

NATIONAL EDUCATION POLICY

FYUGP REGULATIONS-2022

B.A/B.COM/BBA/S.SC/SCA 4 –YEAR UNDERGRADUATE PROGRAM 9FYUGP0 WITH SINGLE MAJOR UNDER THE NEW CURRICULUM AND CREDIT FRAMEWOK, 2022

MULTIDISCIPLINARY COURSES (MDC)
SUSTAINABLE DEVELOPMENT



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UNIVERSITY OF NORTH BENGAL

RAJA RAMMOHUNPUR, P.O.-N.B.U; DISTRICT-DARJEELING, PIN-734013, WEST BENGAL,
INDIA

Undergraduate Board of Studies

SUSTAINABLE DEVELOPMENT

Dr. Monoranjan Chowdhury, Professor, Department of Botany, NBU [Chairman]

Dr. Arnab Sen, Professor, Department of Botany, NBU [Member]

Dr. Snehasish Saha, Asst. Professor, Department of Geography & Applied Geography, NBU [Member]

Mrs. Meeta Bala, Asst. Professor, KGT Mahavidyalaya, [Member]

Course Structure

Course Code	Course Name	Lectures/ Tutorials/ Nos.	Credits	Marks		
				Theory	Mid-Semester Exams & Assignment	Attendance
	Sustainable Development					
		45	3	60	10	05

Course Description:

The course is designed as furnished above as course structure covering maximum theoretical bearing 45 lectures cum class room interactions and mid-term/semester exam. Obviously accountability of the pupils to the course and to the institution as a fact of regularity indicator has also been tried to judge through prioritizing the attendance. All aspects of education like knowledge dissemination, skill development, learning orientations etc. have been tried to develop. Six units have been framed with a view to cascading approach of syllabus making meaningfully starting from initial concepts to contemporary world views. Environment, Ecology, Biodiversity, Pollution; all such contemporary cum burning aspects related to sustainability challenges have been incorporated here with a culminating last unit which is deciphering on the world level executions to secure sustainable Development.

Course Outcomes (expected):

The mission of the MDC on Sustainable Development is to create moral values among and between every citizen to be the most responsible one towards our Nation and more broadly towards our Mother Nature who has boosted ourselves with all of the resources even the bests of intellectual resources. So it is the onus on our shoulders to care and protect for sustainable preservation of our Mother Nature and our Mother Nation. The paper/course is an impetus for developing the attitudes and mental make-up to move one step forward towards that goal. It will passage to the sustainable mentality oriented moves of the common people energized through the learning of the paper/course especially from the teachers who are the real dependable authority to a pupil since memorable past like the ages of *Chanakya* and *Aryabhata*. Some sustainable issues in the urban even in the rural societies are very important like Life without plastic bags, protests for illegal and ruthless tree cutting, putting garbage rightly to the bins, giving up open defecations, giving up the actions of decorations using plastic flowers, spitting on the walls of masonry heights etc. All these indecent attitudes are the hindrances behind the ramification of a responsible and diligent citizen. Hence the first expected outcome is really important. The course seeks to generate continuous interest of the learners to improve their prime thought process and to strengthen themselves for addressing complex challenges from the society and disrupted situations be it social, political, disaster induced etc. and then the main power is the power of human values and energy to struggle. The course as per the second expected outcome also dreams to achieve that. This course devotes to build up the intellect for basic scientific knowledge for sustainable development, ethics, and law, stamina to combat against corruption of resources like timber mafia, poaching, illegal encroachments of river beds etc. Finally the most

important outcome to be achieved is to relate the local environment with the global environment and to campaign for Sustainable and sustainable attitude for everything to offer a better world to the forthcoming generations.

UNIT I

SUSTAINABLE DEVELOPMENT: IDEA AND BACKGROUND

Sustainable Development: Central Theme, Scope and Nature as a Discipline, Industrialization, Urbanization and threats to Sustainable Development, Economic Growth and Triple 'P' concept, Brundtland Report, 1987 and Sustainable Development Idea, Sustainable development and central capacities, UNGA (United Nations General Assembly) and SDG (Sustainable Development Goals, 2015.

UNIT II

ECOLOGY AND BIODIVERSITY

Ecosystem: Biotic and abiotic elements and their sustainable use, Ecology and Sustainability: Terms and Thoughts- Food chains, Food web, Energy flow in ecosystem, Ecological niche, Habitat, Geographical range, tolerance range, Bio-geographical Regions of the world, Ecological limits, Ecological Engineering, Levels of Environmental Awareness, Some Major Ecosystems of the World: Aquatic -Marine Terrestrial- Forests (reference to North Bengal), Deserts & Grasslands.

UNIT III

BIODIVERSITY PRESERVATION AND SUSTAINABLE DEVELOPMENT GOALS

Causes of Bio Diversity Depletion and Strategies for Sustainable use of Biodiversity, , Endangered and Threatened Species and their sustainable conservation needs, Major Biodiversity Zones of the world, Biodiversity Hot Spots, Biomimetics and Sustainable Development, Sustainable Development Goals in view of World-wide Biodiversity loss, Ecotourism and Sustainable Development with reference to North Bengal.

