

EXTENSION EDUCATION & COMMUNICATION MANAGEMENT

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
HECM 501*	GLOBAL EXTENSION SYSTEMS	3+0	I
HECM 502*	TRAINING AND HUMAN RESOURCE DEVELOPMENT	2+1	I
HECM 503*	COMMUNICATION FOR DEVELOPMENT	2+1	II
HECM 504*	MEDIA PRODUCTION AND MANAGEMENT	2+2	I
HECM 505	PARTICIPATORY PROGRAMME MANAGEMENT	1+2	II
HECM 506	GENDER SENSITIZATION FOR EMPOWERMENT	2+0	I
HECM 507	EXTENSION MANAGEMENT	3+0	I
HECM 508	RESEARCH METHODS IN HOME SCIENCE	2+1	II
HECM 509	SCIENTIFIC WRITING AND REPORTING FOR MEDIA	1+2	II
HECM 510	EDUCATIONAL TECHNOLOGY	2+1	II
HECM 511	ICT AND MEDIA	0+2	II
HECM 591	MASTER'S SEMINAR	1	I, II
HECM 599	MASTER'S RESEARCH	20	I, II
HECM 601**	RECENT TRENDS IN EXTENSION AND COMMUNICATION	3+0	I
HECM 602	MANAGERIAL SKILLS FOR EXTENSION PROFESSIONALS	3+0	II
HECM 603	ADVANCED MEDIA MANAGEMENT	1+2	II
HECM 604**	RESEARCH PROJECT MANAGEMENT	2+1	I
HECM 605**	ADVANCED RESEARCH TECHNIQUES AND MEASUREMENT	2+2	II
HECM 606	MONITORING, EVALUATION AND IMPACT ASSESSMENT	3+0	II
HECM 607	ADVERTISING AND MARKETING COMMUNICATION	1+1	I
HECM 691	DOCTORAL SEMINAR I	1	I, II
HECM 692	DOCTORAL SEMINAR II	1	I, II
HECM 699	DOCTORAL RESEARCH	45	I, II

*Compulsory for Master's programme; **Compulsory for Doctoral programme
 Courses open for students of other departments: HECM 501, 505, 506, 507, 508, 510

EXTENSION EDUCATION & COMMUNICATION MANAGEMENT

Course Contents

HECM 501 GLOBAL EXTENSION SYSTEMS 3+0 SEM - I

Objective

To appraise students about historical perspectives of extension education in India and comparative extension system of selected countries.

Theory

UNIT-I: Extension efforts after independence; Community Development Programme; Panchayati Raj Institutions; T & V system; Special programmes for poor, women and children: IRDP, SGSY, NLM, TRYSEM, DWCRA, ICDS, NREGA etc.

UNIT-II: Extension approaches to rural development: ATMA, DRDA, Central Social Welfare Board, State Social Welfare Board, NABARD; National Level Voluntary Agencies: CAPART and KVIC; Extension systems in India: ICAR (KVK, IVLP, ATIC, NATP, NAIP, AICRP), state Govt. and NGO.

UNIT-III: Role of SAUs in rural development; Role of international organizations in rural development; Review of Five Year Plans in India; Privatization of extension services and its scope and limitations.

UNIT-IV: Comparative extension system of selected developed and developing countries: USA, UK, Israel, China, Pakistan, Japan and Brazil with brief history, approaches, organizational structure, linkage with research and extension methods used and its comparative analysis with Indian extension system.

Suggested Readings

Axinn George H & Thorat SS. 1972. *Modernizing Agricultural World Wide*. Oxford & IBH.

Cernea MM, Russel JFA & Coulter JK. (Eds.). 1983. *Agricultural Extension by Training and Visit- The Asian Experience*. The World Bank Washington D.C.

Dantwala ML & Barmeda JN. 1990. *Rural Development Approaches and Issues, Indian Ag. Dev. Since Independence*. Oxford & IBH.

Dhama OP & Bhatnagar OP. 1991. *Communication for Development*. Oxford & IBH.

Mondal S & Ray GL. 2007 *A Text Book of Rural Development*. Kalyani.

Ray GL. 2006. *Extension Communication and Management*. Kalyani.

Rivera WH. 1987. *Agricultural Extension World Wide Issues, Practices and Emerging Priorities*. Croom Helm.

Singh H. 1985. *Rural Development in India*. Print Well Publ.

Singh RP, Mathur PN & Kumar GAK. 1999. *Extension Education – A Handbook for Extension Personnel*. IFWA, IARI, New Delhi.

Swanson BE, Bants RP & Sofrenko AJ. 1984. *Improving Agriculture Extension - A Reference Manual*. FAO.

Vanden Ban AW & Hawkins HS. 1988. *Agriculture Extension*. Longman Scientific Technical.

HECM 502 TRAINING AND HUMAN RESOURCE 2+1 SEM - I
DEVELOPMENT

Objective

To acquire knowledge and skill on various aspects of trainings, human resource development and develop expertise as training professionals.

Theory

UNIT-I: Training: Concept and importance in Human Resource Development (HRD) and rural development; Types of training; Conceptual models of training process.

UNIT-II: Participatory training methods: Lecturette, interactive demonstration, brain storming, case studies, syndicate method, simulation exercises, role play etc.

UNIT-III: Experiential Learning Cycle (ELC): concept and types; Designing, management and delivery of training programme; Monitoring, evaluation and impact assessment.

UNIT-IV: HRD: concept, dimensions and importance in rural development; Strategic interventions of ICAR and SAUs; Techniques of HRD.

Practical

Visiting and studying the nature and functioning of training institutes; Practice of selected training methods; Planning, organizing and evaluation of training programmes for different clientele.

Suggested Readings

Lynton R. & Pareek U. 1991. *Training Development*. Vistat.
Singh RP. 2000 *Management of Training Programmes*. Anmol Publ.

HECM 503 COMMUNICATION FOR DEVELOPMENT 2+1 SEM - II

Objective

To acquaint students about communication process, recent advances in communication and diffusion and help students acquire necessary communication skills.

Theory

UNIT-I: Communication: concept, meaning, importance, models, theories and types; Communication approaches: individual, group and mass; Factors affecting their selection and use; Communication fidelity, credibility, empathy, feedback and factors affecting communication process; Barriers in communication.

UNIT-II: Communication skills: effective oral communication, public speaking, non-verbal communication, writing skills and soft skills.

UNIT-III: Concept and element of diffusion; Concept and stages of Innovation: decision process, attributes and consequences of Innovations; Adopter categories and innovativeness.

UNIT-IV: Development communication: concept, nature and significance; Participative communication : meaning, importance, process and determinants; Recent advances in communication: internet, e-mail, fax, mobile, interactive video, teleconferencing, computer and computer networking, AGRINET and e-Governance.

Practical

Practical exercises on oral and written communication; Analysis of communication studies under field conditions.

Suggested Readings

Bhagat R. & Mathur PN. 1989. *Mass Media and Farm Women*. Intellectual Publ. House.
Chopra K, Kaukodi GK & Murthy MN. 1990. *Participatory Development*. Sage Publ.
Hage Jerald 1977. *Communication and Organizational Control*. Wiley Interscience.
Melkote SR. 1991. *Communication for Development in the Third World: Theory and Practices*. Sage Publ.
Mody B. 1991. *Designing Message for Development Communication*. Sage Publ.
Punam Linda L & Pacanowsky Micheal E. 1983. *Communication and Organizations: An Interpretive Approach*. Sage Publ.
Ratnaswamy P. 1995. *Communication Management - Theory and Practice*.
Ray GL. 1991. *Extension and Communication and Management*. Naya Prokash.
White Shirley A, Nair KS & Ascroft J. 1994. *Participatory Communication*. Sage Publ.

HECM 504 MEDIA PRODUCTION AND MANAGEMENT 2+2 SEM - I

Objective

To develop competency in production and management of different media.

Theory

UNIT-I: Process of print media production: newspaper, magazine and other extension publications (leaflets, brochures, newsletters, bulletins, booklets, posters etc.).

UNIT-II: Papers: kind and size of papers; Color theory for print; Use of graphics, illustrations and diagrams in production; Software for production: basics of photoshop and pagemaker.

UNIT-III: Process of electronic media production: radio, TV; Different programme formats for radio and television; Hardware and gadgetry requirements; Multimedia: concept and evolution; Fundamentals of making a multi media programme: text, graphics and audio.

Practical

Visit and study of structure and functioning of selected media organizations: newspaper, radio, TV, PRO; Planning and production of selected media programmes: print and electronic.

Suggested Readings

Akhauri MMP. 1990 *Entrepreneurship for Women in India*. NIESBUD, New Dehli.
 Gupta CB & Srinivasan NP. 2000. *Entrepreneurship Development in India*. S. Chand & Sons.
 Hisrich RD & Brush CG. 1986. *The Women Entrepreneurs*. D.C. Health & Co.
 Meredith GG. 1982. *Practice of Entrepreneurship*. ILO.
 Singh N. 2003 *Effective Entrepreneurship Management*. Anmol Publ.
 Verma S. 2004. *Entrepreneurship and Effective Marketing*. Aavishkar Publ.

HECM 505	PARTICIPATORY PROGRAMME MANAGEMENT	1+2	SEM - II
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Objective

To develop understanding regarding the principles, procedure and approaches of extension programme planning, implementation, evaluation and participatory management techniques.

Theory

UNIT-I: Planned change: concept, importance and structure; Conceptual framework of extension programme planning : objectives, principles and process.
UNIT-II: Participatory planning: concept, importance, process; Techniques of participatory planning: RRA, PRA, PLA and their application in extension; Approaches of participatory planning: cooperative, democratic, bottom up and down.
UNIT-III: Project management techniques: PERT, CPM, SWOT analysis; Concept and formation of women SHGs.
UNIT-IV: Implementation and evaluation : concept, importance and techniques.

Practical

Application of PRA methods; Critical analysis of on-going developmental programmes; Preparation and implementation of home improvement work plans; Critical evaluation of work plan.

Suggested Readings

Adhikary MM. 2006. *Participatory Planning & Project Management in Extension Sciences*. Agrotech Publ. Academy.
 Basu D. 2006. *Participatory Monitoring & Evaluation of Development programmes: Prationer's Guide*. Agrotech Publ. Academy.
 Dhama OP & Bhatnagar OP. 1991. *Communication for Development*. Oxford & IBH.
 Dhama OP. 1986 *Extension and Rural Welfare*. Ram Prasad & Sons.
 Mukherjee N. 1994. *Participatory Rural Appraisal - Methodology and Application*. Concept Publ. Co.
 Ray GL. 1991. *Extension Communication and Management*. Naya Prokash.
 Sandhu AS. 1994. *Extension Programme Planning*. Oxford & IBH.
 Singh R. 1987. *A Text Book of Extension Education*. Sahitya Kala Prakashan.

HECM 506	GENDER SENSITIZATION FOR EMPOWERMENT	2+0	SEM - I
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Objective

To sensitize students about various dimensions of gender and development, legal rights and using gender tools and methodologies.

Theory

UNIT-I: Gender and empowerment: meaning, definitions and need; Focus on gender sensitization: gender in home, community and organization.
UNIT-II: Gender perspectives in development of women: roles, responsibilities, resources, technologies and constraints.
UNIT-III: Gender tools and methodologies for assessment of gender empowerment; Gender budgeting and gender analysis framework: context, activities, resources and programme action profile; Technologies and empowerment: gender specific technologies,

household technology interface, socio-cultural interface and women as consumer of technologies.

UNIT-IV: Gender issues and development: health and nutrition, agriculture, violence, governance, education, media and legal issues.

Suggested Readings

- Cockburn C & Ormrod S. 1993. *Gender and Technology in the Making*. Sage Publ.
- Grover I. 2006. *Introducing Gender*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.
- Grover I. 2006. *Unpacking Gender and Feminism*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.
- Grover I, Kaushik S & Khetarpaul N. 2006. *Gender Health and Nutrition*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.
- Kaushik S. 2006. *Gender & Education*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.
- Krishanraj M & Chanani K. 1989. *Gender and the Household Domain - Social and Cultural Dimension*. Sage Publ.
- Me Neil Maureen (Ed.). 1989. *Gender and Expertise*. Free Association Books.
- Mehta S. 2006. *Gender and Media*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.
- Oxfam 1994. *Gender Training Manual*. Oxfam.
- Rani S. 2006. *Gender and Work*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.
- Rose K. 1992. *Where Women are Leaders -The SEWA Movement in India*. Vistaar Publ.
- Shiva V. 1989. *Staying Alive - Women, Ecology and Development*. Zed Books.
- Yadav L. 2006. *Gender and Governance*. Manual, Department of Home Science Extension Education, COHS, CCS HAU, Hisar.

HECM 507 EXTENSION MANAGEMENT 3+0 SEM - I

Objective

To familiarize students with basic concept, importance, elements, functions and principles of extension management and to sensitize them about problems and issues of extension management and appraisal of management of various extension organizations.

Theory

UNIT-I: Concept of administration and management; Principles and theories of administration and management; Schools of management thoughts; Meaning, nature and scope of extension management.

UNIT-II: Process of management: planning, organizing, staffing, directing, communicating, co-ordination, controlling, monitoring and evaluation.

UNIT-III: Organizational climate, behaviour and development; Management by Objective (MBO).

UNIT-IV: Qualities and functions of extension personnel; Extension system of ICAR, SAUs and state departments; Problems and issues of extension management in India; Critical appraisal of management of various extension organizations.

Suggested Readings

- Ahuja KK. 1983. *Personnel Management*. Kalyani.
- Dhama OP & Bhatnagar OP. 1991. *Education and Communication for Development*. Oxford & IBH.
- Grover I. 2002. *Extension Management*. Agrotech Publ.
- Ray GL. 2006. *Extension Communication and Management*. Kalyani.
- Tripathi PC & Reddy RN. 1983. *Principles of Management*. Tata McGraw Publ.

HECM 508 RESEARCH METHODS IN HOME SCIENCE 2+1 SEM - II

Objective

To understand the meaning and importance of research, research procedures and develop skills in designing and executing research.

Theory

UNIT-I: Research: meaning and importance; Types of Research; Qualities of researcher; Understanding some concepts in research; Steps of research: selection and delineating of research problem, statement of general and specific objective, formulation of hypothesis; Variable and their types; Planning research design, selection and development of data

collection tools, collection of data, analysis and interpretation of data, drawing conclusion, writing abstract and research report; Writing for publications.

UNIT-II: Review of literature: importance, sources of literature, organizing review, collection and presentation; Sampling: meaning and importance, sampling techniques, determine size of sample; Research Design: historical, experimental, ex-post-facto, survey, case study, field studies.

UNIT-III: Measurement and its levels; Techniques of data collection: observation, interview, questionnaire, projective technique, content analysis and sociometry; Scale and tests; Validity and reliability.

Practical

Mini Research project on any one topic of social science; preparation of synopsis; construction of interview schedule; data collection, analysis, interpretation and reporting.

Suggested Readings

Bajpai SR. 1966. *Methods of Social Survey and Research*. Kitab Ghar.

Best W. 1983. *Research in Education*. 4th Ed. Prentice Hall.

Carter Good V. 1966. *Essential of Education Research*. Appleton Century Profits, Educational Division, Mereelith Corp.

Kaul Lokesh 1984. *Methodology of Education Research*. Vikas Publ.

Kerlinger F. 1973. *Foundations of Behavioural Research*. Rinehart Winetons.

HECM 509 SCIENTIFIC WRITING AND REPORTING 1+2 SEM - II
FOR MEDIA

Objective

To acquaint and develop writing and reporting skills among students about science and technology in various formats for different clientele to media.

Theory

UNIT-I: Concept and various formats of scientific communication; Need and importance of scientific communication in changing communication scenario.

UNIT-II: Concept of reporting; Reporting skills; Types of reporting: field reporting, coverage of science and technology events (conference /speeches / seminars/ conventions /exhibitions / natural phenomena etc.); Role & responsibilities of a reporter, qualities of a reporter.

UNIT-III: Writing for special target groups: children, women, farmers and rural folks; Writing in various format for newspaper, science columns, magazines and books.

UNIT-IV: Process of editing and proof reading.

Practical

Field reporting, coverage of science and technology events: conference, speeches, seminars, conventions, exhibitions and natural phenomena; Writing for different clientele and its editing and proof reading.

Suggested Readings

D'Souza YK. 2000. *Encyclopedia of Advanced Journalism*. Vols. I-III. Anmol Publ.

Ravindran RK. 1999. *Hand Book of Reporting and Editing*. Anmol Publ.

HECM 510 EDUCATIONAL TECHNOLOGY 2+1 SEM - II

Objective

To develop ability among students in handling of different educational technologies and build competency as a teacher and public speaker.

Theory

UNIT-I: Teaching learning process; Meaning and characteristics of teaching and learning; Maxims of teaching; Stages, forms and levels of teaching and learning; Motivation: concept, importance and techniques.

UNIT-II: Meaning and scope of educational technology; Curriculum design and development; Lesson planning: concept and methodology; Teaching learning strategies: microteaching, programmed instruction, simulation, role-play, team teaching, experiential learning, traditional media, ICT, video production and multimedia presentations.

UNIT-III: Genesis and trends in modern education; Management of formal and non formal education in India; Vocationalization of education; Distance education; Guidance and counselling.

UNIT-IV: Evaluation of instructional effectiveness; Competency based question paper; Reliability and validity of question papers.

UNIT-I: Conceptualization of management process and its major functions; Management problems in extension organizations; Managerial skill, nature and importance for extension professionals.

UNIT-II: Strategic planning: importance, steps and techniques; Management by objective as applicable to extension organizations; Techniques of transactional analysis for improving interpersonal communication.

UNIT-III: Creative problem solving techniques; Stress management practices; Total Quality Management (TQM); Time management practices; Management Information System.

UNIT-IV: Motivation techniques in organizational climate; Resource management: concept and methods; Team building: process and strategies; Mobilization and empowerment skills and SHGs formulation.

Suggested Readings

Jan Servaes, Thomas L Lacobson 1996. Shirley A White (Ed.). *Participatory Communication for Social Change*. Sage Publ.

Leon C Megginson, Donald C Hosely & Paul H Pietri Jr. 1989. *Management Concepts and Applications*. 3rd Ed. Harper & Row.

Michel Le Boeuf (Ed.). 2001. *Essence of time Management*. Jaico Publ. House.

Narayan B. 1999. *Project Management*. APH Publ.

Srinivasan R & Chunawalla SA. 1995. *Management Principles & Practice*. 4th Ed. Himalaya Publ. House.

Stemphen P Robbins 1989. *Training in Inter Personal Skills: Tips for Managing People at Work*. Prentice Hall.

Tripathi PC & Reddy PN. 1995. *Principles of Management*. 2nd Ed. Tata McGraw Hill.

HECM 603 ADVANCED MEDIA MANAGEMENT 1+2 SEM - II

Objective

To strengthen the capabilities in media planning and production.

Theory

UNIT-I: Introduction to media organization ; Managerial functions in the media organization.

UNIT-II: Circulation management: need and importance, function of circulation department, difficulties in circulation and promoting circulation.

UNIT-III: Personnel management; Advertising management; Financial management; Production and printing management.

UNIT-IV: Significant issues in the management of broadcast media; Organizational structure of radio and television; Functions of various departments and personnel: production, marketing, financial; Managing the station/ channel.

Practical

Visit to print, electronic media organisations to understand the designing, media development, organisational management, functions, problems etc.

Suggested Readings

Bhagat R & Mathur PN. 1989. *Mass Media and Farm Women*. Intellectual Publ. House.

Kemp JE. 1975. *Planning and Producing Audio Visual Material*. 3rd Ed. Thomas Y. Growell.

Melkote SR. 1991. *Communication for Development in the Third World: Theory and Practices*. Sage Publ.

Mody B. 1991. *Designing Message for Development Communication*. Sage Publ.

Ray GL. 1991. *Extension and Communication and Management*. Naya Prakashan.

HECM 604 RESEARCH PROJECT MANAGEMENT 2+1 SEM - I

Objective

To enable the students to prepare and execute research project and develop skill in managing research data, its interpretation, report writing, popular communication and research paper writing.

Theory

UNIT-I: Importance of research in Home Science; Research Management: concept, process, elements and characteristics; Research methodologies for field and laboratory studies: problem selection, research designs, sampling, guidelines for preparing the proposal.

UNIT-II: Criteria for selecting research project; Planning project proposal: statement of problem and its justification and implication; Technical plan of work, time estimation and scheduling; Preparing project work flow; Resource requirement: human, material and others, cost estimation and budget; Funding agencies for research project- different national and international agencies.

UNIT-III: Project review techniques; Project estimation and evaluation; Reporting results of research; Holistic and interdisciplinary approach to research management; Data: collection, processing, statistical analysis, interpretation of results and drawing generalizations.

UNIT-IV: Project appraisal techniques and SWOT analysis, conflict management; Factors influencing research efficiency; Monitoring and control of research project: concept and techniques; Scientific research communication: writing research paper, popular articles and technical report.

Practical

Critical review and SWOT analysis of any two research projects with respect to: research objective and design, implementation, monitoring and evaluation system and impact assessment; Planning a research project in view of funding agency; Writing at least one: research paper, review paper, popular article and technical report.

Suggested Readings

Bajpai SR. 1969. *Methods of Social Survey and Research*. Kitab Ghar.

Best W. 1983. *Research in Education*. 4th Ed. Prentice Hall.

Carter Good V. 1966. *Essential of Education Research*. Appleton Century Profits, Educational Division, Mereelith Corp.

Kaul L. 1984. *Methodology of Educational Research*. Vikas Publ.

Kerlinger F. 1973. *Foundations of Behavioural Research*. Rinehart Winetons.

HECM 605	ADVANCED RESEARCH TECHNIQUES AND MEASUREMENT	2+2	SEM - II
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Objective

To acquaint the students with latest research techniques and their application.

Theory

UNIT-I: Measurements: meaning and levels; Tests, scales and various techniques of attitude scale construction viz. paired comparison, equal appearing interval, successive interval, summated ratings, scalogram analysis; Reliability and validity of tests and scales.

