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PG & Ph.D. Courses

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Discipline -Extension Education & Communication Management

M.Sc Community Science (Extension Education & Communication Management)

Course No	Course title	Credit Hours
EECM 501	Global Extension Systems	3 (3+0)
EECM 502	Development communication	3 (2+1)
EECM 503*	ICT and New Media	4 (1+3)
EECM 504*	Technology Transfer and Management	3 (1+2)
EECM 505*	Dynamic Communication skills	3 (1+2)
EECM 506	Participatory Programme Management	3 (1+2)
EECM 507	Organizational Development and HRD	2 (1+1)
EECM 508	Educational Technology	3 (2+1)
EECM 509	Group Dynamics	2 (2+0)
EECM 510	Community Development and Outreach	3 (2+1)
EECM 511*	Climate change management	2 (1+1)
EECM 512	Gender Sensitization for Empowerment	2 (2+0)
EECM 513	Special Project- Out sourcing for Media product development	2 (0+2)
MINOR COURSES **		
FN 505	Nutrition and Physical fitness	3(2+1)
FN 509	Food Safety and Standards	3(2+1)
FN 513	Human Physiology	3(3+0)
HDFS 503	Methods and Techniques of Assessment in Human Development	3(2+1)
HDFS 506	Management of differently abled	3(2+1)
ATS 512	Apparel and Textile Product Development	2(1+1)

ATS 513	Laboratory Techniques in Textiles Research	2(0+2)
RMCS 513	Environmental Resource Management	2(1+1)
RMCS 508	Product Design	3(1+2)
RMCS 507	Consumer Issues and Legislations	2 (2+0)
SUPPORTING COURSES		
RESMETH-532	Research methodology	3(2+1)
STATS-501	Statistics	3(2+1)
	Total	6(4+2)
COMMON COURSES		
PGS-501	Library and Information Services	1(0+1)
PGS-502	Technical Writing and Communication Skills	1(0+1)
PGS-505	Intellectual Property and its management in Agriculture	1(0+1)
PGS-503	Basic Concepts in Laboratory Techniques	1(0+1)
PGS- 504	Agricultural Research, Research Ethics and Rural Development Programmes	1(0+1)
	Total	5(0+5)
EECM591	Seminar	1(0+1)
EECM599	Thesis /Research	30

*Compulsory core courses

COURSE CONTENT

Credits: 3 (3+0)

Course No. EECM 501

Course Title: GLOBAL EXTENSION SYSTEMS

RATIONALE

India has the pre and post-independence history of extension programmes. In course of time many changes occurred in policies and plans based on ever changing needs. Based on lessons learned with in the country and from other developing countries, all the time new efforts are being made making extension system more strategic. This course provides such information with an analytical perspective of Indian extension system in comparison with other countries over the Globe. It will give an opportunity to the students to get an insight into the strengths and weakness of each of the system, to mould themselves as policy contributors and planners.

LEARNING OBJECTIVES

- To appraise students the perspectives of extension systems in India
- To enable students for comparative analysis of Indian extension systems with other countries
- To acquaint students with the extension systems in ICAR and SAUs.

THEORY

UNIT I: Orientation to extension systems

Early extension efforts; Indian extension systems - reforms, challenges of extension management in India; Paradigm shift in extension systems; Extension approaches in view of globalization and market liberalization; Privatization of extension services – introduction, scope, advantages, limitations and experiences; Decentralization of extension systems; Revolution in extension systems.

UNIT II: Governance and extension systems

Indian governance and role of extension systems - retrospection on Indian governance; Role of extension system; Ministries - rural development, agriculture, science and technology, human resource development, health, industries, education and women and child development; NGO collaboration; Review of five year plans.

UNIT III: ICAR extension system

History; Extension system; Organisational structure; Policy issues; Existing extension systems and challenges; National and regional institutions - vision, objectives, activities, innovations, programmes; Extension systems in SAUs - organisational structure, personnel, roles, innovations, SWOT analysis.

UNIT IV: Extension management and training organisations and institutions

FAO, IFAD, IFRI, WFO, WHO, Biodiversity international, MANAGE, NIRD, National Institute of Agricultural Marketing (NIAM), NAARM, EEI, SAMETI, FTC.

UNIT V: Comparative analysis of extension system

India with USA, UK, Israel, China, Pakistan, Bangladesh, Japan, Italy, South Africa, Island, Indonesia, Philippines and Brazil - history, approaches, organizational structure, methodology, services, problems and research linkages.

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend different national and other global extension systems and their focus areas
- Compare and analyse the differences in extension systems between nations in terms of their approaches and priorities
- Explain extension systems in ICAR and SAU
- Conceptualise the challenges in execution of extension systems.

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Student's Book/Publication Review
- Students' presentation
- Online group discussion

REFERENCES

1. Azadi H & Filson G (2009) Comparative Study of Agricultural Extension Systems
-A Systemic View Outlook on
Agriculture. <https://www.rug.nl/research/portal/publications>.
2. Sagar M (2013) Text Book of Agricultural Extension with Global Innovations. Kalyani Publishers, Ludhiana, ISBN: 978-93-272-2877-9.
3. Salahuddin A and Magor NP (2005) Innovations in Rural Extension: Case Studies from Bangladesh. CABI Publishing, Wallingford, UK.
4. Sangeet G and Mithilesh V (2011) Global Extension Systems: A Textbook. New Academic Publications ISBN-10: 8186772464 ISBN-13: 978-8186772461.
5. Singh KK, et al (2015) Agricultural Extension Explorer. Kalyani Publishers, Ludhiana.
6. Global Approaches to Extension Practice: A Journal of Agricultural Extension
7. International Journal of Agricultural Extension
8. Indian Research Journal of Extension Education published by Society for Extension Education Agra

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Early extension efforts, Indian Extension systems – Reforms, Challenges of extension management in India, Paradigm shift in extension systems.
2.	Extension approaches in view of globalization and market liberalization, Privatization of extension services - Introduction, Privatization of extension services – Scope, Advantages and limitations.
3.	Privatization of extension services – Experiences, Decentralization and devolution of extension services, Revolution of extension systems.
4.	Retrospection on Indian governance, role of extension system , Ministry of Rural Development, Ministry of Agriculture and Farmers' Welfare.
5.	Ministry of Science and Technology, Ministry of Human Resource Development, Ministry of Industries.
6.	Ministry of Women and Child Development, Ministry of Health and Family Welfare.
7.	NGO collaboration, Review of five year plans.
8.	History of extension systems in ICAR organisational structure of extension system, Policy issues, Existing extension systems and challenges, National and regional extension institutions – Vision and objectives.
9.	National and regional extension Institutions - Programmes and activities, National and regional extension institutions- Innovations and interventions, National and regional extension Institutions- Case studies and success stories.
10.	Extension systems in SAUs - Organisational structure, Personnel and roles, Extension systems in SAUs – Role of extension in academic, Research and training activities, Innovative extension systems in SAUs- Case studies.
11.	SWOT analysis of extension system in SAUs, Introduction, FAO and IFAD. WFO (World Farmers' Organisation) and WHO.
12.	Biodiversity International, MANAGE, NIRD.
13.	NIAM, NAARM, EEI.
14.	SAMETI and FTC, IFPRI, India and USA, UK - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages.

15.	India with Israel, China - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages, India and Pakistan, Bangladesh - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages, India and Japan, Italy - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages.
16.	India and South Africa, Island - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages, India and Indonesia, Philippines - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages, India and Brazil - History, Approaches, Organizational structure, Methodology, Services, Problems and research linkages.

Credits: 3 (2+1)

Course No. EECM 502

Course Title: DEVELOPMENT COMMUNICATION

RATIONALE

Globally, development communication is an approach for sustainable growth in versatile areas of quality life. Communication refers to the use of different types of media for the process of development, while development refers to the process of betterment of a society. Students specializing in EECM play multiple roles in the process of addressing various development issues pertaining to sustainable development goals, which the globe is looking at. This course imparts knowledge and skill to communicate responsive information aiming at feedback. The scope of innovation, creativity and continuity motivates students to make public programmes and policies real, meaningful and sustainable.

LEARNING OBJECTIVES

- To familiarize students with global perspective of development communication issues
- To impart analytical skills with regard to the process of development communication ☐ To understand the role and use of media in attaining sustainable development goals.

THEORY

UNIT I: Over view of development communication- Hypothetical concepts and theories- Press theories

Normative - authoritarian, libertarian, social responsibility, democratic participant theory; Sociological - uses & gratification, agenda setting; two-step flow; Psychological; Bullet theory; Theories of persuasion and advocacy; Critical theory of frank furt school; Attitude change theories; Political economy theory; Critical cultural theory of birmingham school and framing theory.

UNIT II: National and international perspectives of development communication

National and international perspectives; Evolution of development communication concept; Government and non-government initiatives; Government and non-government organisations - FAO, UNDP, WHO, UNICEF, CARE and strategies.

UNIT III: Millennium development goals (MDGs) and sustainable development goals (SDGs)

Achievements of MDGs - analytical review and recommendations; SDGs - document, vision and objectives; Targets and strategies for implementation.

UNIT IV: Research perspectives of development communication:

Emerging issues; Measurable and variables of development communication; Existing research projects; Research lag and supporting organisations.

UNIT V: Media initiatives for development communication:

Conventional and contemporary media technologies; Globalisation and media convergence; Ethical issues and media impact analysis.

PRACTICAL

1. Research review on hypothetical concepts and theories of Development communication
2. Presentation on hypothetical concepts and theories of Development communication
3. Critical analysis of Sustainable Development goals (SDGs)
4. Report writing and presentation on critical analysis of SDGs
5. Case study preparation focusing national and international organisation efforts for development communication.
6. Presentation of national and international organisation efforts
7. Critical review on ongoing Development Communication research projects in respective SAUs
8. Presentation on ongoing Development Communication research projects
9. Interaction with personnel and consumers of development communication projects and group discussion.
10. Interaction with personnel and consumers of development communication projects and group discussion.
11. Selection of contemporary media for development of communication issue, dissemination through existing channels of respective SAUs
12. Analysis of contemporary media for development of communication issue
13. Selection of contemporary media for development of communication issue, dissemination through existing channels of respective SAUs
14. Analysis of contemporary media for development of communication issue
15. Presentation of media analysis of the issue
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend the theories and perspectives of development communication
- Critically analyse SDGs in terms of niche research in development communication
- Understand the process of development communication in various national and international organizations
- Recognise the efforts of SAUs for development communication
- Plan and disseminate communication media on development issues

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Student's Book/Publication Review
- Simulation exercise
- Media development and transmission
- Student presentation

REFERENCES

1. Huesca R (2003) Participatory Approaches to Communication for Development. In Mody B (Ed.) International and Development Communication: A 21st Century Perspective. Sage, California.
2. Joshi Uma Understanding Development Communication. Dominant Publications, New Delhi.
3. Karin G, Wilkins Thomas T and Rafael O (2014) The Handbook of Development Communication and Social Change. Kindle Publication, ISBN:9781118505311.
4. Mefalopulos P (2008) Development Communication Sourcebook- Broadening the Boundaries of Communication, The World Bank Publication.
5. Mikkelsen and Britha (2002) Methods for Development Work and Research. Sage Publications, New Delhi.
6. Narula and Uma (2007) Development Communication Theory and Practice. HarAnand Publication, Ltd. New Dehli.
7. Mefalopulos Paolo (2008) Development Communication Sourcebook Broadening the Boundaries of Communication Development Communication Sourcebook Broadening the Boundaries of Communication. Washington DC ISBN 978-0-8213-7522-8.
8. Servaes Jan (2008) Communication for Development and Social Change. Sage Publications, New Delhi.
9. Journal of Development Communication. Asian Institute for Development Communication
10. Journal of Development & Communication Studies
11. Asian Journal of Communication

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Over view of Development communication- Introduction to hypothetical concepts theories, Press theories, Normative – Authoritarian.
2.	Libertarian, Social Responsibility.
3.	Democratic Participant theory, Sociological - Uses and gratification
4.	Agenda setting, Two-step flow.
5.	Psychological, Bullet theory.
6.	Theories of persuasion and advocacy, Critical theory of Frankfurt school.
7.	Attitude change theories, Political economy theory.
8.	Critical cultural theory of birmingham school and framing theory. National and international perspectives of development communication - Evolution of development communication concept.
9.	Government and non-government initiatives, Organisations and strategies – FAO.
10.	Organisations and strategies - UNDP, Organisations and strategies - WHO.
11.	Organisations and strategies - UNICEF, Organisations and strategies - CARE.
12.	Millennium development goals (MDGs) and sustainable development goals (SDGs) - Achievements of MDGs - Analytical review and recommendations, Achievements of MDGs - Analytical review and recommendations.
13.	SDGs - Document, Vision and objectives of SDGs.
14.	Targets and strategies for implementation, Research perspectives of development communication - Emerging issues, Measurable and variables of development communication.
15.	Existing research projects, Research lag and supporting organisations, Media initiatives for development communication - Conventional and contemporary media technologies, Globalization and convergence.
16.	Mass media and ethical issues, Mass media impact analysis.

Credits: 4 (1+3)**Course No. EECM 503****Course Title: ICT AND NEW MEDIA****RATIONALE**

A revolution has occurred in information technology, significantly impacting human communication; thereby human development. The speed and rapidity of information process due to information technology revolution, maximised the gadget adoption and usage irrespective of geographical and demographical range. Thus, a new set of relationships and responsibilities

emerged among the information processors to satisfy the information needs of versatile users. This course provides such competency among the students for interactive communication in a flash to any corner of the world.

LEARNING OBJECTIVES

- To familiarize students with ICT and new media technologies and provide application skills through industry attachment
- To provide hands-on-experience on application of ICT tools and devices & To expertise in analytics tracking to analyse information reach.

THEORY

UNIT I: Information communication technology

Information communication technology - components of ICT, role of ICT in community education; IT enabled services - call centre, helpdesks, data warehouse; Current status of application; Government policy on ICT; Emerging research issues.

UNITII: Perspective of new media

Definitions, Soft and hardware components, Traditional media transition to new media; Knowledge management and archiving; Networks; Social Media - advantages and limitations.

UNIT III: Multimedia - concept and evolution

Digital Audio - sound design and mixing, digital videography and photography, digital text writing.

UNIT IV: Web and blog designing

Hosting; Introduction of HTML and basic tags and HTML document structure; Cascading style sheets; Text in CSS and working.

PRACTICAL

1. Multimedia and emerging technologies - Introduction to Video-on demand, internet - radio and web television
2. Introduction to Internet and the browsers
3. Introduction to Internet access and browsing
4. Introduction to Internet access and browsing extension related websites, blogs and data bases
5. Exposure to network
6. Compose e-mails, send and receive mails
7. Video on demand- different video formats
8. Creating a Basic Video Clips with Video Editing software.
9. Adding audio into developed videos.
10. Editing of existing videos and audios
11. Video on demand-accessing downloads and editing of required video formats
12. Internet radio- Accessing different radio channels in online websites and browsing
13. Web Television- Exposure and accessing

14. Impact of new media on traditional media- listing of various traditional media and new media formats- collection of literature
15. Group discussion /debate on advantages and disadvantages of traditional media and new media
16. Writing on specialized area on the web
17. Writing for general interest web- script writing concepts, principles for web
18. Writing for online- script writing concepts, principles, styles for online
19. Writing for net newspapers and editions- script writing concepts, principles, styles for online
20. Writing for blogs and search engines- script writing concepts, principles, styles for online
21. Writing for video logs, citizen journalism- script writing concepts, principles, styles for online
22. Evaluation of e-journals- Exposure to electronic journals, browsing sites, accessing and down loading the journal articles
23. Evaluation of e-journals
24. Submission of reports
25. Unique features of web language-, open source softwaresviz, wordpress, joomla, moodle
26. Introduction and basics to Advanced HTML
27. Introduction of Cascading Style Sheets
28. Orientation – javascript and HTML scripts
29. Designing web page- Home page(landing page), hyperlinks with using CSS
30. Practical exercise on designing a web page by using HTML5 and CSS3.
31. How to create responsive (Mobile friendly) Pages with Using HTML5 and CSS3.
32. Designing web page- Home page, hyperlinks - open source softwaresviz, Wordpress.
33. Explanation of WordPress Dashboard and creating blog in Wordpress.
34. Hosting a WordPress Blog online
35. Creating Google Analytics
36. Adding Google Analytics into HTML page and Wordpress Pages
37. Introduction to interactive web media- web animation
38. Understanding web animation- jquery, dream weaver and Photoshop
39. Exposure to animated graphics in the web
40. Introduction to designing interactive elements, sound addition
41. Introduction to web visual editor, creation and editing.
42. Acquiring a domain and webhosting to host the website/blog.
43. Familiarisation with FTP and Cpanel
44. Hosting website into Online
45. Updating/change the contents and images online Website after Hosting.
46. How to take the backups of the website after hosting a website.
47. Tracking Web Traffic from Analytics
48. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend the role of ICT based services for community education and development
- Figure out the required soft and hard ware components in application of new media for interactive communication
- Develop content for web sites
- Design, develop and manage websites
- Track web analytics and analyse the impact

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Student's Book/Publication Review
- Practice sessions
- Media development and transmission
- Student presentation

REFERENCES

1. Andleig PK & Thakrar K (2003) Multimedia Systems Design. PHI: New Delhi.
2. Chrisanthi Avgerou, Robin Mansell, Danny Quah and Roger Silverstone (2009) The Oxford Handbook of Information and Communication Technologies.
<http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199548798.001.0001/oxfordhb-9780199548798>.
3. Earnshaw RA & Vince JA (1995) Multimedia Systems and Applications. London: Academic Press.
4. Grace Kite (2012) The Impact of Information Technology Outsourcing on Productivity and Output: New Evidence from India Volume 1. Pages 239-48.
5. Thatchinamoorthi J and C Meenambigai (2018) Textbook of Extension Communication & Information Technology. ISBN-10: 9788183214681 ISBN-13: 978-8183214681.
6. S T Nandasara (2009) Information Communication Technology – Grade 11. Educational Publications Department, Ministry of Education, Sri Lanka
<https://www.researchgate.net>.
7. Vanaja and Rajasekar (2016) Information & Communication Technology (ICT) In Education. First Edition, Neelkamal ISBN- 0: 8183165192 ISBN-13: 9788183165198.
8. <https://www.india.gov.in/topics/communication/information-and-technology>
9. Smart Villages Through Information Technology – Need of Emerging India
<https://www.researchgate.net/publication>

10. http://atcm.mathandtech.org/EP2009/papers_full/2812009_17282.pdf

11. <https://www.emeraldinsight.com/doi/abs/10.1108/eb047157>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Information communication technology - Components of ICT.
2.	Role of ICT in community education.
3.	IT enabled services - Call centre, Helpdesks, Data warehouse.
4.	Current status of application.
5.	Government policy on ICT.
6.	Emerging research issues.
7.	Perspective of New media - Definitions, Soft and hardware components.
8.	Traditional media transition to new media.
9.	Knowledge management and archiving, Networks.
10.	Social Media - Advantages and limitations.
11.	Multimedia - Concept and evolution - Digital Audio - Sound design and mixing.
12.	Digital videography and photography.
13.	Digital text writing.
14.	Web and blog designing – Hosting.
15.	Introduction of HTML and basic tags and HTML document structure.
16.	Cascading style sheets, Text in CSS and working.

Credits: 3 (1+2)

Course No. EECM 504

Course Title: TECHNOLOGY TRANSFER AND MANAGEMENT

RATIONALE

Technology transfer is the process of transferring skills and knowledge of a proven technology to users for application to enhance and sustain qualitative life. It is the mandate of Agricultural universities to ensure that scientific and technological developments are accessible to a wider range of users who can then further develop and exploit the technology into new products, processes, applications, materials or services. On the other hand, the importance of technology transfer has been increasing with the growing need for modern technologies, innovation, inventions and R&D. In this context, it is pertinent to provide adequate skill and knowledge to the students in transfer of technology and management.

LEARNING OBJECTIVES

- To acquaint students with the process of TTM
- To provide hands-on-experience in TTM
- To sensitise students towards technology transfer career.

THEORY

UNIT I: Introduction to technology transfer

Transfer of Technology - Definition and importance; Models of technology transfer - different models, qualitative technology transfer models, dimensions of technology transfer, features of technology package, routes of technology transfer; FLD, OFT, Minikits.

UNIT II: Technology acquisition

Technology acquisition; Alternatives for acquiring new technologies; Reasons; Management of acquired technology; Measures of scale and mechanisms for acquiring technologies - economy of scale, levels of scale, measurement of scale, factors affecting the choice of scale.

UNIT III: Introduction to technology management

Concept and meaning of technology management; Evolution and growth of technology management.

UNIT IV: Role and significance of technology management

Impact of technology on society; Technology and competition; Key issues in managing technological innovation, Forms of technology - product and process technologies; Technology forecasting - methods and principles; Role of government in technology management.

UNIT V: Technological change

Characteristics of technological change; Classification of technological change; Impact of technological change; Technology life cycle; Technology transformation; Technology policies and policy instruments.

UNIT VI: Technology assessment

Technology choice; Technology assessment and refinement; Technology assessment process; Technology leadership and followership; Writing technology assessment report.

UNIT VII: Invention, innovation and creativity

Meaning and differences; Innovation management; Intellectual property management.

UNIT VIII: Technology adoption, diffusion, and absorption

Technology adoption diffusion and absorption; Role of technology absorption - benefits, constraints in technology absorption, technology package and technological dependence, Indian experience in technology absorption efforts, issues involved in the management of technology absorption and government initiatives.

UNIT IX: Development of technology

Development process and steps; Technology development and competition; Managing research & development (R & D);Reforms in technology development.

UNIT X: Social issues in technology management

Technological change and industrial relations; Implementation of rationalization and automation in India.

PRACTICAL

Note: Students may be attached to ACRIP on Home Science/ Research project all through the semester for practical experience with either one of the departments, or for a stipulated duration with every department may be left to the discretion of course-in-charge. Students' report may consist the following information.

1. Enlisting of technologies already transferred under five disciplines/ research project.
2. Selection of technologies for observation of change attained and preparation of observation schedule
3. Filed visit and interaction with clientele to collect data
4. Filed visit and interaction with clientele to collect data
5. Filed visit and interaction with clientele to collect data
6. Analysis of data and preparation of report
7. Presentation of report
8. Group discussion on technology refinement/ sustainability issues
9. Enlisting and description of technologies transferred by the concerned scientist/s during the semester
10. Description of invention, innovation and creativity of the selected technology
11. Description of transfer of technology model
12. Design and development of transfer of technology process
13. Presentation of technology transfer process
14. Preparation and finalisation of work plan for participation in technology transfer
15. - 27. Execution of work plan as per time line
28. Analysis of technology adoption and diffusion stages
29. Preparation of report on technology transfer
30. Presentation of report
31. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend technology transfer perspectives
- Select and execute technology in accordance with the needs of community
- Practice the management process
- Analyse the stages of technology adoption, diffusion and absorption & Write the report on TTM

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Student's Book/Publication Review
- Implant training/ Placement
- Student presentation

REFERENCES

1. A Inzelt and Jan Hilton (1999) Technology Transfer: From Invention to Innovation. Springer Science & Business Media, Kluwer academic publishers.
2. Albert E Muir (1997). The Technology Transfer System: Inventions : Marketing, Licensing, Patenting, Setting, Practice, Management, Policy. Book News, Inc., Portland.
3. Ali Hussein SalehZolai (2012) Knowledge and Technology Adoption, Diffusion, and Transfer: International Perspective. University of Bahrain, Bahrain ISBN13: 9781466617520.
4. Avid B, Audretsch Erik E, Lehmann Albert N, Link Alexander Starnecker (2012). Technology Transfer in a Global Economy. Springer Science & Business Media, ISBN 146146102.
5. Thomas J Allen (1984). Managing the Flow of Technology. Edition III, Massachusetts Institute of Technology, ISBN 0262510278.
6. International Journal of Technology Transfer and Commercialisation. Interscience Publishers, Genève.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction to technology transfer - Transfer of technology models, Traditional technology transfer models, Qualitative technology transfer models, Dimensions of technology transfer features of technology package, Routes of technology transfer, FLD, OFT, Minikits.
2.	Technology acquisition - Technology acquisition, Alternatives and reasons for acquiring new technologies, Management of acquired technology, Measures of scale and mechanisms for acquiring technologies, Economy of scale.
3.	Technology acquisition - Levels of scale, Measurement of scale factors affecting the choice of scale, Introduction to technology management - Concept and meaning of technology management, Evolution and growth.
4.	Role and Significance of technology management, Impact of technology on society technology and competition, Key issues in managing technological innovation.

5.	Forms of technology: Product and process technologies, Technology forecasting- Methods and principles.
6.	Role of government in technology management, Technological change - Characteristics and classification of technological change.
7.	Technological change - Impact of technological change, Technology life cycle, Technology transformation, Technology policies and policy instruments.
8.	Technology assessment - Technology choice, Technology assessment process, Technology leadership and followership.
9.	Technology assessment - Reporting technology assessment - Method, Invention, Innovation and creativity - Meaning and differences.
10.	Invention, Innovation and creativity - Innovation management, Intellectual property management.
11.	Technology adoption, diffusion, and absorption - Technology adoption diffusion and absorption, Role of technology absorption- Benefits.
12.	Technology adoption, diffusion, and absorption - Constraints in technology absorption, Technology package and technological dependence.
13.	Technology adoption, diffusion, and absorption - Indian experience in technology absorption efforts, Issues involved in the management of technology absorption government initiatives.
14.	Development of technology - Development process and steps, Managing research & development (R & D).
15.	Development of technology - Technology development and competition, Reforms in technology development.
16.	Social issues in technology management - Technological change and industrial relations, Implementation of rationalization and automation in India.

Credits: 3 (1+2)

Course No. EECM 505

Course Title: DYNAMIC COMMUNICATION SKILLS

RATIONALE

Academic success and career achievement depend much on communication and presentation skills. As master's student, the individual is expected to analyse, prepare and present the content in the class room, conferences and seminars and also write technically and scientifically. Hence dynamic communication includes both oral and written communication. This course builds awareness, understandings and frameworks for skills development in the qualities and attributes of presentational formats that involve the voice and the body when used together with technologies to present ideas and concepts that not only inform but also seek to persuade and motivate.

LEARNING OBJECTIVES

- To develop competency of students in effective oral communication skills.
- To develop skills in science communication
- To understand corporate and business communication.

THEORY

UNIT I: Need and importance of communication in present context

Types of communication skills - verbal, non-verbal and written communication; Types of corporate and business communication skills - oral presentations, group discussions, facing interviews, e-mail, memos, business letters, blogs, inter office memorandums, report writing; Hard and soft skills; difference between hard and soft skills.

UNIT II: Scientific communication

Meaning; Need and importance; Forms of scientific writing - conference, seminar, symposium, workshop and colloquia; Writing for scientific journals; Thesis writing and writing articles for popular media; Farm journalism and its importance in agriculture and allied sectors; Science communication and formats for scientific writing; Writing for scientific journals and their ratings; NAAS rating; Impact factor and h-index; Oral and poster presentation; Reading and comprehension of - print and audio video media; General and technical articles.

UNIT III: Introduction to public speaking

Types of speeches - persuasive, informative, and motivational or inspirational speech; Structuring the speech - introduction, body content and conclusion; Effective delivery - voice modulation, appearance during speeches and delivery; Platform performance - posture, gesture, eye contact, emphasis, pause, voice pitch, overcoming fear and anxiety of public speaking; Visuals in presentation - type of visuals for public speaking, tips for effective use, computer aided visual presentation, body language. UNIT IV: Importance of listening

Introduction; Listening styles - active & passive and direct & indirect listening, thinking & listening, adjusting listening style to that of speaker, social situations & listening; Listening improvement techniques.

PRACTICAL

1. Orientation to NAAS rated Journals related to respective discipline
2. Enlisting relevant national and international journals
3. Exercise on writing a review article on given topics
4. Presentation of the topic
5. Exercise on writing popular articles for Newspapers, Magazines and farm journals in English
6. Presentation and group discussion
7. Exercise on writing popular articles for Newspapers, Magazines and farm journals in vernacular language
8. Presentation and group discussion
9. Exercise on writing thesis in UAS format
10. Presentation and group discussion

11. Exercise on Numbers, Units, Abbreviations and nomenclature
12. Presentation and group discussion
13. Scientific style and use of English in research paper
14. Presentation and group discussion
15. Exercise on writing business letters, e mail, blogs, Internet etiquettes
16. Presentation and group discussion 17.Exercise on listening skills
- 18.Presentation and group discussion
- 19.Exercise on presentation skills
- 20.Presentation and group discussion
- 21.Exercise on writing for radio
22. Presentation and group discussion
23. Message preparation for SMS
24. Practice on modalities of SMS dissemination
25. Presentation and group discussion
26. Learning skills of indexing, footnote and bibliographic procedures
27. Presentation and group discussion
28. Tips for public speaking
29. Exercise on public speaking
30. Organising public speaking- Impromptu, Extemporaneous, Manuscript & Memorized
31. Evaluation of public speaking
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Understand the importance of communication skills for goal achievement
- Differentiate scientific writing from other writings
- Write for different contexts and different media
- Organise and present public speaking
- Recognise the importance of NAAS rating for professional career

TEACHING METHODS/ ACTIVITIES

- Participatory lectures
- Assignment
- Simulation exercises
- Online group discussions
- Organise public speaking
- Student's Book/Publication Review
- Students' presentation

REFERENCES

1. D'Souza YK (2000) Encyclopedia of Advanced Journalism. Vols. I-III. Anmol Publ.
2. Khan PM (2002) Textbook of Extension Education. Himanshu Publications, New Delhi.
3. Lamerton J (2001) Everything You Need to Know Public Speaking. Harper Collins Glasgow.
4. Ravindran RK (1999) Hand Book of Reporting and Editing. Anmol Publ.
5. Ray GC (1991) Extension Communication & Management. Kalyani Publishers, Ludhiana.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Need and importance of communication in present context - Types of communication skills - Verbal, Non-verbal and written communication.
2.	Types of corporate and business communication skills - Oral presentations, Group discussions, Facing interviews, E-mail, Memos, Business letters, Blogs, Inter office memorandums, Report writing.
3.	Hard and soft skills; difference between hard and soft skills.
4.	Scientific communication - Meaning; Need and importance; Fora of scientific writing - Conference, Seminar, Symposium, Workshop and colloquia.
5.	Writing for scientific journals; Thesis writing and writing articles for popular media.
6.	Farm journalism and its importance in agriculture and allied sectors.
7.	Science communication and formats for scientific writing; Writing for scientific journals and their ratings; NAAS rating; Impact factor and h-index; Oral and poster presentation.
8.	Reading and comprehension of - Print and Audio Video Media; General and technical articles.
9.	Introduction to public speaking - Types of speeches - Persuasive, Informative, and Motivational or Inspirational speech.
10.	Structuring the speech - Introduction, Body content and conclusion; Effective delivery- Voice modulation, Appearance during speeches and delivery.
11.	Platform performance - Posture, Gesture, Eye contact, Emphasis, Pause, Voice pitch, Overcoming fear and anxiety of public speaking.
12.	Visuals in presentation - Type of visuals for public speaking.
13.	Tips for effective use, Computer aided visual presentation, Body language.
14.	Importance of Listening -Introduction.
15.	Listening styles - Active & passive and direct & indirect listening, Thinking & listening.
16.	Adjusting listening style to that of speaker, Social situations & listening; Listening improvement techniques.

Credits: 3 (1+2)

Course No. EECM 506

Course Title: PARTICIPATORY PROGRAMME MANAGEMENT

RATIONALE

In the context of community development, the participatory programme planning and management is a process by which a community undertakes to reach a given socio-economic goal by consciously diagnosing its problems and charting a course of action to resolve those problems. The belief behind participatory programme management is its capability in leading to increased productivity, motivation and quality assurance. This is very essential for students of all disciplines to learn, especially for those who will be undertaking change agent career. This course creates a learning experience for students to develop positive attitude towards management of programme with the participation of people, rather than working in isolation.

LEARNING OBJECTIVES

- To orient the students towards principles, procedure and approaches PPM
- To facilitate application of PPM techniques in field situation.

THEORY

UNIT I: Overview to PPM

Concept; Meaning; Importance; Types of participation in development; Advantages and disadvantages of participation by different stakeholders; Role of government and non profit organizations in promoting participation; 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

Administration of the Project; Concept of Professional management - stakeholder analysis, force field analysis, SWOT analysis, logical framework analysis, PERT, CPM.

UNIT IV: Monitoring and evaluation

Concept; Meaning and importance of monitoring and evaluation; Components of M&E - physical, financial, staff performance; Technical aspects - output, outcome & impact; Trends in people's participation in M & E; Contribution of right to information Act.

PRACTICAL

1. Literature survey and research review on different perspectives of PPM
2. Presentation of review reports.
3. Observation of PPM techniques in SHGs (female groups)
4. Observation of PPM techniques in SHG village federations
5. Observation of PPM techniques in SHG mandal/block level federations

6. Observation of PPM techniques in SHG district level federations
7. Observation of PPM techniques in SHGs (male groups)
8. Observation of PPM techniques in watershed management groups
9. Preparation of case study and presentation
10. Preparation of case study and presentation
11. Preparation of case study and presentation
12. Application of PRA methods – Critical analysis of different methods through research review- Mapping techniques
13. Application of PRA methods – Critical analysis of different methods through research review- Ranking techniques
14. Application of PRA methods – Critical analysis of different methods through research review- Transaction techniques
15. Application of PRA methods – Critical analysis of different methods through research review- Focus group discussion
16. Application of PRA methods – Critical analysis of different methods through research review- Problem analysis
17. Application of PRA methods – Critical analysis of different methods through research review- Institutional analysis
18. Preparation and implementation of home improvement work plans
19. Preparation and implementation of home improvement work plans
20. Critical evaluation of work plan
21. Critical evaluation of work plan
22. Application of project management techniques- PERT
23. Presentation of feedback on project management techniques- PERT
24. Application of project management techniques – CPM
25. Presentation of feedback on project management techniques – CPM
26. Application of project management techniques- SWOT
27. Presentation of feedback on project management techniques- SWOT
28. Application of project management techniques- Stake holder analysis
29. Presentation of feedback on project management techniques- stakeholder analysis
30. Application of project management techniques- Logical frame work analysis
31. Presentation of feedback on project management techniques- Logocal frame work analysis
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Understand the underlying perspectives of PPM
- Realise the importance of PPM for sustainable achievement
- Acquire skill in observation of PPM techniques applied in different situations
- Plan, apply and analyse PPM techniques and write reports

TEACHING METHODS/ ACTIVITIES

- Participatory lectures
- Assignment
- Simulation exercises
- Online group discussions
- Preparation of work plans
- Student's Book/Publication Review
- Students' presentation

REFERENCES

1. Elizaphan N (2015) Project Monitoring and Evaluation: Tools and Techniques. Kindle Edition, Ekon Publishers.
2. J. Agril. Res. Innov. &Tech. 3 (2): 72-78, December, 2013 <http://www.ijarit.webs.com>
3. Koen K, Maartjede G and Louise B (2016) Participatory Planning, Monitoring and Evaluation of Multi-stakeholder Platforms in Integrated Landscape Initiatives. (Working Paper). <https://www.researchgate.net/publication/311100782>.
4. Nabhi (2005) Handbook for NGOs: An Encyclopaedia for Non-government Organisations and Voluntary. Agencies Vol1. Nabhi Publications, New Delhi.
5. Rory B (2014) Burke Publishing Project Management Techniques. 2nd College Edition, <http://www.burkepublishing.com/component/%20content/article.html?id=16>
6. Uddin MN and Anjuman N (2013) Participatory rural appraisal approaches: an overview and an exemplary application of focus group discussion in climate change adaptation and mitigation strategies. ISSN: 2224-0616.
7. Team FME SWOT Analysis Strategy Skills ISBN 978-1-62620-951 <http://www.freemanagement-ebooks.com/dldebk/dlst-swot.htm>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Overview to PPM - Concept, Meaning and Importance.
2.	Types of Participation in development.
3.	Advantages and disadvantages of participation by different stakeholders.
4.	Role of Government and Non-Profit Organizations in promoting participation.
5.	Conceptual framework of extension programme planning; objectives, principles and process.
6.	Participatory planning - Concept, importance, process.
7.	Techniques of participatory planning - RRA, PRA, PLA and their application in extension.

8.	Approaches of participatory planning - cooperative, democratic, bottom up and down.
9.	Project management techniques - Administration of the Project.
10.	Concept of professional management - Stakeholder analysis.
11.	Force field analysis, SWOT Analysis.
12.	Logical Framework Analysis, PERT, CPM.
13.	Monitoring and evaluation - Concept, Meaning and Importance of Monitoring and Evaluation.
14.	Components of M&E - Physical, Financial, Staff Performance.
15.	Technical aspects - Output, outcome and impact.
16.	Trends in People 's Participation in M & E; Contribution of Right to Information Act.

Credits: 2 (1+1)

Course No. EECM 507

Course Title: ORGANIZATIONAL DEVELOPMENT AND HUMAN RESOURCE DEVELOPMENT

RATIONALE

Every organization caters to the needs of its customers. But the best corporate thinking is leading the institution towards success by means of simplified processes and models. There are many frame works and models available, towards which the students are to be exposed to critically analyse the best means. The contemporary HRD trends and process provide students professional skills in capacity building and employee motivation programme planning. Beyond this, the students as employees in any organization in future endeavors can be professionals as they acquire technical skills in identifying the required deliverables for the company.

LEARNING OBJECTIVES

- To orient students with OD and provide diagnostic skills in HRD processes
- To make students capable of applying the principles and techniques as professionals for developing human resources in an organization.

THEORY

UNIT I: Introduction to organization development

Definition; scope and importance; Relevance of organization development in community science; History of organizational development; Revolution in organizational development; Planned change - theories of planned change, models of planned change; General and specific.

UNIT II: Designing interventions for organisational development Types; Interpersonal and group process approaches - process consultation, third party evaluation; Organisation process approaches - organization confrontation meeting, intergroup relations interventions, large group interventions; Techno-structural interventions - engineering approach, motivational approach, socio-technical systems approach; Human resource management interventions performance management - goal setting performance appraisal and rewards systems.

UNIT III: Introduction to human resource development : Concept; Relationship between human resource management and human resource development; HRD mechanisms - processes and outcomes; HRD matrix; HRD interventions; Roles and competencies of HRD professionals; Challenges in HRD.

UNIT IV: HRD process : Assessing need for HRD; Designing and developing effective HRD programs; Implementing HRD programs; Evaluating effectiveness of HRD programs; HRD audit; HRD culture and climate; Employee development activities - approaches, leadership development, action learning, assessment and development centres; Intellectual capital and HRD.

UNIT V: HRD Trends

Coaching and mentoring; Career management and development; Employee counseling; Competency mapping (CM); People capability maturity model (PCMM); Balanced score card; Appreciative inquiry; Integrating HRD with technology and Employer branding and other emerging trends.

PRACTICAL

1. Visit to an organization to study the models of planned change and preparation
2. Presentation of report on models of planned change
3. Research review and presentation of organizational interventions in national context
4. Research review and presentation of organizational interventions in international context
5. Collection of data/information and preparation of case studies on organizational interventions in health
6. Collection of data/information and preparation of case studies on organizational interventions in education
7. Collection of data/information on organizational interventions in welfare and training organizations and preparation of case studies.
8. Presentation of case studies.
9. Study of existing HRD strategies of respective SAUs/Institutions
10. Analysis of existing HRD strategies of respective SAUs
11. Analysis of existing HRD strategies of respective Institutions
12. Presentation of reports with recommendations
13. Preparation of CM of the organization and planning for planned change
14. Preparation of PCM of the organization and planning for planned change
15. Presentation of reports
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend and differentiate OD processes and HRD strategies
- Enlist, explain and prepare case study OD interventions in organisations
- Analyse HRD strategies of organisations
- Prepare CM and PCM plan for planned change

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Field visit
- Case study writing
- Student's Book/Publication Review
- Students' presentation

REFERENCES

1. Brown D (2010) Experiential Approaches to Organization Development. (8th Ed.), Prentice Hall, New Jersey.
2. Cheung-Judge M and Holbeche L (2015) Organization Development: A Practitioner's Guide for OD and HR. 2nd Ed., Kogan, London.
3. Cummings TG Worley CG (2014). Organization Development and Change. 10th Edition, West Publishing Company, New York.
4. David M (2009) Human Resource Development. Oxford University Press, Delhi.
5. Haldar UK (2010) Human Resource Development, Oxford University Press India.
6. Harris DM and Desimonerady L (2001) Human Resource Development. The Dryden Press, Orlando.
7. Harvey DF and Brown DR An Experimental Approach to Organization Development. Prentice-Hall, Englewood Cliffs, N.J.
8. Mankin D Human Resource Development. Oxford University Press, India.
9. Pace RW, Smith Philip and Mills GE (1991) Human Resource Development. The Field, Prentice Hall, New Jersey.
10. Traeger J & Warwick R (2018) Organization Development: A Bold Explorer's Guide. Libri Publishing, Farringdon, England.
11. International Journal of Human Resources Development and Management
12. IOSR Journal of Humanities And Social Science
13. European journal of work and organizational psychology
14. Human Resource Development Quarterly (Online)
15. Human Resource Development International
16. International Journal of Human Resource Studies

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction to Organization Development - Definition, scope and importance, History of Organizational Development.
2.	Revolution in Organizational Development, Relevance of organization development in community science.
3.	Planned Change - Theories of Planned Change, Models of Planned Change general and specific.
4.	Designing Interventions for Organisational Development – Types - Interpersonal and Group Process Approaches, Process consultation Third party evaluation, Organisation process approaches Organization confrontation meeting, Intergroup relations interventions, Large group interventions.
5.	Techno-structural interventions - Engineering approach, Motivational approach Socio-technical systems approach, Human Resource Management Interventions Performance Management, Goal setting performance appraisal Rewards systems.
6.	Introduction to Human Resource Development – Concept, Relationship between human resource management and human resource development.
7.	HRD mechanisms - processes and outcomes, HRD matrix.
8.	HRD interventions, Roles and competencies of HRD professionals.
9.	Challenges in HRD, HRD Process - Assessing need for HRD.
10.	Designing and developing effective HRD programs, Implementing HRD programs.
11.	Evaluating effectiveness of HRD Programs, HRD audit.
12.	HRD culture and climate, Employee development activities- Approaches, leadership development, action learning, assessment and development centres.
13.	Intellectual capital and HRD, HRD Trends - Coaching and mentoring.
14.	Career management and development, Employee counselling.
15.	Competency mapping (CM), People Capability Maturity Model(PCMM).
16.	Balanced Score Card, Appreciative inquiry, Integrating HRD with technology Employer branding and other emerging trends.

