

SCIENCE FOR SUSTAINABLE LIVING
Offered as a Minor/Certificate Programme

Course Category: Minor	Schedule of Offering: Odd/Even
Course Credit Structure: 3	Course Code: VK181
Total Number of Hours: 45	Contact Hours Per Week: 3
Lecture: 45	Tutorial: 0
Practical: 0	Medium of Instruction: English
Date of Revision:	Skill Focus: Skill Development
Short Name of the Course: SSL	Course Stream (<i>Only for Minor Courses</i>): Science and Society
Grading method: Regular	
Course Level: Beginner	Repeatable: Credit/Audit/Non-Repeatable

Course Description

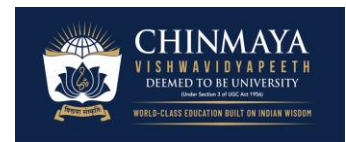
Sustainable living essentially needs the application of sustainability to our way of life, our choices, and decisions. One conception of sustainable living is the interconnection of humans with social domains such as ecology, politics, economics, and culture. The undertaking of this course helps the learners to negotiate the relationships of needs within limits across all the interconnected domains of social life, including consequences for future human generations of human and non-human generations and acknowledges the interconnectedness between biotic and abiotic components of the ecosystem. This course aims to develop the concept of sustainable living for survival and equip the learners with awareness to be responsible and contribute to achieving Sustainable Developmental Goal 2030.

Course Introduction

The great challenge of our time is to construct and nurture sustainable communities, moulded such that one's way of life, physical structures, and technological advancement do not obstruct with nature's intrinsic ability to sustain life. Sustainable living describes a lifestyle that attempts to reduce an

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individual's use of the Earth's resources and personal resources. It is often called as 'earth harmony living'. Sustainable living awareness helps a person to reduce their ecological footprint by altering their methods of energy consumption, diet, transportation, and have an attitude to live in touch with nature. The Sustainable Development Goal 2030 highlighted the importance of sustainable living for the survival of the earth. No poverty, zero hunger, clean water and sanitation, affordable and clean energy, sustainable cities and communities, responsible production and consumption, climate action, life below water, and life above land are some of the goals set by the United Nations Development Programme as Sustainable Development Goal 2030. To achieve sustainable existence the human needs to conduct their lives in a way that are consistent with sustainability, naturally balanced and respectful of humanity's symbiotic relationship with the earth's natural ecology. The general philosophy behind sustainable living has its root in the Indian Vedic system. In the Atharva Veda, it is filled with prayers to nature and man's relationship with the eco-systems. Atharva Veda believes that the earth is the holy mother and all the creatures in the universe are the offspring of the earth, the eternal sky is the universal father. All creatures are born to nature and return to nature. Environmental advocates often focus on individual behaviour and suggest the development of lifestyles that consume less and do not damage ecosystems.

Course Objective

1. To introduce the concept of science for sustainable living.
2. To develop concern towards the environment, sustainable development and sustainable living
3. To bring into the light the importance of sustainable living for earth harmony

Course Outcome

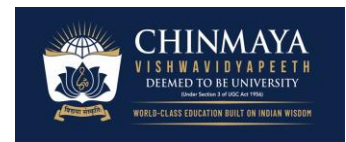
1. Appreciate the role of science for sustainable living
2. Transfer knowledge, solve the problem, make appropriate decisions, and act accordingly for sustainable living
3. Take care of the Mother Earth and balance economic, environmental and social needs allowing prosperity for now and future generations

Prerequisites and other constraints

The course discusses science and sustainable living, students need

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intrinsic motivation to know the more about the nature and have a positive attitude towards the mother earth. The course contains tasks to be completed through field study (campus premises).

Pedagogy

The pedagogy adopted will be lecture cum discussion method. Group work, seminar presentation, video presentation, assignments and field visit will also be incorporated.

Suggested Reading:

There is no particular reference text for this course. Nature, itself is the reference. Some books have been recommended for further reading and follow up.

Carson, Rachel (1962). Silent Spring. Houghton Mifflin publication

Fukuoka, Masanobu (1975). 'The One-Straw Revolution: An Introduction to Natural

Farming. Chelsea Green Publishing, Japan.

