

Sustainability and Human Needs

Overview

What is a sustainable quality of life or standard of living? Is it at the current level of consumption in industrialized countries like the US, in emerging economies like China and India, or in lower-income countries like Kenya? How should governments balance the need to create national income and provide for the human needs of their citizens, against the desire to conserve natural resources and the environment for future generations? Sustainable Development allows a society to satisfy its present needs without compromising the ability of future generations to meet their needs. Sustainability is a principle that allows societies to achieve sustainable development. Yet how may sustainable development be achieved with rapid population growth, urbanization and climate change? Can the new United Nations Sustainable Development Goals help?

This course will begin with a review of system analysis; including goals, objectives, tradeoffs, economic and decision analysis. It will then use these fundamentals to systematically analyze sustainability in the context of human needs. The course will examine the technology and policy approaches to satisfying these needs, including the externalities they incur and the tradeoffs involved between social benefit and environmental impact. We will analyze the roles of government, NGOs, and industry in implementing sustainability at the national level. The course will examine illustrative examples of innovative approaches to sustainability in high- and low-income countries.

The course will consist of a set of assigned readings, daily written briefs on the readings, daily small group presentations on the assigned material, and facilitated lectures and discussions by the instructor and invited speakers. The course will include field trips to several facilities that illustrate the issues of sustainability covered in class. Students will complete a small-group course project report and presentation on a related topic. Each student will keep a daily log in a hard cover notebook of their thinking on sustainability and human needs over the course of the project. Students completing the course will understand sustainability as the context for satisfying human needs in society, and be able to evaluate technologies and public policies to promote sustainable development at the national and global levels. The course will also evaluate sustainability in the context of the UN's Sustainable Development Goals.

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| Objectives | <p>The goal of this course is to enable students to evaluate critically and systematically, the challenges and opportunities for human development in the 21st Century. This will be achieved by three objectives:</p> <ol style="list-style-type: none"> 1. To build students' knowledge and comprehension of the tools, concepts, policies and processes of sustainability in the provision of human needs. 2. To engage students in the tradeoffs involved in fostering human development with explicit constraints of equity and resource conservation. 3. To allow students to articulate and thereby refine their ideas about sustainability, human needs, and development in an interconnected and interdependent world. | | | | | | | | | | |
| Dates for the course | 4 – 16 December, 2017 | | | | | | | | | | |
| Target Group | <ul style="list-style-type: none"> ▪ Student at all levels (B.Tech/MTech/PhD) and Faculty from reputed academic institutions and technical institutions can benefit from this program as the credit course. ▪ Engineers, working officials of NGOs, and researchers in the field of water resources can attend to this course. ▪ Student, teachers and working officials of SAARC countries can also attend to this course. | | | | | | | | | | |
| Fees | <p>The participation fees (Excluding Lodging & Boarding) for taking the course is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Students Participants without/with Grading</td> <td style="text-align: right; padding: 2px;">Rs. 1000/Rs. 2000</td> </tr> <tr> <td style="padding: 2px;">Faculty (Internal & External) & Scientists</td> <td style="text-align: right; padding: 2px;">Rs. 4,000</td> </tr> <tr> <td style="padding: 2px;">Persons working in Industry / Consultancy firms</td> <td style="text-align: right; padding: 2px;">Rs. 8,000</td> </tr> <tr> <td style="padding: 2px;">Foreign Students</td> <td style="text-align: right; padding: 2px;">USD 100</td> </tr> <tr> <td style="padding: 2px;">Other Foreign Participants</td> <td style="text-align: right; padding: 2px;">USD 200</td> </tr> </table> <p>The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.</p> | Students Participants without/with Grading | Rs. 1000/Rs. 2000 | Faculty (Internal & External) & Scientists | Rs. 4,000 | Persons working in Industry / Consultancy firms | Rs. 8,000 | Foreign Students | USD 100 | Other Foreign Participants | USD 200 |
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| Foreign Students | USD 100 | | | | | | | | | | |
| Other Foreign Participants | USD 200 | | | | | | | | | | |
| Evaluation and Grading | Students registered with grading will be evaluated for two credits based on continuous evaluation in tutorials, midterm and end of course examinations. Grade will be awarded based on the performance in the evaluation. | | | | | | | | | | |

The Faculty

International Expert



Garrick E. Louis has served on the faculty since 1997. He was an AAAS Science & Policy Fellow at the Environmental Protection Agency in 2006-2007. He received the Presidential Early Career Award for Scientists and Engineers in 2000. He was a postdoctoral fellow in Engineering & Public Policy at Carnegie Mellon University, a Warren Weaver Fellow at the Rockefeller Foundation and a member of the teaching faculty at the State University of New York before coming to the University of Virginia. He is also Director of the Small Infrastructure and Development Center at the University. He is one of the experts in dealing with issues related to water and sanitation. The SID Center is a center of excellence for research, education, and outreach on the acquisition, implementation, and management of appropriate technology and management systems for sustained access to infrastructure-based services in developing communities. Louis was an AAAS-EENR Science and Policy Fellow at the EPA National Center for Environmental Research. As a fellow Louis helped to develop EPA's "Sustainable Communities," research program, which seeks to characterize and mitigate the impacts of civil infrastructure on natural resources, particularly in rural areas affected by urban sprawl. Dr. Louis is the Lead Investigator and Course Instructor, Ethics in Engineering Research and Practice. Louis is the 2010 Richard D. Donchian Faculty Fellow in Ethics at the University of Virginia, and created the course as a continuation of his course in Ethics Education for Scientists and Engineers developed under an NSF EESE grant. Louis was chair of the Education ad-hoc committee (2007-2008), and a member of the planning committee of the Second World Congress on Risk in Guadalajara, Mexico (June 2008). He chaired the session on "Public health priorities: infectious disease & safe drinking water." Louis is co-founder and co-chair of the Risk and Development Speciality Group.

Institute Expert



Dr Chandra Sekhar is Professor in Civil Engineering at National Institute of Technology Warangal. He is an expert in the areas of water quality, waste treatment and environmental impact assessment. He is BoS Member, JNTU, Anantapur, Kakatiya University, Warangal and Governing Body Member for few Engineering Colleges. He is also Member for Expert Committee on Environmental Flows in Krishna – Godavari Rivers. He has lot of administrative experience as Registrar, NITW, Director (Academic), Institute for Electronic Governance, Govt of AP, Head, Training & placements, etc. He has coordinated several workshops, seminars, continuing education programs. Authored a text Book titled **Environmental Science**, which is prescribed text book in SV University, NIT, Kakatiya University, etc. He has number of publications to his credit. He was invited for **Research Discussions** at the University of Essen, **Germany** and Technical University of Vienna, **Austria**. Invited by UN to teach a course on Environmental Engg. at the **Prestina Summer Univ**. He was offered the prestigious Scholarship by the **Max Plank Institute, Hamburg**. He also received Scholarship from **DCAMM (Danish Center for Applied Mathematics and Mechanics)** International Graduate Research School, Denmark. He was invited for two **World Wide Water - Junior Environmental Scientists (WWW – JES) Workshops at Water University, Paris**. Awarded **Gold Medal and Memento** for Best Contribution as Team Leader in the **Janmabhoomi Programme** involving peoples' participation. He traveled widely across the globe on teaching, research and other consignments. The list includes Japan, Germany, USA, France, Netherlands, UK, Ireland, New Zealand, Australia, Kuwait, Denmark, Austria, Singapore, etc.

Two week GIAN course

on

Sustainability and Human Needs

4 – 17 December, 2017

Course Coordinator

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