Credits: 3 (2+1)

Course No. EECM 508

Course Title: EDUCATIONAL TECHNOLOGY

RATIONALE

Educational technology is a process of adopting modern technology for quality education. This primarily focuses on the educational values of the tools and applications, and later how adequate they are in acquisition of knowledge. Both theoretical and practical inputs the students are taught this course, mold them for effective learning at present and proficient instructors in future endeavors. Rational exposure to conventional and contemporary educational approaches and strategies will help the students for self learning as well promote learning.

LEARNING OBJECTIVES

- To sensitize students towards the role of educational technology for effective teaching and learning
- To build competency as a teacher and public speaker
- To enable self learning among students for application of education technology.

THEORY

UNIT I: Overview of educational technology

Meaning; Concepts and scope of educational technology; Curriculum design and development; Lesson planning; Concept and methodology; Modularised instruction - fundamentals, process, formulation of objectives, selection of media, field testing and evaluation of module.

UNIT II: 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; Teaching styles - expert, formal authority, personal model, facilitator, delegator; Learning Styles - visual, aural, read/write, kinaesthetic (VARK).

UNIT III: Teaching learning strategies Microteaching; Programmed instruction; Simulation role-play; Team teaching; Experiential learning; Traditional media; ICT Applications in education; Multimedia based teaching and learning.

UNIT IV: Current education

Genesis and trends; Management of formal and non formal education in India; Vocationalization of education; Distance education; Guidance and counselling; Innovative instructional aids - web instruction, e learning, virtual laboratories.

UNIT V: Educational technology for differently able

Visual impaired script - advances in braille; Hearing impaired - advances in Indian sign language; People with special needs - educational programs and government policies.

UNIT IV: Evaluation

Question bank; Introduction to evaluation - need and importance in education appraisal of teacher performance; Development of question bank; Evaluation of instructional effectiveness; Competency based question paper; Reliability and validity of question papers.

PRACTICAL

1. Identification of key terms in educational technology and preparation of directory
2. Critical analysis of UG and PG curriculum of Community Science in relation to course objectives
3. Research review on planning and implementation of lesson planning
4. Presentation of research review report
5. Preparation of lesson plan
6. Conducting class as per lesson plan and self and peer evaluation
7. Preparation of inventory for identification of teaching styles and execution
8. Preparation and presentation of report
9. Preparation of inventory for identification of learning styles and execution
10. Preparation and presentation of report
11. Construction of Objective questions- Multiple choice, fill in the blanks
12. Construction of competency based question paper- Matching, Technical terms
13. Construction of subjective questions- Short type
14. Construction of subjective questions- Essay type
15. Analysis of questions in terms competency evaluation- knowledge, memory, application, analysis
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend conventional and contemporary trends of educational technology for various groups of learners
- Analyse critically the course curriculum and lesson planning in terms of reaching course objectives
- Prepare and execute inventory to identify learning styles
- Construct competency based objective and subjective question papers

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Student's Book/Publication Review
- Survey and analysis
- Mock sessions
- Student presentation
- Online group discussion

REFERENCES

1. Dahama OP and Bhatnagar OP (2005) Education and Communication for Development. Oxford & IBH.
2. Bhaviskar SG (2006) Modern Technology in Education. Kalyani Publication, New Delhi.
3. Suhaskumar and Ruprao P Modern Trends in Curriculum Organization. Kalyani Publication, New Delhi.
4. Heidi HJ (2010) Curriculum Essential Education for a Changing World.
5. Kochhar SK (1985) Methods and Techniques of Teaching. Sterling Publication.
6. Ray GL (2006) Extension Communication and Management. Kalyani Publication, New Delhi.
7. Anita S Encyclopaedia of Curriculum Reforms and New Teaching Methods(4 Vol. Set). Dominant Publishers and distributors, New Delhi.
8. The International Journal of Educational Technology in Higher Education
9. The Journal of Educational Technology Systems
10. International Journal of Educational Technology (ISSN 2476-0730)

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Overview of Educational Technology- Overview of educational technology, Meaning, concepts and scope of educational technology, Curriculum design and development.
2.	Overview of Educational technology-Lesson planning, concept and methodology.
3.	Overview of Educational technology-Modularised Instruction - fundamentals, process, formulation of objectives, Selection of media, Field Testing and Evaluation of module, Teaching learning process-Meaning and characteristics of teaching and learning.
4.	Teaching learning process-Maxims of teaching, Stages, forms and levels of teaching and learning.
5.	Teaching learning process-Motivation - concept, importance and techniques, Teaching styles - expert, formal authority, personal model, facilitator, delegator.
6.	Teaching learning strategies-Learning styles- visual, aural, read/write, kinaesthetic, Microteaching, Team teaching.
7.	Teaching learning strategies-Programmed instruction, Simulation role-play.
8.	Teaching learning strategies-Experiential learning, Traditional media.
9.	Teaching learning strategies-ICT applications in education, Multimedia based teaching and learning.
10.	Genesis and trends in modern education-Management of formal and non formal education in India, Vocational education.

11.	Genesis and trends in modern education-Distance education, Guidance and counselling.
12.	Educational technology for differently able-Innovative Instructional Aids - Web Instruction, e learning, Virtual laboratories, Educational technology for differently able-Visual impaired- Advances in Braille script.
13.	Educational technology for differently able-Hearing impaired- Advances in Indian sign language, People with special needs- Educational Programs and Government policies.
14.	Introduction to evaluation- need and importance in education, EvaluationDevelopment of Question Bank.
15.	Evaluation-Appraisal of Teacher Performance, Evaluation of instructional effectiveness.
16.	Evaluation-Competency based question papers, Reliability and validity of question papers.

Credits: 2 (2+0)

Course No. EECM 509

Course Title: GROUP DYNAMICS

RATIONALE

Group approach is proved to be the effective strategy as well as approach for execution of extension interventions through participation. By orienting students who are pursuing expertise in the field of extension education, towards group behavior and its dynamics they can accelerate the participatory development processes by means of team and conflict management. Further, group dynamics is a system of behaviors and psychological processes occurring within a social group or between social groups i.e intra and intergroup dynamics. Hence it will be useful in understanding decision-making behaviour, forms of social prejudice and discrimination, which are some of the major influencing factors of human development.

LEARNING OBJECTIVES

- To develop understanding about group behavior and dynamics for effective communication and group management
- To acquaint students with techniques for sustainable group dynamics.

THEORY

UNIT I: Introduction to group and group dynamics

Meaning; Characteristics; Types and functions of groups; Stages and process of group formation; Group norms and structure; Values; Ethics; and Morals.

UNIT II: Understanding group behaviour

Definitions; Theories - social comparison, cognitive dissonance, self presentation, drive, social impact, self attention, social cognition theories; Individual; Interpersonal and human behaviour and dimensions.

UNIT III: Group dynamics

Cooperation; Competition; Communication; Group pressure; Group cohesiveness; Group leadership; Measurement of group dynamics - tools and techniques; Group break down - causes and solutions; Strengths; Weaknesses and myths; Crowds and the mob mentality; Diversity and difference; Group dynamic skills - training and development.

UNIT IV: Managing group

Team building; Conflict management; Stress management; Active listening and feedback; Achieving cooperative group structure.

UNIT V: Understanding collective action in groups

Collective action meaning; Theories and applications; Incentives for collective action; Research reviews on collective action for sustainable group dynamics.

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Analyze the features and developmental stages of groups and team process
- Critically evaluate the theoretical concepts of group behaviour in real situation Able to measure group dynamics
- Demonstrate group dynamic skills
- Apply problem-solving skills and higher level thinking strategies

TEACHING METHODS / ACTIVITIES

- Participatory lectures
- Field visits and interaction
- Assignment
- Demonstration
- Role play
- Presentation
- Research review

REFERENCES

1. Ernest S and Sharon AR (1985) Effective Group Communication- How to Get Action by Working in Groups. National Textbook Company, Lincolnwood.
2. Vanni F (2014) The Role of Collective Action. Agriculture and Public Goods, 21. DOI 10.1007/978-94-007-7457-5_2, © Springer Science +Business Media Dordrecht.
3. George RG (2011) Chapter on Theories of Group Behavior: Commentary.

4. Mary, A. G. and Hennen (2009) Stages of Group Development. Shared by Extension Center for Community Vitality, 10-21-14.
5. Mary S (2010) Book of Conflict Resolution Games Quick, Effective Activities to Improve Communication, Trust, and Collaboration. ISBN: 978-0-07-174366-2.
6. Smith GE (2001) Group Development: A Review of Literature and A Commentary on Future Research Directions. Group Facilitation.
7. Susan WA (2005) Facilitating Group Communication. The Handbook of Group Research and Practice, Sage Publications, Inc, Thousand Oaks.
8. Managing Stress. (2010) MTD Training and Ventus publication Aps. ISBN-978-87-7681658-2.
9. https://www.mindtools.com/pages/article/newTMM_79.htm

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction to group and group dynamics - Meaning and Characteristics of group and group dynamics, Types and functions of groups.
2.	Stages and process of group formation, Group norms and structure.
3.	Values, Ethics, and Morals, Understanding group behaviour – Definitions
4.	Theories - social comparison, cognitive dissonance, self presentation, drive, social impact.
5.	Self attention, social cognition theories
6.	Individual, interpersonal and human behaviour and dimensions. Group dynamics- concept and indicators - Concept and indicators of Cooperation.
7.	Concept and indicators of Competition, Concept and indicators of Communication.
8.	Concept and indicators of Group pressure, Concept and indicators of Group cohesiveness.
9.	Concept and indicators of Group leadership, Measurement of group dynamics - tools and techniques.
10.	Group break down - causes and solutions, Strengths, weaknesses and myths
11.	Crowds and the mob mentality, Diversity and difference.
12.	Group dynamic skills - training and development. Managing group - Team building
13.	Conflict management, Stress management.
14.	Active listening and feedback, Achieving cooperative group structure.
15.	Understanding collective action in groups - Collective action meaning, Theories and applications.
16.	Incentives for collective action, Research reviews on collective action for sustainable group dynamics.

Credits: 3 (2+1)

Course No. EECM 510

Course Title: COMMUNITY DEVELOPMENT AND OUTREACH

RATIONALE

This course prepares students for an interdisciplinary field working. It teaches facilitation and organize a grassroots effort, equipping with skills to empower a local, regional or international community to bring about change. A real-world experience through the programs' will benefit strong connections in and with the community and communicate effectively with local groups as well as public and private agencies. It builds skills for critical thinking in matters of social justice, sustainable development, community engagement, community asset-mapping, fundraising, team building, collaborative leadership, project management, research and project evaluation.

LEARNING OBJECTIVES

- To orient students with community development and outreach perspectives
- To impart participatory research skills
- To handle a special project for analysis of community development outreach.

THEORY

UNIT I: Community development

Definition; Issues and concepts; Historical perspective of community development in India and emerged changes since inception to current era.

UNIT II: Approaches

Approaches - concept and characteristic features gandhian approach, community development approach, sectoral approach, target approach, area approach, minimum need approach, integrated or holistic approach, participatory development approach; Strategies - multipurpose strategy, growth oriented strategy and spatial planning strategy; The modernization theory; Human development model (components, HDI, ranking, gender related development index, HPI)

UNIT III: Key principles of community development

Community participation - definition and scope; Inclusion; Equality; Collective action; Empowerment and community development process; Provision of information; Identification of felt needs and common issues; Consultation for Shared vision; Mobilisation for action; Reflection and evaluation.

UNIT IV: Community development and governance in India

Community development policy in India; Community development perspectives in five year plans.

UNIT V: Cross cutting edges of community development

Horizontal edges - education, health, women empowerment, skill development, agriculture and caste occupations; Vertical edges - adults, youth, adolescents, children, pregnant and lactating mothers, physically and mentally challenged.

UNIT VI: Outreach of community development

General orientation to outreach models - precede model, evaluation and indicator metrics; Outreach of urban; Rural and tribal community development programmes; Impact - economic and social perspectives.

UNIT VII: Globalisation impact on community development

Impact on social forms - individualism, enclavism and fatalism, transition between gemeinschaft and gesellschaft, issues of migration and mitigation.

PRACTICAL

Development of special project to study Community Development programme outreach in selected area and execution. Preparation of project report and presentation

1. Selection of Community development programme and detailed description of the programme in terms of objectives, targets, inputs, expected outputs and outcome
2. Visit to programme operating area and interaction with stakeholders- implementing agency, personnel and beneficiaries
3. Visit to programme operating area and interaction with stakeholders- implementing agency, personnel and beneficiaries
4. Framing of special project for measurement of outreach – title, objectives, study area, research review and plan of work
5. Finalisation of tools and techniques for execution of project
6. Finalisation of tools and techniques for execution of project
7. Preparation of tools for execution of project
8. Field testing and finalization of tools
9. -12. Execution of work plan
12. Data analysis and preparation of project report
13. Data analysis and preparation of project report
14. Presentation of report
15. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend and differentiate OD processes and HRD strategies
- Critically analyse different approach of community development
- Plan and execute special project
- Analyse the results and write report
- Write research paper based on the special project

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment

- Field visit
- Case study writing
- Special project
- Student's Book/Publication Review
- Students' presentation

REFERENCES

1. Jerry WR and Gary P (2014) Introduction to Community Development: Theory, Practice, and Service-Learning. 1st Edition, ISBN-13: 978-1412974622 ISBN-10: 1412974623
2. Manohar P (2014) Social and Community Development Practice <http://dx.doi.org/10.4135/9789351507987>
3. Marianne R, Woodside and Tricia McClam (2015) An Introduction to Human Services. 8th Edition, ISBN-13: 978-1285749907 ISBN-10: 1285749901
4. Patil AR (2013) Community Organization and Development: An Indian Perspective. PHI Learning Private Limited, Delhi 110092 ISBN 978-81-203-4694-9
5. Rhonda, P and Robert, P (2015) An Introduction to Community Development (Volume 1) 2nd Edition, ISBN-13: 978-0415703550 ISBN-10: 0415703557
6. A Step by Step Guide to 'Turning Outward' in Your Community. American Library Association. <http://www.ala.org/tools/sites/ala.org.tools/files>
7. From Project to Branch Integration and Sustainability: Community-Led Work. <http://publiclibrariesonline.org/2013/04/from-project-to-branch-integration-and-sustainability-community-led-work-at-halifax-public-libraries>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1	Community development - Definition, issues and concepts, Historical perspective of community development in India and emerged changes since inception to current era.
2.	Approaches- concept and characteristic features - Gandhian approach, Community Development Approach.
3.	Sectoral Approach, Target Approach.
4.	Area approach, Minimum Need Approach.
5.	Integrated or Holistic approach, Participatory Development approach.
6.	Strategies - Multipurpose strategy, Growth oriented strategy and Spatial planning strategy.
7.	Key principles of Community development - Community participation- definitions and scope, Inclusion, Equality and Collective action.
8.	Empowerment and community development process, Provision of information Identification of felt needs and common issues.

9.	Consultation for participation Shared vision, Mobilisation for action, reflection and evaluation.
10.	Community Development and Governance in India - Community development policy in India, Community development perspectives in Five year plans.
11.	Community Development issues - Horizontal issues - Education, health, Empowerment, Vocational and skill development, Agriculture and caste occupations.
12.	Vertical - Adults, Women ,Youth, Adolescents, Children, Pregnant and lactating mothers.
13.	Physically and mentally challenged, Outreach of community development - General orientation to outreach models - precede model.
14.	Evaluation and indicator metrics, Outreach of Urban, Rural and Tribal community development programmes.
15.	Impact - Economic and social perspectives, Globalisation impact on community development - Impact on social forms – Individualism.
16.	Enclavism and Fatalism, Transition between Gemeinschaftand Gesellschaft, Issues of migration and mitigation.

Credits: 2 (1+1)

Course No. EECM 511

Course Title: CLIMATE CHANGE MANAGEMENT

RATIONALE

Geographically, every community is facing numerous challenges due to changes in the climate. This course provides students to address such challenges covering adaptation and mitigation solutions across a wide range of sectors and regions, with special reference to domestic management practices. It provides an opportunity to get exposed to climate change policies and prepares for climate change communication. It also creates a research question, gather and analyse data, and share findings academically and in lay terms.

LEARNING OBJECTIVES

- To conversant students with CCM and equip with managerial skills at home level
- To generate interest for climate communication to cope up with climate changes.

THEORY

UNIT I: Basics of climate and climate change

Introduction to climate and climate change - Definition and meaning; Climate change classification; Method of classification; General concept of environmental Science; Natural and manmade causes of climate change; Affects for climate change; Consequences risks and uncertainty of climate change; Climate system; Major predictions.

UNIT II: Greenhouse gases and global warming

Major greenhouse gases and sources; Global warming effect and causes, Responses to global warming; Different views on greenhouse gases and global warming natural resource management; Solid waste management; Biodiversity; Alternative livelihood security; Drought prone technologies.

UNIT III: Climate change Impacts

Impacts on biodiversity - wetland, forest, agriculture, transportation, coastal area, water resources; Global, National and regional impacts; Vulnerability assessment; Climate modelling.

UNIT IV: Climate change policy

Introduction; Various policies in India; National action plan; Sector specific policies and policies instruments; Environment impact assessment; Environment planning and management; Climate resilient technology.

UNIT V: Climate change communication

Introduction - definition, perspectives and importance; Engaging climate change communication; Audiences; Frames; Values and Norms.

UNIT VI: Visual communication on climate impacts and solutions Theories of perception; Classification and selection of visuals.

UNIT VII: Advocacy and communicating global climate action

National international advocacy groups and organisations; Strategies and programmes.

UNIT VIII: Role of stake holders

Media; Scientific Experts; Policymakers; and academic institutions on climate change communication.

PRACTICAL

- 1.- 4. Visit to Climate management organization to understand strategies and observe the impacts
5. Identification of climate management needs at home level and development of suitable technology- Apparel and textiles
6. Identification of climate management needs at home level and development of suitable technology- Food and Nutrition
7. Identification of climate management needs at home level and development of suitable technology- General health
8. Identification of climate management needs at home level and development of suitable technology- domestic appliances and arrangements
9. Identification of climate management needs and development of suitable technology- Children and senior citizens.
10. Identification of climate management needs and development of suitable technology- differently able
11. Preparation of climate communication media – print
12. Preparation of climate communication media – radio

13. Preparation of climate communication media – video
14. Preparation of climate communication media – blog/web writing
15. Exhibition on climate change management
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend climate change affects species, societies and ecosystems, and the consequences these changes can have on natural systems
- Have advanced knowledge about national and international climate policy, and its application
- Knowledge of how the society can transform energy production and use in a more environmentally friendly direction
- Advanced knowledge of strategies, actions and tools for adapting to climate change and reducing greenhouse gas emissions, nationally and globally
- Critically assess different sources of information, and use them to structure and develop an academic argument
- Identify climate management needs and prepare communication media products on versatile issues

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignment
- Field visit
- Product making
- Student's Book/Publication Review
- Students' presentation

REFERENCES

1. Gopal, B (2004) Global Warming and Climate Changes: Transparency and Accountability. 3 ISBN-10: 8182050782 ISBN-13: 978-8182050785
2. Kandarp, TP and Vaishnav (2018) Climate Change Solutions, Global Warming Solutions & Innovative Ideas for Construction of World Development. Notion Press; 1 edition ISBN-10: 1643241818 ISBN-13: 978-1643241814
3. Lenka, S and Lenka NK (2013) Climate Change and Natural Resources Management. New India Publishing Agency SBN-10: 9789381450673 ISBN-13: 9789381450673
4. Mark, M (2009) Global Warming: A Very Short Introduction. ISBN-10: 0199548242 ISBN-13: 978-0199548248 <http://envfor.nic.in/e-books>

5. Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries <https://unfccc.int/resource/docs/publications/impacts.pdf>
6. Mom, L and Pin, M (2010) Education Sector Responses to Climate Change Background Paper with International Examples. UNESCO Bangkok Asia and Pacific Regional Bureau for Education, Bangkok, Thailand.
7. Journal of Climate Change <https://www.iospress.nl/journal/journal-of-climate-change>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Basics of climate and climate change - Introduction to climate and climate change, Climate change classification, Method of classification.
2.	General concept of environmental Science, Natural and man made causes of climate change.
3.	Effects of climate change, Consequences, risks and uncertainty of climate change.
4.	Climate system, Major predictions.
5.	Greenhouse gases and Global Warming - Major greenhouse gases and sources. Global warming effect and causes, responses to global warming.
6.	Different views on Greenhouse gases and Global warming Natural Resource Management, Solid waste management.
7.	Biodiversity, Alternative livelihood security using drought prone technologies, Climate change Impacts - Impacts on Biodiversity - Wetland, Forest, Agriculture, Transportation.
8.	Coastal area, water resources, Global, National and regional impacts.
9.	Vulnerability assessment, Climate modeling, Climate Change Policy - Introduction, Various policies in India.
10.	National action plan, Sector specific policies and policies instruments.
11.	Environment impact assessment, Environment planning and management.
12.	Climate resilient technology, Climate Change Communication – Introduction, definition, perspectives and importance.
13.	Engaging Climate Communication, Audiences, Frames, Values and Norms.
14.	Visual Communication on Climate Impacts and Solutions - Theories of visual perception, Classification and selection of visuals.
15.	Advocacy and Communicating Global Climate Action -National international advocacy groups and organisations, Strategies and programmes, Role of stake holders – Media.
16.	Scientific Experts, Policymakers, Academic Institutions on climate change communication.

Credits: 2 (2+0)

Course No. EECM 512

Course Title: GENDER SENSITIZATION FOR EMPOWERMENT

RATIONALE

This course provides sensitivity among the students towards involvement of women in decision making processes in all aspects of economic, political, social and cultural life as active administrators, decision makers, participants and beneficiaries. It also provides skill to identify lapses in gender equity and equality like sex ratio, employment and wages, literacy and education and health. With this perspective they can play an active role in issues of national interest like gender budgeting, gender accounting and gender analysis frame work.

LEARNING OBJECTIVES

- To sensitize students towards gender perspectives and development, legal rights and using gender tools and methodologies
- To enhance students' capability for identifying and analyzing gender issues in family/home, community, agriculture and allied sector.

THEORY

UNIT I: Overview of gender

Concept; Meaning and related terms; Gender sensitization - concept, meaning and importance of gender sensitization; Gender and empowerment - meaning, definitions and need; Gender issues in home - community and organization.

UNIT II: Gender issues

Gender issues and challenges in development; Understanding gender and subordination of women; Gender as a development tool; Policy approaches for women development; Gender perspectives in development of women - roles, responsibilities, access and control over resources, constraints and opportunities.

UNIT III: Gender tool kit for assessment of gender empowerment

Gender budgeting and gender analysis framework - context, activities, resources and programme action profile; Concept of GDI, GEM, GSI; National and regional indicators.

UNIT IV: Gender issues and development

National policy for empowerment of women since independence; Interventions to enhance women's empowerment at individual; Community and national level; Livelihood implications of gender - health and nutrition, agriculture, violence, governance, education, media and legal issues.

PRACTICAL

1. Simulation role play to understand sex and gender, gender blind: gender aware: gender sensitive: gender equity.
2. Critical analysis of status of women in different sectors
3. Presentation of reports

4. Public speaking on Gender issues- Gender mainstreaming
5. Public speaking on Gender issues- Drudgery
6. Public speaking on Gender issues- Agriculture and allied sectors
7. Public speaking on Gender issues- Health and Nutrition
8. Public speaking on Gender issues- Business and Enterprise
9. Public speaking on Gender issues- Politics and Public administration
10. Preparation of case studies on selected issues/personalities
11. Gender sensitive interventions in SAUs and their objectives and frame work
12. Critical analysis of selected interventions and projects in operation
13. Preparation of report
14. Presentation of report
15. Critical review of Gender policy of GOI
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend gender issues and challenges for development
- Realise the need for modification of behavior by raising awareness of gender equality concerns
- Examine their personal attitudes and beliefs and questioning the 'realities' they thought they know
- Prepare themselves for public speaking on gender issues
- Analyse the gender sensitive interventions of SAUs

TEACHING METHODS / ACTIVITIES

- Participatory lectures
- Assignment
- Mock sessions
- Student's Book/Publication Review
- Student presentation

REFERENCES

1. Adriana, DS (2010) Gender Issues and International Legal Standards : Contemporary Perspectives. Publisher, Catania, Italy .
2. Grover I and Grover D (2002) Empowerment of Women. Agrotech Publ. Academy.
3. Sahoo RK and Tripathy SN (2006) SHG and Women Empowerment. Anmol Publ.
4. Sinha K (2000) Empowerment of Women in South Asia. Association of Management Development Institution in South Asia, Hyderabad.
5. Gender Budgeting Handbook for Government of India Ministries and Departments (2007) Ministry of Women and Child Development, GOI <http://wcd.nic.in/genderbudgeting>.

6. Measuring Women's Empowerment: An assessment of the Gender-related Development Index and the Gender Empowerment Measure www.tandfonline.com
7. A Toolkit for Women's Empowerment and Leadership in Health and Welfare http://www.who.int/kobe_centre/publications/womens_empowerment 2005.pdf
8. Indicators for Gender Equality and Women's Empowerment – An Introduction <http://www.oecd.org/development/gender-development/43041409.pdf>
9. Indian Journal of Gender Studies
10. International Journal of Gender and Women's Studies

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Overview of Gender - Concept, meaning and terminology.
2.	Gender sensitization - Concept, meaning and importance of gender sensitization.
3.	Gender and empowerment - meaning, definitions and need.
4.	Gender issues in home, community and organization.
5.	Gender issues - Gender issues and challenges in development.
6.	Understanding gender and subordination of women.
7.	Gender as a development tool, Policy approaches for women development.
8.	Gender perspectives in development of women - roles, responsibilities, Access and control over resources, constraints and opportunities.
9.	Gender tool kit for assessment of gender empowerment - Gender budgeting and gender analysis framework - context, activities, resources and programme action profile.
10.	Concept of GDI, GEM, GSI, International, National and Regional indicators.
11.	Gender issues and development - National Policy for empowerment of women since independence.
12.	Interventions to enhance women's empowerment and leadership at the individual level.
13.	Interventions to enhance women's empowerment and leadership at the community level.
14.	Interventions to enhance women's empowerment and leadership at the national level.
15.	Livelihood implications of gender, Health and nutrition, Agriculture, violence and governance.
16.	Education, media and legal issues.

Ph.D Community Science (Extension Education and Communication Management)

Course No	Course title	Credit Hours
EECM 601*	Managerial Skills for Extension Professionals	3 (2+1)
EECM 602	Impact Assessment of Development programmes	3 (1+2)
EECM 603*	Scaling Techniques for Behaviour Research	3 (1+2)
EECM 604	Design and Development of e-Extension Project	3 (0+3)
EECM 605	Sustainable Livelihood Systems	2 (1+1)
EECM 606	Extension Research Project Management	3 (1+2)
EECM 607	Media application and Product Promotion	4 (2+2)
EECM 608	Advocacy and Behavior Change Management	3 (1+2)
MINOR COURSES**		
FN 604	Global Nutrition Problems	2(2+0)
FN 608	Energy Metabolism	2(2+0)
HDFS 608	Qualitative research methods	3(2+1)
ATS 602	Technical Textiles	3(2+1)
ATS605	Functional Clothing	3(2+1)
ATS 607	Operational Management in Textiles and Apparel	2(2+0)
RMCS 603	Globalization and Consumer Economics	3 (2+1)
RMCS 606	Environmental Issues and Challenges	2 (2+0)
RMCS 607	Family Dynamics and Women Power	3 (2+1)
SUPPORTING COURSES Student can choose any course relevant to the research from other faculties of the University or from Swayam portal or online courses.		
EECM 691	Doctoral Seminar I (Optional Field)	1 (1+0)
EECM 692	Doctoral Seminar II (Core Field)	1 (1+0)
EECM 699	Research	75
	Total	100 Credits

*Compulsory core courses

COURSE CONTENT

Credits: 3 (2+1)

Course No. EECM 601

Course Title: MANAGERIAL SKILLS FOR EXTENSION PROFESSIONALS

RATIONALE

This course is a capsule programme for imparting competency skills among students in management process, to be professionals in delivery of extension services. The students explore the fundamental roles and processes of planning, leading, organizing and controlling that comprise the managers' role, while acquainting themselves with the basic concepts and processes of management. It focuses on the entire organization from both a short and long term perspective for strategic vision, setting objectives, crafting a strategy and then implementing it. This creates a demand for specialized extension support. This course will develop skills related to professional management practices as required in today's competitive environment.

LEARNING OBJECTIVES

- To orient to professional management perspective with special reference to modern management trends
- To motivate for learning professional management practices.

THEORY

UNIT I: Orientation to management

Concept; Process; Functions; Management problems in extension organizations; Managerial skill – definition, nature and importance; Skills for effective management of extension activities and organizations.

UNIT II: Theories of management

Scientific theory; Administrative theory; Bureaucratic theory; Human relations theory; Systems theory; X&Y theory.

UNIT III: Strategic planning

Importance; Steps and techniques; Concept of management by objective (MOB) as applicable to extension organizations; Techniques of transactional analysis for improving interpersonal communication.

UNIT IV: Contemporary professional management trends

Artificial intelligence (AI), Unified talent management (UTM); Self-directed micro learning (SDML); Personalisation; Design thinking; Augmented reality and virtual reality tools (AR&VR).

UNIT V: Creative problem solving techniques

Stress management practices; Total quality management (TQM); Team building and management; Concept of learning organization; Time management practices; Management of information system; Self-management techniques.

UNIT VI: Work motivation

Organizational climate; Resource management - concept and methods; Team building- process and strategies at organizational and village levels; Mobilization and empowerment skills; Concept and strategies in mobilization; Concretisation and empowerment of rural people.

PRACTICAL

1. Identification of professional management skills required for extension organisation through literature survey
2. Finalisation of major and specific professional management skills
3. Preparation of case studies of professional extension management professionals and visual presentation
4. Preparation of case studies of professional extension management professionals and visual presentation
5. Preparation of inventories for identification of professional skills\
6. Finalisation and presentation of inventories for identification of professional skills\
7. Execution of inventories- interviews with extension professionals in Government organisations
8. Execution of inventories- interviews with extension professionals in Government organisations
9. Execution of inventories- interviews with extension professionals in NonGovernment organisations
10. Execution of inventories- interviews with extension professionals in NonGovernment organisations
11. Compilation and analysis of data
12. Report writing and presentation of data with special reference input training for professional skills
13. Hands-on-training for selected professional skills
14. Hands-on-training for selected professional skills
15. Hands-on-training for selected professional skills
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend the fundamentals of management and managerial effectiveness
- Explore the required professional skills for extension managers
- Develop and execute inventories for measurement of extension professional skills
- Analyse and interpret the data to compare and contrast professional skills between Government and Non-Government extension professionals

- Practice certain professional skills

TEACHING METHODS/ ACTIVITIES

- Participatory lectures
- Assignment
- Simulation exercises
- Online group discussions
- Case study writing
- Student's Book/Publication Review
- Students' presentation

REFERENCES

1. Basford TE, Offermann and Lynn R (2012) Beyond Leadership: The Impact of Coworker Relationships on Employee Motivation and Intent to Stay. Journal of Management and Organization Vol. 18, No. 6.
2. Chitale AK, Rajendraprasad Nishith M and Dubey R (2012) Organizational Behaviour: Text and Cases. Prentice Hall India Learning Private Limited SBN10: 8120346963 ISBN-13: 978-8120346963.
3. Craig C and Pinder (2008) Work Motivation in Organizational Behavior. 2nd Edition .Psychology Press. ISBN-13: 978-0805856040 ISBN-10: 0805856048.
4. Prasad LM (2015) Principles and Practice of Management. Sultan Chand & Sons-New Delhi ISBN-10: 9351610500 ISBN-13: 978-9351610502
5. Rajan, G (2007) Marketing Management: Concepts, Cases, Challenges and Trends. 2nd Edition, Prentice Hall India Learning Private Limited, ISBN-10: 8120332598, ISBN-13: 978-8120332591..
6. Kumar Sanjeev and Dash MK (2011) Management education in India: Trends, issues and implications. Research Journal of International Studies. Issue 18 January, 2011.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Orientation to management - Concept of management, Process of management.
2.	Functions of management, Management problems in extension organizations.
3.	Managerial skill1 - nature and importance, Skills for effective management of extension activities and organizations.
4.	Theories of Management - Scientific Theory, Administrative Theory.
5.	Theories of Management - Bureaucratic Theory, Human Relations Theory.
6.	Theories of Management - Systems Theory, X&Y Theory.
7.	Strategic planning - Importance; Steps and techniques, Concept of management by objective (MOB) as applicable to extension organizations.

8.	Techniques of transactional analysis for improving interpersonal communication, Contemporary professional management trends - Artificial intelligence (AI).
9.	Unified talent management (UTM), Self directed micro learning (SDML).
10.	Personalisation, Design thinking.
11.	Augmented reality and virtual reality tools (AR&VR), Creative problem solving techniques - Stress management practices.
12.	Total quality management (TQM), Team building and management.
13.	Concept of learning organization, Time management practices.
14.	Management of information system, Self-management techniques.
15.	Work motivation - Organizational climate, Resource management - concept and methods.
16.	Team building - process and strategies at organizational and village levels, Mobilization and empowerment skills - concept and strategies in mobilizationConcretisation and empowerment of rural people.

Credits: 3 (1+2)

Course No. EECM 602

Course Title: IMPACT ASSESSMENT OF DEVELOPMENT PROGRAMMES

RATIONALE

Impact assessment is to weigh up the relevance and effectiveness of a project, programme or public policy in bringing about a desired change in the well-being of the target population. Further, it measures improvements in pre-defined indicators in the sector concerned that can be attributed to the development intervention. Hence this course contributes a research perspective of an evaluation when undertaken during a defined period subsequent to an intervention. It facilitates the use of techniques, that measure and compare the results achieved with what would have happened, if the project/programme intervention not taken place.

LEARNING OBJECTIVES

- To familiarise students with impact assessment procedures and provide skill in documentation
- To provide hands-on-experience for impact assessment of development programme.

THEORY

UNIT I: Orientation to development programme

Development issues and goals; National and International Perspectives - goals, strategies, structure and achievements.

UNIT II: Analysis of contemporary national development programmes

Public Health; Nutrition; Education; Environment; Employment; Income generation; Welfare; Marketing; Human Resource Development - objectives, clients, salient features, inputs, deliverables, outputs and outcomes.

UNIT III: Orientation to impact assessment

Sustainability impact; Social impact; Health impact; Environmental and institutional impact - frame works and element; Log frame analysis. UNIT IV: Impact identification and prediction, Identification techniques - checklist, matrices, networks, overlays, expert systems, professional judgements; Prediction methods - extrapolative-trend and scenario analysis, analogies; Intuitive forecasting from group consensus(Delphi technique); Normative methods - mathematical models, statistical models, field and laboratory experiment methods, physical models and expert judgement.

PRACTICAL

1. Documentation of exiting national and international development programmes and their objectives
2. Presentation and group discussion on developmental issues of each programme
3. Research review on development policy of India and developed countries
4. Presentation of comparative analysis
5. Preparation and presentation of case study on impact of Public Health programmes
6. Preparation and presentation of case study on impact of Nutrition programmes
7. Preparation and presentation of case study on impact of Education programmes
8. Preparation and presentation of case study on impact of Environment programmes
9. Preparation and presentation of case study on impact of Employment programmes
10. Preparation and presentation of case study on impact of Income generation programmes
11. Preparation and presentation of case study on impact of Welfare programmes
12. Preparation and presentation of case study on Marketing programmes
13. Consolidate report writing focusing on inputs, deliverables, outputs and outcome of every programmes and analysis of achievements and gaps.
14. Hands-on-experience on impact assessment – measurement of sustainability impact
15. Hands-on-experience on impact assessment – measurement of social impact
16. Hands-on-experience on impact assessment – Health impact
17. Hands-on-experience on impact assessment – Environment
18. Hands-on-experience on impact assessment – Long frame analysis
19. Hands-on-experience on impact assessment – Institutional impact
20. Hands-on-experience on impact identification techniques- Checklist
21. Hands-on-experience on impact identification techniques- Matrices
22. Hands-on-experience on impact identification techniques- Networks
23. Hands-on-experience on impact identification techniques- Overlays
24. Hands-on-experience on impact identification techniques- Expert systems

25. Hands-on-experience on impact identification and prediction techniques- Professional judgements
26. Hands-on-experience on impact prediction techniques- Trend and scenario analysis
27. Hands-on-experience on impact prediction techniques- Delphi technique
28. Hands-on-experience on impact prediction techniques- Statistical model
29. Hands-on-experience on impact prediction techniques-Field and laboratory experiment methods
30. Selection and planning for impact analysis development programme
31. Presentation and group discussion
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend the national and international perspectives of assessment of development programmes
- Review on development policy of India and developed countries
- Enlist and explain impact assessment and prediction techniques
- Write case studies on the impact of development programmes
- Apply impact assessment and prediction techniques, analyse and predict the results of the selected development programmes

TEACHING METHODS/ACTIVITIES

- Participatory lectures
- Assignment
- Research review
- Survey
- Case study writing
- Students' presentation
- Hands-on-training

REFERENCES

1. Anjaneyulu Y (2010) Environmental Impact Assessment Methodologies. BS Publication.
2. Arland T (2012) Knowledge and Beliefs about National Development and Developmental Hierarchies: the Viewpoints of Ordinary People in Thirteen Countries. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3462366/>
3. Fateh Azzam (2013) The Right to Development and Implementation of the Millennium Development Goals. <http://www.academia.edu>
4. E-Book of Ministry of Rural Development. <https://www.india.gov.in/download-e-bookministry-rural-development>
5. Mc Donnell Ida An International Perspective On Communication Strategies For The

Millennium Development Goals. <http://www.oecd.org/development>

6. Lincoln CC Nutrition in Developing Countries and the Role of International Agencies: In Search Of A Vision. <https://www.ncbi.nlm.nih.gov/books/NBK231298/>
7. Asian Development Bank (2018) Health Impact Assessment, Asian Bank Publication.
8. Impact Evaluation in Practice. Second Edition. World Bank Group and the InterAmerican Development Bank.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Orientation to development programme - Development issues and goals.
2.	National and international perspectives – goals and strategies.
3.	Structure and achievements.
4.	Analysis of contemporary national development programmes - Public health, nutrition, education and environment.
5.	Employment, income generation, welfare, marketing.
6.	Human Resource Development - Objectives, clients, salient features, inputs, deliverables, outputs and outcomes.
7.	Orientation to impact assessment - Sustainability impact assessment.
8.	Social impact assessment and health impact assessment.
9.	Environmental and institutional impact assessment - frame works and element.
10.	Log frame analysis.
11.	Impact identification and prediction of impact - Identification techniques - checklist, matrices, networks, overlays, expert systems, professional judgment.
12.	Prediction methods, extrapolative- trend and scenario analysis, analogies.
13.	Intuitive forecasting from group consensus (Delphi technique).
14.	Normative methods - Mathematical and statistical models.
15.	Field and laboratory and experiment methods.
16.	Physical models and expert judgment.

Credits: 3 (1+2)

Course No. EECM 603

Course Title: SCALING TECHNIQUES FOR BEHAVIOUR RESEARCH

RATIONALE

This course is highly essential for students undertaking social and behavioural research as it provides knowledge on developing scales for measuring attributes of objects and people.

Measurement is a process of mapping empirical phenomena by using system of numbers. Basically, the events or phenomena that researchers interested can be existed as domain. Measurement links the events in domain to events in another space which called range; which is nothing but consisting of scale. This enables researchers to interpret the data with quantitative conclusion which leads to more accurate and standardized outcomes, without which systematic and accurate interpretation of data is impossible.

LEARNING OBJECTIVES

- To familiarize students with scaling techniques and the development process for behaviour measurement
- To provide hands-on-experience in development of scale for behavior measurement.

THEORY

UNIT I: Introduction

Definition - scaling techniques and behaviour research; Need and importance; Attitude, Knowledge and Practice measurement techniques and relevance to behaviour research.

UNIT II: Structured techniques

Nominal; Ordinal; Interval; Ratio scales; Self rating scales- graphic rating scale; Itemized rating scales- likert scale, semantic differential scale, stapel's scale, multi-dimensional scaling, thurston scales, guttman scales/scalogram analysis and the q sort technique.

UNIT III: Non structured techniques

Projective - association, completion, construction, expressive, problems and promises; Word association; Sentence completion; Story completion and pictorial; Advantages and limitations for adoption in behaviour research.

UNIT IV: Knowledge and practice tests

Knowledge - objective multiple choice questions (MCQs); True/False Assertion - reason questions; Multiple response questions (MRQs); Text/Numerical matching ranking questions; Sequencing questions; Field simulation questions; Graphical hotspot questions; and Subjective tests; Practice - worksheets, performance metrics.

UNIT V: Scalability of techniques

Measurement of Reliability and Validity of scales.

