



## 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.

### d-ESPAT

d-ESPAT Pvt. Ltd., Chennai, is associated with Boothroyd Dewhurst Inc., USA, the Principals of the Design For Manufacture & Assembly (DFMA®) Methodology for their flagship software product DFMA®.

D-ESPAT provides training on the DFMA® software sales, support and offers consultancy. They also conduct training programs on DFMA for academic institutions and various industrial clients from different vertical settings including electronic manufacturing, industrial equipment, assembly line equipment, automotive & aerospace sub-assemblies, consumer products and industrial devices.

### Message from Head of Department



**Dr. R. B. Buktar**

SPCE-MED is pleased to organize the training course on DFMA. Design is the first step in manufacturing where most of the crucial decisions are made. Since the mid-sixties, analysis techniques have been researched and developed. As a result of this research, in 1980, DFMA®

techniques were made available to help engineers create products that are efficient to manufacture and assemble. DFMA methodology was developed by Dr. Geoffrey Boothroyd and Dr. Peter Dewhurst, the pioneer of DFMA® principles. Product design review can be done using DFMA® software to shorten the overall design to manufacture cycle time. Early manufacturing analysis tools help to understand the functionalities of various inter-dependent parts.

### About Chief Guest for Inauguration Event



**Mr. C M Venkateswaran**  
CEO, Aker Powergas Subsea

Mr. C M Venkateswaran is currently the Chief Executive Officer of Aker Powergas Subsea Pvt. Ltd., the Indian arm of Aker Solutions, Norway, a leading global provider of engineering and construction

services, technology products, and integrated solutions for the energy and process industries. Aker Powergas Subsea today has over 600 employees working out of their offices in Mumbai and Pune.

Venkat is a Chartered Mechanical Engineer with over 30 years of professional experience. Venkat is a regular speaker at various industry forums and has to his credit a number of presentations in various conferences.

## Inaugural Function

Mr. C.M. Venkateswaran, CEO, Aker Powergas Subsea Pvt. Ltd., Pune, was invited as Chief Guest for the inauguration function of the training programme. 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. Sanjeev Nadkarni, Director—Engineering, Aker Solutions, Mumbai and Mr. Syed Mubasheer Ali, Director, d-ESPAAT, Chennai.

Dr. P.H.Sawant, Principal, SPCE, said expressed his happiness over the training event which brought together the industry experts with academia.

The importance of manufacturing and assembly while designing products was underlined by Mr. C.M. Venkateswaran with examples from process and subsea industry. Mr. Syed Mubasheer Ali acquainted the audience about the importance of DFMA in modern manufacturing setups. Dr. M.M. Murudi, Vice Principal and TEQIP coordinator acknowledged efforts by Mechanical Engineering Department for their initiative to reinforce ties with industry.



**Dignitaries on dais (L to R): Dr. R.B. Buktar, HOD-MED, SPCE; Mr. Sanjeev Nadkarni, Director-Engineering, Aker Solutions; Mr. Syed Mubasheer Ali, Director, d-ESPAAT, Chennai; Mr. C.M. Venkateswaran, CEO, Aker Powergas Subsea Pvt. Ltd., Pune, Dr. P.H. Sawant, Principal, SPCE and Dr. M.M. Murudi, Vice Principal and TEQIP coordinator, SPCE.**



**Mr. Sanjeev Nadkarni, Aker Solutions and Dr. P.H. Sawant, Principal, SPCE during lighting of lamp ceremony**



**Mr. C.M.Venkateswaran, Aker Powergas giving his inaugural speech**

## Introducing DFMA



Mr. Syed Mubasheer Ali, d-ESPA, Chennai, introduced the participants about the important concepts of Design For Manufacturing and Assembly (DFMA). The DFMA methodology and tools useful for analyzing the costs to manufacture and assemble the products was explained in detail.

The features of DFMA technique which spans activities from purchase of parts from supply chain to the conceptual stages of design were explained. The session also informed the participants about working creatively and objectively with the suppliers to improve design efficiency.

In the further part of the programme, the participants were exposed to different ways of product simplification. This approach is based on achieving sustainable competitive advantage when product sourcing, manufacturing and design decisions are based on early cost knowledge.

A guide was presented for simplification of product structure by using multiple considerations such as: reduction in number of parts, reduction in supply chain, reduction in detail drawings, reduction in assembly time and reduction on assembly labor cost.



