AC 2008-2821: THE INDO-US ENGINEERING FACULTY INSTITUTES - A MODEL FOR INTERNATIONAL COLLABORATION

Krishna Vedula, University of Massachusetts-Lowell

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Indo US Engineering Faculty Leadership Institute Summer 2008

May 26 to June 13 & June 30 to July 18, 2008
Global Education Center, Infosys Technologies Ltd., Mysore

FACULTY DEVELOPMENT PROGRAMMES

Offered by
Indo US Collaboration for Engineering Education (IUCEE)

Information Brochure

&

Registration Details for Faculty of Engineering Colleges

Resource Persons
Distinguished faculty from renowned US universities
in association with expert professors from Indian engineering education system

sponsored by

Desh and Jaishree Deshpande, USA and Sudha and Narayana Murthy, India

in partnership with

American Society for Engineering Education (ASEE),
Indian Society for Technical Education (ISTE)
and International Federation for Engineering Education Societies (IFEES)

VENUE: Global Education Center, Infosys Technologies Ltd.,
Mysore, Karnataka State, India

Registration can be for any number of individual workshops
Fees of Rs. 2,500 for each workshop covers boarding and lodging at venue

Address for Correspondence:

Sri.L.Premachandra Reddy,IAS
Commissioner of Technical Education
5th and 6th Floor, BRK Bhavan, Tank Bund Road,
Hyderabad - 500 027, A.P. India

Deadline for receipt of *APPLICATION ON-LINE* and *COMMITMENT FORM BY POST* is March 5, 2008.
Any questions should be addressed by email to pnpradeep@gmail.com.

1. INTRODUCTION

The Indo-US Collaboration for Engineering Education (IUCEE) is an organization created by leading engineering educators in the US and in India, with the goal of improving the preparedness of the large number of faculty in engineering colleges in India and in the US to address the needs of the global economy. The American Society for Engineering Education (ASEE) and the Indian Society for Technical Education are primary partners. The Action Plan, developed at two Forums, one in Mysore in June 2007 and the second in Washington DC in August 2007, recommended the creation of Regional Indo US Engineering Faculty Institutes with four thrust areas: Curriculum Development, Pedagogy and Delivery; Research and Development; Quality and Accreditation and Innovation and Entrepreneurship, with strong Industry partnership.

These Regional Indo-US Faculty Institutes will foster collaborative networks and exchanges through course offerings for engineering faculty. The resulting networks are expected to lead to mutual benefits to India and to the US, including global experiences for faculty and students, collaborative research, development and entrepreneurship in technologies of global relevance, as well as access for US and Indian universities and companies to more and better prepared engineering graduates.

An Indo US Engineering Faculty Leadership Institute is planned for the summer of 2008 in order to prepare engineering faculty who will lead the creation of these Regional Institutes. Scaling up of the program will be achieved by the "Facilitate the Trainer" approach. Experienced faculty from various regions will be selected to attend the Indo US Engineering Faculty Leadership Institute conducted by US and Indian faculty experts. One week workshops will be offered on specific subjects in close consultation with industry. These workshops will focus on effective methods for teaching the specific subjects and on providing links and access to resources for that purpose. The workshops will be designed to ensure the creation of sustainable communities of practice and collaboration among participants. The workshops will include strategies for mentoring of the selected faculty at their home institutions. They will be encouraged and facilitated to be trainers and will be assisted in offering one-week courses to groups of faculty from engineering colleges at workshops in their regions during the following year as part of their Regional Institutes. They will also be encouraged to conduct workshops to motivate good students in the colleges to enter the teaching profession. In addition, they will be supported in setting up research programs in their colleges, and pursue doctorate degrees (if not already possessing one). A critical part of the program will be the assessment of the outcomes from these in order to guide further development of the programmes. Although the major emphasis in the first year is on computer science and engineering, information technology, telecommunications and electrical engineering, IUCEE plans to cover all disciplines of engineering in subsequent years.

