**Core Competencies of National Institute of Electronics, Islamabad**

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| --- | --- | --- |
| S No | **Features** | **Description** |
| 1 | **Products & Services** | **Products**   * LED Based Street Light * LED Based Panel Light * Solar Charge Controller * GSM Based Energy Meter * GPS/GSM Based Vehicle Tracking System * Grid Tie Inverter 500W * ECG Machine * Long Range RF Transmission System (100 Km) * Electronic Voting Machine   **Services**   * Testing & Calibration of Equipment. * Energy Audit & Management * Multilayer PCB Fabrications * Stuffing of Electronic Components * Industrial Training Programs * Computerized Automotive Tuning and Fault removing Facilities. of Vehicles * Repair & Maintenance of Electronics Equipment |
| 2 | **Facilities** | * SMT Assembly Line * Multilayer PCB Fabrications * Energy Audit & Management * Centre for Quality Testing & Calibration of Electronics Equipment |
| 3 | **Major Strengths** | * Automation Control Engineering * Power Electronics * Communication Engineering * Center for Software Development in Advance Databases * Integrated Circuit (IC) Design * Consumer Electronics * Automotive Engineering * Consultancy on ISO Certification/Accreditation |
| 4 | **Quality Assurance** | * ISO 17025 Accredited Lab for Testing & Calibration of Electronics Equipment |

**National Institute of Electronics Islamabad (Data Base)**

**Automation and Control Engineering Lab**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.1 Name of Sub Centre / R&D Discipline/ Field Automation & Control, Embedded System** | | | | | |
| **A** | **List of major Equipment** | | | **Quantity** | |
|  | Digital Oscilloscope  500MHz, 4-Ch | | | 04 | |
|  | Function Generator  100MHz, 1GS/s | | | 04 | |
|  | Spectrum Analyzer  01KHz-03GHz | | | 01 | |
|  | Graphic Meter/  DMM | | | 03 | |
|  | Digital Clamp Meter  600A | | | 01 | |
|  | Frequency Counter, 10MHz, 2-Ch | | | 01 | |
|  | Scope Multi Meter  20MHz | | | 10 | |
|  | Power Supply  2-Ch, 30VDC/3A | | | 10 | |
|  | IC Tester | | | 02 | |
|  | Universal EEPROM Programmer  S5000 | | | 03 | |
| **B** | **List of Experts** | | **Designation** | | **Major Field** |
| 1) | Engr. M. Haq Bab | | Head: Automation & Control Engineering | | Automation & Control, Embedded Systems, Medical Electronics |
| 2) | Engr. Farhat Ullah Khan | | Senior Design Engineer | | Automation & Control, Embedded System |
| 3) | M. Shahbaz Akhtar | | SRO | | Automation and Control |
| 4) | Engr. Ali Nisar | | Design Engineer | | Electronics & System Engineering |
| 5) | Engr. Haris Aziz | | Design Engineer | | Electrical Electronics |
| **C** | **Services being provided:** | | | | |
|  | **a.** | **Training:** Provide and organize trainings to Clients in different fields.(Advanced Industrial Training on PLC, HMI and SCADA) | | | |

**Automotive Electronics Lab**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.1Name Sub Center/ R&D Discipline/ Field :** | | | | | |
| **A** | **List of Major**  **Equipment:** | | | | **Quantity** |
|
| 1. | Autel MS908 | | | | 01 |
| 2. | Solus Ultra | | | | 01 |
| 3. | Vantage PRO | | | | 02 |
| 4. | Verdict D7 | | | | 01 |
| 5. | Standalone Remote Kit | | | | 01 |
| 6. | Gas Analyzer | | | | 01 |
| 7. | PICO Scope | | | | 02 |
| **B** | **List of Experts** | | **Designation** | **Major Fields** | |
| 1. | Mr. Asad Hameed | | Senior Design Engineer | Electronics | |
| 2. | Mr. Namra Riaz | | Design Engineer | Mechatronics | |
| 3. | Mr. M.Kashif Ehsan | | Design Engineer | Electronics | |
| 4. | Mr. Ahtasham-ul-Haq | | Design Engineer | Electronics | |
| 5. | Mr. M. Chand Shafi | | Software Engineer | Software & Electronics | |
| 6. | Mr. Ghulam Yaseen | | Assistant Electronic Engineer | Electronics & Mechatronics | |
| 7. | Mr. Saleem Haider | | Skilled Worker | Electronics | |
| **C** | **Services being provided:** | | | | |
|  | **a** | **Testing/ Analytical** (Tune up Services) | | | |
|  | b. | **Training** (to be initiated soon**)** | | | |

