Vels Institute of Science Technology and Advanced Studies (VISTAS) is a multi-disciplinary University offering varied innovative and job-oriented courses in emerging areas. There are 15 Schools and the University offers 45 undergraduate and 33 postgraduate programmes. All major departments offer both M.Phil and Ph.D programmes. The University is NAAC accredited with A grade and several courses are approved by Statutory Regulatory Authorities such as AICTE, BCI, PCI, NCTE and DG Shipping, Govt. of India.

The progress of the nation depends on its sustained growth of education, and research in science and technology. To meet these objectives, VISTAS has been regularly investing towards promotion of research, by setting up Advanced Research Labs in various departments. This has resulted in increasing number of publications in peer reviewed international.

Centre for Advanced Research and Development (**CARD**) has been established to create research promotion, faculty members, research scholars and students of VISTAS. It aims to discuss comprehend and communicate the fundamental principles in complex physical, computational, biological and social system.

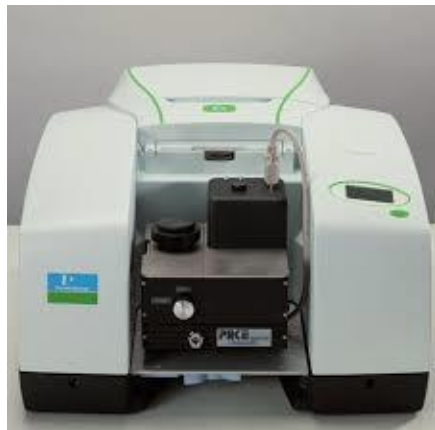# Fourier Transform-Infra Red Spectrophotometer (FT-IR)

Make**- *PerkinElmer*;** Model-*Spectrum Two*



**Transmittance Mode**
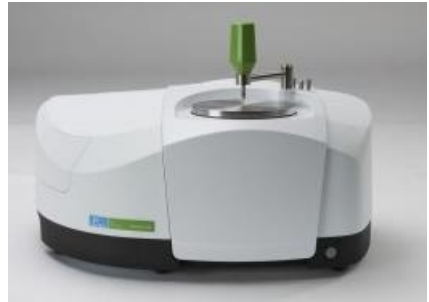


**Attenuated Total Reflectance (ATR) Mode**



**Diffused Reflectance Spectroscopy (DRS) Mode**

# Spectrum Two FT-IR spectrometers feature

- Standard, high-performance, room-temperature $LiTaO_3$ (lithium tantalate) MIR detector
- Standard optical system with KBr windows for data collection over a spectral range of 8,300 – 350 cm$^{-1}$
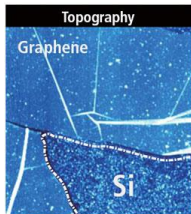
# Application

- Chemicals and Materials: Troubleshoot manufacturing problems; identify product contaminants; analyze fuels
- Pharmaceuticals: Analyze product formulations and package coatings.
- Food: Screen for known and unknown adulterants.

# Consultancy charges details

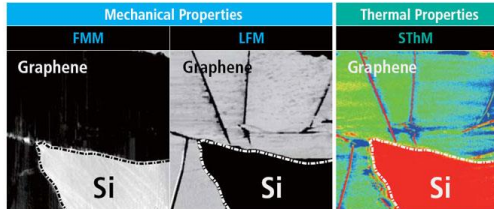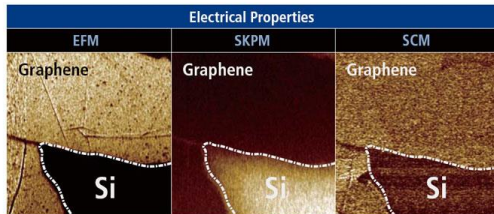| Instrument: Fourier Transform-Infra Red Spectroscopy (FTIR) (Model- Spectrum 2 ; Make- PerkinElmer, USA) | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Attenuated Total Reflectance (ATR) Mode | 250 | 300 | 700 |
| Diffused Reflectance Spectroscopy (DRS) Mode | 300 | 350 | 750 |
| Transmittance Mode | 350 | 350 | 750 |

# Atomic Force Microscope (AFM)

## Make- *Park Systems*; Model- *Park XE7*





Sample: Graphene
Scan Size: 15 µm x 15 µm

| Topography |
| --- |

| Electrical Properties | | |
| --- | --- | --- |
| EFM | SKPM | SCM |

| Mechanical Properties | | Thermal Properties |
| --- | --- | --- |
| FMM | LFM | SThM |

## AFM Principle
## Surface Sensing

An AFM uses a cantilever with a very sharp tip to scan over a sample surface. A laser beam is used to detect cantilever deflections towards or away from the surface.

## Imaging

An AFM images the topography of a sample surface by scanning the cantilever over a region of interest. The raised and lowered features on the sample surface influence the deflection of the cantilever, which is monitored by the PSPD. By using a feedback loop to control the height of the tip above the surface—thus maintaining constant laser position—the AFM can generate an accurate topographic map of the surface features.