2. PROGRAMME DETAILS:

Schedule for "2008 Indo-US Engineering Faculty Leadership Institute"
(Location: Global Education Center, Infosys Technologies Ltd., Mysore, India)

	Topic	Lead Presenters, Affiliation	Dates
1	Effective Teaching; Cooperative Learning; Effective Faculty Development, Outcomes based education; Quality and Accreditation	Rich Felder and Rebecca Brent, N. Carolina State University	May 26 to 28
2	Preparation for India's membership in Washington Accord	Ashok Saxena, University of Arkansas	May 29 to 30
3	Curriculum Innovation and Quality Assurance: a Roadmap for Excellence & Building Industry Academia Partnerships	Jorge Velez-Arocho and Rosa Buxeda, Univ of Puerto Rico; Lueny Morell, Hewlett Packard	June 2 to 6
4	Strategies for Effective Course Design and Delivery	Veena Kumar, Rutgers, The State University of New Jersey	June 9 to 13 (Parallel Workshops)
5	Selected Topics in Computer Engineering	Joseph Tront, Virginia Tech University	
6	Computer Networks	James Kurose, University of Massachusetts, Amherst	
7	Wireless Communications	P.R. Kumar, University of Illinois Urbana Champagne	
8	Signal Processing	Sidney Burrus, Rice University	June 30 to July 4 (Parallel Workshops)
9	Algorithms, Tutored Video Instruction	Richard Anderson, University of Washington	
10	Software Engineering	Leon Osterweil and Lori Clarke, Univ of Massachusetts	
11	Computer Security and Modern Compilation	Jack Davidson, University of Virginia	
12	Principles of Effective Teaching and Learning	P.V. Krishnan, GIW Industries, USA	
13	VLSI Design	Andrew Mason, Michigan State University	July 7 to 11 (Parallel Workshops)
14	Engineering Design Projects in Service to Community	William Oakes, Purdue University	
15	Project Management; Data Base Design; Security	Vijay Kanabar, Boston University	
16	Electric Energy and Power	S.S. Venkata, University of Washington	
17A	Academic Systems and Processes	M.P. Ravindra, Infosys Technologies Ltd	July 7 to 8
17B	Engineering Education for Building Knowledge Economies Focus on Governance	Andreas Blom, World Bank, Bruno Laporte, Kurt Larsen, Anuja Utz, World Bank Inst	July 9 to 10 (invited only)
18	Academic Leadership	M.P. Ravindra, Infosys Technologies Ltd	July 11
19	Hands-on Engineering using Labview	Dhanabal Solaikutty, National Instruments	July 14 to 18 (Parallel Workshops)
20	Project Based Learning, Sustainable Product Design	Alice Agogino, University of California, Berkeley	
21	Product Life Management using CAD	Xavier Fouger, Dassault Systemes	
22	Developing Leadership Skills	Zacharias Cherian, Agilent Technologies, India	July 17 to 18
23	Engineering Drawing using CAD	George Abraham, Autodesk	July 14 to 18

Workshops are for one week (five days) unless otherwise specified. For the content workshops (# 5 to 11; # 13 to 16; #19 to 21), typically the first 3 or 4 days of the week will cover the curriculum, pedagogy and effective teaching of relevant courses and the rest of the time will be devoted to latest trends in research in that topic. *All workshops are independent of each other. Participants can attend any number of workshops they desire, if selected.* There are no workshops from June 14 to June 29.

3.   FINANCIAL SUPPORT

IUCEE acknowledges the support of their primary sponsors: Jaishree and Desh Deshpande (Founder, Sycamore Networks, US) and Sudha and Narayana Murthy (Co-Founder, Infosys Technologies, India). This support covers expenses for resource persons from US and India, development of course materials, arrangements for participants at Mysore and administrative costs. The regional follow up of the workshops at the Regional Indo US Engineering Faculty Institutes is expected to be supported by regional colleges, state government agencies, central government agencies and businesses.

4.   LIMITATIONS ON NUMBER OF PARTICIPANTS

Participants may apply to attend any number of workshops as they desire. For each content specific workshop (# 5 to 11; # 13 to 16; # 19 to 21), a maximum of 30 participants will be selected from among faculty applicants from all states in India. For the workshops which cover general teaching and learning concepts a maximum of 100 participants each will be selected for # 1 and # 3, while # 4 and # 12 will be limited to 30 participants each. Workshop # 17A and # 17B on "Academic Systems & Processes" and "Governance" are designed primarily for heads of institutions and policy makers and participation is by invitation only. Workshops # 18 and 22 on leadership skills will be limited to 30 participants by invitation only.