**Communication Engineering Lab**

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| --- | --- | --- | --- | --- |
| **1.1 Name Sub Center/ R&D Discipline/ Field RF and Optical Communication systems.** | | | | |
| **A** | **List of Major Equipment** | | | **Quantity** |
|
| 1. | Network Analyzer  9KHz-8.5GHz | | | 01 |
| 2. | Wireless Communication test set WCTS  380MHz-2.7GHz | | | 01 |
| 3. | Analog Signal Generator  100KHz-20GHz | | | 01 |
| 4. | Optical Spectrum Analyzer  450nm, 750nm, 1330nm, 1550nm | | | 01 |
| 5. | RF Spectrum Analyzer  9KHz-13.2GHz | | | 01 |
| 5. | Radio Test Set  100KHz-1GHz | | | 01 |
| 6. | Optical time domain reflectometer  1330nm-1550nm | | | 01 |
| 7. | Fusion Splicer | | | 01 |
| **B** | **List of Experts** | | **Designation** | **Major Fields** |
| 1. | Mr. Muhammad Bashir Ahmed | | Dir. Research | Communication systems |
| 2. | Mr. Mehar Elahi | | Team Leader | Electronics systems |
| 3. | Lt. Col ® Tariq Aziz | | Sr. Design Engineer | RF Communication |
| 4. | Mr. Muhammad Shuja ul Islam | | Research Officer | RF Communication, Optical Communication, Wireless Systems |
| 5. | Mr. Babal Ali Afridi | | Research Officer | Antenna and Microwave Systems |
| 6. | Ms. Aamra Arshad | | Design Engineer | Telecom and Networks |
| **C** | **Services being provided:** | | | |
|  | **a** | **Testing / Analytical** (RF Power, RF Gain, SWR, S parameters, Y parameters, Radiation Pattern, Losses Mismatching) | | |
|  | **b.** | **Consultancy:** Provide consultancy inReverse Engineering, Advance Industrial Solution, Technical Assistance, Testing and Verification) | | |
|  | **c.** | **Training (**Internship for various universities of Pakistan (NIE Internship Program) | | |

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| **Consumer Electronics Lab** | | | | | |
| **1.1 Name of sub centre/R&D Discipline/Field. Medical Electronics** | | | | | |
| **A** | **List of Major Equipment** | | | **Quantity** | | |
|
| 1. | Audio Analyzer  DC – 250Khz | | | 01 | | |
| **B** | **List of Experts** | | **Designation** | | **Major Fields** | |
| 1. | Mr. Muhammad Mustafa Masud | | Team leader | | Signal Processing, Communication. | |
| 1. | Mr. Tayyab Jehanzeb | | Design Engineer | | Electronics | |
| 2. | Mr. MohsinFarid | | Design Engineer | | Electronics | |
| **C** | **Services:** | | | | | |
|  | **a** | **Testing/ Analytical: (**R&D**)** | | | | |
|  | **b**. | Training: Provide trainings in different fields. **(**Audio Analyzer) | | | | |

