



Re-Accredited 'B++' 2.86 CGPA by NAAC

VEER NARMAD SOUTH GUJARAT UNIVERSITY

University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.

વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી

યુનિવર્સિટી કેમ્પસ, ઉદ્ધના-મગદલા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.

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-:પરિપત્ર:-

યુનિવર્સિટી સંલગ્ન વિજ્ઞાન વિદ્યાશાખા હેઠળની તમામ કોલેજોનાં આચાર્યશ્રીઓને જણાવવાનું કે, NEP-2020 અંતર્ગત બી.એસસી. સેમેસ્ટર-૪ માં VAC ના બાસ્કેટમાં Bharatiya Knowledge System (BKS)-ભારતીય મૂલ્ય પરંપરા-૨ અને Environment-2 કોર્સ વિજ્ઞાન વિદ્યાશાખાના ડીનશ્રીએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને કરેલ ભલામણ એકેડેમિક કાઉન્સિલની તા.૨૪/૧૨/૨૦૨૪ની સભાના ઠરાવ ક્રમાંક:૩૫૩ અન્વયે માન.કુલપતિશ્રીને આપેલ સત્તા અંતર્ગત માનનીય કુલપતિશ્રી દ્વારા મંજૂર કરેલ છે, જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

(બિડાણ: ઉપર મુજબ)

ક્રમાંક:ઓથો./પરિપત્ર/૩૧૪૩૨/૨૦૨૫
તા.૧૧/૧૨/૨૦૨૫

Wife
કુલસચિવ

પ્રતિ,

- ૧) યુનિવર્સિટી સંલગ્ન વિજ્ઞાન વિદ્યાશાખા હેઠળની તમામ કોલેજોનાં આચાર્યશ્રીઓ.
..... આપશ્રીની કોલેજના સંબંધિત શિક્ષકોને જાણ કરી અમલ કરવા સારું.
- ૨) અધ્યક્ષશ્રી, વિજ્ઞાન વિદ્યાશાખા.
- ૩) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.
.....તરફ જાણ તેમજ અમલ સારું.

યુનિટ	વિષય
૧.	<ul style="list-style-type: none"> ➤ ભારતીય પરંપરામાં મૂલ્યશિક્ષણની વાર્તાઓ. <ul style="list-style-type: none"> ❖ સત્ય અને જ્ઞાન- નચિકેતાની વાર્તા (કઠોપનિષદ) ❖ ધર્મ અને એકાત્મતા-યુધિષ્ઠિર અને યક્ષની વાર્તા (મહાભારત) ❖ નિસ્વાર્થવૃત્તિ અને ત્યાગ- રાજા શિબીની વાર્તા (વિષ્ણુ પુરાણ) ❖ અનાસક્તિ અને બુદ્ધિ- રાજા જનક અને ઋષિ યાજ્ઞવલ્કયની વાર્તા (બૃહદારણ્યકોપનિષદ)
૨.	<p>(A)</p> <ul style="list-style-type: none"> ➤ ષડ્ સંપદ:- શમ, દમ, ઉપરતિ, તિતિક્ષા, વૈરાગ્ય, વિવેક. ➤ ષડરિપુ:- કામ, ક્રોધ, લોભ, મોહ, મદ, મત્સર. ➤ ધર્મના પ્રમુખ દસ લક્ષણ અને મુખ્ય આઠ પ્રકાર. <ul style="list-style-type: none"> ❖ ધર્મના લક્ષણ:- ધૃતિ, ક્ષમા, દમ, અસ્તેય, શૌચ, ઈન્દ્રિયનિગ્રહ, ધી, વિદ્યા, સત્યમ, અક્રોધ ❖ ધર્મના પ્રકાર:- સ્વધર્મ, પરીવારિક ધર્મ, સમાજધર્મ, રાષ્ટ્રધર્મ, સમષ્ટિધર્મ, યુગધર્મ, આપદધર્મ, ઋતમ્ <p>(B)</p> <ul style="list-style-type: none"> ❖ નાભિષેકો ન સંસ્કાર: સિંહસ્ય ક્રિયતે વને । વિક્રમાર્જિતરાજ્યસ્ય સ્વયમેવ મૃગેંદ્રતા ॥ ❖ વિદ્યા વિવાદાય ધનં મદાય શક્તિ: પરેષાં પરિપીડનાય । ખલસ્ય સાધો: વિપરીતમેતદ્ જ્ઞાનાય દાનાય ચ રક્ષણાય