Kumar, Jay (2014), "Ayurveda and Early Indian Medicine", in Johnston, Lucas F.; Bauman, Resources Management', Twenty-Fifth Conference

Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G. (2019): An Introduction to Sustainable Development. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN).

Tukker, A. and Tischner, U. (2006) Product-services as a research field: past, present and future. Reflections from a decade of research, Journal of Cleaner Production, , 1552-1556.

UNDP(2015)."Transforming our world: The 2030 Agenda for Sustainable Development". United Nations–Sustainable Development knowledge platform. Id:67356281

United Nations Environment Programme. 2011. "Visions for Change:

Recommendations for Effective Policies on Sustainable Lifestyles."

[http://www.unep.org/fr/shared/publications/pdf/DTIx1321xPA-](http://www.unep.org/fr/shared/publications/pdf/DTIx1321xPA-VisionsForChange%20report.pdf)

[VisionsForChange%20report.pdf](http://www.unep.org/fr/shared/publications/pdf/DTIx1321xPA-VisionsForChange%20report.pdf).

Veenhoven, R. (2004) Sustainable consumption and happiness, Paper presented at

the Whitney (eds.), Science and Religion: One Planet, Many Possibilities, Routledge.

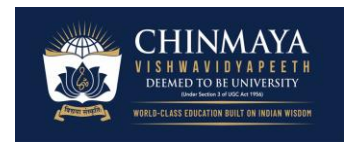
Evaluation Pattern

Evaluation Matrix

	Component Type	Weightage Percentage	Total Marks	Tentative Dates	Course Outcome Mapping
Continuous Internal Assessment (CIA) Components*	Classroom participation	10%(CIA)	10	At the end of each class	1,2,3
	Performance (Debate, Presentation)	10%(CIA)	10	At the end of each module	1,2,3
	Assignment	10%(CIA)	10	At the end of each module	1,2,3
	Project / Seminar	10%(CIA)	10	At the end of the course	1,2,3
	Viva Voce	20%(CIA)	20	At the end of the course	1,2,3,
	CIA Marks	60%(CIA)	60		
	ESE	40%	40	At the end of the course (15 th week)	1,2,3

The assignments involved in CIA will be subject to plagiarism checks

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Module 1: Introduction

- Science – Aim and Philosophy.
- Characteristics of science –Scientific methods.
- Functions of science- Role of science in all overall growth of the nation.
- Sustainable development- Origin, History, and Principles.
- Sustainable living- Principles and Characteristics, sustainable lifestyle.

Activities: Assignment on Role of Science in Nation Building.

Recommended references:

Abell SK, Anderson G, Chezem J.(2000). Science as argument and explanation:

Exploring concepts of sound in third grade. Minstrell J, Van Zee EH, editors. Washington, DC.

James Ladyman(2005). Understanding Philosophy of Science. Routledge publication.

Peattie K. (2010). Green consumption: behavior and norms. Annual Reviews. Environment and Resources 35, Page 195–228.

Philip Kitcher (1995). The Advancement of Science: Science without Legend. Arther Publication

Shrivastava, A. and Kothari A. (2012). Churning the earth: The making of global India. Penguin.

Module 2: Environmental Concern

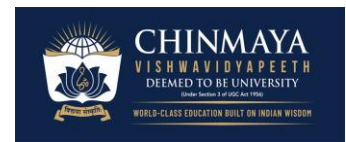
- Environmental concern –Knowledge, skills, attitude, and action
- Sustainable development- Definition, the evolution of concepts, relevance, and practices
- Sustainable development –Circle of sustainability, the organization for environmental protection, naturalistic intelligence
- Green culture, green technology, and environmentally responsible behaviour

Activity: Debate on the role of students in Sustainable development

Recommended references:

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Belk, Russell. 2010. "Sharing." *Journal of Consumer Research* 5: 715–734.

doi:10.1086/612649.

Eccleston, Charles.(2010). *Global Environmental Policy: Concepts, Principles, and*

Practice. ISBN 978-1439847664.

