Core Course I

RESEARCH METHODOLOGY


**Text Book:**


**Reference Books:**


Core Course II Credit: 4

RECENT TRENDS IN ZOOLOGY AND NANOTECHNOLOGY

UNIT I

DNA sequencing and Human genome project, DNA finger printing and foot printing, DNA amplification and RT-PCR, Gene and cDNA Library. Detection of genetic diseases using DNA recombinant technology, screening and counseling – Human gene therapy - Animal cell culturePrimary and established cell line-Stem cell therapy. DNA methylation, antisense RNA, Transposons, Signalling by receptors. Cloning technique and its application in Biology, knock out genes– Ethical issues. Reproductive technologies related to human in vitro fertilization.

UNIT II


UNIT III


UNIT IV


REFERENCES

ENVIRONMENTAL POLLUTION AND MANAGEMENT

UNIT-I


UNIT-II


UNIT-III

Soil Pollution – soil pollutants – types – sources, effects and control – Industrial waste effluents and heavy metals, their interactions with soil components - Soil micro-organisms and their functions - Degradation of different insecticides, fungicides and weedicides in soil – Different kinds of synthetic fertilizers (NPK) and their interactions with different components of soil – Radioactive and thermal pollution

UNIT – IV


UNIT – V

Environmental Education and awareness: Environmental ethics and global imperatives – Current environmental issues in India. Context: Narmada dam, Tehri dam, Almetti dam, soil erosion, Formation and reclamation of alkaline and saline soil – Wastelands and their reclamation – Desertification and their control – Waste disposal, recycling and power generation – Epidemiological issues (e.g., Goitre, Fluorosis, Arsenic) - Government
Agencies & Programs – The Tiwari committee – creation of NCEPC, Department of Environment & Forest – Function of State Pollution Control Board

REFERENCES

Core Course –IV

Credit: 4

TEACHING AND LEARNING SKILLS (Elective)

Unit I – Computer Application Skills

Unit II – Communication Skills
Communication: Definitions – Elements of Communication: Sender, Message, Channel, Receiver, Feedback and Noise – Types of Communication: Spoken and written; Non-verbal communication – Intrapersonal, Interpersonal, Group and Mass communication – Barriers to communication: Mechanical, Physical, Linguistic & Cultural – Skills of communication: Listening, Speaking, Reading and writing – Methods of developing fluency in oral and written communication – style, Diction and Vocabulary – Classroom communication and dynamics

Unit III – Communication Technology

Unit IV – Pedagogy

Unit V – Teaching Skills
Teaching skill: Definition, Meaning and Nature – Types of Teaching skills: Skill of Set Induction, Skill of Stimulus Variation, Skill of Explaining, Skill of Probing Questions, Skill of Black Board writing and Skill of Closure – Integration of Teaching Skills – Evaluation of Teaching Skills

References:

1. Bela Rani Sharma (2007), Curriculum Reforms and Teaching Methods, Sarup and sons, New Delhi

2. Don Skinner (2005), Teacher Training, Edinburgh University Press Ltd., Edinburgh
3. Information and Communication Technology in Education: A Curriculum for Schools and programme of Teacher development, Jonathan Anderson and Tom Van Weart, UNESCO, 2002