	<ul style="list-style-type: none">❖ अतितृष्णा न कर्तव्या तृष्णां नैव परित्यजेत्। शनैः शनैश्च भोक्व्यं स्वयं वित्तमुपार्जितम् ॥❖ साहित्य-संगीत कलाविहीनः साक्षात्पशुः पुच्छविषाणहीनः। तृणं न खादन्नपि जीवमानः तद्भागधेयं परमं पशूनाम्❖ सुखस्य मूलं धर्मः। धर्मस्य मूलमर्थः। अर्थस्य मूलं राज्यम्। राज्यस्य मूलम् इन्द्रियजयः। इन्द्रियजयस्य मूलं विनयः। विनयस्य मूलं वृद्धोपसेवः। वृद्धोपसेवया विज्ञानम्। विज्ञानेन आत्मानं संपादयेत्। संपादितात्मा जितात्मा भवति। जितात्मा सर्वार्थैः संयुज्येत।
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Veer Narmad South Gujarat University Surat**Year: 2024-25****VAC:- Sem-4 (ભારતીય મુલ્ય પરંપરા-૨)**

Credit-2

Unit	Subject
1	<p><u>Stories based on value education in Indian Tradition:</u></p> <ul style="list-style-type: none"> ❖ Truth and realisation :The story of Nachiketa(Kathopanishad) ❖ Dharma and Oneness :The Story of Yudhishtir and Yaksha(Mahabharat) ❖ Selflessness and Sacrifice :The story of King Shibi (Vishnu Puran) ❖ Detachment and Wisdom:The story of King Janaka and sage Yajnavalkya (Brihadaranyakopanishad)
2	<p>(A)</p> <p><u>Six Treasures :</u></p> <ol style="list-style-type: none"> 1. Shama(Inner tranquility of mind), 2. Dama(Alignment between mind and senses), 3. Uparati(Interest to do work) 4. Titiksha(Forbearance) 5. Vairagya(Detachment) 6. Viveka(Conscience) <p><u>Six Enemies:</u></p> <ol style="list-style-type: none"> 1. Kama (Desire/lust) 2. Krodha (Anger) 3. Lobha (Greed) 4. Moha (Attachment) 5. Mada (Ego) 6. Matsarya(Jealousy) <p><u>Chief characteristic features of Dharma and eight major types:</u></p> <p><u>Characteristics of Dharma :</u></p> <ol style="list-style-type: none"> 1. Dhruti (Patience) 2. Kshama (Forgiveness) 3. Dama (Self-Control) 4. Asteya (Honesty) 5. Shaucha (Sanctity)

6. Indriyanigraha (Control of senses)
7. Dhi (Reason)
8. Vidya (Knowledge or learning)
9. Satyam (Truth)
10. Akrodh (Void of anger)

Types of Dharma:

1. Swadharma (Duty to self)
2. Parivarik Dharma (Duty for family)
3. Samaj Dharma (Duty for society)
4. Rashtra Dharma (Duty for the State)
5. Samshti Dharma (Duty for Community)
6. Yuga Dharma (Duty for Contemporary time)
7. Apad Dharma (Duty at the time of adversity)
8. Rutam (Duty to Natural Order)

(B)

- ❖ नाभिषेको न संस्कारः सिंहस्य क्रियते वने ।
विक्रमार्जितराज्यस्य स्वयमेव मृगेंद्रता ॥
- ❖ विद्या विवादाय धनं मदाय शक्तिः परेषां परिपीडनाय ।
खलस्य साधोः विपरीतमेतद् ज्ञानाय दानाय च रक्षणाय
- ❖ अतितृष्णा न कर्तव्या तृष्णां नैव परित्यजेत् ।
शनैः शनैश्च भोक्व्यं स्वयं वित्तमुपार्जितम् ॥
- ❖ साहित्य-संगीत कलाविहीनः साक्षात्पशुः पुच्छविषाणहीनः ।
तृणं न खादन्नपि जीवमानः तद्भागधेयं परमं पशूनाम्
- ❖ सुखस्य मूलं धर्मः । धर्मस्य मूलमर्थः ।
अर्थस्य मूलं राज्यम् । राज्यस्य मूलम् इन्द्रियजयः ।
इन्द्रियजयस्य मूलं विनयः । विनयस्य मूलं वृद्धोपसेवः ।
वृद्धोपसेवया विज्ञानम् । विज्ञानेन आत्मानं संपादयेत् ।
संपादितात्मा जितात्मा भवति । जितात्मा सर्वार्थैः संयुज्येत ।

