

# The crosscutting issues like gender, professional ethics, and human values as prescribed by the affiliating university / affiliating university curriculum



## PROFESSIONAL ETHICS

**Discipline: B.A. Philosophy**

**Course Code: BAHPHIC301**

**Course Title: Indian Ethics**

Course Title	Course type	Course Code	Course Details	(L-T-P)	Credit	Marks
Indian Ethics	C	BAHPHIC301	CC-5	5 - 1 - 0	6	Theoretical 10+40 = 50

**Course Objective :** The course aims to introduce the students with the different views of the Indian Ethics and Indian cultural heritage. Some ethical perspective of some Indian Philosophical schools have also been included in this course from some practical point of view. Through theoretical understanding of ethics and its practical application in daily life, this course aimed to develop ethical awareness and also overall wellbeing which will inspire the students of this course.

### **Course Outcome**

Students will be benefited by studying Indian Ethics because this subject shares many concepts such as dharma, karma, suffering, renunciation, meditation in light of Bouddha, Jaina and Yoga school of Indian philosophy with almost all of them focusing on the ultimate goal of Liberation of the individual through diverse range of spiritual practices. This subject will help the students to realize the spiritual values of life.

### **Suggested Topics:**

- *puruṣārtha* (Cārvāka, Bauddha and āstika views)
- Vedic Concept of *ṛta*, *satya*, *yajña*, *ṛṇa*, *vidhi* and *niṣedha*
- The concepts of *niṣkāmakarma* and *sthitaprajña* in the *Śrīmadbhagavadgītā*
- Buddhist Ethics : *pañcaśīla* and *brahmavihārabhāvanā*
- Jaina Ethics : *pañcamahāvratā*, *triratna*, *anuvrata* and *mahāvratā*
- Yoga Ethics : *hiṃsā*, *ahiṃsā*, *yama* and *niyama*

### **Recommended Texts :**

- S. K. Maitra : *Ethics of the Hindus*, Calcutta University Press, Kolkata , 1963

### **References :**

- I. C. Sharma : *Ethical Philosophies of India*, George Allen & Unwin Ltd., London, 1965
- M. Hiriyanna : *The Indian Conception of Values*, Kavyalaya Publishers, Mysore , 1975

- Surama Dasgupta : *Development of Moral Philosophy in India*, Frederick Ungar Publishing Co., New York, 1965
  - Jagadish Chandra Ghosh : *Bhagavadgītā*
  - Sukhamoy Bhattacharya : *Pūrvamīmāṃsā Darśan*, Paschimanga Rajya Pustak Parsad, Kolkata, 2006
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**Course Code: BAHPHIC302**

**Course Title: Western Ethics**

Course Title	Course type	Course Code	Course Details	(L-T-P)	Credit	Marks
Western Ethics	C	BAHPHIC302	CC-6	5 - 1 - 0	6	Theoretical 10+40 = 50

**Course Objective:** The course aims to develop an ethical perspective on moral issues where the public discourses and debates are often bereft of ethical/moral considerations. Through theoretical understanding of ethics in daily life, it deals ethical awareness as well as nature and scope of Ethics.

### Course Outcome

Institutions across the globe are emphasizing Ethics through the various learning goals involving ethical decision – making and social responsibility. This course will help the students to grow the skills and knowledge needed for them to make ethical decisions in their own careers. Naturally it will enlighten the students regarding the moral and social values.

### Suggested Topics:

- Nature and Scope of Ethics; Nature of Morality
- Moral and Non-moral actions
- Object of Moral Judgment : Motive and Intention
- Postulates of Morality
- The Development of Morality
- Normative Theories :

Consequentialism (Teleology): Ethical Egoism; Utilitarianism: Act and Rule Utilitarianism; Act and Rule Deontology; Kant's Moral Theory; Divine Command Theory; Eudaemonism

- Theories of Punishment: Retributive, Deterrent And Reformatory Theory
- Issues in Applied Ethics :

Suicide; Mercy Killing and Euthanasia: Nature and Types; Famine and Affluence; Gender Equality; Basic Concerns of Environmental Ethics: Anthropocentrism, Non-anthropocentrism and Eco-feminism

### Recommended Texts:

- W. Frankena: *Ethics*, 2<sup>nd</sup> ed., Prentice Hall of India Private Limited, Delhi, 1973
- Y. V. Satyanarayan : *Ethics : Theory and Practice*

### References:

- W. Lillie : *An Introduction to Ethics*, University Paperbacks, London, 1955
- J. S. Mackenzie : *A Manual of Ethics*, Oxford University Press, London, 1973
- J. L. Mackie : *Ethics: Inventing Right and Wrong*, Penguin Books, New York, 1977
- P. Singer : *Practical Ethics*, Cambridge University Press, 2011
- Somnath Chakraborty : *Nītividyā Tattvakathā*, Progressive Publishers, Kolkata, 2002
- Somnath Chakraborty : *Kathāy Karma Ethics*, Progressive Publishers, Kolkata, 2006
- Mrinal Kanti Bhadra : *Nītividyā*, The University of Burdwan, Burdwan, 1991
- Dikshit Gupta : *Nītiśāstra*, Paschimanga Rajya Pustak Parsad, Kolkata, 2<sup>nd</sup> ed., 2007

**Course Code: BAHPHIGE301**

**Course Title: Ethics : Western**

Course Title	Course type	Course Code	Course Details	(L-T-P)	Credit	Marks
Ethics : Western	GE	BAHPHIGE301	GE-3	5 - 1 - 0	6	Theoretical 10+40 = 50

**Course Objective:** The course is designed to introduce the students the ethical concept of the discipline of western Ethics. The students of this course are expected to gain insights into the ethical framework of Western Ethical philosophy.

#### Course Outcome

Institutions across the globe are emphasizing Ethics through the various learning goals involving ethical decision – making and social responsibility. This course will help the students to grow the skills and knowledge needed for them to make ethical decisions in their own careers. Naturally it will enlighten the students regarding the moral and social values.

#### Suggested Topics:

- Nature and Scope of Ethics; Nature of Morality
- Object of Moral Judgment : Motive and Intention
- Postulates of Morality
- Normative Theories :
  - a) Consequentialism (Teleology): Ethical Egoism & Utilitarianism, b) Kant's Moral Theory
- Theories of Punishment
- Issues in Applied Ethics : Suicide, Euthanasia, Basic Concerns of Environmental Ethics

#### Recommended Texts :

- W. Frankena: *Ethics*, 2<sup>nd</sup> ed., Prentice Hall of India Private Limited, Delhi, 1973
- Y. V. Satyanarayan : *Ethics : Theory and Practice*

#### References::

- W. Lillie : *An Introduction to Ethics*, University Paperbacks, London, 1955
- J. S. Mackenzie : *A Manual of Ethics*, Oxford University Press, London, 1973
- J. L. Mackie : *Ethics: Inventing Right and Wrong*, Penguin Books, New York, 1977
- P. Singer : *Practical Ethics*, Cambridge University Press, 2011
- Somnath Chakraborty : *Nītividyā Tattvakathā*, Progressive Publishers, Kolkata, 2002
- Somnath Chakraborty : *Kathāy Karma Ethics*, Progressive Publishers, Kolkata, 2006
- Mrinal Kanti Bhadra : *Nītividyā*, The University of Burdwan, Burdwan, 1991
- Dikshit Gupta : *Nītiśāstra*, Paschimanga Rajya Pustak Parshad, Kolkata, 2<sup>nd</sup> ed., 2007

**Course Code: BAPPHIC301**

**Course Title: Introduction to Western Ethics**

Course Title	Course type	Course Code	Course Details	(L-T-P)	Credit	Marks
Introduction to Western Ethics	C	BAPPHIC301	CC-1(3)	5 - 1 - 0	6	Theoretical 10+40 = 50

#### **Course Objective:**

The course aims to develop an ethical perspective on moral issues where the public discourses and debates are often bereft of ethical/moral considerations. Through theoretical understanding of ethics in daily life, it deals ethical awareness as well as nature and scope of Ethics.

#### **Course Outcome**

Institutions across the globe are emphasizing Ethics through the various learning goals involving ethical decision – making and social responsibility. This course will help the students to grow the skills and knowledge needed for them to make ethical decisions in their own careers. Naturally it will enlighten the students regarding the moral and social values.

#### **Suggested Topics:**

1. Nature and Scope of Ethics; Nature of Morality
2. Object of Moral Judgment : Motive and Intention
3. Postulates of Morality
4. Normative Theories :  
Consequentialism (Teleology): Ethical Egoism, Utilitarianism, Kant's Moral Theory
5. Theories of Punishment
6. Issues in Applied Ethics :  
Suicide, Euthanasia, Basic Concerns of Environmental Ethics

#### **Recommended Texts:**

- W. Frankena: *Ethics*, 2<sup>nd</sup> ed., Prentice Hall of India Private Limited, Delhi, 1973
- Y. V. Satyanarayan : *Ethics : Theory and Practice*

#### **References:**

- W. Lillie : *An Introduction to Ethics*, University Paperbacks, London, 1955
- J. S. Mackenzie : *A Manual of Ethics*, Oxford University Press, London, 1973
- J. L. Mackie : *Ethics: Inventing Right and Wrong*, Penguin Books, New York, 1977
- P. Singer : *Practical Ethics*, Cambridge University Press, 2011
- Somnath Chakraborty : *Nītividyā Tattvakathā*, Progressive Publishers, Kolkata, 2002
- Somnath Chakraborty : *Kathāy Karma Ethics*, Progressive Publishers, Kolkata, 2006
- Mrinal Kanti Bhadra : *Nītividyā*, The University of Burdwan , Burdwan, 1991
- Dikshit Gupta : *Nītiśāstra*, Paschimanga Rajya Pustak Parsad, Kolkata, 2<sup>nd</sup> ed., 2007

**Discipline: B.COM**

**Course Code: BCOMHC601**

**B.Com. (Hons.): Semester-VI**

**Course Name: Auditing and Corporate Governance**

**Course Code: BCOMHC601**

**Course Type-Theory (5-1-0)**

**Duration: 2 Hrs.**

**Marks: 50(10+40)**

**Credits: 6**

## **Course Objective**

To provide knowledge of corporate governance and auditing principles, procedures and techniques in accordance with current legal requirements and professional standards.

## **Course Learning Outcome**

After completing the course, the student shall be able to:

- CO1: differentiate between different aspects of auditing especially for internal check, internal control and for overall corporate governance.
- CO2: understand the concept of corporate governance in organisations and its essence for management.
- CO3: provide and assimilate information leading to failure of organisation and corporate scams.
- CO4: comprehend the governance framework for an organisation provided by different regulatory bodies in India and Abroad.
- CO5: understand the corporate governance framework in India

## **Course Contents**

### **Unit I: Introduction**

Basic Principles and Techniques of Auditing; Classification of Audit, Audit Planning, Internal Control – Internal Check and Internal Audit; Role of Auditors in corporate

governance; Peer review and Independent review of Audit; Public Company Accounting Oversight Board (PCAOB); National Financial Reporting Authority (NFRA), Basic Consideration of Audit in EDP Environment: Computer Aided Audit Techniques and Tools.

## **Unit II: Audit of Companies**

Audit of limited Companies: Company Auditor, Qualifications and Disqualifications, Appointment, Rotation, Removal, Remuneration, Rights and Duties, Auditors Report, Liabilities of Statutory Auditors under the Companies Act. 2013, Divisible Profit and Dividend with special reference to Depreciation, Provision and Reserves as per Companies Act. 2013.

## **Unit III: Audit of Different Institutions**

Banks-Legislation Relating to Audit of Banks, Approach to Bank Audit, Internal Control Evaluation, Non-performing Assets (Concepts and Provision), Audit Report. Audit of Educational Institutions, Library, Hospital, Club, Hotel and Restaurant, Transport Company and Co-operative Societies. Audit of Local Self Government: Gram Panchayet, Panchayet Samity, Zila Parishad, Municipality and Municipal Corporation.

## **Unit IV: Corporate Governance**

Corporate Governance: Meaning, significance and principles, Management and corporate governance; Theories and Models of corporate governance; Board structure and Independent director, board committees and their functions; shareholder activism and, proxy advisory firms., role of rating agencies Whistle blowing, Class Action.

## **Unit V: Corporate Governance Framework in India**

Initiatives and reforms- Confederation of Indian Industry (CII) (1997), Kumar Mangalam Birla (1999), NR Narayana Murthy Committee (2005) and UdayKotak Committee (2017). Regulatory framework: Relevant provisions of Companies Act, 2013, SEBI: Listing Obligations and Disclosure Requirements Regulations (LODR), 2015. Corporate Governance in public sector, banking, non- banking financial institutions.

### **Suggested Readings:**

1. Kumar A., Gupta L. and R.J. Arora, Auditing and Corporate Governance, (2016), Taxmann Pvt Ltd.
2. Sharma, J.P.(2016), Corporate Governance, Business Ethics, and CSR, Ane Books Pvt Ltd, New Delhi
3. Tricker, Bob.(2015) Corporate Governance-Principles, Policies, and Practice (Indian Edition). Oxford University Press, New Delhi.

**Note: Latest edition of readings may be used**

## **Teaching Learning Process**

The teaching -learning processes play a vital role in instilling in the student the curiosity to study the subject corporate governance and auditing. It includes lectures through presentations of corporate scams, expert lectures, case study approach is widely followed, role plays, seminars, tutorials, project- based learning. Higher-order skills of reasoning and analysis will be encouraged through teaching strategies.

## Assessment Methods

**Internal Examination (10 Marks):** Internal Assessment may be conducted by using any one or in combinations of Class participation, Presentation, Project Writing and Presentation, Assignment and Presentation, Surprise Test as suitable.

**External Examination (40 Marks):** End Semester Written Examination, Duration 2 Hours

**Discipline: Sanskrit**

**Course Name: Ethical and Moral Issues in Sanskrit**

**Course Code: BAHSNSSE401**

Course Type: <b>SE (Theory)</b>	Course Details: <b>SEC-2</b>			L-T-P: <b>4 – 0 - 0</b>	
Credit: <b>4</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
			<b>10</b>		<b>40</b>

## Course Learning Outcomes:

*After the completion of course, the learners will be able:*

- To acquire practical knowledge on ethical and moral issues in Sanskrit.
- To develop a strong sense of Ethical and Moral Values in their self.
- To develop Personality for becoming responsible academic professionals.
- To have at least a general sense of the various dimensions of Sanskrit Literature like Pañcatantra and Prastāvana-Hitopadeśa (Verses:1-47).
- To possess the human values like truth, righteousness, honesty, sincerity and so on with which the Sanskrit Literature is steeped with.
- To take part in social transformation.

## Course Content:

### Theory

1. Unit I: Pañcatantra- (Muni-Mūṣikakathā, Dharmabuddhi-Pāpabuddhikathā)
2. Unit II: Prastāvana-Hitopadeśa (Verses:1-47)

## References / Suggested Readings:

Hitopdesa - M. R. Kale – Jp Publishing House, New Delhi.

Hitopadesh – Satyanarayan Chakraborty – Sanskrit Pustak Bhandar, Kolkata.

Panchatantra – Arthur Ryder - Jaico Publishing House

Sampurna Panchatantra (Hindi Version) – Bishnusharma – Maple Press

The Complete Panchatantra – Sampurna Chattarji \_ Scholastic India Pvt. Ltd.

The Complete Panchatantra OMNIBUS – Young Indian Classics - Shree Book Centre

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**Course Name: Ethical Issues in Sanskrit Literature (Nītiśatakam)**

**Course Code: BAPSNSDSE602**

Course Type: <b>DSE (Theory)</b>	Course Details: <b>DSE-1(2)</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		10	10	10	40

### ***Course Learning Outcomes:***

*After the completion of course, the learners will be able:*

- To acquire knowledge on Sanskrit Language and Literature other than their own Discipline of Study
- To have at least a general sense of the various dimensions of Sanskrit Literature like Nītiśatakam by Bhartṛhari

### ***Course Content:***

#### **Theory**

Nītiśatakam by Bhartṛhari.

### ***References/ Suggested Readings:***

Nītiśatakam – Jonesh Ranjan Bhattacharya – B. N. Publication, Kolkata.

Nītiśatakam of Bhartṛhari – M. R. Kale (Ed.) – MLBD, Delhi.

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**Course Name: Moral Issues in Sanskrit Literature**

**Course Code: BAPSNSGE601**

Course Type: <b>GE (Theory)</b>	Course Details: <b>GEC-2</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>



### ***Course Learning Outcomes:***

*After the completion of course, the learners will be able:*

- To acquire knowledge on Sanskrit Language and Literature other than their own Discipline of Study.
- To develop a strong sense of Ethical and Moral Values.
- To possess the human values like truth, righteousness, honesty, sincerity and so on with which the Sanskrit Literature is steeped.
- To have knowledge on moral issues in Sanskrit Literature.
- To take part in social transformation.
- To develop Personality for becoming responsible academic professionals as well as responsible citizen of the nation.

### ***Course Content:***

#### **Theory**

Nītiśatakam by Bhartṛhari.

### ***References/ Suggested Readings:***

Nītiśatakam – Jonesh Ranjan Bhattacharya – B. N. Publication, Kolkata.

Nītiśatakam of Bhartṛhari – M. R. Kale (Ed.) – MLBD, Delhi.

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**Discipline: BBA**

**Course Name: Organisational Behaviour**

**Course Code: BBAGE201; Course Type: Generic Elective; Course Details: GEC-2  
L-T-P: 5 -1 -0; Course Credit: 6**

**Marks: Theory [100]: Continuous Assessment-20 & End Semester Examination-80**

#### **Course Objective**

To acquaint the students with the fundamentals of managing business and to understand individual and group behavior at work place so as to improve the effectiveness of an organization. The course will use and focus on Indian experiences, approaches and cases.

## **Learning Outcomes**

At the end of the course, students should be able to:

1. Develop understanding of different approaches to designing organizational structures.
2. Understand the role of personality, learning and emotions at work.
3. Discover and understand the concept of motivation, leadership, power and conflict.
4. Understand the foundations of group behaviour and the framework for organizational change and development.

**UNIT-I:** Introduction to Organisational Behaviour: Concept, Challenges and Opportunities of Organisational Behaviour (OB), Issues in Developing an OB Model; Characteristics of Human Behaviour.

**UNIT-II:** Personality: Concept and Types, Major determinants. MBTI, Type-A and Type-B Theory.

**Unit-III:** Perception: Concept, Factors influencing Perception; Learning: Concept; Attitude: Concept, Different Job Attitudes.

**Unit-IV:** Motivation: Concept, Basic Theories of Motivation (Maslow, Herzberg, McClelland and McGregor).

**UNIT-V:** Group Dynamics: Concept of group, Stages of Group Development, Types of Groups, Work Teams Vs. Work Groups, Group Synergy.

