



दिल्ली विश्वविद्यालय
University of Delhi



VALUE ADDITION COURSES : 2022-23

UNIVERSITY OF DELHI

VALUE ADDITION COURSES

**Ethical, Cultural
& Constitutional
Values**

Critical Thinking

**Indian
Knowledge
Systems**

**Scientific
Temperament**

**Creative
Writing,
Communication
and
Presentation
Skills**

**Physical
Education,
Sports
& Teamwork**

Value Addition Courses List

S.No	COURSE TITLE	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course	Remarks
			Lecture	Tutorial	Practical			
1.	Gandhi and Education	2	1	0	1	Pass in Class 12 th	NIL	5-6
2.	NCC - I	2	1	0	1	Pass in Class 12 th	Enrolled as NCC Cadet	7-9
3.	Sports for Life - I	2	0	0	2	Pass in Class 12 th	NIL	10-12
4.	Art of Being Happy	2	1	0	1	Pass in Class 12 th	NIL	13-15
5.	Vedic Mathematics - I	2	1	0	1	Pass in Class 12 th	NIL	16-18
6.	Emotional Intelligence	2	1	0	1	Pass in Class 12 th	NIL	19-21
7.	Digital Empowerment	2	1	0	1	Pass in Class 12 th	NIL	22-24
8.	Yoga: Philosophy and Practice	2	1	0	1	Pass in Class 12 th	NIL	25-27
9.	Swachh Bharat	2	1	0	1	Pass in Class 12 th	NIL	28-30
10.	Ethics and Culture	2	1	0	1	Pass in Class 12 th	NIL	31-37
11.	Ayurveda and Nutrition	2	1	0	1	Pass in Class 12 th	NIL	38-40
12.	Social and Emotional Learning	2	1	0	1	Pass in Class 12 th	NIL	41-55
13.	Science and Society	2	1	0	1	Pass in Class 12 th	NIL	56-63
14.	Panchakosha : Holistic Development of Personality	2	1	0	1	Pass in Class 12 th	NIL	64-66
15.	Ethics and Values in Ancient Indian Traditions	2	1	0	1	Pass in Class 12 th	NIL	67-69

16.	सृजनात्मक लेखन के आयाम (Srijnatmak Lekhan Ke Ayam)	2	1	0	1	Pass in Class 12 th	NIL	70-72
17.	साहित्य, संस्कृति और सिनेमा (Sahitya, Sanskriti aur Cinema)	2	1	0	1	Pass in Class 12 th	NIL	73-75
18.	भारतीय भक्ति परंपरा और मानव मूल्य	2	1	0	1	Pass in Class 12 th	NIL	76-78
19.	Fit India	2	0	0	2	Pass in Class 12 th	NIL	79-81
20.	Financial Literacy	2	1	0	1	Pass in Class 12 th	NIL	82-83
21.	Culture & Communication	2	1	0	1	Pass in Class 12 th	NIL	84-86
22.	Ecology and Literature	2	1	0	1	Pass in Class 12 th	NIL	87-89
23.	Reading Indian Fiction in English	2	1	0	1	Pass in Class 12 th	NIL	90-92
24.	Constitutional Values and Fundamental Duties	2	1	0	1	Pass in Class 12 th	NIL	93-94

Value Addition Course

Digital Empowerment

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Digital Empowerment	02	1	0	1	Pass in Class 12th	NIL

COURSE OBJECTIVES:

- Understand the digital world and need for digital empowerment
- Create awareness about Digital India.
- Explore, communicate and collaborate in cyberspace.
- Building awareness on cybersafety and security.

LEARNING OUTCOMES:

- Use ICT and digital services in daily life.
- Develop skills to communicate and collaborate in cyberspace using social platforms, teaching/learning tools.
- Understand the significance of security and privacy in the digital world.
- Evaluate ethical issues in the cyber world.

Syllabus of <i>Digital Empowerment</i>	Lecture Hours
Unit I: Digital inclusion and Digital Empowerment	5
<ul style="list-style-type: none">• Needs and challenges• Vision of Digital India: DigiLocker, E-Hospitals, e-Pathshala, BHIM, e-Kranti (Electronic Delivery of Services), e-Health Campaigns• Public utility portals of Govt. of India such as RTI, Health, Finance, Income Tax filing, Education	
Unit II: Communication and Collaboration in the Cyberspace	4

<ul style="list-style-type: none"> • Electronic Communication: electronic mail, blogs, social media • Collaborative Digital platforms • Tools/platforms for online learning • Collaboration using file sharing, messaging, video conferencing 	
Unit III: Towards Safe and Secure Cyberspace	4
<ul style="list-style-type: none"> • Online security and privacy • Threats in the digital world: Data breach and Cyber Attacks • Blockchain Technology • Security Initiatives by the Govt of India 	
Unit IV: Ethical Issues in Digital World	2
<ul style="list-style-type: none"> • Netiquettes • Ethics in digital communication • Ethics in Cyberspace 	

Note: Concepts are to be taken up during the practical/practice hours.

Practical/ Practice Component (15 sessions of 2 hours each= 30 hours)

The course should be conducted in an interactive mode through demonstration, using appropriate tools.