## <u>Consultancy charges details</u>

| Instrument: Atomic Force Microscope (AFM) Make- Park Systems; Model- Park XE7 | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Contact Mode | 1500 | 1750 | 2500 |
| Non-Contact Mode | 1000 | 1500 | 2000 |
| Tapping Mode | 1000 | 1500 | 2000 |

# Differential Scanning Calorimeter (DSC)

Make- *Mettler Toledo*; Model- *DSC 3*



**DSC Sensor**

**About DSC**

Differential scanning calorimetry (DSC) is the most frequently used thermal analysis technique. DSC measures enthalpy changes in samples due to changes in their physical and chemical properties as a function of temperature or time.

**Application**

-Melting behavior; -Crystallization;-Polymorphism;-Liquid-crystalline transitions;

-Phase diagrams and composition;-Glass transitions;-Reaction kinetics;-Heat capacity;

-Reaction and transition enthalpies;   -Curing;-Stability;-Miscibility;-Effects of plasticizers;

-Thermal history;-Heat capacity and heat capacity changes;-Purity.

**Consultancy charges details**

| Instrument: Differential Scanning Calorimeter (DSC) Make- Mettler Toledo, Swizerland; Model- DSC 3+ | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Temp from -100° C to +400° C Heating only- | 1000 | 1500 | 2000 |
| Heating and Cooling- | 1500 | 2000 | 3000 |

# Thermogravimetric Analyzer (TGA)

Make- *Mettler Toledo*; Model- *TGA/DSC 3+*



**TGA Sensor**
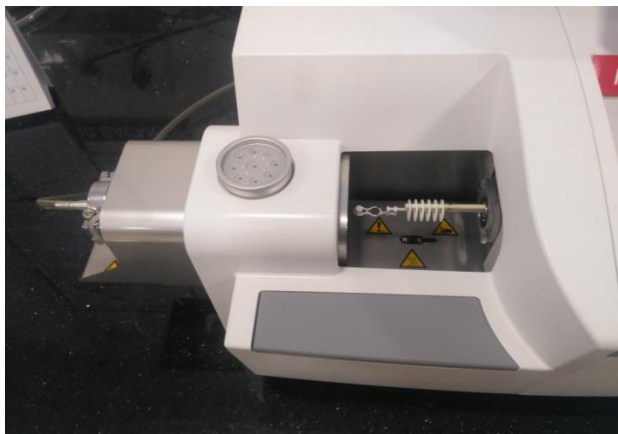
**Principle**

TGA technique measures the mass of a sample as it is heated cooled or held at a constant temperature in a defined atmosphere.

**Features and benefits of the TGA/DSC 3+:**

- Ultra-microgram resolution over the whole measurement range
- Measure small and large sample masses
- Analyze samples from ambient to 1600 °C

**Application**

- Quantitative content analysis
- Kinetics of decomposition processes
- Sublimation, evaporation and vaporization
- Thermal stability
- Oxidation reactions and oxidation stability
- Determination of Curie temperatures

**Consultancy charges details**

| Instrument: Thermogravimetric Analyzer (TGA)<br>Make- Mettler Toledo, Swizerland; Model- TGA/DSC 3+ | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Temp from -100° C to +400° C Heating only- | 1000 | 1500 | 2000 |

# Confocal Raman Imaging & Spectrometer

Make- *WITec, GmbH*, Model- *Alpha300 R*



**Confocal Raman Microscope**



**Confocal Raman Spectrophotometer**



**Laser Source**

**Key Features**

- Confocal Raman Imaging with unprecedented performance in speed, sensitivity, and resolution
- Outstanding depth resolution ideally suited for 3D image generation and depth profiles
- Ultra-fast Raman imaging option with under one millisecond integration time per spectrum
- Non-destructive imaging technique: no staining of fixation of the sample required specifications

**Raman General Operation Modes**

- Raman spectral imaging: acquisition of a complete Raman spectra at every image pixel
- Planar (x-y-direction) and depth scans (z-direction) with manual sample positioning
- Image stacks: 3D confocal Raman imaging
- Single point Raman spectrum acquisition with depth profiling

**<u>Consultancy charges details</u>**

| Instrument: Confocal Raman Imaging & Spectroscopy Make- WITec, GmbH, Model-Alpha300 R | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Spectral imagining (2D) | 1500 | 2000 | 3000 |

# Field-emission scanning electron microscopy and Energy-dispersive x-ray analysis(FESEM-EDS)

Make**- *FEI, ThermoFisher Scientific*;**Model-*Quattro S*



## Field-emission scanning electron microscopy

### About Quattro S FESEM

Quattro environmental scanning electron microscope (ESEM) is a versatile, high-performance instrument with a field emission gun (FEG) for excellent resolution and beam current stability.

Three vacuum modes (high vacuum, low vacuum, and ESEM) provide the flexibility to accommodate the widest range of samples of any SEM available, including samples that are outgassing or otherwise not vacuum-compatible. Quattro environmental scanning electron microscope (ESEM) is a versatile, high-performance instrument with a field emission gun (FEG) for excellent resolution and beam current stability.

