List of Humanities and Mathematics Syllabi

HS101 Communication Skills 2-0-0-4

Vocabulary Building - Effective Sentence Construction; Paragraphs- Note-making - Letter-writing – Reading Techniques - Technical Report writing - Book Review; English Sound System - Stress, Rhythm and Intonation - Group Discussions- Listening Comprehension.

TEXTS:

1. Dept. of Humanities and Social Sciences, Anna University, English for Engineers and Technologists, Combined Edition, Vol. 1 and 2, Orient Blackswan, 2008.
2. Ashraf, M Rizvi. Effective Technical Communication. Tata McGraw-Hill, 2006.
3. Meenakshi Raman and Sangeetha Sharma. Technical Communication: Principles and Practice 2nd Edition, Oxford University Press, 2011.

HS201 ENGINEERING ECONOMICS AND ACCOUNTANCY 2-0-0-4

Basic concepts of national income, inflation, economic policies, financial accounting, preparation of cost sheet, concepts of financial management and smart investment.

TEXTS:

1. Henry M.S., Engineering Economics Principles, McGraw Hill Publishers, 2011.
2. Jain and Narang, Accounting, Kalyani Publishers, 2011.

HS202 HUMAN RESOURCE MANAGEMENT 2-0-0-4

Introduction, Job Analysis, Employee Involvement, and Flexible Work Schedules, Human resource Planning, Recruitment and Careers, Employee Selection, Training and Development, Appraising and Improving Performance, Managing Compensation, Industrial relations, Disputes, Grievances and Discipline, International Human Resources Management.

TEXTS:

1. Gary Dessler and Biju Varkkey, Human Resource Management, Pearson Edition, 2011.
2. Bohlander George W, Snell Scott A, Veena Vohra, Human Resource Management, Cengage Learning. 2010.
3. Aswathappa, Human Resource Management, TMH, 2011.

HS203 CORPORATE COMMUNICATION 2-0-0-4

Importance of Communication in the Corporate World; Oral Communication: a) Oral Fluency and Communication Techniques, b) Seminar Skills and Presentation skills; Listening Skills; Writing for Career Purposes; Leadership Communication.

TEXTS:

1. Priyadarshi Patnaik, Group Discussion and Interview Skills, Cambridge University Press, 2011.
2. R.C. Sharma and Krishna Mohan, Business Correspondence and Report Writing, 3rd Edition, Tata McGraw-Hill, 2008
3. Patrick Hanks and Jim Corbett, Business Listening Tasks, Cambridge University Press, 1986.

HS301 INDUSTRIAL MANAGEMENT 2-0-0-4

Management theory and practice: functions of management; Hawthorne Experiments, leadership styles and motivational theories. Marketing management: Marketing management process, product life cycle and marketing strategies. Operations management: Productivity and work study, operations strategy, statistical process control, Taguchi's parametric design, Quality function deployment, Introduction to TQM and ISO 9000. inventory costs, ABC classification, EOQ, P and Q inventory systems. Project management: project planning and feasibility analysis, project scheduling methods.

TEXTS:

1. Koontz., H. et al., Essentials of Management, 7th Edition, McGraw Hill Book Company, New York, 2007.
2. Philip Kotler., Marketing Management, 13th Edition, Prentice Hall of India/Pearson, New Delhi, 2009.
3. Chase, Shankar, Jacobs and Aquilano, Operations and Supply Management, 12th Edition, Tata McGraw Hill, New Delhi, 2010.

HS302 MARKETING MANAGEMENT 2-0-0-4

Nature and Scope of Marketing; Major Market oriented strategic planning. Corporate Mission and Vision. Concepts of strategic business units. BCG matrix and GE model; SWOT Analysis. Analyzing needs and trends in Macro environment. Marketing Information systems. Consumer Behavior and STP concept. New Product development process, product Life cycle, product and Branding Strategy, products mix and line decisions Brand decisions - Building brand.Pricing - Strategies and programmes, Marketing Channels - Distribution channels, Channel Design and Management decisions. Retailing Wholesaling and Logistics, Electronic Channels. Marketing promotion.

TEXTS:

1. Philip Kottler, Marketing Management, PHI, 2011.
2. William Stanton and Etzel, Marketing Management, TMH, 2010.
3. Ramaswami and Namakumari, Marketing Management, McMillan Publication, 2010.

HS303 PLANNING AN ENTERPRENEURIAL VENTURE 2-0-0-4

Entrepreneur and Entrepreneurship: Entrepreneurship and Small Scale Enterprises (SSE) – Entrepreneurial Competencies. Establishing the small scale enterprise: Opportunity Scanning and Identification in the domain of Electrical, Electronics and Computer Engineering, Market Assessment for SSE. Operating the small scale enterprises: Financial Management Issues in SSE, Operational Management Issues in SSE, Marketing Management Issues in SSE, Organizational Relations in SSE.