### ***Suggested Readings:***

1. Organizational behavior – Robins Stephen P; PHI.
2. Organizational behavior- Fred Luthans; McGraw Hill Inc.
3. Management of Organizational behavior – Harsey, Paul & Kenneth H. Blancher; PHI.
4. Organizational Behaviour: Human Behaviour at Work - Davis and Newstrom, Tata McGraw-Hill.
5. Organizational Behaviour- Steers and Black, Harper Collins College Publishers.

## **Teaching Learning Process**

Teaching learning process may be interactive classroom sessions with the help of Power Point presentations, reflective assessment and case study discussions to ensure active participation and continuous learning.

## Assessment Methods

Internal Examination (20 Marks): Internal Assessment may be conducted by using any one or in combinations of Class participation, Presentation, Project Writing and Presentation, Assignment and Presentation, Surprise Test as suitable.

External Examination (80 Marks): End Semester Written Examination, Duration 4 Hours

## **GENDER SENSITISATION**

**Discipline: Political Science**

**Course Name: Feminism: Theory and Practice**

**Course Code: BAHPLSGE302**

Course Type: GE (Theory)	Course Details: GEC-3			L-T-P: 5-1-0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

## Course Objectives

1. To understand the theories of Feminism.
2. To Understand social reforms movements in India.
3. To understand women's rights in India.

## Learning Outcomes

1. This course will be helpful to understand the theories of Feminism.
2. This course will be helpful to understand social reforms movements in India.
3. This course will be able to understand women's rights in India.

## Content

### Theory

Unit 1: Feminist theorizing of the sex/gender distinction – Biologism versus social constructivism - Waves of Feminism.

Unit 2: Understanding Patriarchy and Feminism – Liberal, Socialist, Marxist, Radical feminism, and Postmodern Schools/Traditions.

Unit 3: Feminism in India: Social Reforms Movements – Sati, widow marriage and child marriage; Feminist issues and women's participation in anti-colonial and national liberation Movements.

Unit 4: Family in contemporary India – patrilineal and matrilineal practices; Gender Relations in the Family; entitlements and bargaining; Property Rights.

### Suggested Readings

1. Geetha, V. *Gender*. (Calcutta: Stree)
2. Geetha, V. *Patriarchy*. (Calcutta: Stree)
3. Chaudhuri, Maiyatee, 'Gender in the Making of the Indian Nation State', in Rege, Sharmila. (ed.) *The Sociology of Gender: The Challenge of Feminist Sociological Knowledge* (New Delhi: Sage)
4. Desai, Neera & Thakkar, Usha, *Women in Indian Society* (New Delhi: National Book Trust)
5. Ray, Suranjita. *Understanding Patriarchy*.

Available at: [http://www.du.ac.in/fileadmin/DU/Academics/course\\_material/hrge\\_06.pdf](http://www.du.ac.in/fileadmin/DU/Academics/course_material/hrge_06.pdf)

**Course Name: Gender and Politics in India**  
**Course Code: BAHPLSDSE505**

Course Type: DSE (Theory)	Course Details: DSEC-1 & DSEC-2		L-T-P: 5 - 1 - 0		
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

### Course Objectives

1. To understand the Gender-based participation in politics.
2. To understand conceptual differences between women and trans gender.
3. To understand Gender identity.

### Learning Outcome

1. Students will be able to understand the Gender-based participation in politics by this course.
2. They will be able to understand conceptual differences between women and trans gender.
3. This course will be beneficial for the students to understand Gender identity.

### Content

#### Theory

Unit 1: Conceptualizing Gender in Politics: Political Participation, policy making and development.

Unit 2: Security concern for Women and Third Gender/Transgender.

Unit 3: Effective participation of Women in Decision making structures: Issue of Reservation Impact.

Unit 4: Gender Identity: Women in riot and War.

### Suggested Readings

1. Geetha, V. *Gender*. (Calcutta: Stree).
2. Geetha, V. *Patriarchy*. (Calcutta: Stree).

3. Menon, Nivedita, *Gender and Politics in India*, Oxford India Paperbacks.
4. Saigol, Rubina, *Feminism in India*, (Women Unlimited Publication).
5. John, Mary E., *Women Studies in India: A reader* (ed.), (Penguin India Publication).

**Course Name: Gender Politics**  
**Course Code: BAPPLSGE502**

Course Type: GE (Theory)	Course Details: GEC-1			L-T-P: 5 - 1 - 0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

### Course Objectives

1. Objective of this course is to provide basic knowledge of Gender Politics.
2. To understand Gender identity.

### Course Learning Outcomes

1. Student will able to differentiate between gender and sex.
2. Student will also learn how patriarchy operates as a power structure in our society.
3. This course offers knowledge about effective participations of women in decision-making structure and security concern for women.

### Course Content

#### Theory

- Unit1: Conceptualizing Gender in Politics: Political participation, policy making and development
- Unit2: Security concern for women and Third Gender/Transgender
- Unit3: Effective participations of women in decision-making structures: Issue of reservation impact
- Unit 4: Gender Identity: Women in riot and war

### Suggested Readings

1. Geetha, V. *Gender*. (Calcutta: Stree).
2. Geetha, V. *Patriarchy*. (Calcutta: Stree).
3. Menon, Nivedita, *Gender and Politics in India*, Oxford India Paperbacks.
4. Saigol, Rubina, *Feminism in India*, (Women Unlimited Publication).
5. John, Mary E., *Women Studies in India: A reader* (ed.), (Penguin India Publication).

**Discipline: History**

**Course Name: Women and Social Change in the Nineteenth Century Course**  
**Name: BAHHISDSE602**

Course Type: DSE (Theoretical)	Course Details: DSEC-3&4		L-T-P:5-1-0		
Credit:06	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
			10		40

**Course Learning Outcomes:**

After the completion of course, the students will have ability to:

1. Socio-economic changes and women in contemporary Europe.
2. Position of women in nineteenth century India and efforts for their modernization.
3. Emergence of women's writings in the new reformed culture of India and their role in nationalist movement
4. Female education.
5. Emergence of women's organizations.
6. Various marriage acts and women.
7. Life and contributions of the professional women.

**Content/ Syllabus: Unit wise course content distribution**

UNIT-1

Introduction–Socio-economic changes and women in contemporary Europe–Women’s role as wife and mother–‘Angel in the House’ in mid-nineteenth century–Emergence of ‘New Women’– Suffragists’ movements

UNIT-2

Women Question and social reform in nineteenth century India–Tension between tradition and modernity–Efforts to modernize women’s role–Rammohun Roy, Ishwarchandra Vidyasagar, Keshab Chandra Sen, Dayananda Saraswati, Virasalingam, M G Ranade

UNIT-3

Printing and emergence of public space–Reformed culture–Women’s writing–Emergence of “new woman” in the late nineteenth century–Pandita Ramabai, Savitribai Phule, Sarala Devi, Rokeya Sakhawat Hossain—Nationalism, Becoming them ‘mothers of the nation’.

UNIT-4

Female education–Traditional and Western–Debates over curriculum–Government’s role–Spread of female education: Bethune School, Mahakali Pathsala.

UNIT-5

Emergence of Women’s organizations–associations founded by men and those founded and managed by women–Swarnakumari Debi’s Sakhi Samity and Sarala Debi’s Bharat Stree Mahamandal—emergence of All India Women’s Conference.

UNIT-6

Debate over marriage–Native Marriage Act of 1872; Age of Consent Bill, 1891, The Rukhmabai Case, Child Marriage Restraint Act of 1929

## UNIT-7

Professional women: Chandramukhi Bose, Kadambini Ganguly, and Anandibai Joshi.

### **References/ Suggested Readings**

1. Geraldine Forbes, *Women in Modern India*, New Cambridge History of India, Vol. IV.2
2. Kumkum Sangari and Sudesh Vaided, *Recasting Women, Essays in Colonial History*.
3. Radha Kumar, *The History of Doing: An Illustrated Account of Movements for Women's Rights and Feminism in India, 1800-1990*.
4. Meredith Borthwick, *The Changing Role of Women in Bengal*.
5. Meera Kosambi, *Crossing the Threshold*.
6. Sumit Sarkar and Tanika Sarkar ed, *Women and Social Reform*, Vols. 1 & 2
7. Tanika Sarkar, *Hindu Wife Hindu Nation*.
8. Rachel Fuchs, *Women in Nineteenth Century Europe*
9. Ghulam Murshid, *Adhuniktar Abhimukhe Bangaramani*.
10. Ghulam Murshid, *Rassundaritheke Rokeya Nari Pragatir Eksho Bachhar*
11. Bharati Ray, *Feminists of Early India: Saraladevi and Begum Rokeya*
12. Bharati Rayed, *Nari O Paribar: Bamabodhini Patrika*
13. Suparna Gooptu (edited), *Itihase Nari: Siksha*, Paschim Bangal Itihas Samsad, Kolkata, 2001
14. Tapati Bhattacharya, *Pratichya Bhabna O Bangiya Nari Jagaran*, Aruna Prakashani, Kolkata, 2009
15. Gitasri Bandana Sengupta, *Spandita Antorlok: Atmocharite Nari Pragatir Dhara*, Progressive Publishers, Calcutta, 1999
16. Ranjit Sen, *Bhabito Purush O A-Bhabito Nari: Bangla deshe Nari Proshner Sekaalar Ekaal*, Aruna Prakashani, Kolkata, 2002
17. Saswati Ghosh, *Samatar Dike Andolone Nari: Prothom Parba*, Progressive Publishers, Calcutta, 1999
18. Rajarshi Basu and Basabi Chakrabarti (edited), *Prasanga: Manabividyā*, Urvi Prakashan, Kolkata, 2008.
19. Nasiruddin Molla, *Rokeya, Naribadi Chetana O Darshan*, Akshar Prakasani, Birbhum, 2019

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**Discipline: English**

**Course Code: BAHENGGE 101**

**Course Name: Contemporary India: Women and Empowerment**

Course Type:	Course Details: <b>GEC-1</b>	L-T-P: 5 - 1 - 0
	CA Marks	ESE Marks

Credit:6	Full Marks: 50	Practical	Theoretical	Practical	Theoretical
		0	10	0	40

This course provides a basic understanding of Gender, it will discuss the concepts of: Masculinity, Femininity, Patriarchy, Feminism, LGBTQ etc. The next half of the course will discuss issues such as: Women and Nationalist Movement in India, Women and Partition, Women and Law, Women and Violence etc with special reference to the texts of Kamala Das, Mamta Kalia and Mahasweta Devi.

It is hoped that the students shall have a working knowledge on the concept of gender and its various inter-links. Also, the students shall be able to have an idea on the various movements that have gone in building up the concept of gender. Later, the students might be able to tackle as learning outcome the texts related to such issues.

### **Unit I:**

#### Concepts

Social construction of Gender, Masculinity, Femininity, Feminism, Patriarchy, Sex and Gender, LGBTQ

**Two short answer type questions of 5 marks each to be attempted out of three: 5x2=10)**

### **Unit II:**

#### Issues

Women and Nationalist Movement in India

Women and Partition

Women and Law

Women and Violence

**(One question of 10 marks to be attempted out of three: 10x1 = 10)**

### **Unit III:**

#### Texts

Kamala Das: "An Introduction"

Mamta Kalia: "Tribute to Papa"

Mahasweta Devi: "Breast Giver"

**(Five questions of 1 mark each to be attempted out of eight: 1x5 = 5)**



**Five questions of 2 marks each to be attempted out of eight:  $2 \times 5 = 10$**

**One short answer type question of 5 marks to be attempted out of two:  $5 \times 1 = 5$**

**Internal Assessment: 10**

**Five short questions of 02 marks each to be attempted out of eight:  $02 \times 5 = 10$**

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**Course Code: BAHENGGE 301**  
**Course Name: Literature and Gender**

Course Type:	Course Details: <b>SEC-1</b>			L-T-P: 4 - 0 - 0	
Credit:4	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		0	<b>10</b>	0	<b>40</b>

This course is aimed to help undergraduate students develop and explore composition, argument, and writing skills that will train them to improve their composing abilities for higher studies and professional endeavours. The perception of Actual Reporting will help students understand and draft different types of Newspaper/ Television / Organization Reporting. Understanding of Content Writing like Advertisement, Leaflet, Brochure, Posters, Web Blogs will benefit in catering to the crucial necessities of modern life. The dexterity or skill of putting to words one's ideas and thoughts to the target audience and effectively communicating one's findings will be mastered through this paper.

### **Unit I:**

Actual Reporting

1. Newspaper Reporting
2. Television Reporting
3. Organization Reporting

**(One question of 10 marks is to be attempted out of three:  $10 \times 1 = 10$ )**

### **Unit II:**

Content Writing

1. Advertisement Content Writing.

Advertisement on new universities, new career courses, new vocational programmes, workshops etc.

2. Content writing on leaflets and brochures , posters:  
Leaflets of organizations, posters and brochures of events and courses.
3. Content writing of Web blogs :  
Web pages or blogs of individuals and institutions.

**(Five questions of 1 mark each is to be attempted out of eight: 1x5=5**

**Five questions of 2 marks each is to be attempted out of eight: 2x5=10**

**Three questions of 5 marks each is to be attempted out of five: 5x3=15)**

**Internal Assessment: 10**

**Reports/contents of 10 marks to be written in the class as in classtest**

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**Course Name: Women's Writing**

**Course Code: BAHENG602**

Course Type:	Course Details: <b>DSE</b>			L-T-P: 5– 1 – 0	
Credit:6	Full Marks: 50	CA Marks		ESE Marks	
		Practical 0	Theoretical 10	Practical 0	Theoretical 40

This paper introduces the students to the essential features of Women's Writings. It is hoped that overall through such a study the students would be able to understand the basic features arising out of the question of gender. Also, the students shall be sensitized on the theoretical and literary aspects of Women's Writing. This paper can create the very backbone of research orientation of the student.

## **Unit I:**

Literary and Social Background:

History on the Concepts of Evolution of Feminism: The Three Waves;The Confessional Mode in Women's writing.

Concepts of Sex, Gender and Class [ref. Virginia Woolf. *A Room of One's Own* (New York: Harcourt, 1957) chaps. 1 and 6 and Simone de Beauvoir, 'Introduction', in *The Second Sex*, tr. Constance Borde and Shiela Malovany-Chevallier (London: Vintage, 2010) pp. 3-18. – non-detailed and broad-based point of view].

Concepts of Caste, Race and Politics of Sexuality [ref. Kumkum Sangari and Sudesh Vaid, eds. , 'Introduction', in *Recasting Women: Essays in Colonial History* (New Delhi: Kali for Women, 1989) pp. 1-25 and 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.]

**(One question of 10 marks to be attempted out of three: 10x1 = 10)**

## **Unit II:**

Drama and Poetry

Manjula Padmanabhan: *Lights Out* (Worldview Publications)

**(One short answer type question of 5 marks to be attempted out of two: 5x1 = 5)**

Emily Dickinson: "*I cannot live with You*"

Phillis Wheatley: "*An Hymn to the Morning*"

Sylvia Plath: "*Lady Lazarus*"

Eunice De Souza: "*Bequest*"

**(Five questions of 2 marks each to be attempted out of eight :2x5 = 10)**

## **Unit III:**

Prose

Alice Walker: *The Color Purple*

Mahasweta Devi: "*Draupadi*" (Translated: G.C.Spivak)

Charlotte Perkins Gilman: “*The Yellow Wallpaper*”

**(Five questions of 1 mark each to be attempted out of eight :1x5 = 5**

**Two short answer type questions of 5 marks each to be attempted out of three: 5x2 = 10)**

**Internal Assessment: 10 Marks**

**Five short answer type questions of 02 marks each to be attempted out of eight: 02 x 5 = 10**

Recommended Readings:

1. Virginia Woolf. *A Room of One's Own* (New York: Harcourt, 1957) chaps. 1 and 6.
  2. Simone de Beauvoir, ‘Introduction’, in *The Second Sex*, tr. Constance Borde and Shiela Malovany-Chevallier (London: Vintage, 2010) pp. 3–18.
  3. Kumkum Sangari and Sudesh Vaid, eds., ‘Introduction’, in *Recasting Women: Essays in Colonial History* (New Delhi: Kali for Women, 1989) pp. 1–25.
  4. 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.
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### **HUMAN VALUES**

**Discipline: Political Science**

**Course Name: DSE- Human Rights: Theory and Practice**

**Course Code: BAHPLSDSE501**

Course Type: DSE (Theory)	Course Details: DSEC-1 & DSEC-2			L-T-P: 5 - 1 - 0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

#### **Course Objectives**

1. The aim of the course is to make students aware about the different strands in the debates on human rights and its evolution through historical and contemporary times. The course aims at providing students with conceptual tools to understand what the

different generations of rights are; and the new concerns that have emerged in the recent past.

2. It will make students aware about the institutionalisation of the human rights and will provide knowledge on the constitutional frameworks of human rights in India. It intends further to develop the analytical skills of students to reflect on the issues of Terrorism, Counter terrorism and human rights in developing countries.
3. The objective is to enable students to gain knowledge about state responses to issues in special reference to the National Human Rights Commission and give them an idea about the Human Rights Movement in India.

### Course Learning Outcomes

1. The course will equip students with an understanding of debates on human rights through a study of human rights concerns in India.
2. While keeping India as a common case study in all thematic analyses, it will familiarise students with the historical evolution of human rights and the theoretical frameworks and core themes that inform the debates on human rights.
3. The course will enhance the students' understanding of state response to issues and human rights questions pertaining to structural violence, such as terrorism and counter terrorism and rights of adivasis from the human rights perspective.

### Content

#### Theory

Unit 1: Meaning and brief history of human rights (UDHR)

Unit 2: Human rights – Terrorism and Counter – terrorism

Unit 3: Indian Constitution and protection of human rights

Unit 4: National Human Rights Commission- Composition and functions

Unit 5: Human Rights Movements in India- Evaluation, nature, challenges and prospects

### Suggested Readings

1. Baxi, Upendra, *The Future of Human Rights* (New Delhi: Oxford)
2. Donnely, Jack, *Universal Human Rights in Theory and Practice* (Cornel University Press).
3. Clapham, Andrew, *Human Rights: A very short introduction* (Oxford University Press)
4. Narayan, S, *Human Rights Dynamics in India* (Kalpaz Publications).
5. Nickel, James, W., *Making Sense of Human Rights*, Wiley Blackwell.
6. Das, Jayanta Kumar, *Human Rights Law and Practice*, PHI Learning, New Delhi.

**Course Name: Human Rights: Theories and Concepts**

**Course Code: BAPPLSGE601**

Course Type: GE	Course Details: GEC-2			L-T-P: 5 – 1 – 0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
			10		40

### Course Objectives

1. To understand history of human rights and theoretical aspect of human rights.
2. To understand terrorism and counter-terrorism.
3. To Indian constitution and human rights.
4. To gather knowledge about human rights movements in India.

