CLUSTERS DATA

Electrical Power Conversion (EPC) - Cluster 1

- **Associated faculty**: Dr. Faheem A. Chachar, Dr. Sabir Shah, Engr. Sunny Katyara, Engr. Jahangir Badar, Engr. Jamshed Ansari

- **Areas of Work**
  - **Machines Design**
  - **Power Electronics and Control**
  - **Power Quality & Reliability**
  - **Grid integration of Renewable Power Generation and Smart Grids**
  - **Offshore Wind forms**

- **Research Collaborations**

    (Hanyang University South Korea)
  - Brushless WRSM with 3rd harmonic field excitation
  - Reduction of high starting current for Induction machine

- **Four Research Assistant**

Electronic Thin films and non linear dynamics - Cluster 2

- Associated faculty: Dr. Abdul Qadir Rahimon, Dr. Saeed Abro, Engr. Waqas Soomro, Dr. Ahmed Ali

- Areas of Work

- **Thermoelastic waves propagation**
- **Disordered media**
- **Nanomaterial's**
- **Nano generators**
- **Flexible electronic devices**

- Research Collaborations

- School of Microelectronics and Solid state Electronics, UESTC, Chengdu, China
- S. Toraygyrov Pavlodar State University, Pavlodar, Kazakhstan

- Research Output in 2016-17

- 03 impact factor publications in 2016
- **01** impact factor Paper published **2017**

Thermal Science & Energy (TSE) - Cluster 3

- Associated faculty: Dr. Fareed Hussain

- Areas of Work
- **Fluid Dynamics**
- **Heat and Mass Transfer**
- **Process Intensification**

- Research Collaborations
- USPCAS-E NUST
- University of Nantes, Paris VII & University of Angers

- Three Research Assistant

Antenna and Microwaves (AMR) - Cluster 4

- Associated faculty: Dr. Arslan Ahmed, Dr. Yameen, Dr. Sharjeel Afridi, Engr. Bilal Tirmizi

- Areas of Work

- **Signal Processing**
- **RF front end devices**
- **Software based receivers**
- **GPS receiver Design**
- **RF Energy Harvesting**
- **Microwave Material Processing**
- **Microwave sensors**
- **Reconfigurable antenna design for 5G**

- Research Collaborations

- RIMMS NUST
- University of Leeds

- Research Output : 8 IF Journals 2016-18, 7 IEEE conferences

Vision Image Processing - Cluster 5

- Associated faculty: Dr. Gulsher, Dr. Aziz Memon, Engr. Junaid Bhatti

- Areas of Work

- **Image Processing**
- **Computer/Machine/Robot Vision**
- **Artificial Intelligence**
- **Machine Learning**
- **Pattern Recognition**

- Research Collaborations

- Eastern Mediterranean University, North Cyprus, Turkey
- Hanyang University South Korea

Engineering for Health Applications - Cluster 6

- Associated faculty: Dr. Ali Hassan, Dr. Safeer Hyder, Dr. Saeed Abro, Engr. Bilal Tirmizi, Engr Irfan Younus

- Area of Work

- **Wireless Power/Energy Transfer in 5G, Wireless and Body Sensor Networks**
- **Green and Battery-friendly Communication in 5G, Wireless and Body Sensor Networks**
- **Energy-efficient Video Transmission in 5G, Wireless and Body Sensor Networks**
- **Medical Internet of Things (M-IoT).**
- **Telemedicine and Wireless Capsule Endoscopy**
- **Device to Device (D2D), and Vehicular Communication**
- **Green RF microwave communication**
- **Energy Harvesting and Cross-Layer design for WBSNs**
- **Ultrasound based shear wave elastography**
- **Liver Cirrhosis staging using ultrasound**
- **Breast tumor detection using ultrasound**
- **Signal processing for Ultrasound Medical Imaging**

- Five Research Assistants