UNIT-II: Socio-metry, critical incident technique, Q-sort technique, observation technique, case studies.

UNIT-III: Experimental and quasi experimental designs, content analysis, projective techniques

UNIT-IV: Factor analysis, system analysis, their detailed study and application in extension education researches; A review of present researches in extension education and their critical appraisal.

Practical

Practical exercises on scaling techniques, paired comparison, equal appearing interval, successive interval and summated rating; socio-metry, critical incidence and Q-sort technique.

HECM 606	MONITORING EVALUATION AND IMPACT ASSESSMENT	3+0	SEM - II
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Objective

To help students to acquire knowledge, skill, appreciation in monitoring, evaluation and impact assessment.

Theory

UNIT-I: Monitoring: meaning, theoretical concepts, components, approaches and performance appraisal standards.

UNIT-II: Evaluation: meaning, theoretical concepts, criteria, steps and types.

UNIT-III: Designing evaluation instruments; Analysis and interpretation of evaluation data; Cost effectiveness and cost benefit analysis; Managing evaluation projects and writing evaluation reports; Meta ó evaluation (evaluation of evaluation); Utilization of evaluation results.

EXTENSION EDUCATION & COMMUNICATION MANAGEMENT

List of Journals

- É **Indian Journal of Adult Education**
Indian Adult Education Association, New Delhi
- É **Indian Journal of Home Science**
Home Science Association of India, Baroda
- É **Indian Journal of Social Work**
Tata Institute of Social Science, Deonar, Bombay
- É **Indian Journal of Training and Development**
Indian Society for Training and Development, New Delhi.
- É **Journal of Indian Education**
NCERT, New Delhi
- É **Journal of Rural Development**
National Institute of Rural Development, Rajendranagar, Hyderabad
- É **Rural India**
Adarsh Seva Sangh, Ishwardas Mansions, Nana Chowk, Bombay, Maharashtra
- É **Social Welfare**
Central Social Welfare Board, New Delhi
- É **Indian Journal of Social Sciences**
Academic & Law Series, New Delhi.
- É **International Journal of Home Science**
Academic & Law Series, New Delhi
- É **Journal of Home Science Dairy & Food Science**
Agricultural Research and Communication Centre, Karnal, Haryana
- É **Journal of Communication Studies**
NCDC, Banaras Hindu University, Varanasi
- É **Communicator**
IIMC, New Delhi
- É **Vidura**
Press Trust of India, New Delhi
- É **Studies on Home and Community Studies**
Kamla Raj Enterprise, New Delhi
- É **Journal of Human Ecology**
Kamla Raj Enterprise, New Delhi
- É **Journal of Social Science**
Kamla Raj Enterprise, New Delhi
- É **Indian Journal of Extension Education**
Indian Society of Extension Education, Div. of Agril. Extension, IARI, New Delhi
- É **Maharashtra Journal of Extension Education**
Maharashtra Society of Extension Education, Akola
- É **Rajasthan Journal of Extension Education**
Rajasthan Society of Extension Education Udaipur.
- É **Journal of Extension.**
Extension Building, 432 North Lake Street Madison, Wisconsin.

e-Resources

- É <http://www.uwex.edu/ces/pdande>
- É <http://www.extension.missouri.edu/staff/programdev/plm>
- É <http://www.fao.org/DOCREP/ARTICLE/WFC/XII/0346-AL.htm>
- É http://www.krishiworld.com/htm/agri_extension_edu1.html
- É <http://www.uasd.edu/extension.htm>
- É http://www.csrtimys.res.in/but_files/trg.php
- É <http://www.vedamsbooks.com/no44211.htm>
- É <http://www.flipkart.com/.../B-S-Hansara-KVijayarayanan/8180693210/6V23F9T020.html>
- É <http://www.communicationskills.co.in/importance-of-communication-skills.htm>
- É <http://www.managementparadise.com/forums/archive/index.php/f-18918.html>

<http://www.hird.ap.nic.in/clic/list.html>
<http://www.kar.nic.in/bellary/rdpr.html>
<http://www.isu.edu/faculty/aclind/syllabus%204050fall%202001.htm>
<http://www.npandia.org/hrd.htm>
<http://www.firsthr.org>
<http://www.rocw.raifoundation.org/management/mba/HRPD/lecture-notes/lectureos>
en.wikipedia.org/wiki/Corporate_communications
www.televisionpoint.com/news2008/newsfullstory
findarticles.com/p/articles/mi_hb3036/is_200210/ai_n7737881
books.google.co.in/books?isbn
[www.thebusinessedition.com/corporate-communication-strategy-in-the-newmedia-corporate-blogs-394/ -](http://www.thebusinessedition.com/corporate-communication-strategy-in-the-newmedia-corporate-blogs-394/)
papers.ssrn.com/sol3/papers.cfm?abstract_id=873348
www.pratapantony.com/corporate_communications.html
www.primepointfoundation.org/
www.academictutorials.com/corporate-communication
www.thinkingmanagers.com/business-management/corporate-communication.php
www.corporatecommunicationservices.com
www.ebizq.net/to/VITRIAPCWEBINAR
advice.cio.com/john_m_worthington/the_event_management_gap_the_importance_of_monitoring_intelligence_for
www.thesportjournal.org/article/importance-expectations-participatory-sportevent-satisfaction
www.psychwww.com/mtsite/smredimp.html
www.webbuyersguide.com/resource/white-paper/655/Importance-of-Event-Management
www.scmagazineus.com/Event-describes-importance-of-securing-Web-20/article/109537/
advice.cio.com/john_m_worthington/the_event_management_gap_the_importance_of_monitoring_intelligence_for_
en.wikipedia.org/wiki/Communication
www.mhca.org.au/Resources/Community_Development/documents/CDEPMod1-Effective_Communication_Participant_Guide.pdf
books.google.co.in/books?isbn
www.skagitwatershed.org/~donclark/leader/leadcom.html
www.hss.iitb.ac.in/courses/hs490/communication.ppt
web.cba.neu.edu/~ewertheim/interper/commun.htm
www.hodu.com/
humanresources.about.com/od/interpersonalcommunication1/Effective_Interpersonal_Communication.htm
www.mywordpower.com/
www.earthlingcommunication.com
[www.acceptedtraining.org/ - 7k](http://www.acceptedtraining.org/)
[www.iimidr.ac.in/iimi/pages/institute/mdpdetail.php?tid=133 - 20k](http://www.iimidr.ac.in/iimi/pages/institute/mdpdetail.php?tid=133)
[www.sfhelp.org/pop2/ecx.htm - 18k](http://www.sfhelp.org/pop2/ecx.htm)
[www.i2lifeseffgrowth.com/communication/written-communication-skills-ppt.php -21k](http://www.i2lifeseffgrowth.com/communication/written-communication-skills-ppt.php)
www.ortmap.org/newsletters/fondas-news-2004-apr-jun.pdf
www.icar.org.in/aeac/curricula/mHSc-2001.pdf
www.caen.iufm.fr/colloque_iartem/pdf/pandey.pdf
www.nscb.gov.ph/ncs/9thncs/papers/gender_Towards.pdf
lsr.nellco.org/cgi/viewcontent.cgi?article=1006&context=cornell/biss
www.misu.ait.ac.th/NewsAndEvents/newsletterData/iss3no4.pdf
mitpressjournals.org/doi/pdf/10.1162/1054204041667703
www.nscb.gov.ph/ncs/9thncs/papers/gender_Towards.pdf

Suggested Broad Topics for Master's and Doctoral Research

Women empowerment
 Technology assessment, refinement and transfer
 Media development, standardization and effectiveness
 Communication and media studies
 Adoption and diffusion
 Gender perspectives
 Social marketing, advertising and public relation

- É Evaluation and impact assessment
- É Women in agriculture

FAMILY RESOURCE MANAGEMENT

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
FRM 501*	APPROACHES TO RESOURCE MANAGEMENT	3+0	I
FRM 502*	FUNDAMENTALS OF ERGONOMICS	2+1	I
FRM 503*	ADVANCED INTERIOR SPACE MANAGEMENT	2+1	II
FRM 504*	ADVANCED HOUSING	2+1	II
FRM 505	CONSUMER ISSUES AND CHALLENGES	2+1	I
FRM 506	CONSUMER GUIDANCE AND COUNSELLING	2+1	I
FRM 507	CONSUMER COMMUNICATION MEDIA	1+2	II
FRM 508	PRODUCT DESIGN, TESTING AND EVALUATION	1+2	II
FRM 509	CONSUMER ECONOMICS AND RETAIL MANAGEMENT	3+2	I
FRM 510	WORK AND WORK STATION DESIGN	1+2	I
FRM 511	ADVANCED CAD FOR PRODUCT DESIGN	0+4	I
FRM 512	ENERGY CONSERVATION IN BUILDING DESIGN	2+1	I
FRM 513	INTERIOR DESIGN BUSINESS MANAGEMENT	2+1	II
FRM 514	FURNITURE DESIGN AND FABRICATION	2+1	II
FRM 515	COLOUR AND LIGHTING IN INTERIORS	2+1	II
FRM 591	MASTER'S SEMINAR	1	I, II
FRM 599	MASTER'S RESEARCH	20	I, II
FRM 601**	ADVANCES IN DEVELOPMENT OF RESOURCE MANAGEMENT	3+0	I
FRM 602**	OCCUPATIONAL BIOMECHANICS	2+1	I
FRM 603**	GLOBALIZATION AND CONSUMER ECONOMICS	2+1	I
FRM 604	FAMILY DYNAMICS AND WOMEN POWER	2+1	II
FRM 605	CONSUMER PRODUCT DESIGN	1+2	II
FRM 606	ENVIRONMENTAL ISSUES AND CHALLENGES	3+0	II
FRM 607	MANAGERIAL DIMENSIONS FOR SPECIAL GROUPS	2+1	II
FRM 691	DOCTORAL SEMINAR I	1	I, II
FRM 692	DOCTORAL SEMINAR II	1	I, II
FRM 699	DOCTORAL RESEARCH	45	I, II

* Compulsory for Master's programme; **Compulsory for Doctoral programme
 Courses open for PG students of other departments: FRM 501, 502, 505, 506, 507, 510

FAMILY RESOURCE MANAGEMENT

Course Contents

FRM 501 APPROACHES TO RESOURCE MANAGEMENT 3+0 SEM - I

Objective

To acquaint the students with meaning and concepts, processes and significance of management applicable to families.

Theory

UNIT-I: Significance and Scope of Resource Management: The evolving discipline of management: Classical Approach; Behavioral Approach; Systems Approach and Scientific Management.

UNIT-II: Concepts: values, origin & development, classification, characteristics, hierarchy, value clusters, value conflicts and changing values; goals; classification, chain of goals, setting of goals, changing goals, goal priorities and crisis; standards: origin, characteristics, changing and choosing standards, resource: nature, measurement, changing resource availability and needs, guidelines for use of resource, resource allocation and utilization interrelationship among concepts.

UNIT-III: Management process; planning, types and dimensions, planning in a systems perspective, factors affecting planning; implementation, controlling, checking the progress, evaluation; evaluation of resources, use and feedback.

UNIT-IV: Motivation; importance, approaches, elements of sound motivation; Leadership: importance, theories, styles. Stress: nature, types, its management, decision making process, types and styles, decision linkages, decision conflicts and coping strategies, communication: communication process, types, components, functions and barriers.

Suggested Readings

Deacon R & Firebaugh F. 1981. *Family Resource Management – Principles and Applications*. Allyn & Bacon.

Gross IH, Crandall EW & Knoll MM. 1980. *Management for Modern Families*. Prentice Hall.

Kotler P. 2004. *Principles of Management*. TEE Publ.

Murugan MS. 2005. *Management Principles and Practices*. New Age International.

Seetharaman P, Batra S & Mehram P. 2005. *An Introduction to Family Resource Management*. CBS.

Singh N. 2000. *Principles of Management: Theories, Practices and Techniques*. Deep & Deep.

FRM 502 FUNDAMENTALS OF ERGONOMICS 2+1 SEM - I

Objective

To acquaint students with anthropometry study related to man, machine and environment system interactions and its application in reducing human cost of work.

Theory

UNIT-I: Significance and scope of ergonomics ó man, machine and environment system interactions ó Anthropometry: principles, measurements; Application of Anthropometry in ergonomics and design ó Human body in relation to ergonomic study. Body composition, body size.

UNIT-II: Fundamentals of work physiology; muscular efforts, energy consumption, physical fitness: measurement using different techniques. Physical work capacity and factors affecting energy requirements and costs for various activities; fatigue. Physiological indices of work, work-rest cycle.

UNIT-III: Bio-mechanical parameters; Work postures, Postural variations, musculoskeletal discomfort and their measurement, OWAS technique.

UNIT-IV: Environmental parameters: temperature, humidity, light, sound; Evaluation and effect on worker and work performance ó Visual Ergonomics ó illusions and accidents - Ergonomic investigations: Techniques and problems ó Ergonomic requirements for people with special needs.

Practical

Equipment used in ergonomic studies, Anthropometry and its statistical treatment for design applications. Measurement of body composition and body size, Determination of physical fitness using various techniques, Methodologies for assessment of ergonomic cost of work in terms of physiological indices. Measurement of physical workload. Work-rest cycle, Measurement of posture: OWAS technique and postural discomfort using Ergo Software, Measurement of various environmental parameters, evaluation and effect on worker and work performance.

Suggested Readings

- Bridger RS. 1994. *Introduction to Ergonomics*. Mc Graw Hill.
 Dalela S & Saurabh. 1999. *Textbook of Work Study and Ergonomics*, Standard Publ.
 Gandotra V, Oberoi K & Sharma P. 2005. *Essentials of Ergonomics*. Dominant Publ.
 Grandgean E. 1978. *Ergonomics of the Home*. Taylor & Francis.
 Ian Galer. 1982 *Applied Ergonomics Handbook*. Butterworths & Co.
 Panero J & Zelnik M. 1979. *Human Dimension and Interior Space*. Whitney Library of Design.
 Singh S. 2007. *Ergonomics Interventions for Health and Productivity*. Himanshu Publ.

FRM 503 ADVANCED INTERIOR SPACE MANAGEMENT 2+1 SEM - II

Objective

To make students understand the new dimensions and future challenges of interior designing and to acquaint them with latest trends in functional designing of space, interiors and surroundings.

Theory

UNIT-I: Effect of interior design and decoration on family well being with particular reference to special needs - Functional and aesthetic considerations in use of elements and principles of design.

UNIT-II: Advances in design process of residential and commercial interiors.

UNIT-III: Trends in decoration treatments for interiors and interior backgrounds from past to present in furniture, furnishings, accessories, lighting, fittings and fixtures, wall & floor surface materials, finishes.

UNIT-IV: Changing trends in thermal, acoustics and safety mechanisms. Solutions for problem areas in residential and commercial building interiors.

Practical

Use of elements and principles of Art. Critical analysis of interiors of a selected residential and non-residential building and suggested improvements ó Visits to building design institutes, hotels, furniture and furnishing show rooms and residential buildings to identify new trends ó Market survey of surface materials, finishes, fittings and fixtures ó Detailed cost estimation of interior design and decoration elements.

Suggested Readings

- Allen PS, Stimpson MF & Jones LM. 2000. *Beginnings of Interior Environments*. Prentice Hall.
 Choudhari SN. 2006. *Interior Design*. Avishkar Publ.
 Gilliat M. 1981. *The Decorating Book*. Pantheon Books.
 Panero J & Zelnik M. 1979. *Human Dimension and Interior Space*. Whitney Library of Design.
 Parikh A, Robertson D, Lane T, Hilliard E & Paine M. 2000. *The Ultimate Home Design Source Book*. Conran Octopus.
 Pears A, Lawrence M, Hymers P & Howell J. 2000. *Working with the Professionals*. Marshall Publ.
 Seetharaman P & Pannu P. 2005. *Interior Design and Decoration*. CBS.
 Zimmerman N. 2003. *Home Workspace Idea Book*. The Taunton Press.

FRM 504 ADVANCED HOUSING 2+1 SEM - II

Objective

To acquaint the students with various building features, materials, latest building techniques, *vastu shastra*, acoustics, rain water harvesting and landscape planning.

Theory

UNIT-I: Historical perspective of the architectural features of buildings ó Structural features of residential buildings in different geo-climatic conditions - Social-cultural and economic issues in housing.

UNIT-II: Housing stock quality, demand and supply in urban and rural areas of India - Role of Government and non-government organizations in providing and regulating housing needs.

UNIT-III: Vastushastra-Ancient Science of house design - Emerging techniques in the house construction - Low-cost building materials and fabrication techniques of Eco and Ergo-friendly house design - House wiring, sanitary fittings, acoustics -Rain water harvesting structures for houses.

UNIT-IV: Estimation of cost and housing finance - Recent developments in building Bye-Laws - Housing research- Landscape planning.

Practical

Analysis of building forms in different geo-climatic region of Visit to housing development organization and building design centers of Evolving Eco, Ergo and Space saving house plan for selected geo-climatic region for different socio-economic categories through CAD Estimation of cost of construction - Assessment of existing house plans and suggesting cost effective renovations - Landscape planning.

Suggested Readings

Ambadker SN. 2000. *Rural Housing: Agro-socio-economic Impact*. Special Indian Ed. Agrobios.

Lal AK. 1999. *Handbook of Low Cost Housing*, New Age International.

Mahadeva M. 2002. *Housing in India: The Situation, Development and Challenges*. Orient Longman Publ.

Morris EW. 1979. *Housing Family and Society*. John Wiley & Sons.

Raja Rao YN & Subrahmanyam Y. 2002. *Planning and Designing of Residential Buildings*. Standard Publ.

FRM 505 CONSUMER ISSUES AND CHALLENGES 2+1 SEM - I

Objective

To acquaint the students about various consumer issues related to products and services in rural and urban context.

Theory

UNIT-I: Consumer in changing trends. Consumer movement. Profile of consumers in India and abroad. Public and private sector goods and service providers.

UNIT-II: Consumer markets: types and features. Market distribution channels; International Trade Market.

UNIT-III: Consumer behaviour. Consumer problems and challenges. Global issues in consumerism.

UNIT-IV: Multinational trade and consumer welfare in India. Consumer empowerment; Citizens Charter and Right to information Act.

Practical

Identification of problems of rural /urban consumers. Project work: in-depth study of any one identified problem-finding measures to overcome the problem-developing consumer education material on selected issue.

Suggested Readings

Blackwell RD, Miniard PW & Engel JF. 2001. *Consumer Behaviour*. Vikas Publ.

Clarke J, Janet N, Smith EV & Westmarland L. 2007. *Creating Citizen Consumers*. Sage Publ.

Seetharaman P & Sethi M. 2001. *Consumerism: Strategies and Tactics*. CBS.

FRM 506 CONSUMER GUIDANCE AND COUNSELING 2+1 SEM - I

Objective

To provide knowledge and skill to the students related to consumer protection for rational consumer behavior.

Theory

UNIT-I: Consumer Education. Rights and Responsibilities of consumer. Consumer Cooperatives. Consumer Organizations and their role in consumer protection.

UNIT-II: Significance of consumer guidance and counseling. Consumer protection measures; legal and non-legal.

UNIT-III: Consumer Protection Act, 1986. Consumer Legislations.

UNIT-IV: Consumer Redressal mechanism. Consumer Protection Councils.

Practical

Visit to local consumer redressal forum . Study the structure and functioning of consumer redressal forum. Understanding the procedures for filing a consumer complaint. Study of the proceedings of consumer court. Visit to local consumer organizations. Study of the procedures in consumer counseling and guidance centre. Mock sessions in handling consumer complaints.

Suggested Readings

Chadha R. 1995. *The Emerging Concepts and Strategies*. New Age International & Wiley Eastern.
 Jones RN. 2007. *Basic Counselling Skills*. Sage Publ.
 Marguerite B. 2000. *Consumer Economics: A Multidisciplinary Approach*. John Wiley & Sons.
 Schiffman LG & Kaunuk LL. 2004. *Consumer Behaviour*. Prentice Hall.
 Seetharaman P & Sethi M. 2001. *Consumerism: Strategies and Tactics*. CBS.

FRM 507 CONSUMER COMMUNICATION MEDIA 1+2 SEM - II

Objective

To make the students aware about the trends and impact of communication media on consumers.

Theory

UNIT-I: Significance of consumer communication. Media and social change. Media and consumer demand.
UNIT-II: Trends in communication media. Credibility in communication.
UNIT-III: Media and gender. Types of media; Brand loyalty and its effects on consumer.
UNIT-IV: Advertising as a mode of communication: advertising management and legislation, trends and impact of advertising on consumers.

Practical

Exploring the different consumer communication media. Study the impact of print media and electronic media on consumer behaviour. TV Advertisement content analysis. Report writing and presentation. Identifying and developing a communication package on a specific consumer issue. Study the Role of advertising as a mode of communication: Report writing and presentation. Developing a consumer friendly advertisement for a specific product.

Suggested Readings

Potter WJ. 2008. *Media Literacy*. Sage Publ.
 Schmidt WV, Conaway RN, Easton SS & Wardrope WJ. 2007. *Communiacting Globally*. Sage Publ.
 Sharma S & Kumar D. 2001. *Advertising, Planning, Implementation and Control*. Mangal Deep Publ.
 Sparks C. 2008. *Globalization, Development and Mass Media*. Sage Publ.
 Tellis GJ. 2007. *The Sage Handbook of Advertising*. Sage Publ.

FRM 508 PRODUCT DESIGN, TESTING ANDEVALUATION 1+2 SEM - II

Objective

To expose students to intricacies in product design and quality control measures for varied consumer products.

Theory

UNIT-I: Significance and essentials of product design and consumer demand. Anthropometry in design.
UNIT-II: Product services available to consumers. Product safety: hazards and liabilities.
UNIT-III: Quality Control and standardization for consumer durables and materials. Product Certification.
UNIT-IV: Need for product testing. Product testing techniques and devices. Product evaluation. Product recall.

