

**University Grants Commission (UGC)  
Sponsored Major Research Project (MRP)**

**File No. F. No. 42-897/2013 (SR)**

**Title: “Non-Destructive Testing (NDT) of composite materials using texture and morphology based Scanned Electron Microscope (SEM) image analysis”**

**Principal Investigator : Dr. S. Karthikeyan, Assistant Professor, Mechanical Engineering**

**Co-Investigator : Dr. C. Muruganatham, Professor, Mechanical Engineering**

**Project Duration : 2013 – 2017**

**Amount Sanctioned : Rs. 11.008/- Lakhs**

S. No	Name of the equipment	Model / Make	Amount	Year of purchase	Contribution to curriculum, Contribution to PO
1	<ul style="list-style-type: none"> <li>• <b>Zoom Trinocular Microscope</b></li> <li>• <b>WATEC CCD camera</b></li> <li>• <b>Computer with configuration given below</b> <ul style="list-style-type: none"> <li>• Intel i3 Processor</li> <li>• 4GB RAM</li> <li>• 500GB Hard Disk</li> <li>• OS Windows XP/7</li> <li>• DVD Writer</li> <li>• 18” LED Monitor</li> <li>• 600VA UPS</li> </ul> </li> </ul>	OPTOZOOM - TR 221S	Rs. 2,04,750/-	2015	Used for UG,PG & Researchers to view the surface of their specimens with the magnification ranges from 7x to 45x  PO4, PO5, PO8, PO11, PO10
2	<b>Printer</b>	Hp M1005	Rs. 12,585/-	2015	To generate project reports and for documentation.
3	<b>High end System</b> <ul style="list-style-type: none"> <li>• Intel 5<sup>th</sup> Gen core I7-5500U Processor</li> <li>• 12GB DDR3 RAM, 14”FHD</li> <li>• 4GB Graphics NVIDIA GTX 950M, Windows8</li> </ul>	Hp	Rs. 93,450/-	2016	To process the image with higher resolution and to adapt with the latest softwares.  PO4, PO5, PO8, PO11, PO10

**Publication:**

Karthikeyan, S., et al. "DWT Based LCP Features for the Classification of Steel Surface Defects in SEM Images with KNN Classifier." Australian Journal of Basic and Applied Sciences, 10(5), 2016.

**PhD / M.E Produced:**

S. No	Name	Course	Title
1.	S. Gopinath (Reg.No.12W07)	M.E (Production)	Optimization and Validation of Process Parameters on Electromechanical Behaviour of The Composite Bipolar Plate
2.	C. Raghavan (Reg.No. 13L10)	M.E (Industrial)	Multi-Response optimization of Process Parameters Influencing Electro-Mechanical Behaviour of Composite Bipolar Plates for PEM Fuel Cells
3.	M. C. Pravin	Ph.D (Ongoing)	Detection and Classification of defects in Composite Materials using SEM imagery