

- Ngũgĩ waThiong'o, 'The Language of African Literature', in *Decolonising the Mind* (London: James Curry, 1986) chap. 1, sections 4–6.
- Gabriel Garcia Marquez, the Nobel Prize Acceptance Speech, in *Gabriel Garcia Marquez: New Readings*, ed. Bernard McGuirk and Richard Cardwell (Cambridge: Cambridge University Press, 1987).

ENGLISH.
SEM - V (Hons.).

CC-12: Women's Writing

Credits 06

C12T: Women's Writing

Course Contents:

Poetry:

- Emily Dickinson: 'I cannot live with you', 'I'm wife; I've finished that'
- Sylvia Plath: 'Daddy'
- Eunice De Souza: 'Advice to Women',

Fiction:

- Mahashweta Devi 'Draupadi', tr. Gayatri Chakravorty Spivak (Calcutta: Seagull, 2002)
- Toni Morrison: *Beloved*

Non-Fiction:

- Baby Kamble: *Our Wretched Life*
- Rassundari Debi Excerpts from *Amar Jiban* in Susie Tharu and K. Lalita, eds., *Women's Writing in India*, vol. 1 (New Delhi: OUP, 1989) pp. 191–2.

Suggested Topics and Background Prose Readings for Class Presentations

Topics

- The Confessional Mode in Women's Writing
- Sexual Politics
- Race, Caste and Gender
- Social Reform and Women's Rights

Suggested Readings:

- Virginia Woolf, *A Room of One's Own* (New York: Harcourt, 1957) chaps. 1 and

- Simone de Beauvoir, 'Introduction', in *The Second Sex*, tr. Constance Borde and Shiela Malovany-Chevallier (London: Vintage, 2010) pp. 3-18.
- Kumkum Sangari and Sudesh Vaid, eds., 'Introduction', in *Recasting Women: Essays in Colonial History* (New Delhi: Kali for Women, 1989) pp. 1-25.
- Chandra Talapade Mohanty, 'Under Western Eyes: Feminist Scholarship and Colonial Discourses', in *Contemporary Postcolonial Theory: A Reader*, ed. Padmini Mongia (New York: Arnold, 1996) pp. 172-97.

ENGLISH.

SEM-VI (Hons.)

✓ **CC-14: Indian Writing in English**

Credits 06

C14T: Indian Writing in English

Course Contents:

Poetry:

- R.K. Narayan: *Swami and Friends*
- H.L.V. Derozio: 'The Harp of India'
- Kamala Das: 'Introduction'
- Nissim Ezekiel: 'The Night of the Scorpion'

Fiction:

- Mulk Raj Anand: 'Two Lady Rams'
- Salman Rushdie: 'The Free Radio'

Drama:

- Girish Karnad: *Tughlaq*

Suggested Topics and Background Prose Readings for Class Presentations

Topics

- Indian English
- Indian English Literature and its Readership
- Themes and Contexts of the Indian English Novel
- The Aesthetics of Indian English Poetry
- Modernism in Indian English Literature

Suggested Readings:

- Raja Rao, Foreword to *Kanthapura* (New Delhi: OUP, 1989) pp. v-vi.
- Salman Rushdie, 'Commonwealth Literature does not exist', in *Imaginary Homelands* (London: Granta Books, 1991) pp. 61-70.

Kali for Women, 2000).

- Sigmund Freud, 'Mourning and Melancholia', in *The Complete Psychological Works of Sigmund Freud*, tr. James Strachey (London: Hogarth Press, 1953) pp. 3041–53.

Films

Garam Hawa (dir. M.S. Sathyu, 1974).

Khamosh Paani: Silent Waters (dir. Sabiha Sumar, 2003). *Subarnarekha*

(dir. Ritwik Ghatak, 1965)

ENGLISH

3rd Sem
(Hons.)

Generic Electives (GE)

✓ GE- 3: Contemporary India: Women and Empowerment

Credits 06

GE3T: Contemporary India: Women and Empowerment

Course Contents:

1. Social Construction of Gender (Masculinity and Femininity) Patriarchy in Indian History.
2. Women and Law
Women and the Indian Constitution

Personal Laws(Customary practices on inheritance and Marriage)
(Supplemented by workshop on legal awareness)
3. Women and Environment
State interventions, Domestic violence, Female foeticide, sexual harassment
Female Voices: *Sultana's Dream* or Bama : Karuk ku

GE- 4: Gender & Human Rights

Credits 06

GE4T: Gender & Human Rights

Course Contents:

1. Poetry: Meena Kandasamy "Aggression" Temsula Ao "Laburnum for My Head"
2. Drama: Manjula Padmanabhan *Lights Out*
3. Essay: Virginia Woolf "Professions for Women", *Women's Rights are Human Rights*. Section V "The Human Rights Framework in Practice"

ENGG :

(3rd Sem. General)

Core Course (CC)

DSC-1C (CC-3): Contemporary India: women and empowerment Credits 06

DSC1CT: Contemporary India: women and empowerment

Course Contents:

1. Social Construction of Gender:

1. Masculinity, Femininity
2. Patriarchy
3. Sex & Gender
4. Gender Socialization
5. Gender discrimination
6. Gender stereotyping

Texts: (any one)

Nivedita Menon : *Sexualities: Issues in Contemporary Indian Feminisms*
(selections)

Nivedita Menon : *Gender and Politics in India* (Selections)

2. History of Women's Movements in India (Pre- and Post-Independence):

1. Women and Nationalism
2. Women and Partition
3. Women and Political Participation

Text: (any two)

1. "Letters to a Wife: Satyendranath Tagore's Letters to Jynadanandini Tagore" from
Epistolary Cultures in 19th century Bengal, Stree Samya, Kolkata,

2. Gholam Murshed "Chapter Four" from *The Reluctant Debutante*.
3. Urvashi Butalia 'Beginnings' from *The Other Side of Silence*
4. Jashodhara Bagchi and Shubharanjan Dasgupta. *The Trauma and The Triumph: Gender and Partition in Eastern India*, Vol I ("Introduction")

3. Women and Law:

1. Women and the Indian Constitution
2. Personal Laws
3. Customary practices on inheritance and Marriage

Text: (Selections from any one text)

1. Flavia Agnes. Ed. *Women and Law in India: An Omnibus* Comprising
2. Flavia Agnes. *Enslaved Daughters* (selections).
3. Sudhir Chandra. *Hindu Women and Marriage Law*
4. Monomoyee Basu. *Law and Gender Inequality*.