PRACTICAL

1. Presentation of research review on need and importance of scaling techniques in behavior research
2. Review and presentation of research articles on different scaling techniques Self rating scales- Graphic Rating Scale
3. Review and presentation of research articles on different scaling techniques Itemised rating scales-Likert Scale

4. Review and presentation of research articles on different scaling techniques-Semantic Differential Scale
5. Review and presentation of research articles on different scaling techniques- Stapel's Scale
6. Review and presentation of research articles on different scaling techniques-Multi Dimensional Scale
7. Review and presentation of research articles on different scaling techniques-Thurston Scale
8. Review and presentation of research articles on different scaling techniques- Scalogram Analysis
9. Review and presentation of research articles on different scaling techniques-The Q Sort technique
10. Review and presentation of research articles on Projective techniques- association and sentence completion
11. Review and presentation of research articles on Projective techniques- Construction, and expressive
12. Review and presentation of research articles on Projective techniques- Problems and promises
13. Review and presentation of research articles on Projective techniques- Word association
14. Review and presentation of research articles on Projective techniques- Story completion and pictorial
15. Development of Self rating scales- Graphic Rating Scale
16. Execution and presentation of results
17. Development of Self rating scales- Likert Scale
18. Execution and presentation of results
19. Development of Self rating scales- Semantic Differential Scale
20. Execution and presentation of results
21. Development of Self rating scales- Stapel's Scale
22. Execution and presentation of results
23. Development of Self rating scales- Multi Dimensional Scale
24. Execution and presentation of results
25. Development of Self rating scales- Thurston Scale
26. Execution and presentation of results
27. Development of Self rating scales- Scalogram Analysis
28. Execution and presentation of results
29. Development of Self rating scales- Q sort technique
30. Execution and presentation of results
31. Hands-on-experience in writing research article on scale development
32. End term assessment

LEARNING OUTCOMES

After completion of this course the students will be able to:

- Recognize the importance of scaling techniques in social and behavioural research
- Define the nature and characteristic feature of each scale
- Review, interpret and present the results of each scale
- Develop and apply different scales and analyse the data for presentation
- Write research article based on the selected scale

TEACHING METHODS/ACTIVITIES

- Participatory lectures
- Assignment
- Research review
- Survey
- Case study writing
- Students' presentation
- Hands-on-training

REFERENCES

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7. John A and Swets Signal (2009) Detection Theory and ROC Analysis in Psychology and Diagnostics. Collected Papers www.questia.com/library
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11. Chapter 3: Levels Of Measurement and Scaling
<http://www.fao.org/docrep/w3241e/w3241e04.htm>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction - Definition - scaling techniques and behaviour research.
2.	Need and importance.
3.	Attitude, Knowledge and Practice measurement techniques and relevance to Behaviour research.
4.	Structured techniques - Nominal, Ordinal, Interval, Ratio scales.
5.	Self rating scales - Graphic Rating Scale.
6.	Itemized Rating Scales- Likert Scale, Semantic Differential Scale.
7.	Stapel's Scale, Multi-Dimensional Scaling, Thurston Scales.
8.	Guttman Scales/Scalogram Analysis and The Q Sort technique.
9.	Non structured techniques - Projective - association, completion, construction, expressive, problems and promises.
10.	Word association, sentence completion, story completion and pictorial.
11.	Advantages and limitations for adoption in behaviour research.
12.	Knowledge and Practice tests - Knowledge - Objective multiple choice questions (MCQs).
13.	True/False assertion - Reason questions multiple response questions (MRQs).
14.	Text/Numerical matching ranking questions, sequencing questions, field simulation questions, graphical hotspot questions and subjective tests.
15.	Practice - worksheets, performance metrics.
16.	Scalability of techniques - Measurement of reliability and validity.

Credits: 3 (0+3)

Course No. EECM 604

Course Title: DESIGN AND DEVELOPMENT OF E-EXTENSION PROJECT

RATIONALE

Keeping in view the extension service system under the National Agricultural Extension Policy, this course is planned to sensitise the students towards the need for ICT mediated extension services to ensure quality life in the sectors of health, nutrition, family and human relationships, which are

vital areas of community science. It is essential to gain digital communication skills to reach masses for knowledge empowerment by transferring research findings compatible to the situation and context. Hence this course guides the students in gaining comprehensive experience of Extension-Research-Education by exposing themselves to the existing e-extension projects of SAU and designing new projects.

LEARNING OBJECTIVES

- To orient students with design, development and analysis of e- extension projects ☐ To provide hands-on-experience in executing e-extension project.

PRACTICAL

1. Orientation to e-extension projects- Knowledge projects-mooc
2. Orientation to e-extension projects -Marketing projects- e choupla
3. Orientation to e-extension projects- Bulk SMS (Text and Voice) MMS
4. Orientation to e-extension projects- Video lessons
5. Orientation to e-extension projects-Virtual class rooms
6. Orientation to e-extension projects- Off line and Online Community Radio.
7. Interaction with personnel/professionals for understanding of media tools, hardware requirements of e-Extension projects
8. Interaction with personnel/professionals for understanding of media tools software requirements of e-Extension projects
9. Report writing and presentation
10. Identification of needs for skill development and proposal for skill training to undertake e-Extension project- application of software, access to hardware etc.
11. Orientation to existing e-Extension projects of respective SAUs
12. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
13. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
14. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
15. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
16. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
17. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
18. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
19. *Hands-on-experience in e- Extension projects of SAUs - content development, management and analytics report
20. Report writing and presentation

21. Selection of multimedia e-Extension project and submission of proposal- knowledge management, product promotion, message alerting, analytical reports, etc.(Example Digital literacy promotion, Audio/ Video streaming, Social media for product promotion)
22. Presentation of proposal
23. Content development and time lines for execution of project
24. -30. Execution of project and measurement of analytics as per time line
31. Report writing and presentation
32. Practical examination

*Placement in e- Extension projects of SAU/IDEA

LEARNING OUTCOMES

After completion of the course the students will be able to:

- Identify public and private e-extension projects in the discipline of community science
- Recognize essential skills for undertaking e-extension projects
- Gain first-hand experience in content writing, management and track analytical report
- Write e-extension project, execute and measure analytics as per timeline

TEACHING METHODS/ACTIVITIES

- Assignment
- Research review
- Group discussions
- Report writing
- Students' presentation
- Hands-on-training

REFERENCES

1. Martin, M. 2016 Editorial – Extension education theory and research in India. Pages 105109 www.tandfonline.com
2. Paul, E. McNamara and Joyous, S. 2015 Principles of Designing and Implementing Agricultural Extension Programs for Reducing Post-harvest Loss Agriculture 2015, 5, 1035-1046; doi:10.3390/agriculture5041035
3. Richard, F., Douglas, A., and Carolyn, W. 2003 National “e-Extension” Programs: Feasibility and Structure , American Agricultural Economics Association Annual Meeting, Montreal, Canad.
4. Ujjwal K, Abhay, K and Thakur PK (2012) Status of Agrictlural Development in Eastern India. Chapter 7.1 Status and Constraints of Extension Services <https://www.researchgate.net>
5. Volker H, Maria GB, Anja C and Mamusha L Handbook:Rural Extension Volume 1 Basic Issues and Concepts. Scientific books, Margraf Publishers, GmbH, ,

6. Government of India Planning Commission Report of the Working Group on Agricultural Extension for Agriculture and Allied Sectors for the Twelfth Five Year Plan(2012-17) <http://planningcommission.gov.in>
7. ICT Applications in Agricultural Extension Management. Report on USAID-INDIAAfghanistan Feed The Future India Triangular Training (FTF ITT) Programme on 'e-Extension' <http://www.manage.gov.in/ftf-itt/prgReports/afgan.pdf>

Credits: 2 (1+1)

Course No. EECM 605

Course Title: SUSTAINABLE LIVELIHOOD SYSTEMS

RATIONALE

Sustainable livelihood is a systemic and adaptive approach that links issues of poverty reduction, sustainability and empowerment processes. For this, the large scale success of sustainable livelihoods will depend on our ability to design sustainable technologies, sustainable enterprise, sustainable economies and sustainable institutions of governance. The attractiveness of Sustainable livelihoods lies in its applicability to different contexts, situations of uncertainty and in its capacity as a consultative and participatory process of ideas and strategies between various stakeholders. This course imparts students the link between livelihoods and security systems and interventions to address the gap.

LEARNING OBJECTIVES

- To develop understanding about resources and livelihood systems and dimensions for livelihood security
- To sensitize students towards tools and techniques for sustainable livelihood.

THEORY

UNIT I: Orientation to livelihood system

Livelihood perspectives - definition, approaches and frame works; Livelihoods and life support systems; Designing livelihood interventions; Process; Tools and technique.

UNIT II: Sustainable livelihood systems

Definition; Origin; Principles; Livelihoods - agriculture, horticulture, sericulture, forestry, animal husbandry, dairying, fisheries, non-farm activities; Urban livelihoods - linkage with food security, nutritional security, health security, livelihood security; Measuring sustainable livelihood systems.

UNIT III: Critical understanding of livelihood interventions

Intervention of national and international organisations - agriculture based, forest based, non-farm based, market-led based; DFID sustainable livelihoods framework - elements, vulnerability context, policies, institutions and processes, coping and adaptive strategies.

UNIT IV: Sustainable development concepts and challenges

Sustainable development concepts and challenges; Ecological; Social and economic dimensions of sustainable development; Peoples participation and sustainability; Indicators of environmental sustainability; Sustainable livelihoods; Quality of life.

UNIT V: Livelihood analysis tool kit

Operational model - tools, process; Gaps and challenges; Institutional issues; Participatory methods for analysis.

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Understand the history and evolution of the sustainable livelihoods approach
- Exercise the sustainable livelihoods framework to analyse the complexities and dynamics of poverty
- Apply and analyse sustainable livelihoods analysis tool kit in the field
- Plan projects from a Sustainable Livelihoods perspective

TEACHING METHODS AND ACTIVITIES

- Participatory lectures
- Field visits and interaction
- Assignment
- Demonstration
- Role play
- Presentation
- Research review

REFERENCES

1. Alan de B and Suryanarayana MH (2015) Linkages between poverty, food security and undernutrition: evidence from China and India. China Agricultural Economic Review. Vol. 7 Issue: 4, pp.655-667
2. Baumgartner R and Högger R (2004) In Search of Sustainable Livelihood, Managing Resources and Change, Sage publications, New Delhi.
3. Bijju MR (2008) Panchayati Raj System: Towards Sustainable Rural Livelihood and Development. Kanishka Publishers, Distributors ISBN-10: 9788184570557
4. Harishkumar HV (2012) Livelihood Security of Farm Households Under Different Farming Systems In Kolar District Of Karnataka – An Economic Analysis. University of Agricultural Sciences, Bangalore.
<http://krishikosh.egranth.ac.in/bitstream/1/89107/1/Thesis.pdf>
5. Scoones Ian (2015) Sustainable Livelihoods and Rural Development. Practical Action Publishing
6. Nadel (2007) Working with a Sustainable Livelihoods Approach. NADEL, Zurich, Bern: SDC. www.povertywellbeing.net
7. Premchander S and R Menon (2006) Engendering Development: Challenges and Opportunities for Mainstreaming Gender in Development Policy. In Premchander, S. & C. Mueller 2009 Gender and Sustainable Development: Case Studies from the NCCR North-South. Perspectives of the Swiss NCCR North-South, University of Bern. Vol. 2. Bern: Geographica Bernensia.

8. Livelihood Manual Integrated Watershed Management Programme (IWMP). 2012. Commissionrate of Rural Development. www.ruraldev.gujarat.gov.in
9. Food security: concepts and measurement. <http://www.fao.org/docrep/005/y4671e/y4671e06.htm>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Orientation to livelihood system - Livelihood perspectives –definition, approaches and frame works.
2.	Livelihoods and life support systems, Designing livelihood interventions.
3.	Process, Tools and technique.
4.	Sustainable livelihood systems - Definition, Origin, Principles.
5.	Livelihoods – Agriculture, Horticulture.
6.	Sericulture, Forestry.
7.	Animal husbandry, Dairying.
8.	Fisheries, Non-farm activities.
9.	Urban livelihoods, Linkage with food security.
10.	Nutritional security, health security.
11.	Livelihood security, Measuring sustainable livelihood systems.
12.	Critical understanding of livelihood interventions - Intervention of National and International organisations - agriculture based, Forest based livelihood interventions.
13.	Non-farm based livelihood interventions, Market-led based livelihood interventions.
14.	Sustainable development - concepts and challenges - Ecological factors, Social and economic dimensions of sustainable development.
15.	Peoples participation and sustainability, Indicators of environmental sustainability.
16.	Sustainable livelihood - indicators, Quality of life- indicators.

Credits: 3 (1+2)

Course No. EECM 606

Course Title: EXTENSION RESEARCH PROJECT MANAGEMENT

RATIONALE

Extension research projects are unique in nature as they call for interactivity with human beings to get timely feedback; thereby reconsider the gaps and restructure the strategy to cope up with the goals to be achieved. It is all together a scientific and methodical approach, where a researcher need to plan meticulously to impress upon stakeholders with a set of activities and milestones to be reached. Through this course the students would be engaged in observation of different dimensions of extension research project in terms of models, types, policy and management practices.

LEARNING OBJECTIVES

- To familiarize with different dimensions of extension research project management ☐ To provide investigative and analytical skills for extension research.

THEORY

UNIT I: Overview to extension research

Definition; Concepts; Models- linear, advisory, facilitation; Types - advisory services, value chains, supply chains, incubation centres, knowledge management; Market led extension; Demand driven extension; Enterprise extension; Mainstreaming extension.

UNIT II: Areas of extension research

Policy analysis; Gender issues; Public and private partnership; Product extension; Process extension; Behaviour change - health security, nutritional security, food security; Impact analysis - technology, training; Funding agencies and project proposal formats.

UNIT III: Research project management practices

Project charter and mission; Project life cycle; Project network diagram; Project progress / performance measures; Project resource loading; Project SOW (statement of work); Project WBS (work breakdown structure) – budgeting, cost benefit analysis, resource management; Risk breakdown structure; SWOT.

UNIT IV: Project management approaches and tools

Approaches - result oriented approach, constructivist approach, reflexive approach; Tools - PERT, CPM, GANNT.

PRACTICAL

1. Preparation and presentation of case study on linear model extension project
2. Preparation and presentation of case study on advisory model extension project
3. Preparation and presentation of case study on facilitation model extension project
4. Comparative analysis of different models of extension projects
5. Preparation and presentation of case study on advisory services

6. Preparation and presentation of case study on value chains
7. Preparation and presentation of case study on supply chains
8. Preparation and presentation of case study on incubation centers
9. Preparation and presentation of case study on knowledge management
10. Preparation and presentation of case study on market led extension
11. Preparation and presentation of case study on demand driven extension
12. Preparation and presentation of case study on enterprise extension
13. Preparation and presentation of case study on mainstreaming extension
14. Comparative analysis different extension projects
15. Identification of niche areas of extension research in Community Science discipline
16. Identification of organizations for extension research and presentation of organizational objectives
17. Critical analysis of formats for research project writing and presentation
18. Preparation of extension research project
19. Presentation of extension research project
20. Revising the project as per suggestions
21. Presentation of case study on Project Life Cycle
22. Presentation of case study on Project Network Diagram
23. Presentation of case study on Performance Measures
24. Presentation of case study on Project Resource Loading
25. Presentation of case study on Project SOW (statement of work)
26. Presentation of case study on Project WBS (work breakdown structure)
27. Presentation of case study on cost benefit analysis,
28. Presentation of case study on Risk Breakdown Structure;
29. Visit to existing extension research projects of SAU for observation
30. Report writing
31. Presentation of report
32. End term assessment

LEARNING OUTCOMES

After completion of the course the students will be able to

- Comprehend existing extension research models and types
- Analyse and write case studies on extension research projects focusing management practices
- Identify niche areas of research in the discipline of community science
- Recognise supporting organisations for writing extension research projects and write project
- Present case study on SAUs extension research projects

TEACHING METHODS/ACTIVITIES

- Assignment
- Research review
- Group discussions
- Report writing
- Students' presentation
- Institutional visits

REFERENCES

1. Anandajayasekaram P, Puskur R, SinduW and Hoekstra, D (2008) Concepts and Practices in Agricultural Extension in Developing Countries: A Source Book. IFPRI, Washington, DC, USA.
2. Annie SW and Merle F (2014) Background Paper: Research and Development and Extension Services in Agriculture and Food Security. ADB Economics Working Paper Series, Asian Development Bank ISSN 1655-5252 Publication Stock No. WPS147021-3.
3. Burton E Swanson and Riikka R (2010) Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems Agriculture and Rural Development, Discussion Paper 45, The International Bank for Reconstruction and Development, The World Bank, NW Washington, DC.
4. Dennis PM (2010) Building a Project Work Breakdown Structure: Visualizing Objectives, Deliverables, Activities, and Schedules. ESI International Project Management Series, 1st Edition Auerbach Publications ISBN 9781420069693.
5. Singh KM and Meena MS and Swanson BE (2013) Extension in India by Public Sector Institutions: An Overview. ICAR-RCER, Zonal Project Directorate, Jodhpur, Patna, University of Illinois.
6. Michelle JR, Jane MA, Anne-Maree S, Enly S and Helen T (2009) Can agricultural research and extension be used to challenge the processes of exclusion and marginalisation? <http://iari.res.in>
7. Ralf M and Jonas S (2014) Innovative Approaches in Project Management Research. International Journal of Project Management. 33(2) November 2014.
8. Rodne JT, Martina H, Frank T Anbari, Christophe NB (2010) Perspectives on Projects. Routledge Publishers, ISBN1135848831, 9781135848835.
9. Managing Projects with Openess Part 3. Document No.16004, Version 1.5 <https://idpasc.lip.pt>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Overview to Extension research - Definition and Models - linear, advisory, facilitation.
2.	Advisory services, value chains, supply chains, incubation centres and knowledge management.
3.	Types -market led extension, demand driven extension, enterprise extension
	Mainstreaming extension.
4.	Areas of extension research - Policy analysis, gender issues, public and private partnership, product extension, process extension, behaviour change-health security, nutrition security and food security.
5.	Impact analysis - Technology and training funding agencies and project proposal formats.
6.	Research project management practices – project charter and mission.
7.	Project Life Cycle, Project Network Diagram.
8.	Project progress / performance measures, project resource loading.
9.	Project SOW (statement of work).
10.	Project WBS (work breakdown structure)- budgeting.
11.	Cost benefit analysis, resource management.
12.	Risk Breakdown Structure; SWOT.
13.	Project management approaches and tools - Approaches - Result oriented approach.
14.	Constructivist approach.
15.	Reflexive approach.
16.	Tools - PERT, CPM, GANNT.

Credits: 4 (2+2)**Course No. EECM 607****Course Title: MEDIA APPLICATION AND PRODUCT PROMOTION****RATIONALE**

Media has the capability of promoting products. Also, media as product and application has potential role in enhancing learning. But, technology alone cannot improve teaching and learning. It must be deeply integrated with subject matter content. Therefore there is a need for a technique within which the learners can meet their needs to learn how to think, their need to develop, their ideas and apply what they learn to solve problems. This calls for active participation of the students and lead to get engaged in critical thinking and problem solving skills. Beyond this,

as change agents in future endeavours, they need to be convinced for timely updation of media knowledge, because, in today's world information tracking is totally media based.

LEARNING OBJECTIVES

- To familiarize students with media applications and interpretation of online analytics due to dissemination
- To provide hands-on-experience in preparation of multimedia products for promotion.

THEORY

UNIT I: Introduction to media applications

Internet media and globalization - concepts and theories; Technology and culture - debates, regulation, gatekeeping and ethics-case studies.

UNIT II: Corporate online promotional strategies

Advertising and marketing; Public communication campaigns and global humanitarianism; Multiplatform journalism; Transnational citizen journalism; Grassroots activism and change.

UNIT III: Media prospects of mass communication

Historical development and economic; Social and aesthetic impact on mass culture; Individual and mass consciousness. UNIT IV: Audience research

Definitions; Principles and features; Scope; BARC (Broad Cast Audience Research Council) India; Data management techniques and tools.

UNIT V: Software access

Advanced new media; Design and edit software; Open and purchase sources; Application regulations; Ethics.

UNIT VI: Product promotion

Search Engine Optimization; Social Media Marketing; E-mail marketing - creation, marketing campaign planning, development and execution; Research.

UNIT VII: Social media platforms

Types; Optimization; Product page creation; Analytics.

UNIT VIII: Social networking

SNS(Social Networking Sites) in India; Advantages and limitations; Critical analysis of role of SNS in mass communication.

UNIT IX: Introduction to SEO

Targeting key words; Integrating search keywords; Search engines and directories; Page wise optimization process; Page title tags; META Description tag; META keywords Tag. UNIT X: Reports

Variables; Time line; Report access protocol; Documentation.

PRACTICAL

1. Identify and suggest the suitable keywords for a product
2. Adding keywords to website and blogs
3. Preparing Search Engine Optimization (SEO) friendly content for product website
4. Demonstration to get website listed among top Search in (SEO)
5. Demonstration on off page and on page in SEO
6. Identifying best practices for Social Media Marketing, including platform level best practices
7. Connecting product objectives to appropriate Social Media tactics
8. Creating strong content to engage target audience with marketing message
9. Creating events to manage content distribution
10. Creating Social Media policies that combine business objectives with appropriate use of social media channels and content
11. Creating Fan Pages in Social media platforms
12. Hands-on-experience- learning targeting right audience
13. Hands-on-experience on process of running Facebook ads
14. Creating engaging post and creating brand for business
15. Creating channel on YouTube
16. Updating the profile on YouTube Channel
17. Understanding the Creator Studio of YouTube
18. Types of videos and different platforms of video creation
19. Creating videos- Hands-on-Experience
20. Creating videos- Hands-on-Experience
21. Uploading videos on YouTube
22. Practicing SEO of YouTube
23. Hands-on-experience on Page title tags
24. Hands-on-experience on META Description Tag
25. Hands-on-experience on META Keywords Tag
26. Promotion of videos
27. Promotion of product on YouTube
28. Online orientation to email marketing for product promotion.
29. Hands-on-experience on email marketing for product promotion.
30. Review of analytics of product promotion
31. Presentation of multimedia practice experience
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to:

- Comprehend online and offline media applications
- Recognise effective product promotion platforms
- Write SEO friendly online content for product promotion
- Review analytics of product promotion
- Organise email marketing

TEACHING METHODS/ACTIVITIES

- Participatory lectures
- Assignment
- Student's Book/Publication Review
- Practice sessions
- Media development and transmission
- Students' presentation

REFERENCES

1. Dave C and Smith (2017) Digital Marketing Excellence. Taylor & Francis ISBN10: 1138494232 ISBN-13: 978-1138494237.
2. Godse and Godse (2015) Graphics and Multimedia for ANNA University. (V-IT-2013 course) Technical Publications, Third edition ISBN-10: 9333202099 ISBN-13: 9789333202091.
3. Klara N and Ralf S (2012) Multimedia Applications.Springer-verlag Gmbh ISBN: 9783642074103, 3642074103.
4. Marshall S and Gohar Khan F (2017) Digital Analytics for Marketing. Routledge Edition. ISBN-10: 1138190683 ISBN-13: 978-1138190689.
5. Shajahan (2010) Strategic Marketing : Text and Cases Viva Books. ISBN10: 8130912694 ISBN-13: 978-8130912691.
6. Simon K (2010) Digital Marketing Strategy: An Integrated Approach to Online Marketing. ISBN-10: 0749484225 ISBN-13: 978-0749484224.
7. Convergence in Indian Media: a New Paradigm of ICT www.researchgate.net/publication

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction to media applications - Internet media and globalization - concepts and theories, Technology and culture - debates, regulation, gatekeeping and ethics-case studies.
2.	Corporate online promotional strategies - Advertising and marketing, public communication campaigns and global humanitarianism, Multiplatform journalism, transnational citizen journalism, grassroots activism and change.

3.	Media prospects of mass communication - Historical development and economic, social and aesthetic impact on mass culture, Individual and mass consciousness.
4.	Audience research - Definitions, Principles and features, Scope, BARC (Broad Cast Audience Research Council) India.
5.	Data management techniques and tools, Software access - Advanced new media.
6.	Design and Edit software, Open and purchase sources.
7.	Application regulations and Ethics, Product promotion - Search Engine Optimization.
8.	Social Media Marketing, E-mail marketing - Creation, Marketing campaign planning, development and execution.
9.	Research perspectives in product promotion, Social media platforms - Types of Social media platforms.
10.	Optimization of SM, Product page creation.
11.	Analytics of SM, Social networking - SNS (Social Networking Sites) in India.
12.	Advantages and limitations, Critical analysis of role of SNS in mass communication.
13.	Introduction to SEO (Search Engine Optimization) - Targeting key words, Integrating search keywords.
14.	Search engines and directories, Page wise optimization process.
15.	Page title tags - META Description Tag, META Keywords Tag, Reports - Variables, Time line.
16.	Report access protocol, documentation.

Credits: 3 (1+2)

Course No. EECM 608

Course Title: ADVOCACY AND BEHAVIOR CHANGE MANAGEMENT

RATIONALE

The holistic objective of the discipline of extension education and communication management is sustainable behaviour change of human beings. Whether organisations or individuals working towards this end believe that social and behavior change communication is key to solving the world's most pressing health and social problems, while advocacy strategies are an important aspect of behaviour change in terms of changing the enabling environment. This course exposes students to logical thinking in planning behaviour change communication programme.

LEARNING OBJECTIVES

- To familiarise students with the role of advocacy and behavior change management for human development
- To provide contrived experience in application of advocacy and BCC approaches.

THEORY

UNIT I: Advocacy

Meaning; Purpose and types of Advocacy; Tools; Techniques and approaches of advocacy; Elements of an advocacy strategy.

UNIT II: Advocacy planning cycle

Planning advocacy campaigns for different stakeholders relationship between advocacy and development; Programme communication and social mobilization; Social marketing- models and approaches.

UNIT III: Behaviour change communication

Concept; Approaches of BCC - functional approach, information processing approach, consistency approach, behaviour modification approach, health belief model and the bj fogg model of behavior change; Role of learning theories - social cognitive theory, theories of reasoned action and planned behaviour, trans theoretical model of behavior change.

UNIT IV: Processes of behaviour change

Strategic issues and BCC (Health/ Environment/ Consumption); Analysis of BCC campaigns for social mobilization and policy change; BCC campaigns in core areas for stakeholders.

UNIT V: Evidences of behaviour change

Global programs- evidences of WASH communication, HIV/AIDS communication, obesity communication, diabetic communication, concept of green marketing and cause marketing.

PRACTICAL

1. Interaction with Advocacy personnel to comprehend the advocacy approaches- working with HIV/AIDS patients
2. Interaction with Advocacy personnel- working with drug/alcohol addicts
3. Interaction with Advocacy personnel- Family/ Marriage issues
4. Interaction with Advocacy personnel- working with mentally challenged children
5. Preparation and presentation of report
6. Review of research on BCC approaches- Functional approach
7. Review of research on BCC approaches- Information processing approach
8. Review of research on BCC approaches- Consistency approach
9. Review of research on BCC approaches- Behavior modification approach
10. Review of research on BCC approaches- Health Belief model
11. Review of research on BCC approaches-BJ Fogg model of behavior change.
12. Report writing and presentation
13. Case study on Social marketing in India

14. Identification of Niche research in BCC
15. Presentation of researchable issues in BCC
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the students will be able to

- Comprehend the perspectives of advocacy and behaviour change communication
- Explain the theories of BCC and their application in real world
- Review different BCC approaches and prepare case study
- Identify niche research and researchable issues in BCC
- Sensitise towards working with special groups

TEACHING METHODS/ACTIVITIES

- Participatory lecture
- Online group discussions
- Blog writing
- Research review
- Case study writing and presentation
- Institutional visits

REFERENCES

1. Alan C (2014) An Introduction to Social Media Marketing. Routledge Publishers, ISBN10: 9780415856171 ISBN-13: 978-0415856171.
2. Annette G and Claire B(2013) Advocacy and Policy Change Evaluation: Theory and Practice. 1st Edition, ISBN-13: 978-0804792561 ISBN-10: 0804792569
3. John AD (2013) Advocacy: Championing Ideas and Influencing Others. 1st Edition, ISBN-13: 978-0300188134 ISBN-10: 0300188137.
4. Nancy R Lee and Philip Kotler (2011) Social Marketing: Influencing Behaviors for Good. Fourth Edition, ISBN-13: 978-1412981491 ISBN-10: 9781412981491.
5. McKee Neill, Antje BB and Emily B (2014) Social and Behavior Change Communication. <https://doi.org/10.1002/9781118505328.ch17>
6. Kotler Philip (2014) Social Marketing –Strategies for Public Behaviour. Routledge Publishers, ISBN-10: 9780415856171 ISBN-13: 978-0415856171.
7. Sameer D and Nancy RL (2014) Social Marketing in India. Sage Publications, SBN: 9788132113577.
8. Guidelines for Developing Behavioural Change Interventions in the Context of Avian Influenza Health Promotion and Education (HPE). Department of Non-communicable Diseases and Mental Health World Health Organization, <http://apps.searo.who.int>
9. Strategic Communication - For Behaviour and Social Change In South Asia (2005) The United Nations Children's Fund (UNICEF) Regional Office for South Asia.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Advocacy - Meaning and definition of advocacy, Significance of advocacy in community sciences, Purpose and types of advocacy
2.	Tools and techniques of advocacy, Approaches of advocacy
3.	Elements of an advocacy strategy, Advocacy research and dimensions
4.	Advocacy Planning Cycle - Planning advocacy campaigns for different Stakeholders, Relationship between advocacy and development, Critical analysis of Programme communication and social mobilization
5.	Social marketing models and approaches, Critical analysis of Social marketing.
6.	Research perspectives of advocacy planning cycle, Behaviour Change Communication - Concept of BCC and evolution
7.	Approaches of BCC - Functional approach, Information processing approach
8.	Consistency approach, Behaviour modification approach
9.	Health Belief model, BJ Fogg model of behavior change
10.	Role of learning Theories - social cognitive theory, Theories of reasoned action and planned behavior
11.	Trans theoretical model of behavior change, Comparative analysis of different models
12.	Processes of Behaviour Change - Strategic issues and BCC – Health, Environment and Consumption, Analysis of BCC campaigns for social mobilization and policy change
13.	BCC campaigns in core areas for stakeholders, Stages of behavior change
14.	Designing behavior change programme- Steps and outcome, Evidences of behaviour change-Global programs - Evidences of WASH communication
15.	Evidences of HIV/AIDS communication, Evidences of obesity communication
16.	Evidences of Diabetic communication, Concept of Green marketing and cause marketing

Master's course programme (session 2022-23)
Department of Food and Nutrition
College of Community Science, SKRAU, Bikaner

M.Sc. Community Science (Food and Nutrition)

Course No	Course Title	Credit Hours
MAJOR COURSES (12 Credits)		
FN 501*	Macro & MicroNutrient in Human Nutrition	3(3+0)
FN 502*	Public Health and Nutrition	3(2+1)
FN 503*	Techniques in Food Analysis	3(1+2)
FN 504	Diet Therapy	3(2+1)
FN 505	Nutrition and Physical Fitness	3(2+1)
FN 506	Development in Nutrition and Immunity	2(2+0)
FN 507	Clinical Nutrition	3(2+1)
FN 508	Nutrition Counselling	2(0+2)
FN 509	Food Safety and Standards	3(2+1)
FN 510	Nutritional Challenges in Life Cycle	3(3+0)
FN 511	Food Science	3(2+1)
FN 512	Food Processing Technology	3(2+1)
FN 513	Human Physiology	3(3+0)
FN 514	Institutional Food Service Management	2(1+1)
Minor Courses (08 Credits)		
	Food Science and Technology	3(2+1)
	Food Biochemistry	3(2+1)
	Nutritional Biochemistry	3(2+1)
	Food Microbiology	3(2+1)
EECM 504	Technology Transfer and Management	3 (1+2)
EECM 505	Dynamic Communication Skills	3 (1+2)
SUPPORTING COURSES (06 Credits).		

	Research Methodology	3(2+1)
	Statistical Methods and Application	
COMMON COURSES(05 CREDITS)		
	Library and Information Services	1(0+1)
	Technical Writing and Communication Skills	1(0+1)
	Intellectual Property and Its Management in Agriculture	1(0+1)
	Basic Concepts in Laboratory Technique	1(0+1)
	Agricultural Research, Research Ethics and Rural Development Programmes	1(0+1)
FN 591	Seminar	1(0+1)
FN 599	Thesis/Research	30
	Total	70 credits

COURSE CONTENT

Credits: 3(3+0)

Course No. FN 501

Course Title: MACRO AND MICRO NUTRIENTS IN HUMAN NUTRITION

RATIONALE

Proper nutrition is the crux of human health along with safe water, sanitation, immunization etc. Adequate knowledge about this core course on macro and micronutrients in totality will enable the students to handle the nutrition situations of a population and how to imply the knowledge for sustainable handling to induce better health and productivity. Therefore, the necessity lies in this core course.

LEARNING OBJECTIVES

- To provide in depth understanding related to macro and micro nutrients.
- To impart knowledge about specific requirements of these nutrients as per age, sex, physiological condition, functions, metabolism sources, deficiency parameters for meaningful handling of normal and problem stricken situations.

THEORY

UNIT I: Carbohydrates

Body composition; Functions, sources, requirements, digestion and absorption of carbohydrates. Composition, classification and functions of dietary fibre; Role of dietary fibre, resistant starch and fructo-oligosaccharides in various physiological disorders; Glycemic response to carbohydrates.

UNIT II: Proteins

Classification, functions, sources, digestion and absorption of proteins; Synthesis of non-essential amino acids in the body; Urea cycle; Protein quality; Relationship between energy and protein requirements; Regulation of food intake; Nutrient adaptation to low intake of energy and protein.

UNIT III: Fats

Classification, functions, sources, digestion, absorption and deficiency disorders of lipids and essential fatty acids; Role of omega-3 and omega 6 fatty acids in physiological disorders.

UNIT IV: Vitamins, minerals and water

Functions, absorption, requirement, sources, deficiency and toxicity of fat-soluble vitamins - A, D, E and K and water-soluble vitamins- thiamine, riboflavin, niacin, pyridoxine, folate, B₁₂, ascorbic acid, pantothenic acid, biotin and amygdalin; Functions, absorption, requirement, sources, deficiency and toxicity of macro minerals – calcium and phosphorus and micro minerals – iron, zinc, sodium, copper, cobalt, selenium and chromium; Water and electrolyte balance, functions and distribution of water in body, Electrolyte composition of body fluids and electrolyte balance.

LEARNING OUTCOMES

Completion of this course will help the students to

- Acquire advanced knowledge in macro and micronutrients
- Understand specific nutrient related situations in population
- Apply the techniques as per the demand of the human nutritional profile.
- Utilize the learning techniques in population education/publication

TEACHING METHODS/ ACTIVITIES

- Lectures
- Assignment (Reading/Writing)
- Group discussion
- Student presentation

REFERENCES

1. Wildman REC and Medeiros DM (2000) *Advanced Human Nutrition*. CRC Press, Boca Raton, Florida.
2. Bamji MS, Rao NP and Reddy V (2003) *Textbook of Human Nutrition*. 2nd Edition, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
3. Eastwood MA (1997) *Principles of Human Nutrition*. London ; Chapman & Hall.
4. FAO (2004) *Human Energy Requirements -Report of a Joint FAO/WHO/UNU Expert Consultation*. Technical Report Series 1. Food and Agriculture Organization, Geneva.
5. FAO (2007) *Protein and Amino Acid Requirements -Report of a Joint FAO/WHO/UNU Expert Consultation*. Technical Report Series 1. Food and Agriculture Organization, Rome.
6. Berdanier, CD and Zempleni, J (2009) *Advanced Nutrition: Macronutrients, Micronutrients and Metabolism*. CRC Press, New York.
7. Groff J L and Gropper S (2012) *Advanced Nutrition and Human Metabolism*. 7th Edition, Yolanda Cossio, New York.
8. Summathi S (2017) *Food Chemistry and Nutrition*. BS Publication, Hyderabad.
9. Ross A C, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012) *Modern Nutrition in Health and Disease*. 11th Edition, LWW, Philadelphia.
10. Whitney EN & Rolfels CR (2019) *Understanding Nutrition*. 15th Ed., West Publishing Company, USA.

11. Stipanuk MH and Caudill MA (2013) *Biochemical, Physiological and Molecular Aspects of Human Nutrition*. 3rd Edition, Elsevier Pub.
12. <https://www.nutritionintl.org>
13. <https://www.who.int>
14. <https://www.hsph.harvard.edu/nutritionsource>
15. <http://www.nin.res.in>

Credits: 3(2+1)

Course No. FN 502

Course Title: PUBLIC HEALTH AND NUTRITION

RATIONALE

This core course on public health nutrition will enable the students with the knowledge in assessment of prevailing nutritional situations of a community across age- sex- physiological conditions. Furthermore, opportunities in analysing Public Health consequences in in-situ conditions will empower the students in planning, executing and evaluating the health and nutrition related development schemes of GOs, NGOs and allied bodies to suggest remedial pathways.

LEARNING OBJECTIVES

- To provide both theory and practical exposure to the students on the subject of Public Health Nutrition
- To make them skilled in management of adequate nutritional statuses of the population conducive to National Development.

THEORY

UNIT I:Nutritional status assessment

Assessment of nutritional status at individual, household and institutional level: direct and indirect methods; Ecological, socio-cultural, economic and demographic correlations of malnutrition.

UNIT II:Nutritional deficiencies and life style disorders

Prevalence, aetiology, biochemical and metabolic changes in protein energy malnutrition, vitamin A deficiency, iron deficiency anaemia, iodine deficiency disorders, diabetes mellitus, cancer, hypertension and other life style disorders.

UNIT III:Present scenario of nutritional problems

Major nutritional problems of the state, nation and world; Nutrition intervention- definition, importance, methods of nutrition intervention, monitoring and evaluation; E-surveillance.

UNIT IV: Nutritional programmes and policies

National nutritional programmes and policies and nutritional surveillance; National programmes and policies regarding food production and distribution.

PRACTICALS

- Techniques of assessment of nutritional status
- Use of Screening Tools
- Visit to the ongoing public health nutrition programme and report writing.

- Study of existing diet and nutrition practices
- Planning and conducting survey
- analysing data and writing report
- Development, implementation and evaluation of community nutrition and health programmes

LEARNING OUTCOMES

Completion of this course will enable the students to take responsibilities as:

- Nutrition educator
- Health educator
- Extension worker for situational analysis of prevailing public health nutritional problems for cultural adaptation strategies.
- Planner and executor of developmental schemes
- Applied researcher

TEACHING METHODS/ ACTIVITIES

- Lectures
- Assignment (Writing /Reading)
- Students' presentation
- Group activities
- On field case identification and analysis
- Project planning and report writing

REFERENCES

1. Jelliffe DB (1966)*The Assessment of the Nutritional Status of the Community*. WHO, Geneva.
2. Endres JB (1990)*Community Nutrition Challenges and Opportunities*. Pearson Education Inc. London.
3. Park JE and Park K (2007)*Park's Text Book of Preventive and Social Medicine*. 19th Edition, Banarsidas Bhanot Publishers, Jabalpur.
4. Frank G C (2008)*Nutrition: Applying Epidemiology to Contemporary Practice*. 2nd Edition, Jonts and Bartlett Publishers, Sadbury, MA.
5. Longwah T, Ananthan R, Bhaskarachary, K and Venkalah K (2017)*Indian Food Composition Tables*. National Institute of Nutrition, Hyderabad.
6. Rosalind S Gibson (2005)*Principles of Nutritional Assessment*. 2nd Edition, Oxford University Press Inc.
7. [Marie AB](#) and [David HH](#) (2012)*Community Nutrition in Action: An Entrepreneurial Approach*, Cengage Learning Inc. USA.
8. Suryatapa Das (2018)*Textbook of Community Nutrition*. 3rd Edn., Academic Publishers.
9. [Prabha, B](#) (2017)*Community Nutrition in India*. 1st Edition, Star Publications, Agra.
10. [Salil S and Rita SR](#) (2007)*Textbook of Community Nutrition*. ICAR publication, New Delhi.
11. Bamji MS, Kamala K and Brhmam GNV (2017)*Textbook of Human Nutrition*. 4th Edition, Oxford & IBH.
12. Jeannette, BE (1990)*Community Nutrition: Challenges and Opportunities*. 1st Edition, Merrill.
13. Gopaldas, T and Seshadari S (1987)*Nutrition Monitoring and Assessment*. Oxford University Press.
14. McLaren DS (1977)*Nutrition in the Community*. John Wiley & Sons.
15. Park JE and Park K (2017)*Park's Textbook of Preventive and Social Medicine*. Banarsidas Bhanot Publ.

16. Shukla PK(1982)*Nutritional Problems of India*. Prentice Hall of India.
17. Endres JB (1990)*Community Nutrition Challenges and Opportunities*. Pearson Education Inc. London.
18. <https://www.india.gov.in/agriculture>
19. <https://mhrd.gov.in/mid-day-meal>
20. <https://www.harvestplus.org>
21. <https://www.icmr.nic.in/>

Credits: 3 (1+2)

Course No: FN 503

Course Title: TECHNIQUES IN FOOD ANALYSIS

RATIONALE

Food analysis is the discipline that deals with the development, application and study of analytical procedures for characterizing the properties of foods and their constituents. It provides analytical data on the quality of a food or product.

LEARNING OBJECTIVES

- To provide the students an opportunity to develop precision with the principles, techniques and application of different methods analysis for varied food and products
- To equip the students with knowledge to ascertain quality of the tested food/ products.

THEORY

UNIT I: Sampling techniques

Preparation of various standard solutions; Sample and sampling techniques; Introduction to standard analytical methods of FSSAI.

UNIT II: Analytical techniques

Principle, techniques and applications of colorimeter, spectrophotometer and atomic absorption spectrophotometer, gel filtration and ultra-centrifugation.

UNIT III: Photometric methods and electrophoresis

Principle, techniques and applications of fluorimetry, flame photometry and electrophoresis.

UNIT IV: Chromatography

Principle, techniques and applications of paper, thin layer, gas liquid and high-pressure liquid chromatography, introduction to animal assay.

