

An Expert Talk on
“HIGH STRAIN RATE BEHAVIOR OF MATERIAL”
(IIC Activity)

05th December, 2013

(Under TEQIP-II)

Sri B.Ramakrishna, Scientist F, DRDO, addressed the first year, second year, and third year Mechanical Engineering Students on various aspects of Mechanical Engineering discipline and the high strain rate behavior of material as applied to impacts of armaments on battle equipment and humans involved.



As an introduction, Sri Ramakrishna introduced the basic concepts of protection and stealth features of various armed vehicles and the design considerations from Mechanical Engineering point of view. He explained the various levels of “onion” concept of protection viz., not to be seen, not to be noticed, not to be attacked, not to be captured, not to be killed, both for personnel in the armed vehicle and the vehicle itself. He also went on to explain the stealth features and how mechanical engineering design principles can be applied towards achievement of covertness from opponents’ observations from all angles. The next

part of his presentation was very technical involving demonstration of the finite element technique for design of mechanical components. He presented many simulations involving simple elastic models, Euler-Lagrange models, and nonlinear mechanics models.



These models show techniques of predicting and clearly showing simulations of failure phenomena using finite element software packages. Several screen shots and animations of the members failing in elongation, shear, and dynamic loading were shown to give clear understanding of the failure phenomena. A discussion of these animations is made in an interactive way, drawing responses from students and building further material on simple mechanical engineering principles.

The style of presentation was interactive and the students participated in the session with zeal, asking questions challenging the propositions made and to probe into the topics presented. Sri Ramakrishna also discussed about the career growth options available for Mechanical Engineer in defense sector and encouraged students to eschew the beaten path of software.

The presentation was very well received by the students and many students thronged around the speaker after the lecture with questions and suggestions. As noted by Sri Ramakrishna, some of the questions posed by the students in this post lecture session exhibited the practical acumen, critical evaluation, and creativity on the part of the students. Sri Ramakrishna was felicitated by the Principal, Dean (R&D), and the Head, Department of Mechanical Engineering. Students, as a token of their love and respect presented a memento and honored the speaker with standing ovation.