4. Women and Violence:

1. State interventions
2. Domestic violence
3. Female foeticide
4. Sexual harassment

Texts: (any one)

1. Rokeya Sakhawat Hussain – *Sultana's Dream*
2. Bama Faustina Soosairaj – *Karukku*

Suggested Readings:

- David Glover. *Gender*. New York: Routledge New Critical Idiom Series.
- *The Social Construction of Gender* (A Gender & Society Reader) by Judith Lorber (Editor), Susan A. Farrell (Editor)
- Veena Oldenburg. *Dowry Murders: The Imperial Origins of a Cultural Crime*
- Attia Hussein. *Translating Partition*. New Delhi: Katha
- Brinda Bose. *Translating Desire*. New Delhi: Katha
- Radha Kumar. *The History of Doing: The Women's Movement in India* ➤ Kalpana Kannabiran. *Women and Law Critical Feminist Perspectives* ➤ Carolyn Merchant. *Earthcare: Women and the Environment*.

... and a Dream/Dalit Discourse:

EMh.

2nd Sem.

(Hons.)

Credits 06

✓
GE-2: Environment & Literature

GE2T: Environment & Literature

Course Contents:

Introduction (Nature in Oriental & Western Thought, Deep Ecology, Third World Environmentalism)

1. G M Hopkins. 'Binsey Poplars'
2. Gordon J. L. Ramel. 'Daffodils No More'

3. Mahasweta Devi. 'Pterodactyl'
4. Ruskin Bond. 'Dust on the Mountains', 'Death of the Trees'

Suggested Readings:

- Vasudha Narayanan 'Water, Wood, and Wisdom: Ecological Perspectives from the Hindu Traditions'
- Allen Carlson. *Environmental Aesthetics*
- Preeti Ranjan Ghosh. "Towards an Understanding of Environmental Aesthetics: Some Reflections", *The Philosophical Quarterly*, 1998
- Beth Fowkes Tobin. *Colonizing Nature*
- Vasudha Narayanan. *Water, Wood and Wisdom*
- Vandana Shiva. *Women in Nature*

OR

GE-2: Some Perspectives on Women's Rights in India

GE2T: Some Perspectives on Women's Rights in India

Course Contents:

I. Definition of Human Rights

1. Human Rights and Women, a survey of the Charter
2. Interrogating Human Rights vis-à-vis personal laws in India
3. UN Convention and Indian Context

II. Indian Constitution and Women's Rights

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1. Fundamental Rights and Women
2. Directive Principles and Women
3. Major legal cases defending women's rights vis-à-vis the Constitution

III. Preventive Acts

Minimum Wage Act 1948, Family Courts Act 1986, PNDT Act 1994, Latest Measures

IV. Issues of Violence against Women and Remedial Measures

1. Domestic Violence Act, Prevention of Sexual Harassment at Workplace
2. Practical application and Problems, Remedial Measures

V. Role of Non-Government Institutions

1. Non-Government Organizations and Human Rights
2. Women and Non-Government Organizations – Participations

VI. Present Status

Issues of enabling and empowering modalities – Debate on uniform civil code

Suggested Readings :

1. Urvashi Butalia & Tanika Sarkar, (ed.), Women & Hindu Rights, New Delhi, Kali for Women, 1996
2. Zoya Hasan (ed.), Forging Identities, Communities & Patriarchies, EPW, December 1995
3. Bina Agarwal, Field of Her Own, New Delhi, Kali for Women,

GE 3 : Some Perspectives on Women's Rights in India

Credits 06

GE 3T : Some Perspectives on Women's Rights in India

I. Definition of Human Rights

Human Rights and Women, a survey of the Charter
Interrogating Human Rights vis-à-vis personal laws in India
UN Convention and Indian Context

II. Indian Constitution and Women's Rights

Fundamental Rights and Women
Directive Principles and Women
Major legal cases defending women's rights vis-à-vis the Constitution

III. Preventive Acts

Minimum Wage Act 1948, Family Courts Act 1986, PNDT Act 1994, Latest Measures

IV. Issues of Violence against Women and Remedial Measures

Domestic Violence Act, Prevention of Sexual Harassment at Workplace
Practical application and Problems, Remedial Measures

V. Role of Non-Government Institutions

Non-Government Organizations and Human Rights
Women and Non-Government Organizations – Participations

VI. Present Status

Issues of enabling and empowering modalities – Debate on uniform civil code

Suggested Readings:

- Urvashi Butalia & Tanika Sarkar, (ed.), Women & Hindu Rights, New Delhi, Kali for Women, 1996
- Zoya Hasan (ed.), Forging Identities, Communities & Patriarchies, EPW, December 1995
- Bina Agarwal, Field of Her Own, New Delhi, Kali for Women,

GE - 4 : Gender & Education in India

GE4T : Gender & Education in India

I. Historiographical Trends

- a. Pre-colonial historiographical trends in women's education
- b. colonial historiographical trends in women's education
- c. Post-colonial historiographical trends in women's education

II. Education in Early and Medieval Times

- a. Women's Education in Medieval times
- b. Regional trends of Women's education in pre-colonial India
- c. Instances of women's education, obstacles

III. Colonial Period

- a. Socio-religious reforms
- b. Role of Christian missionaries in spreading female education, recent debates
- c. Indigenous initiatives at women's education

IV. Role of Schools and Colleges in colonial and post-colonial period

- a. Girls School and Colleges, development towards co-education
- b. Expansion of infrastructural facilities in education
- c. Technical and vocational education for women

V. Contours of female literacy since 1950

- a. Interrogating literacy for women
- b. Government policies and Schemes
- c. Disparities in Literacy: Region, Community, Social and Eco-factors

VI. Present Scenario

- a. Education as a tool of Empowerment

Suggested Readings:

- Aparna Basu, Growth of Education and Political Development in India, 1898 – 1920
- Usha Sharma, Women Education in Modern India
- Ramnath Sharma & Rajender Sharma, History of Education in India, Atlantic Publishers, 1996
- Aparna Basu & Bharati Ray (ed.), Women's Struggle. A History of the All India Women's Conference 2002

POL. SC.