5.   FEES TO BE CHARGED

Participants will be charged fees of Rs. 2,500 (~ $ 65) for each one week workshop in order to cover some minimum costs and to ensure seriousness of the participants. This will cover boarding and lodging at the Global Education Center of Infosys Technologies at Mysore. A 50 % discount on fees will be offered to qualified and selected women participants. Participants are expected to provide for their travel to come to Mysore using funds from other sources. (The real cost is estimated at Rs. 40,000 for a participant attending a one week workshop. Participants are being charged only a nominal amount this year)

6.   THE APPLICATION PROCESS

Potential participants must complete an on-line application form available at http://iucee.org/ . Participants are encouraged to enroll for one of the effective teaching workshops (# 1, 3, 4 or 12) as well as one or more of the content specific workshops (# 5 -11 and # 13 -16 and # 18 - 21). Applicants need to download the commitment form from the website, complete the section on their own commitment as well as obtain the written undertaking from the head of their institution. The completed commitment form should be posted to the address provided. **Deadline for receipt of application on-line and commitment form by post is March 5, 2008. Any questions should be addressed by email to pnpradeep@gmail.com.** Please let us know if you have any special needs, such as handicapped facilities.

7.   QUALIFICATIONS AND EXPERIENCE OF PARTICIPANTS

Applicants must have plans to continue in the teaching profession. Applicants holding Master's degrees will be given preference for selection as participants in the above summer workshops. Applicants should have at least one years experience in teaching, although preference will be given to those with more teaching experience. *Special consideration will be given to women faculty, even if they are temporarily not teaching.* Of particular importance will be the potential for participants to be leaders of engineering education in their region.

8.   SELECTION OF PARTICIPANTS

Applications will be reviewed by a selection committee. Applicants will be selected based on their qualifications and potential to be leaders in their region. (*After preliminary screening, some of the suitable applicants may be sent a "Questionnaire" to ascertain the attitudes and motivation of the applicant as well as their plans to carry the effort forward in their regions, prior to final selection).* Selected applicants will be confirmed for participation and will be instructed regarding payment of fees.

9.   SELECTION AND CERTIFICATION OF TRAINERS FOR REGIONAL INSTITUTES

Since a vital part of the IUCEE Action Plan is to create Regional Indo US Engineering Faculty Institutes, several of participants from each of the above workshops will be selected and certified as Trainers for the Regional Institutes. These Trainers will be coached and certified to offer similar workshops in their regions later. Selection of Trainers will be based on qualifications, experience as well as performance in the summer workshops. Selected and certified Trainers will be provided opportunities for further professional development including guidance to Ph.D. programs, where appropriate. All participants

will be awarded certificates and one course credit per workshop completed satisfactorily, towards a planned diploma in engineering education (details of diploma are not yet decided).

10. COMMITMENTS FROM PARTICIPANTS

Participating faculty are expected to prepare for the workshops before hand using materials to be provided. All participating faculty will be expected to complete projects based on the workshop/s attended and assess outcomes in the relevant courses they teach during the following semester. Participants selected to be Trainers will be expected to offer at least one workshop in their own region (in the following Fall semester or Spring semester). All participants will be expected to conduct one workshop in their region for attracting high quality students to enter the teaching profession. A report on the outcomes of these workshops will be expected by IUCEE, in the format to be specified.

11. COMMITMENTS FROM INSTITUTIONS

Institutions to which the faculty participants belong, will be required to commit to encouraging and supporting participating faculty in fulfilling their commitments as described above. In particular, for institutions from which Trainers are selected, the Institutions are expected to provide facilities and support for conducting regional workshops.

12. BENEFITS OF PARTICIPATION

Participating institutions and faculty will benefit by becoming identified as leaders of high quality engineering education. Industry partners of IUCEE and leading US universities and Indian universities will give priority for student recruitment from and collaborations with institutions participating in IUCEE programmes and demonstrating leadership in conducting regional workshops and creating regional institutes.

