



Department of
Science & Technology
Ministry of Science & Technology

**Department of Science & Technology (DST)
Technology Bhavan, New Mehrauli Road
New Delhi – 110 016**

**Fund for Improvement in S & T Infrastructure
DST – FIST**

“College as a Whole” Scheme (Level – I)

Ref: *SR/FST/College-236/2014* dated 21 Nov 2014

to



**VELLALAR COLLEGE FOR WOMEN (AUTONOMOUS)
‘College with Potential for Excellence’
(Reaccredited with ‘A’ Grade by NAAC and Affiliated to Bharathiar University, Coimbatore)
ERODE – 638012, TAMILNADU**

Departments of Physics, Chemistry, Botany, Zoology, Nutrition & Dietetics, Mathematics and Computer Science

Impact of FIST – Teaching

Physics:

- The infrastructure of Physics Laboratory has been upgraded to carry out practicals in different subjects viz., Properties of matter, Optics, Electricity & Magnetism, both General Electronics & Digital Electronics, Microprocessor, C & C++ Computer Programming and Nano Technology at UG level

Chemistry:

- Procurement of equipments like Ball-Mill, Digital pH meter, Polarimeter, Magnetic stirrer which are used for curriculum projects such as water quality analysis and separation of ions, and Extraction of phytochemicals from plant samples
- Curriculum based projects related to societal issues like treatment of industrial effluents in the area are carried out in field by the students using the state of the art equipment
- Application of latest equipment like digital pH meter and polarimeter impart necessary practical skills so as to tailor-make them for industry oriented placement opportunities
- ICT enabled teaching facilitates updation of latest teaching with the use of interactive board

Botany:

- Individual practical skills on the working mechanism of the instruments are acquired by the UG & PG students apart from their theoretical knowledge on the basic principles of the instruments
- UG & PG students use Soxhlet apparatus for the extraction of all soluble phytoconstituents from the unknown sample
- Photomicrograph Trinocular Research Microscope is being used by UG & PG students and Research scholars for analyzing the histology and histochemical localization of secondary metabolites in the plants for their authentication and with the photomicrograph, high resolution and the live image of the tissues are obtained
- High volume and High speed cooling centrifuge is used by the UG & PG students for the sedimentation of temperature sensitive macromolecules in the Plant Physiology and Microbiology practicals
- UG & PG students use Automatic Digital Autoclave to sterilize the glasswares, medium and preweighed chemicals to reduce the microbial flora in the Microbiology and Biotechnology practicals

Zoology:

- Semi Auto Analyser is used to study the biochemical parameters like glucose, protein, cholesterol etc., in different biological samples quickly and accurately
- Electronic top loading balance is used by UG students and research scholars to weigh the substance accurately and quickly.

Nutrition & Dietetics:

- The centrifuge machine performs sedimentation analysis of macromolecules
- Hot air oven is used for heating, drying, sterilizing of those substances which get spoiled during moist heat sterilization and also baking
- Electronic Balance provides more advantages such as less time consuming, accuracy of results and utilized by more number of students at a time

Mathematics:

- Two and three dimensional mathematical models used in classroom teaching emphasize understanding, fasten the learning capacity of the slow learners and enable students to see mathematics in a concrete context that serves as a bridge to abstraction
- Learning Statistics through the software SPSS bridges the gap between application and abstraction and develops a positive attitude towards learning

Impact of FIST – Research Activities

Physics:

- Research areas are Crystal Growth, Thin Film Technology and Nano Technology. The department permits the researchers from other institutions to make use of the research facilities available in the department. Faculty and scholars are availing the facilities ensured under the scheme both for teaching and research

Chemistry:

- Electrochemical workstation facilitates research in vast area of latest emergence and provide results of extreme accuracy and reliability
- Synthesis of nanoparticles, using the equipment procured, enables further exposure into innovative methods of pollution control and adsorption studies
- Rotary vacuum evaporator enhances the possibility of extraction of unexplored chemicals from various substances

Botany:

- Research Scholars use High Performance Liquid Chromatography (HPLC) instrument for identification, quantification and purification of individual phytoconstituents for their M. Phil., and Ph.D., research work

Zoology:

- Water quality analyser is used by the M.Phil students for their research purpose to test the water quality parameters like pH, TDS, calcium, magnesium etc.,
- Trinocular Microscope is being used by UG students and research scholars for the taxonomical studies and histopathological examination in the animal tissues and the images captured by the high resolution camera are recorded for further study

Nutrition & Dietetics:

- Refractometer is used for the measurement of an index of refraction
- Dhal Mill enables most efficient Dhal processing with maximum recovery, pollution free, retains proteins and natural shine
- Spectrophotometer is helpful for scientific research projects and bio assays. It is used to discern between the various Pigments and Enzymes from the blood and also from foods

Mathematics:

- The research areas of the department are fuzzy sets, image processing, differential equations, discrete mathematics and incline algebra. Research guides and scholars use MATHEMATICA software to develop algorithms

