AVIT
AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY

DIAMOND
QS I-GAUGE

AVIT
Consultancy
Brochure

VINAYAKA MISSION'S
RESEARCH FOUNDATION
(Deemed to be University under section 3 of the UGC Act 1956)

A GRADE
Accredited with
'A' Grade by NAAC

CONTENTS

Department of Biotechnology

Consultancy Division

About the Department

The Department of Biotechnology was conceptualized and started in AVIT in the year 2004 with an ambition to apply engineering knowledge and to create novel technology. The Department offers Undergraduate, Post Graduate (FT / PT) and Ph.D (FT/PT) Program. The Department has major laboratory facilities like a Microbiology lab, Immunology lab, Biochemistry lab, Cell and Molecular Biology lab, and DST funded Research lab which imparts training for the students to make them competent and gain thorough scientific knowledge. The Department has extensive research facilities and infrastructure to support ongoing teaching and research initiatives in the areas of clinical biochemistry, Environmental science, Medicinal plants, Nanotechnology, Plant tissue culture etc. The Department organizes guest lectures, seminars, conferences, workshops, hands-on training, industrial visits, internships, and industrial credit courses to create confidence and explore the recent trends in young minds. The Department received funds from DBT, DST.

Laboratory Facilities

- Biochemistry & Bioinstrumentation Lab
- Immunology and Bioprocess Engineering Lab
- Molecular Biology & Genetic Engineering Lab
- Microbiology & Downstream Processing Lab
- DBT Funded Research lab

Biochemistry & Bioinstrumentation Lab
Detail of Consultancy Provided

Analyze Parameters

- Sugar level
- Cholesterol level
- Protein
- Urea
- Creatinine
- Soxhlet extraction
- Photochemical analysis

Microbiology & Downstream Processing Lab
Detail of Consultancy Provided

- Antibiotic Sensitivity Test
- Antimicrobial Test
- Biochemical Analysis test
- Staining techniques

Molecular Biology & Genetic Engineering Lab
Detail of Consultancy Provided

- Isolation of Bacterial genomic DNA
- Isolation of Plant Genomic DNA

#Engineer Your Future Here

25 years of Academic Excellence
AVIT

Vinayaka Mission's – Chennai Campus

Vinayaka Nagar, Rajiv Gandhi Salai
(Old Mahabalipuram Road)
Paiyanoor, Chennai - 603 104
Tamil Nadu, India.

Corporate Office - Chennai
New No. 213, Old No. 160
Poonamallee High Road
(Behind Doshi Towers) Kilpauk
Chennai - 600 010, Tamil Nadu, India.

Regional Office - Vijayawada
Aarupadai Veedu Institute of Technology (AVIT)
D. No : 40-5/6-10, Ground Floor, Opposite to Hotel JSN Grand
Beside Lot Mobile Showroom, Acharya Ranga Nagar
Near Benz Circle, Vijayawada, AP – 520 010.

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INDIAN COLLEGE RATINGS

Department of Civil Engineering

The Department of Civil Engineering was established in the year 2008 and has grown into a full-fledged department with specializations in all the major areas of Civil Engineering. The faculty of the department continues to strive loftier by exploring new frontiers of knowledge, imparting the latest technical knowledge to the students and conducting high quality of research. The departmental activities embrace Planning, Design, Construction and Management. All the laboratories of the department are well-equipped with advanced and sophisticated equipment to satisfy the training needs of the students and to meet the research and consultancy requirements of the department. The department has been constantly involved in a wide range of consultancy in the following fields.

CONCRETE CONSULTANCY | GEO-TECHNICAL CONSULTANCY | STRUCTURAL DESIGN & CIVIL CONSULTANCY

Concrete Consultancy

Hard Concrete Parameters
- Flexural Strength
- Cube Compression
- Tensile Strength

Aggregate Parameters
- Sieve Analysis of M-Sand
- Los Angeles Test for Aggregate
- Crushing Strength of Aggregate
- Impact Strength of Aggregate
- Sieve Analysis of Sand

Fresh Concrete Parameters
Workability Characteristic by
- Vee Bee Consistometer
- Compaction Factor Apparatus
- Slump Cone

Cement Properites
- Fineness
- Soundness
- Consistency
- Setting Time Tests

GEO-Technical Consultancy

- Specific Gravity
- Mechanical Sieve Size Analysis
- Liquid Limit - Casagrande Tool
- Plastic Limit
- Shrinkage Limit
- Falling Head Permeability Test
- Constant Head Permeability Test

