CALL FOR APPLICATIONS – SISEA 2024

(Summer Internship for UG/PG Students in Emerging areas of Automation)

ABOUT THE DEPARTMENT

The Department of Instrumentation Engineering MIT Campus Anna University was established in the year of 1949 and pioneer in offering UG and PG program in Instrumentation Engineering. The core strength of the Instrumentation Engineering Department MIT Campus, Anna University is Process Control & Instrumentation.

HIGHLIGHTS

- Highly qualified faculty members with multi-disciplinary research expertise and significant professional accomplishments, dedicated Faculty and staff members and highly motivated students.

- Well-equipped laboratories with State-of-the-art facilities to impart high quality education and to pursue research.

- Both UG and PG programmes are approved by ACITE and accredited by NAAC (‘A’ grade (2014-2019)) and UG programme accredited by NBA for 2 consecutive times for 6 years (2016-2022) & (2022-2028).

- **DST - FIST & PURSE / UGC - SAP & UPE Sponsored / TEQIP/ RUSA 2.0. Funded Dept.**

- Collaborative research with Universities and R&D organizations in India and abroad.
Facilities available in the Department of Instrumentation Engineering
13 Major Research cum Curriculum based UG/PG Laboratories

- **Advanced Drives and Machines Laboratory** – DST PURSE sponsored - (Houses sophisticated integrated PC based AC/DC drives from Rock well Automation worth 1 crore)

- **Flow Laboratory** – UGC – SAP – DRS-I sponsored – (Customized Flow characterization and control valve testing facility worth 1 crore)

- **University for Potential Excellence (UPE) Laboratory** – UGC-UPE sponsored – (Programmable System on Chip (PSoC), MSOs & DSOs, High Precision LCR Meter & function generator, Spectrophotometer, Fluorometer etc worth 1 crore)

- **Centre of Excellence in Factory Automation** – Mitsubishi sponsored – (Mitsubishi PLCs, 6 DOF Robot with software, SCADA – HMI software worth 1 crore)

- **Control System Laboratory** – DST- PURSE sponsored - (4 major mechanical PC based pilot systems namely Inverted pendulum, TRMS, Magnetic levitation, AC/DC servo system from Feedback Instruments, USA worth 50 lakhs)

- **Process Control Laboratory** – DST – FIST, UGC, DRDO, TEQIP sponsored - (Tailor made Process Training plants for level, temperature, pressure, flow with industrial Transmitters, Valves and Controllers/ Distillation column/Bioreactor/CSTR etc.)

- **Industrial Automation Laboratory** – DST – FIST & UGC – SAP sponsored (Industrial version of DCSs: Emerson – Delta V, Yokogawa – CS3000, Invensys, Siemens IoT Enabled DCS – Simantic PCS 7, SCADA HMI, PLCs: GE – Fanuc, Modicon, Siemens, Omron, Schneider, Mitsubishi, etc with pilot processes)

- **Embedded System Laboratory** – TEQIP – AU - Lab Modernization funded (ARM CORTEX/ PIC/ RASPERRY PI /Embedded IoT/Wireless Module/ IDE Platform/Licensed version of Proteus software/et)

- **Industrial Instrumentation Laboratory** – DST-PURSE, UGC-SAP, Lab Modernization funded (Vital Sign Monitor, Loop Calibrator, Light/Sound Meter, Conductivity and pH Analyser, UV – Visible Spectrophotometer, Portable Furnace, Dead Weight Tester, Multiproduct Calibrator, HART communicator with pressure and Temperature Transmitters etc)

- **Calibration Laboratory** – DST-PURSE, UGC-SAP sponsored (Process Calibrator/ High & Low Temperature Calibrator/ IR Tester/ Thermal Imager/ Viscometer and Thermosel/ Smart Pressure Calibrator etc )

- **Transducer & Measurements Laboratory** – DST PURSE – UGC SAP (Collection of sensors, DAQ cards NI- 6001, 6008, MyDAQ, Compact RIO, ELVIS kit, Analog System Kit, PC based Measurement setup for Strain, Displacement, Vibration, Temperature etc)

- **Electronics Laboratory** – UPE -Lab Modernization (High End MSOs & DSOs – Keysight, ALL-IN-ONE Testbench MOKULAB, Spectrum Analyzers - Rigol, RPS-APLAB, Keithley etc)