List of Equipments (Teaching)

Department	Particulars
Physics	Microprocessor Trainer Kit 8085, 'SCIENTIFIC' make
	Audio Oscillator 'PICO' make
	Reading Telescope 'BESTO' make
	Advanced Travelling Microscope 'BESTO' make
	Advanced Spectrometer(7") 'BESTO' make
	Cathode Ray Oscilloscope 30 MHz, 'SCIENTIFIC' make
	Function Generator, ' SCIENTIFIC' make
	IC Regulated Power Supply, 'PICO' make (0-15V)
	Frequency Meter, ' SCIENTIFIC' make
	Intermediate Spectrometer 'BESTO' make (1577), (6" S S Scale)
Chemistry	Ball Mill (PUG Mill), 'SECOR' make
	Digital pH meter 'VANIRA' make with combined electrode
	Magnetic Stirrer 1 Lit capacity with Hot Plate model 1 MLH 'REMI' make
	Digital Colorimeter with 8 filters model
	Polarimeter 'EI' make
Botany	Automatic Solvent Extraction System 'PELICAN' Make
	High Volume High Speed Floor Model Cooling Centrifuge 8×50 ml Angle Head with P.P Tube
	Photography Trinocular Research Microscope 'OLYMPUS' Make
	Autoclave Pad-Preset Automatic Digital Regular Series –Top Loading 'EQITRON' Make
	Muffle Furnace
	Vacuum Oven with pump
Zoology	Semi Auto Analyzer 'I-HEME' Make (Blood Cell counter)
	De-Mineraliser 'INFUSIL' Make Double 100ltr Per Hour with Digital Conductivity Meter
Nutrition & Dietetics	Centrifuge REMI Make With Timer
	Electronic Balance 0.01gm Cap
	Electric Bunsen Burner
	Electronic Balance 0.001g Accuracy, Shimadzu Make
	Remi Centrifuge R8c
	Hot Air Oven 35×35×35 With Digital Temperature Control
	Ultra Centrifuge
Mathematics	Express route
	Quiz for four member team
	i. Concentric circles
	ii. Midpoint theorem
	iii. Annulus
	iv. Semicircle properties
	Cone runs uphill
Value of Pi	
Whispering discs	

List of Equipments (Research)

Department	Particulars
Physics	Magnetic Stirrer with Hot Plate
	Electronic Analytical Balance
	Ultrasound Interferometer "Mittal" make F-81
	Four Probe set-up
Chemistry	Rotary Vacuum Evaporator 'Superfit' make
	Electrochemical work station 'DIGI' make 2311
Botany	HPLC System "Cyberlab" USA make (LC-100)
Zoology	UP Based Water Quality Analyser PE-138 with Magnetic Stirrer
	TLC Instrument with High Resolution Camera and Software (Student Model)
	Electrophoresis Mini Sub System: Small Model
	NSW-152 B.O.D Incubator
	Electronic Top Loading Balance "Shimadzu" Japan Make
	Trinocular Microscope "Olympus" Make
Nutrition & Dietetics	Butro Refractometer Advance Model For Sugar & Oil with Temperature
	Moisture Balance Infrared Advance Model
	Spectro Photometer with Cuvette Deep vision
	Dhal Mill
	Spices Grinder

Ultrasonic Interferometer



Four Probe Set-up



Microprocessor



Reading Telescope



Advanced Spectrometer



Electronic Analytic Balance



Electrochemical Work Station



Ball Mill (PUG Mill)



Polarimeter



Automatic Solvent Extraction System



High Volume High Speed Cooling Centrifuge



Trinocular Research Microscope



HPLC System and Stabilizer 5KV



Semi Auto Analyser



De- Mineraliser



TLC Instrument with High Resolution Camera and Software (Student Model)