Practical

Analyzing the user's option on the design of a specific consumer product. Understanding the selected consumer products through guidelines given by manufacturers, collecting the standardization norms as per health and safety of workers - Conceptualization and

development of consumer products with functional alternatives. Designing the prototype of the developed product by using CAD software. Appraisal on the product testing procedures, electrical and non-electrical equipment - Estimating the device efficiency in electrical and non- electrical Equipment.ó Visit to quality control laboratories - Detecting adulterants in food items - computerizing testing data ó establishing a consumer product testing cell.

Suggested Readings

Boothroyd G, Dewhurst P & Knight W. 2002. *Product Design for Manufacture and Assembly*. CRC Press.

Cross N. 2000. *Engineering Design Methods: Strategies for Product Design*. Reuters Publ.

Dumas JF & Redish JC. 1993. *A Practical Guide to Usability Testing*. Greenwood Publ.

Meilgaard M, Civille GV & Carr BT. 2006. *Sensory Evaluation Techniques*. CRC Press.

Otto KN & Wood KL. 2001. *Product Design: Techniques in Reverse Engineering*, New Age International.

Parker G & Alstyne MV. 2005. *Management Science: The Theory of Information Product Design*. INFORMS Publ.

Roozenburg NFM & Eekels J. 1995. *Product Design: Fundamentals and Methods*, Wiley.

Sharma DD. 2000. *Total Quality Management*. S. Chand & Sons.

Stone H & Sidel JL. 2004. *Sensory Evaluation Practices*. Academic Press.

Ulrich KT & Eppinger SD. 1995. *Product Design and Development*. Irwin McGraw Hill.

**FRM 509 CONSUMER ECONOMICS AND RETAIL 3+2 SEM - I
MANAGEMENT**

Objectives

- To impart knowledge about consumer behavior with reference to micro and macro economic system and its impact on consumption behaviour.
- To acquaint students with different retailing techniques in view of globalization.

Theory

UNIT-I: Concept of consumption economics, micro and macro analysis- importance and limitation. Theories of consumer behaviour: utility analysis; indifference curve analysis; opportunity cost analysis. Elasticity of demand and supply

UNIT-II: National income and its relation to personal disposable income of consumers; Consumption and economic instability: inflation, deflation and economic cycle; role of government counter cyclical policies; Measurement of cost of living; the index method. Changes in economy/ policies and its impact on family consumption; Consumer credit.

UNIT-III: Development of retailing: retailers and methods of retailing; Small scale retailing: nature and significance of small scale retailers; Independent general stores, limited line stores; measures to overcome competition from big retailers. advantages, limitations and future of small scale independent stores; trends in retailing and e-tailing mall concept in metros.

UNIT-IV: Large scale retailing: chain store - characteristics, growth, factors limiting growth; super market; the department store; the discount house; the retail mail-order house.

Practical

Study of marketing system of a commodity or service- A project work. Analysis of National Budgets. Analyse the impact of changes in economic policies on family consumption. Learn to calculate the cost of living. Study of different types of retail stores: small scale retailers, Mobile retailers, Convenience store, General store, Specialty store, Consumer cooperatives; Large scale retailers- Super market, departmental stores, chain stores, Manufacturer's showrooms, Shopping malls, Multiplex. Direct marketing: Telemarketing; Mail order; vending machines; Personal selling- E-shopping.

Suggested Readings

Chadha R. 1995. *The Emerging Concepts and Strategies*. New Age International & Wiley Eastern.

Marguerite B. 2000. *Consumer Economics: A Multidisciplinary Approach*. John Wiley & Sons.

Schiffman LG & Kaunuk LL. 2004. *Consumer Behaviour*. Prentice Hall.

Seetharaman P & Sethi M. 2001. *Consumerism: Strategies and Tactics*.

Kotler P & Keller K. 2006. *Marketing Management*. Dorling, Kundersley

FRM 510 WORK AND WORKSTATION DESIGN 1+2 SEM - I

Objective

To acquaint students with the interrelatedness of work, worker and workstation environments and infuse an interdisciplinary approach to workstation engineering and techniques to reduce human cost of work.

Theory

UNIT-I: Work, worker and work place interrelationship ó Meaning and components of work: work analysis using different techniques - components of worker input ó Body Mechanics.

UNIT-II: Functional design: concept, work surface design criteria and considerations, design and arrangement of different work centers.

UNIT-III: Procedures for studying workplace design: formal and informal techniques ó workplace design for different postures.

UNIT-IV: Ergonomic factors in design and selection of household goods ó displays and controls ó functional designing of workplace and equipment- hazards of ill designed workstations.

Practical

Determining the space relationships as per workers' anthropometry, posture and movement at selected workstations - Measuring and recording the anthropometric measurements of worker and dimensions of equipment /furniture used in the unit workspace; work-space envelope for specific activity. Measurement of work costs in terms of physiological indices. Designing different work centers & storage. Preparing floor and perspective plans of a unit work space - Selecting and analyzing a work station in relation to design features, space relationships, dimensions of equipment and furniture, environment control methods and developing 2D and 3D workplace design ó Evaluation of existing workstation in a residential and commercial setup and suggesting an ergonomic design layout

Suggested Readings

Barnes RM. 1980. *Motion and Time Study*. John Wiley & Sons.

Bridger RS. 1994. *Introduction to Ergonomics*. McGraw Hill.

Dalela S & Saurabh. 1999. *Textbook of Work Study and Ergonomics*. Standard Publ.

Grandjean E. 1978. *Ergonomics of the Home*. Taylor & Francis. Ian Galer. *Applied Ergonomics Handbook*. Butterworths.

Mundel M. 1978. *Motion and Time Study*. Prentice Hall.

Panero J & Zelnik M. 1979. *Human Dimension and Interior Space*. Whitney Library of Design.

Singh S. 2007. *Ergonomics Interventions for Health and Productivity*. Himanshu Publ.

Steidl R.E. and Bratton E C 1967. *Work in the Home*. John Wiley & Sons.

FRM 511 ADVANCED CAD FOR PRODUCT DESIGN 0+4 SEM - I

Objective

To train the students in designing consumer products, and interior and exterior designing of buildings through CAD.

Practical

Introduction to modeling software - REVIT and 3DS Max ó Understanding the utility of software to design interiors and exteriors of building and consumer products ó Evolving conceptual designs and working out the details for residential and commercial buildings: Creation of surface elements and built-in decorative features - customized designs for special effects - designing, assembling and modeling consumer products: furniture, lighting fixtures, artifacts - massing - rendering and camera animation ó Interior and exterior walkthroughs and generating movie file.

Suggested Readings

Aubin Paul F. 2006. *Mastering Autodesk Revit Building*. Autodesk Press.

Brian L Smith & Padhia R. 2008. *3ds Max Architectural Visualization - Beginner to Intermediate*. Brian Zajac Publ.

Kaleem S, Zaidi A & Siddique S. 2004. *Designing and Design of Residential and Commercial Buildings*. Standard Publ.

FRM 512 ENERGY CONSERVATION IN BUILDING DESIGN 2+1 SEM - I

Objective

To impart knowledge and skills regarding energy efficient architectural designing for residential and commercial needs.

Theory

UNIT-I: Building as a system for residential and commercial needs - Energy use and crisis - Building design: need and scope for energy use and conservation ó Environmental and architectural characteristics and energy consumption.

UNIT-II: Factors Influencing building design ó human behaviour in relation to interior and built in design.

UNIT-III: Climate and thermal comfort ó design parameters for climate and energy control ó design parameters for visual comfort: day lighting and artificial lighting.

UNIT-IV: Energy flow audit and economy - Energy models, Green strategies ó Energy efficient housing options.

Practical

Visits to energy intensive and green buildings - Case studies on selected buildings and design assessment in terms of energy use and conservation ó Energy Audit ó Estimation of energy requirements in buildings using energy models ó Developing conceptual designs for residential and commercial buildings using Green Strategies ó Calculation of energy costs.

Suggested Readings

Hawkes D & Forster W. 2002. *Energy Efficient Buildings: Architecture, Engineering and Environment*. WW Norton & Co.

Jefferis A & Madsen DA. 2004. *Architectural Drafting and Design*, Thomas Delmar Co.

Steffy GR. 2002. *Architectural Lighting Design*. John Wiley & Sons.

Stitt FA. 1999. *Ecological Design handbook: Sustainable Strategies for Architecture*. Mc Graw Hill.

FRM 513 INTERIOR DESIGN BUSINESS MANAGEMENT 2+1 SEM - II

Objective

To impart knowledge about interior design management for professional practice.

Theory

UNIT-I: Definition of a Profession -Principles of Interior Design business management ó Establishing Interior Design Practice ó ethics and professional conduct.

UNIT-II: Business Law ó Business management applications: Financial concepts - Strategic plans for design presentation- visual graphics, models, and electronic walkthroughs.

UNIT-III: Marketing: Conditions and Strategies ó Procedures for contract design.

UNIT-IV: Professional portfolios, resumes and business cards, Web page, e-service ó Professional associations and support systems.

Practical

Cost estimation for projects ensuing from project conceptualization to completion medium project - contracting and sub-contracting procedure for the estimated projects - Strategic plan for presentation of project for a tender call - Portfolio for job in professional firm and resume design.

Suggested Readings

Christine M Piotrowski 2001. *Interior Design Management: A Handbook for Owners and Managers*. ASID, IIDA.

Christine M Pitroeski. 2002. *Professional Practice for Interior Designer*. John Wiley & Sons.

Cindy Coleman. 2002. *Interior Design Handbook of Professional Practice*, McGraw Hill.

Terry L Patterson. 2002. *Architects Studio Handbook*. McGraw Hill.

FRM 514 FURNITURE DESIGN AND FABRICATION 2+1 SEM - II

Objective

To provide hands-on experience to students in generating ergo-friendly furniture design and incorporating the same in prototypes, together with workshop exposure.

Theory

UNIT-I: Furniture Design in different styles ó Furniture for different functions ó Furniture decisions.

UNIT-II: Human factors in furniture design.

UNIT-III: Latest trends in material, furniture construction, assembling and joinery techniques-craftsmanship.

UNIT-IV: Decorative finishes-marketing strategies.

Practical

Exploring the different types of furniture, material used and fixation methods through literature search and market exposure- developing concept designs and schematic drawing of selected furniture-working out detailed drawings of components and joineries-building small scale model and sample board-estimating quantity of materials required and cost of construction-workshop experience in furniture designing and construction exposure to furniture care and maintenance.

Suggested Readings

Panero J & Zelnik M. 1979. *Human Dimension and Interior Space*. Whitney Library of Design.

Parikh A, Robertson D, Lane T, Hilliard E & Paine M. 2000. *The Ultimate Home Design Source Book*. Conran Octopus.

Postell J. 2007. *Furniture Design*. John Wiley.

FRM 515 COLOUR AND LIGHTING IN INTERIORS 2+1 SEM - II

Objective

To impress upon students the dynamics of colour and lighting as individual and combined components in interiors and exteriors for special effects.

Theory

UNIT-I: Fundamentals of colour and light in interior environments ó Theory of colour and light as perceived by the human eye.

UNIT-II: Colour: properties, systems, mixing, symbolism, cultural effects and psychology ó Physical and perceptual aspects of colour and lighting ó Need for colour and lighting to provide comfort and adequate safety ó Need for quality in the selection of colours and lighting in the built environment.

UNIT-III: Concepts of lighting - Safety and emergency lighting.

UNIT-IV: Effects of colour on people, use of colour and light in interior in relation to function, materials, surface finish and colour scheme integration, Visual tricks to play ó space making, space shrinking, camouflage and disguise.

Practical

Evolving Munsell and Ostwald colour wheels ó Colour schemes for problem areas in residential and non-residential interiors ó Studying the psychological and emotional effects of colours in interiors ó Influence of light on colour in simulated conditions.

Suggested Readings

Catherine C. 2001. *Colour Healing Home*. Octopus Publ.

Judith M. 2000. *Perior and Regional Style from Around the World*. Clarkson Potter Publ.

Michael W. 2002. *Advances in Colour Harmony & Contrast for the Home Decorator*. School of Colour Publ.

Sarao M & Laurie Z. 1995. *The Power of Colour*. John Wiley.

FRM 601 ADVANCES IN DEVELOPMENT OF 3+0 SEM - I
RESOURCE MANAGEMENT

Objective

To acquaint the students with early managerial practices, different schools of management thought and significance of management applicable to families.

Theory

UNIT-I: Advances in discipline of resource management: classical approach; behavioural approach; systems approach and scientific management.

UNIT-II: Managerial continuum: early managerial practices and concepts from ancient civilization; medieval period to early twentieth century.

UNIT-III: Emerging schools of management thought; traditional school, behavioral school, management process school, qualitative school, contemporary management.

UNIT-IV: Theories of management: Maslow and management; the managerial composite; critical analysis of literature regarding recent developments and new approaches to family resource management.

Suggested Readings

- Chakravorty P. 2007. *Home Management*. Pointer Publ.
Gandotra V & Jaiswal N. 2008. *Management of Work in Home*. Dominant Publ.
Kotler P. 2004. *Principles of Management*. TEE Publ.
Oberoi K & Sidhu M. 2006. *Resource Management for Better Homes*. Chetna Prakashan.
Prasad L & Gulshan SS. 2001. *Management: Principles and Practices*. S. Chand & Co.
Seetharaman P, Batra S & Mehram P. 2005. *An Introduction to Family Resource Management*. CBS.
Sharma V. 2005. *Modern Home Management*. Shreeniwas Publ.
Terry George R. and Franklin Stephen G. 1996. *Principles of Management*. AITBS Publ.

FRM 602 OCCUPATIONAL BIOMECHANICS 2+1 SEM - I

Objective

To acquaint students about occupational hazards and advances in ergonomics for enhancing job-fitness compatibility.

Theory

UNIT-I: Importance of human machine system in fitting the task to human. Biomechanics as an area of study. Application of biomechanics to movement: qualitative and quantitative approach.

UNIT-II: Biomechanical oriented ergonomics in different occupation. Relationships of occupations. Occupational stress: causes, measurements and remedies.

UNIT-III: Ergonomic task analysis and risk assessment at work places. Tools and techniques to assess and control ergonomic hazards at work places.

UNIT-IV: Application of biomechanics for occupational safety; accident protection and release of stress. Use of SAMMIE (System for Aiding Man Machine Interaction Evaluation), CAD system in occupational designs.

Practical

Study of Occupational environment and Occupational stress in selected occupations. Work task analysis using ergo software - EVTA (Empirically Validated Task Analysis)/Ergo Master methodology with video for selected activities. Analyse the biomechanics applied in work performance. Identification of accident prone and stressful occupations suggesting remedial performance techniques. Application of EQ (Ergonomic Quality) and IQ (Industrial Quality) in the performance of occupational tasks.

Suggested Readings

- Allen PS, Stimpson MF & Jones LN. 2000. *Beginnings of Interior Environment*. Prentice Hall.
Bridger RS. 1994. *Introduction to Ergonomics*. McGraw Hill.
Dalela S & Saurabh. 1999. *Textbook of Work Study and Ergonomics*. Standard Publ.
Grandjean E. 1978. *Ergonomics of the Home*. Taylor & Francis.
Ian Galer. *Applied Ergonomics Handbook*. Butterworths.
Panero J Zelnik. 1979. *Human Dimensions and Interior Space*. The Architectural Press.
Singh S. 2007. *Ergonomics Interventions for Health and Productivity*. Himanshu Publ.

FRM 603 GLOBALIZATION AND CONSUMER ECONOMICS 2+1 SEM - I

Objectives

- To develop an insight into the process of globalization and trade liberalization and its impact on economic development of the country.
- To understand the impact of globalization on consumer issues.

Theory

UNIT-I: Meaning, scope and perspectives on consumer economics; different types of markets and consumer behavior: human behaviour v/s product behaviour; model of consumer motivation and behaviour; individual predisposition in marketing; factors affecting marketing; consumer decision process; Aggregate consumer behaviour overtime; diffusion of innovations; Brand loyalty.

UNIT-II: Globalization, liberalization and privatization: Meanings and scope; impact of globalization on economic development of the country; W.T.O. and consumer issues; AOA (Agreement on Agriculture) and its impact of consumer on consumers; trips and its implications for producers and consumers.

UNIT-III: Government programs / schemes designed to increase family financial security, food security, and to generate consumer awareness; consumer protection: problems and prospects; laws and regulations; role of media and organizations; Research implications of consumer issues.

Practical

Conducting case studies of different types of markets and consumer behavior; designing modules for creating awareness about consumer protection; planning of consumer guidance centre; readings in current consumer and marketing issues.

Suggested Readings

- David L. 2002. *Consumer Behavior*. Tata McGraw Hill.
Ghosh. AK. 2003. *Jobs and Incomes in a Globalization World*. ILO.
Nayar BR. 2007. *India's Globalization*, Vistaar Publ.
Schiffman LG. 2004. *Consumer Behaviour*. Prentice Hall.
Sharma AK. 2006. *Consumer Behaviour*. Global Vision Publ.
Siddique A. 2007. *India and Sough Asia- Economic Development in the Age of Globalization*. ME Sharpe.
Sivkumar GD. 2003. *Consumer Protection and Redressal Machinery in India*. Himalaya Publ.

FRM 604 FAMILY DYNAMICS AND WOMEN POWER 2+1 SEM - II

Objective

To create awareness among students about status of women and impact of change in role of women and propose strategies for development and protection at work.

Theory

UNIT-I: Role analysis of Indian home makers from ancient time to modern time. Impact of change in the role of women on the family system.

UNIT-II: Family dynamics: Theoretical and conceptual framework to study, Family dynamics, Human rights, Institutional norms of family, family structure, family ecology and family life development programmes. Economic and psychological cost of gainful employment of women in the family.

UNIT-III: Stress in the family characteristics, category, consequences and need for stress management. Family and social support systems for facilitating women's work participation in categories of labour- family labour, hired labour.

UNIT-IV: Need for wage policy and relationship between wages and employment, gender discrimination in wages. Women and law of inheritance and ownership of land. Women in occupational sectors. Occupational hazards of women at work.

Practical

Critical review of research studies in India and in developing countries on the role analysis of women. Analysis of aspects of family dynamics in stages of family life. Case studies on management in families with special needs such as families with aged and handicapped people. Coping strategies followed by families in stress management: through case studies. Visit to stress management centers/ counseling centers: report writing. Field study on gender disparity for paid and unpaid activities.

Suggested Readings

- Dasgupta S & Lal M. 2007. *The Indian Family in Transition*. Sage Publ.
Ghadially R. 2007. *Urban Women in Contemporary India*. Sage Publ.
Krishna S. 2007. *Women's Livelihood Rights*. Sage Publ.
Manji F. 2006. *Development and Rights*. Rawat Publ.
Paxton P & Hughes MM. 2007. *Women, Politics and Power*. Pine Forge Press.

FRM 605 CONSUMER PRODUCT DESIGN 1+2 SEM - II

Objective

To develop skills among students for Computer Aided Designing of products.

Theory

UNIT-I: Significance of product design and need for creative approach.

UNIT-II: Socio-technical and ergonomic factors in Design of Products: anthropometric, ergonomic, psychological, physiological considerations in design decision making, legal factors, engineering ethics and society.

UNIT-III: Design models - Principles in design for manufacturability.

UNIT-IV: Design analysis and implementation - Design production systems: modular design, design economics, cost analysis, cost reduction and value analysis techniques.

Practical

An analyzing the user's option on the design of a specific a specific consumer product. Collection and reporting of standards for selected consumer product as per safety regulations. Conceptualizing and developing design concept ó evolving prototype of the product ó Evaluation of the product and documentation.

Suggested Readings

Boothroyd G, Dewhurst P & Knight W. 2002. *Product Design for Manufacture and Assembly*. CRC Press.

Frey D. 1998. *AutoCAD 14*. BPB Publ.

Ron H. 2000. *Using Auto CAD 200*. Special Ed. Prentice Hall.

Sharma DD. 2000. *Total Quality Management*. S. Chand & Sons.

FRM 606 ENVIRONMENTAL ISSUES AND CHALLENGES 3+0 SEM - II

Objective

To expose students to global environmental issues and strategies to maintain ecological balance in micro and macro environment.

Theory

UNIT-I: Introduction to technology and environment. State of India's environment.

UNIT-II: Sustainable development- An International perspective. Global environmental issues. Carbon credit and its impact on growth of industries.

UNIT-III: Environmental education, environmental management system, population and community Ecology, natural resource conservation and management.

UNIT-IV: Environmental protection and law. Environmental impact assessment. Environmental audit. National and International efforts in improving environmental quality. Research methodology and system analysis applicable to environmental studies.

Suggested Readings

Baland JM, Bardhan P & Bowles S. 2007. *Inequality, Cooperation and Environmental Sustainability*. Pauls Press.

Choudhary BL. 2007. *Environment Management Practices: An Indian outlook*. Himanshu Publ.

Deswal S & Deswal A. 2002. *Energy, Ecology, Environment and Society*. Dhanpat Rai & Co.

Joseph K & Nagendran R. 2004. *Essentials of Environment Studies*. Pearson Edu.

Kumar A & Preeti. 2008. *Environment: New Challenges*. Daya Publ.

Singh K & Sisodia A. 2007. *Environmental Economics: Theory and Applications*. Sage Publ.

Venugopal Rao P. 2002. *Text Book of Environmental Engineering*. Prentice Hall.

FRM 607 MANAGERIAL DIMENSIONS FOR SPECIAL GROUPS 2+1 SEM - II

Objective

To develop skills in students to address needs of people with special needs.

Theory

UNIT-I: Characteristics and status of people with special needs and mentally challenged children and elderly.

UNIT-II: Theoretical perspectives on efficiency, comfort and safety: Physical environment: Architectural dimensions- flooring, stairs, storage, workstations, furniture, fixtures and fitments, equipment.

UNIT-III: Indoor Environment- Light, noise, humidity and temperature.

UNIT-IV: Managerial Dimensions- Time, money, energy, food and health, psychosocial; External environment support.

Practical

Appraisal of needs and coping strategies adopted by people with special needs at various levels through case studies. Presentation of reports. Inventory of external facilitators and

services available as management catalysts. Developing conceptual management models. Planning simulated environments for comfortable living. Analysis of service centers catering to people with special needs and presenting report.

