A report on "ADVANCED MATERIAL JOINING AND SURFACE ENGINEERING"

(Expert Talk)

20th January, 2017

(Under TEQIP-II)

An expert talk was organized for the students of Mechanical Engineering on "Advanced Material Joining and Surface Engineering" by Mr. C.V.Srinivasa Murthy, Scientist-G, DRDL, Hyderabad, Telangana under IIIC sponsored by Technical Education Quality Improvement Programme (TEQIP-II) on 20th January, 2017 in the Seminar Hall of Department of Mechanical Engineering.

The main objective of the talk is to enlighten the students with the developments of new joining and coating materials, techniques for advanced materials and characterization of joined and coated materials in relevant conditions.

Mr. Srinivasa Murthy in his talk highlighted that there have been several recent developments in joining, surfacing and associated fabrication processes. These are often driven by the continuous demand for higher productivity and quality, lower costs and the use of advanced materials in manufacturing.

Advances in materials and coatings technologies are important to strategic sectors, such as the energy and transport ones, because of increasingly challenging environments and the aging and life extension of components. The joining and coating of advanced materials were identified as a key enabling technology to innovative and sustainable manufacturing. Lightweight and high performance

structures and components integrating a large number of functions can be obtained only by combining various materials into a multi-material structure.

Also he explained that surface protection, including corrosion protection and permeation barrier have been the main functions of coatings in the past. In more recent years, many new opportunities have arisen for coatings to provide products with innovative new functionalities (such as self-healing, anti-fouling, sensing, etc.) Chemical and thermo-mechanical incompatibilities between the different materials to be joined and coated (thermal expansion, ductility, fatigue/fracture mechanics, elastic modulus etc.) can create problems both for the joining and coating process itself, but also for the structural integrity of the components during their use. The joining and coating materials and processes must be designed to minimise these differences.

With this expert talk students had gained knowledge on new joining and coating materials and techniques for advanced materials with other innovative techniques such as advanced surface engineering.

Mr.C.V.Srinivasa Murthy Delivering the lecture

Felicitation to the resource person