NSW- 152 B.O.D Incubator



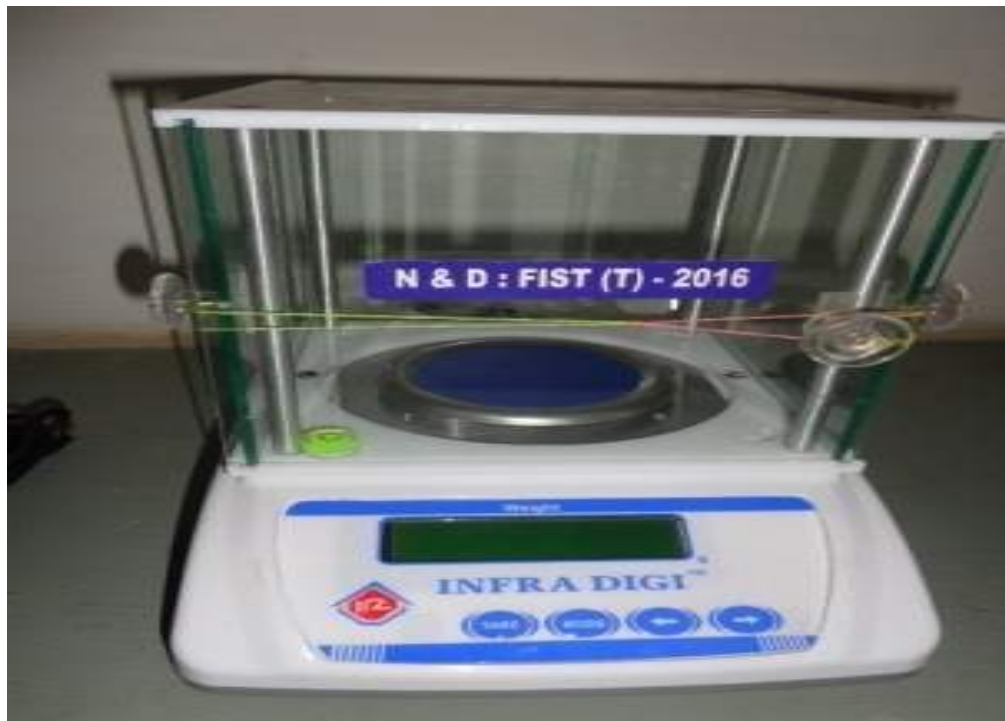
Centrifuge Machine



Butro Refractometer



Electronic Balance



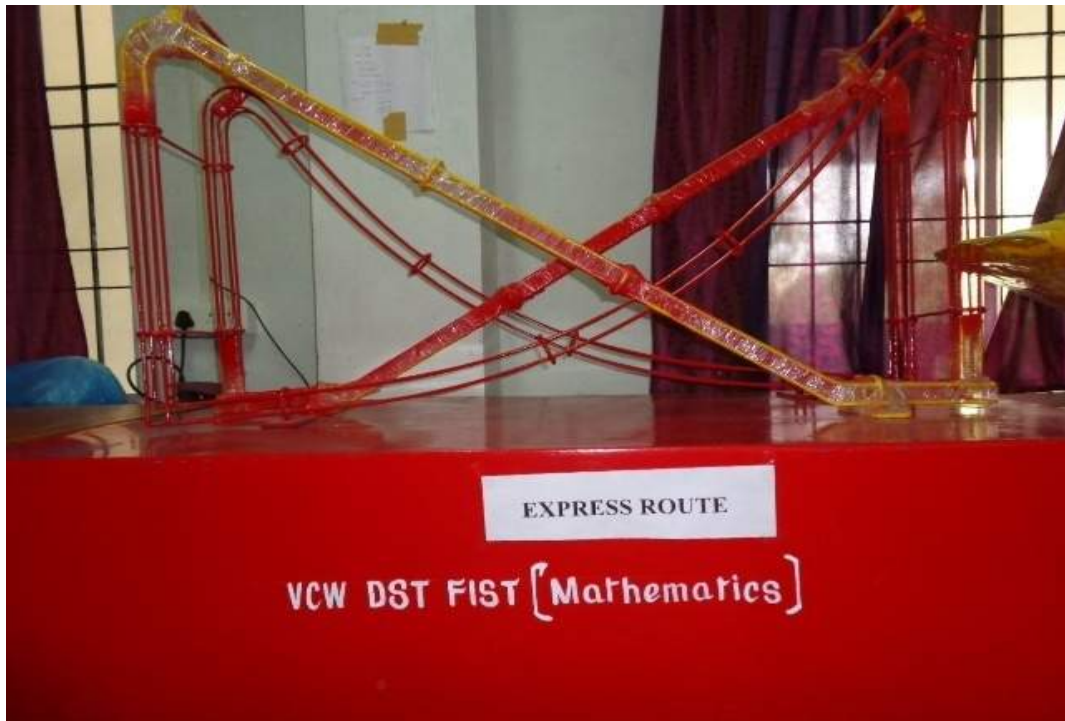
Hot Air Oven



Ultra Centrifuge



Express Route



Cone runs uphill







Details of Networking

Equipments under Networking and Computational Facilities

S.No.	Name (with Model & Make)	Quantity
1.	Lenovo Server Server X3500 MS 5464 PBC J3088LN HDD 300GB SAS, 1.0 K 6 GBPS	1
2.	Dell Computer Core i3 4160/4GB DDR RAM/500GB HDD/ 18.5 LEDT	12
3.	5 KVA Numeric Online UPS System IGBT TECH, DC 120V 12V/66AH DL POWER EXIDE BATTERIES WITH 2 HRS BACKUP, WITH MS RACK	1
4.	Logitech Head Phone Switch 24 Port DVD Writer External	4 1 1

Internet facility (for Teaching, Learning and Research)

- Bandwidth : 25MBPS (BSNL Broadband) shared for all departments
- Internet Lab with 40 computers in the college
- Internet Lab with 12 computers in the hostel
- Digital Library with 20 computers
- Wi-Fi enabled Campus

Network Lab established under DST-FIST	
	
CISCO 24 Port Switch	IBM Server
	
Numeric UPS	Babbage Computing Centre