SEM-I: (Hons.)

MAJOR (MJ)

MJ-1: Understanding Political Theory

Credits 04

MJ-1T: Understanding Political Theory

Full Marks: 75

Course contents:

Group A

| Sl. | Topic | No of Classes |
|-----|-------------------------------------|---------------|
| 01 | Politics: Meaning(s) and Concept(s) | 08 |
| 02 | The Relevance of Political Theory | 06 |
| 03 | Democracy, Liberty and Equality | 08 |
| 04 | Citizenship: Rights and Duties | 08 |

Group B

| Sl. | Topic | No of Classes |
|-----|--|---------------|
| 05 | State and Political Theory: Core Issues | 06 |
| 06 | Civil Society and the State: Censorship and Surveillance; Privacy and Family | 10 |
| 07 | Development and Economic Growth: Major Themes | 07 |
| 08 | Issues of Justice: Gender, Fairness and Protective Discrimination/Affirmative Action | 07 |

COURSE OUTCOME:

- ✓ Learning is necessary for being a useful member of society. The first step towards learning is having a theoretical understanding of the subject matter. This course is specifically dedicated for this purpose.

Suggested Readings:

1. Acharya, A. (2008) 'Affirmative Action', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 298-307.
2. Acharya, A. (2008) 'Equality', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 58-73.
3. Bhargava, R. (2008) 'What is Political Theory', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 2-17.
4. Bhargava, R. (2008) 'Why Do We Need Political Theory', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 18-37.
5. Brighouse, H. (2008) 'Citizenship', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 241-259.
6. Casal, P. & William, A. (2008) 'Equality', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 149- 165.
7. Chambers, C. (2008) 'Gender', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 241-288.
8. Christiano, Thomas. (2008) 'Democracy', in McKinnon, Catriona. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 80-96

Major A1/B1: Introduction to Political Theory

Credits 04

COURSE OUTCOME:

Learning is necessary for being a useful member of society. The first step towards learning is having a theoretical understanding of the subject matter. This course is specifically dedicated for this purpose.

Major A1/B1T: Introduction to Political Theory

Full Marks: 75

Course contents:

Group A

| Sl | Topic | No of Classes |
|----|--|---------------|
| 01 | Politics, Political Science and Political Theory | 08 |
| 02 | Democracy, Liberty and Equality | 08 |
| 03 | Citizenship: Rights and Duties | 08 |
| 04 | Human Rights: Concept and Scope | 06 |

Group B

| Sl | Topic | No of Classes |
|----|--|---------------|
| 05 | State and Political Theory: Core Issues | 06 |
| 06 | The State and Civil Society: Privacy and Surveillance | 07 |
| 07 | Development and Economic Growth: Major Themes | 07 |
| 08 | Issues of Justice: Gender, Fairness and Protective Discrimination/Affirmative Action | 10 |

Suggested Readings:

1. Acharya, A. (2008) 'Affirmative Action', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 298-307.
2. Acharya, A. (2008) 'Equality', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 58-73.
3. Bhargava, R. (2008) 'What is Political Theory', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 2-17.
4. Bhargava, R. (2008) 'Why Do We Need Political Theory', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 18-37.
5. Brighouse, H. (2008) 'Citizenship', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 241-259.
6. Casal, P. & William, A. (2008) 'Equality', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 149-165.
7. Chambers, C. (2008) 'Gender', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 241-288.
8. Christiano, Thomas. (2008) 'Democracy', in McKinnon, C. (ed.) *Issues in Political Theory*. New York: Oxford University Press, pp. 80-96.
9. Das, S. (2008) 'State', in Bhargava, R. and Acharya, A. (eds.) *Political Theory: An Introduction*. New Delhi: Pearson Longman, pp. 170-187.
10. Frances E O. (1985) 'The Myth of State Intervention in the Family', *University of Michigan Journal of Law Reform*, 18 (4), pp. 835-64.

POLITICAL SCIENCE

1. Classical conceptions of citizenship
2. The Evolution of Citizenship and the Modern State
3. Citizenship and Diversity
4. Citizenship beyond the Nation-state: Globalization and global justice
5. The idea of cosmopolitan citizenship

Suggested Readings

- Acharya, Ashok. (2012) *Citizenship in a Globalising World*. New Delhi: Pearson.
- Beiner, R. (1995) *Theorising Citizenship*. Albany: State University of New York Press.
- Held, David (1995), *Democracy and the Global Order: From the Modern State to Cosmopolitan Governance* (Stanford: Stanford University Press).
- Kymlicka, Will (1999), "Citizenship in an Era of Globalization: A Response to Held," in Ian Shapiro and Casiano Hacker-Cordon (eds.), *Democracy's Edges* (Cambridge, UK: Cambridge University Press).
- Oliver, D. and D. Heater (1994). *The Foundations of Citizenship*. London, Harvester Wheatsheaf.
- Scholte, Jan Aart (2000), *Globalization: A Critical Introduction* (New York: St. Martin's).
- Zolo, Danilo (1997), *Cosmopolis: Prospects for World Government* (Cambridge, UK: Polity Press).

SEM - VI
(Hons.)