### Consultancy charges details

| Instrument: Field-emission scanning electron microscopy and Energy-dispersive x-ray analysis (FESEM-EDS) Make- FEI, ThermoFisher Scientific; Model-Qattro S | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| FESEM imaging alone (5 images) | 1200 | 1500 | 3000 |
| FESEM imaging with EDS spectra | 1500 | 2000 | 5000 |
| FESEM imaging with EDS spectra and color mapping | 1750 | 2500 | 6000 |

# BET Surface Area Analysis

## Make- *Microtrac BEL;* Model-*BETSORP Max*

**BET Surface Area Analyser**



**BET Surface Area Analyser**          **Sample Degaser**

## About BELSORP-max BET Surface Area Analysis

The BELSORP-max is designed for wide range adsorption isotherm for surface area and pore size distribution analysis. It can measure adsorption isotherms from relative pressure as low as 1 x10-8 (N2 at 77K, Ar at 87K), using a 13.3Pa pressure transducer.

## Key Features:

- Specific surface area, pore size distribution, vapour adsorption and chemisorption (OP) can be measured
- Fully automated chemisorption option is available.
- Kr adsorption is available for low surface area material.
- Collant level controller is no longer necessary and high reproducible data can be obtained

## <u>Consultancy charges details</u>

| Instrument: BET Analysis (Model BETSORP Max; Make- Microtrac BEL, Japan) | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Surface Area Analysis | 1500 | 2000 | 4000 |
| Absorption/Desorption isotherm study | 2000 | 2500 | 5000 |

# Dynamic light scattering (DLS)
# Particle Size/Zeta potential Analyser
## Make- *Microtrac Inc;*Model:*Nanotrac Wave II*



## DLS Particle Size/Zeta potential Analyser

## About Nanotrac Wave II DLS

The Nanotrac Wave II is the newest generation of sub-micron particle size and zeta potential analyzers. The innovative design of the Nanotrac Wave II offers faster measurements with reliable technology, particle size measuring to below 0.8 nm, higher precision and accuracy, all of this combined in a compact Dynamic Light Scattering Analyzer without moving optical components.

The measurement principle of the Nanotrac series is based on Dynamic Light Scattering (DLS) in a 180° Heterodyne – backscatter arrangement.

## Zeta Potential Range
Able to measure Zeta potential closer to isoelectric point by eliminating errors caused by electro-osmotic flow. ZP measurement ranges from -200 to +200mV, repeatability +/- 1 mV in zeta potential(related to PS Latex standard particles 150 to 500 nm)

## <u>Consultancy charges details</u>

| Instrument: DLS Analysis (Model Nanotrac Wave II; Make- Microtrac Inc, USA) | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Particle Size | 800 | 1000 | 2000 |
| Particle Size/Zeta potential | 1000 | 1500 | 3000 |

# Powder X-ray Diffractometer (XRD)

Make**- *Rigaku***;Model-***SmartLab SE X-Ray***

**X-ray Diffractometer**

## About SmartLab SE X-Ray XRD

This new X-ray diffraction system features HyPix-400, a semiconductor hybrid pixel array detector that was specifically designed for multipurpose X-ray diffractometers. Its large active area, high angular resolution and ultra-high dynamic range make it the perfect, affordable, 2D detector solution for a large variety of applications, including powder and thin film diffraction. The D/teX Ultra 250 silicon strip detector is also available as a standard detector choice if desired.

## Key Features:

- SmartLab Studio II software based on a new architecturally integrated modular platform
- Cross-beam optics module switches between Bragg-Brentano and parallel beam without the need to change optics.

## Consultancy charges details

| Instrument: Powder X-ray Diffractomter (XRD) Model- SmartLab SE X-Ray; Make-Rigaku, Japan | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| 5-100 scan range (10 scan speed) | 400 | 500 | 1000 |

# High performance thin layer chromatography (HPTLC)

## Make-*Camag*; Model- *Linomat 5, TLC Scanner 3*



**TLC Scanner**

**TLC Developer**

## About Camag HPTLC

High-Performance Thin-Layer Chromatography (HPTLC) is the most advanced form of TLC and comprises the use of chromatographic layers of utmost separation efficiency and the employment of state-of-the-art instrumentation for all steps in the procedure: precise sample application, standardized reproducible chromatogram development and software controlled evaluation.

## Application

- Identification , Stability tests , Detection of adulteration , Assay of marker compounds, etc, Quality Control, Additives, Food contaminants, Stability tests, Process development and optimization
- Process monitoring, Cleaning validation, Detection of document forgery, Dyestuff analyses

## <u>Consultancy charges details</u>

| Instrument: High performance thin layer chromatography (HPTLC) Model- Linomat 5, TLC Scanner 3 ; Make- Camag, Swizerland | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| (Qualitative Analysis) | 2000 | 3000 | 3000 |
| (Quantitative Analysis) | 3000 | 5000 | 5000 |

# Real Time Polymerase Chain Reaction (RTPCR)

Make-***Applied BiosystemsThermoFishier Scientific***;Model -***StepOne***

**About RTPCR**

Real-time quantitative PCR is the reliable detection and measurement of products generated during each cycle of the PCR process which are directly proportional to the amount of template prior to the start of the PCR process

**Key Features**

The StepOne system features VeriFlex Block technology, which combines six independently controllable Peltier blocks for enhanced PCR functionality and precise temperature control. It perform Fast PCR reactions in less than 40 minutes.