Suggested Readings

Bridger RS. 1994. *Introduction to Ergonomics*. McGraw Hill.

Dalela S & Saurabh. 1999. *Textbook of Work Study and Ergonomics*. Standard Publ.

Grandjean E. 1978. *Ergonomics of the Home*. Taylor & Francis.

Ian G. 2006. *Applied Ergonomics Handbook*. Butterworths.

Panero J Zelnik. 1979. *Human Dimensions and Interior Space*. The Architectural Press.

Singh S. 2007. *Ergonomics Interventions for Health and Productivity*. Himanshu Publ.

FAMILY RESOURCE MANAGEMENT

List of Journals

- É **Applied Ergonomics**, U.K.
- É **Ergonomics**, Taylor & Francis Group, London.
- É **Family Ecology**, CCS HAU, Hisar, Haryana, India.
- É **Human Ecology**, KRE publishers, New Delhi
- É **Indian Journal of Home Science**, Baroda, India.
- É **Journal of Dairying, Food and Home Science**, Karnal, India
- É **Journal of Family Studies and Consumer Economics**, U.K.
- É **Journal of Home Economics**, American Home Economics Association, USA.

e-Resources

- É <http://www.cgsindia.org>
- É <http://www.ergowebergonomicsconcepts.com>
- É <http://www.virginiatech.org>
- É <http://www.ergo.human.cornel.edu.studentdourloads/DEA325pdfs/anthrodesign.pdf>
- É <http://www.te/tips/for/improving/posture/and/ergonomics/html>
- É <http://www.ergoweb.com/news/detail.cfm>
- É <http://www.healthy.net/asp/templates/articles/asp>
- É <http://www.hourthelps.html>
- É <http://www.advancechiro.on.ca/posturenf/htm>
- É <http://www.postureatuork.htm>
- É <http://www.handbag.com/healthfit/keeping/posturalinbalances>
- É <http://www.hse.gov.uk/humanfactors/-37k>
- É <http://www.deskline.linak.com/applications/?id2=179-11K>
- É <http://www.nceas.ucsb.edu/crmp-34K>
- É <http://www.sciencemag.org/cgi/content/abstract/209/4452/183>
- É <http://www.goes.ed.ac.uk/-20K>
- É http://www.emmanual.edu/GPPPPrograms/Master_of_science_in_human_resource_management.html
- É <http://www.aofes.org>
- É <http://www.neeri.res.in>
- É <http://www.inst.org/1d>
- É <http://www.bis.org.in>
- É http://www.design.guide.for_you.com
- É <http://www.decoration.dekorasyonu.com>
- É <http://www.interior-world.in>
- É http://www.interior_decorating_infosource.com
- É <http://www.designingonline.com>
- É <http://www.design.careeredu.com>
- É <http://www.sereneinteriors.com>
- É http://www.homefurnish.com/hmdeco_m/htm
- É <http://www.interiordesignschoolreview.com>
- É <http://www.interiordec.about.com/od/careerinfo>
- É <http://www.wn.wikipedia.org/wiki/consumerism>
- É http://www.cbc.ca/consumers/market/murmurs/archives/category_cars.html
- É <http://www.globalissues.org/traderelated/consumption/rise.asp>
- É <http://www.ethicalconsumer.org/philosophy/riserise.htm>
- É http://www.intertek-labtest.com/industry/toys_juvenile/toys_testing/?lang=en
- É http://www.cygnacom.com/sel_overview.pdf
- É <http://www.tse.com/services/prodtest.html>
- É <http://www.catra.org/pages/services/testprodual.htm>
- É <http://www.livkinghub.elsewer.com/retrieve/pii/0007850007614814>
- É <http://www.stickykids.com/testndevalnation.asp>

É <http://www.ingentaconnect.com/content/mcb/110/2007/0000025/0000005/art0002>
 É http://www.wbdg.org/design/minimize_consumption.php
 É http://www.architectureweek.com/2000/0906/building_1-1.html
 É <http://www.iea.org/docs/index.htm>
 É <http://www.archi.hkn.hk/research/BEER/sustain.htm>
 É <http://www.arabschool.org.suj/ASSTbook/energy%20conservation%20in%20building.doc>
 É <http://www.eric.ed.gov/ericwebportal/recora/retail?accno-ed140508>
 É <http://www.scientific.net/0-87849-860-2/331/>
 É http://www.epa.gov/oms/speches/mto_9508.htm
 É http://www.indicare.org/tiki_read_article.php
 É <http://www.docuticker.com/?cat=60>
 É <http://www.acue.org/energy/multiple.htm>
 É http://www.mbhilpahua.com/tag/consumer_issues/
 É <http://www.northlan.gov.uk/livingthere/consumer+issues/index.html>
 É <http://www.ces.nesu.edu/depts/tes/pub/forum.html>
 É http://www.euractiv.com/en/pa/consumer_communications_popular_eu/article_172461
 É <http://www.oliverwyman.com/ow/cmt.htm>
 É <http://www.ieeeexplore.ieee.org/iel15/9640/3.469/01405144.pdf>
 É <http://www.eds.com/industries/communications>
 É http://www.artmam.net/consumer_relations.htm

Suggested Broad Topics for Master's and Doctoral Research

É Development of drudgery reducing technologies in home, farm and dairy sectors
 É Testing of drudgery reducing technologies
 É Environment protection through resource management
 É Management of family resources
 É Energy conservation and renewable energy sources
 É Entrepreneurial development among women
 É Consumerism and consumer economics
 É Occupational health hazards and safety
 É Rural hygiene and sanitation
 É Accessible buildings for residential and commercial uses
 É Ergo-friendly product design, testing and evaluation
 É Building design for special needs

FOODS AND NUTRITION

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
FN 501	FOOD SCIENCE	2+1	I
FN 502	ADVANCED NUTRITION	3+0	I
FN 503*	FOOD ANALYSIS	1+3	I
FN 504*	ADVANCES IN COMMUNITY NUTRITION	2+1	I
FN 505	FOOD PROCESSING TECHNOLOGY	3+0	I
FN 506	ADVANCES IN CLINICAL NUTRITION	2+2	II
FN 507*	NUTRITION DURING LIFE CYCLE	3+0	II
FN 508	NUTRITION AND PHYSICAL FITNESS	2+1	II
FN 509*	ADVANCED DIET THERAPY	2+1	II
FN 510	FOOD TOXICOLOGY	2+0	II
FN 511 ❶	ADVANCED HUMAN PHYSIOLOGY	2+1	I
FN 512	FOOD SERVICE MANAGEMENT	1+2	II
FN 513	FOOD PRODUCT DEVELOPMENT	1+1	II
FN 514	NUTRITION AND IMMUNITY	2+0	II
FN 591	MASTER'S SEMINAR	1	I, II
FN 599	MASTER'S RESEARCH	20	I, II
FN 601**	ADVANCES IN CARBOHYDRATES, PROTEINS AND LIPIDS	4+0	II
FN 602**	ADVANCES IN VITAMINS AND HORMONES	2+0	I
FN 603**	MINERALS IN HUMAN NUTRITION	2+1	II
FN 604/ FST 609 ❷	CURRENT TOPICS IN FOOD SCIENCES AND TECHNOLOGY	2+0	II
FN 605	ADVANCES IN ENERGY METABOLISM	2+0	I
FN 606	NUTRITION AND AGRICULTURAL INTERFACE	3+0	II
FN 607	NUTRITION IN EMERGENCIES	2+0	II
FN 608	APPLICATION OF BIOTECHNOLOGY IN FOOD SCIENCE AND NUTRITION	2+0	I, II
FN 609	GLOBAL NUTRITIONAL PROBLEMS	2+0	I
FN 610	MATERNAL AND CHILD NUTRITION	2+1	I
FN 691	DOCTORAL SEMINAR I	1	I, II
FN 692	DOCTORAL SEMINAR II	1	I, II
FN 699	DOCTORAL RESEARCH	45	I, II

*Compulsory for Master's programme; **Compulsory for Doctoral programme

Courses open for students of other departments: FN 501-514

❶ To be taught by Veterinary Physiology and Medical Specialist; ❷ To be taught by Food Science & Technology

FOODS AND NUTRITION

Course Contents

FN 501	FOOD SCIENCE	2+1	SEM - I
Objective	To make the students aware about common food processing techniques and understand the physico-chemical properties of foods.		
Theory	<u>UNIT-I:</u> Colloidal chemistry as related to foods; evaluation of food by subjective and Objective methods. Carbohydrates in food, sources and characteristics of sugar, starch, cellulose, pectin and gums; effect of cooking and processing techniques. <u>UNIT-II:</u> Protein in foods: plant and animal foods; chemical and physical properties related to foods; effect of cooking and processing techniques; properties, uses, processing techniques, changes during heating and other processing and storage of fats and oils. <u>UNIT-III:</u> Classification, importance, composition of fruits and vegetables and effect of cooking and other processing methods on their nutritive value. <u>UNIT-IV:</u> Classification and importance of beverages; food pigments; browning reaction; definition, classification, uses and legal aspects of food additives; classification, nature and uses of leavening units.		
Practical	Microscopic structure of different starch granules; evaluation of food by subjective and objective methods ; changes in colour, texture and flavour of foods due to processing; effect of cooking on protein , fat and carbohydrates; product preparation using leavening agents; project work related to text .		
Suggested Readings	Borgstrom G.1968. <i>Principles of Food Science</i> . Vols. I, II. Macmillan. Desrosier NW & Desrosier JN. 1997. <i>The Technology of Food Preservation</i> . AVI Publ. Griswold RM. 1962. <i>The Experimental Study of Foods</i> . Houghton Mifflin. Khader V. 1999. <i>Text Book on Food Storage and Preservation</i> . Kalyani. Krishna Swami K. 2000. <i>Nutrition Research – Current Scenario</i> . Oxford & IBH. Lowe B. 1955. <i>Experimental Cookery</i> . John Wiley. Manay NS & Shadaksharaswamy M. 1997. <i>Foods, Facts and Principles</i> . New Age International. Meyer LH. 1976. <i>Food Chemistry</i> . AVI Publ. Potter NN & Hotchkiss HJ. 1996. <i>Food Science</i> . CBS. Subbulakshmi G & Udipi SA. 2006. <i>Food Processing and Preservation</i> . New Age International.		
FN 502	ADVANCED NUTRITION	3+0	SEM - I
Objective	To enable the students to understand the current trends in nutrition, functions, deficiencies and toxicity of different nutrients and to acquaint about nutritional requirement in special conditions.		
Theory	<u>UNIT-I:</u> Functions, sources, requirements, digestion and absorption of carbohydrates; definition, composition, classification, functions and role of dietary fibre in various physiological disorders. <u>UNIT-II:</u> Basis of requirement, functions, sources, digestion and absorption of protein; methods of assessing protein quality, basis of requirement, functions, sources, digestion, absorption and deficiency disorders of lipids; essential fatty acids and eicosanoids. <u>UNIT-III:</u> Requirements, functions, sources, deficiencies and toxicities of fat and water soluble vitamins. <u>UNIT-IV:</u> Requirement, functions, sources, deficiency, toxicity and factors affecting absorption and utilization of macro and micro minerals. Water balance; acid and base balance.		
Suggested Readings	Anderson L, Dibble, Turkki PR, Mitchell HS & Rynbergen HJ. 1982. <i>Nutrition in Health and Disease</i> . JB Lippincott.		

UNIT-III: Major nutritional problems of the state, nation and world. Nutrition intervention- definition, importance, methods of nutrition intervention and their impact evaluation.

UNIT-IV: National nutritional programmes and policies; nutritional surveillance. National programmes and policies regarding food production and distribution.

Practical

Market survey for food availability and their cost; development of low cost nutritious recipes suitable for various vulnerable groups; visit to the ongoing public health nutrition programme and report writing; techniques of assessment of nutritional status.

Project Work

Studying existing diet and nutrition practices, planning and conducting survey, analyzing data and writing report.

Suggested Readings

- Gopaldas T & Seshadari S. 1987. *Nutrition Monitoring and Assessment*. Oxford University Press.
- Jeannette B Endres. 1990. *Community Nutrition Challenges and Opportunities*. Merrill.
- Jelliffe DB. 1966. *The Assessment of the Nutritional Status of the Community*. WHO.
- Jolliffe N.1962. *Clinical Nutrition*. Hoeber Medical Division.
- McLaren DS.1977. *Nutrition in the Community*. John Wiley.
- Nutrition Foundation of India Bulletin. New Delhi.
- Nutrition News. NIN, Hyderabad .
- Park JE & Park K. 2000. *Text Book of Preventive and Social Medicine*. Banarsidas Bhanot Publ.
- Rao BSN, Deosthale YG & Pant KC.1998. (Revised and updated). *Nutritive Value of Indian Foods* by Gopalan C, Ramashastri BV & Balasubramaniam SC. NIN, Hyderabad.
- Shukla PK. 1982. *Nutritional Problems of India*. Prentice Hall.

FN 505 FOOD PROCESSING TECHNOLOGY 3+0 SEM - I

Objective

To know processing technology of various food stuffs, physical and chemical principles in food processing and ways of quality control, waste disposal and sanitation in food industries.

Theory

UNIT-I: Principles underlying food processing operations including thermal, radiation, refrigeration, freezing and dehydration. Effect of processing on physicochemical characteristics.

UNIT-II: Processing technology for preservation and production of variety food products; losses during storage, handling and processing of cereals, legumes, oilseeds, fruits and vegetables.

UNIT-III: Processing technology for milk and milk products, egg, meat, poultry and fish; convenience foods, processed foods; technologies underlying in mutual supplementation, enrichment and fortification; fermentation, malting and germination. Food additives commonly used in food industries for color, flavor, and as preservatives.

UNIT-IV: Quality control in food industry: raw material, finished products. Waste management and sanitation in food industries; packaging of foods; storage and marketing of processed foods.

Suggested Readings

- Desrosier NW & Desrosier JN. 1977. *The Technology of Food Preservation*. AVI Publ.
- Frank AP. 1987. *Modern Processing, Packaging and Distribution System for Foods*. AVI Van nonstand Reinhold Co.
- Frazier WC. 1988. *Food Microbiology*. Tata McGraw Hill.
- McWilliams M. 1993. *Foods - Experimental Perspectives*. Macmillan.
- Potty VH & Mulky MJ. 1993. *Food Processing*. Oxford & IBH.
- Srilakshmi B. 2001. *Food Science*. New Age International.
- Swaminathan MS. 1993. *Food Science and Experimental Foods*. Ganesh & Co.

FN 506 ADVANCES IN CLINICAL NUTRITION 2+2 SEM - II

Objective

To familiarize students about estimation of RDA, deficiency of nutrients, analysis of different nutrients and metabolites in blood and urine in normal and diseased conditions.

Theory

UNIT-I: Methods for estimating requirements and recommended allowances of energy, protein, minerals and vitamins for different age groups and physiological states.

UNIT-II: Nutrient interrelationship; historical background, epidemiology, preventive and therapeutic measures of protein energy malnutrition.

UNIT-III: Interrelationship, etiology and preventive measures of vitamin and mineral deficiencies and toxicities.

UNIT-IV: Principles and interpretation of clinical laboratory methods with particular emphasis on their interpretation related to nutritional status and disease; interaction between nutrients, infections and drugs.

Practical

Biochemical analysis of blood under normal and diseased conditions for glucose, calcium, iron, creatinine, urea, uric acid, albumin, globulin, cholesterol, phosphate, glutamate oxaloacetate transaminase, glutamate pyruvate transaminase; phospholipids; analysis of urine for specific metabolites under normal and diseased conditions.

Suggested Readings

Anderson L, Dibble MV, Turkki PR, Mitchel HS & Rynbergen H. 1982. *Nutrition in Health and Disease*. JB Lippincott Co.

ICMR 1998. *Recommended Dietary Allowance for Indians*. ICMR.

Khanna K, Gupta S, Seth R & Puri S. 1997. *Text Book of Nutrition and Dietetics*. Phoenix Publ.

Oser H. 1969. *Physiological Chemistry*. Tata McGraw Hill.

Raghuramalu N, Nair KM & Kali Sundram S. 1983. *A Manual of Laboratory Techniques*. NIN Hyderabad.

Srilakshmi B. 2002. *Nutrition Science*. New Age International.

Swaminathan M. 1988. *Principles of Nutrition and Dietetics*. BAPPCO.

FN 507 NUTRITION DURING LIFE CYCLE 3+0 SEM - II

Objective

To enable the students to know physiological changes and nutritional requirements during various stages of life cycle.

Theory

UNIT-I: Adulthood: nutritional requirements & intake as affected by sex, occupation, income. Pregnancy: physiological changes in pregnancy, weight gain during pregnancy, food and nutrient requirements, storage of nutrients during pregnancy and impact of good nutrition on the outcome of pregnancy, complications of pregnancy and their nutritional management. Lactation: physiology of lactation, impact of nutrition on efficiency of milk production, food and nutrient requirements during lactation.

UNIT-II: Infancy: role of nutrition on physical and mental development, rate of growth - weight as an indicator, assessment of growth, nutrient requirement during infancy, feeding of infants ó value of breast feeding, breast milk composition, breast feeding Vs artificial feeding, types of milk and their use in infant feeding, methods of formula preparation, weaning and supplementary foods, weaning practices in the community, special nutritional concern in infant feeding, feeding the premature and low birth weight infants. Nutritional disorders and common ailments in infancy, feeding the sick child, immunization schedule and growth charts.

UNIT-III: Preschool age: growth and development ó physical and mental, prevalence of malnutrition in preschool years and food habits, nutritional requirements during preschool year and supplementary foods. School age: growth and development, nutritional requirements of school age children, specific problems in feeding school children.

UNIT-IV: Adolescence: physical and physiological changes, nutritional requirements of adolescents, food preferences and nutritional problems. Elderly: physical and physiological changes, nutritional requirement, problems of old age, nutrients influencing aging process.

Suggested Readings

- Anderson L, Dibble MV, Turkki PR, Mitchell HS & Rynbergen HJ. 1982. *Nutrition in Health and Disease*. JB Lippincott Co.
- Beal VA. 1980. *Nutrition in the Life Span*. John Wiley.
- Falkner F & Tanner JM. 1978. *Human Growth*. Vols. I-III. Plenum Press.
- FAO/WHO/UNU. 1985. *Energy and Protein Requirement*. Tech. Report 724. WHO.
- Ghosh S. 1988. *The Feeding and Care of Infant and Young Children*. Voluntary Health Association of India, New Delhi.
- Guthrie HA. 1989. *Introductory Nutrition*. Times Mirror/Mosby College Publ.
- ICMR. 1990. *Nutrient Requirement and Recommended Dietary Allowance for Indians*. A Report of Expert Group of the ICMR, NIN, Hyderabad.
- Khetarpaul N, Katyal S.K. & Grover I. 2001. *Infant Health and Nutrition*. Agro Tech. Publ. Academy.
- Krause MV & Mahan LK. 1990. *Food, Nutrition and Diet Therapy*. WB Saunders.
- Robinson CH & Lawler MR. 1986. *Normal and Therapeutic Nutrition*. McMillan.
- Williams SR, Worthington RS, Sneholinka ED, Pipes P, Ress JM & Mahal KL. 1988. *Introduction Nutrition throughout the Life Cycle*. Times Mirror/Mosby College Publ.

FN 508 NUTRITION AND PHYSICAL FITNESS 2+1 SEM - II

Objective

To enable the students to know the recent techniques of body composition and energy metabolism for the assessment of nutritional status.

Theory

UNIT-I: Overview of nutritional management vis-a-vis physical fitness, body composition and physical fitness.

UNIT-II: Methods of measuring body composition: direct and indirect; body composition in different physiological conditions and factors affecting it.

UNIT-III: Energy metabolism and physical fitness: concept, importance, influencing factors.

UNIT-IV: Techniques to measure energy expenditure and energy intake. Techniques to assess physical fitness; aging theories, physiology, mechanism and role of nutrients in arresting aging process.

Practical

Project relevant to text: selection of topic, planning of project, development and standardization of tool, collection of data, analysis of data, report writing.

Suggested Readings

- Falkner F & Tanner JM. 1978. *Human Growth - Principles and Prenatal Growth*. Vol. I. Bailliere Tindall.
- Falkner F & Tarnner JM. 1980. *Human Growth Methodology. Ecological, Genetic, and Nutritional Effects on Growth*. Vol. III. Plenum Press.
- Passmore R & Eastwood MA. 1986. *Human Nutrition and Dietetics*. ELBS Churchill Livingstone.
- Pike RL & Brown ML. 1988. *Nutrition - An Integrated Approach*. John Wiley.

FN 509 ADVANCED DIET THERAPY 2+1 SEM - II

Objective

To familiarize the students with newer concepts in dietary management of various disorders and diseases.

Theory

UNIT-I: Role of dietician in a health care team in hospital and community. Newer concepts in dietary management of various nutritional disorders and disease conditions: fevers, infections.

UNIT-II: Dietary management during burns, allergy, gastrointestinal disorders and liver diseases.

UNIT-III: Dietary management of cardiovascular diseases, renal disorders and obesity.

UNIT-IV: Dietary management of diabetes, cancer and HIV. Nutrition in critical care.

Practical

Formulation of food exchanges. Therapeutic modifications of diet in terms of nutrients, consistency and composition for various disorders and diseases. Preparation of SOAP notes and case studies. Visits to hospitals.

Suggested Readings

Robinson, Lawler, Chenoweth & Garwick, 1987. *Normal and Therapeutic Nutrition*. 17th Ed. Macmillan Publishing Co.
 Shills ME & Young VR. *Modern Nutrition in Health and Disease*. 7th Ed. Lea & Febiger.
 Stanfield PS, Hui YH & American Dietetics Association 1992. *Nutrition and Diet Therapy*. 2nd Ed. Jones & Bartlett Publ.

FN 510 FOOD TOXICOLOGY 2+0 SEM - II

Objective

To enable the students to understand the toxic substances present in the foods and processing techniques for removal of toxins from foods.

