculture – pricing of agricultural inputs and output; industry; Agricultural finance policy; Agricultural Marketing and Warehousing; Issues Terms of trade between agriculture and in food security – policies for sustainable agriculture.

**Section – II**

Industrial policy; Public Sector enterprises and their performance; Problem of sick units in India;

Privatization and

disinvestment debate; Growth and pattern of industrialization; Small-scale sector;

Productivity in industrial sector; Exit

policy – issues in labour market reforms; approaches for employment generation.

**Public Finances**

Fiscal federalism – Centre-State financial relations; Finances of central government; Finances of state governments; Parallel economy; Problems relating to fiscal policy; Fiscal sector reforms in India.

**Money, Banking and Prices**

Analysis of price behaviour in India; Financial sector reforms; Interest rate policy;

Review of monetary policy of RBI; Money

and capital markets; Working of SEBI in India.

**External Sector**

Structure and direction of foreign trade; Balance of payments; Issues in export-import policy and FEMA; Exchange rate

policy; Foreign capital and MNCs in India; The progress of trade reforms in India.

**Economic Reforms**

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Rationale of internal and external reforms; Globalization of Indian economy; WTO and its impact on the different sectors of the economy; Need for and issues in good governance; Issues in competition and safety nets in Indian economy.

**BASIC READING LIST**

1. Ahluwalia, I. J. and I. M. D Little (Eds.) (1999), India's Economic Reforms and Development (Essays in honour of Manmohan Singh), Oxford University Press, New Delhi.
2. Bardhan, P. K. (9th Edition) (1999), The Political Economy of Development in India, Oxford University Press, New Delhi.
3. Bawa, R. s. and P. S. Raikhy (Ed.) (1997), Structural Changes in Indian Economy, Guru Nanak Dev University Press, Amritsar.
4. Brahmananda, P. R. and V. R. Panchmukhi (Eds.) (2001), Development Experience in the Indian Economy: Inter-State Perspectives, Book well, Delhi.
5. Chakravarty, S. (1987), Development Planning : The Indian Experience, Oxford University Press, New Delhi.
6. Dantwala, M. L. (1996), Dilemmas of Growth : The Indian Experience, Sage Publications, New Delhi.
7. Datt, R. (Ed.) (2001), Second Generation Economic Reforms in India, Deep & Deep Publications, New Delhi.
8. Government of India, Economic Survey (Annual), Ministry of Finance, New Delhi.
9. Jain, a. K. (1986), Economic Planning in India, Ashish Publishing House, New Delhi.
10. Jalan, B. (1992), The Indian Economy – Problems and Prospects, Viking, New Delhi.

**Micro-electronics and VLSI Design**

**Code: OEC- AIML801B**

**Contact: 3L**

**Credits: 3**

Allotted Hrs: 39L

Introduction to CMOS circuits: MOS Transistors, MOS transistor switches, CMOS Logic, The inverter, Combinational Logic, NAND gate, NOT Gate, Compound Gates, Multiplexers, Memory-Latches and Registers. [6L]

Processing Technology: Silicon Semiconductor Technology- An Overview, wafer processing, oxidation, epitaxy deposition, Ion-implantation and diffusion, The Silicon Gate Process- Basic CMOS Technology, basic n-well CMOS process, p-well CMOS process, Twin tub process, Silicon on insulator, CMOS process enhancement-Interconnect, circuit elements, 3-D CMOS. Layout Design Rule: Layer Representations, CMOS n-well Rules, Design Rule of background scribe line, Layer Assignment, SOI Rule [10L] .

Power Dissipation: Static dissipation, Dynamic dissipation, short-circuit dissipation, total power dissipation. Programmable Logic, Programmable Logic structure, Programmable interconnect, and Reconfigurable Gate Array: Xilinx Programmable Gate Array, Design Methods: Behavioural Synthesis, RTL synthesis [8L]

Placement: placement: Mincut based placement – Iterative improvement placement simulated annealing. Routing: Segmented channel routing – maze routing – routability and routing resources – net delays. [5L]

Verification and Testing: Verification Versus Testing, Verification: logic simulation design validation – timing verification – Testing concepts: failures – mechanisms and faults – fault coverage – ATPG methods – types of tests – FPGAs – programmability failures – design for testability. [5L]

Overview of VHDL [5L]

**Text Book:**

1. “Digital Integrated Circuit”, J.M.Rabaey, Chandrasan, Nicolic, Pearson
2. “CMOS Digital Integrated Circuit”, S.M.Kang & Y.Leblicic, TMH
3. “Modern VLSI Design” Wayne Wolf, Pearson
4. “Algorithm for VLSI Design & Automation”, N.Sherwani, Kluwer
5. “VHDL”, Bhaskar, PHI