**Applications**

- SNP Genotyping
- Gene Expression Analysis
- MicroRNA Expression
- Translocation Analysis
- Gene Detection
- Viral Load Analysis

**Consultancy charges details**

| Instrument: Real time polymerase chain reaction (RTPCR) Model - StepOne; Make- Applied Biosystems, ThermoFishier Scientific | Internal charges per sample (In Rupees) | External charges per sample (In Rupees) | Industrial charges per sample (In Rupees |
|---|---|---|---|
| Analysis | 1000 | 1500 | 3000 |

# Battery Tester ( 88 Channels) and Glove Box

## Glove Box



## Battery Tester

The CT2001 series Battery Testing Systems are designed for energy storage materials research and battery test. The eight channels are independently programmed and controlled by the computer. The Current ranges are from 1 mA to 5 A and Voltage ranges from 2V to 15V. The control software comes with a friendly interface, which allows new users to operate with minimal training if the customer has some electrochemical background. Data Process software shows different kinds of plots in specific cycles (Voltage vs. Capacity, Capacity vs. Cycle Number, Efficiency, etc.), which can be exported with simply "Copy" and "Paste".

**Features:**
- High-precision channels designed for electrochemical materials research and Battery charge/discharge test.
- 8 independence channels. Each can be set as Constant-Current (CC) Discharge, Constant-Current (CC) Charge, Constant-Voltage (CV) Charge, etc.
- Independent current source and voltage control for every channel.
- Data automatically backed-up.
- Full safety protection for all the channels.
- Capable to control up to 20 analyzers (160 Channels) with one computer.

# SPS VISTAS Drug Testing Lab

## UV Spectrophotometer (Shimadzu)



## GEL DOC Scanner

VISTAS had established, "VISTAS SPS LAB", a Government authorized organization in the fields of Analytical Testing of Pharmaceuticals, Cosmetics and Ayurveda. This lab is also engaged in offering analysis and Industrial Testing Services.

**Thrust Areas**

Analytical and research services for

- Pharmaceuticals
- Biotechnology products
- Fine chemicals and
- Other substances using a variety of spectroscopic, physicochemical and theoretical techniques.

**Services Offered**

- The services are offered by us includes Chemical Analysis,
- Physio-Chemical Analysis
- Instrumental Analysis
- Spectroscopical studies like UV-visible spectrophotometer, FTIR, Fluorescence, Polarimetry
- Chromatographic and Electrophoretic studies

# Pharmaceutics Machine Lab

## Tabulating Machine



## Granulation drying sieving punching of tablets

The machine lab of Pharmaceutics Department is catering the needs of pharmacy students by providing hands-on experience of industrial prototypes of the machineries used.

**Thrust Areas**

The development of formulations like tablets, capsules, ointments, creams, lotions, and parenteral are engaged.

**Facilities**

Facility available for formulating the tablets like weighing, grinding, mixing, granulation drying, sieving, punching of tablets, and coating of tablets.

Facility for filling of powders / granules in hard gelatin capsule shell is available. The machine room has the facilities to wash ampoules, filling the injections, and heat sealing of the ampoules.

Extensive facilities are available to carry out the preparation of semisolids like ointments, creams, pastes and metered filling in collapsible tubes. Apart from this, basing operations like milling, grinding, mixing, heating, weighing, sieving, and drying etc., are available.

# Fish Immunology Lab

**Bleeding of fish**



**Fish keeping facility**

With the global fish production through capture fisheries, reaching its maximum due to over exploitation, a major source of food/dietary protein for the teeming millions of people in the new century, we must turn to the aquaculture.

Present aquaculture production has almost surpassed that of capture fisheries. At least 50% of the fish consumed by humans are farm- reared. India has the potential for farming of fish, many more times of what it is actually producing.

## Thrust areas for research

Developing the environment-friendly prophylactic, and therapeutic immune-stimulants, which are taken from terrestrial and marine plants, for culturing fish.

Heavy metal-induced immune-suppression in fish and this aspect has relevance to extensive cultures in large water bodies which are more often receive polluted water from rivers, and canals, which are polluted by industrial effluents.

Stress induced Immune modulation due to physical and social stressors (e.g. Overcrowding, All-male culture etc.,) is another priority area of research in this centre.

# Centre for Energy Research and Alternate Fuels
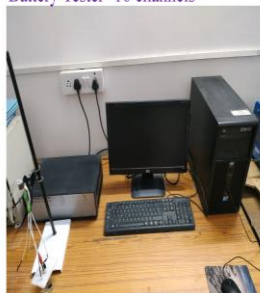


Electrode Fabrications



Coin Cell Fabrications



Battery Tester -16 channels



Battery Fabrications –Glow Box
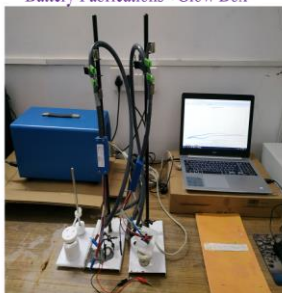


Battery Tester -88 channels



CH Instruments



Bio-Logic Instruments



DRS –UV Spectroscopy

Established in 2016, the Centre for Energy Research & Alternative Fuels (CERAFs) distinguishes itself through excellence in basic and advanced research directed towards outcomes of high industry relevance, with focus on system-level research

## Technology and Product development at CERAFs

Key research areas of the CERAFs are

(i) Development of carbon nano sheets from hemp fibre.