Reference Books

1. S. Vivekananda, The six virtues in Hinduism Ramkrishna ashram, Rupa Publications.
2. S. Sivananda, Shad Sampat : The six divine Qualities, The divine life society.
3. Vardaraja, Subhashita Ratna Kosha.
4. એ. પ્રજાપતિ, સુભાષિત રત્નાવલી, પાર્શ્વ પબ્લીકેશન.
5. Adi Shankaracharya, Vivekchudamani, Advaita Ashram Pub.
6. S. Shivananda, the Upanishads, the Divine life society, 2011.
7. સ્વામી શિવાનંદ, ઉપનિષદોની કહાણીઓ ડિવાઈન લાઈફ સોસાયટી.
8. સી.એલ. મહેતા. ઉપનિષદ કથાઓ અને જ્ઞાન, ગુજરાત ગ્રંથ નિર્માણ બોર્ડ, ૨૦૦૦.
9. સ્વામી વિવેકાનંદ, ધર્મના લક્ષણ, રામક્રિષ્ણ આશ્રમ, ગુજરાત.
10. કવિ નર્મદ, ધર્મના લક્ષણ, નર્મદ સાહિત્ય મંડળ ૨૦૧૦.
11. કે.બી. શર્મા, ધર્મના આઠ પ્રકાર -પ્રાચીન સિદ્ધાંતો, ગુજરાતી ગ્રંથ નિર્માણ બોર્ડ.
12. M. Desai shad Ripus: Path of Self Mastery, Gujarati Granth Nirman Board.
13. રતિલાલ નાયક, ઉપનિષદની અમૃત કથાઓ.શબ્દલોક પ્રકાશન, ૨૦૧૨.
14. S. Ramkrishnananda, Six Enemies of the Mind:The root Causes of all Sufforing, Ramkrishna, Mission, 2009.

Paper Style		
Que:-1	MCQS – (5 out of 7) (From Unit-2 A (I) (II))	Marks (10)
Que:-2	(From Unit-1)	
	(a) Write a short answer or (a) Write a short answer	Marks (05)
	(b) Write a short answer or (b) Write a short answer	Marks (05)
	(From Unit-2)	
	(c) Translation and Short exploitation of two Shlokas or (c) Translation and Short exploitation of two Shlokas.	Marks (05)

**VEER NARMAD SOUTH GUJARAT UNIVERSITY,
SURAT**



**Undergraduate Programme
Value Added Course
Environment - II
Semester- IV
[3 Years (Degree) &
4 Years (Honours/Honours with Research)**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

Undergraduate Programme

B.A./B.Com./B.Sc./BRS/BSW

Value Added Course

Environment - II

Teaching & Evaluation Scheme
Semester- IV

[Academic Year of Implementation 2025-2026]

Semester - 4

Course Code	Course Title	Teaching Schedule Hours/Week	Exam Duration & Marks			Total Theory/Practical Marks	Credit
			Duration (Hours)	(CCE) Internal Marks	(SEE) External Marks		
ZO – VAC ENV - 401	ENVIRONMENT - II	2	1:00	25	25	50	2
			Total	25	25	50	2

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

Undergraduate Program, Value Added Course

(B.A./B.Com./B.Sc./BRS/BSW)

(3 Years Degree; 4 Years Honours/Honours with Research)

