

**SCET-Multi Disciplinary Conference on Engineering & Technology  
(SMDCET 2017)**

**A  
REPORT  
ON  
NATIONAL CONFERENCE:  
PROGRESS, RESEARCH AND INNOVATION IN MECHANICAL  
ENGINEERING  
(PRIME)**

**25<sup>th</sup> – 26<sup>th</sup> MARCH 2017**



**Organized by:**  
**Mechanical Engineering Department,**  
**Sarvajnik College of Engineering & Technology, Surat, Gujarat.**

**In Association with:**



**ISTE**



**IE (India)**

## About PRIME

On 25th – 26th March 2017, Sarvajani College of Engineering and Technology (SCET), Surat; had organized “SCET Multidisciplinary Conference on Engineering & Technology” (SMDCET-2017).

Under the SMDCET-2017, the Mechanical Engineering Department of SCET, in association with The Indian Society for Technical Education (ISTE) & The Institution of Engineers (India), South Gujarat Local Centre, Surat; had organised its first National conference on **“Progress, Research and Innovation in Mechanical Engineering” (PRIME)**.

This conference was a unique forum for all engineers and scientists from academic/research laboratories/institutions/industries across India, to meet and exchange state of the art advances in Mechanical Engineering. The conference was meant for disseminating recent research and development in various fields of Mechanical Engineering and to enhance future collaborative research activities.

PRIME 2017 welcomed original unpublished research work contributing in the following fields of Mechanical Engineering:

- Thermal science and engineering
- Fluid engineering
- Production and manufacturing engineering
- Machine design
- CAD/ CAM/ CIM
- Computational fluid dynamics (CFD)
- Renewable energy and Non-renewable energy
- Material science and Metallurgy
- Industrial management
- Operation research and Industrial engineering
- Applied mathematics

Paper submission and review process was done online through the conference website <http://smdcet2017.scet.ac.in/PRIME2017.html>. Total **65** research papers were submitted by the researchers from various colleges/universities and they were reviewed by eminent reviewers from various esteemed academic institutes across the India. After the review and modifications a total of **52** research papers were accepted for the proceeding and were selected for final oral presentation at conference.



## Inauguration of SMDCET 2017

All the Dignitaries, Deans, Head of Departments, faculty members of Sarvajanik College of Engineering & Technology and various engineering colleges, participants, research scholars, post graduate & under-graduates students across India were invited for inaugural ceremony of SMDCET held at TIFAC seminar hall at 9:00 am on 25th March 2017.

To Grace the inaugural ceremony of multi conference, Dr S. R. Gandhi, Director, Sardar Vallabhbhai National Institute of Technology, Surat was invited as Chief Guest along with the Guest of Honours Dr. U. B. Desai, Director, IIT Hyderabad and Mr. Rajiv Bhatnagar, Director, Hazira Complex, Essar Steel. SCET also invited, Shri Yatish Parekh Chairman of Sarvajanik Education Society, Shri C.S Jariwala Vice Chairman 1 of Sarvajanik Education Society, Shri Kamlesh Yagnik Vice Chairman 2 of Sarvajanik Education Society and Shri Sudhirschandra Desai Chairman's representative, Sarvajanik College of Engineering & Technology (SCET) as dignitaries for the ceremony.

After the inauguration, Dr. U B Desai delivered a keynote address on “No Smart cities without sensors” to all the participants of SMDCET 2017.



**Photograph 1: Dignitaries of Inaugural ceremony (L-R) Shri Rajnikant Marfatiya, Mr. Rajiv Bhatnagar, Shri C.S Jariwala, Dr S. R. Gandhi, Shri Yatish Parekh, Dr. U. B. Desai, Shri Kamlesh Yagnik, Shri Sudhirschandra Desai.**



**Photograph 2: Dr. U B Desai delivered a keynote address on “No Smart cities without sensors”**

## About the Schedule

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### Day 1: 25 March 2017 (Saturday)

Time	Details	Venue
9:00- 10:00	Registration and High Tea	Workshop/Canteen
10:00 – 11:00	Inauguration ceremony	TIFAC Hall
11:00 – 12:30	Expert Talk by Dr. U.B Desai (Director, IIT Hyderabad)	TIFAC Hall
12:30 – 14:00	Lunch	Canteen
14:00 – 15:15	Plenary Session by Dr. S.A. Channiwala (SVNIT, Surat) on - Next Generation Thermal Power Plants	N. J. Seminar Hall
15:30 – 17:30	Session-1 (Combustion and Automobile engineering)	Room No. L 101 (First Floor-TT)
	Session-2 (Production and Manufacturing engineering)	Room No. K 106 (First Floor-CO-E, @DH)
	Session-3 (Machine design)	Room No. J 103 (First Floor-EME Lab)