- Standard Proctor Compaction Test
- Modified Proctor Compaction Test
- Consolidation Test
- California Bearing Ratio (CBR)
- Direct Shear Test
- Unconfined Compressive Strength Test
- Tri-Axial Shear Test

Structural Design & Civil Consultancy

- STAAD Pro. Analysis and Design of RCC and Steel structures
- AutoCAD Drafting and Detailing
- Structural Stability Assessment

DEPARTMENT OF CSE
Consultancy Services

- Consultants with experience in 3D modeling, animation (AR & VR) and interactive design can help healthcare applications to create immersive content tailored to their objectives.

- Mixed reality facilities with expertise in UX design can help academics ensure the industry standard applications in real time environment .

- Apple training center can provide training sessions and workshops to help individuals and teams learn Swift programming concepts, best practices, and advanced techniques. These labs are used to develop swift app fundamentals, Swift syntax, SwiftUI, and integrating Swift with other Apple technologies.

- IoT lab can provide insights into different platforms, sensors, connectivity options, and protocols to help to develop the interdisciplinary projects.

- AI research lab provides machine learning, NLP and deep learning related multidisciplinary projects.

- We are offering to conduct online exams like TCS,NPTEL ,IMU, NTPC,GATE, AIIMS, all india banking examination etc..

- We are certified partners of Intel, NEC and Apple and provide support for global certification

- Cybersecurity consultant involves acquiring a strong understanding of cybersecurity principles, techniques, and best practices, as well as gaining practical experience in implementing security measures and advising clients on how to protect their systems and data.

- Data science consultant involves combining expertise in data analysis, machine learning, and statistical modeling with strong communication and problem-solving skills.

- Blockchain consultant involves expertise in blockchain technology, cryptocurrencies, smart contracts, and decentralized applications , along with strong problem-solving and communication skills.

DEPARTMENT OF ELECTRONIC AND COMMUNICATION ENGINEERING
E-YANTRA (e-LSI) - EMBEDDED SYSTEM AND ROBOTICS LAB

ABOUT US

E-Yantra (e-LSI) is a premier consultancy destination in embedded systems and robotics. With a comprehensive array of components and experienced faculty, our lab provides tailored solutions for all the robotics project needs. We guide in component selection, system architecture, and implementation strategies to ensure the project's success.

VISION

To be a leading force in advancing embedded systems and robotics, pioneering innovative solutions that shape the future of technology and drive positive societal change.

MISSION

To empower businesses and individuals with cutting-edge consultancy services and state-of-the-art resources in embedded systems and robotics. Through collaboration, expertise, and excellence, we deliver tailored solutions that exceed expectations, foster innovation, and create lasting value for individuals and communities.

LIST OF COMPONENTS

DEVELOPMENT BOARDS

- ▶ AtMega2560
- ▶ LPC2140
- ▶ PB9V51RD2
- ▶ Raspberry Pi
- ▶ ESP8288
- ▶ ESP32
- ▶ Nucleo Boards (STM32)
- ▶ Tiva Launchpad
- ▶ Altera Cyclone IV FPGA DEO – Nano Kit

ADDITIONAL HARDWARE

- ▶ Micro SD Card
- ▶ IC Sensors
- ▶ Zigbee Module with Adapter
- ▶ Gyro Sensor
- ▶ Servo Motor
- ▶ HD Webcam
- ▶ 2-Channel Relay Board (5 & 12 Volts)
- ▶ Motor Driver Module
- ▶ Quad Encoder Geared DC Motor

HIGHLIGHTS

PROTOTYPE DEVELOPMENT

Our state-of-the-art facilities and components support exploring new functionalities or testing proofs of concept to rapidly prototype your ideas.

CUSTOM SOLUTIONS

Leveraging our experience and resources, we develop custom solutions that meet unique specifications, from hardware design to software development.

TRAINING AND WORKSHOPS

We enhance your team's skills and knowledge through training and workshops. Our expert faculty offer hands-on sessions to keep your team ahead in embedded systems and robotics

WHY CHOOSE US?

EXPERTISE

Our seasoned professional faculty members bring years of experience in embedded systems and robotics, ensuring project success.

DIVERSE COMPONENT PORTFOLIO

With a wide range of components, including development boards, sensors, and motors, we offer flexibility to tackle projects of any complexity.