SEMESTER – 4 Course: ZO – VAC – ENV – 401, ENVIRONMENT - II

Name of Program	B.A./B.Com./B.Sc./BRS/BSW
Objective of Program	The Environmental Science program aims to equip students with an understanding of ecosystems, human-environment interactions, and current environmental challenges. It emphasizes critical thinking, sustainable solutions, and the application of scientific methods to address issues like climate change and resource management. Students are also encouraged to engage in environmental advocacy and promote ethical responsibility toward sustainability.
Program Outcome	<p>PO-01: Scientific Knowledge & Conceptual Understanding: Develop a strong foundation in scientific principles, theories and concepts across disciplines, fostering interdisciplinary learning, advance knowledge and problem-solving abilities.</p> <p>PO-02: Analytical & Critical Thinking: Apply critical thinking and analytical reasoning to evaluate scientific data, hypotheses and real-world problems, leading to evidence-based conclusions.</p> <p>PO-03: Research & Inquiry-based Learning: Develop investigative skills through experimentation, data analysis and scientific inquiry to contribute to research and innovation.</p> <p>PO-04: Laboratory & Technical Skills: Gain hands-on experience with laboratory techniques, instrumentation and computational tools relevant to scientific research and industry applications.</p> <p>PO-05: Digital & Computational Literacy: Utilize digital tools, computational techniques and emerging technologies such as AI, bioinformatics and statistical modelling to enhance scientific learning and problem-solving.</p> <p>PO-06: Environmental & Societal Responsibility: Understand the role of science in addressing environmental, health and societal challenges, promoting sustainability and ethical responsibility.</p> <p>PO-07: Effective Communication & Collaboration: Develop proficiency in scientific communication, both written and oral, for effective dissemination of knowledge while collaborating in multidisciplinary teams.</p> <p>PO-08: Innovation & Entrepreneurship: Foster an entrepreneurial mind-set by applying scientific knowledge for innovation, technology development, and industry-oriented applications. Develop sustainable solutions to address real-world challenges in research and environmental management.</p> <p>PO-09: Lifelong Learning & Professional Growth: Cultivate curiosity and adaptability for continuous learning, equipping students for higher</p>

	<p>education, research, and professional careers.</p> <p>PO-10: Ethical Leadership & Value-based Education: Develop leadership qualities, ethical values, and a sense of responsibility in applying science for societal progress, aligning with Indian knowledge systems and global perspectives.</p>
Program Specific Outcomes	<p>1. Remembering (Knowledge) PSO1: Recall fundamental concepts of environmental science, including ecosystems, biodiversity, and conservation. Identify key environmental issues, such as climate change, pollution, and deforestation.</p> <p>2. Understanding (Comprehension) PSO2: Explain the relationships between human activities and environmental impacts. Interpret environmental data, including graphs, charts, and maps.</p> <p>3. Applying (Application) PSO3: Apply environmental principles to real-world scenarios, such as sustainable development and environmental policy. Use environmental concepts to analyze case studies and propose solutions.</p> <p>4. Analyzing (Analysis) PSO4: Break down complex environmental issues into component parts and evaluate the relationships between them. Critique environmental policies and management strategies.</p> <p>5. Evaluating (Synthesis) PSO5: Design and propose environmental solutions, including sustainable practices and conservation strategies. Evaluate the effectiveness of environmental policies and programs.</p> <p>6. Creating (Evaluation) PSO6: Develop innovative approaches to environmental problem-solving, including the use of technology and interdisciplinary collaboration. Communicate environmental information effectively to diverse audiences.</p>

Course code	ZO – VAC – ENV – 401
Course title	ENVIRONMENT - II
Course level	200-299
Credit	02
Total engagement	2Credits X 15 hrs. = 30 hrs
Teaching per week	02 hrs.
Minimum weeks per semester	15 weeks
Effective from	2025-26