13. Organization of IUCEE

Partners

All India Council for Technical Education (AICTE)	Department of Science and Technology (DST)	Indo US Science and Technology Forum (IUSSTF)
International Federation of Engineering Education Societies (IFEES)	Global Pan IIT	Technical Education Quality Improvement Program (TEQIP),
Indian Society for Technical Education (ISTE)	Accreditation Board for Engineering and Technology (ABET)	Infosys Campus Connect
MIT Open Course Ware (OCW)	Connexions at Rice University	National Program for Technology Enhanced Learning (NPTEL)
Indo-US Collaboration via EDUSAT	National Science Foundation (NSF)	National Academy of Engineering (NAE)
Indian National Academy of Engineering (INAE)	Industry groups: CII, FICCI, NASSCOM, HYSEA	Board of IT Education Standards (BITES)

Governance and Leadership (to be finalized)

Patrons and Honorary Co-Chairs	Executive Director: Krishna Vedula, University of Massachusetts
Desh Deshpande; Jaishree Deshpande;	Associate Director (India): P.S. Grover, Guru Tegh Bahadur Institute of Technology
Narayana Murthy; Sudha Murthy;	Executive Advisor: Hans J. Hoyer, Director International Programs ASEE

Executive Committee

Frank Huband, Executive Director, ASEE	R. Natarajan, Former Chairman, AICTE
Satish Udpa, Dean, Michigan State University	N. Balakrishnan, Associate Director, Indian Institute of Science
Ashok Saxena, Dean, University of Arkansas	AICTE Chairman (to be appointed)
Gretchen Kalonji, Internl Programs, Univ of CA	Sanjay Dhande, Director, IIT Kanpur
Lueny Morell, University Relations, HP	M. P. Ravindra, Advisor, Infosys Technologies
James Melsa, President, ASEE (ex officio)	N. R. Shetty, President, ISTE (ex officio)
Satish Kulkarni, US Embassy in India	Arabinda Mitra, Executive Director, IUSSTF
Michael Cheetham, Director, ISTP	P. Narasimha Reddy, Director, Sri Nidhi Institute of Technology

Advisors

Paul Peercy Dean, University of Wisconsin	Venkat Rangan, Vice Chancellor, Amrita University
Barbara Olds, Assoc VP, Colorado School of Mines	L. K. Maheshwari, Vice Chancellor, BITS Pilani
Jack Lohmann, Vice Provost, Georgia Inst of Tech	M. S. Ananth, Director, IIT Madras.
Bruno Laporte, World Bank Institute	Damodar Acharya, Director IIT Kharagpur
Vijay Kumar, Sr. Associate Dean, MIT	Deepak Bhatnagar, TIFAC-CORE, DST
S. S. Venkata, University of Washington	Dhrubes Biswas, IIT Kharagpur
Raghu Raghavendra, Assoc Dean, USC	K. Rajagopal, Vice Chancellor, JNTU, AP
Teri Reed-Rhoads, Assoc Dean, Purdue Univ	H. P. Khincha, Vice Chancellor, VTU, Karnataka
Xavier Fouger, Dassault Systemes	Venkatesh Valluri, MD, Agilent Technologies India
Ravi Marawar, National Instruments	P. Anandan, MD. Microsoft India
Kalyan Vaidyanathan, Manager, i2 Technologies	Anil Jampala, HYSEA
M.A. Pai, University of Illinois, Urbana Champagne	S. Chatterjee, Advisor, DST, Govt. of India
Krishna Athreya, Iowa State University	Kaushik Mukherjee, Secretary, Government of Karnataka
Satish Tripathy, Provost, SUNY Buffalo	Madan Padaki, CEO, Merit Trac
Anjan Bose, Professor, Washington St. Univ	Sandeep Sancheti, Director, NIT Suratkal
	Vinnie Jauhari, Hewlett Packard India

Sponsors;

Sponsors for 2008 Leadership Institute	Jaishree and Desh Deshpande	Sudha and Narayana Murthy
	Indo US Science and Technology Forum	Infosys Technologies
Sponsors for 2007 Action Planning Forums	Jaishree and Desh Deshande	Infosys Technologies
Indo US Science and Technology Forum	Dassault Systemes	Hewlett Packard

