Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute under Mumbai University)

Mechanical Engineering Department

Organizes

One Week Training Course (FDP) on

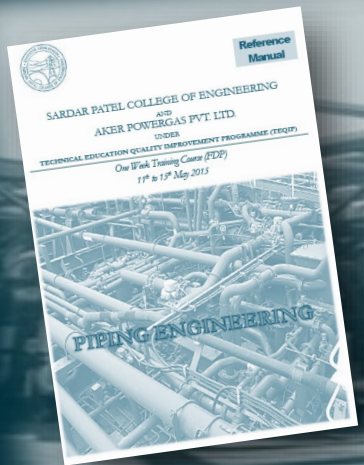
PIPING ENGINEERING

Under Technical Education Quality Improvement Program (TEQIP)

In Collaboration with

AKER SOLUTIONS

11th to 15th May 2015



SARDAR PATEL COLLEGE OF ENGINEERING

Sardar Patel College of Engineering (SPCE) under the management of the Bhartiya Vidya Bhavan, was founded by Kulapati Dr. K. M. Munshi. It was established to meet the growing demand for engineering talent.

The foundation stone of the college was laid on 17th September 1961 by Shri.Y.B.Chavan (the then Chief Minister of Maharashtra who later became the Defence Minister of India.)

The college was inaugurated by the first Prime Minister of Independent India, Pandit Jawaharlal Nehru in 1962.The college is dedicated to Sardar Vallabhbhai Patel, an eminent nation builder of independent India.

The college is autonomous and affiliated to the University of Mumbai for the full-time degree and post graduate degree courses. The institute has set high standards for aspiring engineering students and also meets the need of quality education in the challenging world of business.

Over the last 50 years the college has gained an excellent reputation in the field of Technical Education.

SPCE is one of the few colleges that have received Grade 'A+' rating for its aided courses from the Govt. of Maharashtra which certifies the spirit of excellence that the institute has symbolized and always practiced. Institute celebrated its golden jubilee in the year 2012.

AKER SOLUTIONS

Aker Solutions India is a part of Aker Solutions, Norway, which provides oilfield products, systems and services for customers in the oil and gas industry world-wide. It employs approximately 17,000 people in about 20 countries and had aggregated revenues of over USD 7 billion in 2013.

Aker Solutions India is a leading provider of project management, engineering, procurement assistance and construction supervision services. We have been operating in India for over 50 years. We serve the entire value chain of the global oil and gas industry, from the design of subsea products, to processing facilities, refining, petrochemicals, and the allied industries.

Our strong customer focus and long-term relationships are a matter of pride to us. We have the enviable track record of successfully completing over 400 projects with over 60% of our business coming from repeat customers every year. Over the years, we have engineered projects on every continent except Antarctica.

Message from Head of Department

Dr. R. B. Buktar

SPCE has identified the gap between the basic theoretical knowledge of piping engineering and its implementation to the practical challenges faced by the working professionals. We have thus made this unique training course which imparts the practical experience of handling real life complexities of the design and analysis of piping systems.

The objective of this training course is to add skills to understand the fundamentals of piping element design, piping layout, material and loading conditions encountered by present-day piping systems. The course emphasizes on step-by-step learning of the techniques to perform design of piping system components. The course is tailored along the directives laid by the ASME B31.1 and B31.3 codes which have implemented advanced numerical analysis methods such as finite element analysis (FEA) for ensuring safety and reliability of piping system.

Patrons

Dr. S. K. Mahajan	(Chief Coordinator, SPFU) Director, Directorate of Technical Education (DTE), Maharashtra State, Mumbai
Dr. Sesha Iyer	Chairman, BOG– SPCE
Dr. P. H. Sawant	Principal, SPCE

Organizing Body

Dr. P. H. Sawant	Principal
Dr. M. M. Murudi	Vice Principal and TEQIP coordinator
Mr. Sanjeev Nadkarni	Director - Engineering, Aker Solutions
Mr. R. Dipali	Knowledge Manager, Aker Solutions
Dr. Rajesh Buktar	Head of Mechanical Engineering Department
Dr. Nilesh Raykar	Course Coordinator

Industry and Institute Speakers

Mr. Sameer Deshpande , Deputy General Manager—Piping Group Head Piping (Mumbai), Aker Powergas Pvt. Ltd., Mumbai

He graduated Mechanical Engineering from V.J.T.I, Mumbai, in 1993. He has Overall 21 years of experience in Piping Engineering. He has Rich experience in various Petrochemical & Refinery projects for clients like Cheveron, Shell, IOCL, Proman, ,RIL, Essar Oil etc. Area of specialization include fast track execution of complex Refinery / Petrochemical projects.