TAILORED SOLUTIONS

We understand that every project is unique. We work closely with you to develop customized solutions that address your specific requirements and objectives.

COMMITMENT TO QUALITY

Quality is ingrained in everything we do. From component selection to final implementation, we adhere to the highest standards of craftsmanship and reliability.

PROJECT DEVELOPED

S.No	Title of the Project
1	Artificial Intelligence Based 3D - Printed PLA Material Based Prosthetic Hand Control With Image Processing and Gesture Technology
2	Artificial Intelligence Based Autonomous Ware House Management Robot integrated with 3D - Printed PLA Material Based 5 Axis
3	Automatic Drug Dispenser Robot with Servo and 3D - Printed PLA Material Based Dispenser Mechanism
4	Artificial Intelligence Based Emotion Based Teaching Tool for Kids with Autism Integrated with None-Invasive Therapy and Audio-Based Feedback System
5	Design and development of fire extinguisher robot using IOT
6	Bore-Well Rescue Robot
7	Centralized Monitoring System for Street light Fault detection and location tracking

MEMBERS INVOLVED

NAME OF THE FACULTY	AREA OF SPECIALIZATION
Dr.L.K.Hema	Wireless Sensor Network, IoT, Hardware Security
Mr.V.Prabhakaran	Embedded Systems, Nanotechnology, Image Processing
Mr.R.Karthikeyan	VLSI, Robotics & Embedded System
Ms.Sandhiya	Image & Signal Processing

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AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY

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Hardware Security Research Lab

Consultancy Division

About Us
The Hardware Security Research Lab offers cutting-edge consultancy services in hardware security. With state-of-the-art facilities and experienced faculty, we provide comprehensive solutions for all security needs. From threat analysis to secure design methodologies, we offer guidance and support to mitigate risks and protect the systems.

Vision Statement
To be a globally recognized leader in hardware security research, driving innovation and shaping the future of secure hardware systems through groundbreaking research, collaboration, and excellence.

Mission Statement
To advance hardware security through cutting-edge research, interdisciplinary collaboration, and knowledge dissemination. We are committed to developing robust security solutions, empowering organizations to protect their assets and build trust in an interconnected world. Through research, education, and industry partnerships, we strive to create a safer and more secure digital ecosystem for all.

Facilities

- **Nexys 4 DDR Artix-7 FPGA Trainer Boards:**
  10 boards for rapid prototyping and development.

- **Xilinx Vivado Systems Edition:**
  software suite with a floating license for up to 25 users.

- **High-Performance Workstations:**
  Intel® Core i5-8400, 8GB RAM, 2TB HDD, 22" monitors.

- **Laser Printers:**
  Two printers for documentation and design layouts.

- **Spartan 7 Board:**
  Additional resources for prototyping and testing hardware security.

Highlights

Secure Design and Implementation
Collaborate with our team to design and implement robust security features. From cryptographic algorithms to hardware-based authentication, we ensure systems are protected against unauthorized access and tampering.

Security Assessment
Utilize advanced tools and methodologies to assess the security posture of hardware systems. We identify vulnerabilities, assess risks, and provide recommendations to strengthen defenses.

Training and Workshops
Enhance your team's skills with training and workshops focused on hardware security. Our hands-on sessions cover fundamental concepts to advanced techniques.

Why Choose Us?

State-of-the-Art Facilities Benefit from cutting-edge facilities, including FPGA trainer boards, software tools, and high-performance workstations.

Tailored Solutions We develop customized solutions to address your specific needs and objectives.

Commitment to Excellence Quality and excellence are at the core of our consultancy services and training programs, delivering solutions in the domain of VLSI and Hardware Security.
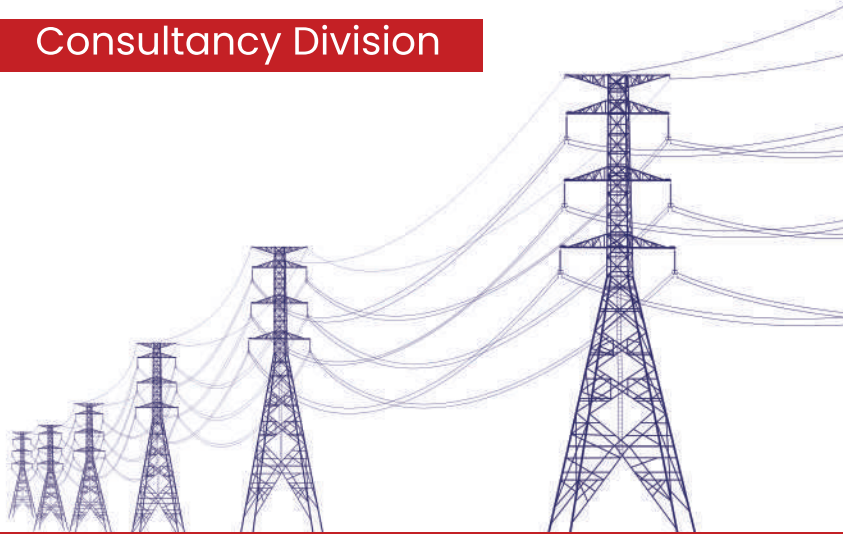
Govt. Funded Projects Successfully Completed