National Instruments

Autodesk

Agilent Technologies

The Mathworks

Microsoft Corporation

Siemens

Indo-US Collaboration for Engineering Education

I U C E E

APPLICATION FORM

(to be completed and submitted <u>on line</u> by applicant;
available at http://iucee.org/**)**

I   <u>Select Courses</u>**:**

Sl. No.	Select	Topic	Constraints	Dates
1		Effective Teaching; Cooperative Learning; Effective Faculty Development, Outcomes based education; Quality and Accreditation	None	May 26 to 28
2		Preparation for India's membership in Washington Accord	None	May 29 to 30
3		Learning Factory, Effective Teaching; Continuous Quality Assurance Building Industry Academia Partnerships	None	June 2 to 6
4		Strategies for Effective Course Design and Delivery	None	June 9 to 13
5		Computer Engineering	None	June 9 to 13
6		Computer Networks	None	June 9 to 13
7		Wireless Communications	None	June 9 to 13
8		Signal Processing	None	June 30 to July 4
9		Algorithms, Tutored Video Instruction	None	June 30 to July 4
10		Software Engineering	None	June 30 to July 4
11		Computer Security and Modern Compilation	None	June 30 to July 4
12		Principles of Effective Teaching and Learning	None	June 30 to July 4
13		VLSI Design	None	July 7 to 11
14		Engineering Design Projects in Service to Community	None	July 7 to 11
15		Project Management; Data Base Design; Security	None	July 7 to 11
16		Electric Energy and Power	None	July 7 to 11
17		Engineering Education for Building Knowledge Economies Focus on Governance	Invited Only	July 9 to 10
18		Academic Leadership	None	July 11
19		Hands-on Engineering using Labview	None	July 14 to 18
20		Project Based Learning, Sustainable Product Design	None	July 14 to 18
21		Product Life Management using CAD	None	July 14 to 18
22		Developing Leadership Skills	None	July 17 to 18

II   **Name of Applicant: _____**   **Date of Birth: _____**

        Institution currently with: _____   **City and State: _____**

        Email ID: _____   **Mobile Number: _____**

III   <u>Qualifications</u>**:**

Name of Degree	Specialization	Division	Any Honours

IV   Experience:

Institute	From	To	Any Distinctions

V   Subjects Taught in Past 2 Years:

Name of Subject	Branch	UG/PG

V   Research Experience:

Number of Papers published in Subject Area   _____
If you do not have a Doctorate degree, are you Registered for Ph.D. _____
If are not registered for Ph.D., do you wish to register for Ph.D. _____
If you are a Doctorate already, do you wish to continue research _____

VI   Address for Correspondence: _____

Deadline for receipt of on-line application and commitment form by post is March 5, 2008.
Any questions should be addressed by email to pnpradeep@gmail.com.

6

COMMITMENT FORM

(to be completed by applicant as well as head of institution and posted to address given below)

Part A: **Commitment of Faculty Member:**

As a participant, I hereby undertake to use my training in the summer workshop to improve the quality of my teaching in at least one course in the following semester and assess the outcomes according to the Assessment Process prescribed by IUCEE. I also undertake to conduct one workshop for high quality students in my region, in order to motivate them to pursue teaching careers.

If selected as a Trainer, I hereby undertake to use my training in the summer workshop to conduct atleast one workshop on the same subject for faculty in my region, and assess the outcomes according to the Assessment Process prescribed by IUCEE. I also undertake to assist in building a research program in my college.

Date: **Name:**   **Signature:**

Designation: **Institution:**

Part B: **Undertaking of Institution:**

Our Institute which is sponsoring Mr/Dr _____,
(Designation) _____, hereby undertakes to provide appropriate support to him/her for fulfill commitments and give any infrastructural and financial support to him/her to conduct atleast one workshop in our region if he/she is selected to be a Trainer.

Date: **Name:**   **Signature;**

                                                            Rubber Stamp

Designation of Signatory:

Institution:

Address:

Signatory: email   **mobile number**

Completed Commitment Form should be posted to:
Sri. L. Premachandra Reddy,IAS
Commissioner of Technical Education
5th and 6th Floor, BRK Bhavan,Tank Bund Road,
Hyderabad - 500 027, A.P. India

"IUCEE 2008 Summer Workshops" should be written on the Envelope