- **Electric Vehicle Research Facility** – RUSA 2.0. Funded – (Battery Management System, Programmable Electronic Load, Hardware-in-Loop simulator, Embedded Hardware, Data Loggers etc)
# Summer Internship to be offered by the Department

<table>
<thead>
<tr>
<th>S. No</th>
<th>Faculty Detail</th>
<th>2024 Topics of internship</th>
<th>No. of Batches</th>
</tr>
</thead>
</table>
| 1.    | Dr D.Manamalli, Prof.  
   *Email: manamalli_m@yahoo.com* | Speed control/Fault identification of BLDC Motor. | 1 |
| 2.    | Dr K.Latha, Prof.  
   *Email: lat_padhu@yahoo.com* | PLC Based Automation for Industrial Process | 1 |
| 3.    | Dr S.Kumar, Prof.  
   *Email: skumar@mitindia.edu* | Speed control of 3 phase induction motor using modern drive | 1 |
| 4.    | Dr Sabitha Ramakrishnan, Prof.  
   *Email: sabitha.ramakrishnan@gmail.com* | 1.Wireless channel modeling for sensor networks  
   2.ML Algorithms for biomedical signal classification. | 1 |
| 5.    | Dr S.Sutha, Prof.  
   *Email: sutha_mani@hotmail.com* | AI based modeling and control of Industrial Process | 2 |
| 6.    | Dr C.Shanthi, Asst Prof  
   *Email: cgshanthi@gmail.com* | Development of IoT enabled embedded system using Beaglebone. | 1 |
| 7.    | Dr M.Mythily, Asst. Prof  
   *Email: mythily_eie@yahoo.co.in* | Sensor failure prediction from flight data using ML Techniques. | 1 |
| 8.    | Dr D.Kalpana, Asst. Prof  
   *Email: kalpanaspec@gmail.com* | AI Based classification and Prediction for Health care Applications. | 1 |
| 9.    | Dr V.Gomathi, Asst. Prof  
   *Email: gomathianand31@gmail.com* | Sensor Fault Diagnosis for a Process System using AI Based Cognitive Techniques. | 1 |
| 10.   | Dr M. Vijayakarthik, Asso. Prof  
   *Email: vijayakarthick@yahoo.co.in* | Modeling and Control of Fuel Cell. | 1 |
| 11.   | Dr N.Vinoth, Asso. Prof  
   *Email: vinothbalaji@rediffmail.com* | 1.SCADA Based position control of 2-axis control  
   2.SCADA Based control of a single tank process | 1 |
| 12.   | Dr A.Ganeshram, Asst. Prof  
   *Email: agram72@gmail.com* | Speed control of 3 phase induction motor using LabVIEW | 1 |
Summer Internship to be offered under RUSA 2.0. – PO6
(Improved SoH by soft sensors and controls for Battery Management System of Electric Vehicles)

Requirements for RUSA project: 1. Eligibility – only UG 3rd Year from EEE/EIE/ICE/Automobile or PG in any related program. 2. Minimum 4 weeks physical mode only (Option to continue in online mode after 4 weeks/as main project) 3. Will work with interdisciplinary team from different college.

Outcome: 1. Will publish the work in Journal/ conference and the extended quality work can be patented

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<tr>
<th>S. No</th>
<th>Project Title</th>
<th>Software to be used</th>
<th>Hardware to be used</th>
<th>No. of Students</th>
<th>Faculty Incharge</th>
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<tbody>
<tr>
<td>1</td>
<td>Development of a soft sensor for State-of-Charge estimation for Electric vehicle batteries using Non-linear state estimators (EKF &amp; UKF) and its Hardware-in-the-Loop (HIL) implementation using OPAL-RT.</td>
<td>Matlab</td>
<td>HIL, OPAL-RT.</td>
<td>3</td>
<td>1. Dr N.Pappa Professor &amp; Team Coordinator (PO6), RUSA Dept. of Instrumentation Engg., MIT Campus, Anna University Chromepet, Chennai – 600044 Email: npappa @rediffmail.com</td>
</tr>
<tr>
<td>2</td>
<td>Design and implementation of control schemes for optimal charging of Electric vehicle Batteries.</td>
<td>Matlab</td>
<td>Embedded Hardware</td>
<td>3</td>
<td>2. Dr S.Sutha Professor and Member (PO6), RUSA Dept. of Instrumentation Engg., MIT Campus, Anna University Chromepet, Chennai – 600044 Email: <a href="mailto:sutha_mani@hotmail.com">sutha_mani@hotmail.com</a></td>
</tr>
<tr>
<td>3</td>
<td>AI based State-of-Charge estimation for Electric Vehicle batteries.</td>
<td>Matlab</td>
<td>Embedded Hardware</td>
<td>3</td>
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<td>4</td>
<td>Design of Battery management system (BMS) and its implementation using Embedded hardware.</td>
<td>Python</td>
<td>FPGA/Embedded Hardware</td>
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<td>5</td>
<td>Generation of optimal charging and discharging schedule for enhancing state-of-health estimation of Electric Vehicle batteries.</td>
<td>Matlab</td>
<td>Embedded Hardware</td>
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<td>6</td>
<td>State-of-Charge and state-of-health estimation using hybrid model and its realization using FPGA board.</td>
<td>Matlab</td>
<td>FPGA/Embedded Hardware</td>
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General information for candidates applying for Summer Internship Programme