OR

DSE-3 : Women, Power and Politics

Credit 06

DSE3T : Women, Power and Politics

I. Groundings

1. Patriarchy
 - a. Sex-Gender Debates
 - b. Public and Private
 - c. Power
2. Feminism
3. Family, Community, State
 - a. Family
 - b. Community
 - c. State

II. Movements and Issues

1. History of the Women's Movement in India
2. Violence against women
3. Work and Labour
 - a. Visible and Invisible work
 - b. Reproductive and care work

Suggested Readings :

- T. Shinde, (1993) 'Stree Purusha Tulna', in K. Lalitha and Susie Tharu (eds), *Women Writing in India*, New Delhi, Oxford University Press, pp. 221-234
- U. Chakravarti, (2001) 'Pitrasatta Par ek Note', in S. Arya, N. Menon & J. Lokneeta (eds.) *Naarivaadi Rajneeti: Sangharsh evam Muddey*, University of Delhi: Hindi Medium Implementation Board, pp.1-7
- V Geetha, (2002) *Gender*, Kolkata, Stree, pp. 1-20
- M. Kosambi, (2007) *Crossing the Threshold*, New Delhi, Permanent Black, pp. 3-10; 40-46
- N. Menon, (2008) 'Power', in R. Bhargava and A. Acharya (eds), *Political Theory: An Introduction*, Delhi: Pearson, pp.148-157
- Hooks, (2010) 'Feminism: A Movement to End Sexism', in C. Mc Cann and S. Kim (eds), *The Feminist Reader: Local and Global Perspectives*, New York: Routledge, pp. 51-57
- R. Delmar, (2005) 'What is Feminism?', in W. Kolmar & F. Bartkowski (eds) *Feminist Theory: A Reader*, pp. 27-37
- R. Palriwala, (2008) 'Economics and Patriliney: Consumption and Authority within the Household' in M. John. (ed) *Women's Studies in India*, New Delhi: Penguin, pp. 414-423
- U. Chakravarti, (2003) *Gendering Caste through a Feminist Lens*, Kolkata, Stree, pp. 139-159.
- MacKinnon, 'The Liberal State' from *Towards a Feminist Theory of State*, Available at <http://fair-use.org/catharine-mackinnon/toward-a-feminist-theory-of-the-state/chapter-8>, Accessed: 19.04.2013.
- K. Millet, (1968) *Sexual Politics*, Available at <http://www.marxists.org/subject/women/authors/millett-kate/sexual-politics.htm>, Accessed: 19.04.2013.
- N. Menon (2008) 'Gender', in R. Bhargava and A. Acharya (eds), *Political Theory: An Introduction*, New Delhi: Pearson, pp. 224-233
- R. Hussain, (1988) 'Sultana's Dream', in *Sultana's Dream and Selections from the Secluded Ones – translated by Roushan Jahan*, New York: The Feminist Press
- S. Ray 'Understanding Patriarchy', Available at http://www.du.ac.in/fileadmin/DU/Academics/course_material/hrge_06.pdf, Accessed: 19.04.2013.

3. Bandopadhyay, S. (2004) *From Plassey to Partition: A History of Modern India*. New Delhi: Orient Longman, pp. 342-357, 369-381.
4. Chakrabarty, B. and R. Pandey, (2010) *Modern Indian Political Thought*. New Delhi: Sage Publications.
5. Chatterjee, P. (1993) 'The Nation and its Pasts', in P. Chatterjee (eds.), *The Nation and its Fragments: Colonial and Postcolonial Histories*. New Delhi: Oxford University Press, pp. 76-115.
6. Chatterjee, P. (1993) *The Nation and its Fragments: Colonial and Postcolonial Histories*. New Delhi: Oxford University Press.
7. Desai, A. R. (2016) *Social Background of Indian Nationalism*. New Delhi: Sage.
8. Islam, S. (2006) *Bharat Mein Algaovaad aur Dharm*. New Delhi: Vani Prakashan.
9. Jalal, A. and S. Bose, (1997) *Modern South Asia: History, Culture, and Political Economy*. New Delhi: Oxford University Press, pp. 135-156.
10. Pradhan, R. (2008) *Raj to Swaraj*. New Delhi: Macmillan.
11. Sarkar, S. (1983) *Modern India (1885-1947)*. New Delhi: Macmillan.
12. Sen, A. (2007) 'The idea of Social Reform and its Critique among Hindus of Nineteenth Century India', in S. Bhattacharya, (ed.) *Development of Modern Indian Thought and the Social Sciences*. Vol. X. New Delhi: Oxford University Press.
13. Shah, G. (2002) *Social Movements and the State*. New Delhi: Sage, pp. 13-31
14. Tagore, Rabindranath (2015) *Nationalism*. New Delhi: Fingerprint Publishing.
15. Thapar, R. (2000) 'Interpretations of Colonial History: Colonial, Nationalist, Postcolonial', in P. DeSouza, (ed.) *Contemporary India: Transitions*. New Delhi: Sage Publications, pp. 25-36.
16. ইয়াসিন খান ও সুশান্ত দে (সম্পাদিত) [২০২২] ভারত ছাড়ো আন্দোলন, গ্রন্থমিত্র, কলকাতা।
17. ইয়াসিন খান (সম্পাদিত) [২০১৪] দলিত ও জাতপাত কথা, এডুকেশন ফোরাম, কলকাতা।

SEM-2
(MDP)

MI-2: Gender Studies

Credits 04

MI-2: Gender Studies

Full Marks: 75

Course contents:

Group A

| Sl | Topic | No of Classes |
|----|---|---------------|
| 01 | The concept of Gender and the evolution of Gender Studies | 06 |
| 02 | Gender as a Political Construct: Sex and Gender; Power and Culture | 08 |
| 03 | Women as Political Actors: Representation and Participation | 06 |
| 04 | Emergence of Feminist Political Theories: Different Types and Waves | 08 |

Group B

| Sl | Topic | No of Classes |
|----|--|---------------|
| 05 | The Structures and Functions of Patriarchy | 08 |
| 06 | Women and Human Rights | 06 |
| 07 | Women and Economic Opportunities | 06 |
| 08 | Women and Political Participation in India – With special reference to 73 rd and 74 th Constitutional Amendments | 08 |

COURSE OUTCOME:

- ✓ This course will prepare students for academic jobs, legal professions, media, civil society organisations and various administrative jobs and sensitisation of gender related issues.