(ii) Development of nano porous carbon from waste tire powders and plastics

(iii) Fundamental study of sodium-ion battery

(iv) Fundamental study of Fuel cell super capacitors

(v) Fundamental study in mitigating dendrite growth in Lithium-ion batteries

(vi) Development of novel electrode materials for lithium-sulfur and aluminum-ion batteries

# Central Computing Lab

## Central Computing Research Lab



## Network Simulation Software

The school of computing sciences had established with the usage of the following tools for research activities.

**Thrust Areas**

In VISTAS, the researchers are using the **Matlab** for doing research in medical image processing and applications.

**Weka** is an open source tool, which is used for data mining techniques and applications

The current researchers in VISTAS are **utilizing R tool** for big data and analytics.

**Orange** is an open-source data visualization, machine learning and data mining tool kit. The researchers feed the selected subset into other widgets using Orange tool.

**Network Simulation (NS)** provides simulation for routing, and multicast protocols for both wired and wireless networks. It is as used network simulator for TCP research.

**Python** is used for developing desktop, GUI applications, websites, and web applications. .

# IBM-Business Analytics Lab

## Training Program on Business Analytics



## IBM- Business Analytics Lab

In VISTAS, computing infrastructure offers a truly heterogeneous range of hardware and software platform for the students to appreciate and gain wide-ranging experience. Our lab is fully equipped with all necessary facilities to make the student as a qualified system professional.

**Thrust Areas**

- Being a Master in Business Analytics is the solution for the increasing demand for complex data analysis to solve business-related problems.
- The students will be trained in Business Analytics and familiarized with Data Analysis tools, so that they can perform and become familiar predictive modeling.
- Analyzing past performance of the company, and making a strategy, how it will perform in future, and take business decision accordingly.
- Establishment of a full-size lab, which can handle the capacity of large number of students at a time and allocate sufficient financial resource in the budget every year for software purchase, license renewal, etc.

# Artificial Intelligence Lab

**Experimental Testing of subjects during night time driving**



**Artificial Intelligence Research Lab Setup with 40 Channel Data Acquisition System and Driving Simulator**

Artificial Intelligence Research Lab is a research and development initiative established at VISTAS, funded for the project 'Development of an Intelligent Driver Hypo-vigilance System' by Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India (SERB/F/3759/2016-17).

**Objective**

This research lab is equipped with a custom-built driving simulator and facilities to acquire behavioral data (Camera) and physiological data (EEG, ECG, EOG) corresponding to driver's driving state.

This interdisciplinary research lab focuses on investigating a broad range of issues, extending from the underlying mechanisms of physiological signals, to varied biomedical signal and image processing issues.

The research being conducted provides an excellent mix of multiple disciplines, thus providing a good forum for engineers, scientists, medical professionals and service users to exchange ideas and develop new research ventures.

# IBM-Cloud Computing Lab

## IBM Cloud Computing Research Lab



## IBM Cloud Computing Research Lab

IBM Cloud Computing Lab is equipped with 25 numbers of  HP System i5 (4300)  systems configured with Intel Core i5 @2.90GHz Processor, 8 GB RAM, 500 GB Hard disk, installed with software like Java (JDK 7), IBM Bluemix Cloud Platform, VMware, ESXi 6.0, VSphere Client, Windows Virtual PC, VMware Workstation 12.

IBM and VISTAS collaborate with the IBM Career Education program, which includes SEED (Faculty Development Training Program initiative as Software Engineering for Educational Development), CEBT (Career Education for Business Transformation-a training program to provide multi-disciplinary skills to students and faculty members).

BlueMix is a Platform as a Service (PaaS) offering  IBM based on open standards and cloud to build, deploy, manage, and run omni-channel applications like web and mobile, big data and other smart services.

**Thrust Areas**

This research Lab focuses on various specialty areas like Cloud, Big data, Analytics, Mobility etc. to conduct independent research by faculty members and research scholars.