- Conduct workshops on e-services initiated under Digital India.
- Spread digital literacy/awareness amongst the vulnerable groups and marginalised sections of the society like street vendors, domestic help, security guards, senior citizens.
- Students will take up team activities/ projects exploring digital services in the areas such as education, health, planning, farming, security, cyber security, financial inclusion, and justice, e-Kranti.
- Any other Practical/Practice as decided from time to time

Essential Readings /Online Resources

1. Rodney Jones and Christoph Hafner. "Understanding digital literacies: A practical Introduction". Routledge Books, 2nd edition, 2021.
2. <https://www.digitalindia.gov.in>
3. <https://www.digilocker.gov.in>
4. <https://www.cybercrime.gov.in>
5. <https://www.cybersafeindia.in>
6. <https://www.meity.gov.in/cyber-surakshit-bharat-programme>

Suggested Readings:

1. David Sutton. “Cyber security: A practitioner's guide”, BCS Learning & Development Limited, UK, 2017.
2. <https://www.mha.gov.in/document/downloads/cyber-safety-handbook>

Assessment Methods*

Internal Assessment: 25%

End Semester Theory Exam: 25%

Practical: 50%

*Subject to directions from the Examination Branch/University of Delhi from time to time

Value Addition Course

Swachh Bharat

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Swachh Bharat	02	1	0	1	Pass in Class 12th	NIL

COURSE OBJECTIVES:

- To understand the developmental challenges with reference to sanitation infrastructure and practices.
- To build values of cleanliness, hygiene and waste management in diverse socio-economic contexts.
- To understand planning of social policy and programmes.
- To use waste management techniques at community level.
- To instill a sense of service towards society and the Nation.

LEARNING OUTCOMES:

- Understanding the significance of the *Swachh Bharat Abhiyan*.
- Ability to analyse and predict the sanitation challenges of India
- Determine the link between sanitation and development.
- Contribute to the Swachh Bharat Abhiyan through real time projects/fieldwork.

Syllabus of *Swachh Bharat*

Unit I: Introduction to Swachh Bharat Abhiyan	Lectures 4
<ul style="list-style-type: none"> • Gandhian philosophy of Cleanliness • Swachh Bharat Abhiyan (SBA) • Hygiene, Sanitation & Sustainable Waste Management • Agencies and nodal Ministries for SBA • Different phases of the SBA and its evaluation • Citizens' Responsibilities: Role of <i>Swacchagrahi</i> 	
Unit II: Swachh Bharat: Rural and Urban Facets	8
<ul style="list-style-type: none"> • Indicators for Swachh Bharat • Rural <ul style="list-style-type: none"> ❖ Sanitation coverage across households (2014 vs. 2022) ❖ Open Defecation Free (ODF) Villages: Parameters ❖ ODF plus model: Key indicators • Urban <ul style="list-style-type: none"> ❖ Sustainable sanitation ❖ Waste/water and solid waste management ❖ Garbage Free Cities 	
Unit III: Prospects and Challenges	3
<ul style="list-style-type: none"> • Attitudes and Perceptions • Operational and Financial issues • Monitoring & Supervision • Community Mobilization 	

Note: Some of the theoretical components will be dealt with during the practical/practice hours.

Practical/ Practice Component (15 sessions of 2 hours each= 30 hours)

Suggested Activities: List of activities to be undertaken:

- Identify plastic and e-waste in and around the institution and suggest innovative technologies to minimize wastage.
- Identify events/fests that generate maximum waste and ways to minimize it.
- Visit canteen/shops and track the lifecycle of wet/dry waste in and around the institution and document the findings in the form of a Project Report.
- Conduct interviews of stakeholders to understand the level of awareness.
- Conduct a Clean Audit of the Institution and identify areas for action.
- Conduct cleanliness drives

- Organise Swachhata Pakhwada meetings, rallies, and mobilization camps within the identified communities.
- Students may participate in the Swachh Bharat Internship programme.
- If required, students can share their experiences in the form of a Project Report.
- Any other Practical/Practice as decided from time to time

Essential Readings

- "Swachh Bharat Mission - Gramin, Department of Drinking Water and Sanitation, Ministry of Jal Shakti"
- India 2021, Ministry of Information & Broadcasting
- <http://swachhbharatmission.gov.in/SBMCMS/swachhta-pakhwada.htm>
- <https://swachhbharatmission.gov.in/SBMCMS/about-us.htm>
- https://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/ODF_verification_checklist.pdf
- <https://sbm.gov.in/phase2dashboard/PhaseII/NationDashboard.aspx>
- <https://www.niti.gov.in/sites/default/files/2019-08/Report%20of%20Sub-Group%20of%20Chief%20Ministers%20on%20Swachh%20Bharat%20Anhiyaan.pdf>

Suggested Readings

- <https://swachhbharatmission.gov.in/SBMCMS/writereaddata/Portal/Images/pdf/brochure/Greywatermanagement.pdf>
- https://swachhbharatmission.gov.in/SBMCMS/writereaddata/Portal/Images/pdf/brochure/PWMB5_28th_June.pdf
- GoI (2020). Swachh Bharat Mission (Grameen) Phase 2: Operational guidelines. Department of Drinking Water and Sanitation, Ministry of Jalshakti.
- MoHUA (2017). Guidelines for Swachh Bharat Mission - Urban (PDF). Ministry of Housing and Urban Affairs, Government of India.

