



# Instruments Research & Development Establishment (IRDE)





## About Lab

Dehra Dun is one of the major equipment oriented laboratories responsible for research, design and development in the fields of Fire Control Systems (FCS), Infra-Red Search & Track (IRST) Systems and Optronic Instrumentation.

The origin of this establishment dates back to the establishment of Inspectorate of Scientific Stores in 1939 at Rawalpindi with responsibility to inspect the telecommunication equipment used by the Indian Army.

This AHSP (Authority Holding Sealed Particulars) underwent many organizational and location changes until it took the shape of Technical Development Establishment (Instrument & Electronics) covering both R&D and AHSP functions in the fields of instruments and electronics and was located at Dehra Dun. The Establishment, during subsequent years, shed some of its R&D and AHSP responsibilities and came into its existence, in its present form, in February 1960.

## Laser Technology

A variety of Laser technologies including Dual wavelength Athermal Laser Target Designator, Eye safe Laser Range Finder, semi active and beam riding laser seeker for guiding the munition for its precise terminal tracking on to the designated target has been realized. Moreover, IRDE has developed a unique omni-directional Laser based proximity fuze technology that can be used for air-to-air & ground and ground to air attack role. Using Fourier transform Interferometry, a novel technology has been established for detection of explosives and hazardous gases.



**Athermal Laser Target Designator**



**Laser Based End Game Fuze**



**Laser Seeker**



**Eye Safe Laser Range Finder**



# Thermal Imaging Technology

Based on 320X256 IDDCA, 640X512 IDDCA, 1280X1024 HD IDDCA and 1920X1360 MP IDDCA, a variety of day and night sighting systems including Cooled and Uncooled thermal imaging sights, Dual Color sights, multi-sensor, multi-spectral and hyper spectral systems have been realized.



**Advance Driver Night Sight**



**Multispectral Surveillance System**



**Hyper-spectral Imaging Camera**

## Aerial Payload Technology

IRDE is providing ISR solutions with compact and light weight high accuracy (less than 5 micro rad) gyro stabilized gimballed system with multiple (08 Nos) HD EO/IR sensors and alsoIRST and MAWS for manned/ unmanned aerial platforms.



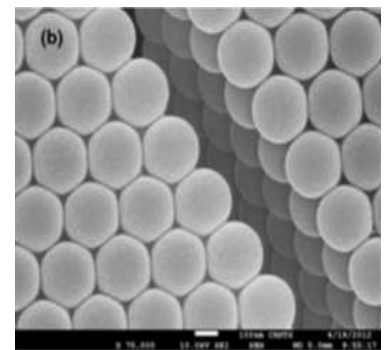
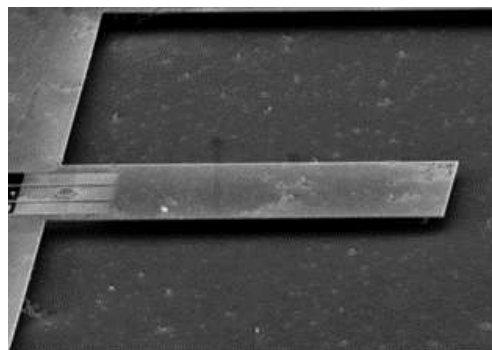
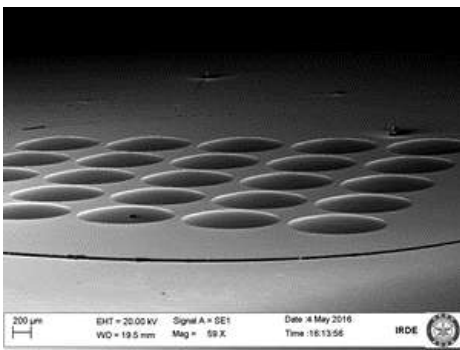
**CAMOP**



**LEOP**

## Photonics Technology

Photonics Technology: In the field of photonics, Micro-optics/ Nano-photonics components like Micro-lens arrays, Diffractive Optics, Metamaterials and Photonic Crystals have been demonstrated. Multiscale Computational camera and Micro-optics/ Freeform optics based devices are under development.





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