Mr. Pankaj Israni, Deputy Engineering Manager – Piping, Aker Powergas Pvt. Ltd., Mumbai

He is Mechanical Engg. graduate, from 1996 batch of Bharti Vidyapeeth's College of Engineering. Associated with companies like UHDE, TOYO & TECHNIP before joining APG in 2011. Total experience of around 18 years in piping materials activities right from FEED till Commissioning. Involved in preparing the piping material documents like Piping Materials Specification, Valve Material Specification, Pipe Thickness Calculations & Valve drawing approvals. Currently heading the piping material engineers group in Piping department.

Mr. Abhijeet A. Palsule, Engineering Manager – Piping, Aker Powergas Pvt. Ltd., Mumbai

Graduated Mechanical Engineering from M.I.T College of Engineering, Pune in 1993. Associated with Chemtex Engineering before joining Aker Solutions in 2002. Worked as Lead Engineer for major projects executed within India as well as overseas. Currently working in capacity of Lead supervisor for LNG terminal project. Handled various piping group activities related to preparation and development of Plot Plan, Equipment Layouts and Piping Layouts.

Mr. Yogesh R. Wadekar, Chief Engineer – Piping, Aker Powergas Pvt. Ltd., Mumbai

Mechanical Engineering Graduate from V.J.T.I. in 2003. Associated with Aker Solutions since November - 2003. Total experience of around 11.5 years. Worked as Pipe Stress & Supports Engineer for many projects executed within India as well as overseas. Involved in Stress analysis of supercritical systems connected to fired heaters, steam turbines, centrifugal compressors, air fin coolers. Currently working in capacity of Lead Pipe Stress & Supports Engineer for Reliance - LLDPE, PP-DBN and Catalyst projects.

Ms. Punam Kadwani, Engg. Manager – Piping, Aker Powergas Pvt. Ltd., Mumbai

Graduated in Mechanical Engineering from Sardar Patel College of Engineering in 1993. Recruited by Powergas through campus interview. Had a brief stint in Linde Process Technology, Baroda. Rich experience in various Petrochemical & refinery projects for clients like Conoco, IOCL, RIL, and Essar Oil etc. Also involved in polyester & carbon black projects in Australia & Thailand. Associated with Quality & Training activities in Piping Department. Overall 20 years of experience in Piping Design & Layout. Currently working as Engineering Manager in Piping department

Dr. Nilesh Raykar, Assoc. Prof. (ad hoc), Mech. Engg. Dept., SPCE, Mumbai

Completed his Ph.D. from IIT Bombay in 2013, M.Tech. from IIT Bombay in 1990 and graduated in Mechanical Engineering from VJTI in 1988. He worked in the design and special analysis group catering to high pressure vessels and boilers in Heavy Engineering Division of Larsen and Toubro (L&T) from 1990 to 2009. He has rich experience of engineering different types of critical process equipment and performing their design by analysis. His research interests include modelling of environmentally assisted cracking, fracture mechanics and process equipment and piping design.

Mr. Kunal Bhavsar, Workshop Superintendent, Mech. Engg. Dept., SPCE, Mumbai

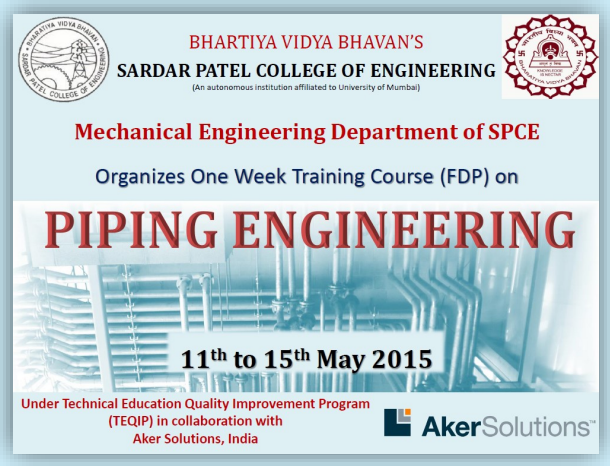
Completed his M.E. (Thermal Engineering) from Sardar Patel College of Engineering in 2012. His research interests include Computational Fluid Dynamics (CFD), Vortex Refrigeration, HVAC and Thermal Energy Storage.

Inaugural Function

Mr. Umesh Shah, Vice President, Godrej & Boyce, Mumbai, was invited as Chief Guest for the inauguration function of the training programe. The function was graced by the presence of Dr. P.H. Sawant, Principal, SPCE and Dr. M.M. Murudi, Vice Principal and TEQIP coordinator, SPCE.

Mr. Umesh Shah, Vice-President, Godrej & Boyce, Mumbai

"I am happy to observe that MOU signed between SPCE and Aker Solutions has resulted in an important industry institute interaction event in the form of this training programme", Dr. P.H.Sawant said while commending Mechanical Engineering Department for their initiative to organize this event jointly with Aker Solutions.



