



KNOWLEDGE INCUBATION FOR TEQIP, IIT KANPUR

TEQIP Workshop for Computer Science Teachers

July 14 - 16, 2014

Three day TEQIP workshop for computer science teachers was focused on the problems faced by several students – absence of depth of understanding of the basic courses. This workshop aimed at understanding the reasons behind these shortcomings and discusses possible ways to eradicate them. Objective of the workshop was to impress upon the participants the need of developing a theoretically sound curriculum with strong Mathematical and Logical base.

Topics Discussed

- Discreet Mathematics
- Programming
- Data Structures
- Theory of Computing
- Algorithms

LIST OF SPEAKERS

- Prof. Harish Kanick
- Prof. Arnab Bhattacharya
- Prof. Amey Karkare
- Prof. Raghunath Tiwari
- Prof. Shashank K. Mehta

PARTICIPATING INSTITUTES

Institute	Number of Participants
National Institute of Technology, Kurukshetra	1
G. B. Pant Engineering College, Pauri-Garhwal	2
UIET, MDU, Rohtak	1
UIET, Panjab University, Chandigarh	2
HBTI, Kanpur	2
N. C. College of Engineering Israna , Panipat	2
Aligarh Muslim University	1
Bipin Tripathi Kumaon Institute of Technology, Dwarahat	2
M. M. M. University of Technology Gorakhpur	2
School of Engineering & Technology IFTM	2
Thiagarajar college of Engineering, Madurai	2
BIET Jhansi	1
PEC University of Technology, Chandigarh	1
M.N.N. Institute of Technology Allahabad	2
IEST, Shibpur	3
Total	26

SCHEDULE OF THE WORKSHOP

July 14, 2014

Time	Event
9:00 AM – 10:00 AM	Registrations
10:00 AM – 11:00 AM	Opening Session
11:00 AM – 11:15 AM	Coffee Break
11:15 AM – 12:15 PM	Discrete Mathematics Prof. Harish Karnick
12:15 PM – 1:00 PM	Programming Prof. Amey Karkare
1:15 PM – 3:00 PM	Lunch Break
3:00 PM – 4:00 PM	Discrete Mathematics Prof. Harish Karnick
4:00 PM – 4:15 PM	Coffee Break
4:15 PM – 5:15 PM	Programming Prof. Amay Karkare
5:15 PM – 5:45 PM	Close of the day Session
5:45 PM	Close of the day session

July 15, 2014

Time	Event
9:00 AM – 10:00 AM	Programming Prof. Amey Karkare
10:00 AM – 11:00 AM	Data Structures Prof. Arnab Bhattacharya
11:00 AM – 11:15 AM	Coffee Break
11:15 AM – 12:15 PM	Theory of Computing Prof. Raghunath Tewari
12:15 PM – 1:15 PM	Algorithms Prof. Shashank K Mehta
1:15 PM - 3:00 PM	Lunch Break
3:00 PM – 4:00 PM	Theory of Computing Prof. Raghunath Tewari
4:00 PM – 4:15 PM	Coffee Break
4:15 PM- 5:15 PM	Discrete Mathematics Prof. Harish Karnick
5:15 PM – 5:45 PM	Feedback Session
5:45 PM	Close of the day session

July 16, 2014

Time	Event
9:00 AM – 10:00 AM	Theory of Computing Prof. Raghunath Tewari
10:00 AM – 11:00 AM	Data Structures Prof. Arnab Bhattacharya
11:00 AM – 11:15 AM	Coffee Break
11:15 AM – 12:15 PM	Algorithms Prof. Shashank K Mehta
12:15 PM – 1:15 PM	Data Structures Prof. Arnab Bhattacharya
1:15 PM - 3:00 PM	Lunch Break
3:00 PM – 4:00 PM	Algorithms Prof. Shashank K Mehta
4:00 PM – 4:15 PM	Coffee Break

4:15 PM- 4:45 PM	Feedback Session
4:45 PM – 5:45 PM	Closure

Summary of Faculty Feedback

Workshop Session

Questions	Excellent	Good	Ordinary
Clarity of communication about workshop	12	09	03
Organization of the sessions	13	11	00
Quality of lectures	14	10	00
Effectiveness of discussions	10	13	01
Effectiveness of learning experience	07	16	01
	Appropriate	Short	long
Duration of workshops	02	22	00
	Definitely	Maybe	No
Would you like to have more such sessions?	18	06	00
Would you like e-lectures by experts on special	20	04	00

Suggest specific topic that you would like additional expert lectures on

- Software Engineering, DBMS
- Artificial Intelligence, Networking
- Basic/fundamental courses of computer science.
- Detailed workshop on Math for Computer Science.
- Fuzzy logic.
- Fractional Image Compression.
- AI, Image Compression.
- Computer Organization and Architecture.
- Cryptography.
- Cloud Computing.
- Wired/Wireless Computer Networks\
- Realty on proving correctness of algorithms and Data Structures.
- Advance topics in algorithms and data structures.
- Machine Intelligence, Soft Computing.
- Image Processing.
- Data Structure.
- Computer Organization, Computer Graphics.
- Theory of Computation, Algorithms.

