5th BIANNUAL CHAPTER REPORT
SPIE DCE CHAPTER
June 2007

Delhi College of Engineering
Bawana Road
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www.spiedcechapter.dce.edu
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About SPIE DCE Chapter

Delhi College of Engineering is located in North Delhi and is amongst the top 10 Engineering Colleges of the Country (2006 India Today ratings). SPIE DCE chapter was the initiative of our first president Mr. Prashant Pankaj Baveja and our faculty advisor Dr. R.K. Sinha. Since its inception the chapter has earned a great name for itself through its hard work and dedication. SPIE DCE Student chapter is now into its third year and the work being carried out by the chapter in the field of Optics and Photonics has surely been overwhelming for every one of us. I had been working under the guidance of our outgoing President Mr. Alpesh Chaddha till January and had to take over the duties soon afterwards. I am really grateful to the support he has been for us as well as the advice which he still provides me with today So far it has been a great experience managing a chapter which consists mostly of undergraduate students. We as such have no specialised branch for Optical Engineering; however we have a good number of members who take active interest in the activities of the society. A large chunk of our members are from a diverse spectrum of disciplines like Electronics and Communication, Electrical, Information Technology, Computer Science and Polymer Science. A sizable portion of our members are post graduate students and research scholars carrying out exemplary research in the frontier areas of Optics and Photonics. SPIE DCE chapter has been actively involved in multi faceted activities ranging from purely technical events like lectures workshops and other non technical events like online poster design competitions, slogan writing etc. Many of our student members have represented the chapter at various competitions and conferences.

The keen enthusiasm and support shown by our faculty advisor Dr. R.K. Sinha has really encouraged all our students to excel not only in optics related activities but as well as career oriented activities. I would also like to express my gratitude to TIFAC CORE in Optical communications and fiber optics at DCE. The constant support and partnership with SPIE DCE chapter has enabled our chapter to touch new heights.
List of current Student Chapter members

PLATINUM MEMBERS

Platinum members are those who are working on some part time projects either paid or voluntary for duration greater than three months. This membership is generally for undergraduate and post graduate students

GOLDEN MEMBERS

Golden members are those who are carrying out independent research leading to publication in either professional meetings or in international journals for duration greater than one year. This membership is generally for post graduate students and research scholars. However exceptional undergraduate students may also be elevated to this criterion.

<table>
<thead>
<tr>
<th>Name</th>
<th>Expires</th>
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<tbody>
<tr>
<td>Rahul Agarwal</td>
<td>31 March 2008</td>
</tr>
<tr>
<td>Swati Aggarwal</td>
<td>31 January 2008</td>
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<tr>
<td>Vikrant Agrawal</td>
<td>31 March 2008</td>
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<td>Kanishk Arya</td>
<td>31 March 2008</td>
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<td>Aditya Balani</td>
<td>31 January 2008</td>
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<td>Aseem Behl</td>
<td>31 January 2008</td>
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<td>Mohit Bhagat</td>
<td>31 March 2008</td>
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<tr>
<td>Madhur Bhargava</td>
<td>31 January 2008</td>
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<tr>
<td>Sumit Chawla</td>
<td>31 January 2008</td>
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<tr>
<td>Amol Choudhary</td>
<td>31 August 2007</td>
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<tr>
<td>Akshit Dayal</td>
<td>31 January 2008</td>
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<tr>
<td>Sulochana Dhar</td>
<td>30 April 2008</td>
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<tr>
<td>Kanishka Garbayal</td>
<td>31 March 2008</td>
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<td>Ankur Garg</td>
<td>31 January 2008</td>
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<td>Sunil Gola</td>
<td>31 January 2008</td>
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<td>Ravinder Gupta</td>
<td>31 March 2008</td>
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<td>Varun Jewalikar</td>
<td>31 January 2008</td>
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<td>Puneet Kumar</td>
<td>31 January 2008</td>
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<td>Vasudev Lal</td>
<td>31 December 2007</td>
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<td>Gunjun Madan</td>
<td>31 January 2008</td>
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<td>Madhur Mittal</td>
<td>31 January 2008</td>
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<td>Ashmeet Monga</td>
<td>31 January 2008</td>
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<td>Prateek Pandey</td>
<td>31 January 2008</td>
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<td>Naveen Rai</td>
<td>31 January 2008</td>
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<td>Anoop Ramakrishna</td>
<td>31 January 2008</td>
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<td>Vidushi Rastogi</td>
<td>31 January 2008</td>
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<td>Ankita Saxena</td>
<td>31 August 2007</td>
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<td>Anoop Sharma</td>
<td>31 January 2008</td>
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<td>Gautam Sharma</td>
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<td>Sunny Sharma</td>
<td>31 March 2008</td>
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<td>Param Singh</td>
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<td>Tejbir Singh</td>
<td>31 March 2008</td>
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<tr>
<td>Akhil Tyagi</td>
<td>31 January 2008</td>
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<tr>
<td>Anshu Varshney</td>
<td>31 January 2008</td>
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Faculty advisor :
Dr. R.K.Sinha
Meetings