**References:**

1. “ Digital Integrated Circuits” Demassa & Ciccone, Willey Pub.
2. “Modern VLSI Design: system on silicon” Wayne Wolf; Addison Wesley Longman Publisher
3. “Basic VLSI Design” Douglas A. Pucknell & Kamran Eshranghian; PHI
4. “CMOS Circuit Design, Layout & Simulation”, R.J.Baker, H.W.Lee, D.E. Boyee, PHI



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**Software Engineering**  
**Code:OEC-AIML 801C**  
**Contact: 3L**

Name of the Course:	<b>Software Engineering</b>		
Course Code: OEC-AIML 801C	Semester: VIII		
Duration:6 months	Maximum Marks:100		
<b>Teaching Scheme</b>		<b>Examination Scheme</b>	
Theory:3 hrs./week	Mid Semester exam: 15		
Tutorial: NIL	Assignment and Quiz: 10 marks		
	Attendance: 5 marks		
Practical: hrs./week	End Semester Exam:70 Marks		
Credit Points:	3		

Unit	Content	Hrs/Unit	Marks/Unit
1	Overview of System Analysis & Design , Business System Concept, System Development Life Cycle, Waterfall Model , Spiral Model, Feasibility Analysis, Technical Feasibility, Cost- Benefit Analysis, COCOMO model. <b>[10L]</b>	10	
2	System Design – Context diagram and DFD, Problem Partitioning, Top-Down And Bottom-Up design; Decision tree, decision table and structured English; Functional vs. Object- Oriented approach. <b>[5L]</b>	5	
3	Coding & Documentation – Structured Programming, OO Programming, Information Hiding, Reuse, System Documentation. <b>[4L]</b>	12	
	Testing – Levels of Testing, Integration Testing, Test case Specification, Reliability Assessment, Validation & Verification Metrics, Monitoring & Control. <b>[8L]</b>		
4.	Software Project Management – Project Scheduling, Staffing, Software Configuration Management, Quality Assurance, Project Monitoring. <b>[7L]</b>	7	
5	Static and dynamic models, why modeling, UML diagrams: Class diagram, interaction diagram: collaboration diagram, sequence diagram, state chart diagram, activity diagram, implementation diagram. <b>[10 L]</b>	10	

**Text book and Reference books:**

1. Pressman, Software Engineering : A practitioner’s approach– (TMH)
2. Pankaj Jalote, Software Engineering- (Wiley-India)
3. N.S. Gill, Software Engineering – (Khanna Publishing House)
4. Rajib Mall, Software Engineering- (PHI)
5. Agarwal and Agarwal, Software Engineering – (PHI)
6. Sommerville, Software Engineering – Pearson
7. Martin L. Shooman, Software Engineering – TMH

**Human Resource Development and Organizational Behavior**

**Code: OEC-AIML 802 A**

**Contact: 3L**

Name of the Course:	<b>Human Resource Development and Organizational Behavior</b>
Course Code: OEC-AIML 802 A	Semester: VIII
Duration:6 months	Maximum Marks:100
<b>Teaching Scheme</b>	<b>Examination Scheme</b>
Theory:3 hrs./week	Mid Semester exam: 15
Tutorial: NIL	Assignment and Quiz: 10 marks
	Attendance: 5 marks
Practical: NIL	End Semester Exam:70 Marks
Credit Points:	3

Unit	Content	Hrs/Unit	Marks/Unit
1	Organizational Behaviour: Definition, Importance, Historical Background, Fundamental Concepts of OB, Challenges and Opportunities for OB. [2] Personality and Attitudes: Meaning of personality, Personality Determinants and Traits, Development of Personality, Types of Attitudes, Job Satisfaction.	4	
2	Perception: Definition, Nature and Importance, Factors influencing Perception, Perceptual Selectivity, Link between Perception and Decision Making. [2] 4. Motivation: Definition, Theories of Motivation - Maslow’s Hierarchy of Needs Theory, McGregor’s Theory X & Y, Herzberg’s Motivation-Hygiene Theory, Alderfer’s ERG Theory, McClelland’s Theory of Needs, Vroom’s Expectancy Theory.	8	
3	Group Behaviour: Characteristics of Group, Types of Groups, Stages of Group Development, Group Decision	4	

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	<p>Making. [2]          Communication: Communication Process, Direction of Communication, Barriers to Effective Communication. [2]          Leadership: Definition, Importance, Theories of Leadership Styles.</p>		
4.	<p>Organizational Politics: Definition, Factors contributing to Political Behaviour. [2]          Conflict Management: Traditional vis-a-vis Modern View of Conflict, Functional and Dysfunctional Conflict, Conflict Process, Negotiation – Bargaining Strategies, Negotiation Process. [2]          Organizational Design: Various Organizational Structures and their Effects on Human Behaviour, Concepts of Organizational Climate and Organizational Culture.</p>	8	