### **Course Learning Outcomes**

1. The student will be able to explain the meaning of human rights and examine human rights issues in different social, political and cultural contexts.
2. The Students will be able to examine and explain issues of human rights when state and its agencies apply the methods and techniques of surveillance, interrogation and counter-terrorism operations.
3. Students will know about human rights movements in India.

### **Course Content:**

#### **Theory**

Unit 1: Meaning and a brief history of human rights (UDHR)

Unit 2: Human rights – Terrorism and Counter-terrorism

Unit 3: Indian Constitution and protection of human rights

Unit 4: National Human Rights Commission – Composition and functions

Unit 5: Human Rights Movements in India – Evolution, nature, challenges and prospects

### **Suggested Readings**

1. Baxi, Upendra, *The Future of Human Rights* (New Delhi: Oxford).
  2. Priyam, Menon and Banerjee, *Human Rights, Gender and the Environment* (New Delhi: Pearson).
  3. Donnelly, Jack, *Universal Human Rights in Theory and Practice* (Cornell University Press).
  4. Clapham, Andrew, *Human Rights: A very short introduction* (Oxford).
  5. Narayan, S, *Human Rights Dynamics in India* (Kalpaz Publications).
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**Discipline: B.COM:**

**Course Code: BCOMHC301**

**Course Name: HUMAN RESOURCE MANAGEMENT**

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**B.Com. (Hons.): Semester-III**

**Course Name: HUMAN RESOURCE MANAGEMENT**

**Course Code: BCOMHC301**

## **Course Type-Theory (5-1-0)**

**Duration: 2 Hrs.**

**Marks:**

**(10+40)**

**Credits: 6**

### **Course Objective**

The objective of this course is to enable learners to understand the importance of human resources and their effective management in organizations.

### **Course Learning Outcomes**

After completing the course, the student shall be able to:

CO1: understand basic nature and importance of human resource management. CO2: analyze the current theory and practice of recruitment and selection.

CO3: realize the importance of performance management system in enhancing employee performance.

CO4: recommend actions based on results of the compensation analysis and design compensation schemes that are cost effective, that increase productivity of the workforce, and comply with the legal framework.

CO5: understand role of modern HRM in meeting challenges of changing business environment.

### **Course Contents**

#### **Unit I: Introduction**

Meaning, importance and scope of HRM; Evolution of HRM; functions, status and competencies of HR manager; Human Resource Planning - quantitative and qualitative dimensions; Job analysis—job description and job specification; HR Policies.

#### **Unit II: Recruitment, Selection & Development**

Recruitment, selection, placement, induction, and socialization – an overview; Developing Human Resources; Training – need, types, and evaluation; Role specific and competency based training.

#### **Unit III: Performance Appraisal**

Performance appraisal- nature and objectives, methods of performance appraisal, potential appraisal & employee counseling; Job changes—transfers and promotions.

#### **Unit IV: Compensation**

Job evaluation; Compensation—concept and policies, base and supplementary compensation, performance linked compensation—individual, group and organisation level.

#### **Unit V: Employee Maintenance and Emerging Issues in HRM**

Employee health and safety, employee welfare, social security (excluding legal provisions); Grievance handling and redressal; Industrial disputes and settlement machinery; Emerging

issues and challenges of HRM— employee empowerment, downsizing, work- life balance.

### **Suggested Readings:**

1. Decenzo, D. A., & Robbins, S. P. (2011). *Fundamentals of Human Resource Management*. India: Wiley.
2. Dessler, G. (2017). *Human Resource Management*. Pearson.
3. Muller-Camen, M., Croucher, R., & Leigh, S. (2016). *Human Resource Management: A Case Study Approach*. CIPD. Viva Books.
4. Pattanayak, B. (2018). *Human Resource Management*. Delhi. Prentice Hall of India.
5. Rao, V. *Human Resource Management: Text and Cases*. Excel.
6. Rastogi, S. *Management of Human Resources*. Sun India.

**Latest editions of the books may be used.**

### **Teaching Learning Process**

Teaching learning process may be interactive classroom sessions with the help of Power Point presentations, reflective assessment and case study discussions to ensure active participation and continuous learning.

### **Assessment Methods**

**Internal Examination (10 Marks):** Internal Assessment may be conducted by using any one or in combinations of Class participation, Presentation, Project Writing and Presentation, Assignment and Presentation, Surprise Test as suitable.

**External Examination (40 Marks):** End Semester Written Examination, Duration 2 Hours

**Discipline: Geography:**

**Course Name: Geography of Human and Cultural landscape**

**Course Code: BSCHGEOC201**

Course Type: <b>Core (Theoretical)</b>	Course Details: <b>CC-3</b>			L-T-P: <b>5-1-0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>

### **Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. *To Know the diversity of changing human and cultural landscape.*
2. *Understand of population growth and its implications.*
3. *Understand the diversity of culture.*

### **Course Content:**

1. Human Geography: Definition, Scope and Principles; Contemporary Relevance



2. Population: Factors, Measures and Distribution of Population Growth; Population Composition- Age and Sex; Malthusian and Demographic Transition Theories
3. Space and Society: Definition of Culture; Cultural Regions; Classification and World Distribution of Race, Religion and Language; Tribes: Jarwa, Munda, Eskimo, Masai
4. Settlements: Size, Form and Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization
5. Population-Resource Relationships (Ackerman); Resource Development in India: Coal, fish and forest

**Continuous Assessment:** Assignment on any one tribal group.

**References/ Suggested Readings:**

1. Chandna, R.C., (2017): *Population Geography*, Kalyani Publishers, New Delhi.
2. Daniel, P.A. and Hopkinson, M.F. (1989): *The Geography of Settlement*, Oliver & Boyd, London.
3. Hassan, M.I. (2005): *Population Geography*, Rawat Publications, Jaipur
4. Hussain, Majid., (2012): *Manav Bhugol*, Rawat Publications, Jaipur.
5. Johnston, R., Gregory, D., & Pratt, G., et al. (2008): *The Dictionary of Human Geography*, Blackwell Publication.
6. Jordan-Bychkov., et al., (2006): *The Human Mosaic: A Thematic Introduction to Cultural Geography*, W. H. Freeman and Company, New York.
7. Kaushik, S.D., (2010): *Manav Bhugol*, Rastogi Publication, Meerut.
8. Maurya, S.D., (2012): *Manav Bhugol*, Sharda Pustak Bhawan, Allahabad.
9. Rozenblat., Celine., Pumain., Denise and Velasquez., Elkin Eds. (2018): *International and Transnational Perspectives on Urban Systems*, Springer, Japan, pages 393.
10. Singh, R.B., Ed. (2015): *Urban Development Challenges, Risk and Resilience in Asian Mega Cities-Sustainable Urban Future of Emerging Asian Mega Region*, Springer, Tokyo, Pages 488, 2015.

**Course Name: Geography of Social Wellbeing**

**Course Code: BSCHGEODSE603**

Course Type: Discipline Specific Elective (Theoretical)	Course Details: <b>DSEC-3 or DSEC -4</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks : <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		...	<b>10</b>	.....	<b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Understand the nature, scope and relationships of geography and human wellbeing.
2. Understand the spatial dimensions of social diversity components.
3. Critically analyse the social welfare programs related to inclusive and exclusive policies in India.

**Course Content:**

1. Geography of Social Wellbeing: Concept, Origin, Nature and Scope
2. Social Diversity: Caste, Religion, Race and Gender and their spatial distribution

3. Social Wellbeing and Inclusive Development: Concept and Components – Healthcare, Housing and Education
4. Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime
5. Social welfare program and policies with special reference to India

**Continuous Assessment:** Assignment on Social Welfare Programme in India

**References/ Suggested Readings:**

1. Ahmed, A., (1999): *Social Geography*, Rawat Publications.
2. Casino, V. J. D., Jr., (2009): *Social Geography: A Critical Introduction*, Wiley Blackwell.
3. Cater, J. and Jones, T., (2000): *Social Geography: An Introduction to Contemporary Issues*, Hodder Arnold.
4. Holt, L., (2011): *Geographies of Children, Youth and Families: An International Perspective*, Taylor & Francis.
5. Panelli, R., (2004): *Social Geographies: From Difference to Action*, Sage.
6. Rachel, P., Burke, M., Fuller, D., Gough, J., Macfarlane, R. and Mowl, G., (2001): *Introducing Social Geographies*, Oxford University Press.
7. Ramotra, K.C., (2008): *Development Processes and the scheduled Castes*, Rawat Publication.
8. Smith, D. M., (1977): *Human geography: A Welfare Approach*, Edward Arnold, London.
9. Smith, D. M., (1994): *Geography and Social Justice*, Blackwell, Oxford.
10. Smith, S. J., Pain, R., Marston, S. A., Jones, J. P., (2009): *The SAGE Handbook of Social Geographies*, Sage Publications.
11. Sopher, David., (1980): *An Exploration of India*, Cornell University Press, Ithasa.
12. Valentine, G., (2001): *Social Geographies: Space and Society*, Prentice Hall.

**Discipline: History**

**Course Name: Peasant and Tribal Uprisings in Colonial India: 19th Century**

**Course Code: BAHHISC502**

Course Type: Core ( Theoretical)	Course Details: C-12		L-T-P: 5-1-0	
Credit:06	Full Marks: 50	CA Marks		ESE Marks
		Practical	Theoretical	Practical
			10	
				40

**Course Learning Outcomes:**

After the completion of course, the students will have ability to:

1. Know about the early colonial rule, revenue operations, revenue demands, and several settlement systems.
2. Know the peasant movements in Bengal, Malabar and the religious appeal for the liberation of a region or an ethnic group under a new form of government.

3. Develop ideas of the various tribal movements in pre-1857 western and eastern India.
4. Know about the revolutionary potential of Indian peasantry as assessed by historians and other social scientists

### **Content/ Syllabus: Unit wise course content distribution**

#### The Early 19<sup>th</sup> Century

##### UNIT-1

The early colonial rule and revenue operations, revenue demands and settlements – “restorative rebellions” – peasant-landlord combination against colonial rule in north and south India

##### UNIT-2

Peasant movements in Bengal and Malabar – religious appeal for the liberation of a region or an ethnic group under a new form of government

##### UNIT-3

Tribal movements in pre-1857 western and eastern India – Ho, Tamar, (1820-1832), Kol and Bhumij (1825-1835) revolts, Kherwar movement of the Santhals (1833), Santhal Revolt (1855), Bhil revolt (1819-1840), Kolis (1824-1848), Khasis (1829-30), Koyas (1840-1858), Konds (1846-1855)

#### The Late 19<sup>th</sup> century

##### **UNIT-4**

Tribal movements – Naikdas of Panch Mahal (1858-59), Bokta risings of 1858-95, millenarian movement of the Mundas (1895-1900), Kuch Nagas of Kachhar (1882)

##### UNIT-5

Peasant movements in late 19<sup>th</sup> century – conflict between landlords and tenants – resistance to taxation – emergence of substantial peasantry – the role of moneylenders and struggle against them.

##### UNIT-6

The revolutionary potential of Indian peasantry – Barrington Moore Jr. and Eric Stokes — Classification of types of revolt and movements – Kathleen Gough, A.R. Desai, D.N.Dhanagare and Ranajit Guha

### **References/ Suggested Readings**

1. Mridula Mukherjee, *Peasants in India's Non-violent Revolution: Practice and Theory*
2. Ranajit Guha, *Elementary Aspects of Peasant Insurgency in Colonial India*
3. Sekhar Bandyopadhyay, *From Plassey to Partition: A History of Modern India*
4. Binay Bhushan Chaudhuri, *Peasant History of Late Pre-Colonial and Colonial India*
5. Bipan Chandra, *India's Struggle for Independence, 1857-1947*
6. A. R. Desai, *State and Society in India: Essays in Dissent*
7. D. N. Dhanagare, *Peasant Movements in India, 1920-1950*
8. —, *Rural Transformation in India: Challenges and Prospects*
9. Sugata Bose, *Peasant, Labour and Colonial Capital: Rural Bengal since 1770*
10. Shyam Charan Dube, *Antiquity to Modernity in Tribal India: Tribal Movements in India*
11. Eric Stokes, *The Peasant and the Raj: Studies in Agrarian Society and Peasant*

*Rebellion in Colonial India*

12. Barrington Moore Jr., *Social Origins of Dictatorship and Democracy: Lord and Peasant in the making of the Modern World*
  13. Sanjukta Dasgupta, *Adivasi and the Raj*
  14. Suchibrata Sen, *The Santals Crisis: Identity and Integration*
  15. Sunil Kumar Sen, *Peasant Movements in India: Mid Nineteenth and Twentieth Centuries*
  16. David Ludden, *An Agrarian History of South Asia*, Part 4, Vol.4.
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**Discipline: BBA**

**Course Name: Human Resource Management**

**Course Code: BBAC401; Course Type: Core; Course Details: CC-8**

**L-T-P: 5 -1 -0; Course Credit: 6**

**Marks: Theory [100]: Continuous Assessment-20 & End Semester Examination-80**

### **Course Objective**

The objective of this course is to enable learners to understand the importance of human resources and their effective management in organisations.

### **Learning Outcomes**

After completing the course, the student shall be able to:

1. Understand basic nature and importance of human resource management. analyze the current theory and practice of recruitment and selection.
2. Understand the need of Training and Development in modern organisations.
3. Realize the importance of Performance Appraisal in enhancing employee performance.
4. Recommend actions based on results of the compensation analysis and design compensation schemes that are cost effective, that increase productivity of the workforce, and comply with the legal framework.
5. Understand role of modern HRM in meeting challenges of changing business environment.

**Unit-I:** Human Resource Management- Concept: Nature; Scope; Objectives and Importance of Human Resource Management; Evaluation of Human Resource Management; Role; function and Qualities of Human Resource Manager; Difference between Human Resource Management and Personnel Management.

**Unit-II:** Human Resource Planning – Meaning; Objective; and importance of Human Resource Planning; Human Resource Planning Process; Recruitment – Objective and Sources of Recruitment; Meaning and Purpose of Selection – Selection Process; Steps in selections; Selection techniques, Induction.

**Unit-III:** Training and Development; Meaning; Importance and objective of Training; Steps in Training; Organizing Training Programme; Training Vs Development; Training Methods; Evaluation of Training Programmes.

**Unit-IV:** Performance Appraisal – Concept, Features, Objective, Methods of Appraisal– Traditional and Modern methods; Problems with Performance Appraisal, Potential Appraisal. Career Planning and Development; Career needs assessment, Career opportunities, Need- opportunities alignment, Career Development Cycle.

**Unit-V:** Compensation Management – Objective of Compensation Management; Factors affecting Compensation; Job evaluation – Process, Methods of evaluation; Methods of Wage payment; component of pay structure; Fringe Benefits and Incentive Plans.

***Suggested Readings:***

1. A handbook of HRM practice – Michael Armstrong; Kogan Page Limited, London.
2. Human Resource Management: Text and Concept – VSP Rao; Excel Books, New Delhi.
3. Human Resource Management – Biswajeet Pattanayek; PHI, New Delhi.
4. Human Resource Management (with cases) – A.K. Ghosh; Manas Publications, New Delhi.

**Teaching Learning Process**

Teaching learning process may be interactive classroom sessions with the help of Power Point presentations, reflective assessment and case study discussions to ensure active participation and continuous learning.

**Assessment Methods**

Internal Examination (20 Marks): Internal Assessment may be conducted by using any one or in combinations of Class participation, Presentation, Project Writing and Presentation, Assignment and Presentation, Surprise Test as suitable.

**Course Name: Human Resource Development**

**Course Code: BBADSE604; Course Type: Discipline Specific Electives;**

**Course Details: DSEC-3 & DSEC-4 (Group - B)**

**L-T-P: 5 -1 -0; Course Credit: 6**

**Marks: Theory [100]: Continuous Assessment-20 & End Semester Examination-80**

**Course Objective**

The course gives an overview of the need for HRD and HRD practices which can develop and improve an Organization's systems and strategies leading to an effective HRD climate.

**Learning Outcomes**

After completing the course, the student shall be able to:

1. Equip with the integration of HRD with other areas of HRM and overall business strategy.
2. Identify and uses of competencies in the process of determining development and potential.
3. Identify the main components and variations in management development systems within organizations.
4. Understand the role of Performance Management.

**UNIT-I:** Concept, Scope and Significance of Human Resource Development – Definition – Need for Human Resource Development – Functions, Objectives and Characteristics of Human Resource Development – Various Approaches to Human Resource Development – HRD Philosophy – HRD sub-system – Elements of Good HRD – Functions of HRD Managers – Attributes of HRD Manager – HRD in Indian Industry.

**UNIT-II:** Management of Change and Developments – Meaning and objectives of quality circles – benefits of QC. Managing Change – types of change – resistance to change – approaches to organizational Development Steps in organizational development – organizational analysis and methods of organizational development.

**UNIT-III:** Organizational strategies, styles, culture: Concept of strategy – need for HRD strategy – Characteristics of HRD Culture – Types of Organizational Culture – OCTAPACE culture – importance of management styles in building culture.

**UNIT-IV:** Performance Management – Principal Goals of Performance Management – Strategic issues in moving from Performance Appraisal to Performance Management – Principles of Performance Management – Background to Performance Management – Performance Management Cycle Performance appraisal: traditional and contemporary methods.

**UNIT-V:** Training, importance and needs for training – Training vs. Development – Issues in identifying training needs – Training methods: on the job and off the job. Management Development – Concept and importance, nature and strategies of management development – objectives and need for management development. Management development programmes – types, importance and methods.

***Suggested Readings:***

1. Human Resource Development – P. C. Tripathi, Sultan Chand.
2. Human Resource Management – Biswajeet Pattanayak, Prentice Hall of India.
3. Human Resource Development: Strategic Approaches and Experiences – B. L. Mathur, Arihant Publisher
4. Human Resource Development: A Value-based Approach – B. R. Madan.

**Teaching Learning Process**

Teaching learning process may be interactive classroom sessions with the help of Power Point presentations, reflective assessment and case study discussions to ensure active participation and continuous learning.

**Assessment Methods**

Internal Examination (20 Marks): Internal Assessment may be conducted by using any one or in combinations of Class participation, Presentation, Project Writing and Presentation, Assignment and Presentation, Surprise Test as suitable.