Our chapter has council meetings and general body meetings once almost every month where we discuss the future events and also take suggestions from members on how to manage the society better. In one such meeting the new council was elected and it is as follows:

Names and email addresses of elected officers

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name</th>
<th>Post</th>
<th>Email Id</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Amol Choudhary</td>
<td>President</td>
<td><a href="mailto:amolchoudhary.86@gmail.com">amolchoudhary.86@gmail.com</a></td>
</tr>
<tr>
<td>2.</td>
<td>Vikrant Agrawal</td>
<td>Vice President</td>
<td><a href="mailto:vikrantagrwal@gmail.com">vikrantagrwal@gmail.com</a></td>
</tr>
<tr>
<td>3.</td>
<td>Sunny Sharma</td>
<td>Vice President</td>
<td><a href="mailto:sunny.dce2005@gmail.com">sunny.dce2005@gmail.com</a></td>
</tr>
<tr>
<td>4.</td>
<td>ParamDeep Singh</td>
<td>Treasurer</td>
<td><a href="mailto:neo656@gmail.com">neo656@gmail.com</a></td>
</tr>
<tr>
<td>5.</td>
<td>Tejbir Singh</td>
<td>Co-treasurer</td>
<td><a href="mailto:tejbir.dce@gmail.com">tejbir.dce@gmail.com</a></td>
</tr>
<tr>
<td>6.</td>
<td>Kanishk Arya</td>
<td>Co-Secretary</td>
<td><a href="mailto:kanishkarya@gmail.com">kanishkarya@gmail.com</a></td>
</tr>
<tr>
<td>7.</td>
<td>Swati Aggarwal</td>
<td>Co-Secretary</td>
<td><a href="mailto:swatiagg87@gmail.com">swatiagg87@gmail.com</a></td>
</tr>
</tbody>
</table>
COLLABORATION

TIFAC-CORE in Fiber Optics and Optical Communication @ DCE

and

SPIE DCE CHAPTER

SPIE DCE CHAPTER has collaborated with TIFAC-CORE@DCE for research and development activities in the field of optical communication and optical engineering. TIFAC-CORE@DCE will provide student members the latest facilities available in their labs and the students will undertake and help in industrial projects assigned to TIFAC-CORE@DCE.
Resources @ SPIE DCE Chapter

Experimental Setups:

1. High Dc Voltage Measurement Using Electro-Optic Effect
2. High Dc Current Measurement Using Magneto-Optic Effect
3. Fusion Splicing Machine
4. Measurement of Dielectric Constant
5. Characterization of Optical Fibers
6. Optical Time Domain Reflectometer
7. Wdm Network Analyzer
8. Analysis of Modal Propagation in Waveguides
9. CCD Based Imaging Systems
10. Laser Diffraction
11. Measurement of Speed of Light
12. Fiber Optic Voice and Video Links
13. BER Experimental Setup
14. Eye Diagram Analyzer for Optical Fiber Communication System
15. Fiber Fault Detection System
16. Newport Optical Fiber Setup
17. Newport Vibration free table
18. Newport Projects