**Text book and Reference books:**

1. Robbins, S. P. & Judge, T.A.: Organizational Behavior, Pearson Education, 15th Edn.
2. Luthans, Fred: Organizational Behavior, McGraw Hill, 12th Edn.
3. Shukla, Madhukar: Understanding Organizations – Organizational Theory & Practice in India, PHI
4. Fincham, R. & Rhodes, P.: Principles of Organizational Behaviour, OUP, 4th Edn.
5. Hersey, P., Blanchard, K.H., Johnson, D.E.- Management of Organizational Behavior Leading Human Resources, PHI, 10th Edn.

**Research Methodology**  
**Code: OEC-AIML 802B**  
**Contact: 3L**

Name of the Course:	<b>Research Methodology</b>		
Course Code: OEC-AIML 802B	Semester: VIII		
Duration: 6 months	Maximum Marks: 100		
<b>Teaching Scheme</b>		<b>Examination Scheme</b>	
Theory: 3 hrs./week		Mid Semester exam: 15	
Tutorial: NIL		Assignment and Quiz: 10 marks	
		Attendance: 5 marks	
Practical: NIL		End Semester Exam: 70 Marks	
Credit Points:	3		

Unit	Content	Hrs/Unit	Marks/Unit
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1	<p><b>RESEARCH FORMULATION AND DESIGN</b></p> <p>Motivation and objectives – Research methods vs. Methodology. Types of research – Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical, concept of applied and basic research process, criteria of good research. Defining and formulating the research problem, selecting the problem, necessity of defining the problem, importance of literature review in defining a problem, literature review-primary and secondary sources, reviews, monograph, patents, research databases, web as a source, searching the web, critical literature review, identifying gap areas from literature and research database, development of working hypothesis.</p>	9	
2	<p><b>DATA COLLECTION AND ANALYSIS</b></p> <p>Accepts of method validation, observation and collection of data, methods of data collection, sampling methods, data processing and analysis strategies and tools, data analysis with statically package (Sigma</p>	9	
	<p>STAT, SPSS for student t-test, ANOVA, etc.), hypothesis testing.</p>		
3	<p><b>RESEARCH ETHICS, IPR AND SCHOLARY PUBLISHING</b></p> <p>Ethics-ethical issues, ethical committees (human &amp; animal); IPR- intellectual property rights and patent law, commercialization, copy right, royalty, trade related aspects of intellectual property rights (TRIPS); scholarly publishing- IMRAD concept and design of research paper, citation and acknowledgement, plagiarism, reproducibility and accountability.</p>	9	
4.	<p><b>INTERPRETATION AND REPORT WRITING</b></p> <p>Meaning of Interpretation, Technique of Interpretation, Precaution in Interpretation, Significance of Report Writing, Different Steps in Writing Project Report, Layout of the Project/Research Report, Types of Reports, Oral Presentation, Mechanics of Writing a Project/Research Report, Precautions for Writing Research Reports, Conclusions.</p>	9	

**Text book and Reference books:**

1. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002. An introduction to Research Methodology, RBSA Publishers.
2. Kothari, C.R., 1990. Research Methodology: Methods and Techniques. New Age International. 418p.
3. Sinha, S.C. and Dhiman, A.K., 2002. Research Methodology, Ess Ess Publications. 2 volumes.
4. Trochim, W.M.K., 2005. Research Methods: the concise knowledge base, Atomic Dog Publishing. 270p.
5. Wadehra, B.L. 2000. Law relating to patents, trade marks, copyright designs and geographical indications. Universal Law Publishing.

**Additional reading**

1. Anthony, M., Graziano, A.M. and Raulin, M.L., 2009. Research Methods: A Process of Inquiry, Allyn and Bacon.
2. Carlos, C.M., 2000. Intellectual propertyrights, the WTO and developing countries: the TRIPS agreement and policy options. Zed Books, New York.
3. Coley, S.M. and Scheinberg, C. A., 1990, "Proposal Writing", Sage Publications.
4. Day, R.A., 1992.How to Write and Publish a Scientific Paper, Cambridge University Press.
5. Fink, A., 2009. Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications
6. Leedy, P.D. and Ormrod, J.E., 2004 Practical Research: Planning and Design, Prentice Hall.
7. Satarkar, S.V., 2000. Intellectual property rights and Copy right. Ess Ess Publications.