TEXTS:

1. Kuratko: New Venture Management: The Entrepreneur's Roadmap, Pearson Education India, 2008.
2. Holt, Entrepreneurship: New Venture Creation, PHI (P) Ltd., 2001.
3. Lisa K. Gundry, Jill R. Kickul: Entrepreneurship Strategy: Changing Patterns in New Venture Creation, Growth, and Reinvention, Sage Publications, 2007.

HS401 SOFT SKILLS 2-0-0-4

Soft Skills - definition - scope and importance - workplace communi-cation, process and barriers- Interpersonal and Intra-personal communication skills- team building- emotional intelligence- developing self-esteem- time and stress management- group discussions, interviews, and presentation skills-résumé-writing - campus to company- dressing and grooming- Entrepreneurial Skills Development- Project.

TEXTS:

1. Robert M. Sheffield, Montgomery and Moody, Developing Soft Skills, 4th Edition, Pearson, 2009.
2. K. Alex, Soft Skills: Know Yourself and Know the World, S. Chand, 2009.
3. Gopalaswamy Ramesh, Mahadevan Ramesh, The Ace of Soft Skills: Attitude, Communication and Etiquette for Success, Pearson, 2010.

HS402 Professional Ethics 2-0-0-4

Morals, Values and Ethics – Integrity – Work Ethic – Honesty – Courage –Empathy – Self-Confidence – Character. Senses of 'Engineering Ethics' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action - Self-interest - customs and religion - uses of ethical theories. Valuing Time – Co-operation – Commitment. Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law - the challenger case study. Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk - the three mile island and chernobyl case studies. Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers-consulting engineers-engineers as expert witnesses and advisors -moral leadership-

TEXTS

1. Mike Martin and Roland Schinzinger, “Ethics in Engineering”, McGraw-Hill, New York 1996.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, “Engineering Ethics”, Prentice Hall of India, New Delhi, 2004.

REFERENCES

1. Charles D. Fleddermann, “Engineering Ethics”, Pearson Education / Prentice Hall, New Jersey, 2004.
2. Charles E Harris, Michael S. Protchard and Michael J Rabins, “Engineering Ethics – Concepts and Cases”, Wadsworth Thompson Leatning, United States, 2000.
3. John R Boatright, “Ethics and the Conduct of Business”, Pearson Education, New Delhi, 2003.
4. Edmund G Seebauer and Robert L Barry, “Fundamentals of Ethics for Scientists and Engineers”, Oxford University Press, Oxford, 2001.

HS701 Research Methodology 3-0-0-6

Types of research, Various Steps in Research process, Mathematical tools for analysis, Developing a research question-Choice of a problem Literature review, Surveying, synthesizing, critical analysis, reading materials, reviewing, rethinking, critical evaluation, interpretation, Research Purposes, Ethics in research – APA Ethics code. Statistical Modeling and Analysis, Time Series Analysis Probability Distributions, Fundamentals of Statistical Analysis and Inference, Multivariate methods, Concepts of Correlation and Regression, Fundamentals of Time Series Analysis and Spectral Analysis, Error Analysis, Applications of Spectral Analysis. Tables and graphs of frequency data of one variable, Tables and graphs that show the relationship between two variables , Relation between frequency distributions and other graphs, preparing data for analysis. Computer and its role in research, Use of statistical soft ware SPSS, GRETL etc in research.

Texts

1. C.R. Kothari, Research Methodology Methods and Techniques, 2/e, Vishwa Prakashan, 2006
2. Donald H.McBurney, Research Methods, 5th Edition, Thomson Learning, ISBN:81-315-0047- 0,2006

Reference

1. Donald R. Cooper, Pamela S. Schindler, Business Research Methods, 8/e, Tata McGraw-Hill Co. Ltd., 2006.

HS702 Seminar Course 0-0-6-6

(To be prepared by HSS Department)

HS703 Rise of English studies in India 3-0-0-6

Pre-independence fiction, The Partition as portrayed in the novel and short story, Women fiction writers, Dalit fiction, Diasporic fiction, The postmodernist Indian English novel, Postcolonial fiction.

TEXTS

1. Bassnett, Susan and Harish Trivedi (eds). 2002 [1999]. *Postcolonial translation: Theory and Practice.* London: Routledge
2. Bharucha, Nilufer and Vilas Sarang (eds). 1994. *Indian EnglishFiction, 1980- 90: An Assessment.* Delhi: B R Publishers.
3. Bhongle, Rangrao (ed.). 2003. *The Inside View: Native Responses to Contemporary Indian English Novel.* Delhi: Atlantic Publishers.
4. Dangle, Arjun (ed). 1994. *Poisoned Bread.* Mumbai: Orient Longman.