**Center for Quality Testing & Certification for Electronic Products (CQTC-EP)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.1 Name Sub Centre/R&D Discipline/Field Certified Testing & Certification Lab for Electronic Products.** | | | | | |
| **A** | **List of Major Equipment** | | | | **Quantity** |
|
|  | Hi-Potential Tester | | | | 01 |
| Insulation/ Resistance Tester  Ground Bond/ Continuity Tester | | | | 01 |
| 01 |
| Line Leakage Tester (Touch Current Test) | | | | 01 |
| Omnia Compliance Analyzer (6 in 1) | | | | 01 |
|  | Temperature and Humidity Chamber | | | | 01 |
|  | Electrostatic Discharge Gun | | | | 01 |
| Combi (3 in 1) Surge, Burst & Power Fail Tester | | | | 01 |
| Damp Oscillatory Wave Tester | | | | 01 |
|  | Integrating Sphere | | | | 01 |
| AC Power Sour | | | | 01 |
| Power Meter | | | | 01 |
| Photometer | | | | 01 |
|  | Lux Meter | | | | 01 |
| Temperature & Humidity Meter | | | | 01 |
| Multimeter | | | | 01 |
| Clamp Meter | | | | 01 |
| Infrared Thermometer | | | | 01 |
| EMF Meter | | | | 01 |
| **B** | **List of Experts** | | **Designation Major Fields** | | |
| 1 | Mr. M. Faisal Paracha | | Senior Research Officer/ In-charge Testing Lab | Testing & Calibration, ISO 17025, Master Trainer CE marking , Internal and External auditing, | |
| 2 | Mr. Adeem Barlas | | Design Engineer | Testing and calibration | |
| 3 | Syed Umair Iftikhar | | Design Engineer | Testing and calibration | |
| **C** | **Services being provide:** | | | | |
|  | a | **Testing/Analytical** (Testing, Calibration) | | | |

**Center for Software Development and Training in Advance Databases.**

**Computer Training Center**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.1 Name Sub Center/ R&D Discipline/ Field** | | | | | |
| **A** | **List of Major**  **Equipment** | | | | **Quantity** |
|
| 1 | Computer Hp 3GH | | | | 22 |
| 2 | Computer P4 Non branded | | | | 10 |
| 3 | Computer Core I-5 | | | | 19 |
| 4 | Computer Core 2Do | | | | 20 |
| 5 | Computer P4 | | | | 02 |
| 6 | Printer Hp 1320 | | | | 01 |
| 7 | Printer HP  2055 | | | | 01 |
| 8 | Server 3400 | | | | 01 |
| 9 | Cisco Router | | | | 02 |
| 10 | Manageable Switch | | | | 01 |
| 11 | Scanner Hp Scan Jet 4890 | | | | 2 |
| 12 | Scanner HP  5550 | | | | 01 |
| 13 | Photocopier Biz hub 250 | | | | 01 |
| 14 | Multimedia Projector | | | | 03 |
| 15 | Informatica (software) | | | |  |
| **B** | **List of Experts** | | **Designation** | **Major Fields** | |
| 1. | Ms. Sadiya Qureshi | | Principal Research Officer | HRD Project Management, SAP- HRM. | |
| 2. | Ms. Asma Sharif Akhtar | | Software Engineer | Software Engineering, Image Processing, Artificial Intelligence, Databases | |
| 3. | Mr. Abdul Basit Ur-Rahim | | Programmer | Software Engineering, Software verification, Image Processing | |
| 4. | Mr. Tahir Ayub | | Sr. Tech | Software | |
| 5. | Mr. Abdul Basit Taj | | Service Provider | Power Electronics | |
| 6. | Mr. Muhammad Asad | | Service Provider | Signal and Image Processing | |
| 7. | Syed Zeeshan Haider | | Service Provider | Power Electronics | |
| 8. | Mr. Bariq Wajahat | | Service Provider | Networking, CCNA/CCNP, MCSE/MCITP, | |
| 9. | Mr. Shafique Shah | | Service Provider | AutoCad, Interior Designing | |
| **C** | **Services being provided:** | | | | |
|  | **a.** | **Consultancy:** Provide consultancy to Private and Public Sectors in various fields. | | | |
|  | **b**. | **Training:** Provide and offer training to Clients in different fields**. (**Oracle Database 11g on Developer Track Regular + with collaboration of NAVTIC, Electronic Networking, Advance IT) | | | |