- UBA-Gram Vyapaar App

- DRDO Project: "A Comprehensive Study on Hardware-Trojans-Challenges and Solutions"

- TNSCST: "Driver Drowsiness Detection and Alerting System"

For further details contact:

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DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

Consultancy Division

About the Department

The Department of Electrical and Electronics Engineering was established in the year 1998. The Department offers full-time undergraduate courses in Electrical and Electronics Engineering. The Department features state-of-the-art labs and focuses on Renewable Energy, Power Electronics and Drives Control, and Power System Automation. It hosts a Centre of Excellence for Solar Energy and manages a 126 kWp Solar Power Plant, supplying 600 units daily. Collaborating with leading firms, the department enhances faculty and student projects and offers in-plant training. Faculty members are highly qualified, and the department has secured funding for various projects, including a renewable energy conference and a women's safety app. The Department of EEE has received funding from MNRE, DST-SEED, DST-SERB, MHRD-UBA, MHRD-NIC, IIT Hyderabad, TNSCST.

Renewable Energy Technology Lab

Wind Energy Training System

Details of Consultancy provided

- Analysis and characterization of wind energy system
- Analysis of Micro-grid and smart grid
- Integration with wind energy system
- Transient analysis of turbine power by Changing wind speed rapidly
- Analysis of MPPT algorithm of wind turbine
- Control techniques for regulated AC power
- Power quality analysis
- Power Factor Correction

Solar PV Training & Research System

Details of Consultancy provided

- MPPT Algorithm and Charge Controller Testing
- Inverter Control Testing for Different Operating Conditions
- Micro-Grid and Smart Grid Control Testing
- Performance Analysis and Modelling of Photovoltaic Panel
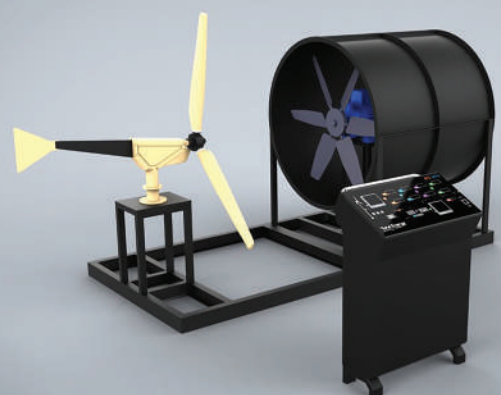
Solar PV Grid Tied Training System

Details of Consultancy provided

- Synchronization process for single phase solar Grid tied PV system
- Development of Micro-Grid and Smart Grid Control
- Study of Power Quality & Impacts while using Capacitor for Power Factor Improvement

Solar PV Training & Research System

Wind Energy Training System

Department of Electrical and Electronics Engineering

Consultancy Division

Siemens Integrated Engineering Design Research Lab

Facilities Available at the Center

| Hardware	Software
1. Distributed Control System 2. Remote Labs (Process Control & Wireless Lab) 3. Distributed I/O 4. RFID System 5. SIMATIC RF 200 Reader 6. Profinet Interface Module 7. Industrial Wireless Communication	COMOS Plant Engineering Software SIMATIC PCS 7, Software Trainer Package V 8.2 SIMIT Simulation Framework

The Facility Can Be Utilized For

Design of low level and high level electrical and Instrumentation Layout

Design of Automation Systems

Plant Level simulation and Virtual Commissioning Certification Training Programmes

Continuing Education Programme for Industry persons

Consultancy for Industrial Automation

Smart City architecture and applications

Smart Campus Monitoring

Centralised facility for remote monitoring and control of different facilities.