External Examination (80 Marks): End Semester Written Examination, Duration 4 Hours

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**Discipline: Botany**

**Course code – BSCHBOTSEC501**

**Course name: Plant Diversity and Human welfare**

Course Type: SEC	Course Details: SEC-501			L-T-P: 4-0-0	
Credit: 4	Full Marks: 100	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

***Course Learning Outcomes:***

After the completion of this course, the learner will be able to:

- Develop understanding of the concept and scope of plant biodiversity
- Identify the causes and implications of loss of biodiversity
- Apply skills to manage plant biodiversity
- Utilize various strategies for the conservation of biodiversity
- Conceptualize the role of plants in human welfare with special reference to India

**Unit -1: - Plant diversity and its scope**

Plant diversity and its scope- Genetic diversity, Species diversity, Plant diversity at the ecosystem level, Agrobiodiversity and cultivated plant taxa. Values and uses of Biodiversity: Ethical and aesthetic values.

**Unit -2: Loss of Biodiversity**

Loss of Biodiversity: Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agrobiodiversity, Projected scenario for biodiversity loss.

**Unit -3:**

Management of Plant Biodiversity: Organizations associated with biodiversity management- Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR; Biodiversity legislation and conservation.

**Unit-4:**

Conservation of Biodiversity: Conservation of genetic diversity, species diversity and ecosystem diversity, *In situ* and *ex situ* conservation, Social approaches to conservation, Biodiversity awareness programmes, Sustainable development. Importance of forestry their utilization and commercial aspects; Avenue trees; Ornamental plants of India; Alcoholic beverages; Fruits and nuts; Wood and its uses; their commercial importance.

**Suggested Readings -**

1. Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity – Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi



2. Singh, J.S., Singh, S.P. and Gupta, S. (2006). Ecology Environment and Resource Conservation. Anamaya Publications, New Delhi, India.
  3. Reddy, K.V. and Veeraiah, S. (2010). Biodiversity and Plant Resources. Aavishkar publication, New Delhi.
  4. Heywood, V. H. and Watson, R. T. (1995). Global biodiversity and Assessment. Cambridge University Press.
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## **ENVIRONMENT AND SUSTAINABILITY**

**Discipline: Chemistry**

**Course Code: BSCHCEMDSE501**

**Course Name: Green Chemistry**

Course Type: DSE	Course Details: DSEC-1 or 2			L-T-P: 5-1-0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		----	10	----	40

On completion of this course, the students will be able to understand:

### **Learning objectives:**

1. To inspire the students about the chemistry which is good for human health and environment.
2. To make students aware of how chemical processes can be designed, developed and run in a sustainable way.
3. To acquire the knowledge of the twelve principles of green chemistry and how to apply in green synthesis.
4. To make students aware about the benefits of using green chemistry.

### **Syllabus:**

#### **Unit - I: Introduction to Green Chemistry**

What is Green Chemistry? Need for Green Chemistry. Goals of Green Chemistry. Limitations/ Obstacles in the pursuit of the goals of Green Chemistry

#### **Unit – II: Principles of Green Chemistry and Designing a Chemical synthesis**

Twelve principles of Green Chemistry with their explanations and examples and special emphasis on the following: Designing a Green Synthesis using these principles; Prevention of Waste/ byproducts; maximum incorporation of the materials used in the process into the final products, Atom Economy, calculation of atom economy of the rearrangement, addition, substitution and elimination reactions. Prevention/ minimization of hazardous/ toxic products reducing toxicity. risk = (function) hazard exposure; waste or pollution prevention hierarchy. Green solvents– supercritical fluids, water as a solvent for organic reactions, ionic liquids, fluorous biphasic solvent, PEG, solventless processes, immobilized solvents and how to compare greenness of solvents. Energy requirements for reactions – alternative sources of energy: use of microwaves and ultrasonic energy. Selection of starting materials; avoidance of unnecessary derivatization – careful use of blocking/protecting groups. Use of catalytic reagents (wherever possible) in preference to stoichiometric reagents; catalysis and green chemistry, comparison of heterogeneous and homogeneous catalysis, biocatalysis, asymmetric catalysis and photocatalysis.

### Unit – III: Examples of Green Synthesis/ Reactions and some real world cases

1. Green Synthesis of the following compounds: adipic acid, catechol, disodium iminodiacetate (alternative to Strecker synthesis)
2. Microwave assisted reactions in water: Hofmann Elimination, methyl benzoate to benzoic acid, oxidation of toluene and alcohols; microwave assisted reactions in organic solvents Diels-Alder reaction and Decarboxylation reaction
3. Ultrasound assisted reactions: sonochemical Simmons-Smith Reaction (Ultrasonic alternative to Iodine)

**Course Code: BSCHCEMDSE502**

**Course Name: Environmental Chemistry**

Course Type: DSE	Course Details: DSEC-1 or 2			L-T-P: 5-1-0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		----	10	----	40

On completion of this course, the students will be able to understand:

#### Learning objectives:

1. Concepts of different sphere and layers of earth's atmosphere.
2. To make students aware of different toxic chemicals and how they spoils the environment.
3. Knowledge of toxicity of different chemicals and impact on environment.

### Syllabus:

#### Unit-I: The Atmosphere

Composition and structure of the atmosphere: troposphere, stratosphere, mesosphere and thermosphere, ozone layer and its role; major air pollutants : CO, SO<sub>2</sub>, NO and particulate matters –their origins and harmful effects,

problems of ozone layer depletion, green house effect, acid rain and photochemical smog, air pollution episodes, air quality standard, air pollution control measures: cyclone collector, electrostatic precipitator, catalytic converter, detection, collection and principles of estimation of CO, NO<sub>x</sub>, SO<sub>2</sub>, H<sub>2</sub>S and SPM in air samples

### Unit-II: Aspects of Environmental Inorganic Chemistry

Atmospheric stability and temperature inversion, greenhouse effect, global warming and cooling, ozone depletion and involved chemical reactions, the disaster of endosulfan in kasargod in kerala, smog formation, acid rain, eutrophication in natural water bodies, Minamata disease, Bhopal disaster, hazard of nuclear disaster (Chernobyl and Fukushima Daiichi), nuclear disaster management

### Unit-III: The Hydrosphere

Water pollutants: action of soaps and detergents, phosphates, industrial effluents, agricultural runoff, domestic wastes; thermal pollution radioactive pollution and their effects on animal and plant life, water pollution episodes, waste water treatment: chemical treatment and microbial treatment; water quality standards: DO, BOD, COD, TDS and hardness parameters, desalination of sea water: reverse osmosis, electro dialysis, detection and estimation of As, Hg, Cd, Pb, Cr, NH<sub>4</sub> and F , NO<sub>3</sub> , NO<sub>2</sub> in water sample

### Unit-IV: The Lithosphere and Pollution control

Soil pollution and control measures, biochemical effects of As, Pb, Cd, Hg, Cr, and their chemical speciation, monitoring and remedial measures; noise pollution, agricultural and industrial pollution, green solution to various environmental hazards

### Discipline: Geography

**Course Name: Human & Environment System**

**Course Code: BSCHGEOGE202**

Course Type: <b>Generic Elective (Theoretical)</b>	Course Details: <b>GEC-2</b>			L-T-P: <b>5-1-0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>

### Course Learning Outcomes:

*After the completion of course, the students will have ability to:*

- 1. Understand the fundamental concepts of human-environment system.*
- 2. Assess the vulnerability, risk and resilience issues associated with the human-environment interrelationships.*
- 3. Develop possible solutions for addressing the contemporary sustainability challenges.*

**Course Content:**

1. Concepts, components and theories of human and environment system
2. Biogeochemical cycles: CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>; Hydrological Cycle; Interactions and impact between human and natural systems
3. Global and regional case studies: Himalaya-Ganga system; Atmosphere-water system; Surface and ground water and Coastal-water interaction
4. Integrated Assessment of Vulnerability, Risk, Resilience and Sustainability
5. Disaster Management, Governance and Policies

**Continuous Assessment:** Assignment on any issue related to interactions between human and natural systems and its impact on society

**References/ Suggested Readings:**

1. Clarke, G. L., (1967). *Elements of ecology*, New York: John Wiley Pub.
2. Haden-Guest, S., Wright, J. K., and Teclaff, E. M., (1956): *World Geography of Forest Resources*, New York: Ronald Press Co.
3. Hoyt, J.B., (1992): *Man, and the Earth*, Prentice Hall, U.S.A.
4. Lapedes, D.N., (1974): *Encyclopaedia of Environmental Science* (eds.), McGraw Hill.
5. Parmesan, C., Yohe, G., (2003): *A globally coherent fingerprint of climate change impacts across natural systems*. *Nature*, 421 (6918), 37–42.
6. Singh Savindra., (2015): *Paryawaran Bhoogol (Hindi)*, Prayag Pushtak Bhawan, Allahabad.
7. Singh, R.B., Schickhoff, Udo and Mal, Suraj., (2016): *Climate Change, Glacier Response and Vegetation Dynamics in the Himalaya*, Springer, Switzerland.
8. Singh, R.B., Prokop, Pawel., (Eds.) (2016): *Environmental Geography of South Asia*, Springer Japan

**Course Name: Climatology and Oceanography****Course Code: BSCHGEOC301**

Course Type: <b>Core (Theoretical)</b>	Course Details: <b>CC-5</b>		L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks
		Practical	Theoretical	Practical      Theoretical
		....	<b>10</b>	.... <b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Understand the elements of weather and climate and its impacts at different scales.
2. Comprehend the climatic aspects and its bearing on planet earth.
3. Understand the oceanic process and availability of resources.

**Course Content:**

1. Atmospheric Composition and Structure: Variation with Altitude, Latitude and Season; Insolation and Temperature: Factors and Distribution; Heat Budget; Temperature Inversion

2. Atmospheric Pressure and Winds: Planetary Winds, Forces affecting Winds, General Circulation of Air, Jet Streams; Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Classification after Koppen and Thornthwaite (1948)
3. Cyclones: Tropical Cyclones, Temperate Cyclones; Monsoon - Origin and Mechanism with special reference to Jet Stream; El Nino and La Nina
4. Ocean Floor Topography: Pacific and Atlantic Ocean; Oceanic water Movements: Ocean Waves, Currents and Tides (Theories of origin: Progressive wave theory and stationary wave theory)
5. Ocean Salinity and Temperature: Distribution and Determinants; Coral Reefs (Darwin's theory); Marine Deposits and Ocean Resources

**Continuous Assessment:** Assignment on Indian Monsoon or Coral Reefs.

**References/ Suggested Readings:**

1. Anikouchine, W. A. and Sternberg, R. W., (1973): *The World Oceans: An Introduction to Oceanography*, Prentice-Hall.
2. Barry, R. G., and Chorley, R. J., (2009): *Atmosphere, Weather and Climate*(9th Edition), Routledge, New York.
3. Bhutani, S., (2000): *Our Atmosphere*, Kalyani Publishers, Ludhiana.
4. Critchfield, H. J., (1987): *General Climatology*, Prentice-Hall of India, New Delhi
5. Gupta, L.S., (2000): *Jalvayu Vigyan(Hindi)*, Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
6. Kershaw, S., (2000): *Oceanography: An Earth Science Perspective*, Stanley Thornes, UK.
7. Lal, D. S., (2006): *Jalvayu Vigyan(Hindi)*, Prayag Pustak Bhavan, Allahabad
8. Lutgens, F. K., Tarbuck E. J. and Tasa D., (2009): *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
9. Oliver, J. E., and Hidore J. J., (2002): *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
10. Pinet, P. R., (2008): *Invitation to Oceanography* (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
11. Singh, S., (2009): *Jalvayu Vigyan (Hindi)*, Prayag Pustak Bhawan, Allahabad
12. Strahler, A.N., (1987) *Modern Physical Geography*, John Wiley and Sons, New York, Singapore.
13. Sverdrup, K. A. and Armbrust, E. V., (2008): *An Introduction to the World Ocean*, McGraw Hill, Boston.
14. Trewartha, G. T., and Horne L. H., (1980): *An Introduction to Climate*, McGraw-Hill.

**Course Name: Environment and Natural Resource Management**

**Course Code: BSCHGEOC402**

Course Type: <b>Core (Theoretical)</b>	Course Details: <b>CC-9</b>			L-T-P: <b>5-1-0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		...	<b>10</b>	...	<b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

- 1. Understand the relationship between man and environment.*
- 2. Have good understanding on distribution, utilization and proper management of natural resources.*
- 3. Know about the necessities that are pre-requisite for assessment and review of planning and policies.*

**Course Content:**

1. Concept of Environment and Natural Resource Management, Human-Environment Relationships
2. Ecosystem: Concept, Structure and Functions; Environmental Issues in Tropical, Temperate and Polar Ecosystems
3. Natural Resource: Concept, Classification; Distribution, Utilisation, Problems and Management of Land, Water, Forests and Energy
4. Conservation of Environment and Natural Resources with special reference to Soil, Water, Forest; Sustainable Resource Development
5. Environmental Monitoring Programme: Policies – Global, National and Local

**Continuous Assessment:** Assignment on Local Environmental Issues

**References/ Suggested Readings:**

1. Chandna, R. C., (2002): *Environmental Geography*, Kalyani, Ludhiana.
  2. Cunningham, W. P. and Cunningham, M. A., (2004): *Principals of Environmental Science: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
  3. Goudie, A., (2001): *The Nature of the Environment*, Blackwell, Oxford.
  4. Holechek, J. L. C., Richard, A., Fisher, J. T. and Valdez, R., (2003): *Natural Resources: Ecology, Economics and Policy*, Prentice Hall, New Jersey.
  5. Jones, G. and Hollier, G., (1997): *Resources, Society and Environmental Management*, Paul Chapman, London.
  6. Kumaraswamy, K., Alagappa Moses., A & Vasanthy, M. (2004) *Environmental Studies*, Bharathidasan University, Tiruchirappalli.
  7. Miller, G. T., (2004): *Environmental Science: Working with the Earth*, Thomson BrooksCole, Singapore.
  8. Mitchell, B., (1997): *Resource and Environmental Management*, Longman Harlow, England.
  9. MoEF, (2006): *National Environmental Policy-2006*, Ministry of Environment and Forests, Government of India.
  10. Odum, E. P. et al, (2005): *Fundamentals of Ecology*, Ceneage Learning India.
  11. Saxena, H.M., 2012: *Environmental Studies*, Rawat Publications, Jaipur.
  12. Singh, R.B., and Hietala, R. (Eds.) (2014): *Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies*, Springer
  13. Singh, Savindra.,(2001): *Paryavaran Bhugol (Hindi)*, Prayag Pustak Bhawan, Allahabad. (in Hindi)
  14. Singh,R.B., Prokop, Pawel (Eds.) (2016):*Environmental Geography of South Asia*, Springer Japan
  15. UNEP, (2007): *Global Environment Outlook: GEO4: Environment for Development*, United Nations Environment Programme.
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**Course Name: Sustainable Resource Development**

**Course Code: BSCHGEOGE402**

Course Type: <b>Generic Elective (Theoretical)</b>	Course Details: <b>GEC-4</b>			L-T-P: <b>5-1-0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

- 1. Understand difficulties in defining the components of sustainable development in different contexts.*
- 2. Distinguish the patterns of regional development of the world and the need for sustainable development plan.*
- 3. Critically analyse the efforts and initiatives of the Governments in reducing the levels of poverty and inequality among the people of various countries.*

**Course Content:**

1. Sustainable Resource Development: Definition, Components and Limitations
2. The Millennium Development Goals: National Strategies and International Experiences
3. Sustainable Regional Development: Need and examples from different Ecosystems
4. Inclusive Development: Poverty and Inequality; Education, Health; The role of higher education in sustainable resource development; The Challenges of Universal Health Coverage
5. Sustainable Development Policies and Programmes: Goal-Based Development; Sustainable Development Goals; Financing for Sustainable Development; Principles of Good Governance; National Environmental Policy, Clean Development Mechanism

**Continuous Assessment:** Assignment on Sustainable Development Goals

**References/ Suggested Readings:**

1. Agyeman, Julian, Robert D. Bullard and Bob, Evans., (Eds.) (2003): *Just Sustainabilities: Development in an Unequal World*. London: Earthscan. (Introduction and conclusion.).
2. Ayers, Jessica and David, Dodman., (2010): “*Climate change adaptation and development I: the state of the debate*”. Progress in Development Studies 10(2): 161-168.
3. Baker, Susan., (2006): *Sustainable Development*. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge.
4. Brosius, Peter., (1997): “*Endangered forest, endangered people: Environmentalist representations of indigenous knowledge*”, Human Ecology 25: 47-69.
5. Lohman, Larry., (2003): *Re-imagining the population debate*, Corner House Briefing.

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**Course Name: Regional Planning and Sustainable Development**

**Course Code: BSCHGEOC501**

Course Type: <b>Core (Theoretical)</b>	Course Details: <b>CC-11</b>		L-T-P: <b>5 - 1 - 0</b>		
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		...	<b>10</b>	...	<b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

- 1. Identify notable backward regions and solutions for their overall development*
- 2. Have comprehensive understanding regarding the different regions and application of different models and theories for integrated regional development.*
- 3. Select appropriate indicators for the measurement of socio-economic regional development.*

**Course Content:**

1. Concept of Region; Formal, Functional, and Planning Regions; Evolution, Need and Types of Regional Planning
2. Choice of a Region for Planning: Characteristics of Planning Region; Delineation of Planning Region; Regionalization of India for Planning, Agro- Ecological Zones
3. Theories and Models for Regional Planning: Myrdal, Hirschman, Rostow and Friedman; Growth Pole Model of Perroux; Village Cluster
4. Sustainable Development: Concept of Development and Underdevelopment; Efficiency-Equity Debate: Definition, Components and Sustainability for Development. Indicators (Economic, Social and Environmental)
5. Sustainable Development Policies and Programmes: Rio+20; Goal-Based Development; Financing for Sustainable Development

**Continuous Assessment:** Assignment on Sustainable Development Programme.

**References/ Suggested Readings:**

1. Agyeman, Julian, Robert, D. Bullard and Bob, Evans., (Eds.) (2003): *Just Sustainabilities: Development in an Unequal World*. London: Earthscan. (Introduction and conclusion.).
2. Anand, Subhash., (2011): *Ecodevelopment : Glocal Perspectives*, Research India Press, New Delhi.
3. Ayers, Jessica and David Dodman., (2010): "Climate change adaptation and development I: the state of the debate". *Progress in Development Studies* 10 (2): 161-168.
4. Baker, Susan., (2006): *Sustainable Development*. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, "The concept of sustainable development").
5. Blij, H. J. De., (1971): *Geography: Regions and Concepts*, John Wiley and Sons.
6. Friedmann, J. and Alonso W. (1975): *Regional Policy - Readings in Theory and Applications*, MIT Press, Massachusetts.
7. Gore C. G., (1984): *Regions in Question: Space, Development Theory and Regional Policy*, Methuen, London.
8. Haynes J., (2008): *Development Studies*, Polity Short Introduction Series.
9. Johnson E. A. J., (1970): *The Organization of Space in Developing Countries*, MIT Press, Massachusetts.