# Incubation Centre

## Vels Incubated Product
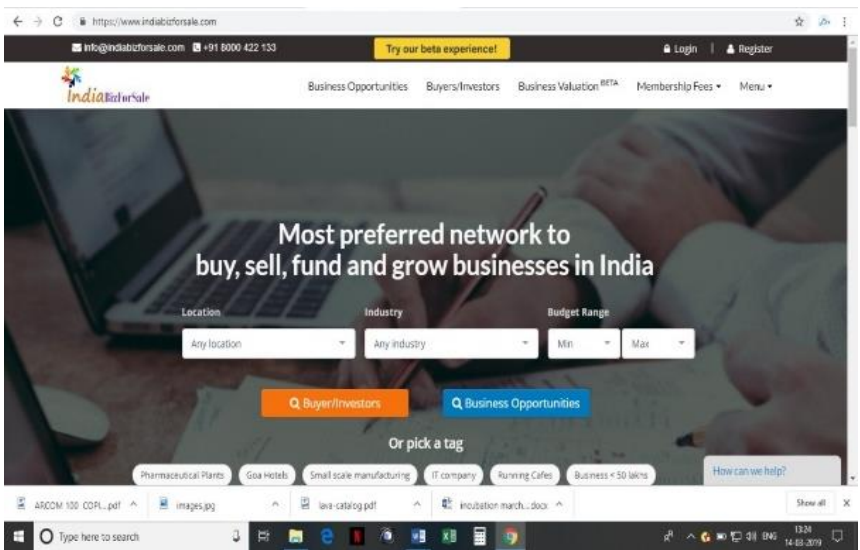
VISTAS Technology Business Incubation Centre (VTBIC) has embarked on nurturing innovation and entrepreneurship. Our focus area includes Automations, IoT, Artificial Intelligence and ICT.

Apart from companies, we also encourage faculty start up and have a separate student lounge to encourage their innovations.

We offer consultancy in IP rights and licensing, Technology scouting and designs. Reprography and cafeteria facilities are also available.

**Objective**

Two separate Centers, Centre for Automation and Power Conservation and Centre for IOT in Road Safety and Health Care also function inside the VTBIC which is in collaboration with incubated companies.

VTBIC has created 40 jobs so far and has also trained several students from VISTAS with hands-on industrial exposure.
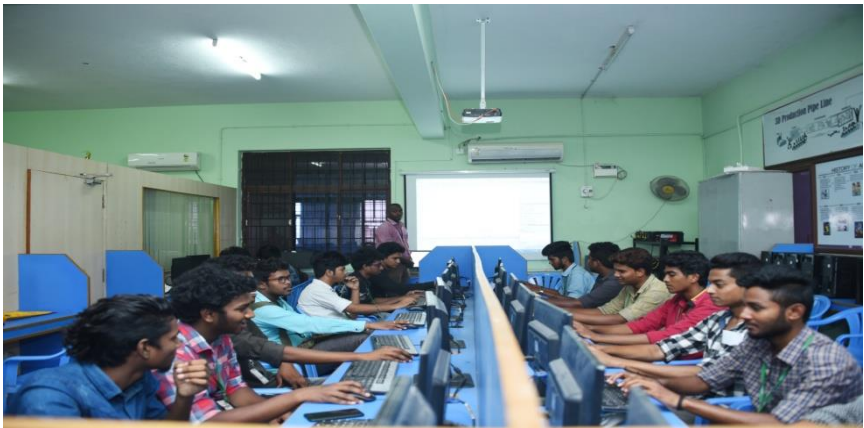
One of a notable product from VBTIC "Arcomm ATM Auto Controller" developed from faculty startup is highly acclaimed and appreciated by nationalized banks like State Bank of India and Indian Bank. It is commercialised in over 1200+ ATMs.

# Multimedia Lab

## Multimedia research Lab



## Multimedia Research Lab with 2D Animation

Multi Media Lab is fully dedicated for Graphic Design, Website Design, and 2D Animation equipped with 39 numbers of highly advanced computers.

Computers are updated as per requirements in each and every quarter of semester. LCD Projector gives quality screen duplication, which makes the students clear understanding over the subject, which the faculty members elaborate.

Multi Media Lab is well equipped with 30 high end computers.

**Thrust Areas**

Students will work on all kind of Graphic Designing, 2D Animation, Web Designing using this collection and several Adobe applications includes

- Adobe CC Master Collection
- Photoshop
- Illustrator
- In Design
- Dream weaver
- Flash
- After effects

# Animation Lab

## Animation Research Lab



## Animation Lab Setup with 2D Animation

Animation Studio is a fully dedicated studio for 3D Animation and visual effects with highly advanced computers, which can provide high quality renders output.

**Thrust Areas**

**Autodesk 3ds max**

Students will work on 3D architectural design, using this software with the help of CAD

**Autodesk Maya**

Students will work on 3D Character Design, Animation, Dynamics, rendering for Animation movies, Short film, AD Films etc.,

**Nuke**

Students will work on a node-based digital compositing application developed by The Foundry, and used for television and film post-production.

**SilhouetteFX**

Students will work on advanced Rotoscopytool for the visual effects industry in post-production area.

**Adobe CC Master Collection**

Students will work on Photoshop, Illustrator, Indesign, Flash, Premier, Dreamweaver and After Effects.

# Advanced Training Restaurant

## Food and Beverage Service



## Food Service

Regardless of a restaurant's size or style, the serving staff represents the face of every dining establishment. These individuals will interact the most with guests during a visit, and positive interactions can go a long way towards ensuring those same patrons return.

The Basic training restaurant serves as the training arena, which will help establish to effective, knowledgeable students, and is the focal teaching centre for all hotel management students.