Assessment Methods*

Internal Assessment: 25%

End Semester Theory Exam: 25%

Practical: 50%

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Value Addition Course

Ethics and Culture

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Ethics and Culture	02	1	0	1	Pass in Class 12th	NIL

Course Objectives

- The course aims to help students explore ethical and cultural dimensions of their lives.
- The course provides a forum for students to pause, revisit their assumptions and beliefs, and become mindful of their thoughts, emotions and actions.
- It gives the students an opportunity to express themselves and inquire into their decision making processes. This will enable them to cultivate ethical values and participate in the creation of a society based on acceptance, compassion, and justice.

Learning Outcomes

- Explore perspectives on ethics in thoughts, words and actions
- Evolve ethical decision making practises
- Understand the need for an ethical society and culture
- Introspect, become conscious of and assess one's stance in life
- Cultivate empathy, tolerance and compassion
- Apply the values learnt in the course to everyday life.

Syllabus of *Ethics and Culture*

Unit I: Introduction The Basis of Ethics	Lectures
<ul style="list-style-type: none">• Getting to Know Each Other• What to Expect from the Course?• Recognition of Our Common Humanity• Empathy, Compassion and Justice	3
Unit II: The Role of Intelligence, Reason and Emotions	

<ul style="list-style-type: none"> • Discernment: What Is The Right Thing To Do? • The Art of Conflict Resolution • Destructive and Constructive Emotions • The Need for Emotional Balance 	4
Unit III: Cultivating Inner Values Ethics in the World of Work and Play	
<ul style="list-style-type: none"> • Training the Mind: Mindfulness and Kindness • Meditation • Discovering your Vocation and Interests • Self-discipline, Integrity, Commitment, Creativity • Work-Life Balance 	4
Unit IV: Striving for a Better World Outreach Activities	
<ul style="list-style-type: none"> • Means and Ends • Debate and Dialogue • Culture as Shared Values • Creating and Sustaining Ethical Cultures: The Role of Philosophy, Religion, Literature, Theatre, Cinema, Music, Media • Outreach Activities 	4

Practical/ Practice Component

(15 sessions of 2 hours each= 30 hours)

Unit 1

1. The teacher may ask students to introduce themselves, sharing their regional and cultural roots. They may be asked to reflect on those aspects of their identities that reflect their cultural roots.
2. After a round of initial introduction, the teacher may ask students to list down a set of values that they think they have developed through their parents and grandparents. Are these values unique to their families, regional and/or ethnic backgrounds? Of these, which are the values they would like to sustain and which are the ones they would wish to modify?
3. The teacher may draw upon the values discussed by students in the previous lesson. Using these as the base, the teacher may ask students to think of ethical values that form the basis of their decisions.
4. The teacher may ask students to think of people who they think have lived an ‘ethical life’. These may be people who they know from their personal lives or people known for upholding ethical values in the face of adversity.

5. Students are encouraged to identify what are common human values necessary to realise shared common humanity—the feeling of interconnectedness/interdependence.
6. Class to be divided in small groups to discuss how each would make an effort to cultivate new morals/ethical values for betterment of their local environment.
7. Celebrating ‘Sharing and Caring’ based on regional diversity can be encouraged.
8. Engage students to do activities of ‘being in the shoes of others’ (peers, parents, siblings, house help/support or in any local community grappling with problems) to understand the problems empathetically.
9. The students can be asked to make bookmarks/cards to remind them about virtues pertaining to empathy versus sympathy, need versus greed, just versus unjust or compassion versus insensitivity.
10. Compassion is about cultivation of it as a daily value so students can in small groups undertake compassion based activities of looking after animals, birds, needy, elderly, differently abled, non-privileged etc. and share their thoughts in the class.

Unit 2

1. Make the student think of a hard decision they have made. What made it hard? How did you make the decision? How do you assess it retrospectively?
2. Encourage students to think of judgements and decisions based on the dilemmas and challenges they faced? How do they go about making these decisions?
3. The teacher may introduce any well known story and ask the students to discuss the story from the point of view of the different characters.
4. Ask students how willing they are to deal with a conflict when it occurs. What strategies do they adopt to resolve the conflict?
5. The teacher may ask students to prepare posters with captions like “avoidance”, “competition”, “cooperation” and “adaptation” and then may ask students to identify with one of these styles which according to them best represents their style of dealing with conflict.
6. The students may be asked to discuss different such similar situations that they may have encountered and a discussion may be initiated on how they resolve those conflicts.

7. The students can be asked to write down certain destructive emotions that they are experiencing presently. How would they work to make them constructive? A classroom discussion could follow around this.
8. Ask the students to note down a list of constructive emotions experienced by them recently. Were the constructive emotions less powerful as compared to the destructive ones experienced by them? Discussion in class can follow.
9. How do you (i) express, (ii) handle anger/ disgust/ distress/ fear (any destructive emotion can be taken up). A healthy discussion in the class can take place around this.
10. Students may be asked to practice a simple breathing exercise. They can sit straight with eyes opened or closed in a comfortable position to just observe their breathing. They can repeat this exercise six to eight times and share (if they like) their experience of silence.
11. To identify your interests and develop a meaningful hobby.
12. Have an open conversation in the class about happiness.