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| **General Purpose Lab** | | | | | | |
| **1.1 Name of sub centre/R&D Discipline/Field. Electronics** | | | | | | |
| **A** | **List of Major**  **Equipment** | | | | **Quantity** |
|
| 1. | Spectrum Analyzer 2Hz – 50Ghz | | | | 02 |
| 2. | Vector Signal Analyzer  9KHz – 6GHz | | | | 01 |
| 3. | Logic Analyzer  204 Channels, 4GHz | | | | 01 |
| 4. | Mixed Signal Oscilloscope  1GHz | | | | 02 |
| 5. | Digital Multimeter | | | | 05 |
| **B** | **List of Experts** | | **Designation** | **Major Fields** | |
| 1. | Mrs. Fouzia Ashfaq | | SRO | Electronics | |
| 2. | Mr. Adeel Ahmad | | Design Engineer | Electronics | |
| 3. | Mr. Ali Nisar | | Design Engineer | Electronics | |
| **C** | **Services being provided:** | | | | |
|  | **a.** | **Testing/ Analytical (**R&D) | | | |
|  | **b.** | **Training : (**Electronics Test Equipment) | | | |

**Integrated Circuit Design Center (ICDC)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1.1  **Name Sub Center/ R&D Discipline/ Field Integrated Circuit Designing.** | | | | | |
| **A** | **List of Major Equipment** | | | | **Quantity** |
|
| 1. | Sun Fire V245J Server | | | | 01 |
| 2. | Sun Ultra 45 Workstation | | | | 01 |
| 3. | Sun Ultra 25 Workstation | | | | 03 |
| 4. | Fujitsu Primergy TX 200 S7 Servers | | | | 02 |
| 5. | Dell Optiplex 330DT | | | | 10 |
| **B** | **List of Experts** | | **Designation** | **Major Field** | |
| 1. | Mr. Shahid Ahmed Khan | | Senior Research Officer | Micro Electronics | |
| 1. | Mr. Zahoor ul Haque | | Senior Research Officer | IC Designing | |
| 2. | Mr. Madiha Gul | | Electronics Engineer | Digital Design | |
| **C** | **Services being provided:** | | | | |
|  |  | **Training:** Provide trainings to General participants, Universities Students, Internees and Private Sectors in different Fields**. (**IC Nanometer Design**)** | | | |

**PCB Fabrication Facility**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | |
| **A** | **List of Major Equipment** | | | | **Quantity** |
|
| 1. | Photo plotter | | | | 01 |
| 2. | CNC drilling/Routing machine Fully Auto | | | | 02 |
| 3. | Conveyorized Spray Etching/Developing/Stripping machine DL500 | | | | 03 |
| 4. | EXP8000  Double side UV Exposer | | | | 02 |
| 5. | PTH plant Compact  Plating Line (5tank) | | | | 01 |
| 6. | Dry film Laminator | | | | 01 |
| 7. | Flying probe Tester | | | | 01 |
| 8. | Hot Air Dryer | | | | 01 |
| 9. | Hot air Stowing Oven | | | | 01 |
| 10. | Surface Protection Immersion Silver/Tin plating unit | | | | 01 |
| **B** | **List of Experts** | | **Designation** | **Major Field** | |
| 1. | Mr. Muhammad Kamran Bhatti | | Senior Research Officer | Printed Circuit Boards & IC Designing | |
| 2. | Mr. Shakoor Ahmed | | Technical Officer | PCB design & fabrication | |
| **C** | **Services being provided:** | | | | |
|  | **a.** | **Consultancy** (Consultancy & Fabrication service of Printed circuit board design and fabrication) | | | |
|  | **b.** | **Training:**  (General Participants, Universities Students (Internees) | | | |
| **D** | **Pilot Plant Facility**  **(Briefly describe, if available** | | | | |
|
|  | The PCB fabrication facility at NIE is recently upgraded with latest equipment for multilayer fabrication facility (Up to 6 layers).  The Facility is a prototype and not aimed for volume production to generate income on commercial basis, however, it is planned to create enough revenue to be able to meet its operating expenses through PCB design & fabrication, consultation and training to industrial and commercial customers.  **Services Offered**  The PCB fabrication facility offers following services to Industry, R & D organizations and Universities.   * Single sided Standard PCBs * Single Sided hi-density (FR-4 only) * Double sided Standard PTH PCBs * Double Sided hi-density PTH (FR-4 only) * Flexible PCBs * Multilayer PCBs (Up to 6 layers) | | | | |
|  |

