Overview

With increasing rates of urbanisation and high population growth rates there is a need for robust engineering inputs which acknowledge societal, economic and environmental issues through partnerships with local stakeholders and institutions.

This module will provide engineers an overview of the challenges and complexities of working internationally. The module will discuss theories of development and the challenges associated with infrastructure provision. The focus of this module would be for resource limited settings where the mainstream development paradigms fail to address the gap in basic rural energy, amenities and housing needs.

This module will address the goals of the newly formed Unnat Bharat Abhiyan (2015) formulated by Indian Institute of Technology (IIT) Delhi for the Ministry of Human Resource Development. This scheme promotes design solutions inspired by the vision of transformational change in development processes by leveraging knowledge of academic institutions. This movement enables processes that connect academic institutions with local communities to address development challenges through participatory processes and appropriate technologies. In the next five years this scheme will cover all villages in India.

This module has been an integral part of the M. Sc. in Engineering for International Development at UCL and has been customised to meet the needs of the Centre for Rural Development Technology at IIT Delhi and address the themes of Unnat Bharat Abhiyan.

Course Outline

This course is scheduled from 14th September to 19th September, 2017. Course objectives will be covered in five days which includes lectures and case study sessions.

The primary objectives of the course are as follows:

1. To understand the concept of Unnat Bharat Abhiyan and achieving its objectives through low cost technology development
2. To understand the need of technological interventions in rural areas
3. To explore the use of biogas as next generation sustainable energy source
Contents:

14th September, 2018 Friday
Session 1: Celebration of Engineer’s Day and introduction to Unnat Bharat Abhiyan (IIT Delhi)
Session 2: Introduction to the module, group projects, appropriate technologies and role of engineering and development, book review list
Session 3: Selection of book for review and early discussion. The books on the reading list will include Gram Swaraj, Hind Swaraj, Small is Beautiful.

15th September, 2018, Saturday
Session 1: Introduction to field case study site and best practices for rural development
Session 2: Participatory techniques, monitoring and assessment, stakeholder engagement required to provide appropriate technologies, village development planning
Session 3: Ministry led session on policy formulation
Tutorial 1: Group work for related project

17th September, 2018, Monday
Lecture 1: Water and sanitation solutions for rural communities
Lecture 2: Renewable energy and SMART solutions
Lecture 3: Biogas and potential for rural communities
Tutorial 1: Present book review key findings to the group

18th September, 2018, Tuesday
Lecture 1: Bio-resource based rural energy systems, food processing, energy provision in rural communities’ case studies
Lecture 2: Solid waste management in rural communities
Lecture 3: Low cost housing criteria, traditional wisdom, governmental programmes
Tutorial 3: Time for groups to discuss progress on their group project

19th September 2017, Friday
Group presentation, feedback and panel discussion with external expert as part of their examination. In this activity they will use all the frameworks and tools covered under the module to present their solution to a real life challenge under the aegis of Unnat Bharat Abhiyan.
Lecture 1: Concluding presentation about Unnat Bharat Abhiyan.

Number of participants for the course will be limited to thirty

Who can attend

• Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories.
• Student students at all levels (B. Tech./M. Sc./M. Tech./Ph. D.) or Faculty from reputed academic institutions and technical institutions.

Registrati on Procedure

1: **GIAN Web Portal Registration:** Register in the GIAN portal http://www.gian.iitkgp.ac.in/GREGN/index. by paying Rs. 500/- online. Registration to this portal is one time affair and will be valid for lifetime of GIAN. Please note that Course fee is separate.
Step 2: Course Registration: Login to the GIAN portal with the registered User ID and Password. Choose for the Course registration option. Select the course titled “Quantitative Microbial Risk Assessment” from the list and click the “Save” option. Confirm your registration by clicking the suitable option. Last date for the registration of this course is

Step 3: Course Shortlisting: Candidates will be intimated through email regarding their selection.