Theory

UNIT-I: Introduction and significance of food toxicology. Food poisoning: types, causative factors, preventive symptoms, natural food toxins, antinutritional factors, other food toxins, harmful effects, methods of removal.

UNIT-II: Microbial toxins and food intoxications, source of contamination, effect on health, preventive measures, methods of inactivation/destruction.

UNIT-III: Chemical toxins: pesticides, insecticides metallic and others, residual effects, preventive measures, methods of removal.

UNIT-IV: Food packaging material, potential contaminants from food packaging material. Food laws and standards: FPO, BIS, Ag Mark, Codex Alimentarius, ISO, mark for vegetarian and non vegetarian foods, ecofriendly products and others in operation.

Suggested Readings

Ayres JC. 1968. *The Safety of Foods*. AVI Publ.
 Hayes WJ. 1975. *Toxicology of Pesticide*. The Willams & Wilkins Co.
 Jacob T. 1976. *Food Adulteration*. Sib Wasani Macmillan Co.
 Jathcock, J.N. *Nutritional Toxicology*. Academic Press.
 Liener, I.E. 1980. *Toxic Constituents of Plant Foodstuffs*. Academic Press.
 Swaminathan MS. 1985. *Advanced Text Book on Food and Nutrition*. Vol II. The Bangalore Printing & Publ. Co.

FN 511 ADVANCED HUMAN PHYSIOLOGY 2+1 SEM- I

(To be taught by Veterinary Physiology and Medical Specialist)

Objective

To enable the students to understand the anatomy and functions of human body and techniques/methods of blood and urine analysis.

Theory

UNIT-I: Reticulo-endothelial system: functions, classification; Lymphatic system: functions, circulation; Circulatory System: blood ó composition of blood cells - development and function of blood cells, blood clotting, blood grouping and hemoglobin; Heart: anatomy, cardiac cycle, blood pressure and factors affecting blood pressure.

UNIT-II: Respiratory system: anatomy, physiology and mechanism of respiration, regulation of respiration; digestive system: anatomy of gastrointestinal tract and accessory organs, digestion and absorption of food, regulation of appetite.

UNIT-III: Excretory system: anatomy and functions of kidney, formation, composition and excretion of urine; Endocrine glands: mode of action of hormones.

UNIT-IV: Reproductive system: structure and functions of male and female reproductive organs. Nervous system: anatomy and functions; Musculo skeletal system: anatomy and functions.

Practical

Estimation of hemoglobin; identification of blood groups; preparation of blood slide; identification and counting of blood cells. Haematocrit and sedimentation rate. Measurement of blood pressure; examination of abnormal constituents of urine; estimation of glucose and cholesterol in blood.

Suggested Readings

- Best CH & Taylor NB. 1989. *The Human Body*. ASI Publ. House. (Source: National Book Depot, Bombay).
- Chatterjee CC. 1992. *Human Physiology*. Vols. I, II. Medical Allied Agency.
- Guyton AC. 1991. *Text Book of Medical Physiology*. WB Saunders.
- Mukherjee KL. 1994. *Medical Laboratory Technology*. Vol I. Tata McGraw Hill.
- Wilson KJW & Ross JS. 1987. *Ross and Wilson Anatomy and Physiology in Health and Illness*. 6th Ed. Churchill Livingstone.

FN 512	FOOD SERVICE MANAGEMENT	1+2	SEM - II
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Objective

To enable the students to understand the process of planning, organizing and controlling the management of food and other resources in institutions.

Theory

UNIT-I: Food service organization: definition, types; management: tools of management.

UNIT-II: Personnel management. Books: records and record keeping. Cost control in food services. Menu planning.

UNIT-III: Meal services management: types of services. Quantity food production: principles involved in development of recipes in large scale cooking, standardization of recipes; utilization of left over foods.

UNIT-IV: Planning of layout and equipment for foods services. Sanitation and hygiene in handling foods; Personnel hygiene and its importance.

Practical

Standardization of recipes: planning and preparation, modification in basic recipe, preparation of standard recipe; use of left over foods; visit to different types of food service institutions and study the following: organization, physical plan and layout, food service equipment, sanitation and hygiene. Practical experience in organization and management of college cafeteria/ hotels.

Suggested Readings

- Fuller J. 1966. *Chefs Manual and a Kitchen Management*. B.T. Badtsford Ltd.
- Kazarian EA. 1975. *Food Service Facilities – Planning*. AVI Publ.
- Kotschevar LH. 1961. *Food Service, Layout and Equipment Planning*. John Wiley.
- Sethi M & Malhan S. 1997. *Catering Management - An Integral Approach*. New Age International.
- Treat N & Richards 1997. *Quantity Cookery*. Little Brown.
- West BB, Wood L, Harger VF & Shugart GS. 1977. *Food Service in Institutions*. John Wiley.

FN 513	FOOD PRODUCT DEVELOPMENT	1+1	SEM - II
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Objective

To enable the students to understand the concept of product development, their sensory evaluation and quality control.

Theory

UNIT-I: Basic principles of food product development; sensory properties of food and their role in product development. Formulation and evaluation of recipes at laboratory level; bulk food preparation for food institutions and enterprises: servings, nutritive value and costing.

UNIT-II: Evaluation of food; objective and subjective methods, selection and training of judges, development of score cards and analysis of data.

UNIT-III: Consumer evaluation; development of schedule and data analysis; Packaging material: types for different products; food labeling.

UNIT-IV: Food safety issues in product development; food quality regulations and standards; quality control and HACCP; product formulation and development for general and therapeutic use.

Practical

Sensory evaluation: methods, training of judges, score card preparation. Selection and modification of food product to be developed; formulation and standardization of

- Basu TK & Dickerson JWT. 1996. *Vitamins in Human Health and Disease*. CABI.
- Boyd LOø Dell & Sunde RA. 1997. *Handbook of Nutritionally Essential Mineral Elements*. CRC Press.
- Causing 2005. *Annual Review of Nutrition*. Vol. 25.
- Comb GF. 1992. *The Vitamins, Fundamental Aspects in Nutritional and Health*. Academic Press.
- Kutsky RJ. 1981. *Handbook of Vitamins, Minerals and Hormones*. NRC.
- Machlin LJ. 1991 *Handbook of Vitamins*. Marcel Dekker.
- Monier Willam GW. 2008. *Trace Elements in Foods*. Agribios.
- Taylor SL. 2007. *Advances in Food and Nutrition Research*. Vols. 1-52. Research Books & Pvt. Ltd.

**FN 604/
FST 609** **CURRENT TOPICS IN FOOD SCIENCE
AND TECHNOLOGY** **2+0** **SEM - II**

(To be taught by Food Science & Technology)

Objective

Discourses and discussions on the selected important and relevant latest topics pertaining to food science and technology.

Theory

UNIT-I: Functional properties of food components, new food ingredients, new food product development.

UNIT-II: Nano-technology in food processing and packaging, innovation in bio-preservation.

UNIT-III: Organic foods, functional foods, GM foods, authentication of food sources.

UNIT-IV: Advances in food quality, risk assessment, food safety concerns, emerging food pathogens.

UNIT-V: Current issues in food science.

Suggested Readings

Selected articles from books and journals.

FN 605 **ADVANCES IN ENERGY METABOLISM** **2+0** **SEM - I**

Objective

To familiarize the students with new developments in the area of energy metabolism and its relation to human health.

UNIT-I: Scope and application of bioenergetics for human nutrition; energy types; energy store in man; its components and measurements.

UNIT-II: Methods of estimation of energy requirement; factors affecting energy requirements and expenditure.

UNIT-III: Thermogenesis; interrelationship between metabolic regulation; Mechanism of hunger and energy cost of macromolecules.

UNIT-IV: Weight control and obesity, role of adipose tissues; Effect of hormones on energy metabolism.

Suggested Readings

Causing 2005. *Annual Review of Nutrition*. Vol. 25.

Lehninger AL & Benjamin WA. 1971. *Bioenergetics*. Meulo Park.

Taylor SL. 2007. *Advances in Food and Nutrition Research*. VolS. 1-52. Researcho Books.

FN 606 **NUTRITION AND AGRICULTURE INTERFACE** **3+0** **SEM - II**

Objective

To acquaint the students with food production and consumption trends, food balance sheet and interrelationship between nutrition and agriculture development.

Theory

UNIT-I: Food situation in India and in the world; food production and consumption trends; food balance sheets; role of nutrition in agricultural planning and national development.

UNIT-II: Linkages between agricultural practices: food production, food distribution and nutritional status; food crop failure and malnutrition; poverty and vicious cycle of low

Objective

To acquaint the students with global food consumption patterns and assess world nutrition situation.

Theory

UNIT-I: Food consumption pattern of developed and developing countries.

UNIT-II: An overview of world nutrition situation and assessment of problems of developing countries in light of prevalence, etiology; indicators and preventive measures.

UNIT-III: An overview of world nutrition situation and assessment problems of developed countries in light of prevalence, etiology, indicators and preventive measures.

UNIT-IV: Nutrition and health programmes to alleviate malnutrition; role of national and international organizations.

Suggested Readings

Anderson L, Dibble MV, Turkki PR, Mitchell HE & Pynbergen HJ. 1982. *Nutrition in Health and Disease*. JB Lippincott Co.

Jelliffe BD. 1966. *The Assessment of the Nutritional Status of the Community*. WHO.

Jolliffe N. 1962. *Clinical Nutrition*. Hoeber Medical Division.

Mclaren DS. 1983. *Nutrition in the Community*. John Wiley.

Park JE & Park K. 2000. *Text Book of Preventive and Social Medicine*. Barnasidas Bhanot Publ.

Shukla PK. 1982. *Nutritional Problems of India*. Prentice Hall.

FN 610**MATERNAL AND CHILD NUTRITION****2+1****SEM - I****Objective**

To enable the students to understand the role of nutrition during pregnancy, lactation and infancy.

Theory

UNIT-I: Current scenario of maternal and child nutrition; nutritional aspect of embryogenesis; factors affecting outcome of pregnancy; physiological changes in body composition and mental development in relation to prenatal and postnatal nutrition .

UNIT-II: Effect of nutritional status of mother on quantity and quality of breast milk; recent guidelines in infant feeding and complementary feeding; feeding of premature babies; HIV and breast feeding; drug abuse and breast feeding.

UNIT-III: Nutritional problems and requirements of preschool and school going children; growth and development of children; growth monitoring using growth charts.

UNIT-IV: Strategies to improve maternal and child health in India; role of BPNI in promotion of breast feeding in India; importance of world breast feeding week.

Practical

Preparation of a database on prevailing supplementary and weaning practices- planning, collecting data, analyzing data, writing report; preparation of low cost complementary foods. Analysis of weaning/complementary foods for its nutrient content.

Suggested Readings

Bamji MS, Rao NP & Reddy V. 1999. *Text Book of Human Nutrition*. Oxford & IBH.

Falkner F & Tanner JM. 1978. *Human Growth - Postnatal Growth and Neurobiology*. Vol. II. Plenum Press.

Falkner F & Tanner JM. 1986. *Human Growth - A Comprehensive Treatise*. Development Biology Press.

Falkner F & Tanner JM. 1986. *Human Growth – Methodology, Ecological, Genetic and Nutritional Effects on Growth*. Vol. III. Plenum Press.

Francis DEM. 1986. *Nutrition in the Life Span*. John Wiley.

Sachdeva HPS & Choudhary P. 1994. *Nutrition in Children*. Cambridge Press.

Williams SR, Worthington RS, Sneholinka ED, Pipes P, Ress JM & Mahal KL. 1988. *Nutrition Throughout the Life Cycle*. Times Mirror/Mosby College Publ.

Ziegler EE & Filer LJ. 1996. *Present Knowledge in Nutrition*. International Life Science Institute, Washington, D.C.

FOODS AND NUTRITION

List of Journals

- **Plant Foods for Human Nutrition**
Kluwer Academic Publisher, P.O. Box 322, 3300, AH Dordrecht, The Netherlands
- **Journal of Food Science and Technology**
Association of Food Scientists, CFTRI, Mysore 570013 (India); afsti@soncharnet.in
- **Nutrition and Food Science**
www.emeraldinsight.com/authors
- **Food Chemistry**
Professor Gordon Birch, School of Food Biosciences, University of Reading, Whiteknights, Po Box 226, Reading RG6 6AP, UK
- **Journal of Human Nutrition and Dietetics**
Dr. Joan Gandy, Centre for Health Studies, Buckinghamshire Chilterns University College Gorelands Lane, Bucks, HP84AD, UK
- **International Journal of Food Science and Technology**
wtp://mc.manuscriptcentral.com.ijfst
- **Journal of Indian Dietetic Association**
Editor-in-chief, Department of Biochemistry & Nutrition, All India Institute of Hygiene and Public Health, 110 C.R. Avenue, Kolkata ó 700 073
- **International Journal of Food Science and Technology**
Blackwell Publishing Ltd. 9600 Garsington Road, Oxford, Ox42D.
- **Indian Food Packer**
K.P. Sareen, Executive Editor, All India Food Processors Association, 206, Aurobindo Place, Hauz Khas, New Delhi
- **Trends in Food Science and Technology**
Elsevier Ltd., The Boulevard, Langfodlane, Kidlington, Oxford OXs 1GB, UK
- **European Journal of Clinical Nutrition**
JC Seidell, Free University, Amsterdam, The Netherlands.
- **Journal of the Science of Food and Agriculture**
www.interscience.welley.com/jsfa

e-Resources

- É www.eatright.org/
- É www.fda.gov/search.html
- É www.nutrition.about.com
- É www.lifelines.com/ntnlnk.html
- É www.fda.gov
- É www.nal.usda.gov/fnic/dga
- É www.nal.usda.gov/fnic/fpyr/pyramid.html
- É www.diabetes.org
- É www.5aday.com
- É www.ificinfo.health.org/infoFN.htm
- É www.fascb.org/asns/intro.html
- É www.osteoporosis.org
- É www.ironoverload.org
- É www.bookman.com.au/vitamins
- É www.thriveonline.com/eats/vitamins/guide.index.html
- É www.altmedicine.com/
- É www.ncahf.org
- É www.nal.usda.gov/fnic/foodcomp
- É www.niddk.nih.gov/health/nutrit/nutrit.htm
- É www.fda.gov/cder
- É www.acsm.org
- É www.cdc.gov/nccdphp

É www.nih.gov/od/oar
É www.americanheart.org
É www.nhlbi.nih.gov/index/htm
É www.cancer.org
É www.aice.org
É www.foodsafety.org
É www.safefood.org
É www.fao.org
É www.who.org
É www.wfp.org
É www.worldbank.org

Suggested Broad Topics for Master's and Doctoral Research

É Diet and nutrition surveys of vulnerable sections of specific district
É Nutritional improvement and utilization of pearl millet and soybean in Indian dietaries
É Weaning/supplementary mixture for infants and pre school children
É Value added products from cereals and pulses
É Development and nutritional evaluation of β -carotene and iron rich products from amaranth, fenugreek, spinach and unconventional vegetables
É Development of foods for diabetes and old persons
É Development of fiber rich food products
É Development and nutritional evaluation of probiotic foods for controlling diarrhoea
É Development and nutritional evaluation of value added products supplemented with crude palm oil and the vegetable oils
É Development and nutritional evaluation of value added products using medicinal plants and to test their efficacy against blood sugar and cholesterol level in animals and human beings
É Nutritional evaluation of under-utilized foods of India and incorporation in traditional diets to improve their nutritional quality
É Dietary survey of patients suffering from various diseases like, heart disease, liver disease, kidney disorder etc.
É Nutritional evaluation of new crop varieties and preparation of value added products

HUMAN DEVELOPMENT AND FAMILY STUDIES

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
HDFS 501*	THEORIES OF HUMAN DEVELOPMENT AND BEHAVIOUR	3+0	I
HDFS 502*	ADVANCES IN LIFE SPAN DEVELOPMENT	2+1	II
HDFS 503	GENDER ISSUES IN HUMAN DEVELOPMENT AND FAMILY RELATIONS	2+1	II
HDFS 504*	EARLY CHILDHOOD EDUCATION AND ORGANISATION	2+1	I
HDFS 505	INNOVATIVE PROGRAMMES IN EARLY CHILDHOOD CARE AND EDUCATION	2+1	I
HDFS 506*	METHODS AND TECHNIQUES OF ASSESSMENT IN HUMAN DEVELOPMENT	2+1	I
HDFS 507	GUIDANCE AND COUNSELING	1+2	II
HDFS 508	ADOLESCENT DEVELOPMENT AND CHALLENGES	2+1	II
HDFS 509	GERONTOLOGY	2+1	II
HDFS 510	PARENT AND COMMUNITY EDUCATION	1+2	I
HDFS 511	APPRAISAL OF CHILD AND FAMILY WELFARE INSTITUTIONS	1+1	II
HDFS 512	DEVELOPMENT OF LEARNING MATERIAL AND CHILDREN'S LITERATURE	1+2	I
HDFS 513	FAMILY THERAPY	2+1	II
HDFS 514	CHILDREN WITH DEVELOPMENTAL CHALLENGES	2+1	II
HDFS 591	MASTER'S SEMINAR	1	I, II
HDFS 599	MASTER'S RESEARCH	20	I, II
HDFS 601**	ADULTHOOD DYNAMICS	2+1	I
HDFS 602**	ADVANCES IN FAMILY STUDIES	2+1	II
HDFS 603**	ECOLOGY OF HUMAN DEVELOPMENT	3+0	I
HDFS 604	PRINCIPLES AND STRATEGIES IN DEVELOPMENTAL INTERVENTION	2+1	I
HDFS 605	WOMEN STUDIES	1+1	II
HDFS 606	TRENDS AND ISSUES IN HUMAN DEVELOPMENT	3+0	II
HDFS 607	QUALITATIVE RESEARCH METHODS	2+1	II
HDFS 608	PROGRAMME DEVELOPMENT FOR VULNERABLE FAMILIES	2+1	II
HDFS 609	CROSS-CULTURAL PERSPECTIVES IN FAMILY STUDIES	2+0	I
HDFS 691	DOCTORAL SEMINAR I	1	I, II
HDFS 692	DOCTORAL SEMINAR II	1	I, II
HDFS 699	DOCTORAL RESEARCH	45	I, II

*Compulsory for Master's programme; **Compulsory for Doctoral programme
 Courses open for students of other departments: HDFS 503, 507, 508, 509, 510, 511, 514, 605, 608

HUMAN DEVELOPMENT AND FAMILY STUDIES

Course Contents

HDFS 501 THEORIES OF HUMAN DEVELOPMENT AND BEHAVIOUR 3+0 SEM - I

Objective

To equip the students with the concepts and theoretical frame work of different theories of Human Development and appraise them with a comparative analysis of theories and their educational implications.

Theory

UNIT-I: Meaning, types and functions of theory, theoretical perspectives - biological, environmental, interactional, cultural context, concepts and implications of psychoanalytic theory of Sigmund Freud and Neo- Freudians.

UNIT-II: Psycho-social theory of Erikson, Field theory of Kurt Lewin, Stimulus ó Response theory and Social learning theories, Cognitive theory of Jean Piaget.

UNIT-III: Moral development theory of Kohlberg, Attachment theory of Bowlby, Language theory of Chomsky, Need theory of Abraham Maslow, Ecological theory of Bronfrenbrenner.

UNIT-IV: Cultural historical theory of development by Vygotsky, Self Theories; comparative analysis of theories and their application; integrated approach to theory building.

Suggested Readings

Baldwin AL. 1980. *Theories of Child development*. John Wiley.

Grain WC. 1980. *Theories of Development: Concepts and Application*. Englewood Cliffs.

Hall CS. 1998. *Theories of Personality*. 4th Ed. John Wiley.

Sailkind NJ. 2004. *An Introduction to Theories of Human Development*. Sage Publ.

HDFS 502 ADVANCES IN LIFE SPAN DEVELOPMENT 2+1 SEM - II

Objective

To impart knowledge to students regarding current trends, issues of development and comparative analysis of theories and their educational implications.

Theory

UNIT-I: Life span development; physical development, psycho-motor development; role of heredity and environment, recent trends in assessing pre-natal and neo-natal status.

UNIT-II: Genetic research and its influence on child's development; current trends in physical, motor, cognitive language, intellectual, socio-emotional, moral development of children from birth to adolescence; socialization practices and influencing factors and impact of social-emotional deprivation on different stages of development.

UNIT-III: Culture and its impact; emotional maturity, stability and catharsis; personality changes in self perceptions and gender role development through different developmental stages; influence of cultural factors.

UNIT-IV: Integrated view of development from a life span perspective; recent research trends in human development issues.

Practical

Study of physical, motor, social, emotional, intellectual, language, moral and personality development at different ages; using standard measurement tools/instruments; writing interpretative reports for parents, teachers and referral services.

Suggested Readings

Dattan N & Resse HW. 1974. *Life Span Developmental Psychology*. Academic Press.

Kail RV & Cavaugh JC. 2004. *Human Development – A Life Span View*. Thompson Learning.

Santrock JW. 2006. *Life Span Development*. Mc Graw Hill.

HDFS 503 GENDER ISSUES IN HUMAN DEVELOPMENT AND FAMILY RELATIONS 2+1 SEM - II

Objective

To orient the students regarding the gender issues in human development and family relationships and to impart experiences regarding gender issues, family practices and biases prevalent in Indian society.

Theory

UNIT-I: Concept of gender - its biological and socio-cultural connotations; importance of gender differences in human development; gender theories - gender orientation theory of Sandra Bem, Gender schema theory, Theory of ego development and gender.

UNIT-II: Demographic challenges to family ecology; gender issues in family involvement and cohesiveness; socialization, family roles, responsibilities and family adjustment.

UNIT-III: Working towards family solidarity and social well being; values and ethics in the promotion of happy family life.

UNIT-IV: Changing trends in gender role orientation, its socio-economic and cultural impact on the family and society.

Practical

Gender analysis of mass media content, books, television and films; interviewing children and parents to study gender socialization practices; administering gender role orientation scale to adolescents /women and interpreting the results; case study of three generation families to identify the differences in the gender orientation roles and responsibilities; case studies for gender role performance.