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**Soft Skill & Interpersonal Communication**

**Code: OEC-AIML802C**

**Contact: 3L**

Name of the Course:	<b>Soft Skill &amp; Interpersonal Communication</b>		
Course Code: OEC-AIML802C	Semester: VIII		
Duration: 6 months	Maximum Marks: 100		
<b>Teaching Scheme</b>		<b>Examination Scheme</b>	
Theory: 3 hrs./week		Mid Semester exam: 15	
Tutorial: NIL		Assignment and Quiz: 10 marks	
		Attendance: 5 marks	
Practical: NIL		End Semester Exam: 70 Marks	
Credit Points:	3		

Unit	Content	Hrs/Unit	Marks/Unit
1	Introduction: A New Approach To Learning, Planning And Goal-Setting, Human Perceptions: Understanding People, Types Of Soft Skills: Self-Management Skills, Aiming For Excellence: Developing Potential And Self- Actualization, Need Achievement And SpiritualIntelligence	5	
2	Conflict Resolution Skills: Seeking Win-Win Solution, Inter-Personal Conflicts: Two Examples, Inter-Personal Conflicts: Two Solutions, Types Of Conflicts: Becoming A Conflict Resolution Expert Types Of Stress: Self-Awareness About Stress, Regulating Stress: Making The Best Out Of Stress	5	
3	Habits: Guiding Principles, Habits: Identifying Good And Bad Habits, Habits: Habit Cycle, Breaking Bad Habits, Using The Zeigarnik Effect For Productivity And Personal Growth,	5	
	Forming Habits Of Success		
4.	Communication: Significance Of Listening, Communication: Active Listening, Communication: Barriers To Active Listening, Telephone Communication: Basic Telephone Skills , Telephone Communication: Advanced Telephone Skills, Telephone Communication: Essential Telephone Skills	5	

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5.	Technology And Communication: Technological Personality, Technology And Communication: Mobile Personality?, Topic: Technology And Communication: E-Mail Principles, Technology And Communication: How Not To Send E-Mails!, Technology And Communication: Netiquette, Technology And Communication: E-Mail Etiquette	5	
6	Communication Skills: Effective Communication, Barriers To Communication: Arising Out Of Sender/Receiver's Personality, Barriers To Communication: Interpersonal Transactions, Barriers To Communication: Miscommunication, Non-Verbal Communication: Pre-Thinking Assessment-1, Non-Verbal Communication: Pre-Thinking Assessment-2	5	
7	Nonverbal Communication: Introduction And Importance, Non-Verbal Communication: Issues And Types, Non-Verbal Communication: Basics And Universals, Non- Verbal Communication: Interpreting Non-Verbal Cues, Body Language: For Interviews, Body Language: For Group Discussions	5	
	Presentation Skills: Overcoming Fear,	5	
8	Presentation Skills: Becoming A Professional, Presentation Skills: The Role Of Body Language, Presentation Skills: Using Visuals, :Reading Skills: Effective Reading, Human Relations: Developing Trust And Integrity		

**TEXT BOOKS AND REFERENCES**

1. Dorch, Patricia. *What Are Soft Skills?* New York: Execu Dress Publisher, 2013.
2. Kamin, Maxine. *Soft Skills Revolution: A Guide for Connecting with Compassion for Trainers, Teams, and Leaders.* Washington, DC: Pfeiffer & Company, 2013.
3. Klaus, Peggy, Jane Rohman & Molly Hamaker. *The Hard Truth about Soft Skills.* London: HarperCollins E-books, 2007.
4. Petes S. J., Francis. *Soft Skills and Professional Communication.* New Delhi: Tata McGraw-Hill Education, 2011.
5. Stein, Steven J. & Howard E. Book. *The EQ Edge: Emotional Intelligence and Your Success.* Canada: Wiley & Sons, 2006.

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**Project-II**

**Code:** PROJ-AIML 881

**Contact:** 12P

**Project Work II & Dissertation**

The object of Project Work II & Dissertation is to enable the student to extend further the investigative study taken up under EC P1, either fully theoretical/practical or involving both theoretical and practical work, under the guidance of a Supervisor from the Department alone or jointly with a Supervisor drawn from R&D laboratory/Industry. This is expected to provide a good training for the student(s) in R&D work and technical leadership. The assignment to normally include:

1. In depth study of the topic assigned in the light of the Report prepared under EC P1;
2. Review and finalization of the Approach to the Problem relating to the assigned topic;
3. Preparing an Action Plan for conducting the investigation, including teamwork;
4. Detailed Analysis/Modelling/Simulation/Design/Problem Solving/Experiment as needed;
5. Final development of product/process, testing, results, conclusions and future directions;
6. Preparing a paper for Conference presentation/Publication in Journals, if possible;
7. Preparing a Dissertation in the standard format for being evaluated by the Department.
8. Final Seminar Presentation before a Departmental Committee.