10. Misra, R. P., Sundaram, K.V. and V.L.S. Prakasa Rao, (1974): *Regional Development planning in India*, Vikas Publishing House Delhi.
  11. Peet, R., (1999): *Theories of Development*, The Guilford Press, New York.
  12. Singh, R.B. (2002): *Human Dimensions of Sustainable Development*, Rawat Pub., Jaipur, pages
  13. UNDP (2001-04): *Human Development Report*, Oxford University Press.
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**Course Name: Agriculture and Food Security**

**Course Code: BSCHGEODSE502**

Course Type: <b>Discipline Specific Elective (Theoretical)</b>	Course Details: <b>DSEC-1 or DSEC -2</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Conceptualise the agriculture and its determinants.
2. Get the overview of Indian and World agriculture regions and systems.
3. Have sound knowledge of agriculture revolutions and food security

**Course Content:**

1. Agriculture and Food Security: Defining the field, Introduction, nature and scope; Concept of land and soil; Land use/ land cover definition and classification (Stamp and FAO)
2. Physical, Technological and Institutional Determinants of Agriculture
3. Agricultural Regions of India: Agro-climatic, Agro-ecological & Crop Combination Regions
4. Agricultural Systems of the World (Whittlesey's classification) and Agricultural Land use model (Von Thunen, modification and relevance)
5. Food Security: Concept, approaches, pattern, Indian revolutions in agriculture and government policies related to food security

**Continuous Assessment:** Assignment on problems and prospects of Indian agriculture.

**References/ Suggested Readings:**

1. Basu, D.N., and Guha, G.S., (1996): *Agro-Climatic Regional Planning in India*, Vol.I& II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R, (1992): *Agriculture in the City Countryside*, Belhaven Press, London.
3. Burger, A., (1994): *Agriculture of the World*, Aldershot, Avebury.
4. Grigg, D.B., (1984): *Introduction to Agricultural Geography*, Hutchinson, London.
5. Hussain, M. (1996): *Systematic Agricultural Geography*, Rawat Publications, Jaipur.
6. Ilbery, B. W., (1985): *Agricultural Geography: A Social and Economic Analysis*, Oxford University Press.

7. Mohammad, N., (1992): *New Dimension in Agriculture Geography*, Vol. I to VIII, Concept Pub., New Delhi.
  8. Roling, N.G., and Wageruters, M.A.E.,(ed.) (1998): *Facilitating Sustainable Agriculture*, Cambridge University Press, Cambridge.
  9. Shafi, M., (2006): *Agricultural Geography*, Doring Kindersley India Pvt. Ltd., New Delhi
  10. Singh, J., and Dhillon, S.S., (1984): *Agricultural Geography*, Tata McGraw Hill, New Delhi.
  11. Tarrant, J. R., (1973): *Agricultural Geography*, David and Charles, Devon.
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**Course Name: Population Geography**

**Course Code: BSCHGEODSE503**

Course Type: Discipline Specific Elective (Theoretical)	Course Details: DSEC-1 or DSEC -2			L-T-P: 5 - 1 - 0	
Credit: 6	Full Marks : 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		...	10	.....	40

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Learn the role of demography and population studies as a distinct field of human geography
2. Have sound knowledge of key concept, different components of population along with its drivers
3. Examine population dynamics and characteristic with contemporary issues

**Course Contents:**

1. Population Geography, Demography and Population Studies: Defining the Field, Nature and Scope; Sources of Data with special reference to India (Census, Vital Statistics and NSS)
2. Population Size, Distribution and Growth – Determinants and Patterns; Theories of Growth – Malthusian Theory and Demographic Transition Theory; Mobility Transition Theory
3. Population Dynamics: Fertility, Mortality and Migration – Measures, Determinants and Implications
4. Population Composition and Characteristics – Age-Sex Composition; Rural and Urban Composition; Literacy
5. Contemporary Issues – Ageing of Population; Child labour; Declining Sex Ratio

**Continuous Assessment:** Assignment on any one contemporary population issue in India.

**References/ Suggested Readings:**

1. Barrett, H. R., (1995): *Population Geography*, Oliver and Boyd.
2. Bhende, A. and Kanitkar, T., (2000): *Principles of Population Studies*, Himalaya Publishing House.
3. Chandna, R. C. and Sidhu, M. S., (1980): *An Introduction to Population Geography*, Kalyani Publishers.
4. Chandna, R C (2006): *JansankhyaBhugol*, Kalyani Publishers, Delhi
5. Chandna,R.C., *Geography of Population*, Kalyani Publishers, Ludhiana.
6. Clarke, J. I., (1965): *Population Geography*, Pergamon Press, Oxford.

7. Roy, D. *Population Geography*, Books and Allied Private Limited, Kolkata.
  8. Jones, H. R., (2000): *Population Geography*, 3rd ed. Paul Chapman, London.
  9. Lutz, W., Warren, C. S. and Scherbov, S., (2004): *The End of the World Population Growth in the 21st Century*, Earthscan
  10. Maurya, S D (2009): *Jansankya Bhugol*, Sharda Putak Bhawan, Allahabad
  11. Newbold, K. B., (2009): *Population Geography: Tools and Issues*, Rowman and Littlefield Publishers.
  12. Pacione, M., (1986): *Population Geography: Progress and Prospect*, Taylor and Francis.
  13. Panda, B. P., (1988): *Janasankya Bhugol*, M P Hindi Granth Academy, Bhopal
  14. Wilson, M. G. A., (1968): *Population Geography*, Nelson.
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**Course Name: Hydrology**

**Course Code: BSCHGEODSE504**

Course Type: <b>Discipline Specific Elective (Theoretical)</b>	Course Details: <b>DSEC-1 or DSEC -2</b>		L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks : <b>50</b>	CA Marks		ESE Marks
		Practical	Theoretical	Practical      Theoretical
		...	<b>10</b>	..... <b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Understand the basic components of hydrological cycle and comprehend practices of integrated watershed management.
2. Evaluate the water balancing and river basin and water disputes.
3. Study the soil as a basic resource, focusing its distribution, problems and management.

**Course Content:**

1. Hydrological Cycle: Systems approach in hydrology, Basin and Global hydrological cycle, human impact on the hydrological cycle
2. Precipitation, interception, evaporation, evapotranspiration, infiltration, ground-water, runoff and runoff cycle
3. Water Balance: input and output; floods and droughts; Integrated water resource management.
4. River Basin: Characteristics and problems of river basins, basin surface run-off, and measurement of river discharge. Watershed management - with reference to DVC.
5. River Water Dispute: Kaveri and Teesta river water dispute: River linkages in India – merits and demerits

**Continuous Assessment:** Assignment on River Basin Management.

**References/ Suggested Readings:**

1. Andrew. D. ward, and Stanley, Trimble., (2004): *Environmental Hydrology*, 2nd edition, Lewis Publishers, CRC Press.
2. Fetter, C.W. (2005): *Applied Hydrogeology*, CBS Publishers & Distributors, New Delhi.
3. Reddy, K. Ramamohan, Venkateswara Rao, B, Sarala, C., (2014): *Hydrology and Watershed Management*, Allied Publishers.

4. Karanth, K.R., (1988): *Ground Water: Exploration, Assessment and Development*, Tata-McGraw Hill, New Delhi.
  5. Lyon, J.G., (2003): *GIS for Water Resource and Watershed Management*, Taylor and Francis, New York.
  6. Meinzer, O.E., (1962): *Hydrology*, Dover Publication, New York.
  7. Ramaswamy, C., (1985): *Review of floods in India during the past 75 years: A Perspective*, Indian National Science Academy, New Delhi.
  8. Rao, K.L., (1982): *India's Water Wealth*, 2nd edition, Orient Longman, Delhi.
  9. Singh, M., Singh, R.B. and Hassan, M.I., (Eds.) (2014): *Landscape ecology and water management*, Proceedings of IGU Rohtak Conference, Volume 2. *Advances in Geographical and Environmental Studies*, Springer.
  10. Singh, Vijay P., (1995): *Environmental Hydrology*. Kluwer Academic Publications, The Netherlands.
  11. Tideman, E.M., (1999): *Watershed management - Guidelines for Indian Conditions*, Omega Scientific Publishers, New Delhi
  12. Todd, D.K. (1959): *Ground water Hydrology*, Wiley India Edition, New Delhi.
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**Course Name: Geography of Health**

**Course Code: BSCHGEODSE505**

Course Type: <b>Discipline Specific Elective (Theoretical)</b>	Course Details: <b>DSEC-1 or DSEC -2</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks : <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		...	<b>10</b>	.....	<b>40</b>

***Course Learning Outcomes:***

*After the completion of course, the students will have ability to:*

1. Understand the key concepts related to health.
2. Identify the linkages between the health and environment.
3. Explain the relationships between health and environment with reference to climate change

***Course Content:***

1. Perspectives on Health: Definition; linkages with environment, development and health; driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality
2. Pressure on Environmental Quality and Health: Human activities and environmental pressure land use and agricultural development; industrialisation
3. Exposure and Health Risks: Air and water pollution; household wastes
4. Health and Disease Pattern in Environmental Context with special reference to India, Types of Diseases and their regional pattern (Communicable and Lifestyle related diseases)
5. Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents; food production and nutrition

***Continuous Assessment:*** Class Test

***References/ Suggested Readings:***

1. Rais, Akhtar., (Ed.), (1990): *Environment and Health Themes in Medical Geography*, Ashish Publishing House, New Delhi.
  2. Avon, Joan, L. and Jonathan, A, Patzed (2001): *Ecosystem Changes and Public Health*, Baltimin, John Hopling Unit Press(ed).
  3. Bradley, D., (1977): *Water, Wastes and Health in Hot Climates*, John Wiley Chichesten.
  4. Christaler, George and Hristopoles, Dionissios., (1998): *Spatio-Temporal Environment Health Modelling*, Boston Kluwer Academic Press.
  5. Cliff, A.D. and Peter, H., (1988): *Atlas of Disease Distributions*, Blackwell Publishers, Oxford.
  6. Gatrell, A. and Loytonen, (1998): *GIS and Health*, Taylor and Francis Ltd, London.
  7. Harpham T. and Tanner, M., (eds) (1995): *Urban Health in Developing Countries*; Progress and Prospects, Routledge, London.
  8. Hazra, J., (1997): *Health Care Planning in Developing Countries*. University of Calcutta, Calcutta.
  9. Moeller, Dade, wed., (1993): *Environmental Health*, Cambridge, Harward Univ. Press.
  10. Murray, C. and A. Lopez, (1996): *The Global Burden of Disease*, Harvard University Press.
  11. Narayan, K.V., (1997): *Health and Development Inter-Sectoral Linkages in India*. Rawat Publications, Jaipur.
  12. Phillips, D. and Verhasselt, Y., (1994): *Health and Development*, Routledge, London.
  13. Tromp, S., (1980): *Biometeorology: The Impact of Weather and Climate on Humans and their Environment*, Heydon and Son.
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**Course Name: Disaster Management**

**Course Code: BSCHGEOGE101**

Course Type: <b>Generic Elective (Theoretical)</b>	Course Details: <b>GEC-1</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>

**Course Learning Outcome:**

*After the completion of course, the students will have ability to:*

1. Gain a perspective of disasters and various dimensions of disaster management
2. Have comprehensive knowledge of various natural and manmade disasters in India
3. Examine the response and mitigation measures of disasters

**Course Content:**

1. Disasters: Definition and Concepts; Risk and Vulnerability; Classification
2. Disasters in India: Flood: Causes, Impact, Distribution; Landslide: Causes, Impact, Distribution; Drought: Causes, Impact, Distribution
3. Disasters in India: Earthquake and Tsunami: Causes, Impact, Distribution; Cyclone: Causes, Impact, Distribution
4. Manmade Disasters: Causes, Impact, Distribution with reference to land subsidence in mining region, Industrial hazards with special reference to chemical and fire

5. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During and Post-disasters

**Continuous Assessment:** Assignment on any one hazard

### **References/ Suggested Readings**

1. Government of India, (2008): *Vulnerability Atlas of India*. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
  2. Govt. of India, (2011): *Disaster Management in India*, Ministry of Home Affairs, New Delhi.
  3. Kapur, Anu., (2010): *Vulnerable India: A Geographical Study of Disasters*, Sage Publication, New Delhi.
  4. Modh, S., (2010): *Managing Natural Disaster: Hydrological, Marine and Geological Disasters*, Macmillan, Delhi.
  5. Singh, Jagbir., (2007): *Disaster Management Future Challenges and Opportunities*, 2007.
  6. Singh, R. B., (ed.), (2006): *Natural Hazards and Disaster Management: Vulnerability and Mitigation*, Rawat Publications, New Delhi.
  7. Singh, R.B., (2005): *Risk Assessment and Vulnerability Analysis*, IGNOU, New Delhi. Chapter 1, 2 and 3
  8. Sinha, A., (2001): *Disaster Management: Lessons Drawn and Strategies for Future*, New United Press, New Delhi.
  9. Stoltman, J.P., et al. (2004): *International Perspectives on Natural Disasters*, Kluwer Academic Publications. Dordrecht.
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**Course Name: Climate Change, Vulnerability and Adaptation**

**Course Code: BSCHGEOGE301**

Course Type: <b>Generic Elective (Theoretical)</b>	Course Details: <b>GEC-3</b>		L-T-P: <b>5 - 1 - 0</b>			
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks		
		Practical	Theoretical	Practical	Theoretical	
		...	<b>10</b>	...	<b>40</b>	

### **Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Understand the foundational concepts of climate change and its impacts.
2. Assess the human and environmental vulnerability to climate change.
3. Learn the various adaptation and mitigation for reducing the impacts of climate change and national action plan.

### **Course Content:**

1. Climate Change: Understanding Climate Change; Greenhouse Gases and Global Warming; Global Climatic Assessment- IPCC
2. Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability

3. Impact of Climate Change: Agriculture and Water; Biodiversity; Human Health
4. Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia
5. National Action Plan on Climate Change in India and Role of Local Institutions (Urban Local Bodies, Panchayats)

**Continuous Assessment:** Assignment on impact of climate change.

**References/ Suggested Readings:**

1. IPCC (2014): *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
2. IPCC (2007): *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*.
3. OECD (2008): *Climate Change Mitigation: "What do we do?"* (Organisation and Economic Co-operation and Development).
4. Sen, Roy, S., and Singh, R.B., (2002): *Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions*, Oxford & IBH Pub., New Delhi.
5. Singh, M., Singh, R.B., and Hassan, M.I., (Eds.) (2014): *Climate change and biodiversity*, Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
6. Singh, R.B., Mal, Suraj, and Huggel, Christian (2018): *Climate Change, Extreme Events and Disaster Risk Reduction*, Springer, Switzerland, pages 309.
7. UNEP (2007): *Global Environment Outlook: GEO4: Environment for Development*, United Nations Environment Programme.

**Course Name: Soil Geography**

**Course Code: BSCHGEODSE605**

Course Type: Discipline Specific Elective (Theoretical)	Course Details: <b>DSEC-3 or DSEC -4</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks : <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		...	<b>10</b>	.....	<b>40</b>

**Course Learning Outcomes:**

*After the completion of course, the students will have ability to:*

1. Understand the concepts related to soil.
2. To know the soil diversities and importance of their preservation
3. To know about soil fertility and its significance

**Course Content:**

1. Concept of soil, pedology, and pedogenic processes, soil functions, Physical and chemical properties of soil: Texture, Structure, pH, Organic matter
2. Factors of soil development, Concept of soil profile, profile development of zonal soils: Laterite, Chernozem and Podzol
3. Concept of soil fertility, factors affecting fertility and fertility improvement methods.

4. Soil erosion, soil degradation, need and strategies of soil conservation, distribution and characteristics of Indian soils
5. USDA classification of Soils, types of soil survey

**Continuous assessment:** Assignment on fertility improvement methods based on the survey of a rural Mouza.

**References/ Suggested Readings:**

1. Biswas, T.D. and Mukherjee, S.K. 1987, *Text book of Soil Science*. Tata-McGraw-Hill.
2. Brady. N.C. and Weil. R.R. 1996, *The Nature and Properties of Soil*. 11<sup>th</sup> edition. Longman. London.
3. Floth. H.D. 1990, *Fundamentals of Soil Science*, 8<sup>th</sup> edition. John Wiley and Sons. New York.
4. Morgan. R.P.C. 1995, *Soil Erosion and Conservation*, 2<sup>nd</sup> edition. Longman. London.
5. Schwab. G.O. Fandmeir. D.D. and Eliot, W.J. 1996, *Soil and Water Management Systems*, 4<sup>th</sup> edition, John Wiley and Sons Inc. New York.
6. Young. A. 2000, *Land Resources: Now and for the Future*, Cambridge University Press. Cambridge.

**Discipline: Political Science**

**Course Name: Environmental Politics**

**Course Code: BAHPLSDSE605**

Course Type: DSE (Theory)	Course Details: DSEC-3 & DSEC-4			L-T-P: 5 - I – 0	
Credit: 6	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

**Course Objective**

1. The objective of the course is to introduce to the students a basic understanding of the concept of Environment and the ideology of environmentalism which emphasizes on the need of collective actions at all levels, national as well as international to deal with environmental crisis like Climate change.
2. This course also aims to initiate a discussion on the role that government can play by focussing on green governance.

**Learning Outcome**

1. To develop a deeper understanding about the concept of environment, its living and non-living components and the philosophy of environmentalism.
2. To develop an awareness about the various environmental challenges/issues faced by the entire world which involves both developing and developed countries.
3. To critically evaluate the current paradigm of development based on rapid industrialization and to shift the focus on alternative paths to development especially the concept of sustainable development.
4. To analyze the role of public policy at the national and international level with regards to the protection and management of environmental issues along with an emphasis on collective efforts locally, nationally and globally.



## Course Content:

### Theory

Unit 1: Environmentalism: Meaning, Key Related Ideas, Significance.

Unit 2: Collective action problems and environmental challenges in developing and developed countries.

Unit 3: Major Environmental Movements in India: *Chipko*, Narmada *Banchao*, Salient Valley.

Unit 4: Regional and international efforts to address climate change.

Unit 5: Green Governance: Sustainable Human Development.

### Suggested Readings

1. Ramachandra Guha, Environmentalism: A Global History (Longman Publishers).
  2. Burns H Weston and David Bollier, Green Governance: Ecological Survival, Human Rights, and the Law of the Commons (Cambridge University Press).
  3. J. Volger, 'Environmental Issues', in J. Baylis, S. Smith and P. Owens (eds.) Globalization of World Politics (New York: Oxford University Press).
  4. A. Heywood, Global Politics (New York: Palgrave)
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**Course Name: Environment Politics**

**Course Code: BAPPLSSE602**

Course Type: SE (Theory)	Course Details: SEC-4			L-T-P: 4 - 0 - 0	
Credit: 4	Full Marks: 50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
			10		40

### Course Objectives

1. To understand collective action problems and environmental challenges in India.
2. To understand the dynamics of environmental movements in India.
3. To understand Green Governance and sustainable development.

