**Course Overview**

The intensive and aggressive human activity has created serious problems that can lead to irreversible consequences, and not in the distant future, if humanity does not take up the mind. Presently there are a lot of polluted places in the world, but the most dangerous consequences of human exposure to the environment represent the gold processing enterprises, which form vast territories, the so-called tailings. What danger do they pose to the environment? In such places several sources of environmental pollution are localized, among them are pore waters, solid re-deposition materials and vapor-gas stream. So, all these media are components of the biosphere and each of these subsystems contributes to the local, regional and global transport, which includes the spread of pollutants through atmosphere, hydrosphere and lithosphere flows, accompanied by the transformation of substances. In this connection it is very important to study these environs in dynamics taking into account the possible converting of the substances. This knowledge will bring an understanding on what is happening in such systems in order to build a strategy to prevent their degradation and destruction.

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 contemporary global challenges, and be able to evaluate technologies and public policies to counter the challenges faced by the biosphere.

**Course Objectives**

The goal of this course is to enable students to evaluate critically and systematically, the global challenges in the biosphere in the 21st Century. This will be achieved by the following objectives:

1. Exposure of participants to the dangerous phenomena in atmosphere, hydrosphere, lithosphere and their possible consequences.
2. Creating representations about transformation and transport of the substances in natural and disturbed ecosystems.
3. Providing information on approaches and methods for the study of natural environments.
4. Formation an impression of the real problems in the biosphere as a whole and the ideas to prevent disasters.

**Target Group**

1. 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.
2. Engineers, working officials of NGOs, and researchers in the field of water resources can attend to this course.
3. Student, teachers and working officials of SAARC countries can also attend to this course.

**How to Register?**

**Stage -1**

**Web(Portal) Register:**
Visit GIAN Website at the link:
http://www.gian.iitkgp.ac.in/GREGN/index and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs 500/- online through Net Banking / Debit / Credit card. This provides him/her with life time registration to enroll in any number of the GIAN courses offered.

**Stage -2**

**Course Registration (Through GAIN Portal):**
Log in to the GIAN portal and create user ID and password. Now login in and click on **Course Registration** option given at the top of the registration form. Select the course titled **Biosphere – Contemporary Global Challenges** from the list and click on ‘Save’ option. Confirm your registration by Clicking on **Confirm Course**.

**Registration Fees**

<table>
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<th>Category</th>
<th>Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Participants without/with Grading</td>
<td>Rs. 1000/</td>
</tr>
<tr>
<td>Faculty (Internal &amp; External) &amp; Scientists</td>
<td>Rs. 2000</td>
</tr>
<tr>
<td>Persons from Industry / Consultancy firms</td>
<td>Rs. 4,000</td>
</tr>
<tr>
<td>Foreign Students</td>
<td>USD 100</td>
</tr>
<tr>
<td>Other Foreign Participants</td>
<td>USD 200</td>
</tr>
</tbody>
</table>

The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, free internet facility. The participants will be provided with accommodation on payment basis.

**Selection and Mode of Payment**

Selected candidates will be intimated through Email. They have to remit the necessary course fee to the Bank as per the details given below. Outstation participants requiring accommodation and boarding facilities have to pay Rs.4000/- in addition to the course fee.

<table>
<thead>
<tr>
<th>Account Name</th>
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<tbody>
<tr>
<td>Account Number</td>
<td>62447453600</td>
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<tr>
<td>Bank</td>
<td>State Bank of India, REC Branch, NIT Warangal</td>
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<tr>
<td>Branch Code</td>
<td>20149</td>
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<td>IFSC</td>
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</tbody>
</table>

Candidates registering early will be given Preference in short listing process.

**Number of participants for the course will be limited to fifty.**

**For any queries regarding registration of the Course, please contact the Coordinator**

Prof M CHANDRA SEKHAR
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About the Civil Engineering Department, NITW

The Department of Civil Engineering has been one of the pioneering academic departments of the National Institute of Technology, Warangal since the inception of the institute in 1959. The Department has well qualified, experienced and motivated faculty members. The Department of Civil Engineering with four divisions offers an undergraduate program in Civil Engineering and seven postgraduate programs. All the programs are accredited by NBA. The Department has experienced faculty and well established laboratories. The Department is collaborating with major government departments, Industries and R&D organizations.

About the Institute and Warangal

National Institute of Technology (formerly Regional Engineering College), Warangal is the first among 17 RECs setup as joint venture of the Government of India and the state government. Over the years the college has established itself as a premier Institution imparting technical education of a very high standard leading to the B. Tech degrees in various branches of engineering and M. Tech and Ph. D programs in various specializations. With a view to give further impetus to the technological education, the Central Govt. upgraded the RECs into NITs, and conferred the Deemed to be University status. The Institute is well known for its dedicated faculty, staff and the state-of-the-art infrastructure conducive to a healthy academic environment. The Institute is constantly striving to achieve higher levels of technical excellence. Evolving a socially relevant and yet internationally acceptable curriculum, implementing innovative and effective teaching methodologies and focusing on the wholesome development of the students are our concerns.

Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140 Km. from Hyderabad. Warangal is well connected by rail and road. National Institute of Technology campus is 2 Km. away from Kazipet railway junction and 12 Km. away from Warangal railway station. Participants are advised to alight either at Kazipet or Warangal depending upon the train of travel. The local weather during December is cold. The average temperature will be about 30°C during day and about 20°C during night. The nearest International Airport is Rajiv Gandhi International Airport, Hyderabad.

One Week GIAN Course On

Biosphere - Contemporary Global Challenges

November 7 -11, 2022

Call for Registration and Participation

International Faculty

Dr. of Sci. OLGA V. SHUVAEVA
Professor of Natural Sciences Department
Novosibirsk State University
NOVOSIBIRSK, RUSSIA

Coordinator
Prof. M CHANDRA SEKHAR

Organized by

Water & Environment Division
DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
WARANGAL – 506004