During subsequent modules the group was made aware about ideas related to supplier and product costing. The process involves quantification of manufacturing process, material selection and assembly alternatives. The participants were informed about use of DFA and DFM methodologies and guidelines were provided for practical application of these concepts. For example, one of the strategies involves incorporating as many features into one part as is economically feasible. The outcome of a DFA-based design was shown to be a more elegant product with fewer parts that is both functionally efficient and easy to assemble. The larger benefits of a DFA-based design are reduced part costs, improved quality and reliability, and shorter development cycles. DFM approach was presented so as to anticipate manufacturing costs early in the design process.

## Exploring Concepts and Gaining Practical Insight

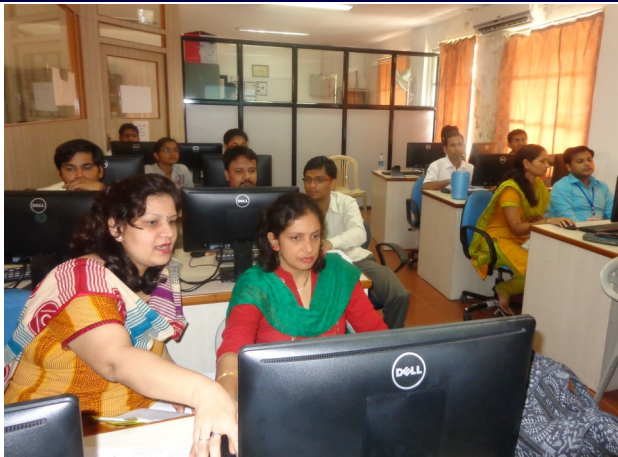
The training was enriched with many case studies to make the participants understand implementation of the key concepts of DFMA. The group was also given exposure to use DFMA for investigating additional processes and materials and developing designs that may be more economical to produce. The participants were given many tips for use of DFMA software.

The participants were encouraged to discuss and question the trainer about nuances of DFMA method as applied in industrial situations. Examples related to pneumatic control system, cable harness assembly, machining analysis of a hollow cylindrical component, fabricated steel bracket assembly and printed circuit board assembly were provided to the participants.

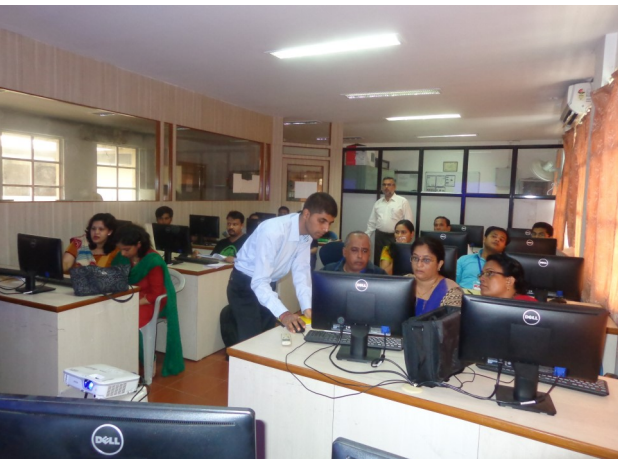


Mr. Syed presenting case studies

## Hands-on Training



The participants were given hands on training on related software such as DFM, DFA and DFM Concurrent costing. Each participant was given access to software individually for gaining most benefit from this session. For pneumatic piston cylinder assembly, the members were guided about setting up the software and later to initiate and handle the product redesign stages. Software features such as cost estimation, concurrent engineering, vendor negotiation aid, competition benchmarking tool were taught in a step by step manner.



## Valedictory Function

The valedictory function was conducted with Dr. P.K. Brahmkar, Head of Mechanical Engineering Department, Dr. Babasaheb Ambedkar Technical Univeristy (DBATU), Lonere, as chief guest. Dr. Brahmkar praised the initiative taken by SPCE by conducting training programme with active participation of industry experts. The function was concluded with distribution of certificate to participants.



Dignitaries on dais: Mr. Syed Mubasheer Ali, Director, d-ESPA, Chennai; Dr. M.M. Murudi, Vice Principal and TEQIP coordinator, SPCE; Dr. P.H. Sawant, Principal, SPCE; Dr. P.K. Brahmkar, HOD-MED, DBATU and Dr. R.B. Buktar, HOD-MED, SPCE



# Glimpses