Students currently pursuing 2nd/3rd/4th Year B.E./ B.Tech and 1st/2nd Year M.E in any AICTE/ UGC approved academic institutions willing to carry out Summer Internship at the Department of Instrumentation Engineering, MIT Campus, Anna University, Chennai in the areas of Electronics, Instrumentation, Control and Automation (on specific topics listed and faculty who will be offering the internship as per the Table) using the facility available at the Department may apply for the Internship Programme.

**Fees:** Rs 1000 for 2 weeks / Rs 2000 for 4 weeks Internship (DD in favour of Director, CSRC payable at Chennai)

**Mode:** Hybrid (Compulsory 1 week offline for 2 weeks Internship / Compulsory 2 weeks offline for 4 weeks Internship to carry out real time work and remaining period can be offline or online)

**Tenure:** Not below 2 weeks and not exceeding 4 weeks.

**Period:** May 15th – July 31st, 2024

**Application Procedure:** Interested students may look at the profiles of faculty members of the Institute at the Anna University/ MIT website and contact them directly to get their consent. Application should be made in the prescribed format as available in MIT, Chennai website with copy of consent mail from the faculty along with fees payment proof. It must be duly signed, scanned, and then sent to mitieau@mitindia.edu as an email attachment with bonafide certificate and necessary enclosures before the due date. The faculty members will conduct online interviews for the shortlisted candidates and selection will be intimated through the mail. The candidate must confirm their participation once selected.

**Important Dates:**

Submission of Application with faculty consent along with DD copy: Extended Last date 15th May 2024

Selection confirmation: 15th May 2024

Starting of Internship: Between 16th May to 31st July 2022 (for a period of 2/4 weeks)

**Contacts:** Please contact your Supervisor from IE/MIT Campus in case you have any queries/doubts etc.
### Application Form:

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<tr>
<td>1) Name of the Applicant</td>
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<td>Insert Passport size photo</td>
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<td>2) Internship Topic</td>
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<td>3) Duration</td>
<td>Start Date:</td>
<td>End Date:</td>
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<td>4) Name of the Supervisor from IE/MIT Campus</td>
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<td>5) Name &amp; Address of the Institution</td>
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<td>6) Department</td>
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<td>7) Degree Pursuing with specialization</td>
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<td>8) Year of Study</td>
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<td>9) Gender</td>
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<td>10) Address Details</td>
<td>Address for Correspondence</td>
<td>Permanent Address</td>
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<tr>
<td>11) Contact Details</td>
<td>Mobile No.: Email id:</td>
<td>Faculty i/c or guide from your college: Mobile No: Email id:</td>
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<td>12) Educational Qualification with marks (Starting from 10th onwards and up to last sem completed in UG)</td>
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<td>Examination Passed</td>
<td>Board/University/College</td>
<td>Year</td>
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<td>UG (Till completed Sem)</td>
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13) Details of payment made for the Internship fees: Rs 1000/- for two weeks / Rs 2000/- for four weeks


Place: ____________
Date: ____________
Signature of the Applicant

**Sign and Scan Application:** Send it to mitieau@mitindia.edu before Due Date with Attachments (documents listed in S. No. 14)
Bonafide Certificate

(To be obtained from HOD/Academic Section)

This is to certify that Mr/Ms. ____________________________, a student of this Institution/University studying ____________________________is nominated to undergo internship at MIT Campus, Anna University, Chennai-600044 from_____________________ to ______________________.

Signature: ____________________________________________

Name: ____________________________________________

Designation: _____________________________________

Name of the Institution: ____________________________________________

Seal with date