Suggested Readings:

1. Beteille, Andre (2003) Antinomies of Society: Essays on Ideology and Institutions. Oxford University Press, Delhi.
2. Geetha, V. (2002) Gender. Sree Publications, Kolkata.
3. Gonsalves, Colin (2011) Kaliyug: The Decline of Human Rights Law in the Period of Globalization. Human Rights Law Network, New Delhi.
4. Guha, Ramachandra and Madhav Gadgil, (1993) Environmental History of India. University of California Press, Berkeley.
5. Haragopal, G. (1997) The Political Economy of Human Rights. Himachal Publishing House: Mumbai.
6. Menon, Nivedita (ed) (2000) Gender and Politics in India. Oxford University Press, Delhi.
7. Menon, N. (2008) 'Gender', in Bhargava, R. and Acharya, A. (eds.) Political Theory: An Introduction. New Delhi: Pearson Longman, pp. 224- 235.
8. Patel, Sujata et al (eds) (2003) Gender and Caste: Issues in Contemporary Indian Feminism. Kali for Women, Delhi.
9. Shah, Ghanshyam (1991) Social Movements in India. Sage Publications, Delhi.
10. Shah, Nandita and Nandita Gandhi (1992) Issues at Stake: Theory and Practice in the Contemporary Women's Movement in India. Kali for Women, Delhi.
11. বাসবী চক্রবর্তী (সম্পাদিত) [২০১১] নারী পৃথিবী: বহুস্বর, উবী প্রকাশন, কলকাতা।
12. ইয়াসিন খান (সম্পাদিত) [২০১৫] সমকালীন ভাবনায় নারী, এডুকেশন ফোরাম, কলকাতা।

Vidyasagar University

Ability Enhancement Compulsory Course (AECC – Environmental Studies)

Environmental Studies

Credits: 4

Unit 1: Introduction to environmental studies

- Multidisciplinary nature of environmental studies;
 - Scope and importance; Concept of sustainability and sustainable development.
- (2 lectures)

Unit 2: Ecosystems

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems:
 - a) Forest ecosystem
 - b) Grassland ecosystem
 - c) Desert ecosystem
 - d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

Unit 3: Natural Resources: Renewable and Non-renewable Resources

- Land resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Joint forest management.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

(8 lectures)

Unit 4: Biodiversity and Conservation

- Levels of biological diversity : genetic, species and ecosystem diversity; Bio-geographic zones of India; Biodiversity patterns and global biodiversity hot spots
- India as a mega-biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

(8 lectures)

Unit 5: Environmental Pollution

- Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.
- Noise pollution.

(8 lectures)

Unit 6: Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.
- Environmental policy and gender issues.

(7 lectures)

Unit 7: Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

(6 lectures)

Unit 8: Field work

- Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- Visit to a local polluted site---Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems---pond, river, Delhi Ridge, etc.
- Disaster management.
- Coastal ecosystem.

(Equal to 5 lectures)

Suggested Readings:

1. Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. *This Fissured Land: An Ecological History of India*. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. *Global Ethics and Environment*, London, Routledge.
4. Gleick, P. H. 1993. *Water in Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. *Principles of Conservation Biology*. Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science*, 339: 36---37.
7. McCully, P. 1996. *Rivers no more: the environmental effects of dams* (pp. 29---64). Zed Books.
8. McNeill, John R. 2000. *Something New Under the Sun: An Environmental History of the Twentieth Century*.
9. Odum, E.P., Odum, H.T. & Andrews, J. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. *Environmental and Pollution Science*. Academic Press.

11. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment*. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M. L. 2001. *Environmental law and policy in India*. Tripathi 1992.
14. Sengupta, R. 2003. *Ecology and economics: An approach to sustainable development*. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent*.
18. Warren, C. E. 1971. *Biology and Water Pollution Control*. WB Saunders.
19. Wilson, E. O. 2006. *The Creation: An appeal to save life on earth*. New York: Norton.
20. World Commission on Environment and Development. 1987. *Our Common Future*. Oxford University Press.

SEM 1 (NEP).

Value Added Course (VAC)

Value Added Course (VAC)- 01

VAC-01: ENVIS- Environmental Studies

Credits 04 (Full Marks-100)

Course contents:

Unit-I: Introduction to environmental studies

(2 lectures)

- Multidisciplinary nature of environmental studies;
- Scope and importance; Concept of sustainability and sustainable development.

Unit-II: Ecosystems

(6 lectures)

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem; b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit-III: Natural Resources: Renewable and Non-renewable Resources

(8 lectures)

- Land resources and land use change; Land degradation, soil erosion and desertification;
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Joint forest management.
- Water: Use and over--exploitation of surface and ground water, floods, droughts, conflicts over water (international & interstate).
- Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

Unit-IV: Biodiversity and Conservation

(8 lectures)

- Levels of biological diversity: genetic, species and ecosystem diversity; Bio-geographic zones of India; Biodiversity patterns and global biodiversity hot spots
- India as a mega--biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity: Habitat loss, poaching of wildlife, man--wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

Unit-V: Environmental Pollution

(8 lectures)

- Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.
- Noise pollution.

Unit-VI: Environmental Policies & Practices

(7 lectures)

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.
- Environmental policy and gender issues

Unit-VII: Human Communities and the Environment

(6 lectures)

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g. CNG vehicles in Delhi)

Unit-VIII: Field work

(Equal to 5 lectures)

- Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- Visit to a local polluted site--Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems--pond, river, Delhi Ridge, etc.
- Disaster management.
- Coastal ecosystem

Suggested Readings:

- i. Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
- ii. Gadgil, M., & Guha, R. 1993. *This Fissured Land: An Ecological History of India*. Univ. of California Press.
- iii. Gleeson, B. and Low, N. (eds.) 1999. *Global Ethics and Environment*, London, Routledge.
- iv. Gleick, P. H. 1993. *Water in Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
- v. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. *Principles of Conservation Biology*. Sunderland: Sinauer Associates, 2006.
- vi. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science*, 339: 36--37.
- vii. McCully, P. 1996. *Rivers no more: the environmental effects of dams* (pp. 29--64). Zed Books.
- viii. McNeill, John R. 2000. *Something New Under the Sun: An Environmental History of the Twentieth Century*.
- ix. Odum, E.P., Odum, H.T. & Andrews, J. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
- x. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. *Environmental and Pollution Science*. Academic Press
- xi. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co.Pvt. Ltd.
- xii. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment*. 8th edition. John Wiley & Sons.