### Day 2: 26 March 2017 (Sunday)

Time	Details	Venue
8:30 – 9:00	Registration	Workshop
9:00 - 11:00	Session-4 (Thermal science and engineering)	Room No. L 101 (First Floor-TT)
	Session-5 (Fluid engineering and Turbomachines & Renewable energy and Non-renewable energy)	Room No. K 106 (First Floor-CO-E, @DH)
	Session-6 (Combustion and Automobile engineering)	Room No. J 103 (First Floor-EME Lab)
11:15 – 1:15	Session-7 (Production and Manufacturing engineering & Material science and Metallurgy)	Room No. L 101 (First Floor-TT)
	Session-8 (Machine design & Applied mathematics)	Room No. K 106 (First Floor-CO-E, @DH)
1:30 onwards	Lunch	Canteen



## Plenary Session of Dr. S. A. Channiwala

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As a part of National Conference - PRIME 2017, the Organising Committee of PRIME 2017, had arranged a Plenary Session of Dr. S. A. Channiwala on “**Next Generation Thermal Power Plants**” at 14:00 in N.J Seminar hall on 25th March 2017.

### Speaker's Profile:

Dr. S. A. Channiwala is a renowned academician in the area of Mechanical Engineering with teaching experience of more than 34 years at SVNIT, Surat and is particularly well known for his excellent research output in the field of thermal science. This session will be an excellent opportunity for everyone to gain knowledge from his rich expertise and experience in/ this subtle field.



Abstract of Plenary session by Dr. S. A. Channiwala, is as follows:

*The development of a nation is earmarked on a global scale in terms of its efficient energy utilization and accordingly a recent scenario of the World's and India's energy use is presented. Electricity generation in modern world is mostly based on coal based thermal power plants. These plants usually have an overall energy efficiency to the tune of 35% - 40% and suffers from serious global warming potential and particulate emissions.*

*The challenges of energy and emissions which needs to be met are highlighted and the recent development towards attaining sustainable green solution to the field of energy is explained. The technology so developed is 'Zero Effluent Discharge Coal Gasification System'. It is known from Carnot cycle that an increase in temperature of heat source leads to an increase in thermal efficiency and this has revoked an interest to increase the thermal efficiency of modern power plants by increasing the temperature of steam and pressure to supercritical and ultra-critical states.*

*A review of this imitation by the industry is explained with a perspective to apply gasification technology in modern power plants along with a defined scope of improving overall efficiency and reduction in emissions which forms next generation power plants.*



Photograph 3: Plenary Session of Dr. S. A. Channiwala

## Sessions for Oral Presentation of Research Paper

PRIME was organized in total 8 sessions on 25th and 26th March 2017. The organisers of PRIME 2017 invited **Dr. Digvijay B. Kulshreshtha** for Combustion & Automobile engineering; **Dr. Anish H. Gandhi** for Production & Manufacturing engineering; **Dr. Dilip Patel** for Machine design as session chair on 25th March 2017 and **Dr. R.D Shah** for Thermal science & engineering; **Dr. A.V Doshi** for Fluid engineering & Turbomachines and Renewable energy & Non-renewable energy; **Dr. V.D Dhiman** for Combustion and Automobile engineering; **Dr. K.D Maniya** for (Production and Manufacturing engineering & Material science and Metallurgy; **Dr. C.K Desai** for Machine design & Applied Mathematics as session chair on 26th March 2017 for the conference.

Some glimpses of Sessions arranged on 25th & 26th March 2017:







## Best Paper Presentation Award

Organisers of PRIME 2017 awarded two best paper presentation to:

- **Mr. Hiteshkumar Rana and Dr. Chaitanya Desai** for the paper entitled *“Crack Propagation Analysis of Composite Material Using XFEM Approach”*.
- **Taha Poonawala, Jeetendra Kumar, Dr. R. N. Patel and Dr. S. A. Channiwala** for the paper entitled *“Design of Mixed Flow Compressor Impellers- A Review and Limits of Design Parameters”*.

**Authors were awarded a Certificate and a Cash price of 1000/- for each research paper.**

## Team PRIME 2017

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**Photograph 4: Student Volunteer Team for PRIME**



**Photograph 5: Team PRIME 2017**



# PRIME 2017 Brochure

## PAPER SUBMISSION

Paper length should not exceed 6 pages in A4 size and should strictly follow the formatting instructions as specified on the conference website. Paper should be submitted in word and PDF format. The registration form and copyright transfer form can be downloaded from conference website.