Unit 3

1. The students could observe various emotions that bottle-up in their minds and be asked to watch the flow of emotions non-judgmentally.
2. Students may be asked to recall their journey to the college that morning. Do they remember road signs, faces of people they crossed, the roads that they took, the people they interacted with, the sights and smells around them, or anything else?
3. Students could be asked to cultivate the habit of simple greeting as practice of gratitude and celebrate a day of joyful giving.
4. The students can close their eyes for 2-3 minutes and be asked to observe their thoughts, list them and categorise them into 'to be kept' or 'to let go'.
5. The teacher may ask students to close their eyes and imagine a situation in which they are truly happy. Students could wish for the well-being of two students in the same classroom in their meditative state.
6. Students could meditate on who has been their inspiration and the qualities of the person who has inspired them and then express gratitude to the person concerned.
7. The teacher may ask the students to think retrospectively about what they thought they would take up as a vocation when they were younger. How and why their choices were influenced and changed, if at all.

8. The teacher may ask the students to imagine and chart a journey and destination for themselves. They may also talk about the challenges they foresee.
9. The teacher may encourage the students to maintain a daily diary of their scheduling of time or a worklog and see how much time they effectively give to their work. The teacher may help the students identify the distractors and where one may be 'wasting' time and energy. The activity is designed to help students understand the value of effective time utilisation.
10. In this lesson, the teacher may ask the students to draw up a list of team ethics. They may build this based on their experiences of working with each other in groups.
11. The teacher may ask the students to share an incident each where they felt pressurised/bored to complete some work. How did they deal with their stress and monotony of work?

Unit 4

1. Students will be asked to work in pairs and develop situations that pose ethical dilemmas and how to resolve them.
2. Students may be asked to look at a film or at an advertisement and discuss what they think about the question/s posed in them. The teacher may ask them if they can think of an alternative ethical approach to the problem posed.
3. Students will be asked to think of situations in which they lost their temper. Have they ever felt that in a fit of emotion they said something that they regretted later? If they had paused to listen and then respond, what would the other person have said? How would the outcome of the situation have been different?
4. A debate on any relevant topic may be conducted in the class. After the first round the students may be asked to adopt and argue their opponents point of view. At the end of this exercise the students can have an open discussion on which position finally appealed to them.
5. The teacher may give a short story to the students and ask them to change the ending. They may be asked to observe how characters and their views may have undergone change in the process.
6. There can be a discussion around a topic such as, the idea of corporal punishment, euthanasia etc. Students can be given a sheet of paper and can be asked to write for or against the theme. The idea is to enable them to understand that the positions they have taken vis-a-vis the theme are a result of different value orientations.

7. Popular foods from many parts of India can be discussed. Their origins can be traced to chart a kind of food history.
8. The teacher on the basis of discussions with students can draw from Philosophy, Religion, Literature, Theatre, Cinema, and Media to highlight that the choices people/characters make are grounded in their culture.
9. The students can discuss classical/folk dances that are performed in their respective groups. Details can be drawn based on the number of dancers, music (live or recorded) and costumes. 3. The role of oral traditions and literature in indicating the importance of ethics in our everyday lives can be discussed.

Suggested Activities for Outreach: Social/ Community Engagement and Service

In the weeks that follow, students will be expected to engage in outreach activities that shall enable them to put into practice some of the ethical considerations deliberated upon and imbibed in the previous modules. A list of suggested outreach activities is as follows:

- Adopt a village with the aim of cultural and ethical learning
 - Discussing health and hygiene issues in a community
 - Tutoring students
 - Gender sensitisation
 - Working on environmental issues
 - Working with Child Care Centres such as Anganwadis and Balwadis
 - Working with differently abled students
 - Preserving cultural and heritage sites
 - Spending time with senior citizens including in a Senior Citizens Home
 - Extending care to animals in animal welfare shelters
 - Addressing issues relating to Reproductive Health
 - Spreading awareness about adolescent health
 - Addressing issues relating to mental health
 - Health and nutrition awareness
 - Swacchata Abhiyaan
 - Sensitisation towards disease awareness
 - Vriksharopan
- If required, students can share their experiences in the form of a Project Report.

- Any other Practical/Practice as decided from time to time

Suggested Readings:

- Aristotle. *Nichomachean Ethics*. London: Penguin Classics, 2004
- Swami Vivekananda. *The Complete Works of Swami Vivekananda*. Advaita Ashrama, 2016.
---https://www.ramakrishnavivekananda.info/vivekananda/complete_works.html
- Panch Parmeshwar in English translation as The Holy Panchayat by Munshi Premchand
- The Silas Marner by George Eliot
- We are Seven by Wordsworth
- The Chimney Sweeper by William Blake

Assessment Methods*

Internal Assessment: 25%
End Semester Theory Exam: 25%
Practical: 50%

*Subject to directions from the Examination Branch/University of Delhi from time to time

Value Addition Course

Science and Society

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Science and Society	02	1	0	1	Pass in Class 12th	NIL

Course Objectives and Learning Outcomes:

This paper is interdisciplinary in nature and would provide students with basic exposure to scientific methods, technologies and developments that have played a significant role in the evolution of human society from ancient to modern times. The primary objective of this course is to instill in students an appreciation for science and a scientific outlook and temper. The course further aims to increase awareness about fundamental scientific concepts that play an important role in our daily life using various examples and case studies. Students would also be made aware of the scientific rationale of technological developments that would enable them to make informed decisions about their potential impact on society.