### Learning Outcomes

1. The purpose of this course is to provide awareness regarding environmental issues that is political in nature like Chipko, Narmada Bachao Andolan.
2. Students will also know about issues of climate change and green governance.
3. Students may critically analyze the policies framed in this regard

## Course Content

### Theory

Unit 1: Environmentalism: Meaning, Key Related Ideas and Significance

Unit 2: Collective action problems and environmental challenges in developing and developed countries

Unit 3: Major Environmental Movements in India: Chipko – Narmada Bachao  
Unit 4: Regional and international efforts to address climate change  
Unit 5: Green Governance: Sustainable Human Development

### Suggested Readings

1. Ramachandra Guha, *Environmentalism: A Global History* (Longman Publishers).
  2. Burns H Weston and David Bollier, *Green Governance: Ecological Survival, Human Rights, and the Law of the Commons* (Cambridge University Press).
  3. J. Volger, 'Environmental Issues', in J. Baylis, S. Smith and P. Owens (eds.) *Globalization of World Politics* (New York: Oxford University Press).
  4. A. Heywood, *Global Politics* (New York: Palgrave).
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### Discipline: Sanskrit

**Course Name: Environmental Awareness in Sanskrit Literature**

**Course Code: BAHSNSDSE603**

Course Type: <b>DSE (Theory)</b>	Course Details: <b>DSEC 3 &amp; 4</b>			L-T-P: <b>5 - 1 - 0</b>	
Credit: <b>6</b>	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		....	<b>10</b>	....	<b>40</b>

### Course Learning Outcomes:

*After the completion of course, the learners will be able:*

- To have at least a general sense of the various dimensions of environmental awareness as stated in Sanskrit Literature.
- To know about environmental awareness as reflected in Kālidāsa's Literature.
- To understand the relevance & utility of preservice of environment.

### Course Content:

#### Theory

Environmental Awareness Reflected in Kālidāsa's Literature.

### References/ Suggested Readings:

Environmental Awareness in Sanskrit Literature – Bidyut Baran Chakraborty – Sanskrit Pustak Bhandar, Kolkata.

प्राचीन संस्कृत साहित्य में पर्यावरण परिशीलन: Environmental Awareness in Ancient Sanskrit Literature (With Special Reference to Veda, Ramayana and Kalidas Literature) – Dr. Sanju Mishra – Amar Granth Publications, Delhi

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**Discipline: Economics**

**Course Name: Environmental Economics**

**Course Code: BSCHECODSE504**

Course Type: <b>Core (Theory)</b>	Course Details: DSE (DSE 1&2)		L-T-P:5-1-0		
Credit: 6	Full Marks:  50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
			<b>10</b>		<b>40</b>

**Course Learning Outcomes:**

**(After the completion of the course the students will be able)**

- 1. To understand the linkage between economy and the environment.**
- 2. To use economic techniques to analyze environmental problems and to assess environmental policies.**
- 3. To understand the issues of Climate change and policies of sustainable development.**

**Content/ Syllabus: Unit wise course content distribution**

**Unit -1 Introduction**

Concept of Environment: Atmosphere, biosphere and geosphere, Environment – economy interlink age, Material balance model.

**Unit-2 Externality and property right issues**

Market failure and externality, concept of property right, public property, private property and common property resources, the Coase theorem

**Unit -3. The design and implementation of environmental policy:**

Pigouvian taxes and effluent fees, tradable pollution permit, basic idea of cost benefit analysis

**Unit -4. Resources and pricing:**

Distinction between exhaustible and renewable resources, concept of user cost and optimal depletion rules

#### ***Unit 5- International environmental problem***

Trans-boundary environmental problem and climate change issues, basic aspects of Kyoto protocol, Trade and environment.

#### ***Unit 6- Sustainable development***

Basic concept, measures and policies of sustainable development.

#### ***References/ Suggested Readings***

1. Charles Kolstad: Intermediate Environmental Economics, 2<sup>nd</sup> Edition, Oxford University Press.
  2. Roger Perman, Yue Ma, James Michael Common, David Maddison and McGilvray: Natural Resource and Environmental Economics, 4<sup>th</sup> Edition, Pearson Education/Addison Wesley.
  3. Jhingal and Sharma: Environmental Economics: Theory, Management and Policy, 2<sup>nd</sup> Edition, Vrinda Publications.
  4. Karpagam M: Environmental Economics, 3<sup>rd</sup> Edition, Sterling Publishers Pvt. Ltd;
  5. Muthukrishnan Subhashini: Economics of Environment, 2<sup>nd</sup> Edition, PHI Learning Pvt. Ltd.
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***Course Name: Agricultural Economics***

***Course Code: BSCHECODSE602***

Course Type: <b>Core (Theory)</b>	Course Details: DSE (DSE 3&4)		L-T-P:5-1-0		
Credit: 6	Full Marks:  50	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
			<b>10</b>		<b>40</b>

#### ***Course Learning Outcomes:***

***(After the completion of the course the students will be able)***

- 1. To gain idea regarding Agricultural Economics. They also may be interested in agriculture, the backbone of Indian economy***
- 3. To develop ideas about various concepts like production, farm organization, agricultural marketing and finance, agricultural policy and so on***
- 4. To learn about the vast unharnessed potentials in Indian agriculture***

***Content/ Syllabus: Unit wise course content distribution***

## **Unit 1: Introduction**

- Definition, Nature, Scope of Agricultural Economics - Role of agriculture in the process of economic development, interdependence and complementarity between agriculture and industry
- Basic concepts- subsistence farming, sustainable agriculture, cropping pattern and cropping intensity, livestock, small and marginal farmers, agricultural labourers, precision agriculture, food subsidies, food safety net, food quality, fair price shops

## **Unit 2: Production and Farm Organization:**

- Schultz's theory on traditional agricultural- Use of Technology in agricultural production -Mellor's theory of agricultural development
- Types of farm organization- measurement of efficiency in agricultural production - Yield gap analysis

## **Unit 3: Agricultural Marketing and Finance**

- Meaning and characteristics of Agricultural Marketing - Marketable & Marketed surplus - Problems in Agricultural Marketing - Need for market regulation. Minimum support price and remunerative price.
- Contract farming and supply chain management- warehouse and other government agencies
- Agricultural Finance – role and importance-credit widening and credit deepening – Types of financial institutions – Cooperatives, NABARD, Commercial Banks, RRBs- agricultural sector lending under District Credit Plan- MFI's
- Risks and uncertainty in agriculture - insurance programmes

## **Unit 4: Agricultural Policy, Agricultural Pricing and Globalization**

- Problems of agricultural development in LDCs- Significance of agricultural policies in India-National Agricultural Policy
- CACP – Minimum Support Price – Agricultural Price Policy
- Agriculture and WTO – Effects of Globalization

## **References**

1. Bhaduri, A. (1984), The Economic Structure of Backward Agriculture, Macmillan, Delhi.
2. Chakaravathi RM, 1986, Under Development and Choices in Agriculture. Heritage Publ., New Delhi.
3. Dantwala, M.L. et.al (1991), Indian Agricultural Development since Independence, Oxford & IBH, New Delhi.
4. Gardner BL & Rauser GC. 2001. Handbook of Agricultural Economics. Vol. I. Agricultural Production. Elsevier.
5. Hakkim, V. M. Abdul, Joseph E. Abhilash, Gokul A. J. Ajay and Mufeedha, K. Precision Farming: The Future of Indian Agriculture. Journal of Applied Biology & Biotechnology. 2016; 4 (06): 068-072.
6. Heady EO. Economics of Agricultural Production and Resource Use, Prentice-Hall.

7. Lekhi R.K. & Singh J, 2015, Agricultural Economics: An Indian Perspective, Kalyani Publishers
  8. Penson John B., Capps Oral, Rosson C. Parr Woodward Richard.T , 2019, Introduction to Agricultural Economics, Sixth Edition, Pearson Education
  9. Purecell WD & Koontz, SR. 1999. Agricultural Futures and Options: Principles and Strategies. 2<sup>nd</sup> Ed. Prentice-Hall.
  10. Reddy SS, Raghu Ram P, Neelakanta Sastry T V, Devi Bhavani, I, 2019 Agricultural Economics Second Edition, Oxford.
  11. Sadhu AN, Singh Amarjit and Singh Jasbir, Fundamentals of Agricultural Economics, Himalaya Publishing House, Delhi
  12. Sankayan PL. 1983. Introduction to Farm Management. Tata Mc Graw Hill.
  13. Singh G, Jain TR, Trehan M, 2019, Agricultural Economics, V K Global Publications Pvt. Ltd.
  14. Soni R.N. & Malhotra S., 2015, Leading issues in agricultural economics, Vishal Publishing Co.
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**Discipline: BBA**

**Course Name: Business Environment**

**Course Code: BBAC403; Course Type: Core; Course Details: CC-10**

**L-T-P: 5 -1 -0; Course Credit: 6**

**Marks: Theory [100]: Continuous Assessment-20 & End Semester Examination-80**

### **Course objectives**

To analyse the overall business environment and evaluate its various components in business decision making.

### **Learning outcomes**

After completing the course, the student shall be able to:

1. Familiarize with the nature of business environments and its components.
2. Develop an understanding of the different economic system.
3. Develop conceptual framework of business environment and generate interest in International Business.
4. Understand the impact of different International Economic institutions on Indian Economy.

**Unit-I:** Introductory Issues: concept, nature and importance of business and business environment – Types of environment; general and task environment, internal and external

environment, Basic elements of environment: socio-cultural, political, legal, economic and technological elements.

**Unit -II:** Socio-cultural Environment of Business: Concept and nature of culture – Impact of culture on business – cultural resources – Ethics and social responsibility of business – Arguments for and against social responsibility.

**Unit -III:** Economic Environment of Business: concept and elements of economic environment – Different economic systems: their meanings and characteristics – Economic reforms initiated in India – Liberalization, privatization and disinvestment: concepts and trends.

**Unit -IV:** International Environment of Business: Globalization as a part of the New Industrial Policy – concept and nature of globalization – Why companies go global – Strategies for entering foreign markets: exporting, licensing and franchising, contract manufacturing, management contracting, joint venture, merger and acquisition, strategic alliance and counter trade – Merits and demerits of globalization – Globalization of Indian business.

**Unit -V:** India, WTO and Trading Blocks: Role and functions of WTO – Differences between WTO and GATT – Arguments for joining WTO – WTO Agreements binding on India: their impact on the Indian economy – International Economic institutions like World Bank and IMF: their importance and basic functions.

***Suggested Readings:***

1. Essentials of Business Environment – Aswathapa, K; HPH.
2. Business Environment – Cherunillam, Francis; HPH.
3. Economics Environment of Business – Misra and Puri; HPH
4. Business Environment – Gupta, C.B.; Sultan Chand.
5. Business Environment: Text and Cases – Paul, Justin; TMH.

**Teaching Learning Process**

Teaching learning process may be interactive classroom sessions with the help of Power Point presentations, reflective assessment and case study discussions to ensure active participation and continuous learning.

## Assessment Methods

Internal Examination (20 Marks): Internal Assessment may be conducted by using any one or in combinations of Class participation, Presentation, Project Writing and Presentation, Assignment and Presentation, Surprise Test as suitable.

External Examination (80 Marks): End Semester Written Examination, Duration 4 Hours

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## Discipline: Botany

**Course Code BSCPBOTSEC302**

**Course name – Nursery and Gardening**

Course Type: SEC	Course Details: SEC-302			L-T-P: 4-0-0	
Credit: 4	Full Marks: 100	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

## Course Learning Outcomes:

On completion of this course the students will be able to;

- Understand the process of sowing seeds in nursery
- List the various resources required for the development of nursery
- Distinguish among the different forms of sowing and growing plants
- Analyse the process of Vegetative propagation
- Appreciate the diversity of plants and selection of gardening
- Examine the cultivation of different vegetables and growth of plants in nursery and Gardening

**Unit 1:** Nursery: definition, objectives and scope and building up of infrastructure for nursery, planning and seasonal activities - Planting - direct seeding and transplants. **(4 Lectures)**

**Unit 2:** Seed structure and types, Seed dormancy; Causes and Methods of breaking dormancy; Seed storage: Seed banks, factors affecting seed viability; Genetic erosion – Seed production technology, seed testing and certification.



**Unit 3:** Vegetative propagation: air-layering, cutting; treatment of cutting, rooting medium and planting of cuttings - Hardening of plants – green house, mist chamber, shed root, shade house and glasshouse.

**Unit 4:** Gardening: definition, objectives and scope - different types of gardening - landscape and home gardening - parks and its components. Gardening operations – soil layering, manuring, watering, management of pests and diseases and harvesting. Sowing/raising of seeds and seedlings - Transplanting of seedlings - Study of cultivation of different vegetables: cabbage, brinjal, lady's finger, onion, garlic, tomatoes and carrot; Storage and marketing procedures.

### **Suggested Readings**

1. Bose T.K. & Mukherjee, D., 1972, Gardening in India, Oxford & IBH Publishing Co., New Delhi.
  2. Sandhu, M.K., 1989, Plant Propagation, Wile Eastern Ltd., Bangalore, Madras.
  3. Kumar, N., 1997, Introduction to Horticulture, Rajalakshmi Publications, Nagercoil.
  4. Edmond Musser & Andres, Fundamentals of Horticulture, McGraw Hill Book Co., New Delhi.
  5. Agrawal, P.K. 1993, Hand Book of Seed Technology, Dept. of Agriculture and Cooperation, National Seed Corporation Ltd., New Delhi.
  6. Janick Jules. 1979. Horticultural Science. (3rd Ed.), W.H. Freeman and Co., San Francisco, USA.
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### **Semester - IV**

**Course code – BSCHBOTSEC401**

**Course name: Biofertilizers**

Course Type: SEC	Course Details: SEC-401			L-T-P: 4-0-0	
Credit: 4	Full Marks: 100	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	10	-	40

### **Course Learning Outcomes:**

On the completion of this course, the students will be able to;

- Develop their understanding on the concept of bio-fertilizer

- Identify the different forms of biofertilizers and their uses
- Compose the Green manuring and organic fertilizers
- Develop the integrated management for better crop production by using both nitrogenous and phosphate bio fertilizers and vesicular arbuscular mycorrhizal (VAM).
- Interpret and explain the components, patterns, and processes of bacteria for growth in crop production

### **Unit-1:**

General account about the microbes used as biofertilizer, Rhizobium – isolation, identification, mass production, Commercialization; Actinorrhizal symbiosis.

*Azospirillum*: isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms. *Azotobacter*: classification, characteristics – crop response to *Azotobacter* inoculum, maintenance and mass multiplication.

### **Unit -2:**

General idea about Plant growth promoting rhizobacteria (PGPR) and Phosphate solubilizing bacteria (PSB) . PGPR traits; Stress hormone Ethylene and PGPR.

### **Unit- 3:**

Cyanobacteria (blue green algae) and Azolla as biofertilizer; Blue green algae and Azolla production; blue green algae and *Azolla* in rice cultivation.

### **Unit -4:**

Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution; VAM fungi, and their influence on growth and yield of crop plants. (6 lectures)

Organic farming – Green manuring and organic fertilizers; Organic Compost and Vermicompost - production and application.

### **Suggested Readings -**

1. Dubey, R.C., 2005 A Text book of Biotechnology S.Chand & Co, New Delhi.
  2. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.
  3. John Jothi Prakash, E. 2004. Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
  4. Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.
  5. Subha Rao, N.S. 2000, Soil Microbiology, Oxford & IBH Publishers, New Delhi.
  6. Vayas,S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic Farming Akta Prakashan, Nadiad
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**Course code – BSCHBOTSEC502**  
**Course name: Mushroom culture technology**

Course Type: <b>SEC</b>	Course Details: <b>SEC-502</b>			L-T-P: <b>4-0-0</b>	
Credit: <b>4</b>	Full Marks: 100	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	<b>10</b>	-	<b>40</b>

**Course Learning Outcomes:**

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

- Recall various types and categories of mushrooms.
- Demonstrate various types of mushroom cultivating technologies.
- Examine various types of food technologies associated with mushroom industry.
- Value the economic factors associated with mushroom cultivation
- Device new methods and strategies to contribute to mushroom production.

**Unit 1:**

Introduction and history. Types of edible mushrooms available in India - *Volvariella volvacea*, *Pleurotus citrinopileatus*, *Agaricus bisporus*; Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms.

**Unit 2:**

Methods of cultivation of edible mushrooms (Oyster, Button and Paddy straw mushrooms). Diseases of Mushroom fungi and methods of remedy. Methods of Mushroom spawn production. Equipments and Tools required for mushroom as well as spawn production.

**Unit 3:**

Storage and nutrition : Short-term storage (Refrigeration - upto 24 hours) Long term Storage (canning, pickels, papads), drying, storage in salt solutions. Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins.

**Unit 4:**

Food Preparation: Types of foods prepared from mushroom. Research Centres - National level and Regional level. Cost benefit ratio - Marketing in India and abroad, Export Value.

**Suggested Readings**

1. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.

2. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018.
  3. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.
  4. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II.
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## Semester – VI

**Course Code - BSCPBOTSEC601**

**Course Name: Floriculture**

Course Type: <b>SEC</b>	Course Details: <b>SEC-601</b>			L-T-P: <b>4-0-0</b>	
Credit: <b>4</b>	Full Marks: 100	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	<b>10</b>	-	<b>40</b>

### *Course Learning Outcomes:*

After completing this course the learner will be able to;

- ☐ Develop conceptual understanding of gardening from historical perspective
- ☐ Analyze various nursery management practices with routine garden operations.
- ☐ Distinguish among the various Ornamental Plants and their cultivation
- ☐ Evaluate garden designs of different countries
- ☐ Appraise the landscaping of public and commercial places for floriculture.
- ☐ Diagnoses the various diseases and uses of pests for ornamental plants.

### **Unit 1:**

Introduction: History of gardening; Importance and scope of floriculture and landscape gardening. Nursery Management and Routine Garden Operations: Sexual and vegetative methods of propagation; Soil sterilization; Seed sowing; Pricking; Planting and transplanting; Shading; Stopping or pinching; Defoliation; Wintering; Mulching;

### **Unit II:**

Ornamental Plants: Flowering annuals; Herbaceous perennials; Shade and ornamental trees; Ornamental bulbous and foliage plants; Cacti and succulents; Palms and Cycads; Cultivation of plants in pots; Indoor gardening.