PRACTICALS

- Principles and operation of laboratory equipment
- Determination of moisture content and titratable acidity
- Determination of ash- dry and wet ash
- Determination of reducing sugars and total sugars
- Analysis of protein- Kjeldhal method
- Analysis of amino acids- HPLC

- Analysis of fat - Soxhlet method, Cold extraction method
- Determination of peroxide value and iodine value
- Analysis of crude fibre. Analysis of minerals- sodium and potassium
- Analysis of iron, copper, zinc and lead. Absorption spectrophotometry
- Analysis of phosphorus- Colorimeter method
- Analysis of vitamin C
- Estimation of carotene. Experiments on gel electrophoresis

LEARNING OUTCOMES

Successful completion of this course will enable the students to:

- Utilize the methods and tools to cater the needs of food analysis
- Guide the process of quality control
- Act as trained food analyst

TEACHING METHODS/ ACTIVITIES

- Lectures
- Assignment (Writing /Reading)
- Group activities
- Hands on training

REFERENCES

1. Sawhney SK and Singh R (2000)*Introductory Practical Biochemistry*. Narosa Publishing House, New Delhi.
2. Kalia M (2002)*Food Analysis and Quality Control*. Kalyani Publishers, New Delhi.
3. Raghuramulu N, Mahavan and Kalyanasundaram, SK(2003)*A Manual of Laboratory Techniques*. 2nd Edition, NIN Press, Hyderabad.
4. Wood R, Foster L, Damand A and Key P (2004)*Analytical Methods for Food Additives*. CRC Press, London.
5. Sadasivam A and Manickam A (2004)*Biochemical Methods*. 2nd Edition, New Age International Publishers, New Delhi.
6. Veerakumar L (2006)*Bio-instrumentation*. MIP Publishers. Chennai.
7. AOAC International (2016)*AOAC Official Methods of Analysis*. 20th Edition, Association of Official Analytical Chemists. Washington DC.
8. AOAC (1995)*Association of Official Analytical Chemists*. Washington, DC. Gruenwedels DW & Whitakor JR (1984)*Food Analysis: Principles and Techniques*. Vols. I-VIII. Marcel Dekker.
9. Joslyn MA(1970)*Methods in Food Analysis: Physical, Chemical and Instrumental Methods of Analysis*. Academic Press.
10. Pomeranz Y & Molean CE (1977)*Food Analysis Theory and Practice*. AVI Publ.
11. Dennis D Miller (1998)*Food Chemistry: A Laboratory Manual*. John Wiley and Sons Indianapolis.
12. Neilsen SS (2002)*Introduction to Chemical Analysis of Foods*. 1st Ed., J S Offset Printers, Delhi.
13. Neilsen SS (2010)*Food Analysis*. 4th Ed., ISBN 978-1-4419-1478-1 Springer Science+ Business Media, LLC, USA.

14. <https://www.fssai.gov.in>

15. <http://www.fda.gov/food/default.htm>

Credits: 3 (2+1)

Course No.: FN 504

Title: DIET THERAPY

RATIONALE

Dietetics is a science and art that deals with the optimum nutrition during normal life cycles and its adaptations during ailments. In any situation of life, optimum nutrition can ensure health, endurance, cognition and productivity. As educators/advisors, the professionals need to equip themselves with the knowledge and skills of managing foods particularly during illness as people's mental condition remains at low ebb in ailment.

LEARNING OBJECTIVES

- To provide both theory and practical knowledge on disease management through appropriate approaches with the most recent scientific input from researchers
- To approach the subject from a multidisciplinary perspective - technical, psycho- social- economic of client, drug diet interaction etc, enabling the students to become effective member Health Care Team (HCT) in Medical Nutrition Therapy (MNT).

THEORY

UNIT I:Significance of diet therapy

Importance and scope of diet therapy; Role of dietician in a health care team in hospital and community.

UNIT II:Dietary management of nutritional disorders

Newer concepts in dietary management of various nutritional disorders and disease conditions; fevers and infections.

UNIT III: Dietary management of diseases

Dietary management during burns, allergy, gastrointestinal disorders, liver diseases, cardiovascular diseases, hypertension, renal disorders, obesity, diabetes, cancer and HIV; Nutrition in critical care.

UNIT IV:Nutrigenomics and nutraceuticals

Nutrigenomics. Nutraceuticals. Health foods and supplements; Health foods and supplements; Dietary recommendations for blood donors; Nutrients and drug interaction.

PRACTICALS

- Formulation of food exchanges
- Therapeutic modifications of diet in terms of nutrients, consistency and composition
- Planning and preparation of diet for diabetes
- Planning and preparation of diet for cardiovascular diseases
- Planning and preparation of diet for kidney disorders
- Planning and preparation of diet for obesity
- Planning and preparation of diet for cancer patients

- Planning and preparation of diet for burns patients -first, second and third-degree burns
- Planning and preparation of diet for gastrointestinal disorders
- Planning of diet for critical care patients
- Visits to hospital to see preparation of tube feeding diets
- Presentation of case studies

LEARNING OUTCOMES

After completion of this course, the students are expected to:

- Appreciate the scientific foundation of disease management through diet
- Utilize the techniques and tools for assessing the vulnerability of a disease situation towards rejection/ acceptance of the diet suggestion
- Confident responsible member of Healthcare team (HCT) as decision maker

TEACHING METHODS/ ACTIVITIES

- Lectures
- Assignment (Writing /Reading)
- Students' presentation
- Group activities
- Case studies
- Hands on training

REFERENCES

1. Skipper A (2008)*Advanced Medical Nutrition Therapy Practice*. 1stEdition, Jones & Bartlett Learning, Burlington, Massachusetts.
2. Ross AC, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012)*Modern Nutrition in Health and Disease*. 11thEdition, LWW, Philadelphia.
3. Kathleen ML and JL Raymond (2016)*Krause's Food and the Nutrition Care Process*. 14th Edition, Saunders, Philadelphia.
4. McIntosh SN (2016)*Williams' Basic Nutrition and Diet Therapy*. 15th Edition, Mosby, Maryland.
5. Mazur EE and Litch NA (2018) *Lutz's Nutrition and Diet Therapy*. 7th Edition, F.A. Davis Company, Philadelphia.
6. Schlenker E and [Gilbert](#) JA (2014) *Williams'Essentials of Nutrition and Diet Therapy*. 11th edition, e- book.
7. Srilakshmi B (2019)*Dietetics*. 8th Edition, New Age International Publisher.
8. Cataldo CB, De Brayae LK and Whitney EN (2012)*Nutrition and Diet Therapy*. 6th Edn., Wadsworth/Thomson Learning Inc.

9. Whitney E, DeBruyne LK, Pinna K and Rolfes SR (2011) *Nutrition for Health and Health Care*. 4th Edition.
10. <https://www.nutritionintl.org>
11. <https://www.hsph.harvard.edu/nutritionsource>
12. <https://www.nutrition.org.uk>
13. <http://www.nutritioncare.org>

Credits: 3 (2+1)

Course No: FN 505

Title: NUTRITION AND PHYSICAL FITNESS

RATIONALE

Physical fitness is a state of health and well-being and more particularly, the capacity to perform satisfactorily in occupations, daily chores and sports. It is generally achieved through proper nutrition, physical exercise and rest. Physical fitness is considered as a measure of body's ability to function efficiently and effectively in work and leisure activities, to be healthy and to resist diseases and to meet emergency situations.

LEARNING OBJECTIVES

- To provide both theory and practical exposure to understand the concept of physical fitness
- To incorporate recent techniques of body composition and energy metabolism to ascertain the nutritional stature
- To equip the students with the knowledge and capacity to identify, evaluate and evolve ways in addressing various aspects of physical fitness.

THEORY

UNIT I:Physical fitness and body composition

Overview of nutritional management vis-à-vis body composition and physical fitness; Techniques to assess physical fitness; Body composition in different physiological conditions and factors affecting it; Methods of measuring body composition.

UNIT II:Energy balance

Energy metabolism; Factors influencing energy metabolism and physical fitness; Techniques to measure energy expenditure and energy intake.

UNIT III:Sports nutrition

Requirement of nutrients for specific sports events; Exercise physiology and biochemistry; Nutrition support before, during and after sports event; Water and electrolyte requirement during exercise and their role in performance; Ergogenic aids: Definition, types and dosage; Doping: Definition, types and consequences; Muscle physiology for performance and fitness; Biomechanics; Physiological testing for fitness and performance; Strength, flexibility, anaerobic power and cardio respiratory fitness.

UNITIV: Nutrition and ageing

Role of nutraceuticals in fitness; Aging theories; Physiology, mechanism and role of nutrients in arresting aging process.

PRACTICALS

1. Planning diets for general fitness
2. Planning and preparation of diets for different sports categories
3. Planning nutritional requirements for sports injuries
4. Visit to a sports academy
5. Visit to established fitness centres

LEARNING OUTCOMES

On completion of this course, the students will be able to handle responsibilities as:

- Physical fitness educator/ Adviser
- Utilize methods and techniques for vulnerability assessment as per need of the situation
- Experts in Healthcare Team and fitness centres

TEACHING METHODS/ ACTIVITIES

- Lectures
- Assignment (Writing /Reading)
- Student presentation
- Group activities
- Case studies
- Hands on training

REFERENCES

1. FAO (2004)*Human Energy Requirements. -Report of a Joint FAO/WHO/UNU Expert Consultation.* Technical Report Series 1. Food and Agriculture Organization, Geneva.
2. Benardot D (2005)*Advanced Sports Nutrition.* 2nd Edition, Human Kinetics Publishers, Champaign, IL.
3. Baumgartner R (2006)*Body Composition in Healthy Aging.* Annals of the New York Academy of Sciences.
4. Geissler C and Powers H (2009)*Fundamentals of Human Nutrition.* Churchill Livingstone, London.
5. Ross AC, Caballero B, Cousins RJ, Tucker KL and Ziegler TR (2012)*Modern Nutrition in Health and Disease.* Eleventh Edition, LWW, Philadelphia.
6. Srilakshmi B, Suganthi V and Kalaivani C Ashok (2017) *Exercise Physiology Fitness and Sports Nutrition.* New Age International Publishers.
7. Geetanjali B and Subhadra M (2018) *Nutritional Guidelines for Sportspersons.* Jaypee Health Books Publishers.
8. <https://www.who.int>
9. <https://www.hsph.harvard.edu/nutritionsource>
10. <http://www.nutritioncare.org>.

Credit: 3 (3+0)

Course No: FN 510

**Title: NUTRITIONAL CHALLENGES IN LIFE CYCLE
RATIONALE**

Nutrition is crucial for the fulfilment of human rights especially those of the most vulnerable groups i.e. infants, children less than 5 years of age, girls and women who constitute the foundation of human development and national prosperity. Knowing the nutritional challenges during various stages of life cycle can reduce susceptibility to infection, morbidity, disability and mortality, thereby, enhancing cumulative lifelong learning capacities and adult productivity.

LEARNING OBJECTIVES

- To give an exposure to the students with an in-depth basic knowledge regarding nutritional challenges of vulnerable groups during various stages of life cycle
- To approach the areas from various angles like nutritional needs of fetus, mothers (expectant and lactating), adolescents, adults and geriatrics in terms of cognitive learning abilities and to remain healthy and productive
- To equip students to identify, evaluate and evolve management techniques to address nutritional challenge.

THEORY

UNIT I: Importance of maternal nutrition

Nutritional needs during first 1000 days; Influence of maternal nutritional status on outcome of pregnancy: birth weight of infant and lactation performance.

UNIT II: Human milk

Psycho-physiology of lactation; Milk synthesis and secretion; Maternal needs during lactation; Composition of colostrum and mature human milk; Milk of mothers of preterm babies; Milk of animal and formula feeds; Non-nutritional factors of human milk - immunological factors, enzymes and hormones; Human milk banking.

UNIT III: Nutrition during childhood, adolescence and adulthood

Nutritional needs of the children and adolescents; Common childhood ailments and dietary considerations; Growth spurt and nutrition; Adolescent fads influencing nutrition, food preferences and nutritional problems; Nutritional requirements in adulthood; Malnutrition, mental development, learning abilities and behavior.

UNIT IV: Geriatric nutrition

Overview of aging process; Nutritional variables related to the aging process; Physiology of aging; Biological markers of aging; Sociology of aging; Nutritional requirements and deficiencies in elderly; Medications and psychiatric problems in elderly; Immunopathological diseases and aging; Parkinson and Alzheimer syndrome; Care of the elderly; Care-givers and community services.

LEARNING OUTCOMES

Successful completion of this course will enable the students to

- Appreciate the scientific understanding of mitigating nutritional challenges and relating key learning as professional expert in the area
- Utilize methods and hand tools for vulnerability assessment and designing adaptation strategies
- Utilize knowledge in scientific publication/ population education
- Be an expert in community health and R&D projects

TEACHING METHODS/ ACTIVITIES

- Lectures

- Assignment (Writing /Reading)
- Student presentation
- Group activities

REFERENCES

1. Chernoff R(2003) *Geriatric Nutrition: The Health Professional's Handbook*. 2nd Edition, Jones & Bartlett Learning, Burlington, Massachusetts.
2. World Health Organization (2005)*WHO Library Cataloguing-in-Publication Data. Nutrition in Adolescence –Issues and Challenges for the Health Sector*. WHO, Geneva.
3. Kleinman RE (2008)*Paediatric Nutrition Handbook*.6th Edition,American Academy of Paediatrics Committee on Nutrition.
4. Sharbaugh C and Brown JE (2013)*Nutrition Through the Life Cycle*. 5th Edition, Wadsworth Co Inc. Belmont, CA.
5. Bales C W, Ritchie CS (2013)*Handbook of Clinical Nutrition and Aging*. 2nd Edition, Springer Science & Business Media, Humana Press Inc. New York.
6. Sachdev HPS and Choudhury P (2004)*Nutrition in Children - Developing Country Concerns*. B I Publications.
7. Schlenker E and [Gilbert](#) JA (2014) *Williams' Essentials of Nutrition and Diet Therapy*.11th Edition, e- book.
8. Srilakshmi, B (2019)*Dietetics*. 8th Edition, New Age International Publisher.
9. Cataldo CB, De Brayae LK and Whitney EN (2012)*Nutrition and Diet Therapy*. 6th Edn., Wadsworth/Thomson Learning Inc.
10. Whitney E, DeBruyne LK, Pinna K and Rolfes SR (2011) *Nutrition for Health and Health Care*.4th Edition.
11. <https://www.who.int>
12. <http://www.nutritionlink.org>
13. <https://www.icmr.nic.in>

Credits: 2 (1+1)

Course No: FN 514

Title: INSTITUTIONAL FOOD SERVICE MANAGEMENT

RATIONALE

Institutional food Service Management denotes the entities that provides meals at educational institutes, hospitals, care homes, hotels, public and private cafeteria etc. Students equipped with updated knowledge in this area will help them to act as an expert to suggest quality food to the customer as per their needs.

LEARNING OBJECTIVES

- To equip the students with the multi-dimensional knowledge associated with institutional food service in a given setup
- To enable them in planning, execution and control of the management of institutes with ease and profit.

THEORY

UNIT I: Food service management

Types of food services - organization and management. Tools of management; FSSAI and CODEX guidelines.

UNIT II: Record keeping

Personnel management; Books, records and record keeping; Cost control in food services; Menu planning; HACCP.

UNIT III: Quantity food production

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 food service unit

Types of kitchens; Planning of layout and equipment for food services; Sanitation and hygiene in handling foods; Personnel hygiene and its importance; Organisation of spaces.

PRACTICALS

- Standardization of basic recipes: planning and preparation
- Modification in basic recipes
- Use of left-over foods
- Visit to different types of food service institutions and study the organization, physical plan and layout, food service equipment, sanitation and hygiene.
- Practical experience in organization and management of a college cafeteria/ hotels
- Setting of canteens with formal and informal table setting
- Scale production of standardised recipes
- Menu planning for snack bars, canteens, residential hostels and hospitals
- Cost analysis

LEARNING OUTCOMES

This course will help students to:

- Act as front office managers
- Skilled in centralized/ decentralized service providers in medical/ care homes
- Skilled chef and service providers

TEACHING METHODS/ ACTIVITIES

- Lectures
- Assignment (Writing /Reading)
- Students' presentation
- Group activities
- Hands on training

REFERENCES

1. Carpenter RP, Lyon DH and Hasdell TA (2002) *Guidelines for Sensory Analysis in Food Product Development and Quality Control*. 2nd Edition, Aspen Publishers Inc. New York.
2. Earle M and Earle RL (2008) *Case Studies in Food Product Development*. Woodhead Publishing Limited and CRC Press, New York.

3. Moskowitz HR, Straus T and Saguy S (2009)*An Integrated Approach to New Food Product Development*. CRC Press, Boca Raton, Florida.
4. Puckett RP (2012)*Food Service Manual for Health Care Institutions*. 4th Edition, John Wiley and Sons Inc. Hoboken, New Jersey.

Course No.	Title of the course	Credit Hrs.	Remarks Write here major, minor, CC etc.
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5. Beckley JH, Herzog LJ and Foley MM (2017)*Accelerating New Food Product Design and Development*. 2nd Edition, John Wiley and Sons Inc. Hoboken, New Jersey.
6. Sethi M (2018)*Catering Management- An Integral Approach*. 3rd Edition, New Age International, New Delhi.
7. Nancy LS (2007)*Catering Management*. John Wiley & Sons.
8. Arora RS (2012)*Banquet and Catering Management*. Abhijeet Publications.
9. Harish Bhat (2008) *Hotel Management*. Crescent Publishing Corporation.
10. Mudit Bhajwani (2007)*Food Service Management: Principles and Practice*. Rajat publications, New Delhi.
11. <https://www.ferrerofoodservice.com>
12. <https://www.foodservicedirector.com>
13. Vaclavik V (2018) *Dimensions of Food*. CRC Press.

Ist Semester			
FN-501	Macro And Micro Nutrient in Human Nutrition (Core)	3(3+0)	Major Course
FN-505	Nutrition And Physical Fitness (Optional)	3(2+1)	Major Course
FN-510	Nutrition Challenges in Life Cycle (Optional)	3(3+0)	Major Course
BIOCHEM-502	Nutritional Biochemistry	3(2+1)	Minor Course
EECM- 512	Gender Sensitization for Empowerment	2(1+1)	Minor Course
PGS-501	Library And Information Services	1(1+0)	Common compulsory course
PGS-502	Technical Writing and Communication Skill	1(1+0)	Common compulsory course
Total Credit Hrs.		16	
IInd Semester			
FN-502	Public Health and Nutrition (Core)	3(2+1)	Major Course
FN-503	Techniques In Food Analysis (Core)	3(1+2)	Major Course
FN-514	Institutional Food Service Management (Optional)	2(1+1)	Major Course
FN-515	Food Science and Technology	3(2+1)	Minor Course
STATS-501	Statistics Method and Application	3(2+1)	Supporting Course
PGS-503	Basic Concept in Laboratory Techniques	1(0+1)	Common compulsory course
PGS-508	Agricultural Research, Research Ethics and Rural Development Programmes	1(0+1)	Common compulsory course
Total credit Hrs.		16	
IIIrd Semester			
FN-504	Diet Therapy (Core)	3(2+1)	Major Course
RESMETH-501	Research Methodology	3(2+1)	Supporting Course
FN-591	Master Seminar	1(1+0)	Seminar
FN-541	Comprehensive	2(2+0)	Common compulsory course
FN-599	Master Research	10	Major Course
Total Credit Hrs.		19	
IVth Semester			
PGS-505	Intellectual Property and Its Management in Agriculture	1(0+1)	Common compulsory course
FN-599	Master Research	20	Research
Total Credit Hrs.		21	
Grand Total Credit Hrs.		72	

Semester Wise Course Distribution of M.Sc.(FN) Community Science

Forwarded and recommended by Head of Department with name and signature.....

Above course programme is approved

Dean PGS

Ph.D Courses 2022-23

Department of Food and Nutrition

College of Community Science, SKRAU, Bikaner

Ph.D Community Science (Food and Nutrition)

Course No	Course Title	Credit Hours
MAJOR COURSES (12 Credits)		
FN 601*	Macronutrient Metabolism	3(3+0)
FN 602*	Micronutrient Metabolism	2(2+0)
FN 603*	Nutrition and Agricultural Interface	3(3+0)
FN 604	Global Nutritional Problems	2(2+0)
FN 605	Nutrition in Calamities	2(2+0)
FN 606	Maternal and Child Nutrition	2(2+0)
FN 607	Hormones and Enzymes	2(2+0)
FN 608	Energy Metabolism	2(2+0)
FN 609	Application of Biotechnology in Food Science and Nutrition	3(3+0)
FN 610	Recent Trends in Food Science and Technology	3(3+0)
MINOR COURSES(06 Credits)		
	Food Science and Technology	3(2+1)
	Food Biochemistry	3(2+1)
	Nutritional Biochemistry	2(2+0)
	Food Microbiology	3(2+1)
EECM 603	Scaling Techniques for	3 (1+2)

	Behaviour Research	
EECM 605	Sustainable Livelihood Systems	2 (1+1)
SUPPORTING COURSES(05 Credits) A student can opt any course related to the topic of research offered by other faculties of agriculture university or SWAYAM portal or MOOCS or other online courses up to a maximum of 5 credits.		
FN 691	Doctoral Seminar I (Major Field)	1(1+0)
FN 692	Doctoral Seminar II (Minor Field)	1(1+0)
FN 699	Research	75
	Total	100 Credits

*Core courses / compulsory courses

COURSE CONTENT

Credits: 3(3+0)

Course No. FN 601

Title: MACRONUTRIENT METABOLISM

RATIONALE

Food intake is sporadic: for most people it occurs in three major boluses each day. Energy expenditure, however, is continuous, with variations during the day that bears no resemblance to the energy intake pattern. Macronutrients are the three sources of energy which are variably stored and assimilated from food each day. A basic understanding of this fact will help the students to address the need of efficient energy metabolism in people to maintain energy balance for health. Furthermore, it will help to guide people how to lessen the food related disease burden like obesity, Type 2 diabetes, heart disease etc.

LEARNING OBJECTIVES

- To give a strong theoretical base to the students with reference to metabolism of macronutrients
- To approach the related areas from a multidimensional perspective—digestion, absorption, assimilation and metabolism in relation to normal health maintenance and preventing disease onsets

- To equip the students to identify, stratify and manage the risks associated with energy metabolism.

THEORY

UNIT I: Macronutrients

Digestion, absorption and metabolism of carbohydrates, proteins and lipids; Inborn errors of metabolism; Degenerative diseases -diabetes, obesity, atherosclerosis, hyperlipidaemia and hypertension; Glucose homeostasis determined by insulin/glycogen ratio; low carbohydrates diet and its metabolic consequences.

UNIT II: Dietary fibre

Glycaemic Index and load; Dietary fibre and its impact in various physiological disorders; Hypoglycaemic action of foods.

UNIT III: Proteins

Classification of protein, new discoveries in protein and their functions (protein in immune system, biological buffers and carriers); Evaluation of protein quality- *in vitro* and *in vivo* methods, animal and human bioassays; Amino acid pool, protein turnover in man with special reference to body size, age and various nutrition and pathological conditions; Novel food sources of protein; Role of hormones in protein metabolism; Effect of dietary protein on cardiovascular disease and cholesterol metabolism; Adaptation of body to low intake of energy and protein.

UNIT IV: Lipids

Hypolipidemic action of MUFA, PUFA and oxidation products of cholesterol; Effect of saturated fatty acids and trans fatty acids in lipid metabolism, role of reversal diet in cardiovascular disorders; Causes, prevention and treatment of hyperlipidaemia.

LEARNING OUTCOMES

After successful completion of this course, the students will be able to

- Appreciate the scientific knowledge in the process of energy metabolism
- Utilize the methods and tools for the management of hypo/hyper metabolic stages
- Utilize knowledge for scientific deliberations
- Act as Clinical Nutritionist in medical set-ups
- Expert Member of Health Care Team (HCT)
- Researcher in related R&D Projects

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Student presentation
- Online Group Discussion

REFERENCES

1. Akoh CC and Min DB (2002) *Food Lipids - Chemistry, Nutrition and Biotechnology*. Marcel Dekker Inc. New York.
2. Dickens F (1981) *Carbohydrate Metabolism and its Disorders Vol. III*. Academic Press, Cambridge.
3. FAOWHO/UNU (2004) *Human Energy Requirements: Report of a Joint FAO/WHO/UNU Expert Consultation*. Geneva: World Health Organization. FAO Food and Nutrition Technical Report Series 1.
4. FAOWHO/UNU (2007) *Protein and Amino Acid Requirements in Human Nutrition: Report of a Joint FAO/WHO/UNU Expert Consultation, Geneva*. World Health Organization. Technical Report Series 935. <http://www.who.int/iris/handle/10665/43411>.
5. Nelson D L and Cox MM (2017) *Lehninger Principles of Biochemistry*. 7th Edition. WH Freeman, New York.
6. Stipanuk MH and Caudill MA (2013) *Biochemical, Physiological and Molecular Aspects of Human Nutrition*. 3rd Edition. Elsevier Pub.
7. <https://www.who.int>
8. <http://www.fao.org/home/en>
9. <https://www.nutrition.org.uk>

Credits: 2(2+0)

Course No. FN 602

Title: MICRONUTRIENT METABOLISM

RATIONALE

Micronutrients are required by human and other organisms all over life in small quantities to coordinate a wide range of physiological functions. While vitamins are chiefly necessary for energy production, immune functions, blood clotting etc., the minerals play important role in growth, bone health, fluid balance etc. An advanced understanding of the metabolism aspects of these nutrients will enable the students to guide the population in encouraging proficient metabolic stages in humans to address the public health nutritional problems.

LEARNING OBJECTIVES

- To give a strong theoretical understanding of the essentiality of micronutrient sufficiency to aid metabolic processes in relation to health and disease onset
- To enhance the knowledge of recent advances in micronutrient nutrition that will help the students to plan and execute policies in micronutrient malnutrition in population.

THEORY

UNIT I: Vitamins

History, chemistry, distribution and functions of vitamins; Absorption, transportation, metabolism of vitamins; Nutritional requirements of vitamins; Deficiency manifestations of water soluble vitamins; Deficiency manifestations of fat soluble vitamins; Causes of vitamin deficiencies in India; Hypervitaminosis of water-soluble vitamins; Hypervitaminosis of fat-soluble vitamins; Vitamin fortification and supplementation; Methods of assay of vitamins; Interaction with other nutrients, antagonists and analogues of vitamins; Assessment of vitamin status of population.

UNIT II: Minerals

Causes of macro and micro mineral deficiencies in India; Chronology, chemistry and distribution of minerals; Functions, absorption, transport and metabolism of minerals; Deficiency manifestations of minerals; Nutritional requirements of minerals; Methods of assay of minerals; Interactions of minerals with other nutrients, antagonists and analogues of minerals; Assessment of mineral status of population; Mineral fortification and supplementation; Metaloenzymes. Antioxidants and their relationship with aging, cancer and various non-communicable diseases.

UNIT III: Heavy metal toxicity

Harmful effects of major mineral pollutants on health - mutagenicity, carcinogenicity and heavy metal toxicity; Heavy metal toxicity;

UNIT IV: Trace elements

Trace minerals - their chronology, chemistry, distribution. Functions of trace minerals. Absorption and metabolism of trace minerals. Requirements of trace minerals. Deficiency manifestation and interaction of trace minerals. Use of mineral isotopes/ tracers in nutritional studies.

LEARNING OUTCOMES

After successful completion of this course, the students will be able to

- Appreciate the scientific knowledge in the process of various physiological functions of human body
- Utilize the methods and tools for the management of hypo/hyper metabolic stage
- Utilize knowledge for scientific deliberations
- Act as Clinical Nutritionist in medical setups
- Expert Member of Health Care Team (HCT)
- Researcher in related R&D Projects

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Online Group Discussion

REFERENCES

1. Garland CF, Garland FC, Gorham ED, Lipkin M, Newmark H, Mohr SB and Holick MF (2006) The Role of Vitamin D in Cancer Prevention. *American Journal of Public Health*. 96(2), 252–261.
2. Groff JL and Gropper S (2012) *Advanced Nutrition and Human Metabolism*. 7th Edition, Yolanda Cossio, New York.
3. Guardia M and Garrigues S (2015) *Hand Book of Mineral Elements in Foods*. John Wiley & Sons Inc. Hoboken, New Jersey.
4. Rizvi S, Raza, ST, Ahmed F, Ahmad A, Abbas S and Mahdi F (2014) The Role of Vitamin E in Human Health and Some Diseases. *Sultan Qaboos University Medical Journal*, 14(2), 157–165.
5. Schwalfenberg GK (2017) Vitamins K1 and K2: the emerging group of vitamins required for human health. *Journal of Nutrition and Metabolism*. <https://doi.org/10.1155/2017/6254836>.
6. FAO/WHO (2004) *Vitamins and Minerals in Human Nutrition. A report of joint FAO/WHO Expert Consultation*. 2nd Edition, World Health Organization and Food and Agriculture Organization of the United Nations.
7. <https://www.who.int>
8. <https://nutrition.org>
9. <https://www.gainhealth.org>

Credits: 3(3+0)

Course No. FN 603

Title: NUTRITION AND AGRICULTURAL INTERFACE

RATIONALE

There is a clear potential for the agriculture sector to play a critical role in enhancing food and nutrition security and health of population. Agriculture and nutrition are closely linked. Producing foods that are acceptable, accessible and affordable can make population healthy and productive, thus making a virtuous cycle. If this cycle becomes vicious, the turn-over will become negative. This course will enable the students to keep track with agriculture scenario of a place and connect with the health status to identify, evaluate and find ways to establish positive interfaces.

LEARNING OBJECTIVES

- To give a clear understanding of interlinking agricultural production and nutritional status of the population
- To assist the students to identify and evaluate the agriculture in terms of nutrition nexus and its effective management.

THEORY

UNIT I:Food production and consumption

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:Food distribution

Linkages between agricultural practices and food production, distribution and nutritional status; Factors affecting food distribution at macro and micro level; Per capita food availability and consumption; Food and Nutrition security at national and household level; Role of agriculture in enhancing food security; Food crop failure and malnutrition.

UNIT III:Farming systems

Poverty and vicious cycle of low food production; Effect of food production and economic policies on food availability; Impact of physical resources, farming systems, cropping system, inputs and manipulation, agricultural marketing system, post-harvest processing of foods on food and nutrition situation; Implementation of nutrition policy.

UNIT IV:Agriculturalprogrammes

Sustainable food systems, nutritional impact of agricultural programmes, food price control and consumer subsidy; Contribution of National and International organization in agricultural development.

LEARNING OUTCOMES

After successful completion of this course, the students will be able to

- Understand linkage between agriculture and nutrition
- Apply the knowledge in planning and implementation of agriculture and nutrition related policies
- Act as expert in developmental programmed of GOs and NGOs

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Online Group Discussion

REFERENCES

1. GOI (2016) *Agricultural Statistics at a Glance*. Ministry of Agriculture & Farmers Welfare Department of Agriculture, Cooperation and Farmers Welfare Directorate of Economics and Statistics, Government of India.

2. GOI (2017) *Agriculture - Statistical Year Book India*. Ministry of Statistics and Programme Implementation, Government of India.
3. GOI (2011) *Census of India*. Government of India.
4. GOI (2018) *A Reference Manual by Publication Division*. Ministry of Information about Broadcasting, Govt. of India.
5. FAO (2017) *The State of Food and Agriculture - Leveraging Food Systems for Inclusive Rural Transformation*. Food and Agriculture Organization, Rome.
6. FAO (2017) *The State of Food Security and Nutrition in the World*. Food and Agriculture Organization, Rome.
7. <https://www.who.int>
8. <http://www.fao.org/home/en>
9. <https://www.india.gov.in/agriculture>
10. <https://mhrd.gov.in/mid-day-meal>

Credits: 2(2+0)

Course No. FN 604

Title: GLOBAL NUTRITIONAL PROBLEMS

RATIONALE

Global Nutrition Report of 2018 by WHO states that malnutrition is still rampant affecting most of world's population at some point in their life cycle from infancy to old age. No country is untouched. Malnutrition is a universal issue holding back development with unacceptable human consequences. Yet the opportunity to end malnutrition has never been better. Malnutrition is responsible for more ill-health than any other cause. It deems necessary for the students to equip them with the knowledge of the nutrition related global problems and prepare them with skills to address the challenges effectively.

LEARNING OBJECTIVES

- To make the students knowledgeable about the world scenario of prevailing malnutrition in variegated forms and measures being adopted at international/ national levels
- To give opportunity to the students to identify, analyse and suggest coping strategies at global, national, regional and community levels.

THEORY

UNIT I Food consumption

Food consumption pattern of underdeveloped, developing and developed countries.

UNIT II: Nutritional deficiency diseases

An overview of world nutrition situation and assessment of problems of developing and developed countries in light of prevalence, aetiology, indicators and preventive measures.

UNIT III: Health programmes

Nutrition and health programmes to alleviate malnutrition, role of national and international organizations.

UNIT IV: Health care policies

Impact of health care policies and delivery systems; Micronutrients, food fortification and supplementation.

LEARNING OUTCOMES

A successful scholar with this knowledge will be able to

- Appreciate the scientific foundation of risk management associated with malnutrition and relate the key learning to the job of a professional
- Utilize methods and tools to assess the nutritional scenario and plan out suitable interventions

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Group work/ group discussion

REFERENCES

1. Park JE and Park K (2007) *Text Book of Preventive and Social Medicine*. BarnasiDas Bhanot Publishers, Jabalpur.
2. Semba RD and Bloem MW (2008) *Nutrition and Health in Developing Countries*. 2nd Edition. Humana Press Inc. New York.
3. Temple NJ and Steyn N (2016) *Community Nutrition for Developing Countries*. AU Press, Athabasca University, Canada and UNISA Press, University of South Africa.
4. Babu SC, Gajanan SN and Hallam JA (2017) *Nutrition Economics-Principles and Policy Applications*. Science Direct. Elsevier.
5. FAO (2017) *Regional Overview of Food Security and Nutrition in Asia and the Pacific*. Food and Agriculture Organization, Rome.
6. <https://www.who.int>
7. <http://www.fao.org/home/en>
8. <https://www.harvestplus.org>
9. <https://www.hsph.harvard.edu/nutritionsource>

Credits: 2(2+0)

Course No. FN 605

Title: NUTRITION IN CALAMITIES

RATIONALE

Calamities, natural viz. flood, earthquake, draught) or man-made viz. riots, war, wrong policies always affect nutritional status of population which may be short-termed or long-termed depending upon the severity of the disaster. A knowledge on the topic will enable the students to act favourably for the favours of the victims to lessen the miseries in terms of health and nutrition.

LEARNING OBJECTIVES

- To give theoretical base to the scholars in the management of food and nutritional security during a disaster. This course will cover areas of food and water supply, precautions against food shortage, adequate feeding especially of vulnerable groups, control of communicable diseases, health and hygiene etc during a calamity
- To equip the students with the knowledge of providing effective support systems according to the need of calamity.

THEORY

UNIT I: Calamities and undernutrition Starvation in emergencies arising out of drought, floods, earth quakes, locust, war, wrong policies and poverty and climatic changes, conflict and global economic volatility, historical perspectives.

UNIT II: Food needs during emergencies

Effect of inanition, short, medium and long- term emergencies on food and nutrient intake, precautions against food shortage; Population groups most vulnerable to under nutrition; Food needs at national level during normal emergencies.

UNIT III: Nutritional deficiency diseases

Major nutritional deficiency diseases in emergencies, mobilization of local resources, general fund distribution, mass and supplementary feeding, therapeutic feeding, social funds; Nutritional Indices and reference standards; Preventing and handling donations in emergencies.

UNIT IV: Hygiene and sanitation

Control of communicable diseases, public health and hygiene problems during emergencies.

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Assist in preparedness and disaster risk management
- Assist in taking care of vulnerable population
- Assist in nutrition risk assessment as extension professional

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Online Group Discussion

REFERENCES

1. Gibney MJ (2004)*Public Health Nutrition*. Blackwell Science, Oxford.
2. Park K (2007)*Text book of preventive and Social Medicine* 19th Edition. BanarsidasBhanot Publishers, Jabalpur, India.
3. Spark A (2007)*Nutrition in Public Health: Principles, Policies and Practice*. CRC Press, New York.
4. WHO (2000)*The Management of Nutrition in Major Emergencies*. World Health Organization, Geneva.
5. FAO (2018)*Climate Change Challenge Badge*. 2nd edition. Food and Agriculture Organization of United Nations, Rome.
6. <https://www.who.int>
7. <http://www.fao.org/home/en>
8. <https://ndma.gov.in>

Credits: 2(2+0)

Course No. FN 606

Title: MATERNAL AND CHILD NUTRITION

RATIONALE

Inadequate maternal and child nutrition is the underlying cause of considerable deaths in the third world countries. The one who survives does not grow to its full potential, remains unproductive and a burden to the society. As professionals, the students need to develop skills to provide support to this most vulnerable mother-child duo conducive to development of quality human resource.

LEARNING OBJECTIVES

- To impart in-depth knowledge about why this vulnerable group needs special attention in terms of nutrition and other health care areas. This course will emphasize topics like nutritional challenges, physiological changes, IYCF guidelines, feeding of children with special needs, interventions etc.
- To make students knowledgeable to identify risks and stratify coping strategies.

THEORY

UNIT I: Nutrition and reproduction

Nutrition challenges, physiological changes, teenage pregnancy and gestational diabetes, nutrient needs, factors affecting nutrition of the women and children.

UNIT II: Nutritional deficiencies

Needs and problems of lactating women, fetal malnutrition and low birth weight, nutrition and parasites, children with special needs, Protein energy malnutrition, vitamin A, iron, vitamin D, calcium and other common deficiencies, significance of stem cell and cord blood.

UNIT III: Feeding practices

Formula feeding and supplements, lactation and breast feeding in the community, HIV and breast feeding; drug abuse and breast feeding. Human milk banks, IYCF guidelines, WHO breast feeding recommendations

UNIT IV: Overnutrition and undernutrition

International programs regarding child and maternal health initiative to prevent overnutrition and undernutrition.

LEARNING OUTCOMES

Successful completion of this course will enable the students to:

- Appreciate the scientific knowledge and relate them to actual work situation to evade long term health crisis of the concerned
- Utilize the methods and tools to assess nutritional demands and suggest coping strategies
- Utilize the knowledge for scientific publication/ population education.
- Act as scientist in related R&D projects

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Group Work/ Group Discussion

REFERENCES

1. Morgan JB and Dickeson JWT (2003)*Nutrition in Early Life*. John Wiley and Sons Ltd. Chichester.
2. Ehiri J (2009)*Maternal and Child Health - Global Challenges, Programs and Policies*. Springer Nature, Switzerland.
3. Brown JE (2016)*Nutrition through the Life Cycle*. 6th Edition. Cengage Learning, Boston.
4. Gluckman P, Hanson M, Seng CY and Bardsley A (2015)*Nutrition and Lifestyle for Pregnancy and Breastfeeding*. Oxford University Press, UK.
5. <https://www.unicef.org>
6. <https://www.india.gov.in/agriculture>
7. <https://mhrd.gov.in/mid-day-meal>

Credits: 2(2+0)

Course No. FN 607

Title: HORMONES AND ENZYMES

RATIONALE

Hormones are chemical messengers providing signals to the cells for performing various functions while enzymes as catalysts enhance the rate of reaction in the body. There are few chances of occurring disease due to enzyme dysfunction however, hormonal dysfunction may give rise to lifelong diseases. Both are important biochemical materials for all living beings. Knowledge on the topic will help the students in ascertaining an effective diet counselling to address health problems linked with hormones and enzymes.

OBJECTIVES

- To learn in detail about the role of hormones and enzymes in human physiology and relate this information to the context of normal health and diseased state like diabetes, hypertension, renal and gastro intestinal disorders etc and suggesting relevant dietary managements
- To equip the students with relevant knowledge of effective dietary management of a given disease condition due to hormonal and enzymatic imbalance.

THEORY

UNIT I: Hormones

History, chemistry, endocrine and exocrine secretion of hormones, organs of secretion, metabolism, mechanism of action, regulation and sites of action, biological effects and interaction.

UNIT II:Enzymes

Enzyme pathways in normal functions of the heart, pancreas, gastrointestinal and hepatic functions and kidneys.

UNIT III:Metabolic disorders

Altered hormone and enzymatic pathways in obesity, reproductive functions, renal disorders, gastrointestinal disorders.

UNIT IV: Degenerative diseases

Altered hormone and enzymatic pathways in hypertension, cardiovascular diseases, diabetes and cancer.

LEARNING OUTCOMES

After successful completion of this course, a scholar will be able to:

- Utilize the scientific foundation to act as an expert of Health Care Team in medical set-ups
- Act as Clinical Nutritionists
- Act as expert in related R&D projects

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Online group work/ group discussion

REFERENCES

1. Palmer T and Bonner PL (2007)*Enzymes*. 2nd Edition. Woodhead Publishing, Cambridge.
2. Berg JM(2007)*Biochemistry*. 6th Edition. W. H. Freeman and Company, New York.
3. Henry HL and Norman AW (2014)*Hormones*. 3rd Edition. Academic Press, Cambridge.
4. Kleine B and Rossmanith WG (2016)*Hormones and the Endocrine System*. Springer Nature, Switzerland.
5. Nelson DL and Cox MM (2017)*Lehninger Principles of Biochemistry*. 7th Edition. W.H. Freeman Company, New York.
6. <https://www.nutrition.org.uk>
7. <http://www.nutritioncare.org>
8. <https://nutrition.org>

Credits: 2(2+0)

Course No. FN 608

Title: ENERGY METABOLISM

RATIONALE

Energy metabolism is complex process of deriving energy from the nutrients. Imbalance in energy metabolism may be devastating for human health. It is important to understand bioenergetics to overcome the issued related to these imbalances. The understanding of the role of energy metabolism in regulation of hunger to manage body weight and other non-communicable disease by the students will help them to manage obesity related diseases.

LEARNING OBJECTIVES

- To impart in depth knowledge to the students with new developments in the area of energy metabolism and its relation to human health
- To learn the concept of bioenergetics, thermogenesis, metabolic regulation and hunger for its application in preventing adiposity.

THEORY

UNIT I: Bioenergetics

Scope and application of bioenergetics for human nutrition; Energy stores in man; Components of energy; Basal metabolism, energy cost of various activities; Factors affecting energy expenditure.

UNIT II:Energy expenditure

Direct and indirect methods of assessing energy expenditure; Factors affecting energy requirements; Assessment of energy requirements.

UNIT III:Regulation of metabolism

Thermogenesis, metabolic regulation; Weight control and obesity-role of adipose tissues; Effect of hormones on energy metabolism.

UNIT IV:Hunger

Mechanism of hunger; Psychological and physiological factors associated with adiposity.