**Thrust Areas**

The Basic training restaurant focuses on the following training aspects.

- Welcome and greet guests

- Inform guests of specials and menu changes.

- Make recommendations and up-sell effectively.

- Answer questions about our food, beverages and other restaurant functions and services.

- Take food and beverage orders from guests.

- Enter orders in the POS system.

- Deliver food and beverages from kitchen

# Advanced Training Kitchen

## Advanced Training Kitchen



**Dish Preparation in Advanced Training Kitchen**

The Advance Training Kitchen training is used primarily, to introduce the art of cooking. It is, where the budding professionals are fine tuned to prove their mettle in the industry. Having mastered the basics, the students move on to specialization in the art of cooking.

The training will allow them to learn the skills and knowledge that are required of a chef in the kitchen, which includes not only knowing how to cook but also how to create new dishes, how to keep the kitchen safe, how to run the kitchen efficiently and more.

This kitchen boasts of state of art equipment & hotel kitchen simulation. Elaborate dishes are prepared here.

The cuisines under consideration are Indian, Oriental, Continental, Chinese, Mexican, Japanese, Thai**,** Arabic, Italian and Spanish.

**Thrust Areas**

Advanced equipments with international preparations, and the requirements of plating and showcasing, the talent of food display are very well taught in this kitchen.

# Ship Model based Research

## Ship Model



## Machinery and equipments of a ship

## SHIP IN CAMPUS Available at School of Marine Engineering

Maine Engine: AkaSaka
Model: 6-Cylinder 4-stroke Diesel Main Engine, rated at 2200hp, at 250 rpm
Installation: 2005
Installation Cost: Rs 6 Crores (approx)

The Ship in Campus module is meant for training of the maritime candidates, with an aim of providing them with an environment as close to the actual conditions.

The Ship-In-Campus is a very high tech lab. The entire machinery and equipments of a ship including propeller, steering machinery and rudder etc. are taken out and installed inside a steel hull in the campus.

The training given inside this ship-in- campus, familiarized with the actual working of the engine room machinery, and equipments of a ship but, also get hands-on experience on them.

Further, students  learn all the safety and emergency procedures to be followed on board as in on a ship including fire fighting etc. and the equipments includes Maine Engine, Auxiliary Engines, Boilers, Purifiers, Compressors, Incinerator and Various Ship Engine Room pumps.

# Bridge Simulator based Research

## Simulation training in realistic environments



## Bridge Simulator training

Make: Konsberg
Model: Polaris V
Installation: July 2007
Installation Cost: Rs 96 Lakhs

The latest maritime simulation technology provides impressive 3D-graphics to depict true-to-life vessel models and exercise areas, ensuring quality simulation training in realistic environments and real life ship handling situations.

Full mission bridge simulator is having 6 degrees of freedom motion capabilities. A total of 20 ship models are available for use in full mission bridge simulator.

Full mission bridge simulator helps to notice the variable drift due to wind and current, squat, bank and interaction effects, grounding, various amounts of fog, rain, snow and ice.

Bridge Simulator training is to achieve Real equipment know-how, Regulatory understanding, Operational experience, External interfaces, Visualization, E-learning, User interface, Hydrodynamics, Training & Exercises and Assessment & Evaluation

The Full mission Bridge simulator has the ability to capture new knowledge and to transfer it to trainees of the maritime industry.

# Research Promotion Platform

**Industry Institute Interface**

The Economic growth of a country primarily depends on the synchronized efforts of both the Industry and the University because the Industry drives the Economic Development of nation and the University fuels it. In order to facilitate such synchronized efforts of Industry and the University, VISTAS strives to systematize and catalyze the various joint activities between the Industry and the University. In this context, University –Industry Linkage will play an important role to provide interaction platform to faculty and industry for getting industrial consultancy projects. Due to this interaction, the requirements of industry will be known to the University. Further, the industry will know the potential of University for solving some of the problems faced in industry. Thereby, the university and industry will be benefitted.

Industries and institutes have been collaborating for over a century, but the rise of a

global knowledge economy has intensified the need for strategic partnerships. The Institutes are imparting the basic knowledge and skill, but the Industry-Institute Interaction will enable to undertake research by staff and students relevant to the industry. The Industry-Institute Interaction is designed to run longer period for preparing the manpower of world class in the field of science and technology by inculcating the various skills required by the industry, thereby contributing to the economic and social development at large. With several layers of collaboration being built by the government to develop the Make in India program, the manpower needs have to be fulfilled in order to witness the required development. Though availability of manpower is abundant in India, well equipped manpower with employability skills is the need of the hour. There is a need to create avenues for a close academia and industry interaction through all the phases of technology development, starting from conceptualizing to commercialization.

To Promote Industry - Institute Linkage, the following Schemes are being undertaken:

- Students of VISTAS can undertake the final year projects with a joint supervisor from the industry
- Experts from Industry participate in curriculum design which plays a significant role in preparing the students ready for the industry
- Establishment of Industry-Institute Partnership /interaction Cell.
- Arranging visits of student and staff member to various industries.
- Professional consultancy by the faculty to industries.
- Industrial product testing by faculty & technicians at site or in laboratory.
- Collaborative degree programmes.
- Industrial problems are taken up for research.
- B.Tech. and M.Tech. Projects/dissertation work in industries under joint guidance of the faculty and experts from industry.