### **Unit III:**

Commercial Floriculture: Factors affecting flower production; Production and packaging of cut flowers; Flower arrangements; Methods to prolong vase life; Cultivation of Important cut flowers (Carnation, Aster, Chrysanthemum, Dahlia, Gerbera, Gladiolus, Marigold, Rose, Lilium, Orchids). Diseases and Pests of Ornamental Plants.

#### **Unit – IV**

Landscaping Places of Public Importance: Landscaping highways and Educational institutions

#### **Suggested Readings**

1. Randhawa, G.S. and Mukhopadhyay, A. (1986). Floriculture in India. Allied Publishers.
2. Adams, C., M. Early and J. Brrok (2011). Principles of Horticulture. Routledge, U.K.

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#### **Discipline: ZOOLOGY**

### **Course Name: Public Health and Hygiene Course Code: BSCHZOOSE302**

Course Type: <b>SE (Theory)</b>	Course Details: <b>SEC-1</b>			L-T-P: <b>4-0-0</b>	
Credit: 4	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	<b>10</b>	-	<b>40</b>

#### **About the course :**

The course designed for public health and hygiene at graduation level will give understanding for health hygiene, dietary issues, diseases related to malnutrition, communicable and non-communicable diseases.

#### **Learning outcomes :**

*After successfully completing this course, the students will be able to:*

- Identify current national and global public health problems.
- Aware about the issues of food safety, water safety, vaccination, exercise and obesity, exposure to toxins.
- Frame a public health plan during any epidemic or spread of infectious disease etc.
- Analyze case studies of infant mortality and obesity.
- Assess the health inequalities with regard to gender, race, ethnicity, income etc.

### **THEORY (SEC-1)**

## **Unit-I: Maintenance of personal and community hygiene**

### **(13 Lectures)**

1. Introduction to public health and hygiene- determinants and factors.
2. Pollution and health hazards; water and air borne diseases.
3. Radiation hazards: Mobile Cell tower and electronic gadgets (recommended levels, effects and precaution).
4. Role of health education in environment improvement and prevention of diseases.
5. Personal hygiene, oral hygiene and sex hygiene.
6. Importance and maintenance Community Hygiene.

## **Unit-II: Nutrient deficiency diseases**

### **(13 Lectures)**

1. Classification of food into micro and macro nutrients.
2. Balanced diet, dietary plan for an infant, normal adult, pregnant woman and old person.
3. Importance of dietary fibres.
4. Significance of breast feeding.
5. Malnutrition anomalies – Anaemia (Iron and B12 deficiency), Kwashiorkor, Marasmus, Rickets, Goiter (cause, symptoms, precaution and cure).
6. Substitution of diet with required nutrients to prevent malnutrition disorders.

## **Unit-III: Communicable and contagious diseases**

### **(13 Lectures)**

1. Infectious agents responsible for diseases in humans.
2. Communicable viral diseases (causative agent, symptoms, precaution and remedy)- measles, chicken pox, poliomyelitis, swine flu, dengue, chikungunya, rabies, leprosy and hepatitis.
3. Communicable bacterial diseases (causative agent, symptoms, precaution and remedy)- tuberculosis, typhoid, cholera, tetanus, plague, whooping cough, diphtheria, leprosy.
4. sexually transmitted diseases (causative agent, symptoms, precaution and remedy)- AIDS, syphilis and gonorrhoea.
5. Health education and preventive measures for communicable diseases.

## **Unit-IV: Non-communicable diseases and cure**

### **(13 Lectures)**

1. Non-communicable diseases such as hypertension, stroke, coronary heart disease, myocardial infarction. Osteoporosis, osteoarthritis and rheumatoid arthritis-cause, symptom, precautions.
2. Diabetes- types and their effect on human health.
3. Gastrointestinal disorders- acidity, peptic ulcer, constipation, piles (cause, symptoms, precaution and remedy) etc. Obesity (Definition and consequences).
4. Mental illness (depression and anxiety).
5. Oral and lung cancer and their preventive measures.

### ***Recommended readings :***

1. Mary Jane Schneider (2011) Introduction to Public Health.
2. Muthu, V.K. (2014) A Short Book of Public Health.
3. Detels, R. (2017) Oxford Textbook of Public Health (6th edition).
4. Gibney, M.J. (2013) Public Health Nutrition.
5. Wong, K.V. (2017) Nutrition, Health and Disease.

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**Course Name: Wild Life Conservation and Management**  
**Course Code: BSCHZOODSE601**

Course Type: <b>DSE (Theory &amp; Practical)</b>	Course Details: <b>DSEC-3 &amp; DSEC-4</b>		L-T-P: <b>4-0-4</b>		
Credit: <b>6</b>	Full Marks: <b>100</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		<b>30</b>	<b>10</b>	<b>20</b>	<b>40</b>

**About the course :**

The course is an introduction to wildlife management and gives an account of the tools used by wildlife managers. Topics covered are to equip students with adequate knowledge of various biodiversity monitoring methodologies, conservation and management issues of vertebrate pests, wildlife conflict and over abundant species, wildlife health and diseases.

**Learning outcomes**

*After successfully completing this course, the students will be able to:*

- Develop an understanding of how animals interact with each other and their natural environment.
- Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.
- Develop the ability to work collaboratively on team-based projects.
- Demonstrate proficiency in the writing, speaking, and critical thinking skills needed to become a wildlife technician.
- Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.
- Develop an ability to analyze, present and interpret wildlife conservation management information.

**THEORY (DSEC-3 or 4)**

**Unit-I: Value of wildlife and need for its conservation (15 Lectures)**

1. Definition, value and importance of wildlife.
2. Wildlife conservation, ethics and importance of conservation.
3. Ecosystem interaction, animal distribution in biome
4. Classification of wetland and animal inhabitants.
5. Population vulnerability analysis and its components;
6. Causes of depletion of wildlife w. r. t. extinction of animals.
7. Types of protected areas and the concept of zoning within the protected areas.
8. Wildlife Sanctuaries and National Parks in India: general strategies (policy) and issues.
9. Theories of population dispersal; Animal movement, concept of home range and territory.
10. Tracking movement by remote sensing and GIS.

**Unit-II: Population and prey-predator dynamics (11 Lectures)**

1. Impact of topography, geology, soil and water on wildlife population.
2. Impact of habitat destruction and fragmentation on wildlife population.
3. Biological parameters such as food, cover, forage and their impact on wild life population.
4. Population attributes; concepts of exponential and logistic growth rates of wildlife.
5. Density dependent and independent population regulation.
6. Impact of introduced species on preexisting flora and fauna of wildlife.

7. Identification and estimation of wild animals by fecal sample analysis, hair identification, pug marks and census methods.
8. Predator-prey models (Mathematical model-Lotka and Volterra) and impact of predation.

### Unit-III: Wildlife Conservation

(13 Lectures)

1. Wildlife conservation objectives- strategies and issues [Poaching, Forest fire, Mining, Hunting and illegal trading; Tourism; Wild life corridor; marine pollution]
2. Captive breeding techniques and translocation and reintroduction.
3. Inviolate area and critical habitats and their impact on wildlife.
4. Different terrestrial habitats of wildlife in India.
5. Restoration of degraded habitat.
6. Damage caused by wildlife in India and its mitigation.
7. Sick animal refuges in protected areas.

### Unit-IV: Rehabilitation and management

(13 Lectures)

1. Type of wildlife management- manipulative, custodial management of over abundant wild animal populations causing damages to nearby inhabitants and their crops and animals.
2. Use of Tools (Compass, Binoculars, Spotting scope, Range Finders, Drone, radio collar, Camera trap) and techniques to control the menace of wild animals.
3. Man-wildlife conflict resolution and mitigation.
4. Management of exotic and invasive wetland species in India.
5. Habitat manipulation– control and regulation of grazing. Weed eradication.
6. Major diseases of domestic and wild animals and their control and impact of wild life tourism.

### **PRACTICAL (DSEC-3 or 4)**

1. Identification, ecotype with conservation status and preparation of colour album of flora (*Ginkgo biloba*, Red sandalwood), mammalian fauna (Himalayan musk deer, Gangetic dolphin, Golden langur, Pangolin, Fishing cat), avian fauna (Great Indian bustard, Pink headed duck), herpeto-fauna (Gharial, Rock python, King cobra, Indian star tortoise).
2. Demonstration of basic equipment needed in wildlife studies use, care and maintenance (Compass, Binoculars, Spotting scope, Range Finders, Global Positioning System, Various types of Cameras and lenses).
3. Familiarization and study by photographic plate of animal evidences in the field; Identification of animals through pug marks, hoof marks, scats, pellet groups, nest, antlers etc.
4. Demonstration of different field techniques (wild life census: Jolly-Seber method) for flora and fauna.
1. Determination of population density in a natural/ hypothetical community by quadrat method and calculation of Sorenson's Similarity & Shannon-Weiner diversity indices for the same community.
2. **Visit to Forest/ Wild life Sanctuary/Biodiversity Park/Zoological Park** to study behavioural activities of animals and prepare a short report
3. **Group discussion or Seminar presentation** on topics given below:

#### **Pool of Topics for Group discussion or Seminar presentation :**

1. Project Tiger	2. Rhino vision in India	3. Crocodile conservation
4. Elephant project	5. Green corridor	6. Red data book



7. Ecotourism	8. GIS-Remote sensing & GPS	9. Wild life protection act
10. Invasive species	11. Man-wildlife conflict	12. Wetland management

### Format for conducting CA and ESE practical examination :

CA (30 marks)	ESE (20 marks)
1. Assessment based on practical topics (class test)- <b>10</b> 2. PPT/Poster preparation, presentation and write up submission-3+4+3= <b>10</b> 3. Attendance and Participation in class- <b>5</b> 4. Practical skills, laboratory reports, etc- <b>5</b>	1. Estimation of Species abundance/richness from provided data (Sl no 7)-principle-1, Result & discussion-2+2 ( <b>5</b> ) 2. Identification (Sl no 1)- Naming-0.5, Conservation status-0.5, Ecotype-1, characters-1 (3x2= <b>6</b> ) 3. Spotting (Sl no 3)- Naming-0.5, importance-0.5 (1x3= <b>3</b> ) 4. LNB & Field report : (2 + 2) = <b>4</b> 5. Viva- <b>2</b>
<b>NOTE :</b> <ul style="list-style-type: none"> <li>• Identification could be done by using card printed with photograph/drawing/data/preserved specimen/permanent slide.</li> <li>• CA can be done multiple times even by more than one teacher. An average will be taken for marks capturing.</li> <li>• LNB should be prepared in inter-leaf practical note book with date &amp; Teacher's sign.</li> <li>• Field report should be submitted after completion the field visit.</li> <li>• A maximum of 4 students can present same topic of GD/seminar presentation, as a group or solo.</li> </ul>	

### Recommended 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<sup>th</sup> Ed) 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
6. Mathur, R. (2018) Wildlife conservation and management, 1st Ed, Rastogi Pub.
7. Saha, G.K. and Mazumdar, S.; (2017) Wildlife Biology: An Indian Perspective, PHI Learning.
8. Paul R. Krausman & James W. Cain; (2013) Wildlife Management and Conservation – Contemporary Principles and Practices, Johns Hopkins University Press.
9. Fryxell, J.M., Sinclair, A.R.E and Caughley, G.; (2014) Wildlife Ecology, Conservation, and Management, 3rd Edition, Wiley-Blackwell

**Course Name: Biodiversity Conservation and Sustainable Development**  
**Course Code: BSCHZOOGE301**

Course Type: <b>GE (Theory &amp; Practical)</b>	Course Details: <b>GEC-3</b>			L-T-P: <b>4-0-4</b>	
Credit: <b>6</b>	Full Marks: <b>100</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		<b>30</b>	<b>10</b>	<b>20</b>	<b>40</b>

About the course :

The course provides information regarding the status of environment, the depletion of its resources, the loss of biodiversity and the remedial efforts undertaken by various agencies. The course is also focused to creating environmental awareness among learners.

#### Learning outcomes

*Upon successful completion of this course, students should be able to:*

- Develop understanding for the environment which is largely degraded in the current scenario.
- Understand the importance of bio diversity and the consequences of bio diversity loss
- Learn about the judicious utilisation of natural resources
- Follow the concept of green technology and the eco-friendly practises and other prospects of environment protection.
- Understand and practice appropriate legal/regulatory and ethical issues in the context of the work environment.
- Design research projects to collect information to assess the effectiveness of current practices, and interpret the results of a statistical analysis of data, and use this to make informed decisions.

## **THEORY (GEC-3)**

### **Unit I: Anthropogenic impact on environment (13 Lectures)**

1. Man as an animal species in the ecosystem.
2. Population explosion. carrying capacity, exploitation of resources due to urbanization, industrialization and agricultural practices.
3. Generation of agricultural, municipal, industrial waste and their impact on environment.
4. Pollution of air, water, soil and noise; radioactive pollution (causes and impact on human health).
5. Case histories on Bhopal gas tragedy, Chernobyl disaster, Seveso disaster and Three Mile Island accident and their aftermath.
6. Causes and environmental impact of Eutrophication, Deforestation.
7. Threats to biodiversity, Extinction of species.

### **Unit II: Depletion and contamination of resources (10 Lectures)**

1. Natural resources: Land resources. Air and water resources. Bioresources.
2. Conventional Fuel, wood, fossil fuels.
3. Non-conventional sources of energy: sun, wind, bio energy, geothermal, ocean, nuclear etc.
4. Greenhouse effect and global warming; climate change; Shrinking of glaciers.
5. Threats to sustainable development.

### **Unit III: Biodiversity and resource conservation programmes (14 Lectures)**

1. Management of wastes and disposal (Solid waste disposal, Biomedical waste handling and disposal, Nuclear waste handling and disposal, Waste from thermal power plants).
2. Concepts of three R's ("waste hierarchy"): reduce, reuse and recycle.
3. Methods of prevention and control of Eutrophication.
4. Bioremediation.
5. Biodiversity conservation– In-situ e.g., Sanctuaries, National Parks, Biosphere Reserves, World Heritage Sites; Ex-situ e.g., Zoo, botanical gardens, gene banks, cryopreservation.
6. Contour farming, reforestation; Rainwater harvesting, groundwater water recharge.
7. Green technologies, Eco-cities, Social and Joint forestry.

## Unit IV: Sustainable development and green technology

### (15 Lectures)

1. Sustainable Development; Brundtland Report.
2. Biosafety of GMOs and LMOs.
3. Environmental movements (Chipko, Narmada Bachao, Silent valley, Appiko, Tehri dam, Bishnoi).
4. Public awareness of Environmental problems: Role of Government, NGO's,
5. Ecological footprint,
6. General idea and objectives of international efforts: Vienna Convention, Montreal Protocol, UNFCCC, Kyoto Protocol, Copenhagen Summit, etc.; IPCC.
7. Environmental laws and acts. National Environmental Policy.
8. Organizational role: NBPGR, BSI, ZSI, WWF, IUCN, Convention on Biological diversity; Ramsar Convention, other conservation efforts.

### PRACTICAL (GEC-3)

1. Visit to an area to document environmental assets including natural resources/flora/fauna, etc.  
OR, Visit to a local polluted site (Urban/Rural/Industrial/Agricultural).
2. Identification and study of common insects, fish, birds, mammals of a particular area in their natural habitat.
3. To determine the physical conditions of water: Depth, Viscosity, Density, Buoyancy, pH.
4. To study acidity and alkalinity of sample water by methyl orange and phenolphthalein
5. To determine the chemical conditions of water: dissolved oxygen (Winkler's method) and carbon-dioxide (titration method), hardness.
6. To determine Cl, SO<sub>4</sub>, NO<sub>3</sub> in soil and water samples from different locations.
7. Group discussion or Seminar presentation on one or two related topics listed below:

Pool of Topics for Group discussion or Seminar presentation :		
1. Kyoto Protocol	2. Conventional vs Non-conventional energy	3. Chernobyl disaster
4. Montreal Protocol	5. Environmental movements	6. Ecological footprint
7. Bhopal gas disaster	8. Bioremediation	9. Concepts of three R's
10. Cryopreservation	11. Biodiversity and endemism	12. Social forestry

### Format for conducting CA and ESE practical examination :

CA (30 marks)	ESE (20 marks)
<ol style="list-style-type: none"><li>1. Assessment based on practical topics (class test)-10</li><li>2. PPT/Poster preparation, presentation and write up submission-3+4+3=10</li><li>3. Attendance and Participation in class-5</li><li>4. Practical skills, laboratory reports, etc-5</li></ol>	<ol style="list-style-type: none"><li>1. Experiment A (Sl no 3,4)-Principle-1, procedure-1.5, Experiment-1.5, result and inference-2, (6)</li><li>2. Experiment B (Sl no 5, 6)-Principle-1, procedure-1.5, Experiment-3, result and inference-2, precaution-0.5 (8)</li><li>3. LNB &amp; Field report -2+2=4</li><li>4. VIVA-2</li></ol>
<b>NOTE :</b> <ul style="list-style-type: none"><li>• CA can be done multiple times even by more than one teacher. An average will be taken for marks capturing.</li><li>• LNB should be prepared in inter-leaf practical note book with date &amp; Teacher's sign.</li><li>• Project report (Presentation mandatory), Field report, Write-up, etc to be prepared separately.</li><li>• A maximum of 4 students can present same topic of GD/seminar presentation, as a group or solo.</li></ul>	

### Recommended readings:

1. Joseph, B. (2008) Environmental studies, Tata McGraw Hill.
2. Miller, G.T. (2002). Sustaining the earth, an integrated approach. (5th edition) Books/Cole, Thompson Learning, Inc.
3. Chapman, J.L. and Reiss, M.J. (1999). Ecology: Principles and applications (2<sup>nd</sup> edition) Cambridge University Press.
4. Ghosh, S.K. and Singh, R. (2003). Social forestry and Forest Management. Global Vision Pub.
5. Wilson, E.O. (1986) Biodiversity, Academic press Washington
6. Wagher, R.H. (1974) Environment and Man. (Second Edition), Norton, New York.

## SEMESTER – I (PROGRAM)

**Course Name: Systematics & Diversity of Life - Protists to Chordates**  
**Course Code: BSCPZOOC101**

Course Type: <b>Core</b> <b>(Theory &amp; Practical)</b>	Course Details: <b>CC-1(1)</b>			L-T-P: <b>4-0-4</b>	
Credit: <b>6</b>	Full Marks: <b>100</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		<b>30</b>	<b>10</b>	<b>20</b>	<b>40</b>

### About the course :

The course is a walk for the Bachelor's entrant through the amazing diversity of living forms from simple to complex one. It enlightens how each group of organisms arose and how did they establish themselves in the environment with their special characteristics. It also deals with the differences and similarities between organisms on the basis of their morphology and anatomy which led to their grouping into taxa and clades.