Suggested Readings

Channa K. 1988. *Perspective in Indian Development: Socialization, Education and Women: Exploration in Gender Identity*. Orient Longman.

Coltrance S. 1997. *Gender and Families*. Fine Forge Press.

Gherardi S. 1995. *Gender Symbolism and Organizational Structures*. Sage Publ.

Narsimhan S. 1999. *Empowering Women an Alternative Strategy for Rural India*. Sage Publ.

HDFS 504 EARLY CHILDHOOD EDUCATION AND ORGANIZATION 2+1 SEM - I

Objective

To acquaint the students regarding basic concepts and philosophies of early childhood education and organization.

Theory

UNIT-I: History and development of early childhood education; contribution of educationists - MKGandhi, RN Tagore, Zakir Hussain, Sri Aurobindo, Krishnamurthi, Tarabai Modak, Jawaharlal Nehru, Kothari Commission, Yashpal committee report.

UNIT-II: Contributions of Martin Luther, John Ames Comenius, Johan Pestalozzi, Friedrich Froebel, John Dewey, Robert Owen, Maria Montessori, Jean Piaget, B.S. Bloom, J.Mc V Hunt.

UNIT-III: National policies on early childhood programs; concept of school readiness.

UNIT-IV: Preschool administration- management, planning, organizing, staffing, leading and managing monetary resources; personnel training; planning of infrastructure.

Practical

Capacity building as administrators - planning ECCE programmes including infrastructural facilities and budget proposals, evaluating regular teachers and student teacher's performance, developing budget proposals, preparing plans for mid day meal programmes, organizing health checkups, developing theme-based projects for children (e.g. science concepts, numerical concepts) and implementing them in preschool programmes; conducting interaction programmes with teachers and parents; developing literature for parents, preparing and using visual aids.

Suggested Readings

Catron CE & Allen J. 1993. *Early Childhood Curriculum*. MacMillan Publishing Company: New York.

Eliason MS & Jenkins MS. 1986. *A Practical Guide to Early Childhood Curriculum*. Merrill Publishing Company- A Bell and Howell company: Columbus

Grewal JS. 1998. *Early Childhood Education (Foundations and Practice)*. Harprasad Bhargava, Educational Publishers: Agra.

Hilderbrand V. 1984. *Management of Child Development Centres*. MacMillan Publishing Company: New York.

- Morrison G. 1984. *Early Childhood Education Today*. Merrill Publishing Company: Columbus.
- Soderman AK, Kostelnik MJ & Whiren AP. 1991. *Developmentally Appropriate Curriculum*. Merrill Publishing Company: Columbus.
- Spodek B. 1985. *Teaching in the Early Years*. Prentice Hall.

HDFS 505 INNOVATIVE PROGRAMMES IN EARLY 2+1 SEM - I
CHILDHOOD CARE AND EDUCATION

Objective

To orient the students towards the need and scope of innovative programmes in ECCE and develop ability to plan and execute innovative ECCE programme for intellectual, cognitive, language, social, emotional and motor development of young children.

Theory

UNIT-I: Need and scope for innovative programmes in early childhood; innovative programmes for child care and education development.

UNIT-II: Support services networking; innovative programmes for intellectual and motor development.

UNIT-III: Support services for communication, social and emotional development of young children.

UNIT-IV: Programmes for foundations for life long learning; preventing and arresting developmental delays or disabilities.

Practical

Planning, execution and evaluation of innovative programmes for intellectual, social, emotional and motor growth of young children.

Suggested Readings

- Christine M. 2004. *Movement and Learning in the Early Years*. Sage Publ.
- Kaul V. 1997. *Early Childhood Education Programme*. NCERT.
- Mishra RC. 2005. *Early Childhood Care and Education*. A.P.H. Publ.
- Murlidharan R. 1991. *Guide to Nursery School Teacher*. NCERT.
- Saraswathi TS. 1988. *Issues in Child Development- Curriculum and Other Training and Employment*. Sage Publ.
- Swaminathan M. 1988. *The First Five Years: A Critical Perspective on Early Childhood Care and Education in India*. Sage Publ.

HDFS 506 METHODS AND TECHNIQUES OF 2+1 SEM - I
ASSESSMENT IN HUMAN DEVELOPMENT

Objective

To appraise the students with different methods and techniques of assessment in human development and expose them to use different assessment techniques throughout life span.

Theory

UNIT-I: Assessment ó definition, function, concept of measurement, techniques and their relative efficacy in measuring different aspect of human development.

UNIT-II: Trends and challenges in assessment of human behaviour; ethical issues in the assessment of human development.

UNIT-III: Scientific methods and their criteria - reliability, validity control, item analysis, assessment methods; use of objective measures and methods.

UNIT-IV: Development of test /scale and standardization procedure, types of scales ó nominal, ordinal, interval and ratio scale.

Practical

Screening and diagnostic assessment for various development through different tools and techniques; physical ó anthropometric measurement, psychomotor; mental development- Bayley's scales of infant development; cognitive and language -Wechsler's scale of intelligence; achievement, interest and aptitude scales; personality and behaviour; emotional maturity and temperament; parent child relations, child rearing practices, parenting styles; interpretation of assessment and reporting to parents and teachers.

Suggested Readings

- Gulati R & Gugnani A. 1994 *Child Development - A Practical Manual*. Phoenix Publ.
- Kothari CR. 1999. *Research Methodology - Methods and Techniques*. Wishwa Prakashan.
- Sharma RA. 1999. *Essentials of Measurement in Education and Psychology*. Raj Printers.
- Sidhu KS .1999. *Methodology of Research in Education*. Sterling Pub.

HDFS 507 GUIDANCE AND COUNSELING 1+2 SEM - II

Objective

To acquaint the students about the concept and needs of guidance and counselling; qualities of guidance worker and counselor and different techniques of guidance and counseling.

Theory

UNIT-I: Introduction to guidance and counseling - concept, aims, need, nature and scope of guidance and counselling; basic principles of guidance and counseling.

UNIT-II: Types of guidance and counseling services - educational, vocational, personal, marriage and family, leisure time; research trends in guidance and counseling in India and abroad.

UNIT-III: Competencies and role of guidance and counseling professionals; modes and methods of counselling; essentials of conducting guidance and counselling session; understanding the process of guidance and counseling.

UNIT-IV: Knowledge and skills to handle assessment tools; effective communication and documentation skills; networking with allied professionals and institutions.

Practical

Compile research reviews on various aspects of guidance and counselling; prepare an observation checklist to analyze guidance and counselling centres - organizational structure, objectives, types of services provided, facilities available etc.; competencies of the personnel, feed back of the clients towards the services, financial management/budget, support of other professionals /agencies to centre etc.; successful case studies of the centre; simulation exercises of guidance and counseling to children and parents; reports of films/ video shows related to the course.

Suggested Readings

- Alam S. 2008. *Basics of Guidance and Counselling*. Global Vision.
Barki BC & Mukhopadhaya B. 1989. *Guidance and Counseling: A Manual*. Sterling Publ.
Cooper S. 2005. *Counselling, Inception, Implementation and Evaluation*. Infinity Books.
Dryden W. 1987. *Counseling Individual- the Rational Emptive Approach*. Taylor & Francis.
Gunner J. 1984. *Counseling and Therapy for Children*. The Free Press.
Ivey AE, Ivey MB & Downing LS. 1987. *Counseling and Psychotherapy -Interpreting, Skills Theory and Practice*. Prentice Hall.
Kenedy E. 1977. *On Becoming a Counselor. A Basic Guide for non professional Counselor*. Gill and MacMillan.
Skinner C. 2006. *Educational Psychology*. Prentice Hall.

HDFS 508 ADOLESCENT DEVELOPMENT AND CHALLENGES 2+1 SEM - II

Objective

To acquaint the students regarding the inherent challenges and contemporary issues in adolescent development.

Theory

UNIT-I: Adolescence ó definition, importance of the stage; theories of adolescence, biological development, maturation, environmental learning, interactional and cultural context; perspectives of adolescent development, interpersonal relationships, socio-cultural attitudes of adolescents.

UNIT-II: Consequences of pubertal changes, sexual development, early and late maturation and psychological implications.

UNIT-III: Intellectual development - formal operations, complexities of adolescent thoughts; moral development; integration of self and psycho-sexual resolution and resolving identity crisis; reorganization of social life relationship with peers and parents, heterosexual relationships.

UNIT-IV: Vocational preferences, training and work; transition to adulthood - conflicts with special reference to contemporary socio-cultural changes.

Practical

Suggested Readings

- Brim H, Orville G & Brjm Jr. 1980. *Learning to Parents, Principles, Programmes and Methods*. Sage Publ.
- Fine MJ. 1980. *Handbook on Parent Education*. Academic Press.
- Kulkarni S. 1980. *Parent Education Perspectives and Approaches*. Rawat Publ.
- Ramiya K. 1977. *Minimum Content of Parent Education. A Survey of Expert's Opinion*. Tata Institute of Social Sciences, Bombay.

HDFS 511	APPRAISAL OF CHILD AND FAMILY WELFARE INSTITUTIONS	1+1	SEM - II
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Objective

To orient the students regarding various child and family welfare institutions and programmes and enable them to understand and develop skills of planning, implementing and evaluating welfare programmes/institutions.

Theory

UNIT-I: Concept of monitoring and evaluation; need appraisal; orientation to the supportive and substitutive services related to the welfare and families; types of evaluation techniques for different types of institutions for children; impact analysis - type and methods of monitoring; enhancing functional quality of institutions and evaluation.

UNIT-II: Family welfare ó concept, scope and need; historical perspectives; roles and responsibilities of family and community; constitutional provisions, acts and amendments related to family; laws and policies governing mainstreaming of vulnerable children, street children, child laborers and families; adoptive and reorganized families.

UNIT-III: Orientation to welfare institutions and programmes; developmental programmes related to health, nutrition and education; provision of basic resources - family care and counseling agencies.

UNIT-IV: Organizations and programmes for family welfare - local, national and international; aims, objectives and services.

Practical

Visits to study child welfare institutions and evaluation of strategies for enhancing managerial skills of personnel and generation of resources; implementing developed plan of action and its evaluation, report writing; observational visits and evaluation of family welfare institutions and organizations; proposals for developing welfare projects for health, nutrition, education and rehabilitation of the disabled families; implementation strategies of projects to test their efficacy; monitoring and evaluation of services for family welfare; criteria and impact assessment.

Suggested Readings

- Kumar R. 1998. *Child Development in India- Health Welfare and Management*. Ashish Publ.
- Singh D. 1995. *Child Development: Issues, Policies and Programmes*. Kanishka Publ.
- Sood M, Swaroop N & Batra A. 1992. *Voluntary Organizations Working for Children and Women: Some Profiles*. NIPCCD.

HDFS 512	DEVELOPMENT OF LEARNING MATERIAL AND CHILDREN'S LITERATURE	1+2	SEM - I
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Objective

To develop the skills of preparing learning material and literature for children of various age groups.

Theory

UNIT-I: Significance of teaching materials for early childhood education programs; principles of developing materials for children; concept, importance and characteristics of creativity, promoting creative environments.

UNIT-II: Planning and developing learning material for ó physical, motor, social, emotional cognitive language, creativity, mental and personality development; care and maintenance of materials.

UNIT-III: Literature for children - need and scope of children's literature, children's literature through the ages; contributors to children's literature; characteristic features of

Practical

Study of etiology, characteristics, diagnosis of children with different disabilities, conducting individual home-based intervention by collaborating with other professionals and also with institutions for center-based intervention - schools, clinics, pediatric wards, special schools etc.; collaborative work with professionals in development of intervention packages for children with special needs.

Suggested Readings

Cruikshank WH & Johnson GU. 1970. *Education of Exceptional and Children*. Prentice Hall.
Kar C. 1996. *Exceptional Children - Their Psychology and Education*. Sterling Publ.
Kirk SA. 1970. *Educating Exceptional Children*. Oxford & IBH.

HDFS 601 ADULTHOOD DYNAMICS 2+1 SEM - I

Objective

To acquaint the students to developmental perspectives in relation to adult life stages, theoretical perspectives of the aging process and give the theoretical and practical experiences about changes and adjustments at various stages of adulthood aging.

Theory

UNIT-I: Adulthood - theoretical perspectives in adult development, transition to adulthood, stages of adulthood.
UNIT-II: Issues and adjustment related to occupation, self and family, supportive services.
UNIT-III: Theoretical perspectives on developmental changes ó biological, health, cognitive and adjustment.
UNIT-IV: Death, dying and bereavement, attitude towards death, grief and bereavement.

Practical

Case studies on roles and family relations, changes during adulthood, menopausal changes; development of case studies on adults with special focus on different ecological settings, intergenerational perspectives; visit to recreational centers, health clubs and other institutes working for adults; critical evaluation of portrayal of adulthood in media; film shows/panel discussion; appraisal of community on issues and policies related to adulthood; presentation of reports on case studies.

Suggested Readings

Dandekar K. 1996. *The Elderly in India*. Sage Publ.
Hayslip B & Panek P. 1989. *Adult Development and Aging*. Harper & Row.
Leme BH. 1995. *Development in Adulthood*. Allyn & Bacon.

HDFS 602 ADVANCES IN FAMILY STUDIES 2+1 SEM - II

Objective

To develop an understanding in students regarding various approaches and frameworks for understanding the family and expose them to the current issues in Indian families and orient them regarding methods and techniques of family therapy.

Theory

UNIT-I: Definition and changing patterns of Indian family; different approaches to family studies- nature and importance of conceptual framework, institutional framework, structural functional framework, developmental framework, interactional framework.
UNIT-II: Sociological viewpoint of family; research methodology - inter disciplinary approaches to family measurement; psychological approaches to assessment in family, psychiatric approach, interactive approach, measurement of marital roles and relationship, ethnographic approach, demographic approach.
UNIT-III: Ethics in family research, current issues for research in Indian family; fatherhood - concept, changing role of parents in parenting; disorganized and reorganized families; marital distress, psychiatric disorder and family therapy; alternate family patterns - single parent families, female headed households, dual career families, sibling families, adoptive families; national policies and programmes for family welfare.
UNIT-IV: Theoretical developments in marital and family therapy; schools for family therapy, structured, strategic, experimental family and integrated family therapy.

Practical

Appraisal of tools in family area (at least ten tools); critical evaluation of family welfare programmes towards family welfare; developing research proposal on current issues relating to family; survey of family patterns in rural, slum and urban areas; case studies of different areas of marriage and family therapy using different methods and techniques.

Suggested Readings

- Bharat S. 1996. *Family Measurement in India*. Sage Publ.
Roger L. 2004. *Family Therapy - A Constructive Framework*. Sage Publ.
White JM & Klein DM. 2007. *Family Theories*. Sage Publ.

HDFS 603 ECOLOGY OF HUMAN DEVELOPMENT 3+0 SEM - I

Objective

To acquaint students regarding the theories and issues pertaining to ecological impact on human development.

Theory

UNIT-I: Ecological theories of human development ó bio ecological model and developmental assessment.

UNIT-II: Socio-cultural and sub-cultural differences in child's environment and its effect on child-rearing practices and development; terrain climate and demographic and economic factors and their effects on human development.

UNIT-III: Socio-political, legal systems and policies, religion and caste systems, minority and deprived states and their effects on human development; community support and its value for human development.

UNIT-IV: Environmental aspects ó overcrowding, pollution, socio-cultural imbalances; impact on development; contemporary child rearing practices and their implications for human development.

Suggested Readings

- Bronfenbrenner U. 1979 *Ecology of Human Development: Experiments by Nature and Design*. Harvard University, Cambridge.
Bronfenbrenner U. 1989. Ecological System Theory. In: R. Vata (Ed.). *Annals of Child Development*. Vol. VI. CT Jai Press: Greenwich.
Gerrig RJ & Zimbardo PG. 2006. *Psychology and Life*. Dorling Kindersley.

HDFS 604 PRINCIPLES AND STRATEGIES 2+1 SEM - I
IN DEVELOPMENTAL INTERVENTION

Objective

To make the students aware about significance and strategies of imparting intervention.

Theory

UNIT-I: Intervention ó definition and current orientation towards intervention, vulnerable groups for intervention and their characteristics.

UNIT-II: Need assessment for intervention, contemporary issues and current trends in intervention, multidisciplinary approach to intervention, intervention strategies, approaches and methods.

UNIT-III: Developing network with agencies - generating resources; role of family and community in implementation of intervention programmes.

UNIT-IV: Evaluation of intervention programmes.

Practical

Identification of groups for intervention and assessment; selection of groups and conducting need assessment; development of intervention package; evaluation of available intervention packages; conducting intervention for the selected groups with developed intervention packages; field testing developed intervention packages.

Suggested Readings

- Berk LE. 1996. *Child Development*. Prentice Hall.
Choudhary DP. 1992. *Women Welfare and Development*. NIPCCD.
Hetherington EM & Parke RD. 1993. *Child Psychology: A Contemporary View Point*. McGraw Hill.
Saraswathi TS & Kaur P. 1999. *Human development and Family Studies in India*, Sage Publ.

HDFS 605 WOMEN STUDIES 1+1 SEM - II

Objective

To impart knowledge regarding scope and perspectives to women studies in cultural context and acquaint them to various important issues regarding women's studies and development.

Theory

UNIT-I: Meaning and scope of women studies; women's perspective and its constituent elements in present socio-economic and cultural context; women's movement in pre-independent and post independent periods and present trends; milestones and obstacles in women's movement in India.

UNIT-II: Feminism - its basic types and their relevance to Indian context; facts and myths of feminism; importance of women's participation in economic, educational, social and political development; gender role and sex role stereotypes; changes in educational, economic, social and familial status of women.

UNIT-III: Population - statistics and sex ratio; working women and challenges; problems of women workers in un-organized sector; gender violence - dowry harassment and deaths, suicides, commercial and religious prostitution, sexual harassment and exploitation, family violence, amniocentesis, foeticide, infanticide, eve teasing.

UNIT-IV: Laws and women - family courts, parivarik mahila lok adalat; a critique of laws for women; women and mass media; women's health and family planning and health indicators; child marriage; National Commission for Women and State Commission for Women and their role in women studies and policy issues.

Practical

Observational visits to women's organizations; planning and organising awareness campaigns on vital women's issues; portrayal of women in mass media - news papers, magazines, television, movies; study of practices in various castes, communities and religions and status of women; study of attitude towards women's education, employment; situational analysis of gender equality and equity.

Suggested Readings

Desai N & Krishna M. 1988. *Women and Society in India*. Ajanta Publ.

Krishnaraj M. 1986. *Women Studies in India*. Popular Prakshan.

Patil AK. 1995. *Women and Development*. Ashish Publ.

Poonacha V. 1999. *Understanding Women Studies*. SNTD Women's University, Mumbai.

HDFS 606 TRENDS AND ISSUES IN HUMAN 3+0 SEM - II
DEVELOPMENT

Objective

To impart knowledge to students regarding theoretical foundations, current trends and issues in human development.

Theory

UNIT-I: Classical and contemporary theoretical orientation to human development; regulation of development, developmental psychology to developmental science, from deficit to diversity in development.

UNIT-II: Consistency of concepts, phenomena and methods of study; foundations of developmental thinking, multilevel nature of developmental processes, constructing general model for development; developmental behaviour genetics, cognitive and emotional development, dynamic structure in cognitive and emotional development, growth cycle, brain activity.

UNIT-III: Dynamics of stability and variability in development; role of experience in development, optimal experience theory; human action perspective to development, developmental diversity and regularity; intentional personal development, personal control over development.

UNIT-IV: Life span theory in development, five levels of analysis, life cause theory, basic concepts; life transitions and historical change; future directions for life course and behaviour genetics; religious and spiritual development through life span of positive and negative correlates.

Suggested Readings

- Ausubel D & Sullivan EV. 1970. *Theory and Problems of Child Development*. Grune & Stratton.
- Berk LE. 1989. *Child Development*. Allyn & Bacon.
- Saraswathi TS & Kaur B. 1993. *Human Development and Family Studies in India*. Sage Publ.
- Singh D. 1995. *Child Development - Issues, Policies and Programme*. Kanishka Publ.

HDFS 607 QUALITATIVE RESEARCH METHODS 2+1 SEM - II

Objective

To orient the students regarding the need and scope of qualitative research and impart them knowledge regarding the methods and techniques of qualitative research.

Theory

UNIT-I: Need and scope of qualitative research methods, types and overview of qualitative research methods.

UNIT-II: Case studies, naturalistic design, historical methods, content analysis, ethnography, single cases, experimental design.

UNIT-III: Trends, challenges, limitations and constraints of qualitative research methods.

UNIT-IV: Ethical issues in conduct of research.

Practical

Critically evaluating research papers using qualitative methods; extensive review of the empirical research work using qualitative method, identifying issues that can be researched for qualitative methods, conducting in-depth interviews, focused group interviews; analysis of data interpretation and reporting.

Suggested Readings

Barbour R. 2008. *Introducing Qualitative Research*. Sage Publ.

Corbin J & Strauss A. 2008. *Basics of Qualitative Research*. Sage Publ.

Denzin N & Lincon Y. 2008. *Collecting and Interpreting Qualitative Materials*. Sage Publ.

HDFS 608 PROGRAMME DEVELOPMENT FOR 2+1 SEM - II
VULNERABLE FAMILIES

Objective

To learn to identify vulnerable population in rural and urban areas and develop an understanding regarding techniques of planning, implementing and evaluating development and research projects.

Theory

UNIT-I: Concept of developmental programmes, types of projects; development and research projects; polycentric and cyclical approaches to scientific research and development; holistic and inter disciplinary approach to research project management.

UNIT-II: Scientific values and professional ethics; identifying research needs/ thrust areas in human development; vulnerable population ó AIDS-affected, drug addicted, prostitutes, delinquents, street children, disadvantaged, hospitalized, destitute women and children, abused children, women and senior citizens.

UNIT-III: Developing programmes, project proposal ó steps and processes involved; principles of project design, aspects of appraisal, basic considerations, risks and returns.