Step 4: Course Fee Remittance: Once you receive the intimation from the Course Coordinator, the fee (as applicable) need to be paid. The participation fees for taking the course is as follows:
Participants from abroad: US $400
Industry/ Research Organizations: INR 15000.00
Academic Institutions: INR 5000.00
Students: INR 2000.00
The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges. The participants will be provided with accommodation on payment basis.
The details of fee payment by Electronic Clearing Service/ RTGS in the name of “IITD CEP ACCOUNT”:

<table>
<thead>
<tr>
<th>Bank Name</th>
<th>State Bank of India</th>
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<tr>
<td>Branch Name &amp; Address</td>
<td>IIT Delhi, Hauz Khas, New Delhi – 110016</td>
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<td>IFS Code</td>
<td>SBIN0001077</td>
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Step 5: Send Registration Form to Course Coordinator: Fill up the registration form (Given in Page 5 of this brochure), by providing details of the bank transaction. Send the registration form to the Course coordinator at vkvijay@rdat.iitd.ernet.in before 14 August 2018
The faculty

Dr. Priti Parikh
Dr. Parikh is an Associate Professor in the Engineering Sciences Faculty at UCL. She created and now leads an innovative MSc programme titled Engineering for International Development. Her research focusses on the provision of infrastructure services in slums and rural communities in South Asia and Africa. She carries out sustainability assessments and monitoring/evaluation of infrastructure projects using participatory techniques and impact assessment tools. She has substantial in-country experience in South Asia, Africa and UK working with local governments and slum communities and has led multi-sectoral projects at both city and community scale.

More details can be found at:
https://iris.ucl.ac.uk/iris/browse/profile?upi=PPARI97

Prof. V.K. Vijay
Virendra Kumar Vijay is working as a Professor at IIT Delhi. Prof. Vijay has successfully developed technology on Biogas Enrichment and bottling for Vehicular Application and transferred it to the industries and field. He also received a patent for it. He is fellow of Institution of Engineers and Life Member of NASI, ISAE, ISTE, SESI and other scientific and professional societies/bodies. More details can be found at: http://web.iitd.ac.in/~vkvijay/

Dr. Kavya Dashora
Dr. Kavya Dashora is working as Assistant Professor, CRDT, IIT Delhi. The key areas of her expertise include policy level intervention for
food security and low cost technologies, environment and agricultural sustainability, enhancing soil quality, reduction of pesticide residues, invasive alien species, climate change and plant protection in various countries through national and international projects, etc.

Dr. Kavya joined IIT Delhi in December 2016. More details can be found at: [http://www.iitd.ac.in/content/dr-kavya-dashora-crdt](http://www.iitd.ac.in/content/dr-kavya-dashora-crdt)

**Dr. Vivek Kumar**

Dr. Vivek is working as Associate Professor, at CRDT, IIT Delhi. With specialisation in Renewable Energy Sources, Biogas Enrichment and Bottling, Bio Energy Applications for Rural Areas, Animal Power, Rural Energy Planning and Management, Rural Industrialization, Sustainable Development and Environment, Food Processing and Post Harvest Technologies, Waste Management Systems, Cow-dung and Urine Based Products (Panchgavya).

More details can be seen at: [http://wd.eckovation.com/CRDT/faculty/](http://wd.eckovation.com/CRDT/faculty/)
GIAN Course on Technical Challenges and Solutions for Holistic Development of Communities (September 14 to Sept 19, 2018)

Name: ______________________________________________________

Designation: __________________________________________________

Organization: __________________________________________________

Address: _______________________________________________________

E-Mail: _________________________________________________________

Phone: _________________________________________________________

Mobile: _________________________________________________________

Fax: __________________________________________________________

Fees Payable to “IITD CEP ACCOUNT”, SBI, IIT DELHI

Transaction No.: ________________________________________________

Dated: _________________________________________________________

Bank Name: ___________________________________________________

Rs. ____________________________________________________________

Signature of Applicant