## IMPORTANT DATES

Last Date of Full Paper Submission	10 Mar 2017
Notification of Acceptance	16 Mar 2017
Camera Ready Copy of Full Length Paper, Registration & Copyright Transfer Form submission	18 Mar 2017

## REGISTRATION FEES

CATEGORY	FEES (Rs.)
Graduate/ Post Graduate/ PhD students	750/-
Academicians	1000/-
Industrialist and professionals	1500/-

Registration fee includes conference-kit, proceeding copy, breakfast, tea/coffee and lunch during the days of the conference. Please visit conference website for accommodation, mode of payment and other queries.

## ADDRESS FOR CORRESPONDENCE: PRIME 2017,

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Sarvajani College of Engineering & Technology  
Dr. R.K. Desai Marg, Opp. Mission Hospital,  
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Email: [info.prime2017@scet.ac.in](mailto:info.prime2017@scet.ac.in)

## PATRON

Dr. Vaishali Mungurwadi, Principal, SCET

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Dr. Nitin N. Vibhakar

## ORGANIZING CHAIR

Dr. Pankaj P. Gohil

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## SCET-Multi Disciplinary Conferences on Engineering & Technology (SMDCET 2017)

## National Conference on Progress, Research and Innovation in Mechanical Engineering (PRIME 2017)

March 25 - 26, 2017



## CALL FOR PAPERS

Organized by:  
Mechanical Engineering Department  
Sarvajani College of Engineering & Technology, Surat, Gujarat  
in  
Association with  
Gujarat Technological University  
Indian Society For Technical Education  
Institution of Engineers (India)



## ABOUT SURAT

Surat is a cosmopolitan city situated on the banks of Tapti river, having rich culture heritage. City enjoys reputation of being the 4<sup>th</sup> fastest growing city in the world. The city accounts for 90% of the world's total rough diamond cutting and polishing. Large scale industries in textile, metal yarns, petroleum, oil and gas, cement, shipping, paper and chemical fertilizer sectors are available in the city.

## ABOUT THE INSTITUTE

The Sarvajani College of Engineering and Technology (SCET), established in 1995, is a leading institution in South Gujarat. SCET being the oldest self financed engineering institute in Gujarat, caters technical education to more than 2500 students, offering 8 UG and 6 PG programs which encompasses Civil, Chemical, Computer, Electrical, Electronics and Communication, Information Technology, Instrumentation and Control, Textile Technology and Master of Computer Application. All the Programs are affiliated to the Gujarat Technological University (GTU) and approved by AICTE, New Delhi.

## ABOUT THE DEPARTMENT

Mechanical engineering department is one of the foremost and active division of Sarvajani College of Engineering and Technology. We are a team of highly qualified and well-experienced faculties. We have well-equipped laboratories and drawing halls for interdisciplinary subjects. Also, we have successfully conducted 2 years diploma level course

for employees of Reliance Industries Ltd, Hazira and multi craft training sessions for ESSAR industries.

## ABOUT THE GUJARAT TECHNOLOGICAL UNIVERSITY

Gujarat Technological University (GTU) is a State University, established by the Government of Gujarat in 2007. The University is affiliated with 486 colleges, which caters 4,00,000 students, to the fields of Engineering, Architecture, Management, Pharmacy and Computer Science with Diploma, Under Graduate, Post Graduate programs along with the robust Doctoral program.

## ABOUT THE INDIAN SOCIETY FOR TECHNICAL EDUCATION (ISTE)

The Indian Society for Technical Education (ISTE) is the leading National professional non-profit making Society for the technical education system in our country with the motto of career development of teachers and personality development of Students and overall development of our technical education system.

## ABOUT THE INSTITUTION OF ENGINEERS [INDIA]

The Institution of Engineers, India, IE (I), is a multidisciplinary professional body that encompasses fifteen engineering disciplines and gives engineers a global platform to share professional interest. IE (I), South Gujarat Local Center (SGLC) was established in 1976 as a center of IE (I) Calcutta & upgraded to Local Center in 1988 for South Gujarat Region.

## ABOUT CONFERENCE

"Progress, Research and Innovation in Mechanical Engineering" (PRIME 2017) is organized by Mechanical Engineering Department in association with Gujarat Technological University, Indian Society For Technical Education, Institution of Engineers (India), South Gujarat Local Centre, Surat. This conference is a unique forum for engineers and scientists from academic/research laboratories/institutions/industries across India, to meet and exchange state of the art advances in Mechanical Engineering. The conference is meant for disseminating recent research and development in various fields of Mechanical Engineering and to enhance future collaborative research activities.

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- Material science and Metallurgy
- Industrial management
- Operation research and Industrial engineering
- Applied mathematics
- Computational fluid dynamics (CFD)
- Any other topic relevant to the theme of the conference /Mechanical engineering

The submitted papers should be non-plagiarized and not submitted concurrently elsewhere. Papers will be only accepted after peer reviews and will be published in conference proceeding with ISBN, after registration by at least one author.