Unit 6: Translation

Ribosome structure and assembly, mRNA; Charging of tRNA, aminoacyl tRNA synthetases; Various steps in protein synthesis, proteins involved in initiation, elongation and termination of polypeptides; Fidelity of translation; Inhibitors of protein synthesis; Post-translational modifications of proteins.

C8P: Molecular Biology**Credits 02****Practical**

1. Preparation of LB medium and raising *E.Coli*.
2. Isolation of genomic DNA from *E.Coli*.
3. DNA isolation from cauliflower head.
4. DNA estimation by diphenylamine reagent/UV Spectrophotometry.
5. Study of DNA replication mechanisms through photographs (Rolling circle, Theta replication and semi-discontinuous replication).
6. Study of structures of prokaryotic RNA polymerase and eukaryotic RNA polymerase II through photographs.
7. Photographs establishing nucleic acid as genetic material (Messelson and Stahl's, Avery et al, Griffith's, Hershey & Chase's and Fraenkel & Conrat's experiments)
8. Study of the following through photographs: Assembly of Spliceosome machinery; Splicing mechanism in group I & group II introns; Ribozyme and Alternative splicing.

Suggested Readings

- Watson J.D., Baker, T.A., Bell, S.P., Gann, A., Levine, M., Losick, R. (2007). Molecular Biology of the Gene, Pearson Benjamin Cummings, CSHL Press, New York, U.S.A. 6th edition.
- Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics. John Wiley and Sons Inc., U.S.A. 5th edition.
- Klug, W.S., Cummings, M.R., Spencer, C.A. (2009). Concepts of Genetics. Benjamin Cummings. U.S.A. 9th edition.
- Russell, P. J. (2010). i-Genetics- A Molecular Approach. Benjamin Cummings, U.S.A. 3rd edition.
- Griffiths, A.J.F., Wessler, S.R., Carroll, S.B., Doebley, J. (2010). Introduction to Genetic Analysis. W. H. Freeman and Co., U.S.A. 10th edition.

CC-9: Plant Ecology and Phytogeography**Credits 06****C9T: Plant Ecology and Phytogeography****Credits 04****Course Contents:****Unit 1: Introduction**

Basic concepts; Levels of organization. Inter-relationships between the living world and the environment, the components and dynamism, homeostasis.

Unit 2: Soil

Importance; Origin; Formation; Composition; Physical; Chemical and Biological components; Soil profile; Role of climate in soil development.

BOTANY.

SEM-IV (Hons.) CC-9.

Unit 3: Water

Importance: States of water in the environment; Atmospheric moisture; Precipitation types (rain, fog, snow, hail, dew); Hydrological Cycle; Water in soil; Water table.

Unit 4: Light, temperature, wind and fire

Variations; adaptations of plants to their variation.

Unit 5: Ecosystems

Structure; Processes; Trophic organisation; Food chains and Food webs; Ecological pyramids.

Unit 6: Population ecology

Characteristics and Dynamics .Ecological Speciation

Unit 7: Plant communities

Concept of ecological amplitude; Habitat and niche; Characters: analytical and synthetic; Ecotone and edge effect; Dynamics: succession – processes, types; climax concepts.

Unit 8: Biotic interactions

Trophic organization, basic source of energy, autotrophy, heterotrophy; symbiosis, commensalism, parasitism; food chains and webs; ecological pyramids; biomass, standing crop.

Unit 9: Functional aspects of ecosystem

Principles and models of energy flow; Production and productivity; Ecological efficiencies; Biogeochemical cycles; Cycling of Carbon, Nitrogen and Phosphorus.

Unit 10: Phytogeography

Principles; Continental drift; Theory of tolerance; Endemism; Brief description of major terrestrial biomes (one each from tropical, temperate & tundra); Phytogeographical division of India; Local Vegetation.

C9P: Plant Ecology and Phytogeography

Credits 02

Practical

1. Study of instruments used to measure microclimatic variables: Soil thermometer, maximum and minimum thermometer, anemometer, psychrometer/hygrometer, rain gauge and lux meter.
2. Determination of pH of various soil and water samples (pH meter, universal indicator/Lovibond comparator and pH paper)
3. Analysis for carbonates, chlorides, nitrates, sulphates, organic matter and base deficiency from
4. two soil samples by rapid field tests.
5. Determination of organic matter of different soil samples by Walkley & Black rapid titration
6. method.

BOTANY, (Hons.) (SEM-2)
GE-2.

GE-2: Plant Ecology and Taxonomy

Credits 06

GE2T: Plant Ecology and Taxonomy

Credits 04

Course Contents:

Unit- 1: Introduction

✓ **Unit- 2: Ecological factors**

Soil: Origin, formation, composition, soil profile. Water: States of water in the environment, precipitation types. Light and temperature: Variation Optimal and limiting factors; Shelford law of tolerance. Adaptation of hydrophytes and xerophytes

✓ **Unit -3: Plant communities**

Characters; Ecotone and edge effect; Succession; Processes and types

✓ **Unit- 4: Ecosystem**

Structure; energy flow trophic organisation; Food chains and food webs, Ecological pyramids production and productivity; Bio-geochemical cycling; Cycling of carbon, nitrogen and Phosphorous

Unit- 5: Phytogeography

Principle of Biogeographical zone; Endemism.

Unit- 6: Introduction to plant taxonomy

Identification, Classification, Nomenclature.

Unit- 7 : Identification

Functions of Herbarium, important herbaria and botanical gardens of the world and India; Documentation: Flora, Keys: single access and multi-access

Unit 8 : Taxonomic evidences from palynology, cytology, phytochemistry and molecular data.