Steg, Linda, Siegwart Lindenberg, and Kees Keizer. 2015. "Intrinsic Motivation, Norms, and Environmental Behaviour: The Dynamics of Overarching Goals." *International Review of Environmental and Resource Economics* 9: 179-207.

doi:10.1561/101.00000077.http://tobaccocontrol.bmj.com/content/early/2011/04/20/tc.2010.039438.short

Module: 3 Science for Sustainable living

- Role of Science for sustainable development
- The relevance of scientific literacy and scientific temperament
- Role of Science for sustainable living
- Sustainable living- Relevance, practices, impact on different dimensions of society-economy, politics, community
- Constitutional provision for environmental protection

Activity: Interaction with environmental activist/ Environmental advocates (Audio or Video)

Recommended reference:

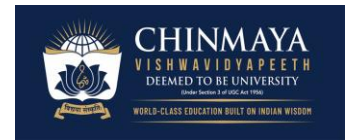
Clark, G. (2007) Evolution of the global sustainable consumption and production policy & United Nations Environment Programme's (UNEP) supporting activities, *Journal of Cleaner Production*.

Miller, Dale T., and Deborah A. Prentice. 2016. "Changing Norms to Change Behavior." *Annual Review of Psychology* 67: 339-361. doi:10.1146/annurev-psych-010814-015013

Weber, C. L. and H. S. Matthews (2008) Quantifying the global and distributional aspects of American household carbon footprint, *Ecological Economics*,

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66(2-3): 379391. McLaughlin, Dorothy. "Fooling with Nature": Silent Spring Revisited.<http://environment.nationalgeographic.com/environment/greendex/> <http://www.theguardian.com/environment/2012/dec/18/fracking-guar-beans-profit-rajasthan-india>

Module 4: Sustainable living

- Sustainable lifestyle- Meaning and concepts
- Need to promote sustainable lifestyles
- Key lifestyle domains and the environment
 1. Food
 2. Housing
 3. Mobility
 4. Consumer goods
 5. Leisure
- Government initiatives
- The environmental consequences of our style

Task: assignment on Critical appraisal of your lifestyle and what is being done to changes in behaviour for a sustainable lifestyle.

Recommended references:

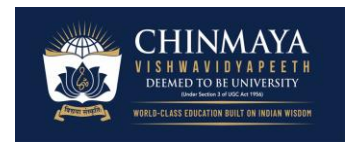
Brodhag, C. (2010). A differentiated approach for sustainable consumption and production policies. *Natural Resources Forum*, 34(1), 63–70.
<http://doi.org/10.1111/j.1477-8947.2010.01276.x>

Defra. (2011). *A Framework for Sustainable Lifestyles*. Department for Environment, Food, and Rural Affairs, UK.

Jackson, T. (2005). *Motivating sustainable consumption: A review of evidence on consumer behaviour and behavioural change*. Report to Sustainable Development Research Network, 17

UNEP. (2009). *Buildings and Climate Change: Summary for DecisionMakers*. Paris:

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United Nations Environment Programme.

UNEP. (2010). ABC of SCP: Clarifying Concepts on Sustainable Consumption and

Production. Paris: United Nations Environment Programme.

Module 5: sustainable lifestyle in the context

- The theoretical framing of lifestyles from a sustainability lens.
- Influencing factors of consumption and sustainable living.
- Motivation of sustainability lifestyles.
- Talk by environmental scientist and environmental activist.
- Determinants of sustainable lifestyles.

Activity: Develop a Bio-diversity register of CVV campus and submit. Presentations of the developed biodiversity register by the student.

Recommended References:

Regenerative Leadership Institute. 2007. "What Is Sustainable Living?" RLI Blog, <https://www.regenerative.com/sustainable-living>.

United Nations Environment Programme. 2011. "Visions for Change: Recommendations for Effective Policies on Sustainable Lifestyles." <http://www.unep.fr/shared/publications/pdf/DTIx1321xPA-VisionsForChange%20report.pdf>.

UNEP (2012). Growing Greenhouse Gas Emissions Due to Meat Production. United Nations Environment. Available from: http://www.na.unep.net/geas/get UNEPPageWithArticleIDScript.php?article_id=92Programme.

Winter, Mick. 2007. "Sustainable Living: For Home, Neighborhood, and Community."

Napa, CA: Westsong Publishing

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