Maintenance Management

Central Data Management

About the Department

The Department of Electrical and Electronics Engineering was established in 1998. It offers undergraduate courses in Electrical and Electronics Engineering (FT/PT) and a postgraduate course in Power Systems Engineering (FT/PT). The department features state-of-the-art labs and focuses on Renewable Energy, Power Electronics and Drives Control, and Power System Automation. It also hosts a Centre of Excellence for Solar Energy and manages a 126 kWp Solar Power Plant that supplies 600 units daily. By collaborating with leading firms, the department enhances faculty and student projects and provides in-plant training. The faculty members are highly qualified, and the department has secured funding for various projects, including a renewable energy conference and a women's safety app. Funding has been received from MNRE, DST-SEED, DST-SERB, MHRD-UBA, MHRD-NIC, IIT Hyderabad, and TNSCS

Central Research Facility
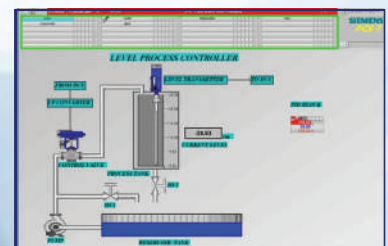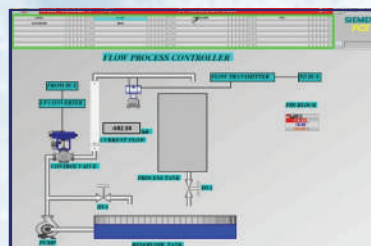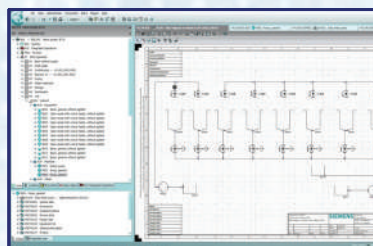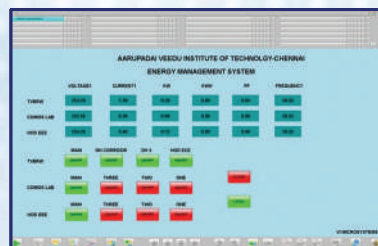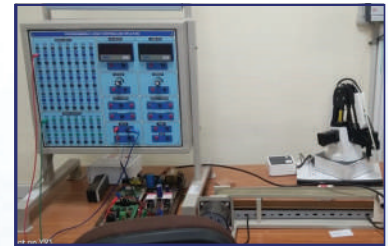
RESEARCH CENTRE FOR ALTERNATE FUELS TESTING

Consultancy Brochure

Department of Mechanical Engineering
Aarupadai Veedu Institute of Technology

Research Centre for Alternate Fuels testing was established in the Department of Mechanical Engineering of Aarupadai Veedu Institute of Technology on June 13, 2015. Research Centre for Alternate Fuels testing is dedicated to develop advanced concepts and methods for performance analysis of bio fueled IC engines, and pursuing solutions through wide-ranging industrial collaborations, discussions and seminars.

The aim of this laboratory is to carry out world class research in the area of internal combustion engines with an objective of increasing fuel efficiency, emission control and engine durability and new technology development. Fuel for IC Engine is one of the most important issue facing our country today, and therefore, the development of affordable and efficient fuel alternatives is paramount.

VISION

Research Centre for Alternate Fuels testing is dedicated to develop advanced concepts and methods for performance analysis of bio fueled IC engines, and pursuing solutions through wide-ranging industrial collaborations, discussions and seminars. The center is committed to achieving its mission using innovative science, technology, education and Management, strategies having high impact for all stakeholders.

MISION

Research Centre for Alternate Fuels testing is an important research community that expands the visibility of research understanding and findings. It aims to create the awareness to the research fraternity about the alternative fuels derived from organic matters (vegetable substance). Since, biofuels derived from organic matters has played a vital role in the environmental issues to reduce the harmful automobile emissions.