Pedagogy:

- Pedagogy in this course should largely rely on learning by enquiry, observations, experimentation and group discussions using case studies/examples.
- Efforts should be made to instill an interest in students for science. Students should be encouraged to understand and appreciate scientific concepts and their applications rather than solely memorizing factual information.
- The faculty may refer to books/ articles/ reviews/ documentaries/ films etc. from academic institutions or other reliable sources. A few suggestive links are provided in the Suggested Reading/Resources Section below.
- In the spirit of exposition of popular science, Subject/Domain experts may also be invited for lectures and interactions with students.

Course Outline:

The course is divided into three major sections:

1. **Science and Technology – from Ancient to Modern Times**
 2. **Scientific Principles and Concepts in Daily Life**
 3. **Contemporary Developments**
1. **Science and Technology – from Ancient to Modern Times**
 - (i) Philosophy of science, the scientific method, importance of observation, questions and experimental design, rational thinking, myths vs. facts

(ii) Science, Technology and Traditional Practices: Suggestive areas include:

- Water harvesting structures and practices
- Construction, architecture and design – use of natural environment-friendly designs and materials
- Agriculture including domestication of plants and animals

- (iii) Science and Technology in Modern Times: Suggestive areas include:
- Public Health: Nutrition, Hygiene, Physical and Mental Health, Vaccines and Antibiotics, Anti-microbial resistance
 - Food Security: Green Revolution, White Revolution
 - IT Revolution, eGovernance
 - Clean Energy, Renewable Energy
 - Space Science and Exploration
 - Evolution, Ecology and Environment

In this section, students should also be made aware about the contributions of Indian scientists since ancient times and the contributions of women in science.

2. Scientific Principles and Concepts in Daily Life

This section aims to encourage appreciation of the scientific method through observation, experimentation, analysis and discussions. Students are required to participate in activities and experiments. A suggestive list is given below:

Suggested Activities:

- Observing and documenting flora and fauna of College campus/city.
- Visits to science laboratories in the College or neighbouring College/Institute.
- Visits to science museums, planetarium.
- Visits to biodiversity parks and nature walks.
- Participation in a citizen science project/initiative.

Suggested Experiments:

- Measuring the height of the college building using a stick.
- Measuring the curvature of earth, using distance and shadow length.
- Isolation of DNA (DNA Spooling)
- Observing transpiration and photosynthesis in plants
- The blood typing game (online)
- Are fruit juices, soap, carbonated drinks acidic or alkaline? (using pH strips or developing your own Litmus Test)
- Do plants learn and remember?
- Experiments on how migratory birds find their way. (Online)
- How can a mosquito sit on a water surface or a blade float on water?
- How does a submarine dip or rise in the ocean?
- How and why does the path of the sun in the sky change with the seasons?
- Identification of celestial objects with the naked eye
- Types of clouds
- Science of musical sounds
- Science of splitting of colours from white light: rainbow, CD-rom, prism, oil films.
- Lenses, mirrors and the human eye

3. Contemporary Developments:

This section would focus on current topics of major interest. Suggestive areas include:

- Climate change and global warming
 - Threats to biodiversity and habitat degradation
 - Genomics and modern medicine
 - Genetically engineered crops
 - Artificial intelligence and robotics
 - Big Data Analytics
 - Citizen science and science communication
 - Science of natural disasters and their management
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- Any other Practical/Practice as decided from time to time

Suggested Books / Resources:

The list given below comprises only suggestive references. Faculty members conducting this course are encouraged to explore and use other resources subject to the condition that these are updated, authentic and are derived from sources with strong academic credentials or expertise and are supported by strong evidence.

Suggested Books:

- Basu and Khan (2001). Marching Ahead with Science. National Book Trust
- Gopalakrishnan (2006). Inventors who Revolutionised our Lives. National Book Trust
- Yash Pal and Rahul Pal (2013) Random Curiosity. National Book Trust
- Hakob Barseghyan, Nicholas Overgaard, and Gregory Rupik (****) Introduction to History and Philosophy of Science (licensed under a Creative Commons Attribution 4.0 International License)
- John Avery (2005). Science and Society, 2nd Edition,
- Dharampal (2000). Indian Science and Technology in the Eighteenth Century,

Suggested Online Resources:

Section 1:

(i) Philosophy of science:

<https://blogs.scientificamerican.com/doing-good-science/what-is-philosophy-of-science-and-should-scientists-care/>

http://abyss.uoregon.edu/~js/21st_century_science/lectures/lec01.html

https://wps.ablongman.com/wps/media/objects/1449/1483820/18_2.pdf

Myths vs. facts:

<https://www.sciencelearn.org.nz/resources/415-myths-of-the-nature-of-science>

History of technology:

<https://www.visualcapitalist.com/history-of-technology-earliest-tools-modern-age/>

Water harvesting:

<https://worldwaterreserve.com/introduction-to-rainwater-harvesting/>

Public Health :

[https://www.ajpmonline.org/article/S0749-3797\(11\)00514-9/fulltext](https://www.ajpmonline.org/article/S0749-3797(11)00514-9/fulltext)

<https://study.com/academy/lesson/public-health-vs-medicine-differences-similarities.html>

<https://www.deepc.org.in/video-tutorials/public-health-workshop>

Food Security:

<https://www.concern.net/news/what-food-security>

IT Revolution, eGovernance:

Energy:

<https://www.nrdc.org/stories/renewable-energy-clean-facts>

Space Science:

<https://www.isro.gov.in/spacecraft/space-science-exploration>

<https://www.isro.gov.in/pslv-c11-chandrayaan-1>

<https://www.isro.gov.in/chandrayaan2-home-0>

<https://www.britannica.com/science/space-exploration>

Contribution of Indian Scientists & Women Scientists:

<https://www.tifr.res.in/~outreach/biographies/scientists.pdf>

<https://indiabioscience.org/media/articles/ISTI.pdf>

<https://www.thebetterindia.com/63119/ancient-india-science-technology/>

<https://ncsm.gov.in/indian-women-in-science-technology/>

Evolution:

<https://www.livescience.com/474-controversy-evolution-works.html>

<https://www.ibiology.org/evolution/origin-of-life/>

Section 2:

Measuring buildings, earth curvature:

<https://www.youtube.com/watch?v=hrwL3u2Z4Kg>

<https://www.youtube.com/watch?v=khRMzxONpLg>

<https://www.youtube.com/watch?v=YaPa4esJJx4>

Isolation of DNA

https://melscience.com/US-en/articles/home-dna-extraction/?irelickid=2hh2pqRY8xyLTbawUx0Mo3ENUkBwlX3pGQDJSc0&utm_source=impact&irpid=2201352&irmpname=Science%20Journal%20for%20Kids&irgwc=1

Transpiration & Photosynthesis

<https://www.youtube.com/watch?v=JQvdXX7hGqI>
<https://www.youtube.com/watch?v=U4rzLhz4HHk>
<https://www.youtube.com/watch?v=pFaBpVoQD4E>

Online game on blood typing

<https://educationalgames.nobelprize.org/educational/medicine/bloodtypinggame/gamev3/1.html>

Determination of pH

https://www.youtube.com/watch?v=BEz6t_e6gpc

Plant behaviour

<https://youtu.be/KyoeCFTIXKk>
<https://youtu.be/gBGt5OeAQFk>

Migratory Birds

<https://www.scienceabc.com/nature/how-migrating-birds-geese-navigate-long-distance-earth-magnetic-field.html>

Section 3:

Climate change and global warming

<https://letstalkscience.ca/educational-resources/backgrounders/introduction-climate-change>

Biodiversity

<https://india.mongabay.com/2020/09/nature-in-peril-as-biodiversity-losses-mount-alarmingly-states-the-living-planet-report/>

Genomics and Modern Medicine

<https://www.nationalgeographic.com/science/article/partner-content-genomics-health-care>

<https://www.mja.com.au/journal/2014/201/1/impact-genomics-future-medicine-and-health>

<https://www.nature.com/scitable/topicpage/pharmacogenomics-and-personalized-medicine-643/>

Genetically modified crops

<https://www.nature.com/scitable/topicpage/genetically-modified-organisms-gmos-transgenic-crops-and-732/>

<https://factly.in/explainer-what-is-the-status-of-gm-crops-in-india/>

<https://www.fda.gov/food/agricultural-biotechnology/how-gmo-crops-impact-our-world>

Artificial Intelligence and Robotics

<https://www.ohio.edu/mechanical-faculty/williams/html/PDF/IntroRob.pdf>
<https://nptel.ac.in/content/storage2/courses/106105078/pdf/Lesson%2001.pdf>

Big Data Analytics

<https://www.researchgate.net/publication/328783489> Big Data and Big Data Analytics Concepts Types and Technologies

Citizen Science

<https://www.nationalgeographic.org/idea/citizen-science-projects/?page=1>
<https://blogs.scientificamerican.com/guest-blog/effective-communication-better-science/>

<http://www.dialogue.ias.ac.in/article/30161/citizen-science-in-india-introduction-challenges-and-way-forward>
<https://www.societyforscience.org/research-at-home/citizen-science/>

Suggested Weekly Plan:

Weeks 1-4: Section 1

Weeks 5-8: Section 2

Weeks 9-12: Section 3

Weeks 13-14: Presentations

Assessment Methods*

Internal Assessment: 25%

End Semester Theory Exam: 25%

Practical: 50%

*Subject to directions from the Examination Branch/University of Delhi from time to time

Value Addition Course

Financial Literacy

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Financial Literacy	02	1	0	1	Pass in Class 12th	NIL

Course Objectives

- Familiarity with different aspects of financial literacy such as savings, investment, taxation, and insurance
- Understand the relevance and process of financial planning
- Promote financial well-being

Learning Outcomes

- Develop proficiency for personal and family financial planning
- Apply the concept of investment planning
- Ability to analyse banking and insurance products
- Personal tax planning

Syllabus of <i>Financial Literacy</i>	No. of Lectures
Unit I: Financial Planning and Financial products	3
<ul style="list-style-type: none"> • Introduction to Saving • Time value of money • Management of spending and financial discipline 	

Unit II: Banking and Digital Payment	4
<ul style="list-style-type: none"> • Banking products and services • Digitisation of financial transactions: Debit Cards (ATM Cards) and Credit Cards. Net banking and UPI, digital wallets • Security and precautions against Ponzi schemes and online frauds 	

Unit III: Investment Planning and Management	4
<ul style="list-style-type: none"> • Investment opportunity and financial products • Insurance Planning: Life and non-life including medical insurance schemes 	
Unit IV: Personal Tax	4
<ul style="list-style-type: none"> • Introduction to basic Tax Structure in India for personal taxation • Aspects of Personal tax planning • Exemptions and deductions for individuals • e-filing 	

Note: Some of the theoretical concepts would be dealt with during practice hours.