UNIT-IV: Donors/ funding agencies and their types ó National and International donors, public and private donors, their thrust, expectations and guidelines; project sustainability - factors, components and action plan.

Practical

Identifying vulnerable population in rural and urban areas; developing programmes for their rehabilitation; execution and evaluation of programmes; learning to use selected PRA techniques ó focus group discussions/interviews, transit walk, social mapping, time line, executing the use of each technique and appraisal; developing a concept note and a pre-project proposal and appraisal; developing a project ó planning and implementing; monitoring and evaluating strategies using appropriate techniques; implementing management techniques - Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Line of Balance (LOB), and Gantt Chart, SWOT analysis; dissemination, publishing of success stories, popular articles.

Suggested Readings

Chandra P. 1995. *Projects-Planning, Analysis, Selection, Implementation and Review*. Tata McGraw.

Choudhary DP. 1992. *Women Welfare and Development*. NIPCCD.

Singh PN. 1994. *Training for Management Development*. Suchandra Publ.

HDFS 609

**CROSS-CULTURAL PERSPECTIVES IN
FAMILY STUDIES**

2+0

SEM - I

Objective

To sensitize students regarding the theories and issues pertaining to cultural difference in family studies.

Theory

UNIT-I: Definition of culture, components of culture, characteristics of culture.

UNIT-II: Cultural factors and impact on families - functions, roles and responsibilities, socialization practices, family cohesion, interpersonal communication patterns, conflict resolution, family crisis and adaptations.

UNIT-III: Legal provisions, emerging cultural trends; cross-cultural variations and their impact on families.

UNIT-IV: Research trends in cross-cultural family studies, methodological issues.

Suggested Readings

Brislin RW. 1990. *Applied Cross Cultural Psychology*. Sage Publ.

Giles B. 2005. *Social Psychology*. Grange Books Co.

Saraswathi TS. 2003. *Cross-cultural Perspectives in Human Development*. Sage Publ.

HUMAN DEVELOPMENT AND FAMILY STUDIES

List of Journals

- É Asian Journal of Psychology and Education
- É Behavioural Scientist
- É Child Development
- É Disabilities and Impairments
- É Early Childhood Education
- É Exceptional Children
- É Indian Journal of Psychological Researches
- É Indian Journal of Psychometric and Educational Research Association
- É Indian Psychological Review
- É International Journal of Educational Sciences
- É Journal of Human Ecology
- É Journal of Indian Education
- É Journal of Psychometry
- É Journal of Social Sciences
- É Journal of the Indian Academy of Applied Psychology
- É Marriage and Family
- É Navtika Journal of Early Childhood Care and Education
- É Praachi Journal of Psycho-cultural Dimensions
- É Psycho-Lingua
- É Studies of Tribes and Tribals
- É The Anthropologist
- É The Primary Teacher

e-Resources

- <http://cmsgls.myweb.uga.edu/theories.html>
- <http://www.teach12.com/ttcx/coursedesclong2.aspx?cid=197>
- http://en.wikipedia.org/wiki/Developmental_psychology
- http://en.wikipedia.org/wiki/Child_development
- http://www.businessballs.com/erik_erikson_psychosocial_theory.htm
- http://www.associatedcontent.com/article/78543/theories_of_human_development_freudian.html?cat=47
- <http://www.jsu.edu/library/pdfs/handouts/lifespandevlopment.pdf>
- http://findarticles.com/p/articles/mi_m2248/is_145_37/ai_86056781
- http://www.coursework.info/AS_and_A_Level/Psychology/Developmental_Psychology/Theories_of_Human_Development_-_Stages_o_L15051.html
- <http://www.massey.ac.nz/~alock/virtual/trishvyg.htm>
- [http://www.travelsmart.vic.gov.au/doi/doiect.nsf/2a6bd98dee287482ca256915001cff0c/eac8a984b717095bca256d100017ba50/\\$FILE/Theories%20and%20models%20of%20behaviour%20change.pdf](http://www.travelsmart.vic.gov.au/doi/doiect.nsf/2a6bd98dee287482ca256915001cff0c/eac8a984b717095bca256d100017ba50/$FILE/Theories%20and%20models%20of%20behaviour%20change.pdf)
- <http://www.informaworld.com/smpp/content~content=a785832627~db=all>
- <http://www.amazon.com/Life-Span-Development-Behavior-Paul-Baltes/dp/0124318037>
- <http://gerontologist.gerontologyjournals.org/cgi/content/citation/47/3/404>
- <http://www.developmentalpsychologyarena.com/books/Theoretical-Approaches-to-Lifespan-Development-isbn9780805894707>
- <http://www.lavoisier.fr/notice/fr/NOOX6S3XXRD3AO.html>
- <http://nobelprize.org/nobel/foundation/symposia/medicine/ns89/index.html>
- http://www.intute.ac.uk/fe/casestudies/care/life_span/life_span.ppt
- <http://www.lclark.edu/dept/cpsy/objects/GF07506Mortola.pdf>
- <http://books.google.com/books?id=EBWgBAkEqnIC&pg=PA319&lpg=PA319&dq=advances+in+life+span+development+&source=web&ots=8sNr->

oJuE5&sig=DcHwgAf4X8ILY4k6kNt4uh4IJKs&hl=en&sa=X&oi=book_result&resnum=10&ct=result

- <http://www.tpub.com/fcv2/11.htm>
- http://www.tpub.com/content/fc/14099/css/14099_26.htm
- <http://www.glc.k12.ga.us/pandp/guidance/ind-guid.htm>
- http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED281900&ERICExtSearch_SearchType_0=no&accno=ED281900
- <http://www.answers.com/topic/guidance-and-counseling>
- http://www.uwf.edu/cutla/ALP/Guidance-Counseling_EdS_ALP.pdf
- <http://www.morainepark.edu/pages/920.asp>
- <http://www.slvhs.slv.k12.ca.us/curriculum/mission.htm>
- <http://www.clayton.k12.ga.us/departments/counseling/collprepchklist.asp>
- <http://americanheart.mediaroom.com/index.php?s=43&item=400>
- <http://www.informaworld.com/smpp/content~content=a782893291~db=all~tab=content~order=pubdate>
- <http://jpepsy.oxfordjournals.org/cgi/content/abstract/11/3/343>
- <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=492742>
- <http://psycnet.apa.org/index.cfm?fa=main.doiLanding&uid=1974-04857-001>
- <http://www.jstor.org/pss/1127535>
- <http://www.le.ac.uk/psychology/amc/lepsdeve.html>
- <http://unesdoc.unesco.org/images/0014/001472/147240e.pdf>
- <http://unesdoc.unesco.org/images/0014/001471/147175e.pdf>
- www.iadb.org/biz/ppt/0706thompson.pdf
- <http://ssamanipur.nic.in/InnovativeActivities.htm>
- www.unescobkk.org/fileadmin/user_upload/aims/7th_TWG_Meeting/2007_GMR_outline.pdf
- <http://education.nic.in/cd50years/g/T/HB/0THB0901.htm>
- http://www.worldforumfoundation.org/wf/global_leaders/ppt/presentation_india_3.ppt
- file:///C:/Documents%20and%20Settings/BCD/Local%20Settings/Temporary%20Internet%20Files/Content.IE5/CKT3NZ5E/ecce_training_day_1%5B1%5D.pps#257.2>Welcome
- www.bsppssa.org/components.htm-40k
- <http://depts.washington.edu/lend/coresem/socialwork/5a.htm>
- <http://www.otal.umd.edu/hci-rm/dvlpmeth.html>
- honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/teachtip.htm
- http://www.eoearth.org/article/Tools_and_methods_for_integrated_analysis_and_assessment_of_sustainable_development
- www.lumsa.it/Lumsa/Portals/File/En06-07/post/Valut06-07En.pdf
- www.umass.edu/oapa/oapa/publications/online_handbooks/course_based.pdf
- www.eng.cam.ac.uk/papers/include2003/assessment.htm
- <http://www.lu.pu/rehab>
- http://en.wikipedia.org/wiki/Abnormal_psychology
- <http://www.purgatory.net/merits/index.htm>
- www.unex.berkeley.edu/cat/course55.html - 8k
- <http://www.psypress.com/pip/resources/slp/chapter.asp?chapter=ch22>
- <http://www.encyclopedia.com/doc/1O87-abnormalpsychology.html>
- <http://bc.barnard.columbia.edu/~erafaeli/abnormal-syllabus.pdf>
- <http://psychology.about.com/od/glossaryfromatoz/g/abnormalpsyc.htm>
- <http://www.yourdictionary.com/abnormal-psychology>
- en.wikipedia.org/wiki/Gerontology - 53k
- <http://content.karger.com/ProdukteDB/produkte.asp?Aktion=JournalHome&ProduktNr=224091>
- <http://www.geron.org/>
- <http://hss.fullerton.edu/gerontology/>
- <http://www.careersinaging.com/careersinaging/what.html>
- <http://www.careersinaging.com/careersinaging/what.html>
- <http://content.karger.com/ProdukteDB/produkte.asp?Aktion=JournalGuidelines&ProduktNr=224091>

- <http://www.etr.org/recapp/theories/AdolescentDevelopment/index.htm>
- <http://social.jrank.org/pages/16/Adolescence.html>
- <http://www.nlm.nih.gov/medlineplus/ency/article/002003.htm>
- <http://www.cognitie.nl/events/adolescent-development-processes-of-coordination-change/view>
- <http://bmj.bmjournals.com/cgi/content/full/330/7486/301>
- <http://www.ext.vt.edu/pubs/family/350-850/350-850.html>

Suggested Broad Topics for Master's and Doctoral Research

- **Developmental aspects and strategies for improvement of development**
 - Developmental assessment of early childhood and school age; assessment of adolescents aptitudes, interests, personality etc.
 - Intervention programmes for infants, young children and school age children from disadvantaged families
- **Child rearing practices**
 - Child rearing practices in village community
 - Intervention package for parents on child rearing
 - Role of media and community in improvement of child rearing practices
 - Alternative childcare systems and their impact
- **Adolescents problems**
 - Stress among adolescents
 - Strategies used by parents to cope with adolescents problems
 - Development of moral values among adolescents
 - Gender discrimination among rural adolescents
- **Rehabilitation of senior citizens**
 - Study on rehabilitation services of institutions for senior citizens
 - Problems of senior citizens
 - Life satisfaction
 - Assessment of the senior citizen abilities and remedial programmes
- **Mental health**
 - Human ecology system and mental health of adolescents
 - Promoting rural child health care practices through community participation
 - Urban / rural family environment as affecting child's development and strategies
 - Working women and their problems
 - Family conflicts and crises
- **Children with special needs**
 - Study on selected special need children/ exceptional children
 - Problems faced by parents of exceptional children
- **Behaviour analysis**
 - Mother ó child interaction
 - Adult interactions
 - School children and adolescent interactions

TEXTILE AND APPAREL DESIGNING

Course Structure

COURSE NO.	COURSE TITLE	CREDITS	SEM
TAD 501*	TEXTILE CHEMISTRY AND QUALITY ANALYSIS	2+2	II
TAD 502	ADVANCED TEXTILE DESIGNING	1+2	I
TAD 503*	ADVANCED PATTERN MAKING AND DRAPING	1+3	II
TAD 504	HISTORIC COSTUMES AND SOCIO-PSYCHOLOGICAL ASPECTS OF CLOTHING	2+1	II
TAD 505	TEXTILES AND APPAREL INDUSTRIAL MANAGEMENT	3+0	I
TAD 506	ADVANCED DYEING, PRINTING AND FINISHING OF TEXTILES	2+1	I
TAD 507	APPAREL QUALITY ANALYSIS	1+1	II
TAD508*	TEXTILE AUXILIARIES AND THEIR APPLICATIONS	2+1	II
TAD 509*	ADVANCED COMPUTER AIDED TEXTILES AND APPAREL DESIGNING	1+2	I
TAD 510	HOME TEXTILES	1+2	II
TAD 511	KNITTING TECHNOLOGY	1+1	I
TAD 512	CONSUMER BEHAVIOUR- TEXTILES AND APPAREL	1+1	I
TAD 591	MASTERøS SEMINAR	1	I, II
TAD 599	MASTERøS RESEARCH	20	I, II
TAD 601	FUNCTIONAL CLOTHING	2+1	I
TAD 602**	TECHNICAL TEXTILES	3+0	I
TAD 603**	TEXTILE ECOLOGY	3+0	II
TAD 604	SOURCING AND GLOBALIZATION	3+0	I
TAD 605	PRODUCT DEVELOPMENT	1+2	II
TAD 606	TEXTILE CONSERVATION	1+1	II
TAD 607	COLOUR APPLICATION IN TEXTILES	1+1	II
TAD 608**	RECENT ADVANCES IN TEXTILE AND APPAREL	2+0	I
TAD 691	DOCTORAL SEMINAR I	1	I, II
TAD 692	DOCTORAL SEMINAR II	1	I, II
TAD 699	DOCTORAL RESEARCH	45	

* Compulsory for Masterø programme; ** Compulsory for Doctoral programme

Courses open for students of other departments: TAD 504, 510, 512, 604, 606

TEXTILE AND APPAREL DESIGNING

Course Contents

TAD 501 TEXTILE CHEMISTRY AND QUALITY 2+2 SEM - II
ANALYSIS

Objective

To acquaint students about the polymer and chemistry of textile fibers and to develop an understanding of methods and techniques used to analyze textile.

Theory

UNIT-I: Chemistry of polymers- polymerisation, types, degree and characteristics; structure of textile fibres- general, molecular bonding, length, orientation, and requirements of fibre forming substances; structure and property relations of the fibres - repeating units, bonds, reactive groups and physical properties; commercial processes of fibres.

UNIT-II: Study of new fibres-bio-component and biconstituent fibres; blending ó principles, technology and types.

UNIT-III: Importance of textile testing, standardization and quality control, functions of BIS and other standards; Sampling techniques; moisture relations in textiles; standard conditions of testing.

UNIT-IV: Fibre testing - length, linear density, maturity; yarn testing ó yarn number, single and lea strength, twist, crimp and evenness; fabric testing ó weight, thickness, strength ó breaking, tear and bursting ; abrasion resistance ó flat, flex; pilling; crease recovery; stiffness; drapability; air permeability; thermal properties; flammability and assessment of other safety aspects in textiles; water permeability ó repellency, wicking and dimensional stability; comfort and fabric handle measurement.

Practical

Fibre testing: cross sectional view of different fibres; staple length, effective length, linear density, maturity ;yarn testing ó yarn number, twist, crimp, evenness and strength ; fabric testing - weight, thickness fabric count, balance, strength ó breaking, tear and bursting; abrasion resistance ó flat, flex; pilling; crease recovery; stiffness; drapability; air permeability; thermal properties; water permeability, wicking and dimensional stability; effect of heat, acid,alkali, bleaches and solvents; detection of damage caused to cellulose; quantitative analysis of fibre blends and mixtures; processing and statistical analysis of the tested data; visit to textile analysis lab.

Suggested Readings

AATCC Technical Manual. 1966. Vol. 68. USA American Association of Textile Chemist.
AATCC Technical Manual. 1993. Vol. 69. USA American Association of Textile Chemist.
AATCC Technical Manual. 1995. Vol. 70. USA American Association of Textile Chemist.
AATCC Technical Manual. 1998. Vol. 73. USA American Association of Textile Chemist.
Andrea Wynne 1997. *Textiles*. Macmillian.
Angappan 1987. *Textile Testing*. SSM Institute of Technology, Komarapalayam.
Bernard P Corbman 1983. *Textiles - Fiber to Fabric*. McGraw-Hill.
Booth JL. 1983. *Principles of Textile Testing*. Butterworth. *ISI Hand Book of Textile Testing*. 1982.
ISI Handbook of Textiles Testing. 1982.
Lyle DS.1976. *Modern Textiles*. John Wiley & Sons.
Marjory L. Joseph 1966. *Introductory Textile Science*. Rinehart & Winston.
Vilensky G. 1987. *Textile Science*. CBS.
Wingate IB. 1984. *The Fabrics - Their Selection*. Prentice Hall.

TAD 502 ADVANCED TEXTILE DESIGNING 1+2 SEM - I

Objective

To develop knowledge about different looms, types of weaves, analyze different weave patterns and learn principles of creating design through weaving.

Theory

Theory

UNIT-I: Study of traditional dyed, printed, embroidered and non-woven textiles in terms of fiber contents, fabrics, motifs, colors, dyes and designs used of India, America, China, Egypt, France Greece, Japan and Rome.

UNIT-II: History and evolution of traditional costumes of India, America, China, Egypt, France Greece, Japan and Rome through ages for women and men including the accessories- head dresses, jewellery, footwear and their significance in socio-economic status of the society.

UNIT-III: Clothing - Origin, theories, functions and modern philosophy of clothing in relation to culture.

UNIT-IV: Socio-Psychological aspects of clothing: first impression, individual values, interest, attitude, motivation in clothing choices, self respect, self-enhancement, self expression, gender desirability and individuality; clothing and society: clothing and social behavior, influence of religion, beliefs, customs and traditions; clothes and conformity; cloths and occupation; socio-psychological impact of clothing among children; significance of uniforms and national costumes.

UNIT-V: Clothing symbolism, fashion, fad, custom, tradition, culture contact, status, youth, education, technology social agitation of women and role of legislation.

Practical

Collection of traditional textile prints and surface designs and documentation; designing textile surface with combination of motifs of different countries; documentation of various styles of men and women's garments; designing outfits for men and women to suit the current trends; visit to a museum.

Suggested Readings

Annalce Gold.1987. *One World of Fashion*. Fair Child Publ.

Blanche Payne. 1965. *History of Costumes from the Ancient Egyptian to the Twentieth Century*. Harper & Row.

Cranz RLM. 1972. *Clothing Concepts*. Collier Mcmillan.

Horn MJ. 1981. *The Second Skin – An Interdisciplinary Study of Clothing*Hughton Mifflin.

Jack Cassin-Scott. 1994. *The Illustrated Encyclopedia of Costume and Fashion*. Studio Vista.

John Peacock. 1996. *A Complete Guide to English Costume Design and History - Costume 1066–1990's*. Thames & Hudson.

Marion S & Hill House 1963. *Dress Selection & Design*. The Macmillan.

Mary Kefgen & Phyllis 1971. *Individuality in Clothing Selection & Personal Appearance*. The Macmillam Co.

Pamela Stecker. 1996. *Fashion Design Manual*. Mac Millan.

Ryan MS. 1966. *Clothing - A Study in Human Behaviour*. Winston.

TAD 505 TEXTILE AND APPAREL INDUSTRIAL MANAGEMENT 3+0 SEM - I

Objective

To introduce the students to various trends in management of textile and garment industry, industry trends and understand standardization of textile goods, various export and import policies.

Theory

UNIT-I: Textile industry- history, development and status; export and import policies of Government.

UNIT-II: Complexity of management in garment industries- objective and expectations; status of garment industry in India-production, marketing, distribution, consumption and export trends over last five years. problems of apparel industry and remedial measures.

UNIT-III: Infrastructural facilities and personnel management in apparel industry; techniques in managerial application of cost-volume-profit analysis; productivity analysis; technology upgradation of apparel units - CAD and CAM; productivity rate.

UNIT-IV: Study of Apparel parks, GATT, TUF, ISO 9000 and ISO 14000 standards; textile research associations; apparel export promotion council, textile crafts councils.

Suggested Readings

Gerry Cooklin. 1991. *Introduction to Clothing Manufacture*. Blackwell.

Gerry Cooklin. 1997. *Garment Technology for Fashion Designer's*.Blackwell.

Jacob Solinger. 1980. *Apparel Manufacture*. Van Nostrand Reilfold.
 Karpan 2004. *Change in Trends in Apparel Industry*. Abiskeh Publ.
 Kathryn Moore Greenwood 1978. *Fashion Innovation & Marketing*. Macmillan Co.
 Kitty Dickerson 1995. *Textiles & Apparels in Global Economy*. Merrill Prentice Hall.
 Pradeep V Mehta. 1998. *Managing Quality in Apparel Industry*. New Age International.
 Ruth Glock. 1990. *Apparel Manufacturing*. Macmillan.

TAD 506 ADVANCED DYEING, PRINTING AND 2+1 SEM - I
FINISHING OF TEXTILES

Objective

To understand the theory of dyeing in relation to various classes of dyes and its application, inculcate awareness of the different methods of printing and appreciate the technical advantages of each and develop technical competency in printing with different dyes on different fabrics.

Theory

UNIT-I: Concept of colour and its relation to light; classification and types of dyes/colouring matter; chemistry of dyes and pigments- composition, structure, properties, affinity towards fibres, method of application, fixing, after treatments and fastness properties.

UNIT-II: Eco-friendly natural dyes and role of mordants; advanced dyeing techniques.

UNIT-III: Printing auxiliaries; advanced printing techniques; assessment for colour fastness.

UNIT-IV: Application of functional finishes on various fabrics; eco-friendly finishing with enzymes; comfort imparting finishes with reference to the application, uses, characteristics, problems and evaluation ; textured yarns and fabrics; finishing of blended fabrics.

Practical

Preparation of fabrics for dyeing, printing and finishing; preparation of shade cards with various class of dyes and colour matching; natural dyes ó dyeing with different mordants; advanced techniques of fabric printing; identification and application of finishes; eco-friendly finishing of textiles; Assessment of properties of the finished fabrics; Study of labels pertaining to finishes; Visit to processing and finishing units

Suggested Readings

Bernard P Corbman. 1983. *Textiles - Fiber to Fabric*. McGraw-Hill.
 Hall AJ. 1955. *Handbook of Textile Dyeing & Printing*. The National Trade Press.
 Joyce Story. 1974. *The Thames & Hudson Manual of Textile Printing*. Thames & Hudson.
 Nisbel H. 1978. *Grammer of Textile Design*. D.B. Taraporevale Sons.
 Prayag RS. 1988. *Textile Finishing*. Sri T Printers.
 Shani. 1976. *Chemistry of Textile Axillaries*. Sevak Publ.
 Shenai VA. 1985. *Technology of Printing, Technology of Textile Processing*. Vol. IV. Sevak Publ.
 Shenai VA. 1994. *Technology of Dyeing*. Sevak Publ.
 Shenai. 1995. *Technology of Bleaching & Mercerizing*. Sevak Publ.
 Sule AD. 1997. *Computer Colour Analysis Textile Application*. New Age International.
 Vaidya A & Trivedi 1975. *Textile Auxiliaries & Finishing Chemicals*. ATIRA, Ahemadabad.
 Vidyasagar PV. 1998. *A Handbook of Textiles*. Mittal Publ.
 Vilensky G. 1987. *Textile Science*. CBS.
 Vilensky G. 1987. *Textile Science*. CBS.
 Wynne A. 1997. *Textiles*. Macmillian.