UNIT IV

SUSTAINABLE DEVELOPMENT AND URBANITIES

Sustainable City Environment: concept, Gender role in sustainable development, Education for sustainable Development: Evolutionary history of Sustainable Development ideas, Healthcare, Well-being and Sustainable Development, Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs): Agenda 2030

UNIT V

POLLUTION AND ITS IMPACT ON SUSTAINABLE DEVELOPMENT

Green Movements, Green Building, Air pollutants, Types of particulate matter and threats to sustainability, causes of Air, Water, Soil, and Noise pollution: Broad concepts, Concept of High Efficiency Particulate Air (HEPA) & Ultra Low Particulate Air (ULPA) Filters, Utility of control equipments: gravity settling chambers, cyclone separators, wet collectors, fabric filters, venturi scrubbers, electrostatic precipitators, Desulphurization of coal and oil, Control of Nitrogen oxides by Thermal combustion, Catalytic Incineration, stacks : Idea and meaning

UNIT VI

SUSTAINABILITY & EXECUTIONS

Sustainability & its factors, sustainability Needs: food security and agriculture, renewable resources - water and energy, non-renewable resources, sustainability conflicts, Clinical Economics and Development, The Sustainable Development Goal Fund, public-private partnerships for sustainable development and Private Sector Advisory Group, Sustainable development metrics

SUGGESTED READING

Jeffrey D. Sachs (2015). *The Age of Sustainable Development*, Columbia University Press.

Kobena T. Hanson, Korbla P. Puplampu, Timothy M. Shaw (2018). *From Millennium*

Development Goals to Sustainable Development Goals, Routledge. *Rethinking African Development*

Franco, I. B. and Tracey, J. (2019), "Community capacity-building for sustainable development:

Effectively striving towards achieving local community sustainability targets", *International Journal of Sustainability in Higher Education*, Vol. 20 No. 4, pp. 691-725.

Ajay Ahlawat (2019). *Sustainable development goals: directive principles for sustainable India*, Notion Press.

Martin J. Ossewaarde (2018). *Introduction to Sustainable Development*, First Edition, SAGE Publications Pvt. Ltd.

H. Robinson (1972). *Biogeography*, Publisher Macdonald & Evans Ltd.

M. C. Dash (2019). *Concepts of Environmental Management for Sustainable Development*, Dreamtech Press, Wiley.

Santosh V. Rankhamb, Yasmeen Shaikh, T. S. Pathan, & Atulkumar R. Chourpag (2021).

- Sustainable Development for Future: "Insights from agriculture, Health, Aquaculture, Energy, Education and Environment, Notion Press; 1st edition.
- Our Common Journey: A Transition toward Sustainability. National Academy Press, Washington D. C. Soubbotina, T. P. 2004.
- Elliott, Jennifer. 2012. An Introduction to Sustainable Development. 4th Ed. Routledge, London.
- Rogers, Peter P., Kazi F. Jalal, and John A. Boyd. "An introduction to sustainable development." (2012).
- Arjun Gope, Abhijit Sarkar, Prasamita Sarkar, Santanu Majumder, Kuldip Gosai (2019). Environmental Issues & Sustainable Development, Notion Press.
- Sachs, J. D. 2015. The Age of Sustainable Development. Columbia University Press, New York.
- Soubbotina, Tatyana P. 2004. Beyond Economic Growth: An Introduction to Sustainable Development. WBI learning resources series. Washington DC; World Bank.
- Kerr, Julie. Introduction to energy and climate: Developing a sustainable environment. CRC Press, 2017.
- Saito, Osamu. Sharing Ecosystem Services. Springer Singapore, 2020.
- Nhamo, Godwell, and Vuyo Mjimba. Sustainable Development Goals and institutions of higher education. Springer, 2020.
- Bell, Simon, and Stephen Morse. Sustainability indicators: measuring the immeasurable?. Routledge, 2012.
- Sørensen, Bent. Energy, Resources and Welfare: Exploration of Social Frameworks for Sustainable Development. Academic Press, 2016.
- Dent, David, Olivier Dubois, and Barry Dalal-Clayton. Rural planning in developing countries: supporting natural resource management and sustainable livelihoods. Routledge, 2013.
- Sala, Serenella, Biagio Ciuffo, and Peter Nijkamp. "A systemic framework for sustainability assessment." *Ecological Economics* 119 (2015): 314-325.
- Stafford-Smith, Mark, David Griggs, Owen Gaffney, Farooq Ullah, Belinda Reyers, Norichika Kanie, Bjorn Stigson, Paul Shrivastava, Melissa Leach, and Deborah O'Connell.

"Integration: the key to implementing the Sustainable Development Goals."
Sustainability science 12, no. 6 (2017): 911-919.

Goudie A. 2001. The Nature of the Environment. Blackwell, Oxford.

Kormondy, Edward J. 2012. Concepts of Ecology. PHI Learning Pvt. Ltd., New Delhi.

Gilpin, A. 1994. Environmental Impact Assessment: Cutting Edge for the 21st Century (EIA:
Cutting Edge for the Twenty-First Century. Cambridge University Press)

Odum, E. P. et al. 2005. Fundamentals of Ecology. Cengage Learning, India.

Sharma, P. D. 2015. Ecology and Environment. Rastogi Publications, Meerut.