LEARNING OUTCOMES

Successful completion of this course will enable the students to:

- Apply the knowledge of bioenergetics in weight management
- Use methods and tools of measuring energy expenditure
- Correlate eating behaviours of people for planning appropriate meals/diets to prevent adiposity

TEACHING METHODS/ACTIVITIES

- Lectures
- Assignment (Writing/Reading)
- Students' presentation
- Online Group Discussion

REFERENCES

1. Driskell JA and Wolinsky I (2007) *Sports Nutrition: Energy Metabolism and Exercise*. 2nd Edition. CRC Press, New York.
2. Scott B(2008)*A Primer for the Exercise and Nutrition Sciences: Thermodynamics, Bioenergetics, Metabolism*. Humana Press Inc. New York.
3. Korbonits M(2008)*Obesity and Metabolism*. Karger Publishers, London.
4. Donohoue PA (2010)*Energy Metabolism and Obesity*. Humana Press Inc. New York.
5. Rathore AK (2015)*Bioenergetics, Physiology and Biostatistics*. Discovery Publishing House, New Delhi.
6. <http://www.nutritionlink.org>
7. <https://www.icmr.nic.in>
8. <http://www.nin.res.in>

Semester Wise Course Distribution of Ph.D. (FN) Community Science

Course No.	Course Title	Credit hrs.	Remarks Write here major, minor, NC.etc
1st Semester			
FN-601	Macronutrient Metabolism (core course)	3(3+0)	Major Course
FN-603	Nutrition & Agriculture interface	3(3+0)	Major course
EECM-601	Managerial skills for Extension Professional	3(2+1)	Minor course
HDFS-504	Innovative Programme in early childhood development and education	3(2+1)	Supporting course
Total Credit hr. -12			
2nd semester			
FN-602	Micronutrients Metabolism (core course)	2(2+0)	Major Course
FN-607	Hormones and enzymes	2(2+0)	Major course
FN-605	Nutrition in Calamities	3(2+1)	
	Food Microbiology	2(2+0)	
Total Credit hr. -11			
3rd semester			
FN-691	Doctoral seminar I (major field)	1(1+0)	
FN-692	Doctoral seminar II (major field)	1(1+0)	
	Compherensive	Written+ Oral (Non-credit)	
Total Credit hr. -2			
4th semester			
FN-699	Research	75	
	Total	100 Credits	

Restructured and Revised Syllabi of Post-graduate Programmes

Community Science

Human Development and Family Studies

Preamble

Human Development and Family Studies (HDFS) students acquire knowledge to explore the ways in which people develop physically, emotionally, socially and intellectually within the framework of family and society and learn strategies for promoting growth and development in family systems. The face and pace of systematic investigation has accelerated markedly, in all disciplines and the product of research has changed in both quality and quantity. Owing to wide-ranging transition in psychological structures, social systems and family relations, a more specific radical transformation has occurred over the past decade in how we view human development and family studies in the changing ecological settings and complexities of life. Accordingly, research in Human Development is moving away from research focused on development at particular stages (early childhood, adolescence, middle age, older adulthood) and from separate fields of inquiry to a more inclusive, integrative, and interdisciplinary approach to the study of human development across the entire life span. Some problems considered to be of major importance a decade ago receive less attention today, rather other areas of HDFS that had previously been only minor foci of study have become central today.

With this backdrop, Post Graduate curriculum of HDFS has been extensively updated, reshaping previous course contents and developing some new ones after giving due consideration to the needs and requirements of stakeholders thus rendering it suitable for students to pursue for optimal placements. The basic objectives of this updated/revamped curriculum are the same as they were earlier, but effort has been made to offer the students a broader and deeper understanding and more extended knowledge of the scientific basis of various developmental processes in various ecological settings across

cultures. The redesigned courses will help in understanding and critically analyzing the adopted practices in trend to know what is best and what is obsolete for human development. It can prove panacea for many developmental delays, irregularities as well as ills and evils faced by society. The increased number of courses and research credits give massive support to this aspect. The PG courses are not only meant to give freedom to choose the courses of their interest to enhance their knowledge and abilities in various domains of human development and family studies but also enhance their professionalism, entrepreneurship skills, reativity, innovation, employability, job avenues and develop their confidence to become job providers than job seekers. These courses support and are in line with the objectives of this new educational policy and Skill India. The courses will help in capacity building of the students to develop their managerial and entrepreneurial skills so that they can organize and manage various types of institutions for children, adolescents and elderly which are the need of the day. The courses on HDFS equip the students to engage themselves as child, school and family counselors, personality development trainers, parent coaches and motivational speakers for public sector and private corporate houses, make them entitled to work with various national and international organizations or to undertake their own enterprise. The main purpose of this new curriculum is to focus on the overall development and performance of students, as it is believed that if their performance over takes their ambitions, it gets lot of success to them.

Course Title with Credit Load

M.Sc. (Community Science) Human Development and Family Studies

Course Code	Course Title	Credit Hours
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Major Courses (20 Credits)

*HDFS 501	Theories of Human Development	3 (3+0)
*HDFS 502	Dynamics of Human Development	3 (3+0)
*HDFS 503	Methods and Techniques of Assessment in Human Development	3 (2+1)
*HDFS 504	Innovative Programmes in Early Childhood Development and Education	3 (2+1)
HDFS 505	Gender Issues in Human Development and Relationships	3 (2+1)
HDFS 506	Adult Development	2 (2+0)
HDFS 507	Management of Differently Abled	3 (2+1)
HDFS 508	Adolescent Development and Challenges	3 (2+1)
HDFS 509	Guidance and Counseling	3 (2+1)
HDFS 510	Interventions for Differently Abled Children	2(1+1)
HDFS 511	Family Ecology	2 (2+0)
HDFS 512	Family and Cultural Diversities	2(2+0)
HDFS 513	Family Therapy	3 (2+1)

Minor Courses (08 Credits)

FN 502	Public Health and Nutrition	3(2+1)
FN 505	Nutrition and Physical Fitness	3(2+1)
FN 510	Nutritional Challenges in Life Cycle	3(2+0)
FN 513	Human Physiology	3(3+0)

EECM 501	Global Extension Systems	2 (2+0)
EECM 502	Development Communication	3 (2+1)
EECM 508	Educational Technology	3 (2+1)
EECM 509	Group Dynamics	2 (2+0)
EECM 512	Gender Sensitization for Empowerment	2 (2+0)

Supporting Courses (06 Credits)

Research Methodology	3 (2+1)
Statistical Methods and Application	3 (2+1)

Common Courses (05 Credits)

Library and Information Services	1(0+1)
Technical Writing and Communications Skills	1(0+1)
Intellectual Property and its management in Agriculture	1(0+1)
Basic Concepts in Laboratory Techniques	1(0+1)
Agricultural Research , Research Ethics and Rural Development Programmes	1(0+1)

HDFS 591	Master's Seminar	1 (0+1)
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HDFS 599	Research	
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30

Total **70 Credits**

*Core courses/ compulsory courses

Course Contents

M.Sc. in Human Development and Family Studies

I. Course Title : Theories of Human Development

II. Course Code : HDFS 501

III. Credit Hours : 3 (3+0)

IV. Rationale

Theories act as vital tools in the study of human development and provide orderly, meaningful direction to research and out-reach programmes. Children are complex beings and to understand them, it is significant to be familiar with the basis of their development in all aspects i.e. biological, psychological, social and cognitive. No single theory has been able to explain all these aspects. The study of multiple theories helps advance knowledge, since researchers are continuously trying to explore, support and integrate the different points of view.

V. Aim of the course

- To equip the students with the concepts, theoretical framework and critical review of different theories of human development .
- To give orientation towards comparative analysis of theories and their educational implications.

VI. Theory

Unit I: Psycho-dynamic theories

Meaning, types and functions of developmental theories. Theoretical perspectives and approaches- Psycho-dynamic theories- Psycho-analytic theory of Sigmund Freud – life history of Sigmund Freud, key concepts of psycho analytic theory, laws of psychological energy, three components of personality and their operational principles. Structural model of personality. Psycho-sexual stages and their impact on process of personality development. Contribution and criticism of Freudian theory. Neo-Freudians.

Psycho-social theory of Erik Erikson – concept of development and basis of development, psycho-social stages of life.

Unit II: Maturation and cognitive theories

Maturation and biological approach- Arnold Gessell's theory of maturation. Cognitive Development theory of Jean Piaget – concepts, cognitive mechanism, cognitive structure, different stages of cognitive development, thought process and implications of the theory. Piaget's contribution to field of education. Neopietagians- Fischer, Robert Case, Robert Siegler and Bruner. Socio-cultural theory of Lev Vygotsky. Information processing theories.

Unit III: Behavioural and ecological systems theories

Behavioural approach of Watson. Stimulus Response theory by Sears, Skinner and Pavlov. Social- Learning and Social Cognition theory by Albert Bandura and its application in human development. Ecological Systems theory of Urie Bronfenbrenner - concepts, systems and implications in understanding human Restructured and Revised Syllabi of Post-graduate Programmes development. Contribution of ecological systems theory in guiding families and teachers. Language development theory of Naom Chomsky.

Unit IV: Attachment, self and moral theories

Attachment theories by John Bowlby and Ainsworth. Maslow's Need Hierarchy model. Self Theories- Models of Morris Rosenberg and Coopersmith. Moral development theories of Lawrence Kohlberg and Jean Piaget. Comparative analysis of theories and their application. Integrated approach to theory building.

VII. Teaching Methods/ Activities

- Lecture cum discussion
- Assignments
- Student presentation
- Content analysis of the seminal work of different theorists

- Classroom discussion
- Video clips/ films
- Quiz and debate
- Incentives

VIII. Learning Outcome

After completion of the course, the students will

- have an overview of theories of human development, learn to critically evaluate these theories and recognize their merits.
- understand the scientific process of human development and learn to know the application of different theories in this process.

IX. Suggested Reading

- Baldwin AL. 1980. *Theories of Child Development*. John Wiley & Sons, New Jersey.
- Craig. 1985. *Theories of Human Development*. 2nd Ed., John Wiley & Sons, New Jersey.
- Grain WC. 1980. *Theories of Development: Concepts and Application*. Englewood Cliffs, Bergon, New Jersey.
- Hall CS. 1998. *Theories of Personality*. 4th Ed., John Wiley, New Jersey.
- Miller PH. 2016. *Theories of Developmental Psychology*. Worth Publishers, New York.
- Newman B and Newman R. 2007. *Theories of Human Development*. Rutledge, New Jersey.
- Sailkind NJ. 2004. *An Introduction to Theories of Human Development*. Sage Publications, New Delhi.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Introduction to the course. Meaning, types and functions of developmental theories. Theoretical perspectives and approaches.
- 2 Psycho-dynamic theories- Psychoanalytic theory of Sigmund Freud – Life history of Sigmund Freud. Key concepts of Freud’s theory of Psychoanalysis, personality components, operational principles of different components and structural model of personality.
- 3 Freudian theory- Stage approach to nature and process of personality development, implications and criticism of Freudian theory. Neo-Freudians.
- 4 Psycho-social theory of Erik Erikson – his life history, key concepts, stages of life span development, Erikson’s model of Psycho-social development.
- 5 Maturational and biological approach. Arnold Gessell’s theory of maturation.
- 6 Cognitive Development theory of Jean Piaget – Key concepts, cognitive mechanism.
- 7 Cognitive Development theory of Jean Piaget – stages and implications. Piaget’s contribution to education.
- 8 Neo-Piagetians- Fischer, Case and Bruner. Socio-cultural theory of Lev Vygotsky. Information Processing theories.
- 9 Behavioural approach of J.B. Watson, Stimulus Response theory by Thorndike, Sears, Skinner and Pavlov.
- 10 Social Learning theory by Albert Bandura. Application of behaviourism, learning and social cognition in human development.
- 11 Ecological Systems theory of Urie Bronfrenbrenner - concepts, systems and implications in understanding human development and guiding families and teachers

- 12 Language development theory of Naom Chomsky. Attachment theories by John Bowlby and Ainsworth.
- 13 Moral development theories of Lawrence Kohlberg and Jean Piaget.
- 14 Maslow's Need Hierarchy Model.
- 15 Self Theories- Models of Morris Rosenberg and Coopersmith.
- 16 Comparative analysis of theories and their application. Integrated approach to theory building.

I. Course Title : Dynamics of Human Development

II. Course Code : HDFS 502

III. Credit Hours : 3 (3+0)

IV. Rationale

Nature and nurture play key role in human development. It is necessary for the students to understand the role of genetic endowment and environmental experiences of an individual in the course of human development. The knowledge of latest trends in the dynamic process of human development and the issues that emerge in it due to ever changing socio-cultural and economic environments becomes important .

V. Aim of the course

- To impart information to students regarding advanced concepts of human development, current trends and issues of development.
- To provide indepth understanding of the developmental concepts and processes in human life span.

VI. Theory

Unit I: Nature vs. Nurture

Human development – basic concepts and issues. Genetic foundation, genetic code, chromosomal abnormalities. Role of epigenesis and canalization in growth and development. Interface between heredity and environment. Genetic research and its influence on child's development. Current research findings on pre-natal development

and neo-natal stages – developmental sequence, prenatal environmental influences, developmental threats and DNA methylation.

Unit II: Cognitive development

Brain development- key concepts and process of development. Models of intelligence. Cognitive development during early years - perceptual capacities, attention, memory, imitation, early learning, conditioning and assessment. Role of early deprivation and enrichment in cognition. Information processing. Social cognition, emotional intelligence, metacognition and self regulation and their contribution to human mind and behavior. Gardner's Model of Multiple Intelligence.

Unit III: Psycho-social Issues

Language development and its components - pre-linguistic development, phonology, semantics and bilingualism. Socialization practices and influencing factors. Cultural influence on child outcomes. Exposure to media and technology and role of parents and institutions. Impact of socio-emotional deprivation on different stages of development. Vulnerability and resilience, risk and protective factors. Personality changes and self perceptions through different stages of development. Integrated view of human development.

Unit IV: Current and classic research trends in human development

Seminal work of Sigmund Freud, Erikson, Piaget, Uri Bronfenbrenner and Margaret Mead. Design and field work of "Six cultures project". Current research trends in physical, intellectual, psycho- social and moral development of children from birth to adolescence.

VII. Teaching Methods/ Activities

- Lecture cum discussion
- Assignments
- Students' presentation
- Content analysis of the seminal work of Developmental psychologists

- Video clips/ films
- Quiz and debate
- Incentives

VIII. Learning Outcome

After completion of the course, the students will

- Understand the role of heredity and environmental influence in human development.
- Appreciate and recognize the interdependence of various aspects of human development across lifespan.
- Get oriented to the current researchable issues in human development.

IX. Suggested Reading

- Berk EL. 2017. *Development Through the Life Span*. 7th Ed., Pearson Education, Atlantic.
- Bronfenbrenner V. 1979. *The Ecology of Human Development*. Cambridge, Harvard.
- Feldman RS. 2017. *Development Across the Life Span*. Pearson, London, England.
- Garbarino J. 1982. *Children and Families in the Social Environment*. Aldine, New York.
- Kail R and Cavanaugh JC. 2016. *Human Development - A Life Span View*. Cengage Learning, Boston.
- Papalia DE and Olds SW. 2008. *Human development*. 11th Ed., McGraw Hill, New York
- Santrock JW. 2006. *Life Span Development*. Mc Graw Hill, New York.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Human development perspective- basic concepts and issues. Introduction to genes and environment. Genetic foundation, genetic code, chromosomal abnormalities.
- 2 Role of epigenesis and canalization in growth and development. Interface between heredity and environment. Genetic research and its influence on child's development.
- 3 Current research findings on pre-natal development and neo-natal stages – developmental sequence, prenatal environmental influences, developmental threats and DNA methylation.
- 4 Brain development across life span- key concepts and process of development. Structure of cognition. Models of intelligence. Cognitive abilities and development during early years - perceptual capacities, attention, memory, imitation, early learning, conditioning, and assessment.
- 5 Role of early deprivation and enrichment in cognition. Information processing.
- 6 Social cognition, emotional intelligence, metacognition and self regulation and their contribution to human mind and behavior.
- 7 Gardner's Model of Multiple Intelligence.
- 8 Language development and its components - pre-linguistic development, phonology, semantics and bilingualism.
- 9 Socialization practices and influencing factors. Influence of cultural factors on child outcomes.
- 10 Exposure to media and technology and role of parents and institutions. Impact of socio-emotional deprivation on different stages of development. Vulnerability and resilience, risk and protective factors.
- 11 Personality changes in self perceptions through different stages of development. Integrated view of human development.

- 12 Current research trends in physical, motor and intellectual development in early childhood.
- 13 Presentation and group discussion on Seminal work of Sigmund Freud
- 14 Presentation and group discussion on Seminal work of Erik Erikson
- 15 Presentation and group discussion on Seminal work of Jean Piaget and Margaret Mead
- 16 Presentation and discussion on Seminal work of Uri Bronfenbrenner.

I. Course Title : Methods and Techniques of Assessment in Human Development

II. Course Code : HDFS 503

III. Credit Hours : 3(2+1)

IV. Rationale

It is imperative to have knowledge of various methods and techniques of assessment in human development for scientific understanding and analysis of developmental status of individuals for their need based guidance and education. In order to gather required information about the individuals, it makes pertinent to have an insight into the strengths, weaknesses of various research tools and hands-on training in application of these, so as to make assessments in a dependable manner.

V. Aim of the course

- To apprise the students with different methods and techniques of assessment in human development.
- To develop skills in psychological test administration, scoring, analysis, interpretation and report writing.

VI. Theory

Unit I: Developmental assessment, methods and techniques.

Assessment –Concept, functions, characteristics, steps and rationale of assessment.

History of tests and measurements. Different methods of child study/ developmental assessment. Techniques of measurement and their significance in measuring different aspects of human development. Role of assessment in intervention.

Unit II: Types of measures & methods

Scientific methods-definition, importance, goals and steps. Essential criteria of Scientific methods -reliability, validity control, item analysis. Use of objective measures and methods. Types of tests – individual and group tests. Projective techniques. Psychometrics, Sociometry. Types of scales –nominal, ordinal, interval and ratio scale.

Unit III: Development of tests/ scales

Developmental Assessment from birth to early childhood. Tests for infants and children. APGAR scoring of new borns. Physical growth assessment. Anthropometric evaluation of nutritional status. Measurement of intelligence. Assessment of personality, aptitude, attitude and environment. Development of test/scale, steps, guidelines and standardization procedure – various methods of calculation of validity and reliability. Variables- extraneous, confounding, researcher variables and participant variables affecting internal validity. Threats to internal validity.

Unit IV: Ethical issues and barriers

Ethical issues in the assessment of human development. Special consideration in assessing young children. Ethical issues and barriers in assessment of infants and young children. Assessment of children with special needs. Interpretation and use of assessment information. Trends and challenges in assessment of human behavior.

VII. Practical

1. Visit to neonatal unit to observe the neonates and to observe their assessment of APGAR score by pediatricians.
2. Physical Growth assessment and nutritional status of children of different age groups.
3. Review of available developmental screening and diagnostic tests for infants, toddlers and pre-school children.
4. Review of available screening and diagnostic tests for school age children and adolescents.
5. Developmental assessment of infants by using Bayley's Scale of Infant Development (BSID)
6. Interpretation of results and report writing
7. Administration of psychological tests for measuring cognitive abilities and intelligence.
8. Administration of psychological tests for assessment of socio-emotional development of children and adolescents.
9. Administration of psychological tests for personality assessment.
10. Administration of psychological tests for assessment of language development of children.
11. Assessment of home environment using HOME (Home Observation and Measurement of Environment) inventory for different age groups of children/ Indian Home Inventory/ Family Environment Scale.
12. Interpretation of results and report writing on home environment
13. Development of scale or check lists on selected areas of development.
14. Standardization of the developed test, scoring and interpretation of results.
15. End term assessment

VIII. Teaching Methods/ Activities

- Lectures cum discussion
- Demonstrations on various methods and techniques of developmental assessment
- Case studies and discussion
- Demonstrations and hands on experience on various psychological tests, administration, scoring, interpretation of results and effective counselling
- Organizing Child Development Assessment Camps (CDAC) for giving hands on training

IX. Learning Outcome

After completion of the course, the students will

- Learn different methods and techniques of assessment of various aspects of human development.
- Gain practical experience of handling various psychological tests – administration, scoring, interpretation of results and report writing.
- Learn basics of developing testing material/ tools.

X. Suggested Reading

- Anastasi A. 1988. *Psychological Testing*. 6th Ed., McMillan Publishing Company, New York.
- Bailey DB and Worley M. 2003. *Assessing Infants and Preschoolers with Handicaps*. Merrill Publishing Company, Delhi.
- Gregory RJ. 2004. *Psychological Testing - History, Principles and Applications*. 4th Ed., Pearson Education, Atlantic.
- Gumbiner J. 2003. *Adolescent Assessment*. John Wiley & Sons, New Jersey.
- Kumar R. 2014. *Research Methodology - A Step by Step Guide for Beginners*, 4th Ed., Sage Publications, New Delhi.
- Miller LA, Macintire SA and Lovler RL. 2012. *Foundations of Psychological Testing – A Practical Approach*. 4th Ed., Sage Publications, New Delhi.

- Shaughnessy JJ and Zechmeister EB. 2014. *Research Methods in Psychology*. 10th Ed., McGraw - Hill Publishing Company, New York.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Concept, functions, characteristics, steps and rationale of assessment.
- 2 History of tests and measurements. Importance of assessment for intervention.
- 3 Different methods of developmental assessment/ child study.
- 4 Different Techniques of measurement and their significance in measuring different aspects of human development.
- 5 Scientific Methods-definition, importance, goals and steps. Essential criteria of Scientific methods. Concept of reliability, validity, item analysis. Different methods of calculating reliability.
- 6 Types of validity - face, content, concurrent & predictive and construct validity. Difference between test validity & test reliability. Validity & reliability in qualitative research
- 7 Item analysis – Item difficulty, item discrimination, item response theory, item analysis of speed tests, cross validation and assessment of item bias.
- 8 Methods of test classification. Types of tests – individual and group tests. Performance tests. Projective techniques. Psychometrics, Sociometry. Types of scales –nominal, ordinal, interval & ratio scale.
- 9 Developmental assessment from birth to early childhood. APGAR scoring of new born. Neuro-behavioral assessment of new born infant. Physical growth assessment. Anthropometric evaluation of nutritional status. Early childhood assessment. Tests for infants and children
- 10 Measurement of intelligence. Assessment of aptitude, attitude and personality. Environmental assessment.

- 11 Development of test/scale- need, significance, steps, guidelines for composing test items, writing effective items, writing administration instructions, instructions for test take, scoring instructions.
- 12 Standardization - establishing validity & reliability of the instrument. Variables extraneous, confounding, researcher variables & participant variables affecting Internal validity. Threats to internal validity.
- 13 Ethical issues in the assessment of human development. Special considerations in assessing infants and preschoolers. Special consideration in assessing young children.
- 14 Principles of assessment for young children. Ethical issues and barriers in child assessment. Assessment of children with special needs.
- 15 Interpretation of assessment information and use of assessment information for planning instructional programme.
- 16 Trends and challenges in assessment of human behavior - current changes in assessment, issues and trends in assessment, computerized testing. Web based assessment, implications for future.

I. Course Title : Innovative Programmes in Early Childhood

Development and Education

II. Course Code : HDFS 504

III. Credit Hours : 3 (2+1)

IV. Rationale

Early childhood care and educational experiences play a pivotal role in human development. As change agents, early childhood educators and professionals need to enrich themselves with the advances and innovations that are taking place in the domain of early childhood development and education for strategic planning and execution of child care, development and educational programmes for fostering child development.

V. Aim of the course

- To orient students about the need and scope of innovative programmes in early childhood development and education.
- To develop the abilities in students for planning and executing innovative early childhood development and education programmes for enhancing wholesome development of young children

VI. Theory

Unit I: Innovative programmes in early childhood development and education

Need and scope for innovative programmes for early childhood development and education (ECDE). Innovative pedagogical approaches in early childhood development and education. Developmental patterns of children in early years. Current innovative programmes at State, National and International level. Innovative learning settings in classrooms of early child development and education centres. Usage of virtual and digital classrooms in Child Development and Education Centres

Unit II: Innovative programmes for child development

Methods and principles of designing, execution, monitoring and evaluation of programmes and activities in early childhood care and education centres. Innovative programmes for fostering physical, motor, cognitive, speech and language, creativity, socio- emotional and moral development of children.

Unit III: Stimulatory learning environment

Stimulatory learning environments at home and early childhood child care and education centres and at centres for children with special needs. Current and conventional practices of stimulatory learning. Innovative ideas for planning and execution of customized programmes/ activities for gifted children and differently able children.

Unit IV: Social support network systems

Innovative programmes for involving families in early childhood development and education centres. Challenges of family involvement. Development of social support network systems for inclusion of differently able children.

VII. Practical

1. Visits to observe early childhood care, education and development centers using varied pedagogical approaches in urban/ rural settings and study their programme and activities.
 - i. Creche/ day care centre and Urban Nursery school
 - ii. Visit to Aanganwadi centre and rural nursery school
2. Critical analysis and report presentation
3. Class room discussions on different types of virtual and digital classrooms
4. Designing innovative activities for young children - Physical and motor development
5. Designing innovative activities for young children - Cognitive and language development
6. Designing innovative activities for young children - Social, emotional and moral development
7. Execution of designed innovative activities.
8. Evaluation of the designed innovative activities as per their effectiveness and implementation potential.
9. Conducting survey to assess parental needs on knowledge of innovative activities.
10. Designing need based parent education programmes
11. Organization of parent education programme
12. Conducting need assessment study to find out the training needs of ECCE staff
13. Planning of workshop/training for ECCE personnel
14. Conducting workshop/training for ECCE personnel
15. End term assessment

VIII. Teaching Methods/ Activities

- Lectures and discussions
 - Showing educational video films.
 - Field visits to early childhood care and education centers
 - Demonstrations of innovative programmes
 - Designing innovative programmes, their implementation and analysis of developmental outcome of children.
 - Market survey of available educational play material
- Restructured and Revised Syllabi of Post-graduate Programmes
- Visit to child libraries.
 - Web/ Internet surfing & report presentations

IX. Learning Outcome

After successful completion of this course, students are enabled to:

- Design innovative child development and education programmes.
- Evaluate early childhood programmes, understand and differentiate the mundane and innovative programmes being run early childhood development and education centers.
- Utilize the knowledge and skills acquired in it for establishing innovative child care & education institutions as a worthy enterprise with win-win principle (employment for self and others too).

X. Suggested Reading

- Deiner PL. 2006. *Inclusive Early Childhood Education*. Cengage Learning Press.
- Jaipaul I Roopnarian and James EJ. 2008. *Approaches to Early Childhood Education*. Pearson Education, Atlantic.
- Kaul V. 1997. *Early Childhood Education Programmes*. NCERT, Delhi.
- Saraswathi TS. 1988. *Issues in Child Development - Curriculum and Other Training and Employment*. Spmaiya.
- Shiradhonkar K and Patnam V. 2019. *Understanding and Developing Creativity*. New Academic Publications, New Delhi.
- Sinclair H. 2004. *Standards for Early Childhood Programmes in Centre based Child Care*. Govt. of New Found Land and Labrador. Dept. of Health and Community Services.
- Soni R. 2015. *Theme Based Early Childhood Care And Education Programme - A Resource Book*. NCERT, New Delhi.
- Wiltshire M. 2010. *Understanding the High Scope Approach, Early Years Education in Practice*. Taylor and Francis.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Need and scope for innovative programmes for early child care, development and education centers. Principles of pedagogy in early child care, development and education centers. Innovative pedagogical approaches in early child care, development and education centers.
- 2 Physical and motor development patterns during early childhood. Cognitive development pattern during early childhood. Speech and language development patterns of early childhood. Socio-emotional and moral development patterns during early childhood.

- 3 Current innovative programmes of State and National level for early child care, development and education.
- 4 Innovative learning settings in classrooms of early child development and education centers. Usage of virtual and digital classrooms in Child Development and Education centers
- 5 Methods and principles of designing, executing, monitoring and evaluation of early child care, development and education centers.
- 6 Innovative integrated programmes with special focus on enhancing physical and motor development of children. Innovative integrated programmes with special focus on fostering intellectual development of children.
- 7 Innovative integrated programmes with special focus on fostering speech & language development of children. Innovative integrated programmes with special focus on promoting socio- emotional and moral development of children.
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- 8 Innovative integrated programmes with special focus on inculcating moral values in children. Need and benefits of inclusive early childhood education.
- 9 Stimulatory learning environments at home and early childhood child care and education centers. Creating Stimulatory learning environments at centers for children with special needs.
- 10 Current and conventional practices of stimulatory learning. Innovative ideas for planning and execution of customized programmes/ activities for gifted children and differently able children.
- 11 Significance of customized programmes for differently able children and challenges in it. Precautions to be taken while customizing programmes for differently able children and challenges in it.
- 12 Innovative programmes for differently able children at State and National level and their effectiveness.

- 13 Innovative programmes for differently able children at international level.
Innovative ideas for planning and execution of customized programmes for gifted children and their effectiveness.
- 14 Innovative ideas for planning and execution of customized programmes for differently able children and challenges in it.
- 15 Innovative programmes for involving families in early childhood development and education centers and challenges in it. Innovative programmes for involving families in early childhood development and education centers.
- 16 Social support network systems for execution of innovative early childhood care development and education centers. Social support network for planning and execution of innovative programmes for developmentally differently able children in ECDE centers.

I. Course Title : Gender Issues In Human Development and Relationships

II. Course Code : HDFS 505

III. Credit Hours : 3 (2+1)

IV. Rationale

Gender stereotypes have been existing in different cultures, though, at various degrees. In rapidly changing socio-cultural and economic scenario, gender issues in human development and relationships have become a very sensitive and vital issue for protection of human rights and dignity. It is important to enlighten students about the various aspects of gender studies and its repercussion on human development, behaviour, relationships, family functioning and societal values.

V. Aim of the course

- To orient the students regarding the gender issues in human development and family relationships.

- To impart experiences regarding gender issues, family practices and biases prevalent in Indian Society.

VI. Theory

Unit I: Gender perspectives and theories

Concept of gender- biological and socio-cultural connotations. Historical perspectives. Gender differences in human development. Gender theories- Gender Orientation Duration (week) Topics Restructured and Revised Syllabi of Post-graduate Programmes theory of Sandra Bem. Gender Schema theory, theory of Ego Development and Gender. Gender Stratification theory by Blumberg. Gender Identity Formation theory.

Unit II: Gender discrimination, gap and parity

Gender equality and development. Gender inequalities in human development– dimensions, causes and consequences. Gender discrimination indicators- global gender gaps. Gender Development Index, Global Gender Gap Index and Gender Parity Index. Demographic challenges to family ecology- gender role socialization.

Unit III: Gender violence and empowerment

Gender violence- dowry harassment and deaths, suicides, prostitution, sexual harassment and exploitation and prevention. Family violence, amniocentesis, female feticide, infanticide, eve teasing. Gender empowerment strategies- working towards family solidarity and social well-being. Gender mainstreaming- concept, policy of United Nations, objectives, requirements and principles. Empowering lives of women by controlling – patriarchy system, women's sexuality, fertility, labour, lack of visibility. Gender budgeting.

Unit IV: Changing trends in status of women

Status of women in India. Various plans and policies designed for achieving gender equality. Changing trends in gender role orientation- early civilization, preindependence, post independent India, contemporary times, socio economic impact on the family and

society, cultural impact on the family. Gender role portrayal in mass media. Gender stereotyping in schools. Gender issues at workplace.

VII. Practical

1. Gender analysis of mass media: Print media and E-media
2. Report writing
3. Study of adopted socialization practices for children of both genders
4. Report writing
5. Case studies of three generations on dynamics of gender orientation
6. Report presentation and discussion
7. Case studies of three generations on dynamics of Gender roles and responsibilities.
8. Report presentation and discussion
9. Views of adolescents on their gender role orientation- designing questions .
10. Survey through questionnaire
11. Report presentation and discussion
12. Case studies on changing trends of roles and responsibilities of women and men
13. Report writing
14. Visits to women welfare Govt. organizations/ agencies/ NGOs
15. Presentation of report and class discussion.
16. End term assessment

VIII. Teaching Methods/ Activities

- Lectures.
- Viewing of educational video films.
- Case studies on women and men in different occupations- issues & challenges.
- Intergenerational case studies of families.
- Interviews with lawyers of women welfare courts.

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- Field visits to Govt and Non- Govt institutions.
- Analysis of mass media narratives.

IX. Learning Outcome

After successful finishing of this course,

- Students become capable of recognizing gender related issues, problems and challenges in society, it's influencing factors and solutions.
- Students are able to design and organize effective programmes for protection of rights and dignity of women in families, society and workplace.

X. Suggested Reading

- Banddharage A. 1997. *Women Population and Global Crisis - A Political and Economical Analysis*. Zed books, London.
- Barnett RC, Biner L and Baruch GK. 1987. *Gender Stress*. The Free Press, New York.
- Chanana K. 1989. *Gender and the Household Domain*. Sage Publications, New Delhi.
- Kapadia S and Gala J. 2015. *Gender Across Cultures: Sex and Socialization in Childhood*. Sage Publications, New Delhi.
- Kumar CS. 2017. *Gender Socialization and The Making of Gender in The Indian Context*. Sage Publications. New Delhi.

- Menon L. 1997. *Gender Issues and Social Dynamics*. Kanishka Publishers and Distributors, New Delhi.
- Sudha DK. 2000. *Gender Roles*. A.P.H. Publishing Corporation, New Delhi.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Concept of gender- biological and socio-cultural connotations. Historical perspectives.
- 2 Gender differences in human development.
- 3 Gender theories- Gender Orientation theory of Sandra Bem. Gender Schema Theory, theory of Ego Development and Gender.
- 4 Gender Stratification theory by Blumberg. Gender Identity Formation theory.
- 5 Gender equality and development. Gender inequalities in human development— dimensions, causes and consequences.
- 6 Gender discrimination indicators- global gender gaps. Gender Development Index, Global Gender Gap Index and Gender Parity Index.
- 7 Demographic challenges to family ecology- gender role socialization.
- 8 Gender violence- dowry harassment and deaths, suicides, prostitution, sexual harassment and exploitation and prevention.
- 9 Family violence, amniocentesis, female feticide, infanticide, eve teasing.
- 10 Gender empowerment strategies- working towards family solidarity and social well-being.
- 11 Gender mainstreaming- concept, policy of United Nations, objectives, requirements and principles.
- 12 Empowering lives of women by controlling – patriarchy system, women's sexuality, fertility, labour, lack of visibility. Gender budgeting.
- 13 Status of women in India and various plans and policies designed for achieving gender equality.

- 14 Changing trends in gender role orientation- early civilization, pre-independence, post independent India, contemporary times, socio economic impact on the family and society, cultural impact on the family.
- 15 Gender stereotyping in schools and gender issues at workplace. Gender role portrayal in mass media
- 16 Wrap up

Restructured and Revised Syllabi of Post-graduate Programmes

I. Course Title : Adult Development

II. Course Code : HDFS 506

III. Credit Hours : 2 (2+0)

IV. Rationale

Adulthood is a critical period in the life course involving vibrant transitions in roles and responsibilities in biological, psychological, social, career and economic spheres. If adults make needed adjustments and alterations in life, there will be sustainable, happy and healthy society. Students get oriented to adulthood concerns, issues, challenges and different ways to cope up with them.

V. Aim of the course

- To acquaint the students with developmental perspectives in relation to adult life stages and theoretical perspectives of the ageing process.
- To develop an understanding of the changes and adjustments at various stages of adulthood aging.

VI. Theory

Unit I: Theoretical and ecological perspectives of adult development

Adulthood- transition to adulthood, stages of adulthood. Psychosocial theories of ageing - Erikson's Psychosocial theory, Identity Process Theory, Activity Theory, Socio-emotional Selectivity Theory. Theoretical perspectives in adult development

- Bio-psychosocial perspective, Ecological perspective, Life Course perspective. Klaus Riegel's Dimensions of Development Theory. Four principles of adult development and aging.

Unit II: Models and stereotypes in adulthood

Models of development- biological model of aging, psychological models of adulthood development, socio-cultural models of development, nature and nurture in adulthood individual and environment interactions. Reciprocity in development. Themes and issues in adult development and aging. Ageism and stereotyping the elderly.

Unit III: Developmental changes during adulthood

Developmental changes in adulthood – biological changes, cognitive changes, sensory changes, psychological and social interactional changes associated with aging. Ageing and health. Factors affecting health. Lifestyle and health. Key concepts in health and prevention of chronic diseases, physical and neuro-cognitive disorders and others. Risk factors and preventive measures, supportive services.

Unit IV: Adulthood Adjustment

Demographics of an ageing population. Gender differences in aging. Menopause and its effects on women. Cessation of sexual prowess and its effect on men. Issues and adjustments related to occupation, self and family. Retirement, leisure and adjustment. Causes of morbidity and mortality across the life cycle. Human longevity - the influence of genetic and environmental factors. Death, dying and bereavement. Attitude towards death, grief and bereavement.

VII. Teaching Methods/ Activities

- Lecture cum discussion
 - Interviews with individuals in different phases of adulthood.
 - Adult case study analysis- report presentation.
- Community Science: Human Development and Family Studies
- Related video clips and films.

- Assignments and class reports on current research trends.

VIII. Learning Outcome

After successful completion of this course, students are able to

- Realize age related transitions and challenges in life of adults and measures to cope up with them.
- Understand gender related developmental perspectives in adulthood and build up empathy to guide them well.

IX. Suggested Reading

- Dacey JS and Travers JF. 2002. *Human Development - Across the Lifespan*. McGraw Hill, Boston.
- Dandekar K. 1996. *The Elderly in India*. Sage Publications, New Delhi.
- Hayslip B and Panek P. 1989. *Adult Development and Aging*. Harper & Row.
- Hurlock EB. 2003. *Developmental Psychology - A Life Span Approach*. Tata McGraw Hill, New Delhi.
- Kail RV and Cavanaugh JC. 2004. *Human Development - A Life-Span View*. Thomson Wadsworth, United States.
- Kimmel DC. 1990. *Adulthood and Aging*. John Wiley & Sons, New York.
- Leme BH. 1995. *Development in Adulthood*. Allyn & Bacon.
- Newman BM and Newman PR. 2003. *Development Through Life: A Psycho Social Approach*. Cengage Learning, Boston.
- Sigelman CK. 1999. *Life Span Human Development*. 3rd Ed., Brooks/Cole Publishing Company, London.

Weekly Lecture Schedule

Duration (weeks) Topics

- | | |
|---|--|
| 1 | Adulthood – Definition, phases/ stages of Adulthood, related concepts of biological, psychological, social, legal, and functional age, characteristics of emerging adulthood, physical and social indicators of adulthood. |
|---|--|

- 2 Psychosocial theories of ageing - Erikson's Psychosocial Theory. Identity Process theory, Activity theory, Socio- emotional Selectivity theory.
- 3 Theoretical perspectives in adult development - Bio-psychosocial perspective. Ecological Perspective, Havighurst's Developmental Tasks Theory, Jane Loevinger's theory of Ego Development.
- 4 Theories of Aging, theories of successful Aging, biological theories of ageing - programmed theories, evolutionary theories and random damage theories.
- 5 Life-Course Theories - Erik Erikson's Eight Stages of Life, Klaus Riegel's Dimensions of Development Theory. Four Principles of Adult Development and Aging.
- 6 Models of development- biological model of ageing in adulthood, psychological models of development in adulthood. Socio-cultural models of development.
- 7 Nature and nurture in adulthood. Individual–environment interactions, reciprocity in development.
- 8 Themes and issues in adult development and aging. Ageism & Stereotyping the elderly.
- 9 Theoretical perspectives on developmental changes in adulthood. Changes at different stages of adulthood – biological changes, cognitive changes- ageing and memory, ageing and intelligence, sensory changes, psychological and social interactional changes associated with aging.
- 10 Aging and health. Factors affecting health. Restructured and Revised Syllabi of Post-graduate Programmes
- 11 Lifestyle changes needed for secure health, Key concepts in health and prevention–cardiovascular diseases, cancer, disorders of the musculoskeletal system, diabetes, neuro-cognitive disorders and others.
- 12 Risk factors and preventive measures, supportive services.

- 13 Demographics of an ageing population. Gender differences in aging. Menopause and its effects on women. Cessation of sexual prowess among men and its effects.
- 14 Issues and adjustments related to occupation, self and family. Retirement, leisure and adjustment.
- 15 Causes of morbidity & mortality across the life cycle.
- 16 Human longevity -the influence of genetic & environmental factors. Death, dying and bereavement. Attitude towards death, grief and bereavement.

I. Course Title : Management of Differently Abled

II. Course Code : HDFS 507

III. Credit Hours : 3 (2+1)

IV. Rationale

Despite advanced scientific technologies in health and education domains, the number and types of differently abled persons is still alarming. It is necessary for students to learn about persons with various different abilities, their causes, characteristics, needs, management, assistive technologies and rights. This input is required for the effective guidance and counseling of such individuals, their families and teachers. This course is useful for making efforts for prevention, management and rehabilitation of differently able.

V. Aim of the course

- To orient the students to the etiology and developmental characters of differently abled individuals and develop empathy for working with differently abled persons.
- To develop knowledge and skills in students about how to conduct case studies and surveys of differently abled individuals, analyzing and report writing about it.

VI. Theory

Unit I: Classification and statistics of differently abled

Concept and classification of differently abled individuals. Their current statistics.

It's implications on the quality of life. Social, emotional, and economic aspects of exceptionality for both children and families. Multi disciplinary view of differently abled individuals.

Unit II: Characteristics, etiology and issues of differently abled

Different abilities- mental deficiency, learning disabilities, visual impairment, hearing impairment, communication disorders, neurological disorders - definition, types, characteristics, etiology, prevalence in India for all above different abilities.

Associated psychological and behavioural problems, educational provisions, management considerations and remedial programmes for different types of special needs.

Unit III: Educational & vocational interventions for differently abled

Physical impairment or loco-motor disabilities (Orthopedic and neurological impairment)- definition, classification, assessment and etiology. Psychological and Community Science: Human Development and Family Studies behavioural characteristics of physically challenged children. Educational and vocational interventions. Remedial programmes for physically challenged. Psychosocial disturbances and social maladjustment - definition, classification, types, characteristics and etiology of emotionally disturbed and socially maladjusted. Management considerations and remedial programmes for psycho-socially disturbed and socially maladjusted. Gifted children - definition, types, characteristics, assessment and prevalence in India. Inclusive education and special programmes for the gifted.

Unit IV: Government support services

Preventive measures. Assistive technologies for different developmental challenges. Inclusive education policies and programmes for differently abled persons. Government provisions, concessions, facilities, rights and legislations for differently abled. Community based rehabilitation. Rehabilitation Council of India. National and International agencies for differently abled individuals.