Computational And Scientific Softwares:

1. Matlab Release 14
2. Optiwave Fiber Laser Cad (OptiAmplifier 4.0)
3. Rsoft Bpm Beam Propogation Method (Design Of Integrated Optical Components)
4. Opti_Hs (Semiconductor Hetrostructure Modelling)
5. Optiwave Fiber_Cad (Fiber Cad Suite)
6. Femlab
7. Vpi Transmission Maker (Under Evaluation)
8. Opti-Amplifier
9. RSOFT Band Solver
10. OptiFDTD
Details of Chapter activities since last report

We as SPIE DCE believe in sharing the knowledge, and hence keeping this in mind we launched an online magazine through our website “OPTOINFORMATICS@DCE”. Through this initiative we wish to encourage more students to develop the necessary skills for becoming a good technical writer as well as to promote Optical Education in India.
OptoInformatics@DCE in one of India’s largest newspapers- Hindustan Times Horizons

DCE Students Launch an E-magazine

"The connection between the ever expanding world of information and the students requires as an interpreter, consultant, instructor, as well as gatherer of information".

Today's Internet contains a plethora of reference and resource material. Encourage all students to use these resources, which provide "just in time" and "just in case" support to help address vocabulary and background knowledge gaps. Such support will give the students access to the same powerful knowledge base that their peers enjoy.

The idea for this Bi-monthly E-Magazine name Opto-Informatics@DCE (http://spiedcechapter.dce.edu/optoinformatics/) came from Sunny Sharma, Second year B.E. Information Technology Deptt. Student from Delhi College of Engineering (DCE), India and implemented jointly with Madhur Bhargava also a Second year student from DCE, India. It is developed to promote research oriented approach among the budding Engineers in India. All the SPIE DCE Chapter activities are very well supported and guided by Dr. R.K.Sinha, Faculty advisor of SPIE DCE and Chief Coordinator TIFAC CORE in Fiber Optics and Optical Communication been carrying out cutting edge research in Photonic Crystal Fibers, Semiconductor Quantum Well Devices, Fiber Optics, Optical Communications, Integrated Optics, Optical Amplifiers, WDM optical networks, all optical networks etc and Alpesh Chadha, President of the first ever SPIE Chapter in India. Alpesh Chadha proved to be a vital support and advisor for this e-magazine. Thus the Accessibility features via our e-magazine can help the struggling students make important connections—to the content, among ideas, among their own sensory modes of learning, and between their digital competencies and the curriculum. It encourages students to come forward and submit their articles on the relevant topics. Furthermore if anyone wants to work on the topics that already exist in the magazine, can come forward and prove to be a helping hand. Thus, they can make their researches and journals by accessing to the powerful knowledge base that their peers enjoy.

Educators need to strategically integrate these features into sound pedagogy to help struggling learners achieve both academic and technological success.
A new and much more user friendly website

www.spiedcechapter.dce.edu

Over the past 6 months our web management team headed by Sunny Sharma has worked really hard and has changed the site twice all over! This site has the new logos along with lots of links to Spie.org. It has details of all the members, activities, resources etc along with a “downloads” link with the chapter reports and membership forms.
Online Events @ SPIE DCE

This time around, it was decided that there should be an added focus to have participation from students who are yet not members of the society. Hence we launched online events with cash prizes. The response was overwhelming and the enthusiasm shown by our web organisers is worth mentioning. The posters of the events are below:

1. Buzzword : The technical article writing competition

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BUZZWORD
TECHNICAL ARTICLE WRITING

ATTRACTIVE PRIZES TO BE WON!!!!

SEND UR ENTRIES AT buzzword.spie@gmail.com

For More Details Log on www.spiedcechapter.dce.edu

For Further Details Contact:
Anoop Sharma
9911239494
andce5@gmail.com
2. Pinnacle – The slogan writing competition

SPIE DCE Chapter presents

Pinnacle

The logo designing Contest

Google

Nike

IBM

HP

McDonald’s

Infosys

Microsoft

Tata

Do the above symbols signify something???