### Learning outcomes :

*After successfully completing this course, the students will be able to :*

- Develop understanding on the diversity of life with regard to protists, non chordates and chordates.
- Group animals on the basis of their morphological characteristics/ structures.
- Develop critical understanding how animals changed from a primitive cell to a collection of simple cells to form a complex body plan.
- Examine the diversity and evolutionary history of a taxon through the construction of a basic phylogenetic/ cladistics tree.
- Understand how morphological change due to change in environment helps drive evolution over a long period of time.
- The project assignment will also give them a flavour of research to find the process involved in studying biodiversity and taxonomy besides improving their writing skills. It will further enable the students to think and interpret individually due to different animal species chosen.

## THEORY

### Unit I: Principles and practice of taxonomy (13 Lectures)

1. Basic idea of Systematics and taxonomy.
2. Binomial Nomenclature and utility of scientific names.
3. Classification: morphological and evolutionary (molecular): Artificial, Natural and phylogenetic concept.
4. Relationship of taxa: phylogenetics and cladistics with special reference to paraphyly, monophyly, apomorphy, plesiomorphy and phenoplasticity.

### Unit II: Diversity in Protists and acoelomate Metazoa (13 Lectures)

1. Structure and diversity in Protists (classification up to Phylum).

2. Origin of Metazoans: diploblastic and triploblastic organization; symmetries; body cavities; protostomes and deuterostomes.
3. Porifera: Characters and classification of up to classes).
4. Cnidarians: Special features; polymorphism and division of labour; coral reef forming cnidarians, types & significance, classification up to classes.
5. Basic characteristics, classification of Platyhelminthes up to classes.

UNIT III: Diversity in pseudocoelomate and coelomate Non chordates (13 Lectures)

1. **Classification of Nematoda up to classes.**
2. **Classification of Arthropoda up to classes.**
3. **Basic organization and diversity** (classification up to classes) **in Annelids.**
4. **Basic organization and diversity** (classification up to classes) **in Molluscs.**
5. **Basic organization and classification (up to classes) of Echinoderms; their affinity to Chordates.**

**Note:** *Classification to be followed from Ruppert and Barnes Invertebrate Zoology VI edition, except for Protozoa (American Association of Protozoologist ref: Levine 1980) and Porifera (Brusca and Brusca 2002; IV edition. Invertebrate Zoology)*

UNIT IV: Diversity in Protochordates and Chordates (13 Lectures)

1. Chordates– Primitive Chordates and their affinities.
2. Characters and affinities of Hemichordates, Urochordates and Cephalochordates.
3. Advent of vertebrates: Cyclostomes, their evolutionary status and affinities.
4. Basic organization and diversity (classification up to sub-classes) of fishes, their evolutionary transitions from Water to Land invasion- Early Tetrapodes.
5. Amphibians diversity (classification up to living orders) and adaptability to dual mode of life.
6. Classification of reptiles up to living orders ; the avian ancestors.
7. Birds : classification up to sub-class, Adaptation from terrestrial to aerial mode of life.
8. Characteristics and classification of mammalian groups (up to orders) with special reference to primates.

**Note:** *Classification from Young, J. Z. (1981) to be followed except for classification fishes. For Pisces classification scheme to be followed from Nelson, J. S. (2006).*

## **PRACTICAL**

1. **Study** of animals through slides and museum specimens/photographs in the laboratory with their classification, biogeography and diagnostic features (**record book**). Animals to be included for the study are as follows:

<b>a. Non-chordates :</b>	<b>b. Chordates :</b>
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i. <b>Protista:</b> <i>Euglena, Amoeba, Paramecium</i> . ii. <b>Porifera:</b> <i>Euspongia, Scypha</i> . iii. <b>Cnidaria:</b> <i>Obelia, Physalia, Porpita, Aurelia, Tubipora, Sea Anemone, Pennatula, Fungia</i> . iv. <b>Platyhelminthes:</b> <i>Fasciola hepatica, Taenia solium</i> . v. <b>Nematoda:</b> <i>Ascaris</i> . vi. <b>Annelida:</b> <i>Aphrodite, Sabella, Chaetopterus, Pheretima</i> . vii. <b>Arthropoda:</b> <i>Carcinoscorpius, Macrobrachium, Balanus, Julus, Periplaneta, Peripatus</i> . viii. <b>Mollusca:</b> <i>Chiton, Pila, Pinctada, Sepia</i> . ix. <b>Echinodermata:</b> <i>Astropecten, Cucumaria and Antedon</i> .	i. <b>Protochordata:</b> <i>Balanoglossus, Branchiostoma, Ascidia</i> . ii. <b>Fishes:</b> <i>Scoliodon, Torpedo, Mystus vitattatus, Catla, Exocoetus, Hippocampus</i> . iii. <b>Amphibia:</b> <i>Ichthyophis, Necturus, Bufo, Rachophorous</i> . iv. <b>Reptiles:</b> <i>Chelone, Calotes, Chamaeleon, Draco, Bungarus, Vipera, Naja</i> . v. <b>Birds:</b> <i>Psittacula, Pycnonotus</i> . vi. <b>Mammals:</b> <i>Sorex, Pteropus, Funambulus</i> .
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2. **Excursion:** Study of animals in nature during a survey of a National Park or Forest area or any local biodiversity rich area.
3. **Collection of five species** or presentation through photographic plates (preferably invertebrates, insects) belonging to a clade. A project report to be submitted based on their generic identification, description and illustration with a note on their locality. Also, the assessment of their relationship by constructing a cladogram using characters and character states.
4. **Comparison** of two species of birds belonging to same genus (Interspecific difference).
5. **Comparison and weighting** of characters of two birds belonging to same family but dissimilar genera.
6. **Group discussion or Seminar presentation** on following topics:

Pool of Topics for Group discussion or Seminar presentation :		
1. Tree of Life.	5. Molecular systematics vs Traditional taxonomy.	8. Coral reefs and their role in ecosystem generation.
2. Polymorphism.	6. Phenoplasticity and its relevance.	9. Molluscs of industrial value.
3. Freshwater sponges.	7. Reliability of taxonomic characters.	10. Molecular system of classification.
4. Parasitic adaptations.		

#### Format for conducting CA and ESE practical examination :

CA (30 marks)	ESE (20 marks)
1. Assessment based on practical topics (class test)- <b>10</b> 2. PPT/Poster preparation, presentation and write up submission-3+4+3= <b>10</b> 3. Attendance and Participation in class- <b>5</b> 4. Practical skills, laboratory reports, etc- <b>5</b>	1. Identification - 4 items (2 non-chordate, 2 chordate)- [Sc. Name, systematic position (3 taxa), generic characters, habit & habitat, 0.5+0.5+1+0.5=2.5 ( <b>2.5x4=10</b> ) 2. Cladogram construction based on provided data (Item no 3) - <b>3</b> 3. Field Report (Item no 2) - <b>3</b> 3. LNB (Laboratory Note Book) - <b>2</b> 4. Viva - <b>2</b>
<b>NOTE :</b> <ul style="list-style-type: none"> <li>CA can be done multiple times even by more than one teacher. An average will be taken for marks capturing.</li> <li>Study of specimen should include-Scientific name, common name, Taxa as per theory syllabus, Habit (Nutritional, ecological, Reproductive, special habit if any) and Habitat (Distribution, endemic / cosmopolitan/sporadic, climatic type), Conservation status (if available), Generic character only, economic importance (if any).</li> <li>LNB should be prepared (item 1 &amp; 3) in inter-leaf practical note book with date &amp; Teacher's sign.</li> <li>Album should be prepared on item 4 &amp; 5.</li> <li>Project report (Presentation mandatory), Field report, Write-up, etc to be prepared separately.</li> <li>A maximum of 4 students can present same topic of GD/seminar presentation, as a group or solo.</li> </ul>	

#### Recommended readings :

1. Ruppert and Barnes, R.D. (2006). Invertebrate Zoology, VII Edition. Thompson Brooks Cole (International Edition)
2. Barnes, R.S.K., Callow, P., Olive, P. J. W., Golding, D.W. and Spicer, J.I. (2002). The Invertebrates: A New Synthesis, III Edition, Blackwell Science
3. Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition.
4. Young, J. Z. (1981). The Life of Vertebrates. III Edition. Oxford university press.
5. Pough H. Vertebrate life, VIII Edition, Pearson International.
6. Darlington P.J. The Geographical Distribution of Animals, R.E. Krieger Pub Co.
7. Hall B.K. and Hallgrimsson B. (2008), Strickberger's Evolution. 4<sup>th</sup> Edition. Jones and Bartlett Publishers Inc.
8. Nelson, J. S. (2006). Fishes of the World, Wiley.
9. Lomolino, M. V. et al (2010) Biogeography, 4<sup>th</sup> Edition, Sinauer Associates.
10. Verma, A (2017) Principles of animal taxonomy, 1<sup>st</sup> Ed, Narosa.

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**Course Name: Public Health and Hygiene**  
**Course Code: BSCPZOOSE501**

Course Type: <b>SE</b> <b>(Theory)</b>	Course Details: <b>SEC-3</b>			L-T-P: <b>4-0-0</b>	
Credit: 4	Full Marks: <b>50</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		-	<b>10</b>	-	<b>40</b>

**About the course :**

The course designed for public health and hygiene at graduation level will give understanding for health hygiene, dietary issues, diseases related to malnutrition, communicable and non-communicable diseases.

**Learning outcomes :**

*After successfully completing this course, the students will be able to:*

- Identify current national and global public health problems.
- Aware about the issues of food safety, water safety, vaccination, exercise and obesity, exposure to toxins.
- Frame a public health plan during any epidemic or spread of infectious disease etc.
- Analyze case studies of infant mortality and obesity.
- Assess the health inequalities with regard to gender, race, ethnicity, income etc.

**THEORY**

**Unit-I: Maintenance of personal and community hygiene (13 Lectures)**

7. Introduction to public health and hygiene- determinants and factors.
8. Pollution and health hazards; water and air borne diseases.
9. Radiation hazards: Mobile Cell tower and electronic gadgets (recommended levels, effects and precaution).
10. Role of health education in environment improvement and prevention of diseases.
11. Personal hygiene, oral hygiene and sex hygiene.
12. Importance and maintenance Community Hygiene.

**Unit-II: Nutrient deficiency diseases (13 Lectures)**

7. Classification of food into micro and macro nutrients.
8. Balanced diet, dietary plan for an infant, normal adult, pregnant woman and old person.
9. Importance of dietary fibres.
10. Significance of breast feeding.

11. Malnutrition anomalies – Anaemia (Iron and B12 deficiency), Kwashiorkor, Marasmus, Rickets, Goiter (cause, symptoms, precaution and cure).
12. Substitution of diet with required nutrients to prevent malnutrition disorders.

### **Unit-III: Communicable and contagious diseases**

**(13 Lectures)**

6. Infectious agents responsible for diseases in humans.
7. Communicable viral diseases (causative agent, symptoms, precaution and remedy)- measles, chicken pox, poliomyelitis, swine flu, dengue, chikungunya, rabies, leprosy and hepatitis.
8. Communicable bacterial diseases (causative agent, symptoms, precaution and remedy)- tuberculosis, typhoid, cholera, tetanus, plague, whooping cough, diphtheria, leprosy.
9. sexually transmitted diseases (causative agent, symptoms, precaution and remedy)- AIDS, syphilis and gonorrhoea.
10. Health education and preventive measures for communicable diseases.

### **Unit-IV: Non-communicable diseases and cure**

**(13 Lectures)**

6. Non-communicable diseases such as hypertension, stroke, coronary heart disease, myocardial infarction. Osteoporosis, osteoarthritis and rheumatoid arthritis-cause, symptom, precautions.
7. Diabetes- types and their effect on human health.
8. Gastrointestinal disorders- acidity, peptic ulcer, constipation, piles (cause, symptoms, precaution and remedy) etc. Obesity (Definition and consequences).
9. Mental illness (depression and anxiety).
10. Oral and lung cancer and their preventive measures.

#### ***Recommended readings :***

1. Mary Jane Schneider (2011) Introduction to Public Health.
2. Muthu, V.K. (2014) A Short Book of Public Health.
3. Detels, R. (2017) Oxford Textbook of Public Health (6th edition).
4. Gibney, M.J. (2013) Public Health Nutrition.
5. Wong, K.V. (2017) Nutrition, Health and Disease.

## **SEMESTER-VI (PROGRAM)**

**Course Name: Introduction to Wild Life Conservation and Management**

**Course Code: BSCPZOODSE601**

Course Type: <b>DSE</b> <b>(Theory &amp; Practical)</b>	Course Details: <b>DSEC-1(2)</b>			L-T-P: <b>4-0-4</b>	
Credit: <b>6</b>	Full Marks: <b>100</b>	CA Marks		ESE Marks	
		Practical	Theoretical	Practical	Theoretical
		<b>30</b>	<b>10</b>	<b>20</b>	<b>40</b>

**About the course :**



The course is an introduction to wildlife management and gives an account of the tools used by wildlife managers. Topics covered are to equip students with adequate knowledge of various biodiversity monitoring methodologies, conservation and management issues of vertebrate pests, wildlife conflict and over abundant species, wildlife health and diseases.

### **Learning outcomes :**

*After successfully completing this course, the students will be able to:*

- Develop an understanding of how animals interact with each other and their natural environment.
- Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.
- Develop the ability to work collaboratively on team-based projects.
- Demonstrate proficiency in the writing, speaking, and critical thinking skills needed to become a wildlife technician.
- Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.
- Develop an ability to analyze, present and interpret wildlife conservation management information.

## **THEORY**

### **Unit-I: Value of wildlife and need for its conservation**

**(15 Lectures)**

1. Definition, value and importance of wildlife;
2. Wildlife conservation, ethics and importance of conservation;
3. Ecosystem interaction, animal distribution in biome
4. Causes of depletion of wildlife w. r. t. extinction of animals;
5. Types of protected areas and the concept of zoning within the protected areas;
6. Wildlife Sanctuaries and National Parks in India: general strategies (policy) and issues;
7. Animal movement, concept of home range and territory;
8. Tracking movement by remote sensing and GIS.

### **Unit-II: Population dynamics**

**(11 Lectures)**

9. Impact of topography, geology, soil and water on wildlife population.
10. Impact of habitat destruction and fragmentation on wildlife population.
11. Biological parameters such as food, cover, forage and their impact on wild life population.
12. Population attributes; concepts of exponential and logistic growth rates of wildlife.
13. Density dependent and independent population regulation.
14. Impact of introduced species on preexisting flora and fauna of wildlife.
15. Identification and estimation of wild animals by fecal sample analysis, hair identification, pug marks and census methods.

### **Unit-III: Wildlife Conservation**

**(13 Lectures)**

8. Wildlife conservation objectives- strategies and issues [Poaching, Forest fire, Mining, Hunting and illegal trading, Tourism, Wild life corridor, marine pollution]
9. Captive breeding techniques and translocation and reintroduction.
10. Inviolate area and critical habitats and their impact on wildlife.
11. Different terrestrial habitats of wildlife in India.
12. Restoration of degraded habitat.
13. Damage caused by wildlife in India and its mitigation.

14. Sick animal refuges in protected areas.

#### Unit-IV: Rehabilitation and management

(13 Lectures)

7. Types of wildlife management-manipulative, custodial management of over abundant wild animal populations causing damages to nearby inhabitants and their crops and animals.
8. Use of Tools (Compass, Binoculars, Spotting scope, Range Finders, Drone, radio collar, Camera trap) and techniques to control the menace of wild animals.
9. Ma-wildlife conflict resolution and mitigation.
10. Management of exotic and invasive wetland species in India.
11. Habitat manipulation– control and regulation of grazing, Weed eradication.
12. Major diseases of domestic and wild animals and their control and impact of wild life tourism.

### PRACTICAL

5. Identification, ecotype with conservation status and preparation of colour album of flora (*Ginkgo biloba*, Red sandalwood), mammalian fauna (Himalayan musk deer, Gangetic dolphin, Golden langur, Pangolin, Fishing cat), avian fauna (Great Indian bustard, Pink headed duck), herpeto-fauna (Gharial, Rock python, King cobra, Indian star tortoise).
6. Demonstration of basic equipment needed in wildlife studies use, care and maintenance (Compass, Binoculars, Spotting scope, Range Finders, Global Positioning System, Various types of Cameras and lenses).
7. Familiarization and study by photographic plate of animal evidences in the field; Identification of animals through pug marks, hoof marks, scats, pellet groups, nest, antlers etc.
8. Demonstration of different field techniques (wild life census: Jolly-Seber method) for flora and fauna.
4. Determination of population density in a natural/ hypothetical community by quadrat method and calculation of Sorenson's Similarity & Shannon-Weiner diversity indices for the same community
5. Visit to Forest/ Wild life Sanctuary/Biodiversity Park/Zoological Park to study behavioural activities of animals and prepare a short report.

6. **Group discussion or Seminar presentation** on a related topics given below:

Pool of Topics for Group discussion or Seminar presentation :		
13. Project Tiger	14. Rhino vision in India	15. Crocodile conservation
16. Elephant project	17. Green corridor	18. Red data book
19. Ecotourism	20. GIS-Remote sensing & GPS	21. Wild life protection act
22. Invasive species	23. Man-wildlife conflict	24. Wetland management

**Format for conducting CA and ESE practical examination :**

CA (30 marks)	ESE (20 marks)
<ol style="list-style-type: none"><li>1. Assessment based on practical topics (class test)-<b>10</b></li><li>2. PPT/Poster preparation, presentation and write up submission-3+4+3=<b>10</b></li><li>3. Attendance and Participation in class-<b>5</b></li><li>4. Practical skills, laboratory reports, etc-<b>5</b></li></ol>	<ol style="list-style-type: none"><li>1. Estimation of Species abundance/richness from provided data (Sl no 7)-principle-1, result &amp; discussion-3 (4)</li><li>2. Identification (Sl no 1)- Naming-0.5, conservation status-0.5, Ecotype-1, character-1 (3x2=6)</li><li>3. Spotting (Sl no 3)- Naming-0.5, importance-0.5 (1x3=3)</li><li>4. LNB &amp; Field visit report -2+3=5</li><li>5. VIVA-2</li></ol>
<b>NOTE :</b> <ul style="list-style-type: none"><li>• CA can be done multiple times even by more than one teacher. An average will be taken for marks capturing.</li><li>• LNB should be prepared in inter-leaf practical note book with date &amp; Teacher's sign.</li><li>• Project report (Presentation mandatory), Field report, Write-up, etc to be prepared separately.</li><li>• A maximum of 4 students can present same topic of GD/seminar presentation, as a group or solo.</li></ul>	

**Recommended 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<sup>th</sup> Ed) 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.
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