- Practicing professionals taking up part-time M.Tech./Ph.D. programme at VISTAS
- Short-term assignment to faculty members in industries.
- Visiting faculty/professors from industries.
- Professorial Chairs sponsored by industries at the Institute.
- R&D Laboratories sponsored by industries at the Institute.
- Scholarships/fellowships instituted by industries at the Institute for students.
- Practical training of students in industries & experiencing learning.
- Sharing the instrumental facilities / data for Research
- Organizing symposia and workshops with joint participation of faculty and industrial experts.
- Facilitate industrial training to students and faculty.
- Research Scholars/Project students can continuously take part in research activities which

evolve continuous human resource support in the research area.

- Jointly conducting seminars, symposia and providing opportunities for research interactions to enrich the knowledge base.

## **List of Industries collaborated with VISTAS**

| S.No | Industries |
|------|------------|
| 1 | IBM India Private Limited |
| 2 | ICT Academy |
| 3 | EinNel Technologies |
| 4 | Calibsoft Technologies Pvt. Ltd |
| 5 | National Institute of Ocean Technology |
| 6 | Ideal Sensors Private Limited |
| 7 | Coromandel Marine Services Private |

| | |
|---|---|
| | Limited |
| 8 | Caddam Technologies Private Limited |
| 9 | PAR Pharmaceuticals |
| 10 | Areete Life Science Private Limited |
| 11 | Sun Pharmaceutical Industries Limited |
| 12 | Marina Labs |
| 13 | Murugappa Group |
| 14 | Tamilnadu Steel Tubes Limited |
| 15 | Stannis Institute of Allied Health Sciences |
| 16 | Josh Nutrition |
| 17 | Scitus Pharma Services |

| 18 | CAPE Bio Labs |
|----|---------------|
| 19 | Bio Vision Medical Systems |
| 20 | Barola Technologies |
| 21 | Natural Solutions |
| 22 | Plasma Scientific |
| 23 | Samhitha Marine |
| 24 | Keysight Technologies |
| 25 | Innovative Technologies |
| 26 | Interlogic Embedded Solutions |
| 27 | RRT Electro Power |
| 28 | GBoom Software Pvt Ltd |

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|---|---|
| 29 | BioNeem Tech |
| 30 | Letzconnect |
| 31 | Mirrar |
| 32 | Red Hat Linux |
| 33 | National Institute of Wind Energy |
| 34 | Different Hair Pvt Ltd |
| 35 | Kerry Indev Logistics Pvt. Ltd. |
| 36 | B.S.V. Shipping agencies Pvt. Ltd. |
| 37 | Ennore Cargo Container Terminal Pvt. Ltd. |
| 38 | Dragon Express Pvt. Ltd. |
| 39 | K. G Data Solutions |

| 40 | Corporate Ark |
|---|---|
| 41 | SS Ryders India Pvt Ltd |
| 42 | Raunaq Steels Trading Pvt Ltd |
| 43 | TSV Global Solutions Pvt Ltd |
| 44 | Concern Infotech Pvt Ltd |
| 45 | Cholamandalam Investment and Finance Company |
| 46 | Salem Infotech, Chennai |
| 47 | NSIC – Technical Services Center |
| 48 | Vista Expedition(SIAWED) |
| 49 | Kaushik Therapeutics Pvt Ltd |
| 50 | DPCR |

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*Vels Silver Jubilee Celebration*

| Year | Institution |
|------|-------------|
| 2016 | MDIS VELS (Global Education from Singapore) |
| 2015 | Vels Vidyashram - OMR |
| 2015 | Vels Kinder Kids, Mylapore |
| 2015 | Mahavir Institute of Medical Sciences, Hyderabad |
| 2014 | Meghna Institute of Dental Sciences (MIDS), Nizamabad |
| 2014 | Vels Vidyashram - Thalambur |
| 2014 | Vels Vidyashram - Pallavaram Cantonment |
| 2013 | Vels Vidyashram - CBSE International |
| 2008 | Vels University |
| 2008 | Shri Isari Velan Mission Hospital |
| 2008 | Vaels International School, Injambakkam |
| 2007 | Sri Venkateswara Dental College & Hospital |
| 2006 | Vinayaga College of Education |
| 2006 | Venkateswara Nursing College |
| 2004 | Vels Teacher Training Institute |
| 2004 | Vaels International Pre School - Kindle Kids, Neelankarai |
| 2003 | Vels Higher Secondary School |
| 2003 | Vels Srinivasa College of Engineering & Technology |
| 1999 | Vels Academy of Maritime Studies |
| 1999 | Vels Institute of Business Administration (VIBA) |
| 1997 | Vels Vidyashram - CBSE |
| 1996 | Vels Institute of Hotel Management |
| 1993 | Vels College of Science |
| 1993 | Vels College of Physiotherapy |
| 1992 | Vels College of Pharmacy |