**Faculty of Agricultural sciences**

**SGT University**

**Gurgaon**

**Different B.Sc. (Hons.) Agriculture and M.Sc. Agriculture compulsory courses are designed including the above topics as part of curriculum.**

**The detail curriculum of the relevant courses is attached below:**

**1st year/ 1st semester**

**Human values and ethics**

**Paper code 11010111Credits** 1(1+0)

**Theory**

**UNIT -1**

Values and Ethics-An Introduction. Goal and Mission of Life. Vision of Life. Principles and Philosophy. Self-Exploration. Self-Awareness. Self-Satisfaction. Decision Making.

**UNIT -2**

Motivation. Sensitivity. Success. Selfless Service. Case Study of Ethical Lives. Positive Spirit. Body, Mind and Soul. Attachment and Detachment. Spirituality Quotient. Examination.

**Suggested Readings**

* Gaur RR, Sangal R &Bagaria GP. 2011. A Foundation Course in Human Values and Professional Ethics. Excel Books.
* Mathur SS. 2010. Education for Values, Environment and Human Rights. RSA International.
* Sharma RA. 2011. Human Values and Education -Axiology, Inculcation and Research. R. Lall Book Depot.
* Sharma RP & Sharma M. 2011. Value Education and Professional Ethics. Kanishka Publishers.
* Srivastava S. 2011. Human Values and Professional Ethics. S K Kataria& Sons.
* Srivastava S. 2011. Environmental Science. S K Kataria& Sons.
* Tripathi A.N. 2009. Human Values. New Age International (P) Ltd Publishers.

**1st year/ 1st semester**

**Physical Education & Yoga Practices**

**Paper code 11010112Credits 2 (0+2)**

**Theory**

**Unit –1**

Teaching of skills of Football – demonstration, practice of the skills, correction, involvement in game situation (For girls teaching of Tennikoit) Teaching of different skills of Football – demonstration, practice of the skills, correction, involvement in game situation (For girls teaching of Tennikoit) Teaching of advance skills of Football – involvement of all the skills in game situation with teaching of rules of the game Teaching of skills of Basketball – demonstration, practice of the skills, correction of skills, involvement in game situation Teaching of skills of Basketball – demonstration, practice of the skills, involvement in game situation.Teaching of skills of Basketball – involvement of all the skills in game situation with teaching of rule of the game

**Unit –2**

Teaching of skills of Kabaddi – demonstration, practice of the skills, correction of skills, involvement in game situation Teaching of skills of Kabaddi – demonstration, practice of the skills, correction of skills, involvement in game situation Teaching of advance skills of Kabaddi – involvement of all the skills in game situation with teaching of rule of the game Teaching of skills of Ball Badminton – demonstration, practice of the skills, correction of skills, involvement in game situation Teaching of skills of Ball Badminton – involvement of all the skills in game situation with teaching of rule of the game

**Unit –3**

Teaching of some of Asanas – demonstration, practice, correction and practice Teaching of some more of Asanas – demonstration, practice, correction and practice Teaching of skills of Table Tennis – demonstration, practice of skills, correction and practice and involvement in game situation Teaching of skills of Table Tennis – demonstration, practice of skills, correction and practice and involvement in game situation Teaching of skills of Table Tennis – involvement of all the skills in game situation with teaching of rule of the game

**Unit –4**

Teaching – Meaning, Scope and importance of Physical EducationTeaching – Definition, Type of Tournaments Teaching – Physical Fitness and Health Education Construction and laying out of the track and field (\*The girls will have Tennikoit and Throw Ball).

**Note: 1) Compulsory Uniform: Half pants, Tee Shirts, Shoes and socks all white (Girls will have white Tee Shirt and Track pants) 2) The games mentioned in the practical may be inter changed depending on the season and facilities.**

**2nd year/ 3rd semester**

**Environmental Studies and Disaster Management**

**Paper code 11010307Credits 3(2+1)**

**Theory**

**Unit –1**

Multidisciplinary nature of environmental studies. Definition, scope and importance.Natural Resources: renewable and non-renewable resources. Natural resources and associated problems: a) forest resources, b) water resources, c) mineral resources, d) food resources, e) energy resources, f) land resources. Use and over-exploitation. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

**Unit –2**

Ecosystems: Concept of an ecosystem, structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession, food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

**Unit –3**

Biodiversity and its conservation: Introduction, definition, genetic, species & ecosystem diversity.Biogeographical classification of India.Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels, India as a mega-diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss,endangered and endemic species of India. Conservation of biodiversity: *in-situ* and *ex-situ* conservation of biodiversity. Environmentalpollution: definition, cause, effects and control measures of: a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards. Solid Waste Management: causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. dies. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Issues involved in enforcement of environmental legislation. Public awareness. Human Population and the Environment: population growth, variation among nations, population explosion, Family Welfare Programme. Environment and human health: Human Rights, Value Education, HIV/AIDS. Women and Child Welfare. Role of Information Technology in Environment and human health.