Additional Suggestions

- Rather than having many courses workshop can be on specific course for a week which will be helpful to faculties from different interests.
- Workshop duration should be at least a week.
- Duration of workshop should be more (one week or two week).
- Less number of subjects, but complete
- Workshop should be based on topics, not subject based.
- There should be some handouts of the topic.

Teaching

<p>Which subjects do you teach?</p>	<ul style="list-style-type: none"> • Software Engineering, Data Structure • Operating system, OOAD, Data Analytics • Discrete Mathematics, Theory of Computation. • AI, TOC, DAA • Network Security, Computer Network. • Cloud Computing, Computer Network • Discrete Math, Theory of Computation • C, Computer Organization and Architecture • Computer Programming • Algorithm, Shell Programming, Data Structure • DIP, Computer Graphics • AI, CAO, C • DS, Operating system and fundamentals of computer. • TOC • Discrete Mathematics TOC • Computer Networks, DBMS • Compiler Algorithms • Network Security & Cryptography • C, DS, Programming. • Artificial Intelligence, Object Oriented System • Digital and Logic Design, DIP • Principle of Programming Language, C • Computer Organization, DS • DS, Algorithms
<p>What is average student to teacher ratio in your institute?</p>	<p>18:1 15:1 15:1 15:1 20:1 15:1 90:1 90:1 18:1 20:1 50:1 20:1 60:1 12:1 25:1 15:1 09:1 15:1</p>

Questions	YES	NO		
Do you have additional support for teaching (tutors, graders, teaching Assistants, etc)?	09	12		
Do you give class projects for UG classes?	21	03		
Do you give class projects for PG classes?	16	08		
Do you have sufficient resources for laboratory courses?	16	08		
	Sufficient	Inadequate		
Is the library/journal/e-connection support adequate?	10	12		
	Definitely	May be	No	
Would you like to have common (TEQIP) repository of course material?	20	02	00	
Would you like to visit IITK to participate in and develop course material (existing or new)	22	02	00	
Would you like to participate in creation of the repository material (course files/lab. Manuals/question bank/etc)	19	05	00	
	e-courses	Workshops	Content	none
How can IITK effectively help you prepare for teaching?	11	18	11	00

How can TEQIP help improve your teaching?

- By organizing more workshops.
- To impart better teaching for our students, such as motivating to a particular topic for study.
- Courses, Subject contents, and the semester in which subject is included should be common to all TEQIP Institute and regular workshop for teaching improvement, assignment, exam paper, and evaluation method.
- By providing the help in course content to faculty member.
- By providing exposure interaction with good faculties like at IITs.
- Provide funds to organize workshop.
- To conduct faculty development programme.
- In depth knowledge of subject; advance topics, current trends in research.
- Give some knowledge of some very difficult topics.
- Via workshop and seminars.
- Organizing more workshops with specific fields separately.
- By conducting subject special workshops.
- By conducting workshops, e content, online courses, expert lectures.
- Through interactive teaching and discussion.
- Through workshops, faculty exchange programme.

Research

Questions	Definitely	Maybe	No
Would you like to visit an IIT for a visiting-faculty/post-doctoral fellow ,if offered(via TEQIP)?	14	09	01
Would you like to share/use research infrastructure at IITK, if made available?	22	02	00
Would you like to conduct collaborative research with IITK?	18	06	00
Would you like lectures by experts (Indian and international) on niche research areas/topics?	21	03	00
Do you want special-topic conferences?	19	05	00

OUTCOME

In this workshop the participants were introduced to teaching methodologies of some basic topics in Computer Science. They got an idea on how to deal with some very common problems faced by students in these subjects and how to motivate them to grasp the depth of a topic that is being taught to them. Participants got an idea of what should be the course structure and how one can plan lectures for these courses. All the participants really appreciated the topics that were discussed, they realised that interactions likes these can help them improve their teaching and research work. Participants showed keen interest in attending more workshops like this in future.