HS704 Indian English Poetry 3-0-0-6

Early Indian English Poetry, Poetry after the 1950s, Women poets, Dalit poets, Indian English non-fictional prose, Modern Indian drama in English and translation, Nativism

TEXTS

1. de Souza, Eunice (ed). 2010 [2005]. .*Early Indian poetry in English: An Anthology 1829-1947.* New Delhi: Oxford University Press.
2. Dharwadker, Vinay and Ramanujan A. K.. 2006 [1994]. *The Oxford Anthology of Modern Indian Poetry.* New Delhi: Oxford University Press.
3. . Ezekiel, Nissim and Mukherjee Meenakshi. 1990. *Another India: An Anthology of Contemporary Indian Fiction and Poetry.*New Delhi: Penguin Books.

HS705 African Women Speak 3-0-0-6

Being African and Being Woman – distilling the experience, Feminism – The theoretical foundations, African Women's Literary Culture through the Ages, African Women's Literary Culture through the Ages, The encounter with Europe and the Literary world of the African Woman, Nationalism in the writing of African Women, The Poetic Impulse, African Women and the Narrative Culture, Women's Drama and Theatre

TEXTS

- Aidoo, Ama Ata. 2002. *The Girl Who Can and Other Stories.* Johannesburg, South Africa
- Amadiume, Ifi. 1987 *Male Daughters and Female Husbands:Gender and Sex in an African Society;* London, Zed Books ltd
- Bádéjò Deidre L. 1996. *Òsun Sèègèsí. The Elegant Deity of Wealth, Power and Femininity*. Asmara, Eritrea: Africa World Press
- Stella and Frank Chipasula (Eds.). 1995. *African Women's Poetry*. Ibadan

HS706 Language Studies 3-0-0-6

Definition and Scope of Phonetics, Mechanism of Speech Production, Classification of Sounds- Description of English Consonants and Vowels, Syllable- Structure and types of the syllable, Word Stress, Stress and Rhythm in Connected Speech, Intonation, Features of Connected Speech

TEXTS

1. A.C. Gimson: *An Introduction to Pronunciation of English* (ELBS)
2. R.K. Bansal and J.B. Harrison: *Spoken English for India* (Orient Longman)
3. J.Kenworthy: *Teaching English Pronunciation* (Orient Longman)

MA 201 Mathematics- III 3-0-0-6

Complex numbers and elementary properties. Complex functions - limits, continuity and differentiation. Cauchy-Riemann equations. Analytic and harmonic functions. Elementary functions. Anti-derivatives and path (contour) integrals. Cauchy-Goursat Theorem. Cauchy's integral formula, Morera's Theorem. Liouville's Theorem, Fundamental Theorem of Algebra and Maximum Modulus Principle. Taylor series. Power series. Singularities and Laurent series. Cauchy's Residue Theorem and applications. Mobius transformations. First order partial differential equations; solutions of linear and nonlinear first order PDEs; classification of second-order PDEs; method of characteristics; boundary and initial value problems (Dirichlet and Neumann type)

involving wave equation, heat conduction equationi, Laplace's equations and solutions by method of separation of variables (Cartesian coordinates); initial boundary value problems in non-rectangular coordinates. Laplace and inverse Laplace transforms; properties, convolutions; solution of ODE and PDE by Laplace transform; Fourier series, Fourier integrals; Fourier transforms, sine and cosine transforms; solution of PDE by Fourier transform.

Texts:

[1] J. W. Brown and R. V. Churchill, Complex Variables and Applications, 7th Ed., Mc- Graw Hill, 2004.
[2] I. N. Sneddon, Elements of Partial Differential Equations, McGraw Hill, 1957.
[3] S. L. Ross, Differential Equations, 3rd Ed., Wiley India, 1984.

References:

[1] T. Needham, Visual Complex Analysis, Oxford University Press, 1999.
[2] J. H. Mathews and R. W. Howell, Complex Analysis for Mathematics and Engineering, 3rd Ed., Narosa,1998.