**Unit –4**

Disaster Management: meaning and nature of natural disasters, their types and effects. Floods, drought, cyclone, earthquakes, landslides, volcanic eruptions, heat and cold waves. Climatic change: global warming, sea level rise, ozone depletion. Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, oil fire, air pollution, water pollution, deforestation, industrial waste water pollution, road accidents, rail accidents, air accidents, sea accidents.DisasterManagement:effect to migrate natural disaster at national and global levels. International strategy for disaster reduction. Concept of disaster managementand national disastermanagementframework.financial arrangements; role of NGOs, community –based organizations and media. Central, state, district and local administration; Armed forces in disaster response; Disaster response; Police and other organizations.

**Practical**

Pollution case studies;field work - visit to a local area to document environmental assets river/forest/grassland/hill/mountain; visit to a local polluted site-urban/rural/industrial/agricultural.Impact of pollution on agriculture. Study of simple ecosystems-pond, river, hill slopes etc.

**Suggested Readings:**

| **Sr.No.** | **Books** |
| --- | --- |
|  | [ErachBharucha](https://www.mynextbook.in/textbook-of-environmental-studies-for-undergraduate-courses/9788173718625?gclid=CjwKCAjwrqnYBRB-EiwAthnBFmylNHDW8CMu-om8uk8NBsqqotw1VicCKxPuxvwQRACZ8PmO8NBAkBoCZpEQAvD_BwE), 2015. [Environmental Studies](https://www.mynextbook.in/textbook-of-environmental-studies-for-undergraduate-courses/9788173718625?gclid=CjwKCAjwrqnYBRB-EiwAthnBFmylNHDW8CMu-om8uk8NBsqqotw1VicCKxPuxvwQRACZ8PmO8NBAkBoCZpEQAvD_BwE), 2ndedn, Universities Press India P Ltd-Chennai |
|  | [Benny Joseph](https://www.abebooks.com/servlet/SearchResults?an=Benny+Joseph&cm_sp=det-_-bdp-_-author), 2008. Environmental Studies, 2ndedn, Tata McGraw-Hill Education Pvt. Ltd. |
|  | Eugene Odum, 2017, Fundamentals of Ecology 5thedn, Cengage India. |
|  |  [Gupta SR and Singh](https://www.mynextbook.in/ecology-environmental-science-and-conservation/9789383746002?gclid=CjwKCAjwrqnYBRB-EiwAthnBFguCMVeRYQYW8Iafh65OisaPstvyq8Sp48pPY4MHhZzNAtfKbBbMtBoCNwUQAvD_BwE) JS, 2015,Ecology Environmental Science and Conservation, S.Chand Publisher. |

**3rd year/ 5th semester**

**Intellectual Property Rights**

**Paper code 11010509Credits 1(1+0)**

**Theory**

**Unit –1**

Introduction and meaning of intellectual property, brief introduction to GATT, WTO, TRIPsand WIPO, Treaties for IPR protection: Madrid protocol, Berne Convention, Budapest treaty, *etc.*

**Unit –2**

Types of Intellectual Property and legislations covering IPR in India:-Patents, Copyrights Trademark, Industrial design, Geographical indications, Integrated circuits, Trade secrets.Patents Act 1970 and Patent system in India, patentability, process and product patent, filingof patent, patent specification, patent claims, Patent opposition and revocation, infringement, compulsory licensing, Patent Cooperation Treaty, Patent search and patent database.

**Unit –3**

Origin and history including a brief introduction to UPOV for protection of plant varieties,Protection of plant varieties under UPOV and PPV&FR Act of India, Plant breeders rights,Registration of plant varieties under PPV&FR Act 2001, breeders, researcher and farmers rights.

**Unit –4**

Traditional knowledge-meaning and rights of TK holders.Convention on Biological Diversity, International treaty on plant genetic resources for foodand agriculture (ITPGRFA). Indian Biological Diversity Act, 2002 and its salient featuresaccess and benefit sharing.

**Suggested Readings:**

| **S. No.** | **Books** |
| --- | --- |
|  | Strickberger, M.W. 1996. Genetics (3rd edn.). Mac Millan Publishing Co., New Delhi |
|  | B. D. Singh 2015 Plant Breeding. Principles & Methods. Kalyani Publishers.10 th Edition. |

**Courses offered for M.Sc. Agriculture**

**11060205:INTELLECTUAL PROPERTY & ITS MANAGEMENT IN AGRICULTURE (e-Course) 1(1+0)**

**Objective**

The main objective of this course is to equip students and stakeholders with knowledge of intellectual property rights (IPR), related protection systems, their significance and use of IPR as a tool for wealth and value creation in a knowledge-based economy.