TAD 507 APPAREL QUALITY ANALYSIS 1+1 SEM - II

Objective

To familiarize students with different apparel quality standards, their underlying principles and the international accepted standards and test methods; develop ability to analyze and interpret the results and predict the general quality control.

Theory

UNIT-I: Quality control- scope and functions of quality control; quality specifications and standards in raw material purchasing, quality control in spreading, cutting and bundling products.

designs of stripes, checks etc; leading to application and change of fabric texture, print and colour.

UNIT-III: Creation of designs in apparel; texture variation by using effects like embossing, blooming, transparency and translucent look on a garment.

UNIT-IV: Use of 3 D softwares for customisation of created designs as per end uses.

UNIT-V: Fashion trends in accessories: introduction, designing and product developments of trims, foot wears, hand bags, buttons, buckles, belts, hats, scarf, jewelry, neck ties.

Practical

Textile designing softwares: creation of textile designs (2D and 3D) and their application for different end uses: fashion designing softwares; creation of dress designs for different age groups, occupation and occasions; theme based creation, development of paper patterns of selected designed dresses on computer; grading and marking of patterns; application and modification of scanned images using softwares to create new apparel and textile design for specific end uses; preparation of portfolio of developed designs, product designing and development of trims, foot wears, hand bags, buttons, buckles, belts, hats, scarf, jewellery, neck ties.

Suggested Readings

Bhargav R. 2005. *Design Ideas & Accessories*. Jain Publ.

Carr Harold & John Pomeroy 1996. *Fashion Design & Product Development*. Blackwell Science.

Davis L Msrisn. 1980. *Visual Design in Dress*. Prentice Hall.

Prakash K. 1994. *Impression – A Classic Collection of Textile Designs*. Design Points.

Prakash K. 1995. *Traditional Indian Motifs for Weaving & Textile Printing*. Design Points.

Rene Weiss Chase 1997. *CAD for Fashion Design*. Prentice Hall.

Taylor P. 1990. *Computers in Fashion Industry*. Heinemann

Winfred Aldrich 1992. *CAD in Clothing & Textiles*. BSP Professional Books.

Winfred Aldrich. 1992. *CAD in Clothing and Textiles*. BSP Professional Books, London.

Yates MP. 1996. *Textiles – A Handbook for Designers*. W.W. Norton.

TAD 510 HOME TEXTILES 1+2 SEM - II

Objective

To develop awareness about different home textiles and furnishing and acquaint students about care and maintenance of different home textiles.

Theory

UNIT-I: History and evolution of household textiles and furnishings, importance and their functions.

UNIT-II: Study of various household textiles and furnishing; properties and application; Non-woven furnishing materials.

UNIT-III: Study of various styles of household textiles and furnishing and their accessories.

UNIT-IV: Selection, care and maintenance of different household textiles; floor coverings, rugs and carpets; types and role of under linings in draperies.

Practical

Study of various household textiles-fibre content, yarn type, weave, design and finish. Bed linen, towel, table napkins, kitchen aprons and dusters, table mats; types of curtains and draperies and valences; slip covers, bed spreads, table linen; *diwan covers*, cushions, sofa covers and bolsters; development of theme board and Project work.

Suggested Readings

Brilliant J. 1986. *The Soft Furnishing Book*. Conran Octopus.

Macalls S. 1972. *Sewing in colours, Home-making, Tailoring, Mending, Soft Furnishing*. Hawlyn.

Naik Shailja D. 1996. *Traditional Embroideries of India*. A.P.H. Publ.

Pat Jones. 1979. *Creative Sewing - House hold Linen*. A Studio Vista Book.

Rutt Anna Hong. 1967. *Home Furnishing*. John Wiley.

Taylor P. 1990. *Computers in Fashion Industry*. Heinemann.

TAD 511	KNITTING TECHNOLOGY	1+1	SEM - I
	Objective		
	To familiarize students with special techniques of knitted fabric production and creation of new designs and acquaint them with the art of handling different fabrics and styles using knits.		
	Theory		
	<u>UNIT-I:</u> Advance study of knit fabrics made on warp and weft knitting machines; different types of knitting machines and knitting gauge; types of yarns and web formation.		
	<u>UNIT-II:</u> Production technology of knitted fabrics and garments.		
	<u>UNIT-III:</u> CAM and automation in knit wear.		
	<u>UNIT-IV:</u> Finishing requirements of knitted fabrics; quality control in production of knitted fabrics.		
	Practical		
	Study and identification of different types of knitted fabrics; practicing knitting on flat knitting machines ó familiarisation of commands; making samples of different designs using multicoloured and complex designing techniques; visit to a knitted garment unit.		
	Suggested Readings		
	Terry Brackenburry. 1996. <i>Knitted Clothing Technology</i> . Blackwell.		
TAD 512	CONSUMER BEHAVIOUR - TEXTILES AND APPAREL	1+1	SEM - I
	Objective		
	To provide the indepth knowledge of consumer behavior, consumer protection measures and give them knowledge about retailing in fashion industry.		
	Theory		
	<u>UNIT-I:</u> Introduction and overview; consumer perspective and view points; understanding the consumer; environmental influence; individual differences.		
	<u>UNIT-II:</u> Consumer resources - involvement and motivation; knowledge, attitudes;; individual difference in behavior; psychological processes.		
	<u>UNIT-III:</u> Consumer decision processes and behavior; consumer analysis and marketing strategy; retailing; consumer trends; market segmentation; diffusion of innovation.		
	<u>UNIT-IV:</u> Counterfeit textiles and consumer protection measures; global consumer markets.		
	Practical		
	Conducting survey to study the consumer behavior and preferences of fabric, colour, texture, style of garments etc. from various sectors; analysis of market; identification of areas of consumer education in the field of apparel and textiles; developing educational packages for educating selected consumer groups in the identified areas.		
	Suggested Readings		
	Cranz RLM. 1972. <i>Clothing Concepts</i> . Collier Mcmillan.		
	Flugel JC. 1950. <i>The Psychology of Clothes</i> . Prentice International.		
	Fringes GS. <i>Fashion from Concept to Consumer</i> . Prentice International.		
	Mary Kafgen & Phyllis 1971. <i>Individuality in Clothing Selection and Personal Appearance</i> . The Macmillian Co.		
	Ryan MS. 1966. <i>Clothing - A Study in Human Behaviour</i> . Winston.		
TAD 601	FUNCTIONAL CLOTHING	2+1	SEM - I
	Objective		
	To enable the students to recognize the importance of portable clothing in textile industry and develop skills for designing functional clothing for farm, industrial workers and fire fighters etc.		
	Theory		
	<u>UNIT-I:</u> Clothing as a portable environment; comfort in clothing - principles of heat transfer in apparels, thermal insulation, breathable textiles, clothing systems for thermal protection.		

UNIT-II: Designing comfortable apparel suitable for warm and cool weather; impact of protective clothing; sports clothing requirements, importance and designing; fastening systems in clothing; clothing for visually impaired, blinds and mentally retarded.

UNIT-III: Clothing design for military personnels, clothing design to accommodate physical disabilities and irregularities; clothing design for expecting and lactating mothers.

UNIT-IV: Protective clothing- farm, industrial workers, fire fighters.

Practical

Survey on selected functional clothing available in the market; designing clothing for pregnant women and nursing mothers; designing garments for physically challenged and analysis; designing protective clothing for pesticide applicators, selected industrial workers and fire fighters and analysis; designing specific sports clothes and analysis.

Suggested Readings

Cookling G. 1997. *Garment Technology for Fashion Designers*. Blackwell Science.

Kilgus R. (Ed.) 1999. *Clothing Technology*. Europa Lehrmittel, Textile Institute, Manchester.

Tate M & Glisson O. 1967. *Family Clothing*. John Wiley.

TAD 602 TECHNICAL TEXTILES 3+0 SEM - I

Objective

To acquaint the students with the techniques of development in nano fiber and micro fibres and study the recent development in the field of technical textiles.

Theory

UNIT-I: Developments in Nano-fibre and microfibre non-wovens; importance and classification of technical textiles- types of fibers, materials.

UNIT-II: Medical Textiles; special textiles for industrial applications; automotive textiles; Industrial textiles.

UNIT-III: Agro textiles; Geo-textiles; phase change materials; shape memory materials; chromic materials.

UNIT-IV: Conductive materials and other functional materials- characteristics and applications; smart textiles & factors affecting the selection and uses.

UNIT-V: Non wovens - terms, characteristics processes, properties of non woven fabrics; trends in non woven technologies; scope and identification of non woven fabrics; evaluation of non wovens and laminated fabrics.

Suggested Readings

Allison Mathews 1994. *Medical and Hygiene Textile Production*. Intermediate Technology Publ.

Cookling Gerry 1997. *Garment Technology for Fashion Designers*. Blackwell Science.

Padmanabhan AR. 1988. *A Practical Guide to Textile Testing*. SITRA, Coimbatore. Prentice Hall.

Skinkle JH. 1972. *Textile Testing*. D.B. Taraporewala.

TAD 603 TEXTILE ECOLOGY 3+0 SEM - II

Objective

To develop awareness about types of pollution from textiles processing units and their effect and understand the health hazards of textile workers and their remedial measures.

Theory

UNIT-I: Industrialization, eco-balance and textile ecology; air, noise and water pollution by mechanical and chemical textile processing and their effect; treatment and disposal of textile effluents; treatment processes of sewage.

UNIT-II: Health hazards of textile workers working in various textile units and their remedial measures; banned dyes and auxiliaries.

UNIT-III: Eco-friendly production and processing of textiles with special reference to organic and naturally coloured cotton, natural dyes and detergents etc.

UNIT-IV: Indian and international environmental legislations; eco labeling, management and auditing.

Suggested Readings

Mark KH, Woodlings & Atlas SM. 1971. *Chemical after Treatment of Textiles*. John Wiley.

Skinkle JH. 1972. *Textile Testing*. D.B. Taraporewala.

TAD 604 SOURCING AND GLOBALISATION 3+0 SEM - I

Objective

To develop the knowledge about the key issues of globalisation and skills in testing and evaluation of nonwoven textiles.

Theory

UNIT-I: Supply chain management in textiles and apparel- principles and role in branding; evaluation of key issues facing textile and apparel designing businesses in global markets considering ethical, economic, political, social and professional implications.

UNIT-II: Developments in textile and apparel industries before and after phasing out quota system.

UNIT-III: Recent trends in major exporting countries, trade policies; integrated strategies towards fair globalisation- improving competitiveness and social responsibility in the industry; analysis of opportunities and extent of utilisation by the leading countries - sourcing options considering quality, production capabilities, workers' rights, investment risk, logistics, legal compliance, and trade policies.

UNIT-IV: Actions, policies and shared responsibilities ó role of governments, manufacturers, buyers, trade unions and multinational enterprises.

UNIT-V: Project work based on secondary data.

Suggested Readings

Easey Mike 2000. *Fashion Marketing*. Blackwell Science.

Jarnow J & Guessio M. 1991. *Inside the Fashion Business*. Prentice Hall.

Paola de Helena & Muellor Stewart Carol 1986. *Marketing Today's Fashion*. Prentice Hall.

TAD 605 PRODUCT DEVELOPMENT 1+2 SEM - II

Objective

To impart knowledge about various product standards and product specifications and the process of product development towards market need.

Theory

UNIT-I: Product development ó definition, history, objective; product design and manufacturing, use of merchandising calendar.

UNIT-II: Product testing; product economics; product standards and specifications; product quality control; technical services and, marketing.

UNIT-III: Organizational behavior; accounting; product intellectual property law.

UNIT-IV: Role of computers in product development and related softwares.

Practical

Product review ó preparation of product profile; survey on selected products from textile and apparel field; product testing and analysis ó selected textiles and apparel ó quality, serviceability, material, construction performance, products standards, specification and cost; product planning; design production relative to cost requirements; aesthetic and functional requirements, producibility and market needs; project work.

Suggested Readings

Bhargav R. 2005. *Design Ideas and Accessories*. Jain Publ.

Carr Harold & John Pomeroy 1996. *Fashion Design & Product Development*. Blackwell Science.

TAD 606 TEXTILE CONSERVATION 1+1 SEM - II

Objective

To develop the awareness about textiles conservation and skill in assessment of damage, repair and stabilization of textiles.

Theory

UNIT-I: Importance and scope of textile conservation; Various methods for analysis of textiles-fibre content, yarn and fabric structure.

UNIT-II: Damage to textiles ó pests, micro organisms etc.; Condition assessment, repair and stabilization of textile and apparel in museum collections; Dry, aqueous and solvent cleaning.

UNIT-III: Examination of storage and exhibition techniques, materials, and conditions.

UNIT-IV: Principles of cleaning fragile textiles; proper conditions for storing and display of various textiles.

Practical

Visit to a museum and study of various textile conservation methods; analysis of aged textiles - fibre content, yarn and fabric structure; assessment of damage; repair and stabilisation of textiles; exposure to cleaning techniques; Project work.

Suggested Readings

Harris J. (Ed.). 1993. *Five Thousand Years of Textiles*. British Museum.
Leene JE. 1972. *Textile Conservation*. Butterworths.
Williams JC. 1977. *Preservation of Paper and Textiles of Historic and Artistic Value*. American Chemicals Society.

TAD 607 COLOUR APPLICATION IN TEXTILES 1+1 SEM - II

Objective

To develop the knowledge about conditions for dyeing, printing and finishing treatments and skill in analysis of dyed fiber, yarn and fabric, colour science and computer colour matching.

Theory

UNIT-I: Detailed theory of colour science and computer match prediction in dyeing fibres, yarns, and fabrics.

UNIT-II: Spectrophotometers for colour systems, software & hardware for colour systems.

UNIT-III: Objective specification of colour, colour difference, shade sorting, various colour spaces.

UNIT-IV: Assessment of whiteness, computer match prediction algorithms based on colour theory and numerical analysis.

Practical

Laboratory techniques for assessing colour strength and reflectance; developing arbitrary scales; familiarisation of commands to use software in colour spectrophotometer; analysis of dyed fibre, yarn and fabrics; creation of data files and reproduce dyed samples with the match prediction; analysis of colour fastness of dyed samples; management and interpretation of data generated.

Suggested Readings

Booth JE. 1996. *Principles of Textile Testing*. CBS.
Padmanabhan AR. 1988. *A Practical Guide to Textile Testing*, SITRA, Coimbatore. Prentice Hall.

TAD 608 RECENT ADVANCES IN TEXTILE AND 2+0 SEM - I
APPAREL

Objective

To provide indepth knowledge of latest developments in textile and apparel designing and help them to identify thrust areas of research.

Theory

UNIT-I: Recent advances in production and manufacture of textile fibers, yarns and fabrics.

UNIT-II: Chemical processing of natural and synthetic textiles and their conversion in to clothing.

UNIT-III: Developments in the field of garment manufacturing technology, functional textiles and clothing; use of special techniques in textile processing.

UNIT-IV: Advances in retailing, merchandising, biological and psychological aspects of clothing, thrust areas of contemporary research and future projections.

Suggested Readings

Journals of Apparels and Textiles.

TEXTILE AND APPAREL DESIGNING

List of Journals

- É **Man Made Textile in India**
Samsmira Marg, Inorli, Mumbai-25, www.sasmira.org
- É **Textile Asia**
Business Press Ltd., G.P.O. Box-185, Hong Kong, SAR, China
- É **Journal of the Textile Association**
The Textile Association (India), Santoshø 72-A, Dr. M.B. Pant Road, Shivaji Park, Dadar, Mumbai-28.
- É **Textile Research Journal**
602, Prospect Avenue, P.O. Box 625, Princeton, New Jerrey ó 08542,
www.textile.research.journal.com
- É **Textile Dyer and Printer**
Sevak Publications, Room No. 9, Wellington, Estate, 3rd floor, 24-Commander-in-Chief Road, Madras-600105
306, Shri Hanuman Industrial Estate, G.D. Ambedkar Road, Wadala Mumbai ó 31.
- É **Textile Trends**
Eastland Publications Pvt. Ltd., 44, Chittaranjan Avenue, Calcutta ó 700012.
- É **Textile Industry and Trade Journal**
Comput Media Services, Ambica Niwas Sayajiganj, Baroda ó 390005
112-A, Oshiwara Industrial Centre, 1st Floor, Link Road, Goregaon (W), Mumbai -400104.
- É **Apparel International**
Apparel International Publishing, The White House, 60 Higher Street, Potters Bar, Herts En65AB, England.
- É **Colourage**
Color Publication (P) Ltd., Post Box No. 9113, 126-A, Dhuruwadi A.V., Nagweka, Marg, Prabhadevi, Mumbai ó 400025.
- É **Hosiery Journal**
The Journalø Publications, Near Shingaar Cinema, Samrala Road, Ludhiana ó 141008.
- É **The Textile Magazine**
Gopali & Co., 407-408, Mount Road, Nandanam, Madras ó 600035.
- É **The Indian Textile Journal**
Business Press Pvt. Ltd., Transmission House, Mora co-Op. Industrial Estate, Mathuradas Vassanji Road, Andheri (E), Mumbai ó 59.
- É **Textile India Progress**
Asheerwad, 3/39, Sion Estate, Mumbai ó 22.
- É **Clothes Line**
Clothline Media Pvt. Ltd., 7-B, Shah Industrial Estate, Veena Desai Road, Azad Nagar, Andheri (W), Mumbai ó 53.
- É **Indian Journal of Fibre and Textile Research**
National Institute of Science, Communication, CAIR, Dr. K.S. Krishnan Marg, New Delhi ó 12.
- É **Indian Journal of Textile and Research**
94 Publication and Information Directorate, CSIR, Hillside Road, New Delhi ó 12.
- É **Society of Dyers and Colourists**
P.O. Boxm 244, Perkin House, 82, Grattan Road, Bradford, BD12JB, U.K.
- É **American Dyestuff Reporter**
SAF International Publications, Inc., Promenade A Suite 2, Harmon Cove Towers, Secaucus, NJ 07094, USA.
- É **ARS Textrina (A Journal of Textiles and Costumes)**
Charles Babbage Research Centre, P.O. Box 47, Humboldt MN, USA, 56731
P.O. Box 272, St. Norbert Postal Station, Winnipeg, Manitoba, Canada, 3VIL6.
- É **New Cloth Market**
Indian Industrial and Management Services, 46, -White Houseø Panchwati, C.G. Road, Ahmedabad ó 380006.

É **Natural Product Radiance**

Periodicals Division, National Institute of Science, Communication and Information Resources, Dr. K.S. Krishnan Marg, New Delhi 6 12.

e-Resources

- É <http://www.lib.ncsu.edu/news/textiles.php?p=513&more=1&c=1&tb=1&pb=1>Textiles
- É <http://jit.sagepub.com/tips/cross.dtl>
- É http://catalog.lib.ncsu.edu/web2/tramp2.exe/do_ccl_search/guest?setting_key=files&*search_button=keyword&servers=1home&index=default&query=AQZ-4405
- É ctr.sagepub.com/s-clothing nad textile research journal
- É www.sagepub.com/journalsIndex.nav -
- É www.itaonline.org/template.asp?intPageId=119 - 102k - Cached
- É jurnalhukum.blogspot.com/.../akses-gratis-terbatas-sage-journal.html - 61k ó Cached
- É search.barnesandnoble.com/Medieval-Clothing-and-Textiles/...
- É product.half.ebay.com/_W0QQprZ1432447
- É www.amazon.com/Textiles-Colonial-Clothing-Sally-Queen/dp/0965819744 - 212k - Cached
- É www.librarything.com/tag/clothing - Cached
- É www.interweave.com/needle/piecework_magazine/files/PW_Notions_1-05.pdf
- É en.wikipedia.org/wiki/History_of_clothing_and_textiles - 99k ó Cached
- É www.lib.ua.edu/libraries/gorgas/subjguides/cloappTex.htm - Cached
- É www.florilegium.org/files/CLOTHING/clothing-books-msg.html - 433k - Cached
- É www.teonline.com/papers/books-textile-services.html - Cached
- É ctr.sagepub.com/cgi/reprint/24/4/316.pdf
- É search-desc.ebay.com/search/search.dll?...&sortorder=2
- É www.florilegium.org/files/CLOTHING/clothing-FAQ.html - 63k - Cached
- É amazon.com/Vintage-Clothing-1880-1980-Identification-Value/dp/... - 220k óCached
- É www.teonline.com/papers/books-trims-closures.html - Cached
- É target.com/gp/search?ie=UTF8&index=books&field-keywords=clothing+... - 228k óCached
- É www.beaglebay.com/historical_clothing.htm - 287k - Cached
- É www.textilemuseum.org/PDFs/Worldwidetextilecollections.pdf
- É www.ebooks.com/ebooks/book_display.asp?IID=269362
- É <http://www.tx.ncsu.edu:8190/jtatm/index.html>

Suggested Broad Topics for Master's and Doctoral Research

- É Quality improvement of under-utilized protein and cellulosic fibres by enzyme treatment
- É Effect of enzymatic treatment on vegetable dyes
- É Analysis of properties of fabrics dyed with dyes extracted from medicinal plants
- É Blending of under-utilized fibres with major fibres for quality analysis
- É Designing of protective and functional clothing for farm workers and industrial workers
- É Diversification of utilization of jute and under utilized fibres and fabrics
- É Development of suitable sports wears
- É Development of paper patterns for designs to be developed for persons engaged in different occupations
- É Product diversification using minor fibers