VII. Practical

- Case studies of differently abled persons- etiology, characteristics, assessment of their different Abilities
 - Mentally subnormal children
 - Visually impaired children
 - Hearing impaired children
 - Speech impaired children
 - Orthopedically handicapped
 - Learning disabled children
 - Gifted children
- 2. Collaborative work with professionals in development of intervention packages for differently abled children (for any one category)
- 3. Conducting home based interventions
- 4. Conducting center based interventions at schools/ child clinics/ pediatric wards/ special schools and so on.
- 5. Report writing and presentation
- 6. Collaborative work with professionals in development of intervention packages for differently abled children (for any second category)
- 7. Conducting home based interventions
- 8. Conducting center based interventions at schools/ clinics/ pediatric wards/ special schools, etc.
- 9. Report writing and class presentation
- 10. End term assessment

VIII. Teaching Methods/ Activities

- Lectures.
- Field visits to various institutions of differentlyabled.
- Viewing of related educational video films-report writing and discussion.

- Case studies –Analysis & discussion.
- Demonstrations of special accessories & materials.
- Study and analysis of reports.
- Demonstrations on planning, execution and evaluation of intervention packages.

IX. Learning Outcome

After successful completion of this course, students become Restructured and Revised Syllabi of Post-graduate Programmes

- Sensitive and empathetic to the needs, conditions and circumstances of differently abled.
- Capable of conducting case studies and planning and executing activities for differently abled.

X. Suggested Reading

- Achenbach TM. 1982. *Developmental Psychopathology*. 2nd Ed., John Wiley, New York.
- Berdine WH and Blackhurst AE. 1985. *An Introduction to Special Education*. 2nd Ed., Harper Collins, Lexington.
- Hallahan DP and Kauffman JM. 1991. *Introduction to Exceptional Children*. Allyn and Bacon, Boston.
- Hegarty S. 2002. *Education and Children with Special Needs*. Sage Publications, New Delhi.
- Kar C. 1996. *Exceptional Children - Their Psychology and Education*. Sterling Publication, New York.
- Kirk SA. 1972. *Educating Exceptional Children*. Houghton Mifflin Company, Boston.
- NIMH. 1999. *School Readiness for Children with Special Needs*. National Institute for the Mentally Challenged Children, Secunderabad.

- Prasad J and Prakash R (1996). *Eduaction of Handicapped Children, Problems and Solution*. Kanishka Publications. New Delhi.
- Saini S and Vig D (2008). *Special Children - Behaviour, Needs and Management*. Swami Printers, Ludhiana.

Weekly Lecture Schedule

Duration(Weeks) Topics

- 1 Classification of differently abled individuals. Their current statistics. Implications of special needs on quality of life.
- 2 Social, emotional, and economic aspects of exceptionality for both children and families. Preventive measures.
- 3 Multi disciplinary view of differently abled individuals in their care and coping with them. Screening and early identification. Methods and benefits
- 4 Mental deficiency (low intelligence or *mental retardation*), etiology, characteristics, associated psychiatric problems, special education and welfare services for their management. Managing child in school.
- 5 Learning disabilities (LD) – definition, causes, types and characteristics. Educational considerations, remedial programmes and managing LD students in schools.
- 6 Visual impairments - development of visual skills, common visual defects among partially blind. Causes and characteristics. Vision tests. Educational provisions and management considerations.
- 7 Special education and welfare services for their management. Remedial programmes for visually impaired.
- 8 Hearing impairment- etiology, early identification and characteristics of hearing impaired. Psychological and behavioural characteristics, special education and welfare services for their management.

- 9 Communication (speech & language) disorders – speech production, language & communication development. Classification of speech defects, identification and causes.
- 10 Psychological and behavioural characteristics associated with communication disorders. Educational provisions and management considerations. Remedial programmes for speech problems.
- 11 Physical impairment or loco-motor disabilities (Orthopedic and neurological impairment)- definition, classification, assessment and etiology. Psychological and behavioural characteristics of physically challenged children. Educational and vocational interventions. Remedial programmes for physically challenged. Community Science: Human Development and Family Studies
- 12 Psychosocially disturbed (emotionally disturbed and socially maladjusted) - definition, classification, types, characteristics and etiology of emotionally disturbed and socially maladjusted. Management considerations and remedial programmes for psychosocially disturbed and socially maladjusted.
- 13 Gifted children - definition, types, characteristics, assessment, prevalence in India. Inclusive education and special programmes for the gifted.
- 14 Preventive measures. Assistive technologies for different types of challenges. Inclusive education. Community based rehabilitation.
- 15 Government policies and provisions for differently abled. Concessions, facilities, rights and legislations.
- 16 Rehabilitation Council of India. National and International agencies for differently abled individuals.

I. Course Title : Adolescent Development and Challenges

II. Course Code : HDFS 508

III. Credit Hours : 3 (2+1)

IV. Rationale

India has more than half of its population below the age of 25 yrs. Adolescence is an age of opportunity. Due to rapid physical, psycho-social changes, adolescents are inclined to be at risk to storm and stress, peer pressure and encounter various challenges. If their development, education, economic empowerment and stability are well taken care, it becomes easy to maintain peace and prosperity in the country. The adolescents need to be studied intensely for proper understanding of the development and challenges of this phase of life, so that they can be guided well.

V. Aim of the course

- To acquaint the students with the important developmental issues and challenges.
- To educate about the contemporary issues in adolescent development and challenges.

VI. Theory

Unit I: Theoretical perspectives of adolescents

Adolescence – definition, significance of the stage. Theoretical perspectives on adolescence – biological, psycho-analytical, psycho-social, social-cognitive and cultural. Physical and sexual development in adolescence - physical transition from child to adult, adolescent growth spurt, puberty causes and changes, psychological impact of puberty, early and late maturation and its psychological implications, adolescent sexuality, causes and correlates of physical development.

Unit II: Cognitive and communication development during adolescence

Cognitive and intellectual development during adolescence- the formal-operational stage, hypothetico-deductive reasoning, thinking like a scientist, complexities of adolescent thoughts, information-processing view of adolescent cognitive development, gender differences in mental abilities. Language development during adolescence- later syntactic development, semantics and meta-linguistic awareness,

development of communication skills, learning in school and vocational development.
Duration (weeks) Topics Restructured and Revised Syllabi of Post-graduate Programmes

Unit III: Psycho-social and personality development

Psychosocial development during adolescence- emotional changes, problems, emotional regulation and stability, self-understanding. Role of family, peers, school in psychosocial development. Work, career, heterosexual relationships in adolescence. Personality development- Erikson's theory, identity crisis, identity diffusion, identity foreclosure, identity moratorium, self-concept, gender-role stereotyping. Moral development during adolescence and value orientation. Environmental learning, interactional and cultural context in moral development.

Unit IV: Different challenges of adolescence

Vocational preferences. Transition to adulthood- conflicts with special reference to contemporary socio-cultural changes. Challenges of adolescence- sexuality, aggression, delinquency, AIDS, substance abuse, alcoholism, personality disorders, depression, suicide, eating disorders, health problems, psychological problems, social problems- dating and relationships. Integration of self and psycho-sexual resolution. Resolving identity crisis- reorganization of social life relationship with peers and parents, heterosexual relationships. Risk and resilience during adolescence. Risk and protective factors. Challenges in adolescent's life in the 21st century. Challenges and opportunities for adolescent research. Programs and policies.

VII. Practicals

1. Case studies- interviewing early and late adolescents on issues, problems, pubertal changes, friendships, career aspirations, self and social awareness, mass media references
 - Development of case study format
 - Conducting case study of early adolescent girl and early adolescent boy

- Conducting case study of late adolescent girl and late adolescent boy
- 2. Report writing and presentation of case studies
- 3. Assessment of intellectual abilities of adolescents and class room discussion.
- 4. Assessment of psycho-social development patterns of adolescents and class room discussion.
- 5. Depiction of adolescents in mass media: Content analysis of media-
 - Feature films
 - Television serials
 - Literature-magazines, newspapers, advertisements.
- 6. Report writing and presentation
- 7. Survey in rural/ semi-urban/ urban communities on challenges faced by adolescents and their Parents.
- 8. Survey in rural/ semi-urban/ urban communities on challenges faced by teachers of Adolescents
- 9. Analysis of survey results for adolescent challenges and their need assessment.
- 10. Planning intervention education programmes for adolescents.
- 11. Organising intervention education programmes for adolescents about their developmental changes, needs and coping up strategies.
- 12. End term assessment

VIII. Teaching Methods/ Activities

- Lecture-cum-discussion.
 - Adolescent interviews: concerns and challenges.
 - Viewing related amazing video clips.
 - Class reports on interesting case studies reported in mass media.
- Community Science: Human Development and Family Studies
- Survey- educational & vocational interests, values and aspirations of adolescents.
 - Demonstrations of tests- IQ, EQ,GQ and personality.

IX. Learning Outcome

After successful finishing of this course, students are able to

- Appreciate the scientific foundation of adolescent development and challenges.
- Utilize their knowledge and available services for planning and executing programmes for raising awareness of adolescents about their self care and development.

X. Suggested Reading

- Berk LE and Meyers AB. 2010. *Infants, Children, and Adolescents*. 7th Ed., Prentice Hall, PTR.
- Conger JJ. 1977. *Adolescence and Youth: Psychological Development in a Changing World*. Harper & Row, New York.
- Hazen EP, Goldstein MA and Goldstein MC. 2011. *Mental Health Disorders in Adolescents: A Guide for Parents, Teachers, and Professionals*. Rutgers University Press: New Brunswick, NJ.
- Hurrelmann K and Hamilton SF. 1996. *Social Problems and Social Contexts in Adolescence*. Aldine De Gruyter: New York.
- Seifert KL, Hoffnung RJ and Zack IZ. 1999. *Child and Adolescent Development*. Cengage Learning, Belmont, CA, USA.
- Shaffer DR and Kipp K. 2010. *Developmental Psychology: Childhood and Adolescence*. Wadsworth, Cengage Learning, Belmont, CA, USA.
- Spielhagen FR and Schwartz PD. 2013. *Adolescence in the 21st Century: Constants and Challenges*. Information Age Publishing, Amazon Kindle.

Weekly Lecture Schedule

Duration (weeks) Topics

1. Adolescence – definition, importance of the stage, adolescence in perspectives, adolescents today.

2. Theoretical perspectives on adolescence- biological, psychoanalytical, socialcognitive and cultural.
3. Physical, motor and sexual development- motor development in adolescence, physical transition from child to adult, adolescent growth spurt, sexual maturation, adolescent sexuality.
4. Causes and correlates of physical development. Psychological impact of puberty, psycho-social implications of early and late maturation.
5. Cognitive and intellectual development during adolescence- the formal-operational stage, hypothetico-deductive reasoning, thinking like a scientist, complexities of adolescent thoughts, information-processing view of adolescent cognitive development, sex differences in mental abilities.
6. Language development during adolescence- later syntactic development, semantics and meta-linguistic awareness, development of communication skills.
7. Learning in school, vocational and career development
8. Psychosocial development -emotional changes, problems and emotional regulation, self-understanding. Role of family, peers, school, work and career, heterosexual relationships in psychosocial development. Environmental learning, interactional and cultural context in psychosocial development
9. Personality development- Erikson's theory, identity crisis, identity diffusion, identity foreclosure, identity moratorium, self-concept, gender-role stereotyping
10. Moral development during adolescence and value orientation. Environmental learning, interactional and cultural context in moral development. Vocational preferences, training and work, transition to adulthood- conflicts with special reference to contemporary socio – cultural changes.
11. Challenges of Adolescence- sexuality, aggression, delinquency, AIDS, substance abuse, alcoholism, personality disorders, depression, suicide, eating disorders, health problems, psychological problems

12. Social problems- dating and relationships. Integration of self and psycho-sexual resolution and resolving identity crisis- reorganization of social life relationship with peers and parents, heterosexual relationships.
13. Risk and resilience in adolescence. Risk and protective factors. Transition to adulthood- conflicts with special reference to contemporary socio-cultural changes
14. Challenges in adolescent's life in the 21st century
15. Challenges and opportunities for adolescent research. Programs and policies
16. Researchable and current issues in adolescent development

I. Course Title : Guidance and Counseling

II. Course Code : HDF5 509

III. Credit Hours : 3 (2+1)

IV. Rationale

Family systems, roles and responsibilities are under great transformation, which has lead the society towards various problems and challenges. Rapidly changing socio-cultural & economic scenario has affected family systems. As a result, families are encountering for its sustainability and in discharging its role and responsibilities. Child guidance and family counseling is a big boon in uprooting/ solving problems and empowering families to encounter their challenges through professional services for leading quality and successful life.

V. Aim of the course

- To acquaint the students about guidance and counselling.
- To orient the students about different techniques of guidance and counseling for different problems.

VI. Theory

Unit I: Areas and types of guidance and counselling

Guidance and Counseling – Meaning, history, goals, levels and techniques. Areas

of guidance and Counseling. Types of guidance and counseling services - educational, vocational, personal, marriage and family, leisure time. Assessment and diagnostics in counseling.

Unit II: Contemporary trends and ethical issues

Counseling and therapy relationships. Counseling children - goals, child-counsellor relationships. History about counseling children. Contemporary issues. Play therapy. Integrated counseling for children. Guidance and counselling in schools and colleges. Group guidance. Couple, pre-marital, marriage and family counseling. Current trends in counseling, computerized therapy programs. Research trends in guidance and counseling in India and abroad.

Unit III: Essentials of conducting guidance and counseling sessions

Competencies and role of guidance and counseling professionals. Modes and methods of counseling. Essentials of conducting guidance and counseling session.

Understanding the process of guidance and counseling. Ethical issues in guidance and counseling. Knowledge and skills to handle assessment tools. Effective communication and documentation skills. Networking with allied professionals and institutions. Counseling with special concerns, Children with developmental challenges, ambivalent and oppositional type, crisis counseling, guidance in adolescence, counseling elderly.

Unit IV: Approaches and theories of counseling

Approaches and theories of counseling: Affective Counseling theory- concept, key principles. Humanistic approaches- Roger's Client centered approach, Gestalt approach. Psychoanalytic -Psychodynamic approaches by Sigmund Freud, Carl Jung, Alfred Adler and Melanie Klien. Skinner's Behaviouristic approach, Bandura's Behaviour Modification approach. Rational emotive behaviour therapy. Reality therapy. Beck's Cognitive –Behaviour approach.

VII. Practicals

1. Compiling research reviews on various aspects of guidance and counseling.
2. Preparing a checklist to observe and analyze guidance and counseling centers – their organizational structure, objectives, types of services provided, available facilities, staff competencies and problems experienced by them, etc.
3. Survey of guidance and counseling centers by using prepared observation check list.
4. Visit to observe and conduct interviews to get information about the counseling services provided by these institutions such as-Women welfare & child development
5. Family court
6. Women cell, etc.
7. Preparation and presentation of report
8. Visit to observe career guidance centers
9. Feed back of the clients towards the services, financial management/budget, support of other professionals/agencies to different types of centers.
10. Simulation exercises of guidance and counseling children and parents.
11. Content analysis of problems addressed by the leading counseling centers.
12. Content analysis of prevailing psychosocial problems reported in print and electronic media.
13. Identification of characteristics and skills of the counselors by watching recorded videos on child and adolescent counseling.
14. Understanding techniques used by counselors by watching recorded videos on child and parent guidance, child counseling, adolescent counseling, couple counseling.
15. Writing reports on films and videos related to the course and its presentation.
16. End term assessment

VIII. Teaching Methods/ Activities

- Lectures.
- Case studies of guidance & counselling institutions/ clinics–analysis & discussion.
- Viewing related video clips-report writing and discussion.
- Field visits to different guidance and counselling centers/ institutions.
- Interviews with clients of such centers and counselors.
- Observations and analysis of profile & issues of clients.

IX. Learning Outcome

After successful completion of this course, students

- Learn about essentials and skills of child guidance and family counselling.
- Appreciate different approaches to child guidance and family counselling.
- Understand the various needs of families and children for giving appropriate guidance and counselling services.

X. Suggested Reading

- Anthony DJ. 2006. *Mental Disorders Encountered in Counselling*. Anuragha Publications, Chennai.
- Barker M, Vossler A and Langdridge D. 2010. *Understanding Counselling and Psychotherapy*. Sage Publications, New Delhi.
- Cooper S. 2005. *Counselling, Inception, Implementation & Evaluation*. Infinity Books, New Delhi.
- Gunner J. 1984. *Counselling and Therapy for Children*. The Free Press, New York.
- Hough M. 2014. *Counselling Skills and Theory*. Hodder Education, Oxon, UK.
- Ivey AE, Ivey MB and Downing LS. 1987. *Counseling and Psychotherapy - Interpreting, Skills Theory and Practice*. Prentice Hall.

- Timulak L (2011). *Developing your Counselling and Psychotherapy Skills and Practice*, 1st Ed., Sage publications, New Delhi.
- Welfel E R and Patterson L E (2004). *The Counseling Process - A Multitheoretical Integrative Approach*. Thomson Brooks/Cole, Australia.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Counseling- definitions, difference between guidance and counseling. Goals, stages and conditions for guidance and counseling, levels of counseling, types of counseling. History of Counseling, evolution of guidance and counseling movement in India.
- 2 Counseling strategies and techniques. Role of Assessment and diagnosis in counseling.
- 3 Areas of counseling- school counseling, college counseling, career counseling, vocational counseling, social guidance and counseling, mental health. Counseling and therapy relationships.
- 4 Current trends in counseling, computerized therapy programs. Counseling children – history, goals for counseling children, child counselor relationship.
- 5 Types of guidance and counseling services - educational, vocational, personal, marriage and family, leisure time. Couple counseling, premarital and marital counseling, family counseling.
- 6 Research trends in guidance and counselling in India and abroad. Counselling children – goals of child counselling. Child- counsellor relationships. History of child counselling.
- 7 Contemporary issues in counselling children. Play therapy - Goals, theories and Working with children and their parents. Child Counselling skills, play therapy,

use of media, strategies and activities. Child counselling. Counselling process, general model for counselling. Integrated counselling for children – child counselling, observation, active listening, dealing with resistance & transference, self destructive behavior patterns.

- 8 Guidance and counselling in schools and colleges. Group guidance. Student counselling – counselling and psychotherapy, objectives of student Counselling.
- 9 Group guidance – definition, importance, objectives and advantages of group guidance. Tools and techniques, career conferences, vocational, recreational, educational, occupational information.
- 10 Competencies and role of guidance and counselling professionals. Modes and methods of counselling. Essentials of conducting guidance and counselling session. Understanding the process of guidance and counselling.
- 11 Ethical issues in counselling. Knowledge and skills to handle assessment tools.
- 12 Effective communication and documentation skills. Networking with allied professionals and institutions.
- 13 Counselling special groups. Counselling children with developmental challenges. Counselling ambivalent, different and oppositional type children. Crisis counseling - death, financial, suicidal, academic failure, illness, etc. Guidance for adolescence. Counselling elderly.
- 14 Approaches and theories of counselling: Affective Counselling theory- concept, key principles. Humanistic approaches- Roger's Client centred approach, Gestalt approach.
- 15 Psychoanalytic -Psychodynamic approaches by Sigmund Freud, Carl Jung, Alfred Adler and Melanie Klien. Skinner's Behaviouristic approach, Bandura's Behaviour Modification approach.
- 16 Rational emotive behaviour therapy. Reality therapy. Beck's Cognitive– Behaviour approach.

I. Course Title : Interventions for Differently Abled Children**II. Course Code : HDFS 510****III. Credit Hours : 2 (1+1)****IV. Rationale**

Differently able children and their families encounter various physical, psychological, educational and career problems. They are in need of expertise support and guidance to develop right attitudes towards their differently abled children and skills for their effective care and management of. Timely and early interventions for differently abled children yield analyzing results. This course is useful for the students specializing in human development as they need to have knowledge and skills for planning & executing interventions for the rehabilitation and mainstreaming differently abled children.

V. Aim of the course

- To make the students aware about significance and strategies of imparting intervention for differently abled children.

VI. Theory**Unit I: Significance and types of intervention services**

Intervention services- concept, need and significance. Prevention of avoidable health problems. Early intervention –concept, need and significance. Therapies and servicetypes and contents. Family centred, Child focused intervention, supportive and structured intervention. Speech therapy, occupational therapy, play based intervention. Duration (weeks) Topics

Unit II: Intervention Strategies and steps

Guidelines for intervention programmes for differently abled. Problems and strategies. Process and steps of intervention- identification, assessment and diagnosis of differently abled and at-risk children, planning and designing intervention, implementation and evaluation. Curriculum planning for differently abled children.

Unit III: Development of intervention programme

Developing need based intervention programmes and strategies for different categories of developmentally challenged children and their parents. Understanding key elements for successful interventions- tailoring for individual needs, providing normality and integration, provision of optimal environment for developmental progress, environmental compatibility and remedial services.

Unit IV: Executing intervention and multi disciplinary approach

Executing child and parent focused interventions and evaluating its effectiveness.

Multi disciplinary approach-significance, strategies to include parents and community and overcoming barriers. Planning interventions for inclusion. Involving parents and community.

VII. Practicals

1. Identification of families having children with specific disability
2. Based on selected families, developing need assessment checklist of differently abled children and their families.
3. Need assessment of differently abled children and their families, report presentation and enlisting the needs of family and differently abled child care & development.
4. Designing and developing intervention modules/ programme based on needs of differently abled children and their families.
5. Presentation of intervention modules/ programme, its evaluation and enhancement.
6. Intervention programme: Material selection from department and market survey of required Material/ toys/ tools/ books, etc.
7. Presentation of student's ideas for development of educational and development oriented material/ tools for intervention, discussion on it and finalizing the intervention material and tools.

8. Understanding and experiencing purchase procedure for required material- Seeking permissions of the authorities for purchases, drawing advances (Money indent), submission of vouchers and entry of material in registers.
9. Preparation and up gradation of intervention activities, material and tools.
10. Part-1: Implementation and monitoring of intervention programme in families of differently abled child
11. Part-II: Implementation and monitoring of intervention programme in families of differently abled child.
12. Part-III: Implementation and monitoring of intervention programme in families of differently abled child.
13. Part-IV: Implementation and monitoring of intervention programme in families of differently abled child.
14. Evaluation of effectiveness of intervention programme in catering the identified needs of families and their differently abled children.
15. Conducting parents/ community workshops for publicity of benefits of need based intervention programmes for creating awareness and motivation in families for the welfare of differently abled children.
16. End term assessment.

VIII. Teaching Methods/Activities

- Lectures.
- Case studies –success stories .
- Viewing of amazing intervention video clips.
- Review reports on different types of interventions.
- Field visits to Govt. and Non- Govt. institutions implementing various intervention programmes.
- Demonstrations on preparation & use of innovative learning & teaching materials.

IX. Learning Outcome

After successful completion of this course, students are well equipped to

- Understand the dos & don'ts in designing & executing interventions for the welfare and enhancing of differently abled children.
- Analyze the government programmes and home environments differently abled children and suggest concrete measures for improvement in it.

X. Suggested Reading

- Chadha A. 2001. *A Guide to Educating Children with Learning Disabilities*. Vikas Publishing House, New Delhi.
- Chadha A. 2005. *Teaching Visually Impaired Children – Module 1*. Unistar Books, Chandigarh.
- Gutpa R K. 2005. *Disability In Indian Context - A Teacher's Role*. Unistar Books, Chandigarh.
- Khatib J and Khadi P. 2011. *Emotional Behaviour of Mentally Challenged Children*.
Attending Special Schools: Parental Educational Intervention. UAS, Dharwad.
- Manga SK. 2009. *Educating Exceptional Children - An Introduction to Special Education*.
PHI Learning, New Delhi.
- Panda KC. 1997. *Education of Exceptional Children*. Vikas Publishing House. New Delhi.
- Sahu BK. 2002. *Education of the Exceptional Children*. Kalyani Publishers, New Delhi.

Weekly Lecture Schedule

Duration (weeks) Topics

- | | |
|---|---|
| 1 | Concept, need and significance of intervention services. Prevention of avoidable health problems. |
|---|---|

- 2 Early intervention –concept, benefits, eligibility criteria for early intervention.
Role of early intervention specialist
- 3 Therapies and services- types and contents. Family centred, Child focused
intervention, Supportive and structured. Play based intervention.
- 4 Speech and language therapy, physical or occupational therapy, psychological
services, home visits, medical, nursing or nutrition services, hearing (audiology)
or vision services, social work services.
- 5 Guidelines for planning and implementation of intervention programmes for
differently abled. Problems and strategies for planning and implementation of
intervention programmes for differently abled
- 6 Process and steps of intervention. Screening, assessment and diagnosis of
differently abled and at-risk children.
- 7 Curriculum planning for differently abled children.
- 8 Understanding key elements for successful interventions- tailoring for individual
needs, providing normality and integration, environmental compatibility and
remedial services.
- 9 Developing need based intervention programmes and strategies for different
categories of developmentally challenged children (continued)....
- 10 Developing need based intervention programmes and strategies for different
categories of developmentally challenged children.
- 11 Implementation of need based intervention programmes for different categories
of developmentally challenged children.
- 12 Provision of optimal environment for developmental progress. Environmental
compatibility and remedial services.
- 13 Multi disciplinary approach-significance, strategies to include parents and
community and overcoming barriers.
- 14 Need, significance and strategies to counsel parents of differently abled

- 15 Planning interventions for inclusive education.
- 16 Guidelines for involving parents and community in interventions and evaluating its effectiveness.

I. Course Title : Family Ecology

II. Course Code : HDFS 511

III. Credit Hours : 2 (2+0)

IV. Rationale

Family is a child's first context and as a social system plays a vital role in human development. From ecological perspective, children cannot be understood properly outside the context of their families, as interactions within the family and other social settings outside family play a vital role in individual's development. Families' roles, relationships and functioning have undergone dramatic transition. It is essential to the students to get exposed to different aspects of family ecology.

V. Aim of the course

- To orient the students regarding family as an institution.
- To impart knowledge about family transitions and impact of social change and development

VI. Theory

Unit I: Family relationships

Family as a social system. Socialization within the family. Models of parenting. Parent child relationships- functional and dysfunctional dyads. Family cohesion, conflict and family disorganization –impact on parenting. Children as family agents. Children and marital life. Child abuse. Bidirectionality in parent child relations. Family interactions and delinquency. Improving family communication and interpersonal relations.

Unit II: Family under transition

Family transitions. Change and continuity over life cycle. Needs and problems of families at different developmental stages. Impact of social change on family and

changing family patterns in India. Religion and family. Family social class and ethnic variations in child rearing.

Duration (weeks) Topics

Unit III: Family stressors and resilience

Family as an institution under stress. Family crisis. Poverty and children. Stressors and family relations - with special reference to family disruption, sickness, divorce, substance abuse and disability. Stress Process Model. Family's adaptation to stress. Family resilience and protective factors for promotion of family resilience. Family environment and social support as a source of risk and resilience for vulnerable children/youth. Intergenerational family dynamics in management of family conflicts and negative patterns.

Unit IV: Impact of consumerism, emigration and multiculturalism on families

Impact of consumerism on rural and urban families. Impact of emigration and multiculturalism on families. Two culture children and their psycho-social dilemmas. Contemporary issues related to family.

VII. Teaching Methods/ Activities

- Lecture cum discussion.
- Observations and interviews with different types of families.
- Case study of families in crisis.
- Class reports- based on mass media narratives.
- Seminars- Review of research studies .

VIII. Learning Outcome

After successful completion of this course, students are able to

- Students develop deep insight into role of family in individuals' development and different issues of family systems.

IX. Suggested Reading

- Carson DK, Carson CK, Chowdhury A. 2007. *Indian Families at the Crossroads*. Gyan Publishing House, New Delhi.
- Daly KJ. 2007. *Qualitative Methods for Family Studies & Human Development*. Sage Publications, New Delhi.
- Falco CJ. 1991. *Family Transitions*. Guilford Press, California.
 - Garbarino J, Eckenrode J and Barry F D. 1997. *Understanding Abusive Families: An Ecological Approach to Theory and Practice*. Jossey-Bass, New York.
- Grigorenko EL and Stenberg RJ. 2001. *Family Environment and Intellectual Functioning: A Life-Span Perspective*. Lawrence Erlbaum Associates Publishers, London.
- Karim AB. 2014. *Family Interactions: Concepts, Mechanism & Methods to Improve the Family Communication & Interpersonal Relationships*. Successful Family Upbringing Series, Refman.
- Kuczynski L. 2003. *Handbook of Dynamics in Parent-Child Relations*. Sage Publications, New Delhi.
- McCubbin H and Figley CR. 1991. *Stress And The Family: Coping with Normative Transitions* Routledge. Taylor and Francis Group, New York.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Family as a social system, ecological perspective of family. Family as an agent of Socialization.
- 2 Models of parenting. Parent child relationships- functional and dysfunctional dyads.
- 3 Family cohesion and adaptability. Family cohesion, conflict and family disorganization –impact on parenting.

- 4 Children as family agents. Children and marital relations.
- 5 Child abuse- understanding abusive families. Bi-directionality in parent child relations.
- 6 Family interactions and delinquency. Improving family communication and interpersonal relations.
- 7 Family transitions- continuity and change over life cycle. Needs and problems of families at different developmental stages.
- 8 Religion and family. Impact of social change on family and changing family patterns in India.
- 9 Family disorganization. Family Social class and ethnic variations in child rearing.
- 10 Family as an institution under stress. Family crisis. Stress Process Model.
- 11 Poverty and children. Stressors and family relations - with special reference to family disruption, sickness, divorce, substance abuse and disability. Stress Process Model.
- 12 Family resilience and protective factors for promotion of family resilience. Family and social support as a source of resilience for vulnerable children/youth.
- 13 Intergenerational family dynamics in management of family conflicts and negative patterns.
- 14 Impact of consumerism on rural and urban families.
- 15 Impact of emigration and multiculturalism on families. Two culture children and their psycho-social dilemmas.
- 16 Contemporary –researchable issues related to family.

I. Course Title : Family and Cultural Diversities

II. Course Code : HDFS 512

III. Credit Hours : 2(2+0)

IV. Rationale

Family values and functions are determined by its cultural milieu. Families must be studied in diverse cultures to understand variations in its members' status, development, interactions, relationships, concerns and their challenges in crosscultural context. It helps to dispel negative stereotypes and personal biases about different groups. As this course deals with different elements of families in western and eastern cultures cutting across different communities, the students get an intellectual perspective of families with cultural diversities.

V. Aim of the course

- To sensitize the students, regarding the theories and issues pertaining to cultural difference in family studies.
- To orient students about families across India in diversified cultural context with special reference to the farming community and their quality of living and concerning issues

VI. Theory

Unit I: Culture and family

Culture- definition, components and characteristics of culture. Agents of cultural influences- school, family, community and other social groups. Cultural factors and Duration (weeks) Topics impact on families. Western versus Eastern family culture. Cultural diversities in India. Elements of India's diverse culture – religion, philosophy, cuisine, language, fine arts, dance, music.

Unit II: Families in India and abroad

Families in India and abroad - communal, nuclear, joint, extended, polyamorous, polyandrous, polygynous, single parent families, unrelated families. Indian family culture-values and issues concerning families and its stability. Factors determining social status of families. Families in rural and tribal agrarian community – status of women, children, elderly and men in the families.

Unit III: Cross-cultural variations in family functioning

Cross-cultural variations in different aspects of family functioning across different West and East countries/ cultures *vis-à-vis* – marriage, parenthood, relationships, care of elderly and status of women. Cross cultural variations in family functioning, roles and responsibilities, cohesion, interpersonal communication patterns, conflict resolution. Parenting across cultures – child rearing, socialization and socialization practices. Family crisis and adaptations across cultures. Unique family experiences across cultures, some classic examples like Kibbutz in Israel.

Unit IV: Diversities in family life and challenges

Diversities in family life – ethnic, linguistic, regional, etc. Effect of urbanization, secularization, westernization, technological advancement, globalization and other such developments on families in general and agrarian in particular. Challenges before families across cultures. Legal provisions – emerging cultural trends. Research trends in cross-cultural family studies, methodological issues.

VII. Teaching Methods/ Activities

- Lectures.
- Viewing video films on national & international families.
- Case studies of families in diverse cultures.
- Book review
- Class reports & seminars.

VIII. Learning Outcome

After successful completion of this course, students are enable to

- Understand different elements of families in international perspective.
- Comprehend individual's development and issues differently in families of various cultural settings.
- Recognize and respect “Ways of being” that are not be our own.

IX. Suggested Reading

- Ballard SM and Taylor AC. 2012. *Family Life Education with Diverse Populations*. Sage Publications, Los Angeles.
- Brislin RW. 1990. *Applied Cross Cultural Psychology*. Sage Publications, New Delhi.
- Carson DK, Carson CK and Chowdhury A. 2007. *Indian Families at the Crossroads*. Gyan Publishing House, New Delhi.
- Ratra A, Kaur P, Chhikara S, Varma T and Chawla P. 2006. *Marriage and Family- In Diverse and Changing Scenario*. Deep & Deep Publications Pvt. Ltd, New Delhi.
- Saraswathi TS. 2003. *Cross Cultural Perspectives In Human Development*, Sage Publications, New Delhi.
- Selin H. 2014. *Parenting Across Cultures: Childrearing, Motherhood and Fatherhood in Non-Western Cultures*. Springer, Dordrecht.
- Trask BS and Hamon RR. 2013. *Cultural Diversity and Families: Expanding Perspectives*. Sage Publications, New Delhi.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Culture- definition, components and characteristics of culture.
- 2 Agents of cultural influences- school, family, community and other social groups.
- 3 Cultural diversities in India and abroad. Elements of India's diverse culture – religion, philosophy, cuisine, language, fine arts, dance, music.
- 4 Cultural factors and impact on families. Western versus Eastern family culture.
- 5 Families in India and abroad - communal, nuclear, joint, extended, polyamorous, polyandrous, polygynous, single parent families, unrelated families.
- 6 Indian family culture-values and issues concerning families and its stability.

- 7 Factors determining social status of families. Families in rural and tribal agrarian community – status of Women, children, elderly and men in the families.
- 8 Male headed and female headed families in agrarian community – causes and concerns.
- 9 Cross cultural variations in different aspects of family across different West and East countries/ cultures viz marriage, parenthood, care of elderly and status of women and other functions of family, roles and responsibilities.
- 10 Parenting across cultures – child rearing, socialization and socialization practices. Some classic examples like Kibbutz in Israel.
- 11 Cross cultural variations in family cohesion, interpersonal communication patterns, conflict resolution. Family crisis and adaptations.
- 12 Diversities in family life – ethnic, linguistic, regional, etc. Unique family experiences across groups.
- 13 Effect of urbanization, secularization, westernization, technological advancement, globalization and other such developments on families in general and agrarian in particular.
- 14 Challenges before families across cultures.
- 15 Interventions on ideals and practice of families
- 16 Legal provisions – emerging cultural trends in different societies/ countries.
Research trends in cross-cultural family studies, methodological issues.

I. Course Title : Family Therapy

II. Course Code : HDFS 513

III. Credit Hours : 3 (2+1)

IV. Rationale

The family as an institution is envisaging ever increasing stress, disruption and dysfunction. Family therapy is useful for resolving various vertical and horizontal issues of individuals. Family therapy helps in better functioning of individuals and

creates happy home environments. In the current scenario of increasing number of nuclear type families, single parent families, atypical families, the course is very beneficial for social well being.

V. Aim of the course

- To orient the students regarding various methods and techniques of family therapy.
- To help students know their abilities as counselors and equip them with family therapies.
- To enable application of therapies in different case studies.

VI. Theory

Unit I: Family therapy - orientation and theoretical perspectives

Family Therapy – concept, need, significance, areas, scope, goals and application of marriage and family therapies. Evolution of family therapy. Early models and basic techniques of family therapy- group process and communications analysis. Theoretical developments in marital and family therapy. Approaches in family therapy - Social Learning approach, Psychoanalytic, Behavioural, Systems approach. Social Constructionism theory. Attachment theory.

Unit II: Types of family therapy

Classic schools of family therapy- Bowenian Family Systems therapy, Strategic, Structured, Communication and Experiential therapies, Psychodynamic Therapy, Cognitive- Behaviour family therapy and integrated family therapy. Contemporary marital therapies. Family therapy in the 21st century and its application to multicultural, single parent and disorganized families, solution focused therapy, narrative therapy and integrative models. Application of family therapy in depression, substance abuse, schizophrenia and eating disorders.

Unit III: Concerns for family therapy

Signs and symptoms of family in need of therapies- psychosomatic symptoms, psychiatric disorders, marital distress, alcoholism, drug dependence, juvenile offences, problems of adolescence, conduct problems, work and school phobias.

Unit IV: Prospects of family therapy

Qualities of marriage and family therapists. Techniques of marriage and family therapy. Advances in clinical assessment, preventive and enrichment programmes.

Future direction for marriage and family therapy- bridging research, theory and practices.

VII. Practical

1. Observational visits and screening families in need of therapy (in various settings) and preparation of format for it. Visiting and screening of urban families in need of therapy
2. Visiting and screening of slum families in need of therapy
3. Visiting and screening of rural families in need of therapy
4. Report presentation and discussion
5. Case studies of different areas of marriage and family therapy (alcoholism, drug, dependence, juvenile offences, problems of adolescence).
6. Preparation of format. Case study of alcoholic de-addiction.
7. Case study of drug dependence and de-addiction.
8. Case study of juvenile offences and rehabilitation.
9. Case study of socio-emotional problems of adolescents.
10. Report presentation and discussion.
11. Case studies of different methods and techniques of marriage and family Therapy (one from each).
12. Visit to marriage and family therapy centre

13. Observation of sessions for knowing the methods and techniques used in marriage and family therapy (actual).
14. Observation of sessions for knowing the methods and techniques used in marriage and family therapy (recorded ones).
15. Report presentation and discussion.
16. End term assessment.

VIII. Teaching Methods/ Activities

- Lectures.
- Survey of families with different issues.
- Viewing of related films/ video clips.
- Field visits to family therapy/ family counselling clinics.
- Technical interactions with family therapists
- Class reports on current issues of families therapy impact.
- Case studies of beneficiaries of family therapy.

IX. Learning Outcome

After successful completion of this course, students are enlightened to

- Deal with family issues more scientifically in light of acquired knowledge and skills.
- Develop confidence to deal with a range of family issues under the professional guidance experts.

X. Suggested Reading

- Carr A. 2008. *Family Therapy – Concepts, Process and Practice*. 2nd Ed., John Wiley & Sons Ltd, Chichester.
- Carson DK, Carson CK, Chowdhury A. 2007. *Indian Families at The Crossroads*. Gyan Publishing House, New Delhi.
- Doherty W, Boss P, Larossa R, Schumm W and Steinmets S. 1993. *Family Theories and Methods: A Contextual Approach*. Mac Millan & Company.

- Lowe R. 2004. *Family Therapy a Constructive Framework*. Sage Publications, New Delhi.
- Mark R. 2003. *Family Therapy in Focus*. Sage Publications, London.
- Roger L. 2004. *Family Therapy - A Constructive Framework*. Sage Publications London.

Weekly Lecture Schedule

Duration (weeks) Topics

- 1 Concept. Need and significance of family therapy. Areas, scope and goals of family therapy.
- 2 Application of marriage and family therapy. Evolution of family therapy. Early models and basic techniques of family therapy- group process and communications analysis.
- 3 Theoretical developments in marital and family therapy. Approaches in family therapy - Social Learning approach and Psychoanalytic approach.
- 4 Behavioural approach, Systems approach. Social Constructionism and Attachment theory approach.
- 5 Classic schools of family therapy- Bowenian Family Systems therapy, Strategic therapy, Structured therapy.
- 6 Psychodynamic therapy, Communication therapy and Experiential therapy.
- 7 Cognitive- Behaviour family therapy and Integrated family therapy. Contemporary marital therapies.
- 8 Family therapy in the 21st century and its application to multicultural, single parent and disorganized families, solution focused therapy, narrative therapy and integrative models.
- 9 Application of family therapy in depression, substance abuse, schizophrenia and eating disorders.