**Theory**

Historical perspectives and need for the introduction of Intellectual Property Right regime; TRIPs and various provisions in TRIPS Agreement; Intellectual Property and Intellectual Property Rights (IPR), benefits of securing IPRs; Indian Legislations for the protection of various types of Intellectual Properties; Fundamentals of patents, copyrights, geographical indications, designs and layout, trade secrets and traditional knowledge, trademarks, protection of plant varieties and farmers’ rights and biodiversity protection; Protectable subject matters, protection in biotechnology, protection of other biological materials, ownership and period of protection; National Biodiversity protection initiatives; Convention on Biological Diversity; International Treaty on Plant Genetic Resources for Food and Agriculture; Licensing of technologies, Material transfer agreements, Research collaboration Agreement, License Agreement.

**Suggested Readings**

* Erbisch FH &Maredia K.1998. Intellectual Property Rights in Agricultural Biotechnology. CABI, Wallingford.
* Ganguli P. 2001. Intellectual Property Rights: Unleashing Knowledge Economy. McGraw- Hill, New Delhi. India,
* Intellectual Property Rights: Key to New Wealth Generation.2001. NRDC and Aesthetic Technologies, New Delhi.
* Ministry of Agriculture. GoI., 2004. State of Indian Farmer. Vol. 5. Technology Generation and IPR Issues. Academic Foundation.
* Rothschild, Max & Newman, Scott (Ed.). 2003. Intellectual Property Rights in Animal Breeding and Genetics. CABI.
* Saha R. (Ed.). 2006. Intellectual Property Rights in NAM and Other Developing Countries: A Compendium on Law and Policies. Daya, Delhi.
* The Indian Acts - Patents Act, 1970 & amendments; Design Act, 2000; Trademarks Act, 1999; The Copyright Act, 1957 & amendments; Layout Design Act, 2000; PPV & FR Act 2001, and Rules 2003; National Biological Diversity Act, 2003.

**11060306:AGRICULTURAL RESEARCH, RESEARCH ETHICS & RURAL DEVELOPMENT PROGRAMMES (e-Course) 1(1+0)**

**Objective**

To enlighten the students about the organization and functioning of agricultural research systems at national and international levels, research ethics, and rural development programmes and policies of Government.

**Theory**

UNIT-I

History of agriculture in brief; Global agricultural research system: need, scope, opportunities; Role in promoting food security, reducing poverty and protecting the environment; National Agricultural Research Systems (NARS) and Regional Agricultural Research Institutions; Consultative Group on International Agricultural Research (CGIAR): International agricultural Research Centres (IARC), partnership with NARS, role as a partner in the global agricultural research system, strengthening capacities at national and regional levels; International fellowships for scientific mobility.

UNIT-II

Research ethics: research integrity, research safety in laboratories, welfare of animals used in research, computer ethics, standards and problems in research ethics.

UNIT-III

Concept and connotations of rural development, rural development policies and strategies. Rural development programmes: Community Development Programme, Intensive Agricultural District Programme, Special group – Area Specific Programme, Integrated Rural Development Programme (IRDP), Panchayati Raj Institutions, Co-operatives, Voluntary Agencies/Non-Governmental Organisations. Critical evaluation of rural development policies and programmes. Constraints in implementation of rural policies and programmes.

**Suggested Readings**

* Bhalla GS & Singh G. 2001*. Indian Agriculture - Four Decades of Development. Sage Publ.* Punia MS.*Manual on International Research and Research Ethics. CCS, Haryana Agricultural University, Hisar.*
* Rao BSV. 2007.*Rural Development Strategies and Role of Institutions -Issues, Innovations and Initiatives. Mittal Publ.*
* Singh K. 1998.*Rural Development - Principles, Policies and Management. Sage Publ.*

**11060106:DISASTER MANAGEMENT (E-Course) 1(1+0)**

**Objective**

To introduce learners to the key concepts and practices of natural disaster management; to equip them to conduct thorough assessment of hazards, and risks vulnerability; and capacity building.

**Theory**

UNIT-I

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, Drought, Cyclone, Earthquakes, Landslides, Avalanches, Volcanic eruptions, Heat and cold Waves, Climatic Change: Global warming, Sea Level rise, Ozone Depletion.

UNIT-II

Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire. Oil fire, air pollution, water pollution, deforestation, industrial wastewater pollution, road accidents, rail accidents, air accidents, sea accidents.

UNIT-III

Disaster Management- Efforts to mitigate natural disasters at national and global levels. International Strategy for Disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, Community-based organizations and media. Central, State, District and Local Administration; Armed forces in Disaster response; Disaster response: Police and other organizations.

**Suggested Readings**

* Gupta HK. 2003. *Disaster Management*. Indian National Science Academy. Orient Blackswan.
* Hodgkinson PE & Stewart M. 1991.*Coping with Catastrophe: A Handbook of Disaster Management. Routledge.*