Unit 9 : Taxonomic hierarchy

Ranks, categories and taxonomic groups

Unit 10: Botanical nomenclature

Principles and rules (ICN); ranks and names; binominal system, typification, author citation, valid publication, rejection of names, principle of priority and its limitations.

Unit 11: Classification

Types of classification-artificial, natural and phylogenetic. Bentham and Hooker (upto series), Engler and Prantl (upto series).

Unit 12: Biometrics, numerical taxonomy and cladistics

Characters; variations; OTUs, character weighting and coding; cluster analysis; phenograms, cladograms (definitions and differences).

GE2P: Practical

Credit 02

Practical:

1. Study of instruments used to measure microclimatic variables: Soil thermometer, maximum and minimum thermometer, anemometer, psychrometer/hygrometer, rain gauge and lux meter.
2. Determination of pH, and analysis of two soil samples for carbonates, chlorides, nitrates, sulphates, organic matter and base deficiency by rapid field test.
3. Comparison of bulk density, porosity and rate of infiltration of water in soil of three habitats.
4. (a) Study of morphological adaptations of hydrophytes and xerophytes (four each).
(b) Study of biotic interactions of the following: Stem parasite (*Cuscuta*), Root parasite (*Orobanche*), Epiphytes, Predation (Insectivorous plants).
5. Determination of minimal quadrat size for the study of herbaceous vegetation in the college campus by species area curve method. (species to be listed)
6. Quantitative analysis of herbaceous vegetation in the college campus for frequency and comparison with Raunkiaer's frequency distribution law
7. Study of vegetative and floral characters of the following families (Description, V.S. flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham & Hooker's system of classification): Brassicaceae - *Brassica*, *Alyssum* / *Iberis*; Asteraceae - *Sonchus*/*Launaea*, *Vernonia*/*Ageratum*, *Eclipta*/*Tridax*; Solanaceae - *Solanum nigrum*, *Withania*; Lamiaceae - *Salvia*, *Ocimum*; Liliaceae - *Asphodelus* / *Lilium* / *Allium*.
8. Mounting of a properly dried and pressed specimen of any wild plant with herbarium label (to be submitted in the record book).

Suggested Readings:

1. Kormondy, E.J. (1996). Concepts of Ecology. Prentice Hall, U.S.A. 4th edition.
2. Sharma, P.D. (2010) Ecology and Environment. Rastogi Publications, Meerut, India. 8th edition.
3. Simpson, M.G. (2006). *Plant Systematics*. Elsevier Academic Press, San Diego, CA, U.S.A.
4. Singh, G. (2012). *Plant Systematics: Theory and Practice*. Oxford & IBH Pvt. Ltd., New Delhi. 3rd edition

GE-3: Economic Botany and Plant Biotechnology

Credits 06

GE3T: Economic Botany and Plant Biotechnology

Credits 04

Course Contents:

ZOOLOGY. (1st SEM) - (Hons.)

C2 T2 –Ecology

Credits 04

| Ecology | |
|--|--|
| Unit 1: Introduction to Ecology | 4 Credits Class 4 |
| History of ecology, Autecology and synecology, Levels of organization, Laws of limiting factors, Study of Physical factors, The Biosphere. | |
| Unit 2: Population | 20 |
| Unitary and Modular populations Unique and group attributes of population: Demographic factors, life tables, fecundity tables, survivorship curves, dispersal and dispersion. Geometric, exponential and logistic growth, equation and patterns, r and K strategies Population regulation - density-dependent and independent factors Population Interactions, Gause's Principle with laboratory and field examples, Lotka-Volterra equation for competition. | |
| Unit 3: Community | 11 |
| Community characteristics: species diversity, abundance, , dominance, richness, Vertical stratification, Ecotone and edge effect. Ecological succession with one example | |
| Unit 4: Ecosystem | 10 |
| Types of ecosystem with an example in detail, Food chain: Detritus and grazing food chains, | |

| | |
|--|----------|
| and Y-shaped food chains, Food web, Energy flow through the ecosystem, Ecological pyramids and Ecological efficiencies | |
| Nutrient and biogeochemical cycle with an example of Nitrogen cycle | |
| Human modified ecosystem | |
| Unit 5: Applied Ecology | 5 |
| Wildlife Conservation (in-situ and ex-situ conservation). | |
| Management strategies for tiger conservation; Wild life protection act (1972) | |

Reference Books

- ▶ Krebs, C. J. (2001). Ecology. VI Edition. Benjamin Cummings.
- ▶ Odum, E.P., (2008). Fundamentals of Ecology. Indian Edition.
- ▶ Brooks/Cole Robert Leo Smith Ecology and field biology
- ▶ Harper and Row publisher
- ▶ Ecology: Theories & Application (2001). 4th Edition by Peter Stilling.
- ▶ Ecology by Cain, Bowman & Hacker. 3rd edition. Sinauer associates

BIOS Scientific Publishers Ltd., U.K.

5. Watson, J.D., Baker, T.A., Bell, S.P., Gann, A., Levine, M. and Losick, R. (2008).
Molecular Biology of the Gene, VI Edition, Cold Spring Harbor Lab. Press, Pearson
Pub.

ZOOLOGY

3rd Sem.
(Hons.)

SEC-01.

Skill Enhancement Course (SEC)

SEC1: Apiculture

Credits 02

SEC1T: Apiculture

Unit 1: Biology of Bees

History, Classification and Biology of Honey Bees
Social Organization of Bee Colony

Unit 2: Rearing of Bees

Artificial Bee rearing (Apiary), Beehives – Newton and Langstroth

Bee Pasturage

Selection of Bee Species for Apiculture

Bee Keeping Equipment

Methods of Extraction of Honey (Indigenous and Modern)

Unit 3: Diseases and Enemies

Bee Diseases and Enemies

Control and Preventive measures

Unit 4: Bee Economy

Products of Apiculture Industry and its Uses (Honey, Bees Wax, Propolis), Pollen etc

Unit 5: Entrepreneurship in Apiculture

Bee Keeping Industry – Recent Efforts, Modern Methods in employing artificial Beehives for cross pollination in horticultural gardens

Suggested Readings :

1. Prost, P. J. (1962). Apiculture. Oxford and IBH, New Delhi.
2. Bisht D.S., Apiculture, ICAR Publication.
3. Singh S., Beekeeping in India, Indian council of Agricultural Research, New Delhi.