The obvious answer is YES! Each one of them represents a well established International Brand. That is the impact of a LOGO. It is a "what we’re about" statement without the long-winded speech.

So Pinnacle brings a challenge to the innovative minds to design a LOGO and win Fabulous PRIZES!!! For further information and contest rules log on to www.spiedcechapter.dce.edu

Last date for submission of entries: 2359 hrs, 23rd April 2007.

For details contact:
Rahul Gaba
9868847421
pinnacle.spie@gmail.com
3. Bits Make Up Byte- The data mining competition

Bits Makes Up Bytes!!!!!
(Data Mining)

Check Out Rules And Regulations at
www.spiedcechapter.dce.edu
Attractive prizes to be won!!!!

For Further Details Contact:
Akhil Tyagi
(akhiltyg@gmail.com)
(9868288680)
4. Infini-D - Website design contest

FOR DETAILS
VISIT
WWW.SPIEDCECHAPTER.DCE.EDU
Lectures /Workshops

Lecture by Prof. Tamal Bose, Department Head and Professor, Utah State University on “Euclidean Direction Search algorithm: Theory and applications” on 19th February, 2007.
Euclidean Direction Search (EDS) Algorithm: Theory and Applications

Tamal Bose
Department Head & Professor
Utah State University
Lecture and workshop on “Lab-based BER estimation in optical communication systems” by Mr. Jaspreet Singh from Fiberonics on April 10, 2007.

ABSTRACT for the talk

The experimental set-up for estimation of BER degradation as a function of bit rate and length of optical communication links (1-5km, 62.5/125 MMF) for LED and LD sources, in conjunction with the Q-factor and BER estimation software, will be presented. The software can analyze Eye patterns generated on a DSO, and can generate details of the threshold, 0 level, 1 level, BER and Q-factor. Results of simulation of the experimental setup using VPI software will also be presented for comparison purposes.

In addition, applications of the equipment and software for BER, fibre link length and chromatic dispersion estimation in WDM/DWDM systems will be presented, including BER degradation due to DFB (source) wavelength shift in DWDM systems.
Design and Printing of the SPIE DCE T-shirts

This time, we designed and printed t-shirts to be distributed amongst the members. However the Logos used in the T shirts are the old SPIE Logos.

The front side:

SPIE DCE CHAPTER

Spreading Light from DCE…

The back side:

The International Society for Optical Engineering
Planned activities for future

1. Outreach activities. We have already planned a lecture by Prof. Harvey Rutt to be held on Aug 23 for the students of high schools in New Delhi.

2. We at SPIE DCE CHAPTER plan to undertake further industrial excursion to a CD manufacturing unit where students will gain a further insight into the phenomenon of how data is written optically on the dielectric substrate of a CD. This will also give them an insight into thin films technology.

3. A lecture on FIBER OPTICS by Prof. Ajoy Ghatak and his group will be both intellectually stimulating and exhaustive in nature. We are still working on this.

4. Membership drive and introductory seminar by eminent scientist and industrialists for the sophomores arriving next semester. A SPIE booth at the annual DCE counselling will be set up to strengthen the drive.

5. Industrial Trips to Spectranet Inc, SOTL are also being considered.

6. Lectures by some more prominent professors to enlighten the students about Optics and Photonics.

7. Next Semester onwards we will take more initiative to organise events pertaining to career building.

8. More Technical/Non Technical online events.

9. An interactive session with senior scientists from National Physical laboratory later in the month of June.

10. A technical session by Dr. Sumeet Dua on Data Mining and Imaging.

11. Extended Outreach activities for High School students like quizzes, demonstrations of various phenomena related to fibre optics, lectures etc.
SPIE grants and Scholarships received

SPIE DCE Chapter received its annual chapter development fund of $1100 in the month of April, 2007.
SPIE DCE CHAPTER President, Amol Choudhary, has also been selected for the travel grant to attend the leadership meet at ‘Optics and Photonics 2007’ at San Diego, USA.