Mr. Umesh Shah appreciated efforts taken by SPCE-MED to organize this event which will promote sharing of knowledge between industry and academia. He also expressed his pleasure for conducting training on an interdisciplinary topic such as pipping engineering.

The idea of designing a training programme with active collaboration with industry partner was praised by Dr. M.M. Murudi, Vice Principal, SPCE. As a TEQIP coordinator he acknowledged the boost given by such initiatives towards attaining meaningful industry-institute interaction.

Introducing Basic Concepts

Participants giving a Pre-Training Test

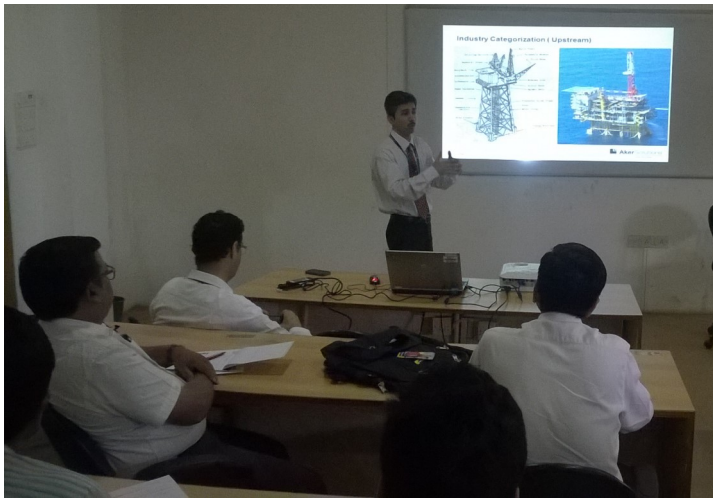
The training programme started with a pre-training test with the intent of arousing curiosity in the mind of the participants about the subject. The response to the test also appraised the instructors about the needs of the trainees.

Mr. Sameer Deshpande, Group Head Piping, Aker Powergas Pvt. Ltd., defined the scope and application of piping engineering to diverse set of chemical industries. He helped the group to understand some of the important terms and operating processes prevalent in the industry.

Mr. Deshpande also appraised the participants about functioning of a typical EPC organization, handling of a turnkey project and role of piping engineering within the organization. He briefly mentioned different types of challenges faced by a piping engineer and also about career path in this profession.

During the session the participants were made aware about the different international standards and codes which are commonly used during design of piping systems. The basic principles governing the piping system sizing were discussed briefly.

The group was later made aware about various standard components used in piping networks.



Mr. Sameer Deshpande, Group Head Piping, Aker Powergas Pvt. Ltd., introducing Piping Engg.

Exploring Concepts

Mr. Pankaj Israni, Aker Solution, during session on materials and design concepts

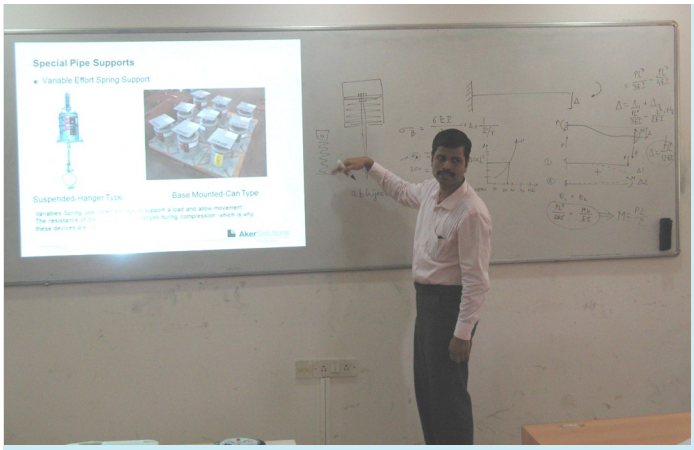
Mr. Pankaj Israni, Deputy General Manager—Piping, Aker Powergas Pvt. Ltd., explained the nuances of material types and their selection to the participants. Different materials such as ferrous, non-ferrous and non-metals were discussed with their relative merits and demerits. The participants also learnt during the course of lecture about using typical ASME B31.3 code and allied standards such as ASME 16.5, 16.9, etc. for selection of piping components.

The session was followed by a module on pressure part calculations by Prof. Raykar, SPCE.

Mr. Abhijeet Palsule, Engineering Manager, Aker Powergas Pvt. Ltd., presented information about various types of engineering drawings, such as, plot-plan, equipment layout and piping isometrics/ layouts used to engineer the fabrication of piping layouts. He discussed different principles and rules adopted to develop these drawings.