MA202 PROBABILITY AND RANDOM PROCESSES 3-0-0-6

Introduction to probability: mathematical background - sets, set operations, sigma and Borel fields; classical, relative-frequency and axiomatic definitions of probability; conditional probability, independence, total probability, Bayes' rule; repeated trials; random variables: cumulative distribution function, continuous, discrete and mixed random variables, probability mass function, probability density functions; functions of a random variable; expectation - mean, variance and moments; characteristic and moment-generating functions; Chebyshev, Markov and Chernoff bounds; special random variables-Bernoulli, binomial, Poisson, uniform, Gaussian and Rayleigh; joint distribution and density functions; Bayes' rule for continuous and mixed random variables; joint moments, conditional expectation; covariance and correlation- independent, uncorrelated and orthogonal random variables; function of two random variables; sum of two independent random variables; random vector- mean vector and covariance matrix, multivariate Gaussian distribution; sequence of random variables: almost sure and mean-square convergences, convergences in probability and in distribution, laws of large numbers, central limit theorem; elements of estimation theory- linear minimum mean-square error and orthogonality principle; random process: discrete and continuous time processes; probabilistic structure of a random process; mean, autocorrelation and autocovariance functions; stationarity- strict-sense stationary and wide-sense stationary (WSS) processes: autocorrelation and cross-correlation functions; time averages and ergodicity; spectral representation of a real WSS process-power spectral density, cross-power spectral density, linear time-invariant systems with WSS process as an input- time and frequency domain analyses; spectral factorization theorem; examples of random processes: white noise, Gaussian, Poisson and Markov processes.

Texts:

1. A. Papoulis and S.U. Pillai, Probability Random Variables and Stochastic Processes, 4/e, McGraw-Hill, 2002.
2. A. Leon Garcia, Probability and Random Processes for Electrical Engineering, 2/e, Addison-Wesley, 1993.

References:

1. P.Z. Peebles, Probability, Random Variables and Random Signal Principles, 4/e, Mc-Graw Hill, 2000.
2. H. Stark and J.W. Woods, Probability and Random Processes with Applications to Signal Processing, Prentice Hall, 2002.
3. K. L. Chung and F. AitSahlia, Elementary Probability Theory with Stochastic Processes and an Introduction to Mathematical Finance, 4/e, Springer-Verlag, 2003.

MA203 Numerical Methods 3-0-0-6

Errors: Definition and source of errors, propagation of errors. Interpolation: Concept of interpolation, difference operators, divided difference interpolation, Newton's forward, backward interpolation, Lagrange's interpolation, Central Difference Interpolation. Numerical Differentiation: Numerical Differentiation (1^{st} and 2^{nd} order) using Newton's Forward and Backward Interpolation Formula. Numerical Integration: Newton-Cote's integration formula, Trapezoidal Rule, Simpson's one-third Rule, Simpson's three-eighth Rule, Weddle's Rule, Euler-Maclaurin's Summation Formula. Solution of nonlinear equations: bisection method, iteration method, Regula-Falsi method (Method of False position), Newton-Raphson method. Solution of simultaneous linear equations: Gauss Elimination Method, Gauss-Jordan Elimination Method and Gauss-Seidal Iteration Method, Matrix Inversion Method. Numerical solution of Ordinary Differential Equation: Taylor's method, Picard's method, Euler's method, Euler's modified method, Runge's method, Runge-Kutta's method, Predictor-Corrector method (Milne's Method, ABM method). Numerical solution of Partial Differential Equation: Methods for solving Hyperbolic Equations by finite difference methods, explicit methods, implicit and by the method of characteristics.

Texts:

1. D. Kincaid and W. Cheney, *Numerical Analysis: Mathematics of Scientific Computing*, 3rd Edn., AMS, 2002.

2. K. E. Atkinson, *Introduction to Numerical Analysis*, 2nd Edn., John Wiley, 1989.

References:

1. S. D. Conte and Carl de Boor, *Elementary Numerical Analysis - An Algorithmic Approach*, 3rd Edn., McGraw Hill, 1980.
2. S.C. Chapra and R.P. Canale, *Numerical Methods for Engineers*, Tata McGraw Hill, 2002.
3. J.H. Mathews, *Numerical Methods for Mathematics, Science and Engineering*, Prantice Hall of India, 1998.

MA301 Optimization 3-0-0-6

Classification and general theory of optimization; Linear programming (LP): formulation and geometric ideas, simplex and revised simplex methods, duality and sensitivity, interior-point methods for LP problems, transportation, assignment, and integer programming problems; Nonlinear optimization, method of Lagrange multipliers, Karush-Kuhn-Tucker theory, numerical methods for nonlinear optimization, convex optimization, quadratic optimization; Dynamic programming; Optimization models and tools in finance.

Texts:

1. D. G. Luenberger and Y. Ye, Linear and Nonlinear Programming, 3rd Ed., Springer India, 2008.
2. N. S. Kambo, Mathematical Programming Techniques, East-West Press, 1997.

References:

1. E. K. P. Chong and S. H. Zak, An Introduction to Optimization, 2nd Ed., Wiley India, 2001.
2. M. S. Bazarra, H. D. Sherali and C. M. Shetty, Nonlinear Programming Theory and Algorithms, 3rd Ed., Wiley India, 2006.
3. S. A. Zenios (ed.), Financial Optimization, Cambridge University Press, 2002.
4. K. G. Murty, Linear Programming, Wiley, 1983.
5. D. Gale, The Theory of Linear Economic Models, The University of Chicago Press, 1989