Major Research Areas

- ► Engine combustion
- ► Alternative fuels
- ► Exhaust gas after-treatment
- ► Biodiesel and other biofuels
- ► Primary alcohols and bio-butanol
- ► HCCI of gasoline and diesel like fuels
- ► Regulated and unregulated emissions
- ► GDI Engine
- ► Split Ignition Strategy

Major Equipments

- ► Research Engine ► Exhaust Gas Analyzer
- ► Bosch Smoke Meter
- ► EGR Set Up   ► Turbo Charger
- ► Bio Fuel Production Set Up
- ► Split Injection Engine

Major Research Facilities

- ► Computerized Research engine set up, Diesel and Petrol mode VCR
- ► Engine Soft for Engine performance and combustion analysis
- ► Performance and combustion analysis Using EGR Concept
- ► Performance and combustion analysis Using Turbo Charger Set up
- ► Programmable open ECU for engine tuning in Petrol mode
- ► Programmable open ECU for engine tuning in Diesel mode
- ► Split Injection Strategies
- ► HCCI, PCCI and RCCI Engine
- ► Port fuel injection
- ► Exhaust gas analyzer (5 Gas)
- ► Bosch Smoke meter
- ► Production of biodiesel using Advanced Bio Fuel Plant

TERMS & CONDITIONS

We do not need any information that you feel may breach the confidentiality of your work.

Plastic or glass vials with snap caps can be used as containers for biofuels samples. Please make sure that the seal of your vials are tight and that the vials are wrapped properly to prevent breakage during shipment.

Samples must include SDS/MSDS – We must have a copy on file. Please include it in the package to avoid delays. If we already have the latest version of an SDS on file for your product, please indicate so on your submittal form.

Analyses are started immediately upon receipt of samples to ensure meet our promised experiments and commitments.

Change experiments are welcome, but please be aware that partial or full charges will apply based on how much work has been completed by the time of the change request.

The relinquished by, shall make no deduction from the invoice price of the Services on account of any set-offs or claim or counter-claim unless both the validity and the amount thereof have been admitted by an authorized representative of the sample provider.

CONSULTANCY FEE DETAILS :   TEST WITH SINGLE BLEND

Single Compression ratio Variable Load	-	Rs. 1750/-
Variable Compression ratio Variable Load	-	Rs. 1750/-
Single Compression ratio Variable Load Variable Nozzle Hole	-	Rs. 2500/-
Single Compression ratio Variable Load with EGR	-	Rs. 2000/-
Variable Compression ratio Variable Load with EGR	-	Rs. 2000/-
Single Compression ratio Variable Load with Turbocharger	-	Rs. 2200/-
Variable Compression ratio Variable Load with Turbocharger	-	Rs. 2800/-
Single Compression ratio Variable Load with EGR & Turbocharger	-	Rs. 2250/-
Variable Compression ratio Variable Load with EGR & Turbocharger	-	Rs. 3250/-
GDI Engine application per cycle of operation	-	Rs. 2500/-
HCCI/PCCI Engine operation per cycle of operation	-	Rs. 2500/-

Aarupadai Veedu Institute of Technology

CENTRE FOR NANOTECHNOLOGY RESEARCH

CONSULTANCY SERVICES & SKILL BASED TRAINING

Consultancy services and skill-based training in the area of nanomaterials synthesis and their characterization

SYNTHESIS OF NANOMATERIALS
- Sol-gel Method
- Hydro-thermal method
- Green-Synthesis method
- Spin-coating process

FABRICATION OF NANOSTRUCTURES
- Chemical corrosion
- Materials processing – Materialshardening by thermal quenching
- Materials processing – Crystallization,defects recovery by thermal annealing

MATERIALS CHARACTERIZATION
- UV-Vis spectrophotometer / D R S (UV-Vis 2600, Shimadzu make) – absorption/emission spectra of liquid samples from 220 to 1400 nm (Liquid & Solid samples).
- Fourier transform infra-red spectroscopy (FTIR and FTIR – ATR mode)
- Optical Microscope
- Atomic Force Microscope (AFM)
- Characterization of electrode surfaces using electrochemical work station

APPLICATIONS
- Annular-type photoreactor- photocatalytic degradation
- COD Digestor/Reactor

TRAINING
- Skill based Training to Nanotechnology forstudents, and faculty members both
- academic and R&D centers.

CONSULTANCY CHARGES CATEGORIES

Part A: Synthesis and Processing of bulk and Nanomaterials [Click Here to Read More...]

Part B: Characterization Facilities [Click Here to Read More...]

Part C: Skill based Training (Tutorials and Lab work) – Participation and Merit Certificates will be issued by the authorities) [Click Here to Read More...]

Nanomaterials Synthesis Laboratory - Phase I

FUME HOOD   FURNACE   SPIN COATING UNIT   Tubular furnace

Nanomaterials Synthesis Lab - Phase II (Characterizations)

AFM   UV-Vis   FTIR-ATR

Annular-type Photo reactor   COD Digester   UV-Vis DRS   Optical Microscope

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