Mr. Abhijeet Palsule, Aker Solution, during session on plot-plan, equipment and piping layout drawings

The session was highly interactive with illustration from actual engineering drawings which were available for the participants to examine and study. The various challenges faced by piping engineers during development of layouts and many practical approaches to optimize the layouts to suit a specific site requirements were illustrated with suitable case studies.



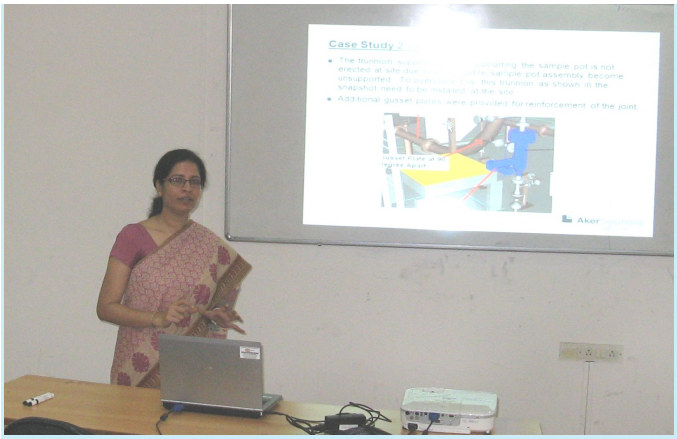
Mr. Yogesh Wadekar, Aker Solution, during session on piping support and flexibility analysis

Mr. Yogesh Wadekar, Chief Engineer-Piping, Aker Powergas Pvt. Ltd., conducted an important session on design of piping supports and stress analysis of piping systems.

He introduced the group about different types of piping supports available in practice with their typical characteristics. He further introduced the theory of piping flexibility calculations with the help of underlying fundamental theory. The effect of pressure, thermal expansion, self weight and climatic loading was also explained.

Mr. Pankaj Israni covered the module about selection of valves and instrumentation in a piping system. The participants were made aware about reading and interpretation of a typical valve data-sheet.

Gaining Practical Insight



Ms. Punam Kadwani, Aker Solution, during session on case studies on piping system design

Ms. Punam Kadwani, Engineering Manager—Piping, Aker Powergas Pvt. Ltd. , presented few case studies based on real-life design of piping systems. Through these case studies she brought out the synthesis of different concepts which were taught in the earlier part of the course.

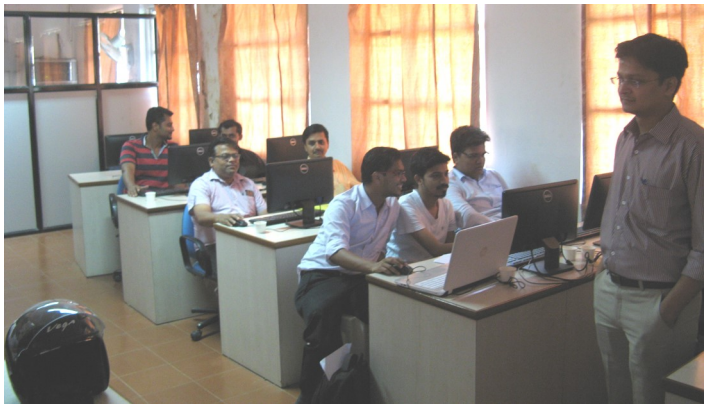
The case studies dealt with different types of issues faced by piping designer such as, space constraints for routing of pipeline and/or placement of supports, handling of piping systems operating under high temperature service, optimizing the system for cost while meeting the requirements of flexibility and stress limits.

Hands-On Training

Prof. Kunal Bhavsar, SPCE, gave the participants hands-on training to tackle problems dealing with pressure part calculations. They were also trained to use piping analysis software to perform piping flexibility calculations and selection of pipe supports.

For the purpose of training a set of problems was given to the group. Each member was then instructed step by step to do analysis of the piping system using piping software. The results obtained from the software were analyzed and interpreted to ascertain suitability of solution.

A post-training test was conducted at the end of final training module.



Prof. Kunal Bhavsar conducting a hands-on session on piping flexibility analysis

Participants giving a post-training test

Valedictory Function

The valedictory function was graced by presence of Mr. Sanjeev Nadkarni, Director—Engineering, Aker Solutions; Dr. P. H. Sawant, Principal, SPCE and Dr. M. M. Murudi, Vice-Principal, SPCE. During his speech, Mr. Nadkarni presented some of the current technological challenges faced by the engineers working in in process plant industry.

Dr. P. H. Sawant, Principal, SPCE, addressing the audience

Mr. Sanjeev Nadkarni, Director, Aker Solutions during his talk

Dr. R.B.Buktar, HOD-MED, addressing the gathering

Dr. S.B. Rane, MED, giving vote of thanks

Participants of the Training Programme with Dignitaries at Valedictory Function

Glimpses of Event