Practical/ Practice Component

(15 sessions of 2 hours each= 30 hours)

- Regular class activities to enhance students' understanding of topics and the application of concepts. The case study method may be followed as a teaching pedagogy.
- Numerical questions pertaining to each unit wherever applicable should be practiced.
- For the second unit, students may be assigned a project wherein they can log on to the website of various banks and conduct an in-depth analysis and comparison of various financial products offered.
- For Unit III, a Project related to building a dummy portfolio of stocks and tracking their returns may be given.
- An investment budget may be given to the students to select investment options that maximize the return and minimize the tax implications.
- For the last unit, students may also file a dummy IT return to get hands-on experience with e-filing.
- Students may conduct a financial literacy survey among at least 25 respondents to measure the level of financial literacy and share the findings in the awareness in the form of a report.
- Any other Practical/Practice as decided from time to time

References

- *Introduction to Financial Planning (4th Edition 2017)* – Indian Institute of Banking & Finance.
- Sinha, Madhu. *Financial Planning: A Ready Reckoner July 2017*, McGraw Hill.

Additional Resources

- Halan, Monika. *Lets Talk Money: You've Worked Hard for It, Now Make It Work for You* July 2018 Harper Business.
- Pandit, Amar *The Only Financial Planning Book that You Will Ever Need* , Network 18 Publications Ltd.

Assessment Methods*

Internal Assessment: 25%

End Semester Theory Exam: 25%

Practical: 50%

*Subject to directions from the Examination Branch/University of Delhi from time to time

Value Addition Course

Ecology and Literature

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Ecology and Literature	02	1	0	1	Pass in Class 12th	NIL

Course Objectives:

- To raise awareness among students towards the urgent predicament of Environmental and Ecological crisis and the need for reducing our carbon footprint upon fast depleting, ravaged ecological reserves.
- To develop a heightened ecological consciousness among students, leading to more responsible ecological behavior.
- To view environmental concerns as raised through plays, stories and poems.

Learning Outcomes:

- The course will highlight the urgency of environmental crisis, making students conscious and aware of the role each one of us plays.
- Students will be trained into environmental sensitivity and responsible ecological behavior.
- Students will be encouraged to respond to incidents of habitat destruction, deforestation, etc. and realize the need for our urgent intervention.

Syllabus of *Ecology and Literature*

Unit I: Negotiating environmental issues creatively 1. William Wordsworth: 'In April beneath the scented thorn' 2. Rabindranath Tagore: 'The Waterfall' 3. Gieve Patel: 'On Killing a Tree'	5 classes
UNIT II. Ecocritical literary representations 1. Mary Oliver: 'Sleeping in the Forest' 2. AK Ramanujan: 'A Flowering Tree'	5 classes

3.Mamang Dai: ‘Small Towns and the River’	
UNIT III: Empathetic exploration and imaginative re-enactments 1. Amitav Ghosh’s ‘Part I: Stories’ from <i>The Great Derangement: Climate Change and the Unthinkable</i> . 2. Thangjam Ibopishak: ‘Volcano, You cannot erupt’ from <i>Dancing Earth: An Anthology of Poetry from North-East India</i> 3. Thangjam Ibopishak: ‘Dali, Hussain, or Odour of Dream, Colour of Wind’ from <i>Dancing Earth: An Anthology of Poetry from North-East India</i>	5 Classes

Practical/ Practice Component

(15 sessions of 2 hours each= 30 hours)

- Students would undertake field visits to a school or a slum in the neighborhood or the play area of residential complexes to share, narrate stories, poems and articulate the ideas engaged with in the classroom lectures.
- They shall apply imaginative and creative ways of presenting socially responsible ecological behavior through re-tellings of the texts they have studied in the class.
- Creative re-enactment of key ideas studied by students in the form of a play, to be done individually and/or in a group to create awareness regarding environmental consciousness.
- They can also collectively organize a tree plantation drive in and around the college campus and adopt a sapling each in the college premises and in their neighborhood to take care of.
- Any other Practical/Practice as decided from time to time

SUGGESTED READINGS:

1. Akhter, Tawhida, and Ahmad Bhat, Tariq. *Literature and Nature*. United Kingdom, Cambridge Scholars Publishing, 2022.
2. Shiva, Vandana. ‘Development, Ecology and Women’, *Staying Alive: Women Ecology and Development*. India: Zed Books, 1988. pp 1-14
3. Carl, Safina. Prologue & Chapter 1, *Beyond Words: What animals think and feel*. Souvenir Press, 2015.

4. Garrard, Greg. *Ecocriticism*. United Kingdom: Taylor & Francis, 2011.
5. Wohlleben, Peter. *The Hidden Life of Trees: What They Feel, How They Communicate—Discoveries from a Secret World*. India: Penguin Books Limited, 2016.

Value Addition Course

Yoga: Philosophy and Practice

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Yoga: Philosophy and Practice	02	1	0	1	Pass in Class 12th	NIL

Course Objectives

- To learn the fundamentals of Yoga for harmonising the body, mind and emotions.
- To demonstrate the value and the practice of holistic living.
- To value the heritage of Yoga for self and society.

Learning Outcomes

- Understanding ways to harmonise the body and mind through Yoga.
- Disciplining the mind through practicing Yoga.
- Understanding of consciousness through practical training.