- 10 Signs and symptoms of family in need of therapies- psychosomatic symptoms, psychiatric disorders, marital distress.
- 11 Role of family therapy in alcoholism, drug dependence, juvenile offences, problems of adolescence,
- 12 Role of family therapy in conduct problems, work and school phobias.
- 13 Qualities of marriage and family therapists. Techniques of marriage and family therapy.
- 14 Advances in clinical assessment, preventive and enrichment programmes.
- 15 Future direction for marriage and family therapy- bridging research, theory and practices
- 16 Wrap up

Duration (weeks) Topics

DEPARTMENT of RESOURCE MANAGEMENT and CONSUMER SCIENCE
COLLEGE OF COMMUNITY SCIENCE, SKRAU, BIKANER
M.Sc. Course Programme (2022-23)

	CourseNo./code	Title	Credits
A. Major Courses			
(i) Core Courses(Compulsory)			12Credit
1.	RMCS 501*	Resource Management: Principles and Practices	3 (3+0)
2.	RMCS 502*	Human Factors and Ergonomics	3 (2+1)
3.	RMCS 503*	Interior Space Planning	3(1+2)
4.	RMCS 504*	Consumer Economics	3 (2+1)
(ii) Optional Courses			8 Credit
1.	RMCS 505	Work and Work Station Design	3(1+2)
2.	RMCS 506	Colour and Lighting in Interiors	3 (2+1)
3.	RMCS 507	Consumer Issues and Legislations	2 (2+0)
4.	RMCS 508	Product Design	3(1+2)
5.	RMCS 509	Ergonomic Research Techniques	3(1+2)
6.	RMCS 510	Housing and Energy Efficient Building Design	3(2+1)
7.	RMCS 511	Technical Drawings	3(1+2)
8.	RMCS 512	Interior Design Business Management	3(1+2)
9.	RMCS 513	Environmental Resource Management	2(1+1)
10.	RMCS514	Special Project	2(0+2)
		Total credits	20 credits
B. Minor Courses from other Departments (IABM/COA/HOMESCIENCE)as per the availability.			8 Credit s
1	FN 505	Nutrition and Physical fitness	3(2+1)
2	FN 509	Food Safety and Standards	3(2+1)
3	FN 513	Human Physiology	3(3+0)
4	EECM 502	Development communication	3(2+1)
5	EECM 505	Dynamic communications skills	2(0+2)
6	EECM 507	Organizational development and HRD	2(1+1)
7	EECM511	Climate Change Management	2(1+1)
8	HDFS 503	Methods and Techniques of Assessment in Human Development	3(2+1)
9	HDFS 506	Management of differently bled	3(2+1)
10	ATS 512	Apparel and Textile Product Development	2(1+1)
11	ATS 513	Laboratory Techniques in Textiles Research	2(0+2)
C. Supporting Courses			6Credit
1		Research Methodology	3(2+1)
2		Statistical Methods and Application	3(2+1)
D. Common Courses			5Credit
1		Library and Information Services	1(0+1)
2		Technical Writing and Communications Skills	1(0+1)
3		Intellectual Property and its management in Agriculture	1(0+1)

4		Basic Concepts in Laboratory Techniques	1(0+1)
5		Agricultural Research ,Research Ethics and Rural Development Programmes	1(0+1)
1	HDFS591	Master's Seminar	1(0+1)
2	HDFS599	Research	30
3		Comprehensive/Preliminary(oral)	-
		Grand Total	70 credits

COLLEGE OF COMMUNITY SCIENCE, BIKANER
Semester wise course distribution of M.Sc. Courses (RMCS)

Course No.	Title of the course	Credit Hrs.	Remarks Major, Minor, Non Credit etc.
Ist Semester			
RMCS-501	Resource Management : Principles and Practices	3(3+0)	Major Course
RMCS-503	Interior Space Planning	3(1+2)	Major Course
RMCS-505	Work and Work Station Design	3(1+2)	Major Course
FN-510	Nutrition Challenges in Life Cycle (NCLC)	3(3+0)	Minor Course
PGS-501	Library and Information Services	1(1+0)	Common Compulsory Course
PGS-502	Technical writing and Communication Skill	1(1+0)	Common Compulsory Course
	Total credit hours	14	
IInd Semester			
RMCS-504	Consumer Economics	3(2+1)	Major Course
RMCS 507	Consumer Issues and Legislations	2 (2+0)	Major Course
RMCS-506	Colour and Lighting in Interiors	3(2+1)	Major Course
STAT-501	Statistical Methods and Application	3(2+1)	Supporting Course
EECM 508	Educational Technology	3(2+1)	Minor Course
PGS- 503	Agricultural Research , Research Ethics and Rural Development Programmes	1(0+1)	Common Compulsory Course
PGS-508	Basic concepts in laboratory Techniques	1(0+1)	Common Compulsory Course
	Total credit hours	16	
IIIrd Semester			
RMCS-502	Human Factors and Ergonomics	3(2+1)	Major Course
RESMETH-501	Research Methodology	3(2+1)	Supporting Course
EECM-512	Gender Sensitization For Empowerment	2(2+0)	Minor Course
RMCS-599	Comprehensive/ Preliminary	2(2+0)	Oral (Non -Credit)
RMCS-591	Masters Seminar	1(0+1)	Seminar
RMCS-599	Research	10	Research
	Total credit hours	21	
IVth Semester			
PGS-505	Intellectual Property and its Management in Agriculture	1(0+1)	Common Compulsory Course
RMCS-599	Masters Research	20	Research
	Total credit hours	21	
	Grand Total credit hours	72	

**Restructured and Revised Syllabi of Post-graduate
Programmes Community Science
Department of Resource Management and Consumer Science**

Preamble

The discipline pertains to scope of management in judicious use of resources to achieve the goals. This department deals with the “Art and Science of Living” and Consumer related issues. This department attempts to clarify the scope and meaning of management in the home while helping students to recognize and make the best use of available resources in and around the home.

Efforts in this area provide an understanding of how individuals and families obtain and utilize resources of time, money, and human capital, to achieve higher standard of living and overall quality of life. Resource Management and Consumer Science is an evolving field in Community Science that deals with various aspects of management of resources, with special emphasis on the relationship of human beings (human resource), interior space (space as a material resource) and the activities that are carried out in the space. The course is both relevant and significant due to the changing needs of human beings with their environment. It includes the major fields like ergonomics/Human factor Engineering, interior design, consumer economics and management of resources to prepare students to be effective managers, Occupational analyst, Interior designer and Consumer counselor. Resource Management and Consumer Science department is designed to enable the students to develop professional competence for jobs in the private, public sector and to take up entrepreneurial ventures.

As an added dimension, the department has introduced Post Graduate Programme in the year 2021. The Dept. has also undertakes activities of entrepreneurship development.

**RESOURCE MANAGEMENT and CONSUMER SCIENCE
COURSE CONTENT
M.Sc.Programme**

COURSE CONTENT

Credits: 3(3+0)

Course Number: RMCS 501

Course Title: RESOURCE MANAGEMENT: PRINCIPLES AND PRACTICES

RATIONALE

Global scenario presents tremendous challenges at the forefront of upcoming managers. Management education provides a potential productive ground to develop entrepreneurial skills and abilities. There is a need to facilitate students in developing competencies related to the role of managers as required in today's competitive environment. This course will nurture the students in a way that their abilities can be sharpened to take up managerial responsibilities in future.

LEARNING OBJECTIVES

- To impart knowledge on the multifarious concepts, principles and processes of management
- To enable students to develop skills in the application of managerial skills in an organizational setup.

THEORY

UNIT I: Nature and functions of management

Importance of management; Management functions; Management principles; Management levels; Functional areas of management; Managerial skills; Managerial roles.

UNIT II: Evolution of management thought

Early classic approaches- Scientific management, administrative management and bureaucracy; Neo-classic approaches- Human relation approach and behavioral approach; Modern approach; Quantitative approach; Systems approach; Contingency approach.

UNIT III: Managerial competencies

Planning and administrative competencies; Decision making- Introduction, nature of managerial decision making, approaches to decision making; Types of decisions; Process of decision making; Tools and techniques of decision making; Creativity and

rationality in decision making; Models of decision making behaviour; Risk and certainty in decision making; Authority and responsibility in decision making; Communication- Functions, factors and features, process, barriers and principles, types and channels; Leadership-Meaning, importance, characteristics and styles.

UNIT IV: Management process

Steps in management process; Planning- Types and dimensions, planning in systems perspective, factors affecting planning; Organizing- Departmentalization, line and staff relationship; Coordinating – Need, types, principles, techniques and problems of coordination; Directing; Controlling.

UNIT V: Human behaviour and organization

Introduction to organizational behaviour; Values; Attitudes and performance; Motivation- Importance, contemporary theories of motivation, approaches, elements of sound motivation; Stress management- Concepts, causes, consequences, stress managing techniques.

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Identify managerial activities that contribute to managerial effectiveness
- Observe and evaluate the influence of historical forces on the current practice of management
- Explain how organizations adapt to an uncertain environment and identify techniques that managers apply to influence and control the internal environment

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Publication review
- Students' presentations
- Case studies
- Guest lectures
- Online learning

REFERENCES

1. Gaurav A (2010) *Management Functions and Process, Management Thought*
<https://kalyan-city.blogspot.com/2010/06/management-functions-process-management.html>

2. Hellregel 2002 *Management*. Thomson Learning, Bombay.
3. Henry John (2019) *Functions of Management Process: Planning, Organizing, Leading, Controlling* <https://iedunote.com/function-of-management-process>
4. Koontz H and Wechrich H (2008) *Management*. Tata McGraw Hill Inc., N.Y.
5. Draft Richard, L (2015) *Management*. Thomson South-Western.
6. Robbins SP and Decenzo DA (2010) *Fundamentals of Management*. Pearson Education Asia, New Delhi.
7. SatyaRaju R and Parthasarathi A (2009) *Management- Text & Cases*. PHI, New Delhi.
8. Stephen P R and Mary AC (2015) *Management*. 13th Edition. Prentice Hall of India. New Delhi.
9. SubbaRao P (2017) *Management and Organizational Behaviour (Text and Cases)*.

Himalaya Publishing House, New Delhi.

10. Tripathi PC and Reddy PN (2013) *Principles of Management*. Tata McGraw Hill Education Pvt Ltd, ND.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Nature and functions of management-Definition and importance of management, management and administration; Management functions- Planning, organizing, staffing, directing, motivating, controlling and coordinating; Management principles- Importance, Fayol's principles of management.
2.	Management levels-Administrative level, executor level, supervisory level; Functional areas of management; Human resource management; Production management; Office management; Financial management and marketing management; Managerial skill- Roles and effectiveness.
3.	Evolution of management thought- Early classic approaches, scientific management, and Taylor's contribution, contributions of Gantt and Gilbreth, criticism of scientific management; Administrative management- Fayol's contribution, principles of administration.
4.	Limitations of administrative management; Bureaucracy- Important features, limitations; Classic approaches- Human relation approach, Hawthorne study.
5.	Contributions and limitations of human relations approach; Behavioral approach- Emergence, key ideas, contributions and weaknesses; Modern approach- Contributions and limitations.

6.	Quantitative approach-Contributions and limitations; Systems approach – Introduction, system’s vocabulary, features of system, system’s framework; Contingency approach-Contributions and limitations.
7.	Managerial competencies; Planning and administrative competencies; Decision making-Introduction, nature of managerial decision making; Approaches to decision making; Types of decisions; Process of decision making.
8.	Tools and techniques of decision making; Creativity and rationality in decision making; Models of decision making behaviour; Risk and certainty in decision making; Authority and responsibility in decision making.
9.	Communication-Functions, factors and features; Communication Process; Barriers of communication; Principles of communication; Types and channels.
10.	Leadership- Meaning and importance, characteristics and styles of leadership; Management process; Steps in management process; Planning- Nature, types, importance and dimensions.
11.	Strategic planning process; Planning in systems perspective; Factors affecting planning, limitations of planning.
12.	Organizing-Process, departmentalization, organization structure, line and staff relationship; Coordinating-Need, types, principles.
13.	Techniques and problems of coordination; Difference between coordination and cooperation; Directing- Elements of directing; Controlling- Need, steps, benefits and problems of controlling, controlling techniques.
14.	Human behaviour and organization; Introduction to organizational behaviour; Values; Attitudes and performance; Motivation- Definition, process, nature and importance of motivation.
15.	Contemporary theories of motivation; Approaches and elements of sound motivation; Stress management- Concepts and causes.
16.	Signs and symptoms of stress; Sources and consequences of stress; Stress managing techniques.

Credits: 3(2+1)

Course Number: RMCS 502

Course Title: HUMAN FACTORS AND ERGONOMICS

RATIONALE

Ergonomics is an applied science that coordinates the design of devices and physical working conditions with the capacities and requirements of the worker. Human factors and ergonomics is the application of physiological and psychological principles to design of products, processes, and systems. The course is intended to train the students to reduce human error, increase productivity, and enhance safety and comfort with a specific focus on the interaction between the human and the thing of interest.

LEARNING OBJECTIVES

To acquaint students with basic principles of human anatomy, physiology, human anthropometry and its relation to ergonomics

To enable the students, understand the human factors and its relation to ergonomic design.

THEORY

UNIT I: Introduction to ergonomics

Definition, aim, objectives and scope of ergonomics; Domains of ergonomics; Historical development of ergonomics and human factor; Interface between man machine and environment; Ergonomics in design.

UNIT II: Human body systems

Structure and functions of major body systems- Parts and basic functions of skeletal system; Properties and functions of muscular system; Components of circulatory system; Parts and functions of respiratory system; Structure and functions of digestive system and nervous system.

UNIT III: Human anthropometry

Human anthropometry; Static and dynamic anthropometry; Anthropometric measurements; Normal distribution and percentiles; Anthropometry in ergonomics and design.

UNIT IV: Body movement and postures

The functions and movements of skeletal system - Functional classification of bones, joints, ligaments and tendons; Neuromuscular aspects of movement; Joints and movements; Classification of joints on the basis of function; Movement at synovial

joints; Skeletal muscle as levers; Posture- Work posture, postural discomfort and its impact on work and human health, posture analysis tools.

UNIT V: Work physiology

Fundamentals of work physiology; Muscular efforts; Energy consumption; Physical fitness- Measuring physical fitness using different techniques; Physical work capacity and its measurement; Determination of cardiac cost of work; Factors influencing energy requirements and energy costs for various activities.

PRACTICAL

1. Collection of anthropometric measurements of school children
2. Analysis of data on school children anthropometry
3. Presentation of report on school children anthropometry
4. Designing study table based on the anthropometric data
5. Measuring the work posture of a worker involved in manual work using RULA/REBA/OWASA
6. Analysis of work posture data
7. Presentation of report on work posture of person involved in manual work
8. Determination of physical fitness using any one of the technique
9. Analysis of data and presentation of report on physical fitness
10. Measurement of cardiac cost of selected activity
11. Analysis of data on cardiac cost of selected activity
12. Presentation of report on cardiac cost of selected activity
13. Assessment of ergonomic cost of work in terms of physiological indices
14. Analysis of data on ergonomic cost of work
15. Presentation of report on ergonomic cost of work
16. End of Tm Assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Appreciate the role of ergonomics in reducing human error in designing and increase productivity
- Understand the importance of people in work systems, their abilities and limitations for designing tasks and work for effectiveness, efficiency, health and safety
- Contribute to new thinking and innovation processes within human factors and ergonomics

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Student presentations

- Group and individual research work
- Field visits
- Guest lectures

REFERENCES

1. Benchmark Research and Safety Inc (2008) *A Brief History of Human Factors and Ergonomics* <http://www.benchmarkrs.com/main/human-factors/what.aspx>
2. Dalela S and Saurabh (1999) *Text book of Work Study and Ergonomics*. Standard Publishers and Distributors, Delhi.
3. Galer IAR (1982) *Applied Ergonomics Handbook*. Butterworth-Heinemann.
4. Grandjean E (1978) *Ergonomics of the Home*. Taylor & Francis, London.
5. Grandjean E (1980) *Fitting the Task to the Man*. Taylor & Francis, London.
6. Jain AK (2017) *Human Anatomy and Physiology*. Arya Publications, Udaipur.
7. Roebuck John A (2016) *Anthropometric Methods: Designing to Fit the Human Body*. <http://www.hfes.org/Publications>.
8. Panero J and Zelnik M (1979) *Human Dimension and Interior Space*. Whitney Library of Design.
9. Rodahl AK, Hans A Dahl, Sigmund B Stromme (2005) *Text Book of Work Physiology*. CRC Press, London.
10. Salvendy (Ed) (2006) *Handbook of Human Factors and Ergonomics*. Third edition, John Wiley and Sons, Hoboken, NJ.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction to ergonomics- Definition, aim, objectives and scope of ergonomics; Physical, cognitive and organizational domains of ergonomics; History and status of ergonomics; Developments in the field of ergonomics; Approaches, characteristics, classification and interface between man, machine and environment system.
2.	Ergonomics in designing for human comfort and safety; Human body systems; Components of human skeleton -Bones, cartilage, joints.
3.	Parts of human skeleton-Skull, vertebral column, rib cage, shoulder girdle, skeleton of upper limb, pelvic girdle, skeleton of lower limb; Functions of human skeletal system- Strength, support and shape, protection of delicate organs, leverage for movements, production of red blood cells.
4.	Introduction to muscular system; Properties of muscles- Irritable, contractible, extensible, elastic and adaptability; Types of muscles-Skeletal muscles, cardiac muscles, smooth muscles..

5	Functions of the muscular system- Mobility, stability, posture, circulation, respiration, digestion, urination, childbirth, vision, organ protection, temperature regulation; Components of the human circulatory system- Heart, blood, red and white blood cells, platelets, and the lymphatic system.
6.	Respiratory system-Upper respiratory tract, nose, mouth, and the beginning of the trachea; Lower respiratory tract-The trachea, the bronchi, bronchiole and the lungs.
7.	The act of breathing– Inhalation and exhalation and involvement of muscles; Measurements of lung function.
8.	Structure and functions of digestive system and nervous system; Human anthropometry- Static and dynamic anthropometry.
9.	Anthropometric measuring techniques; Normal distribution and percentiles; Anthropometry in ergonomics and design-Designing for extremes, designing for adjustability, designing work heights.
10.	The skeletal system- Functions and movements; Functional classification of bones, joints, ligaments, tendons.
11.	Neuromuscular aspects of movement; Joints and skeletal movement; Classification of joints on the basis of structure-Fibrous joints, cartilaginous joints, synovial joints.
12.	Classification of joints on the basis of function- Synarthrosis, amphiarthroses, diarthroses; Movement at synovial joints- Gliding movement, angular movement, rotational movement, special movements.
13.	Skeletal muscles as levers and their role in body movement; Posture- Workplace posture, posture and muscle activity, postural discomfort and its impact on work and human health.
14.	Posture analysis tools- Rapid Upper Limb Analysis (RULA); Rapid Entire Body Analysis (REBA); Ovako Working Posture Analysis (OWASA); Fundamentals of work physiology- Muscular efforts, energy consumption, body size and movements.
15.	Physical fitness- Techniques to measure physical fitness; Physical work capacity and its measurement.
16.	Determination of cardiac cost of work; Factors influencing energy requirements and energy costs for various activities.

Credits:3(1+2)

Course Number: RMCS 503

Course Title: INTERIOR SPACE PLANNING

RATIONALE

Space planning either in residential or commercial buildings is the most imperative aspect of interior design profession. The interior designer is expected to develop a space plan for either

residential or commercial buildings with its space allocations and divisions, arrangements and organizations to accommodate the functional, special and occupancy requirements in the form of space layout and final planning. The course is designed to expose students to advances in interior space designing process.

LEARNING OBJECTIVES

- To gain insight into the process of interior design and the various aspects and considerations involved in practice of both residential and commercial design
- To expose the students to advanced space planning techniques of residential and commercial buildings.

THEORY

UNIT I: Interior design and user comfort

Residential buildings- Types and its characteristics; Commercial buildings- Types and its characteristics; Effect of interior design on user comfort- Residential, commercial, special needs.

UNIT II: Building planning principle

Functional and aesthetic considerations in the use of elements of design; Functional and aesthetic considerations in the use of principles of design; Housing principles for designing public private and circulation spaces; Advances in design process of residential interiors- Personal space, public space, utility space; Advances in design process of commercial interiors- Service institutions, marketing institutions; Recent trends in interior space management.

UNIT III: Space standards

Space standards for various rooms in residential and commercial buildings; Building materials and their standards; Space saving furniture.

UNIT IV: Building services

Electrical and safety fittings; House wiring; Plumbing systems for residential and commercial buildings; Sanitary fittings and fixtures for residential and commercial buildings.

PRACTICAL

1. Preparation of a schedule to collect information regarding the characteristics of residential and commercial buildings
2. Visits to identify the characteristics of residential buildings
3. Visits to identify the characteristics of commercial buildings
4. Presentation of report on characteristics of residential and commercial buildings
5. Designing a residential house as per space standards –development of conceptual drawings
6. Designing a residential house as per space standards –development of design details and working drawings
7. Designing a residential house as per space standards –portfolio preparation
8. Designing a residential house as per space standards –presentation and group discussion
9. Designing any commercial building as per space standards- development of conceptual drawings
10. Designing any commercial building as per space standards- development of design details and working drawings
11. Designing any commercial building as per space standards- portfolio preparation
12. Designing any commercial building as per space standards- presentation and group discussion
13. Market survey on electrical and sanitary fittings and fixtures
14. Market survey on space saving furniture suitable
15. Presentation of report on sanitary fittings, fixtures and space saving furniture for residential and commercial buildings available in market
16. Cost estimation of residential building (apartment/condominium/row house)
17. Cost estimation of commercial building (Ice cream parlor/Tiffin centre/beauty salon/ restaurant etc.)
18. Designing space saving furniture for residential buildings
19. Portfolio preparation on space saving furniture for residential buildings
20. Presentation of report on space saving furniture for residential buildings
21. Design and development of space saving furniture for commercial buildings
22. Portfolio preparation on space saving furniture for commercial buildings
23. Presentation of report on space saving furniture for commercial buildings
24. Project on renovation of a residential building with cost estimation
25. Portfolio preparation on renovation of a residential building with cost estimation
26. Presentation of report and group discussion on renovation of a residential building with cost estimation
27. Project on renovation of a commercial building with cost estimation
28. Portfolio preparation on renovation of a commercial building with cost estimation
29. Presentation of report and group discussion on renovation of a commercial building with cost estimation

30. Preparation of material board and presentation for a residential project
31. Preparation of material board and presentation for a commercial project
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Understand the effect of interior design on user comfort and plan interiors for residential, commercial and special needs
- Get acquainted with recent trends in interior space management
- Develop plans as per space and building materials standards
- Update knowledge on building services

TEACHING METHODS / ACTIVITIES

- Lectures
- Field visits
- Assignments
- Preparation of manuals
- Market survey
- Students' presentation
- Group and individual research work
- Guest lectures

REFERENCES

1. Allen PS, Stimpson MF & Jones LM(2000)*Beginnings of Interior Environments*. Prentice Hall.
2. Choudhari SN (2006)*Interior Design*. Avishkar Publ.
3. Gilliatt M(1981) *The Decorating Book*. Pantheon Books.
4. Hamstech Interior Design (2017)*Importance of Space Planning in Interior Designing* <http://www.hamstech.com/blog/importance-of-space-planning-in-interior-designing/>
5. Panero J & Zelnik M (1979)*Human Dimension and Interior Space*. Whitney Library of Design.
6. Parikh A, Robertson D, Lane T, Hilliard E & Paine M. 2000 *The Ultimate Home Design Source Book*. Conran Octopus.
7. Pears A, Lawrence M, Hymers P & Howell J (2000)*Working with the Professionals*. Marshall Publ.
8. Philip S (2017) *Concept Design and Space Planning*. <https://www.designblendz.com/solutions/concept-design-space-planning>
9. Seetharaman P & Pannu P (2005)*Interior Design and Decoration*. CBS.
10. Zimmerman N (2003)*Home Workspace Idea Book*. The Taunton Press.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Types and characteristics of residential buildings; Types and characteristics of commercial buildings-Public and private educational institutions, health related buildings, recreational buildings, market buildings etc.
2.	Effect of interior design on user comfort in residential, commercial and buildings for people with special needs in terms of colour, space, texture, and light.
3.	Functional and aesthetic considerations in the use of elements of design- Line, form, texture, colour, pattern and space.
4.	Functional and aesthetic considerations in the use of principles of design – Proportion, balance, emphasis, harmony and rhythm.
5.	Housing principles for designing public spaces and private spaces like living room, dining room, porticos, drawing room, media room, bedrooms, pooja room, bathrooms, bar area etc.
6.	Housing principles for designing circulation and utility spaces – Kitchen, laundry, stair cases, path ways and corridors.
7.	Advances in design process of residential interiors- Personal space, public space, utility space.
8.	Advances in design process of commercial interiors- Service institutions, marketing institutions.
9.	Recent trends in interior space management with reference to colour, architectural features, building materials etc.
10.	Space standards for public, private, utility and circulation spaces in residential and commercial buildings.
11.	Building materials and their standards.
12.	Space saving and multipurpose furniture suitable for residential and commercial interiors and their standards.
13.	Electrical and safety fittings; Wiring system in residential and commercial buildings.
14.	Plumbing systems for residential buildings in terms of fittings and fixtures.
15.	Plumbing systems for commercial buildings in terms of fittings and fixtures.
16.	Sanitary fittings and fixtures for residential and commercial buildings.

Credits: 3(2+1)

Course Number: RMCS 504

Course Title: CONSUMER ECONOMICS

RATIONALE

Consumer economics is a broad field, principally concerned with microeconomic analysis behaviour in units of consumers, families, or individuals. Students need to develop in-depth understanding of the functioning of domestic and global economies and to develop the necessary and portable skills to perform economic analysis. The course will provide an insight to understand the role of consumption in shaping India's economy

LEARNING OBJECTIVES

- To provide a comprehensive study of the basic institutions, concepts, principles, and practices of economics
- To impart knowledge about consumer behaviour with reference to micro and macroeconomic systems and its impact on consumption behavior.

THEORY

UNIT I: Consumer behaviour

Consumer behavior; Environmental influences on consumer behaviour; Individual determinants of consumer behavior; Models of consumer behavior - Micro economic model, Nicosia model, Howard-Sheth model, Engel- Block well-Miniard model; Application of consumer behaviour knowledge in marketing; Consumer decision process- Problem recognition, search and evaluation, purchasing process, post purchasing behavior; Researching consumer behaviour.

UNIT II: National income

Definition and significance; Concepts of national income; Methods of measurements of national income - Value added method, income method, expenditure method, reconciliation of the three measures of national income; Difficulties in measurement of national income- Conceptual difficulties and practical difficulties; National income and Economic welfare.

UNIT III: Consumption economics

Concept of consumption economics; Theories of consumption- Engels law of consumption, relative income theory of consumption, life cycle theory of consumption, permanent income theory of consumption; Budget and economy; Fiscal policy; Annual financial statement of the government and budget; Revenue receipts and revenue expenditure; Capital receipts and capital expenditure; Overall budget; Concepts of

deficits in government budget; Revenue deficits and fiscal deficit; Taxation- India's tax structure; Tax as a source of public revenue; Direct and indirect taxes; Merits and demerits of taxes; Role of indirect tax in a developing economy; Incidence and effects of taxes; Inflation- Meaning of inflation, types of inflation, causes, effects, measures to check inflation; Deflation- Meaning, deflation and disinflation, causes, effects, measures to control deflation.

UNIT IV: Financial systems of India

Introduction to financial system of India; Financial institutions; Financial services; Financial markets; Structure of Indian financial system; Importance of financial system for the economic development ;Banking-Types of banking institutes; Functions; Types of loans and advances; Indian money market; Indian capital market; Financial intermediaries and services; Insurance and its regulations.

PRACTICAL

1. Project work: Study of consumer buying behaviour while buying a selected commodity
- Collection of review
2. Formulation of objectives of the study
 3. Selection of sample, and study location
 4. Designing the data collection tool
 5. Pre testing and finalization of data collection tool
 6. Collection of data
 7. Data analysis
 8. Report writing
 9. Finalization of report
 10. Presentation of the report on “Consumer buying behaviour while buying a selected commodity”
 11. Discussion on the findings of the research
 12. Visit to any one financial institute
 13. Preparation of documents required for applying for a loan
 14. Study of the trends of stock market index given in magazines or news papers
 15. Critical analysis of National Budgets through panel discussion.
 16. End of Term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Understand how markets organize core economic activities, such as production, distribution, consumption, and the growth of productive resources
- Appreciate the role of factors that influence consumer decisions in consumer buying behaviour

- Gain knowledge on the determinants of macroeconomic conditions , causes of business cycles, and interactions of monetary and fiscal policy

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Students' presentation
- Group work
- Student's interview of key policy makers
- Case analysis and case studies
- Guest lecture
- Review of policy documents

REFERENCES

1. Ahuja HL (2012) *Modern Micro Economics: Theory & applications*. Chand Company Ltd., New Delhi.
2. Chadha R (1995) *The Emerging Concepts and Strategies*. New Age International & Wiley Eastern.
3. Loudon David L and Albert JDB (1993) *Consumer Behaviour*. 4th edition. Tata McGrawHill Publishing company Limited, New Delhi.
4. Deepashree (2016) *Introductory Macroeconomics*. Saraswati House Pvt Ltd.
5. Dewett KK and Varma JD (2017) *Elementary Economic Theory*. S. Chand & Company Ltd., New Delhi.
6. Dhingra IC and Garg VK (2002) *Basic Economics & Business Environment*. Sultan Chand & Sons, New Delhi.
7. Dhingra IC and Garg VK (2004) *Economics Fundamentals*. Sultan Chand & Sons, New Delhi.
8. Kaur S, Lekhi RK and Joginder S (1997) *Consumer Economics*. Kalyani Publishers.
9. Marguerite B (2000) *Consumer Economics: A Multidisciplinary Approach*. John Wiley & Sons.
10. Schiffman LG and Kaunuk LL (2004) *Consumer Behaviour*. Prentice Hall of India.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Introduction to consumer behaviour, consumer and customer, buyers and users, organization of buyers, development of marketing concept. Environmental influences on consumer behaviour- Culture, social class, family, personal influences; Diffusion of innovations.
2.	Individual determinants of consumer behaviour- Personality and social concept, motivation and involvement, information processing, learning and memory, attitudes; Models of consumer behaviour-Micro economic model, Nicosia model.
3.	Models of consumer behaviour- Howard-Sheth model, Engel- Block well-Miniard model; Application of consumer behaviour knowledge in marketing; Consumer behaviour and marketing management; Consumer behaviour and non-profit and social marketing; Consumer behaviour and government decision making; Consumer behaviour and consumer research process.
4.	Consumer decision process-Problem recognition, search and evaluation, purchasing process, post purchasing behaviour; Researching consumer behaviour-Consumer research strategies, methods of gathering information, measuring consumer characteristic.
5.	National income-Definition and significance; Concepts of national income-Gross Domestic Product (GDP),Gross National Product(GNP),Net Domestic Product (NDP),Net National Product(NNP).
6.	Concepts of national income- Net national product at market price, net domestic product at factor cost, income from domestic product occurring to private sector, private income, personal income, personal disposable income, inter-relationship between different concepts of national income; Methods of measurements of national income-Value added method, income method.
7.	Methods of measurements of national income- Expenditure method, reconciliation of the three measures of national income; Difficulties in measurement of national income-Conceptual difficulties and practical difficulties.
8.	National income and economic welfare- Changes in the composition of national income and economic welfare, changes in the distribution of national income and economic welfare; Consumption economics-Definition, terms and concepts.
9.	Theories of consumption- Engels law of consumption, relative income theory of consumption,life cycle theory of consumption, permanent income theory of consumption.

10.	Budget and economy- Fiscal policy, objectives, annual financial statement of the government and budget; The Budget-revenue receipts and revenue expenditure, capital receipts and capital expenditure, overall budget, concepts of deficits in government budget, revenue deficits and fiscal deficit.
11.	Taxation; India's tax structure; Tax as a source of public revenue, direct and indirect taxes, merits and demerits of taxes, role of indirect tax in a developing economy, incidence and effects of taxes; Inflation- Introduction, meaning of inflation, types of inflation, causes, effects, measures to check inflation.
12.	Deflation- Meaning, deflation and disinflation, causes, effects, measures to control deflation; Introduction to financial system of India- Financial institutions, financial services, financial markets.
13.	Meaning of financial services, structure of Indian financial system, importance of financial system for the economic development; Definition of Bank, Functions of Reserve Bank of India, Commercial Banks, Regional Rural Banks, Cooperative Banks, Micro Finance, Priority Sector Lending, NABARD, Development Financial Institutions SFC, SIDBI.
14.	Types of loans and advances, principles of sound lending policies, credit appraisals of various forms of loans and advances; Modes of creating charges- lien, pledge, mortgage and hypothecation; Indian money market- Characteristics, structure, composition; Problems and reforms in Indian money markets.
15.	Indian capital market- Composition and growth of primary and secondary markets, difference between primary and secondary markets, capital market reforms and NBFC in capital markets, stock exchange, NSE, OTCEL, Online trading and role of SEBI; Financial intermediaries and services- Merchant banker, mutual funds, leasing companies, venture capital funds, forfeiting, loan syndication, factoring, custodial services, depository services and depository by participants.
16.	Meaning of insurance and reinsurance; Principles and advantages of insurance; Globalization of insurance and insurance sector reforms in India; Types of insurances; Regulations of insurance in India; Insurance act 1938.

Credits: 3(1+2)

Course Number: RMCS 505

Course Title: WORK AND WORKSTATION DESIGN

RATIONALE

Workplace design has a profound impact on the productivity of workers. Making the best use of space through optimum placement of equipment, integrating the human factor into workplace design, and effectively aligning the workplace into the

surrounding environment are important aspects of ergonomics. This course prepares students to develop work stations as per the requirements of the organizations and its technologies that satisfy the workers individual requirements.

LEARNING OBJECTIVES

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

THEORY

UNIT I: Work, worker and workplace

Work, worker and workplace-Definition, types and interrelationship; Classification of work based on energy consumption and nature of work; Time and energy requirements of work; Introduction to components of worker input- affective, cognitive, temporal and physical.

UNIT II: Work measurement techniques

Work measurement techniques- Subjective judgment, Record of past performance, Scientific methods; Tools for work analysis-Charts, diagrams, models and photographic aids.

UNIT III: Workplace layout and equipment design

Principles of workstation and system design; Design and arrangement of different work centers; Work reaches; Working heights; Visual design parameters- Work surface, space allowance and

storage; Design considerations for different workstation designs-Seated work, Standing work, Sit stand work; Controls, displays and information; Visual, auditory and other displays; Quantitative and qualitative information; Methodologies for studying workplace design; Hazards of ill designed workstation.

UNIT IV: Physical factors of the work environment

Environmental factors in workplace and their measurement-Heat, light, sound and noise, vibration, radiation, humidity; Effect of environmental parameters on worker and work performance.

PRACTICAL

1. Selection of workplace unit for taking the anthropometric measurements of worker and dimensions of equipment and furniture used in a selected workplace units
2. Measuring and recording the anthropometric measurements of worker in the selected workplace unit

3. Measuring and recording the dimensions of equipment and furniture used in the selected workplace unit
4. Working on developing design for a workplace unit as per data collected in previous exercise
5. Determining the space relationships as per workers anthropometry
6. Determining the space relationships as per workers posture and movement at selected workstations
7. Developing the 2D design of selected workplace unit
8. Developing the 3D design of selected workplace unit
9. Work measurement in the selected workstation using two hand process charts
10. Analysis of data collected
11. Presentation of report on work done in the selected workstation using two hand process charts
12. Work measurement in the selected workstation using photographic aid
13. Analysis of data on work measurement collected in the selected workstation using photographic aid
14. Presentation of report on work done in the selected workstation using photographic aid
15. Measuring environmental factors in the workplace: Heat
16. Measuring environmental factors in the workplace: Light
17. Measuring environmental factors in the workplace: Noise
18. Measuring environmental factors in the workplace: Vibration
19. Measuring environmental factors in the workplace: Radiation
20. Measuring environmental factors in the workplace: Humidity
21. Analysis of data collected on environmental parameters
22. Presentation of report on environmental parameters
23. Developing a design layout of a selected commercial workplace: Preparation of check list
24. Collection of data on design features, space relationships, dimensions of equipment and furniture, and environment control parameters in the workplace
25. Analyzing the data
26. Finalizing the dimensions of selected commercial workplace
27. Developing a design layout of the selected commercial workplace based on the DATA.
28. Presentation and group discussion on the design layout of the selected commercial workplace
29. Finalization of design layout of the selected commercial workplace
30. Developing 2D plan of the selected commercial workplace
31. Developing 3D workplace design of the selected commercial workplace
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Asses the workers requirements in a workplace
- Determine the space relationships as per workers anthropometry, posture and movement at any workstations
- Develop workplace design for various occupations

TEACHING METHODS / ACTIVITIES

- Lectures
- Reading assignment
- Photographic technique for recording posture at workplace
- Hands on experience on measuring ergonomic parameters
- Students' presentation
- Group discussions
- Guest lectures
- Visits to industries

REFERENCES

1. Barnes RM (1980) *Motion and Time Study*. John Wiley & Sons.
2. Bridger JD (1995) *Introduction to Ergonomics*. McGraw-Hill Book Co., Singapore.
3. Dalela S and Saurabh (1999) *Textbook of Work Study and Ergonomics*. Standard Publishers Distributors, Delhi.
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7. Thomas Jiji (2012) *Ergonomics and Workplace Design*
<https://workdesign.com/2012/08/ergonomics-and-workplace-design/>
8. Mundel M (1978) *Motion and Time Study*. Prentice Hall.
9. Panero J and Zelnik M (1979) *Human Dimension and Interior Space*. Whitney Library of Design.
10. Singh S (2007) *Ergonomics Interventions for Health and Productivity*. Himanshu Publications.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Definition, types and interrelationship of work, worker and workplace.
2.	Classification of work-Based on the amount of physical exertion that the work requires as sedentary, light, medium, heavy, and very heavy; Based on the nature of work as manual repetitive, cognitive repetitive, manual non repetitive and cognitive non repetitive work; Time and energy requirements of work.
3.	Introduction to components of worker input- Affective, cognitive, temporal and physical.

4.	Affective component- Job satisfaction, task performance and goal of work; Cognitive component- Knowledge, thinking and mental skill.
5.	Temporal component- Techniques of organizing work; Physical Component- Productivity.
6.	Work measurement techniques- Subjective judgment, record of past performance, scientific methods.
7.	Tools for work analysis (i) Charts indicating sequence of events, flow process chart, two hand process chart; (ii) Charts indicating sequence of events happening in the order in which they occur on a time scale-Multiple activity chart, man-machine chart, simo chart; (iii) Diagrams indicating movements along the events happening in the order in which they occur- Flow diagram, string diagram, cycle graph, chrono-cycle graph, travel chart.
8.	Tools for work analysis- (iv) Models indicating the actual layout on a dimensional scale, two dimensional models, three dimensional model; (v) Photographic aids.
9.	Principles of workstation and system design.
10.	Design and arrangement of different work centres, work reaches, working heights.
11.	Design considerations for different workstation designs- Seated work, standing work, sit stand work.
12.	Controls and displays- Visual, auditory and other displays, quantitative and qualitative information.
13.	Methodologies for studying workplace design- Formal and informal techniques.
14.	Hazards of ill designed workstation.
15.	Environmental factors in workplace and their measurement- Heat, light, sound and noise, vibration, radiation, humidity.
16.	Effect of environmental parameters on worker and work performance.

Credits: 3(2+1)

Course Number: RMCS 506

Course Title: COLOUR AND LIGHTING IN INTERIORS

RATIONALE

Colour and lighting influence and manipulate space through strategic lighting designs. The study of the relationship between light, colour and spaces is an essential element of the whole interior design process. The course provides an opportunity for students to learn principles of lighting and investigate lighting for contemporary lifestyle and luxury interiors and correctly interpret the 'light' atmosphere of a space and translate this into creative and technical lighting solutions.

COURSE OBJECTIVES

- To gain insight into the use of colour and lighting in various buildings and its significance

- To assess the technical aspects and interrelationship of colour and light and their effect on interior spaces.

THEORY

UNIT I: Colour as an interior design element

Historical perspective of colour as an interior design element; Properties of colour - Hue, value and intensity; Approaches and theories of colour.

UNIT II: Applications of colour in various elements of interiors

Cultural and psychological effects of colour; Types of colour schemes-Related colour schemes, contrast colour schemes; Factors to consider while choosing colour schemes for buildings; Suitable colour schemes for residential, commercial, public, educational and religious building interiors. **UNIT III: Introduction to lighting in interior**

Importance and sources of lighting; Cultural and social aspects of lighting; Physiology of vision; Properties of lighting - Reflection, absorption, transmission and diffusion; Types of lighting; Safety and emergency lighting; Lighting requirements for household activities; Lighting requirements in commercial buildings.

UNIT IV: Quantity and quality of lighting

Measurement of light and its units; Types of lamps from animal fat lamps to LEDs, their characteristics and suitability to various rooms; Types of lighting based on direction of use, place of use, purpose and portability; Lighting controls- Type, selection, care, maintenance and economic use; Lamp holders; Lighting switches; Motion sensors; Factors affecting the quantity of illumination in a room- Room proportion, colour, texture and cleanliness of room surface, lamp lumen, lamp lumen depreciation; Method of calculating lighting requirements for various rooms; Lighting for outdoor living and gardens.

UNIT V: Effect of colour on lighting

Colour rendition; Use of colour and lighting in architecture, materials and finishes from 16th century to the date; Use of colour and lighting in problematic areas to disguise and camouflage.

PRACTICAL

1. Study of types of colour schemes in residential interiors
2. Study of types of lamps and lighting used in residential interiors
3. Group discussion on use of colour and lighting in interiors
4. Study of types of colour schemes in commercial interiors
5. Study of types of lamps and lighting used in commercial interiors
6. Presentation on use of colour and lighting in commercial interiors
7. Suggesting suitable colour schemes for residential buildings and its cost estimation
8. Suggesting suitable colour schemes for commercial buildings and its cost estimation
9. Group discussion on suitable colour schemes for residential and commercial buildings
10. Suggesting suitable lighting fixtures for residential buildings and its cost estimation
11. Suggesting suitable lighting fixtures for commercial buildings and its cost estimation
12. Group discussion on suitable lighting fixtures for residential and commercial buildings
13. Prepare a colour and lighting plan for problematic areas like space below stair case and estimate the cost
14. Prepare a colour and lighting plan for problematic areas like, irregular shape rooms or narrow areas and estimate the cost
15. Market survey to understand the available safety and emergency lighting systems and presentation of report
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Develop a detailed lighting plan for different context
- Successfully create a project outline on lighting installation for residential and commercial interiors, events and exhibition
- Design suitable colour scheme for residential and commercial building interiors

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Preparation of manuals
- Students' presentation
- Visits to institutes
- Group research work
- Guest lectures

REFERENCES

1. Cullison PW (1981) *New Decorating Book*. Meredith Corporation, Iowa.
2. Stepat Dorothy (1971) *Introduction to Home Furnishings*. MacMilan.

3. James D (1997) *Lighting*. CassellPubl, U.K.
4. Mark K and James Benya ((2004) *Lighting Design Basics*. John Wiley & Sons, Inc, U.S.A.
5. Michael W (2002) *Advances in Colour Harmony & Contrast for the Home Decorator*. School of Colour Publ.
6. Parikh A, et al (2000) *The Ultimate Home Design Source Book*. Conran Octopus, London.
7. Sarao M and Laurie Z (1995) *The Power of Colour*. John Wiley & Son.
8. Tim Anderson, December (2018) *Importance of Lighting in Interior Design*
<https://homeguides.sfgate.com/importance-lighting-interior-design-56751.html>

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Historical perspective of colour as an interior design element- Definition, origin, old theories of colour; Properties of colour -Hue, value and intensity and their effect on space and texture in different rooms.
2.	Approaches to the concept of colour- Physicist, physiologist, chemist, artist, and psychologist; Theories of colour –Prang and Munsell colour theories.
3.	Theories of colour – Ostwald colour theory; Cultural and psychological effects of primary, secondary and tertiary colours.
4.	Related colour schemes- Monochromatic, analogous, neutral colour schemes; Characteristics and applicability of related colour schemes in interiors; Contrast colour schemes- Single, double and split complementary, triad and tetrad colour schemes; Characteristics and applicability of contrast colour schemes in interiors.
5.	Factors to consider while choosing colour schemes for buildings -Age, gender, orientation of the room, climate, personal preferences, mood, occasion etc; Suitable colour schemes for residential, commercial, public, educational and religious building interiors.
6.	Importance and sources of lighting - Natural and manmade; Cultural and social aspects of lighting -Usage for different occasions.
7.	Physiology of vision with reference to the perception of colour; Properties of lighting- Reflection, absorption, transmission and diffusion.