**Power Electronics Lab**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1.1 Name Sub Center/ R&D Discipline/ Field** | | | | | |
| **A** | **List of Major**  **Equipment** | | | | **Quantity** |
|
| 1. | Oscilloscope 200MHz | | | | 01 |
| 2. | Power Logger | | | | 01 |
| 3. | Clamp Meter | | | | 01 |
| 4. | Thermal Imager | | | | 01 |
| 5. | True RMS Meter | | | | 01 |
| 6. | Insulation Tester | | | | 01 |
| 7. | Thermal IR Meter | | | | 01 |
| 8. | Gas Leakage Detector | | | | 01 |
| 9. | Air Flow Meter | | | | 01 |
| 10. | Lux Meter | | | | 01 |
| 11. | DC Power Supply  600V DC / 3A | | | | 02 |
| **B** | **List of Experts** | | **Designation** | **Major Fields** | |
| 1. | Mr. Shaukat M. Malik | | Senior Research Officer | Inverters, Charge-Controllers, DC Supplies | |
| 2. | Mr. Inamullah Khan | | Senior Research Officer | Energy Audit and Management | |
| 3. | Mr. Kamran Latif | | Senior System Analyst | Electronic Voting Machine | |
| 4. | Mr. Saira Shiraz | | Senior Design Engineer | Electronics, Hardware & Software | |
| 5. | Mr. Muhammad Usman | | Senior Design Engineer | Design Engineering | |
| 6. | Mr. M.Saud Al Faisal | | Senior Design Engineer | Design Engineering | |
| 7. | Mr. Umar Mumtaz Ch. | | Design Engineer | Design Engineering | |
| 8. | Ms.Bushra Riaz | | Design Engineer | Design Engineering | |
| 9. | Ms.Saba Kiran | | Software Engineer | Software Engineering | |
| **C** | **Services being provided:** | | | | |
|  | **a** | **Testing/ Analytical : (**Testing of Inverter/ Transmitters and Receivers) | | | |
|  | **b.** | **Consultancy:** Provide consultancy inEnergy Audit and Management. | | | |

**Surface Mount Technology Production Line**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A** | **List of Major**  **Equipment** | | | **Quantity** |
|
| 1. | Pick and place machines (30,000 CPH) | | | 02 |
| 2. | Screening Printer | | | 02 |
| 3. | Dispensing machine | | | 01 |
| 4. | AOI inspection system | | | 01 |
| 5. | Laser based solder paste height inspection system | | | 01 |
| 6. | 3D microscope | | | 01 |
| 7. | Reflow oven | | | 02 |
| **B** | **List of Experts** | | **Designation** | **Major Fields** |
| 1. | Mr. Muhammad Shoaib Jamali | | Senior research Officer | Electronics |
| 2. | Ms. Madeha jadoon | | Electronic engineer | Electronics |
| 3. | Ms. Amina majid | | Software engineer | Software |
| 4. | Ms. Zaib un nisa | | Software engineer | Software |
| 5. | Ms. Fawad Ansari | | Design engineer | Electrical |
| **C** | **Services being provided:** | | | |
|  | **a.** | **Testing/ Analytical (**Optical inspection system for testing soldering joint of all packages except BGAs) | | |
|  | **b.** | **Consultancy:** Provide Consultancy to Public and Private Sectors in various fields. | | |
|  | **c.** | **Training:** Organize training programmes and **Internship** for various universities of Pakistan. | | |
| **D** | **Pilot Plant Facility**  **(Briefly describe, if available)** | | | |
|
|  | We have pilot plant production line for SMT assembly of PCBs having two pick and place machines and printer and the reflow oven for SMT assembly and dispensing system for conformal coating and gluing. | | | |