ZOOLOGY.

Or

4th SEM. (Hons.)

SEC-02.

Credits 02

SEC-2: Sericulture

SEC2T: Sericulture

Course Contents:

Unit 1: Introduction

Sericulture: Definition, history and present status; Silk route

Types of silkworms, Distribution and Races

Exotic and indigenous races

Mulberry and non-mulberry Sericulture

Unit 2: Biology of Silkworm

Life cycle of *Bombyx mori*

Structure of silk gland and secretion of silk

Unit 3: Rearing of Silkworms

Selection of mulberry variety and establishment of mulberry garden

Rearing house and rearing appliances.

Disinfectants: Formalin, bleaching powder, RKO

Silkworm rearing technology: Early age and Late age rearing

Types of mountages

Spinning, harvesting and storage of cocoons

Unit 4: Pests and Diseases

Pests of silkworm: Uzi fly, dermestid beetles and vertebrates

Pathogenesis of silkworm diseases: Protozoan, viral, fungal and bacterial

Control and prevention of pests and diseases

Unit 5: Entrepreneurship in Sericulture

Prospectus of Sericulture in India: Sericulture industry in different states, employment, potential in mulberry and non-mulberry sericulture Visit to various sericulture centres.

Suggested Readings:

- Non-conventional energy sources - G.D Rai - Khanna Publishers, New Delhi
- Solar energy - M P Agarwal - S Chand and Co. Ltd.

ZOOLOGY Submission of a project report on any one of the insect vectors and disease transmitted

SEM - IV

(Hons.)

Or

GE-4: Environment and Public Health

Credits 06

GE4T: Environment and Public Health

Credits 04

Course Contents:

Unit 1: Introduction

Sources of Environmental hazards, Hazard identification and accounting, Fate of toxic and persistent substances in the environment, Dose response evaluation, Exposure assessment.

Unit 2: Climate Change

Greenhouse gases and global warming, Acid rain, Ozone layer destruction, Effect of climate change on public health

Unit 3: Pollution

Air, water, noise pollution sources and effects, Pollution control.

Unit 4: Waste Management Technologies

Sources of waste, types and characteristics, Sewage disposal and its management, Solid waste disposal, Biomedical waste handling and disposal, Nuclear waste handling and disposal, Waste from thermal power plants.

Unit 5: Diseases

Causes, symptoms and control of tuberculosis, Asthma, Cholera, Minamata disease, typhoid, filariasis

Suggested Readings:

- Cutter, S.L., Environmental Risk and Hazards, Prentice-Hall of India Pvt. Ltd., New Delhi, 1999.
- Kolluru Rao, Bartell Steven, Pitblado R and Stricoff "Risk Assessment and Management Handbook", McGraw Hill Inc., New York, 1996.
- Kofi Asante Duah "Risk Assessment in Environmental management", John Wiley and sons, Singapore, 1998.
- Kasperson, J.X. and Kasperson, R.E. and Kasperson, R.E., Global Environmental Risks, V. N. University Press, New York, 2003.
- Joseph F Louvar and B Diane Louver Health and Environmental Risk Analysis
- fundamentals with applications, Prentice Hall, New Jersey 1997.

5. Morphological studies of various castes of *Apis*, *Camponotus* *Odontotermes*
6. Study of major insect pests of paddy and their damages
7. Study of Mulberry silk moth as beneficial insect

ZOOLOGY - SEM - 6 (Hons.)
Or

DSE-4: Wild Life Conservation and Management

Credits 06

DSE4T: Wild Life Conservation and Management

Credits 04

Course Contents:

Unit-1: Introduction to Wild Life

Values of wild life - positive and negative; Conservation ethics; Importance of conservation; Causes of depletion; World conservation strategies.

Unit-2: Evaluation and management of wild life

Habitat analysis, Physical parameters: Topography, Geology, Soil and water
Biological Parameters: food, cover, forage, browse and cover estimation.
Standard evaluation procedures: remote sensing and GIS.

Unit-3: Management of habitats

Setting back succession; Grazing logging; Mechanical treatment; Advancing the successional process; Cover construction; Preservation of general genetic diversity Restoration of degraded habitats.

Unit-4: Population estimation

Population density, Natalty, Birth rate, Mortality, fertility schedules and sex ratio computation; Faecal analysis of ungulates and carnivores; Pug marks and census method.

Unit-5: Aims and objectives of wildlife conservation

Wildlife conservation in India – through ages; different approaches of wildlife conservation; modes of conservation; in-situ conservation and ex-situ conservation: necessity for wildlife conservation.

Unit-6: Management planning of wild life in protected areas

Estimation of carrying capacity; Eco tourism / wild life tourism in forests; Concept of climax persistence; Ecology of perturbation.

Unit-7: Man and Wildlife

Causes and consequences of human-wildlife conflicts; mitigation of conflict – an overview; Management of excess population.

Unit-8: Protected areas

National parks & sanctuaries, Community reserve; Important features of protected areas in India; Tiger conservation - Tiger reserves in India; Management challenges in Tiger reserve.

Suggested Readings:

1. Caughley, G., and Sinclair, A.R.E. (1994). Wildlife Ecology and Management. Blackwell Science.
2. Woodroffe R., Thirgood, S. and Rabinowitz, A. (2005). People and Wildlife, Conflict or Co-existence? Cambridge University.
3. Bookhout, T.A. (1996). Research and Management Techniques for Wildlife and Habitats, 5 th edition. The Wildlife Society, Allen Press.
4. Sutherland, W.J. (2000). The Conservation Handbook: Research, Management and Policy. Blackwell Sciences
5. Hunter M.L., Gibbs, J.B. and Sterling, E.J. (2008). Problem-Solving in Conservation Biology and Wildlife Management: Exercises for Class, Field, and Laboratory. Blackwell Publishing.