8.	Types of lamps for household and commercial interiors- Low intensity and high intensity discharge lamps; Safety and emergency lighting needs in residential and commercial buildings.
9.	Lighting requirements in residential buildings for cooking, reading, washing, sewing, cleaning, watching, grooming etc; Lighting requirements in commercial buildings like banks, bus stations, air ports, stadiums, theatres, restaurants etc.
10.	Measurement of light and its units- Lumen, candle power, lux, foot candle; Types of lamps from past to present, their characteristics and suitability to various rooms.
11.	Types of lighting based on direction of use, place of use, purpose and portability; Types of architectural lighting -. Luminous, recessed, valance, cove, cornice etc.
12.	Lighting Controls- Type, selection, care, maintenance and economic use- lamp holders, lighting switches, motion sensors; Factors affecting the quantity of illumination in a room-Room proportion, colour, texture and cleanliness of room surface, lamp lumen, lamp lumen depreciation.
13.	Method of calculating lighting requirements for various rooms by lamp lumen method; Lighting for outdoor living like terraces, balconies, patios, decks etc and gardens in residential and commercial buildings.
14.	Meaning of colour rendering, types of glare and visual illusions; Use of colour and lighting in Roman, English, French and Indian architecture from 16 th century to the date.
15.	Use of colour and lighting in materials (wall, floor, ceiling, furnishings) and in finishes (wall, floor, ceiling) from 16 th century to the date.
16.	Use of colour and lighting in problematic areas to disguise - Low height rooms, high ceiling rooms, narrow rooms, tiny rooms, projections and recesses, spaces below stair cases, awkward shape windows, irregular shaped rooms.

Credits: 2(2+0)

Course Number: RMCS 507

Course Title: CONSUMER ISSUES AND LEGISLATIONS

RATIONALE

Globalization of trade, market-dominated economy, information revolution and emergence of e- commerce has contributed towards development of consumer protection measures. The subject has received tremendous importance among the

contemporary legal fraternity in India. The legal experts are emphasizing on the need for teaching consumer law to present generation for making them equipped to handle issues relating to this branch of law. In this background the present course will introduce the students to the existing law and practice relating to consumer protection.

LEARNING OBJECTIVES

- To acquaint the students with various consumer issues and legislative framework available for consumer protection
- To make students approach the subject from a multifaceted perspectives such as changing trends in consumerism, legal and non-legal consumer protection measures, consumer and communication tools.

THEORY

UNIT I: Consumer issues

Changing trends in consumerism; Profile of consumers in India and abroad; Consumer issues and challenges; Social media management; Consumer finance; Multiple tax structure; Gender issues in consumerism; Gender division of labour; Access to decision making; Marketing and gender consumerism; Wealth and gender consumerism; Green consumerism- Definition, objectives and necessity of green consumerism; Agriculture credit in India; Agriculture marketing in India.

UNIT II: Consumer legislations

Significance of consumer guidance and counseling; Consumer protection measures- Legal and non-legal consumer legislations; The Contract Act 1982; The Sale of Goods Act 1930; The Essential Commodities Act 1955; The Agricultural Produce (Grading and Marking) Act 1937; The Standard of Weights and Measures Act 1976; The Trade Mark Act 1999; The Competition Act 2002; The Bureau of Indian Standard Act 1986; Consumer Protection Act 1986; Consumer protection Bill 2018; Right to Information Act 2005; Information Technology Act 2000; Food Safety and Standards Act, 2016.

UNIT III: Consumer and communication tools

Consumer communication- Significance, history and types; Communication media and social change; Trends in consumer communication; Media and consumer demand; Advertising as a mode of communication; Trends and impact of advertising on consumers; Social media- Chats, Blogs, Face book, LinkedIn, Twitter, Instagram, Pinterest, YouTube.

UNIT III: On line marketing

E-marketing in India- Evolution; Growth and challenges; Legislative frame work.

LEARNING OUTCOMES

After successful completion of the course, the students will be able to

- Understand challenges faced by consumers in the economy because of changing trends in consumerism
- Conversant with major national and international instruments on consumer protection.
- Recognize common problems involving consumer transactions; identify relevant statutes and regulations; and apply them to specific problems

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Book/Publication Review
- Students' presentation
- Group work
- Guest lectures
- Review of policy documents

REFERENCES

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2. Clarke J, Janet N, Smith EV &Westmarland L (2007) *Creating Citizen Consumers*. Sage Publ.
3. Jones RN (2007) *Basic Counseling Skills*. Sage Publ.
4. Nations Guidelines on Consumer Protection 2008<https://unctad.org/en/Pages/DITC/CompetitionLaw/UN-Guidelines-on-Consumer-Protection.aspx>
5. Pant H(2007)*Advertising & Media*. ABD Publishing.
6. Potter WJ (2008) *Media Literacy*. Sage Publ.
7. Seetharaman P &Sethi M. 2001*Consumerism: Strategies and Tactics*. CBS.
8. Sharma S & Kumar D (2001) *Advertising, Planning, Implementation and Control*. Mangal Deep Publ.
9. Shukul M & Gandotra V (2006) *Home Management & Family Finance*, Dominant Publishers & Distributors New Delhi.
10. Sparks C (2008) *Globalization, Development and Mass Media*. Sage Publ.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Changing trends in Consumerism; Changing economy, rapid urbanization, increasing income levels, digital marketing, shift in approach towards family systems; Profile of consumers in India and abroad- Socially connected, environmentally aware, style –conscious, low brand loyalty, informed purchases, spends on leisure, health conscious; Consumer issues and challenges- On line marketing, social media management, consumer finance, multiple tax structure.
2.	Gender issues in consumerism- Gender division of labour, access to decision making, marketing and gender consumerism, wealth and gender consumerism; Green consumerism-Definition, objectives and necessity of green consumerism.
3.	Consumer guidance and counseling: Significance, aims and objectives, major areas of guidance and counseling; Agriculture credit in India ,Agriculture marketing in India.
4.	Unfair trade practices in India- Introduction, types of unfair trade practices, false representation, false offer of bargain price, free gifts offers and prize scheme, non-compliance of prescribed standards, hoarding, destruction etc; Provisions and remedies for unfair trade practices in legal system- Removal of defects, replacement of goods, refund of price, removal of deficiency in service, discontinuance of unfair trade practice, stopping of sale and withdrawal of hazardous goods, payment of adequate cost.
5.	Consumer protection against unfair trade practices- The monopolistic and restrictive trade practices Act, 1969 and The Competition Act, 2002; Authorities and agencies for settling unfair trade practices in India- District Forum, State Commission, National Commission, Supreme Court, Competition Commission of India
6.	Non-legal Consumer Protection Measures; Types of alternate dispute resolution techniques- Mediation, arbitration, ombudsman, peer review, early neutral evaluation, settlement conference, facilitation, adjudication; Provisions for consumer protection and welfare under The Contract Act 1982 and The Sale of Goods Act 1930.
7.	Provisions for consumer protection and welfare under The Essential Commodities Act 1955; The Agricultural Produce (Grading and Marking) Act 1937; The Standard of Weights and Measures Act 1976 and The Trademark Act 1999.

8.	Provisions for consumer protection and welfare under The Competition Act 2002 The Bureau of Indian Standard Act 1986; and Consumer Protection Act 1986 and Consumer protection Bill 2018.
9.	Provisions for consumer protection and welfare under Right to Information Act 2005; Information technology Act 2000 and Food Safety and Standards Act, 2016.
10.	Consumer communication media- Significance, history and types; Communication media and social change.
11.	Trends in consumer communication and their role in creating consumer demand; Advertising as an effective mode of consumer communication- History, target audience, impact of advertising on consumers.
12.	Legal and ethical aspects of advertising in India; Social media and new trends in consumer communication.
13.	Types of social media; Chats, Blogs, Face book, Link din, Twitter, Instagram, Pinterest, Youtube; Communication through blog- Origin, types, communication through personal blogs, collaborative blogs, corporate and organizational blogs.
14.	Effective methods of communication through face book and link din; Communication through Twitter, Instagram, Pinterest, YouTube.
15.	Online marketing- Definition, evolution and benefits; Online marketing tools- Types, merits and demerits.
16.	Challenges of On line marketing; On line marketing and legislative frame work.

Credits: 3(1+2)

Course Number: RMCS 508 Course

Title: PRODUCT DESIGN

RATIONALE

Product design is highly customized and user cantered. The purpose of every product is to increase safety, comfort and performance. An integrated approach to management of product design and development is required to create better quality products with enhanced capabilities. This course is designed with focus on theory and practical applications in the product design and development for all purposes not undermining the environment in which it will be used.

LEARNING OBJECTIVES

- To present an overview of the product designing and development process.
- To facilitate for gaining hands on experience in design and development of consumer product.

THEORY

UNIT I: Introduction to product design

Product Design- Definition, significance and essentials of product design and consumer demand; Product attributes-Usability, contextual needs, compatibility, product aesthetics.

UNIT II: Approaches to product designing

Concepts in product designing; User-centered design; Universal design; Accessible design; Usable design; Anthropometry in product design; Design consideration in product for geriatrics; Design consideration in product for people with special needs.

UNIT III: Outsourced product development (OPD)

Introduction; Importance; Concept and need; Major differentiating factors-technology related, people related, process related; Emerging models of product development.

UNIT IV: Product development process

Stages of product development process; Market analysis; Product analysis; Identification and innovation; User-Product relationship and ergonomics; Cognitive and social engineering issues; User interface designing.

UNIT V: Product testing

Product testing- Definition, purpose, role of government, Industry and consumer organizations; Product testing techniques and devices-Product evaluation, quality control and standardization.

PRACTICAL

1. Checklist for evaluation of a selected consumer product against the manufacturer's guidelines-Literature survey
2. Designing a checklist for evaluation of a selected consumer product against the manufacturer's guidelines
3. Evaluation of the selected consumer product against the manufacturer's guidelines
4. Presentation and group discussion
- 5-9. Exposure to Outsourced product development (OPD)
10. Conceptualization and development of consumer products with functional alternatives
11. Product Idea generation through brainstorming
12. Evaluation of the product idea generated; Group participation
13. Finalization of product
- 14-18. Working on design criteria

19. Collection of feedback from market
20. Analyzing the user's option on the design of the consumer product
- 21-26 Developing the prototype of the product
27. Evaluation of the product developed for identifying the problems through brainstorming
28. Proposing design solutions to rectify identified lacunas in the product design
- 29-31 Finalization of product design
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Understand the technical and business aspects of the product development
- Analyze and apply methodologies for product design and development
- Undertake a meticulous approach to the management of product development to satisfy consumer needs

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Students' presentation
- Exposure to outsourced product development
- Guest lectures
- Visits to industries

REFERENCES

1. Boothroyd G, Dewhurst P and Knight W (2002) *Product Design for Manufacture and Assembly*. CRC Press.
2. Cross N (2000) *Engineering Design Methods: Strategies for Product Design*. Reuters Publications.
3. Dumas JF and Redish JC (1993) *A Practical Guide to Usability Testing*. Greenwood Publications.
4. Meilgaard M, Civille GV and Carr BT (2006) *Sensory Evaluation Techniques*. CRC Press.
5. Otto KN and Wood KL (2001) *Product Design: Techniques in Reverse Engineering*. New Age International.
6. Parker Gand Alstyne MV (2005) *Management Science: The Theory of Information Product Design*. INFORMS Publications.
7. Roozenburg NFM and Eekels J (1995) *Product Design: Fundamentals and Methods*. Wiley.
8. Sharma DD (2000) *Total Quality Management*. Sultan Chand and Sons.
9. Stone H and Sidel JL (2004) *Sensory Evaluation Practices*. Academic Press.
10. Ulrich KT and Eppinger SD (1995) *Product Design and Development*. Irwin McGraw

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Product Design- Definition, significance and essentials of product design.
2.	Consumer behaviour considerations in product design.
3.	Product attributes- Usability, contextual needs, compatibility, product aesthetics.
4.	Design considerations and product design process.
5.	User-centered design- Need, models, elements and process.
6.	Universal design, Accessible design, Usable design- Concept, design for improving product accessibility, need identification and process.
7.	Definition and application of anthropometry in product design- Design diversity, Design for extreme individuals, design for adjustable range, design for average.
8.	Functional limitations and design consideration in designing product for geriatrics.
9.	Disabilities, specific barriers and design consideration in designing products for people with special need.
10.	Outsourced product development (OPD) - Introduction, importance, concept and need. Major differentiating factors-Technology related, people related, process related; Emerging models of product development.
11.	Stages of product development process- Market analysis, product analysis, identification and innovation.
12.	User-Product relationship and ergonomics; Cognitive and social engineering issues in product development.
13.	User Interface designing- Definition, requirements and process.
14.	Product testing- Definition, purpose, role of government, industry and consumer organizations.
15.	Product testing techniques and devices.
16.	Product evaluation, quality control and standardization.

Credits: 3(1+2)

Course Number: RMCS 509

Course Title: ERGONOMIC RESEARCH TECHNIQUES

RATIONALE

The use of established, documented research tools, techniques and methods is important when conducting any research as it ensures that investigations are conducted in a standardized, repeatable way. This course will introduce a number of constructive tools, techniques and methods to conduct research in the area of ergonomics which enable the student to analyze and evaluate humans while they are carrying out work tasks.

LEARNING OBJECTIVES

- To equip students with the ergonomic research methods
- To provide hands on experience in the application of ergonomic research methods.

THEORY

UNIT I: Approaches to research methods in ergonomics

Measurement and information gathering; Ergonomic standards; Observational techniques; Ratingscales; Questionnaires and checklist; Digital models and simulation.

UNIT II: Subjective assessment tools

NIOSH discomfort survey; The Dutch Musculoskeletal Nordic Questionnaire (DMQ); Nordic Musculoskeletal Questionnaire (NMQ); Cornell Musculoskeletal Discomfort Questionnaire; University of Michigan Upper Extremity Questionnaire (UMUEQ); Job stress Questionnaire; Work Style Questionnaire; NIOSH Generic Job Stress Questionnaire.

UNIT III: Postural evaluation tools

Ovako Working Posture Analyzing System(OWAS);Quick Exposure Checklist(QEC);Concise Back Screening Instrument(CBSI);Rapid Upper Limb Assessment (RULA); Plan for Identifying av Belastnings faktorer (PLIBEL); Rapid Entire Body Assessment(REBA);Model for Comprehensive Evaluation of Risks of Musculoskeletal Disorders(MODSI).

UNIT IV: Measurement of work effort and fatigue

Borg Rating of Perceived Exertion Scale; Muscle Fatigue Assessment Method; Hand Activity Level (HAL); The Occupational Repetitive Action (OCRA); NIOSH Lifting Equation); The StrainIndex.

PRACTICAL

1. Collection of literature on occupational disorders in any one occupation such as Construction Industry/ Manufacturing industry
2. Review of collected literature to understand the type of disorders prevailing in the selected industry
3. Elicit information on musculoskeletal disorders experienced by workers from a selected field using Nordic Musculoskeletal Questionnaire -Data collection
4. Discuss the merits and demerits of the tool
5. Propose modifications in light of demerits of the tool
6. Gain hands on experience on the use of a selected postural evaluation tool
7. Evaluation of posture adopted by sweepers using a selected postural evaluation tool
8. Identify the level of risk
9. Group discussion on the use of postural evaluation tool
10. Gain hands on experience on the use of a selected muscle fatigue assessment tool
11. Measure the muscle fatigue experienced by workers involved in manual work using the selected muscle fatigue assessment tool
12. Group discussion on the use of muscle fatigue assessment tool
13. Gaining hands on experience on the use of OCRA checklist
14. Identify the risk of upper extremity work related musculoskeletal disorders among workers involved in repetitive work using OCRA checklist
15. Develop a measuring scale to measure work stress: Collection of literature
16. Identifying the parameters to be included in the scale
17. Item collection
18. Identifying the items to be included in the scale
19. Validation of the tool
20. Collection of expert remarks on the items included in the scale
21. Modifying the scale as per the remarks of experts
22. Testing reliability of the tool- test retest method
23. First phase data collection.
24. Second phase data collection
25. Testing the reliability
26. Finalization of scale
27. Pre testing of scale
28. Modifications as per the identified lacunas
29. Data collection in the field
30. Data analysis
31. Critical evaluation and finalization of the scale
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Get acquainted with the subjective assessment tools
- Gain confidence in conducting ergonomic research and identifying risk factors
- Develop measuring instruments for conducting research

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Hands on experience on different assessment tools
- Preparation of manuals
- Students' presentations
- Group research work
- Guest lectures

REFERENCES

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2. Helmut Strasser December (2009) *Principles, Methods and Examples of Ergonomics Research and Work Design*
https://link.springer.com/chapter/10.1007/978-3-642-01293-8_28
3. Hendrick, HW and Kleiner BM (2001) *Macroergonomics. An Introduction to Work System Design*. Human Factors and Ergonomics Society, Santa Monica, CA.
4. McCabe Paul T (2003) *Contemporary Ergonomics*. Taylors And Francis.
5. Neville AS and Alan Hedge (2004) *Hand Book of Human Factors and Ergonomics Methods*. CRC Press.
6. Soares Mand Rebalo F (Ed.) (2016) *Ergonomics in Design Methods & Techniques*. Balkema: CRC Press.
7. Suzanne H Rodgers (1986) *Ergonomic Design for People at Work*. John Wiley & Sons, New York.
8. Taylor JC and Felton DF (1993) *Performance by Design*. Prentice-Hall, Englewood Cliffs, NJ.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Measurement and information gathering; Literature search, strategies for gathering data on physical work-related strain, qualitative and quantitative data, methods of quantification of data.
2.	Ergonomic standards, OSHA's ergonomic standards, legal provisions and guidelines.
3.	Observational techniques-Rating scales, questionnaires and checklist.

4.	Digital human models and simulation in ergonomic research.
5.	Subjective assessment tools- NIOSH discomfort survey, The Dutch Musculoskeletal Questionnaire (DMQ), Nordic Musculoskeletal Questionnaire (NMQ).
6.	Subjective assessment tools- Cornell Musculoskeletal Discomfort Questionnaire, University of Michigan Upper Extremity Questionnaire (UMUEQ).
7.	Subjective assessment tools- Job stress Questionnaire, Work Style Questionnaire, NIOSH Generic Job Stress Questionnaire.
8.	Postural evaluation tools- Ovako Working Posture Analysing System (OWAS), Quick Exposure Checklist (QEC).
9.	Postural evaluation tools- Concise Back Screening Instrument (CBSI), Rapid Upper Limb Assessment (RULA), Rapid Entire Body Assessment (REBA).
10.	Postural evaluation tools- Plan for Identifying av. Belastningsfaktorer (PLIBEL).
11.	Postural evaluation tools- Model for Comprehensive Evaluation of Risks of Musculoskeletal Disorders (MODSI).
12.	Measurement of work effort and fatigue- Borg Rating of Perceived Exertion Scale.
13.	Muscle Fatigue Assessment Method.
14.	Measurement of work effort and fatigue, Hand Activity Level (HAL), The Occupational Repetitive Action (OCRA).
15.	Measurement of work effort and fatigue, NIOSH Lifting Equation.
16.	Measurement of work effort and fatigue, The Strain Index.

Credits: 3(2+1)

Course Number: RMCS 510

Course Title: HOUSING AND ENERGY EFFICIENT BUILDING DESIGN

RATIONALE

There is an immense need in the field of interior design to be aware of the environmental impacts of the built environment on the natural environment and to reduce the negative environmental impacts by designing buildings based on the concept of energy efficiency and sustainability. As interior design professionals, students need to develop skills to plan energy efficient buildings. This course train students to develop skills in planning eco friendly buildings

LEARNING OBJECTIVES

- To provide an understanding of the concept of reduction in energy consumption through low energy building design
- To impart knowledge on strategies to integrate day lighting and low energy heating/cooling in building.

THEORY

UNIT I: Socio cultural and economic issues in housing

Historical perspective of the architectural features of buildings; Ancient science of house design; Role of housing in developing economies; Economic impact of housing; Housing markets and housing policies in India; Housing finance; Role of Government and non-government organizations in providing and regulating housing needs.

UNIT II: Recent trends in building design

Emerging techniques in the house construction; Building design- Need and scope for energy use and conservation; Design parameters for visual comfort; Day lighting and artificial lighting; Recent developments in building bye-laws; Low-cost building materials and fabrication technologies; Estimation of construction cost and housing finance; Housing research in energy efficient building design.

UNIT III: Energy and climate

Structural features of residential buildings in different geo-climatic conditions; Environmental and architectural characteristics and energy consumption; Design parameters for climate and energy control; Eco and Ergo friendly house design; Low and zero carbon buildings and energy infrastructure.

UNIT IV: Energy efficient building design

Green building design- Concept; Need and scope for energy use and conservation in building design; Energy efficient design principles and guidelines; Techniques for improving energy efficiency in residential and commercial buildings; Energy efficient building materials and construction technology; Energy flow audit and economy; Energy economy in residential and commercial buildings; Energy efficiency building regulations; Housing and energy models-Residential and commercial.

PRACTICAL

1. Collection of information on building forms in different geo-climatic regions
2. Presentation and group discussion on building forms in different geo-climatic regions
3. Visits to organizations promoting green building technology
4. Collection of information on green building technology through literature search
5. Presentation and group discussion on green building technology
6. Analysis of research trends in energy efficient building design
7. Panel discussion on energy efficient building design
8. Assessment of existing house plan in terms of energy efficiency
9. Suggesting suitable renovations to improve energy efficiency
10. Evolving Eco friendly housing plan for selected geo-climatic region - development of conceptual drawings
11. Evolving Eco friendly housing plan for selected geo-climatic region- development of

- design details
- 12. Presentation and group discussion
- 13. Housing research in energy efficient building design-review of literature
- 14. Estimation of cost of construction
- 15. Energy audit of a residential building
- 16. End term assessment

LEARNING OUTCOMES

After successful completion of the course the student will be able to:

- Apply design parameters for climate and energy control in buildings
- Develop eco and ergo friendly building designs
- Plan energy efficient buildings

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Institutional visits
- Students' presentation
- Group research work
- Guest lectures

REFERENCES

1. Ambadker SN (2000) *Rural Housing: Agro-socio-economic Impact*. Special Indian Ed. Agrobios.
2. Hawkes Dand Forster W (2002) *Energy Efficient Buildings: Architecture, Engineering and Environment*. WW Norton & Co.
3. Jefferis Aand Madsen DA (2004) *Architectural Drafting and Design*. Thomas Delmar Co.
4. Lal AK (1999) *Handbook of Low Cost Housing*. New Age International.
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7. RajaRao YNand Subrahmanyam Y (2002) *Planning and Designing of Residential Buildings*. Standard Publ.
8. Steffy GR (2002) *Architectural Lighting Design*. John Wiley & Sons.
9. Stitt FA (1999) *Ecological Design handbook: Sustainable Strategies for Architecture*.

McGraw Hill.

10. University of Calgary (2007) *Energy Efficient Building Design*

[https://energyeducation.ca/encyclopedia/Energy efficient building design](https://energyeducation.ca/encyclopedia/Energy_efficient_building_design)

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topics
1.	Historical perspective of the architectural features of buildings; Ancient science of house design.
2.	Role of housing in developing economies; Economic impact of housing.
3.	Housing markets and housing policies in India; Housing finance- Sources, types and financial institutions.
4.	Role of Government and non-government organizations in providing and regulating housing needs; Emerging techniques in the house construction.
5.	Building design- Need and scope for energy use and conservation; Design parameters for visual comfort- Day lighting.
6.	Design parameters for visual comfort-Artificial lighting; Recent developments in building bye-laws.
7.	Low-cost building materials; Low-cost building fabrication technologies.
8.	Estimation of construction cost and housing finance; Housing research in energy efficient building design.
9.	Structural features of residential buildings in different geo-climatic conditions in India; Structural features of residential buildings in different geo-climatic conditions in western countries.
10.	Environmental and architectural characteristics and energy consumption; Design parameters for climate and energy control.
11.	Eco friendly house design; Low carbon buildings and energy infrastructure.
12.	Zero carbon buildings and energy infrastructure; Green building design- Concept, need and scope for energy use and conservation in building design.
13.	Energy efficient design principles and guidelines- Site analysis, building orientation and layout, fenestration and shading, insulation, thermal mass and building material, ventilation, landscape; Techniques for improving energy efficiency in residential and commercial buildings.
14.	Energy efficient building materials and construction technology; Energy flow audit and economy.
15.	Energy economy in residential and commercial buildings; Energy efficient building regulations.
16.	Housing and energy models – Residential and commercial.

Credits: 3(1+2)

Course Number: RMCS 511

Course Title: TECHNICAL DRAWINGS

RATIONALE

Technical drawings are tools for communication in the interior design field. There is a great demand from the client for clarity on the output of the interior design project. The designers need to provide with virtual interiors before the actual project is executed. The course will enable students mastering in interior design to equip with design skills and presentation techniques to communicate effectively with clients.

LEARNING OBJECTIVES

- To acquaint students with architectural drafting and their application in developing interior design plans
- To gain hands on experience in using computer programmes for drawing architectural plans and 3D representation of spaces for interior design.

THEORY

UNIT I: Drafting fundamentals

Measurement and scaling; Lines-Types, quality and weights; Lettering styles; Sheet format and layout; Blocks and layout; Legend and dimension; Conventions and preliminary drawings.

UNITII: Presentation techniques

Orthographic plans- Plan, elevations and sections; Design drawings; Projection drawings; Isometric drawings; Perspective drawings; Rendering and hatching techniques; Presentationboards.

UNIT III: Introduction to AutoCAD

Introduction to AutoCAD as 2D drafting tool; Digital drawings tools; Drawing lines and shapes; Modifying lines and shapes; Drawing with accuracy and speed; Organizing plans; Sections and elevations; Drawing and printing to scale; Text styles and sizes; Hatches and dashed lines; Stencils and blocks; Advanced editing tools and Dimensioning drawings.

UNIT IV: 3D Modelling using AutoCAD

Introduction to 3D-modelling technique using AutoCAD;3D basics– Axes, Planes and Faces;3D Object Modification– Rotate, Mirror, Array and Scale; 3D Boolean operations–Union, Subtract, Intersect;3D Primitive objects– Box, Wedge, Cone, Sphere, Cylinder, Torus and Pyramids; Solid modeling – Revolve, Shell, Taper, Loft,

Path extrusion and Sweep.

UNIT V: Introduction to 3D Modelling and Rendering

Introduction to 3D Modelling and Rendering; Building Modelling and basic rendering techniques; Using 3DSMax or equivalent; Advanced 3D Modelling-Advanced modeling; Ray rendering engine.

UNIT VI: Auto CAD and its application in interior design

Orientation to AutoCAD Main screen and menus; Coordinate systems; Use of Draw and edit menus; Hatching inquiry tools; Layers; 3D Modelling; Co-ordinate system; Primitive tools: Boolean operation; Editing 3D objects; Rendering; Printing; Introduction to ADT- Creation of plans, sections, elevations, title marks and dimensioning, schedule table of doors and windows; Create still camera views; Creating a movie file; Walk through; Introduction to 3D Max -Standard tool bar command panel; Concept of import and export of objects from ADT and Auto CAD to 3D Studio MAX; Creating objects in 3D Max using standard primitives; Using transforms; Introduction of material; Light; Colour; Render the images and save; Camera animation of walk through.

PRACTICAL

1. Drawing a detailed floor plan showing the use of different lines, lettering styles, sheet format and layout, blocks and layout, legend and dimension, section drawing
2. Drawing a detailed floor plan showing the use of blocks and layout, legend and dimension, section drawing
3. Scale drawing of building components in plan and elevation
4. Preparation of electrical layout for a small building
5. Preparation of plumbing layouts for a small building
6. Working on presentation details for the above plans
7. Evolving floor plans for an existing residential building
8. Drawing views of brick arrangement to scale in two dimensions

(Plan, elevation) and three dimension (isometric, oblique and axonometric)

9. Study of buildings and interiors in two and three dimensions
10. Drawing one/single perspectives of interiors
11. Drawing two point perspectives of interiors
12. Creation of texture effects in interior objects
13. Pencil rendering of interiors
14. Colour rendering of interiors
15. Developing a private project and presenting with views
16. Use of Presentation techniques

17-31 Project work: Application of CAD in developing plans and presentation details of any one residential and commercial building

32. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Create orthographic plans and projection drawings
- Apply AUTOCAD in developing interior design plan
- Solve design problems using sketching and remodeling software
- Read and understand/pictorial drawings and advanced orthographic projections

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Site visits
- Hands on experience
- Students' presentation
- Guest lectures

REFERENCES

1. Chiavaroli J (1999) *AEC Drafting Fundamentals*. Delmar Publishers, London.
2. Frey D (2000) *AutoCAD 2000*. BPB Publications, New Delhi.
3. Gill RW (1975) *The Thames and Hudson Manual of Rendering with Pen and Ink*.

Thames and Hudson, London.

4. George O (2007) *Just Enough Auto CAD*. Wiley Publishing Inc.
5. Hepler DE and Wallach PI (1965) *Architecture – Drafting and Design*. McGraw-Hill Book Company, New York.
6. Kalee, S, Zaidi A and Siddique S (2004) *Designing and Design of Residential and Commercial Buildings*. Standard Publ.
7. Kasu AA (1995) *An Introduction to Art, Craft, Technique, Science of Profession of Interior Design*. Iqura Publishing Pvt. Ltd., Bombay.
8. Kilmer WO and Kilmer R (2004) *Construction Drawings and Details for Interiors*.

Wiley.

9. Mitton M(1999)*Interior Design Visual Presentation*. John Wiley & Sons, New York.
10. Shah MG, Kale CM and Patkki SY (1995) *Building Drawing*. 3rd Edition, Tata McGraw Hill.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
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1.	Drafting fundamentals-Measurement and scaling; Lines; types, quality and weights; Lettering styles; Sheet format and layout; Blocks and Layout- Legend and Dimension; Conventions and Preliminary Drawings.
2.	Orthographic plans- Plan, elevations and sections; Design drawings.
3.	Projection drawings- Isometric drawings; Perspective drawings; Rendering and Hatching techniques; Presentation boards.
4.	Introduction to AutoCAD as 2D drafting tool; Digital drawings tools; Drawing lines and shapes; Modifying lines and shapes; Drawing with accuracy and speed.
5.	Organizing plans; Sections and elevations; Drawing and printing to scale; Text styles and sizes; Hatches and dashed lines; Stencils and blocks.
6.	Advanced editing tools and dimensioning drawings.
7.	Introduction to 3D-modelling technique using AutoCAD; 3D basics- Axes, Planes and Faces.
8.	3D Object Modification-Rotate, Mirror, Array and Scale; 3D Boolean operations- Union, subtract, intersect.
9.	3D primitive objects- Box, Wedge, Cone, Sphere, Cylinder, Torus and Pyramids.
10.	Solid modelling- Revolve, Shell, Taper, Loft, Path extrusion and Sweep.
11.	Introduction to 3D Modelling and Rendering; Building modelling and basic rendering techniques, using 3DSMax.
12.	Advanced 3D Modelling- Advanced modelling, V-Ray rendering engine, or equivalent.
13.	Orientation to AutoCAD main screen and menus; Coordinate systems; Use of Draw and edit menus; Hatching inquiry tools; Layers; 3D Modelling; Co-ordinate system; Primitive tools; Boolean operation; Editing 3D objects ; Rendering; Printing.
14.	Introduction to ADT- Creation of plans, sections, elevations, title marks and dimensioning, schedule table of doors and windows; Create still camera views.
15.	Creating a movie file; Walk through-Introduction to 3D Max -standard tool bar command panel, Concept of import and export of objects from ADT and Auto CAD to 3D Studio MAX, Creating objects in 3D Max using standard primitives, Using transforms.
16.	Introduction of material, light, colour; Render the images and save; Camera animation of walk through.

Credits: 3(1+2)

Course Code: RMCS 512

Title: INTERIOR DESIGN BUSINESS MANAGEMENT

RATIONALE

Interior designing business is one of the upcoming professions and has lot of potential for business opportunities. This course justifies the natural affinity to style, fashion,

glamour, painting, creativity etc. and will enhance great imagination skills for interior designer. This is also a flourishing industry wherein a career and start-up in India and abroad can be taken up

LEARNING OBJECTIVES

- To impart knowledge about profession and principles of interior design business management
- To build confidence among students for establishing a interior design firm.

THEORY

UNIT I: Introduction to professional management

Definition of a profession; Principles of interior design business management; Ethics and professional conduct; Establishing interior design practice.

UNIT II: Professional components of managing interior work

Legal issues of business; Business management applications; Marketing; Scale of professional fee and charges; Duties of employer under labour welfare provisions; Structure of interior designers office; Conditions of engagement; Risk management.

UNIT III: Estimating and costing for interior work

Definition; Importance and types of estimation; Units and mode of measurement; Rate analysis; Bills of quantities; Contract design.

UNIT IV: Professional practice

Professional portfolios; Resumes and business cards; Web page and e-service; Professional associations and support systems.

PRACTICAL

1. Case study of an established interior design firm
2. Cost estimation for projects
3. Contracting and sub-contracting procedure for the estimated projects
4. Strategic plan for presentation of project for a tender call
5. Working on modalities for establishing an interior design firm
6. Preparation of financial plan for a design firm
7. Working on portfolio and resume design for job in professional firm
- 8-31. Working with an interior designer for work experience
32. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Take up interior designing as a profession
- Launch an Interior Design firm and run successfully

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Students' presentation
- Work experience
- Group work
- Guest lectures

REFERENCES

1. Christine MP (2001) *Interior Design Management: A Handbook for Owners and Managers*. ASID, IIDA.
2. Christine MP (2002) *Professional Practice for Interior Designer*. John Wiley & Sons.
3. Cindy C (2002) *Interior Design Handbook of Professional Practice*. McGraw Hill.
4. Kailee Helget May (2019) *How to start an Interior Business*
<https://www.2020spaces.com/blog-start-an-interior-design-business/>
5. Terry LP (2002) *Architects Studio Handbook*. McGraw Hill.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Definition and meaning of a profession; History of interior design as a profession.
2.	Principles, ethics and professional conduct of interior design business management.
3.	Establishing interior design practice.
4.	Legal issues of business.
5.	Business management applications- People management, business information systems, financial management and control, management and economics.
6.	Marketing, conditions, strategies, selling techniques, scale of professional fee and charges.
7.	Duties of employer under labour welfare provisions.
8.	Structure of interior designer's office, conditions of engagement.
9.	Risk management plan for interior business.
10.	Estimating and costing for interior work- Definition, importance and types of estimation.
11.	Units, mode of measurement and standard methods of measurement for building elements.
12.	Methods of rate analysis and bills of quantities.
13.	Principles, practices and stages of contract design.
14.	Need, importance and components professional portfolios, resumes, business cards.
15.	Professional web page and e-service.
16.	Professional associations and support systems.

Credits: 2(1+1)

Course Number: RMCS 513

Course Title: ENVIRONMENTAL RESOURCE MANAGEMENT

RATIONALE

Environmental resource management is an issue of increasing concern and can be viewed from a variety of perspectives. It involves the management of all components of the biophysical environment, and the relationships among all living species and their habitats. The essential aspects of environmental resource management are ethical, economical, social, and technological. It emphasizes on the sustainability development in future. These underlying principles help students to make appropriate decisions.

LEARNING OBJECTIVES

- To get an insight about the present scenario of global environment, environmental problems and management for sustainable development in future
- To provide an overview of management techniques for waste management and environment protection.

THEORY

UNIT I: General perspectives

Man, environment and economic growth; Industrialization; Urbanization; Consumerism and environment; Environmental informatics; Environment and bio-technology; Environmental ethics.

UNIT II: Ecology, environment and sustainability

Ecological environment and sustainability; Environmental dimensions of sustainable development; Equitable use of resources for sustainable development; Economical, political and cultural influences in the use of environmental resources; Role of government and non-government organizations and communities in sustainable development.

UNIT III: Environmental waste management

Waste management; Waste management systems in India; Technologies for waste management; Hazardous waste management and treatment; Physical and chemical treatment; Thermal treatment and biological treatment; Hazardous waste treatment; E-Waste; Management of E-waste; Inventory management; Production process modification; Volume reduction; Recovery and reuse; Laws and regulations concerning waste management in India.

UNIT IV: Energy and environment

Energy and environment; Economic growth and energy consumption; Increased energy consumption and climate change; Energy policy of India; Energy and

sustainability; Sustainable energy resources.

UNIT V: Environmental protection and management

Environmental economics- Concepts, evolution and its development; Important processes and technologies; Environmental protection and management; Environmental quality objectives and standards; Approaches with regard to environmental protection; Institutional and policy framework; Ministry of environment and forest, Pollution control boards.

PRACTICAL

1. Understanding the impact of urbanization and consumerism on resource utilization- Literature search
2. Report preparation on impact of urbanization and consumerism on resource utilization
3. Presentation and discussion on impact of urbanization and consumerism on resource utilization
4. Visit to any one industry to understand the types of wastes generated and their waste management practices
5. Presentation and group discussion
6. Plan awareness programme to educate college students on their role in environmental protection
7. Organizing awareness camp
8. Project work: Household waste management practices among families- Collection of review
9. Planning the research methodology
10. Designing data collection tool for collecting information on household waste management practices among families
11. Finalization of tool
12. Data collection
13. Data analysis
14. Report preparation on household waste management practices among families on household waste management practices among families
15. Presentation and Group discussion
16. End term assessment

LEARNING OUTCOMES

After successful completion of the course, the students will be able to:

- Gain knowledge about the present scenario of global environment and develop skills in the management of environmental resources for sustainable development in future
- Understand the essential aspects of environmental resource management and work on innovative solution for conservation of environmental resources
- Gain insight into management of all components of the biophysical environment

TEACHING METHODS / ACTIVITIES

- Lectures
- Assignments
- Book/Publication Review
- Students' presentation
- Group work
- Case studies
- Guest lectures
- Review of policy documents

REFERENCES

1. Bhatnagar A (2010) *Ecology and Environment*. Oxford Book Company, Jaipur.
2. Bharucha E (2017) *Text Book of Environmental Studies*. UGC University Press India Pvt. Ltd.
3. Chary SN and Vyasula V (2001) *Environmental Management-An Indian Perspective*. Macmillan India Ltd.
4. Joseph K and Nagendran R (2004) *Essentials of Environmental Studies*. Pearson Education Pvt. Ltd.
5. International Hydropower Association (2017) *Environmental Resources Management (ERM)*<https://www.hydropower.org/companies/environmental-resources-management-erm>
6. Kuar Aand Roy PK (2008) *Environmental Resource Management*. Daya publishing House, Delhi.
7. Pandey SN and Misra SP (2011) *Environment and Ecology*. AneBools Pvt. Ltd., New Delhi.
8. Singh K and Sisodia A (2007) *Environmental Economics: Theory and Applications*. Sage Publ.
9. Singh S (2010) *Disaster Management*. Rajdhani printers, Delhi.
10. Thakur V (2012) *A Text Book of Environmental Science*. Scientific Publishers, Jodhpur.

WEEKLY LECTURE SCHEDULE

Duration (Week)	Topic
1.	Interrelation between man, economic growth and environment; Individual rights and responsibilities towards a clean environment; Environmental ethics- Meaning, libertarian view, ecological view and conservation view.
2.	Impact of industrialization, urbanization and consumerism on environment- Particulate matter concentration, modification of habitat, waste generation, degraded water quality, land contamination, biodiversity loss etc-Environmental Informatics- Concept, application and benefits.
3.	Environment and bio-technology, objectives of environmental biotechnology, application of environmental biotechnology for sustainable development; Role of environmental biotechnology in protection and restoration of quality of environment.
4.	Ecology, Environment and sustainability- Meaning, resource conservation, resource preservation, ecological footprints.
5.	Environmental dimensions of sustainable development- Linkages and holistic approach in conservation and equitable use of specific indicators of sustainable development such as atmosphere, water and land.
6.	Economical, political and cultural influences in the use of environmental resources, Role of government and non-government organizations and communities in sustainable development.
7.	Waste management- Introduction, classification of wastes, principles of waste management, waste management systems in India.
8.	Technologies for waste management- Physic, chemical, biological processes for waste treatment; Sanitary landfill Incineration; Gasification; Biodegradation processes; Composting, and anaerobic digestion; Conventional digestion; Dry anaerobic digestion process; Two phase digestion; Water and waste water treatment.
9.	Hazardous waste management and treatment, identification and classification, collection, storage, transfer, processing, and disposal; Hazardous waste treatment; Physical and chemical treatment; Thermal treatment; Biological treatment; Hazardous waste treatment in India.
10.	E-Waste-Introduction, effects on environment and human health, management of e-waste, inventory management, production process modification, volume reduction, recovery and reuse, management options.
11.	Laws and regulations concerning waste management in India-The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act ,1986, The Public Liability Insurance Act, 1991, Municipal Solid Wastes (Management and Handling) Rules in 2000, Hazardous Wastes (Management and Handling) Rules in 1989 (amended in 2000 and 2003), The Biomedical Waste (Management and Handling) Rules 1998 (amended in

	2000 and 2003),The E-waste (Management & Handling) 2012, “Plastics (Manufacture, Usage and Waste Management) Rules, 2009” (amended in 2003).
12.	Energy and environment; Economic growth and energy consumption; Increased energy consumption and climate change; Energy policy of India.
13.	Sustainable energy- History and need for sustainable energy, sustainable energy resources, solar energy, wind energy, geothermal energy, ocean energy, biomass energy, hydroelectric power, green energy and green power.
14.	Environmental economics- Concepts, evolution and its development, important processes and technologies.
15.	Environmental protection and management, Environmental quality objectives and standards; Approaches with regard to environmental protection- Voluntary environmental agreement, ecosystem approach, international environmental agreements.
16.	Institutional and policy framework- Ministry of Environment and Forest, Pollution control boards.