Syllabus of *Yoga: Philosophy and Practice*

Unit I: Yoga: Asana, Prāṇāyāma and Dhyana	Lectures
<ul style="list-style-type: none"> • History of Yoga • Significance of Asana • Effect of Pranayama • Importance of <i>Dhyana</i> 	5
Unit II: Patanjali's <i>Yogasūtra</i> and <i>Chakra</i>	
<ul style="list-style-type: none"> • Patanjali's <i>Yogasūtra</i>: a summary • First sutra • Second sutra • <i>Chakras</i> (psychic centres) 	6

Unit III: Understanding Asana and Pranayama	
<ul style="list-style-type: none"> • Asana: the basics • <i>SuryaNamaskara</i> • <i>Nadishodhana Pranayama</i> 	4

Practical/ Practice Component

(15 sessions of 2 hours each= 30 hours)

- Surya Namaskar
- Selected Asana
- *Praṇayama*
- Relaxation exercises for the eyes (7 steps) neck (4 steps)
- Concentration on *Bhṛumadhya*
- Project Work (effect of everyday concentration on breath for 15 minutes: reflections to be compiled in the form of a Project report.
- Any other Practical/Practice as decided from time to time

Essential Readings

- Āsanas, Prāṇāyāmaand Mudra Bandh , Swami SatyanandaSaraswati, Yoga Publications Trust, Munger, Bihar, India, 2004.
- Patanjali Yogasutras, Commentary by Swami Vivekanand, Rajyoga

Suggested Readings

- PatanjaliYog Pradeep- Swami OmanandSaraswati, Gita Press, Gorakhpur, 2013.
- Science of Pranayama-Swami Sivananda, Edition by David De Angellis, 2019, All Rights Reserved.
- Udayveer Shastri Granthavali,4, Patanjali- Yoga Darshanam, Udayavir Shastri, Govindram Hasanand, Delhi 6.

Assessment Methods*

Internal Assessment: 25%
 End Semester Theory Exam: 25%
 Practical: 50%

*Subject to directions from
the Examination Branch/University of Delhi from time to time.

Value Addition Course

CONSTITUTIONAL VALUES AND FUNDAMENTAL DUTIES

Course Title and Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Prerequisite of the Course
		Lecture	Tutorial	Practical/Practice		
Constitutional Values and Fundamental Duties	02	1	0	1	Pass in Class 12th	NIL

COURSE OBJECTIVES:

- Enrich students with knowledge and relevance of the Constitution.
- Develop awareness about Duties and Values.
- Inculcate a sense of Constitutionalism in thought and action.

LEARNING OUTCOMES:

- Understand the Constitution and its relevance
- Appreciate the values and goals embedded in the Constitution.
- Recognise the importance of Fundamental Duties enshrined in the Constitution.
- Apply the spirit of fundamental values and duties in everyday national life.

Syllabus of *Constitutional Values and Fundamental Duties*

Unit I: The Constitution of India – an Introduction	5 lectures
<ul style="list-style-type: none"> • Federal Republic, Rule of Law, Separation of Powers • Sovereignty, Socialism, Democracy • Secularism and <i>Sarva Dharma Sama Bhava</i> 	
Unit II: Constitutional Values	5 lectures
<ul style="list-style-type: none"> • Justice: Social, Political, Economic • Liberty: Thought, Expression, Belief, Faith, Worship • Equality : Equality before law & equal application of laws • Fraternity: Dignity, Unity and Integrity 	

Unit III: Fundamental Duties	5 lectures
<ul style="list-style-type: none"> • Reflecting on the ancient Indian notions of righteousness and duty consciousness • Fundamental Duties- Article 51A [(a) – (k)] • Legal status of Fundamental Duties - Judicial approach 	

Practical/ Practice Component

(15 sessions of 2 hours each= 30 hours)

- Reflections on some of the constitutional values/ fundamental duties and its contemporary relevance in day-to-day national life through group discussions and projects.
- Conduct workshops to spread awareness on the Fundamental Duties and Values.
- Students are required to conduct a survey (minimum 25 respondents) on assessing the awareness of the constitutional duties amongst the citizens.
- Students may share their experiences on Fundamental Duties and Values in the form of a Project Report.
- Any other Practical/Practice as decided from time to time

ESSENTIAL READINGS

- *Preamble* to the Constitution of India, 1950.
- The Constitution of India, Articles - 14, 19, 21.
- The Constitution of India, Fundamental Duties [Ar. 51 A (a) – (k)].

SUGGESTED READINGS

- Durga Das Basu, *et al.*, *Introduction to the Constitution of India* (LexisNexis, 26th edn, 2022).
- Leila Seth, *We, the Children of India: The Preamble to Our Constitution* (New Delhi, Puffin Books, Penguin Books India, 2010).
- Mahendra Pal Singh, V.N. Shukla's *Constitution of India*, (Eastern Book Company, Lucknow, 13th revised edn. 2017)
- B.R. Ambedkar *Selected Speeches*, (Prasar Bharati, New Delhi, 2019) *available at*: https://prasarbharati.gov.in/whatsnew/whatsnew_653363.pdf.

Assessment Methods*

Internal Assessment: 25%

End Semester Theory Exam: 25%

Practical: 50%

*Subject to directions from the Examination Branch/University of Delhi from time to time