Purpose of course	The course aims to provide students with a comprehensive understanding of environmental systems, challenges, and the impact of human activities on the environment.						
Course objective	<ul style="list-style-type: none"> Analyze current environmental issues such as climate change, pollution, and resource depletion. Promote sustainable practices and solutions for environmental preservation and conservation. 						
Course outcomes	<p>CO1: Program Outcome of learning environment studies aims to enlighten the students to realize our prime social responsibility to conserve our environment in the face of increasing human population and anthropogenic activities which is the major cause of depletion of environmental resources and ecological balance.</p> <p>CO2: An Environmental Studies major will be able to apply lessons from various courses through field experiences. These experiences will allow students to develop a better sense of not only individual organisms, but of the systems in which these organisms live. Students will also see how natural systems and human-designed systems work together, as well as in conflict with each other.</p> <p>CO3: An Environmental Studies major will be able to do independent research on human interactions with the environment.</p> <p>CO4: Developing values and attitudes towards comprehending intricate environmental economic-social issues and actively taking part in resolving present environmental issues and averting those that arise in the future.</p>						
Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
	CO1	✓					
	CO2	✓	✓				
	CO3	✓	✓	✓			
	CO4	✓	✓	✓	✓	✓	✓
Pre-requisite	Biology						
Course content	<p>UNIT: 1 Types of Environmental Pollution</p> <p>1.1.1 Water pollution: Introduction Water Quality Standards, Sources of Water Pollution: Industrial Agricultural, Municipal; Classification of water pollutants, Effects of water pollutants, Eutrophication.</p> <p>1.1.2 Marine Pollution</p> <p>1.1.3 Air pollution: Composition of air, Structure of atmosphere, Ambient Air Quality Standards. Classification of air pollutants, Sources of common air pollutants like PM, SO₂, NO_x, Natural & Anthropogenic Sources, Effects of common air pollutants.</p> <p>1.1.4 Land Pollution: Land uses, Land degradation; causes, effects and</p>						

	<p>control, soil erosion.</p> <p>1.1.5 Noise Pollution: Introduction, Sound and Noise, Noise measurements, Causes and Effects</p> <p>1.1.6 Thermal Pollution: Causes and effects Role of individual in the prevention of pollution</p> <p>UNIT: 2 Energy Resources and Global Environmental Issues</p> <p>2.1.1 Energy resources: Global and Indian energy demand scenario, future Projections, Conventional and Non-conventional sources of energy, Advantages and Limitations, Utilization, Exploitation and related Environmental problems, Environmental implications of Non-conventional Energy Sources.</p> <p>2.1.2 Global Environmental Issues: Climate change, Global Warming and Green House Effect, Acid Rain, Depletion of Ozone layer.</p>
Reference books	<ul style="list-style-type: none"> • Agarwal, K.C.: 2001 Environmental Biology. Nidi publication Ltd., Bikaner. (TB) • Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt.Ltd. Ahmedabad -380013. India. • Brunner R.C., 1989, Hazardous Waste incineration, McGraw Hill Inc.480p. (R) • Clark R.S. Marine Pollution, Clarendon Press Oxford (TB) • Cunningham, W.P. Cooper, T.H. Grohani, E. & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Pub. House, Mumbai, 1196p. (R) • De A.K., Environmental Chemistry. Wiley Eastern Ltd. (R) • Down to Earth, Centre for Science and Environment. (R) • Gleick, H.P., 1993. Water in crisis. Pacific Institute for Studies in Dev. Environment & Security: • Stockholm Env. Institute. Oxford Univ. Press. 473p. (R) • Hawkins, R.E., Encyclopedia of Indian Natural History. Bombay Natural History Society, • Heywood, V.H. & Weston R.T. 1995, Global Biodiversity Assessment. Cambridge Univ. Press. 1140p. (R) • Jadhav, H & Bhonsale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi. 284p. (R) • McKinne, M.L. & Schoel R.M. 1996. Environmental Science System & Solutions, Web enhanced edition. 639p. (R) • Mhaskar A.K. Matter Hazardous, Techno-Science Publication (TB) • Miller T.G. Jr. Environmental Science. Wadsworth Publishing

	<p>Co., (TB)</p> <ul style="list-style-type: none"> • Odum, E.P.1971. Fundamentals-of Ecology. W.B. Saunders Co. USA. 574p. (R) • Rao M.N &Datta, A.K. 1987. Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p. (R) • Sharma, B.K. 2001. Environmental Chemistry. Goel Publ. House, Meerut. (TB) • Survey of Environmental. The Hindu @ • Townsend C., Harper J, and Michael Begoñ. Essentials of Ecology. Blackwell Science (TB). • Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances Publications (TB). • Trivedi R.K. and P.K. Goel, Introduction to air pollution. Techno-Science Publications (TB). • Wagner K.D. 1998. Environmental. W.B. Saunders Co. Philadelphia, USA. 499p. (R)
e-learning resources	Sawyam Portal
Teaching methodology	Class work, Discussion, Self Study, Projects, Seminars or / and Assignment