ACIC

ARCHBISHOP CASIMIR INSTRUMENTATION CENTRE

ST. JOSEPH'S COLLEGE (Autonomous)

Special Heritage Status Awarded by UGC
Accredited at A^{++} Grade (Cycle IV) by NAAC
College with Potential for Excellence by UGC
DBT-STAR & DST-FIST Sponsored College
Tiruchirappalli 620 002

Archbishop Casimir Instrumentation Centre

The University Grants Commission (UGC) had conferred on St. Joseph's College (Autonomous), Tiruchirappalli affiliated to Bharathidasan University with, "College With Potential for Excellence" (CPE) in 2004

As a follow up to the (CPE) status, the college has established an instrumentation centre in the campus with DST-FIST sponsored in 2009 & 2015 .

The late most Rev. Dr. G. Casimir SJ former Archbishop of Chennai Mylapore pioneered the research endeavour in SJC as early as 1965

ACIC pays tribute to him by bearing his name. This centre promotes Research, Lab- Oriented Training and Teaching. The centre is upgrade with new research grade equipments periodically

Funding: CPE- 2015-16

Particle Size Analyser

Instrument Details

Make: Micromeritics
Model: Nano Plus
Specimen: Nano Powder & Liquid

Description

The instrument can measure (Dilution Method) the particle size of samples suspended in liquids in the range of 10 μm to 0.1 nm with sample suspension concentrations from 0.00001% to 40% and a sensitivity for molecular weight to as low as 250 Da.

(1Da = 1g/mol)

Uses

Particle size analyser is used to characterize the size distribution of particles in a given sample.

It is used to determine the size distribution of a sample powder and the suspension of an emulsion based on light diffraction.

Funding: FIST- 2015-16

Scanning Electron Microscope

Instrument Details

Make: CAREL ZEISS
Model: EVO 18
Specimen: Solid, Thin Film.

Description

A Scanning Electron Microscope (SEM) scans using focused electron beam over a surface to create an image. The electrons in the beam interact with the sample, which produces detailed magnified images of an object by scanning its surface to create a high resolution images.

Uses

SEM is the ideal Scanning Electron Microscope for biological and physical science applications. True environmental SEM allows samples to be examined in their natural state under a range of conditions including very high water vapor **pressure up to 3000 pa.**

Funding: CPE-2005-06

Hydraulic Pellet Machine

Instrument Details

Make: Kimaya Engineers
Model: Table Top Capacity: 15 Tons
Usable Platen Size: 13 mm. dia
Specimen: Solid

Description

The anhydrous potassium bromide salt is used for the pellet makeup.

Uses

It is used to form pellets for IR –FTIR solid sampling / analytical purpose.
Most commonly used pellet is of size 13 mm diameter.

Funding: CPE- 2013- 14

Fourier Transform Infra Red Spectrometer

Instrument Details

Make: Perkin Elmer
Model: Spectrum Two
Range: 4000cm^{-1} to 400cm^{-1}
Specimen: Solid & Liquid

Description

IR spectroscopy is an analytical technique used to identify and study chemicals based on how they absorb infrared light if it works on passing IR radiation through a sample and measures the absorbed wavelengths, which correspond to vibrations of molecular bonds.

Uses

* Identifies materials by analyzing their unique infrared absorption patterns.
* Determines the composition of mixtures by identifying individual components.
* Reveals molecular structure and bonding through functional groups.
* Monitors chemical reactions by tracking spectral changes over time.

Funding: UGC AUT. 2016-17

Ultra Violet Visible Spectrometer

Instrument Details

Make: Perkin Elmer
Model: Lambda 35
Range: 190nm to 1100nm
Specimen: Solid, Liquid, Thin film

Description

Ultraviolet and Visible (UV-Vis) absorption spectroscopy is the measurement of the attenuation of a beam of light after it passes through a sample or after reflection from a sample surface. Absorption measurements can be at a single wavelength or over an extended spectral range.

Uses

Ultraviolet and Visible (UV-Vis) absorption spectroscopy quantifies substance concentration by measuring light absorption, identifies compounds through their unique UV-Vis spectra, analyzes reaction progress by monitoring absorbance changes, and determines sample purity by detecting absorbing impurities.

Funding: CPE-2008-09

Cyclic Voltameter / Impedance Analyser

Instrument Details

Make: Princeton Applied Research
Model: Versa STAT MC
Frequency: 1 Hz to 1 MHz
Specimen: Solid & Liquid

Description

Cyclic Voltammetry (CV) is an electrochemical technique which measures the current that develops in an electrochemical under conditions where voltage is in excess of that predicted the nernst equation. CV is performed by cycling the potential of a working electrode and measuring the resulting current.

Uses

Cyclic Voltammetry (CV) is a popular electro-chemical technique employed to investigate the reduction and oxidation processes of electro chemically active species.

Funding: CPE-2009-10

High-Performance Liquid Chromatography (HPLC)

Instrument Details

Make: Shimadzu
Model: UFLC
Detector: UV-Vis detector
Column: C-18

Description

When a mixture of compounds is passed through the HPLC column, it gets separated into its components before it exits from the column. The basic principle of HPLC is the partitioning the analyte between the solid phase and the mobile phase.

Uses

High-performance liquid chromatography (HPLC) is a chromatographic technique used to separate a mixture of compounds into individual ones in the pure form. The main purpose for using HPLC is for identifying, quantifying and purifying the individual components of the mixture.

Funding: CPE- 2011-12

Fluorescence Spectrophometer

Instrument Details

Make: Perkin Elmer
Model: LS 45
Range: 200 nm to 900 nm
Specimen: Solid, Liquid

Description

In fluorescence spectrometry, both absorption and excitation spectrum (the light that is absorbed by the sample) and an emission spectrum (the light emitted by the sample) can be measured.

Uses

A fluorometer or fluorimeter is a device used to measure parameters of fluorescence, its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. These parameters are used to identify the presence and the amount of specific molecules in a medium.

Impact over the years: Beneficiaries at a glance

YEAR	Universities / Colleges	INSTRUMENTS								
		FT IR	UV	LCR	Hardness	Fluorenscence	CV/ IMP	HPLC	SEM	PZ
2012-13	73	1885	1862	147	314	181	223	212	-	-
2013-14	69	1707	1643	136	277	251	323	220	-	-
2014-15	84	1536	1144	201	296	256	158	140	-	-
2015-16	94	2535	1719	142	194	56	181	263	140	16
2016-17	97	2074	1014	50	125	200	298	59	352	98
2017-18	134	1212	854	59	185	105	84	73	426	192
2018-19	164	1865	1005	65	301	243	207	108	491	123
2021-22	257	3093	1612	36	--	507	55	49	751	501
2022-23	301	2977	1476	49	--	578	305	99	831	621
2023-24	321	3114	1352	17	--	444	250	74	744	547
2024-25	In Progress									

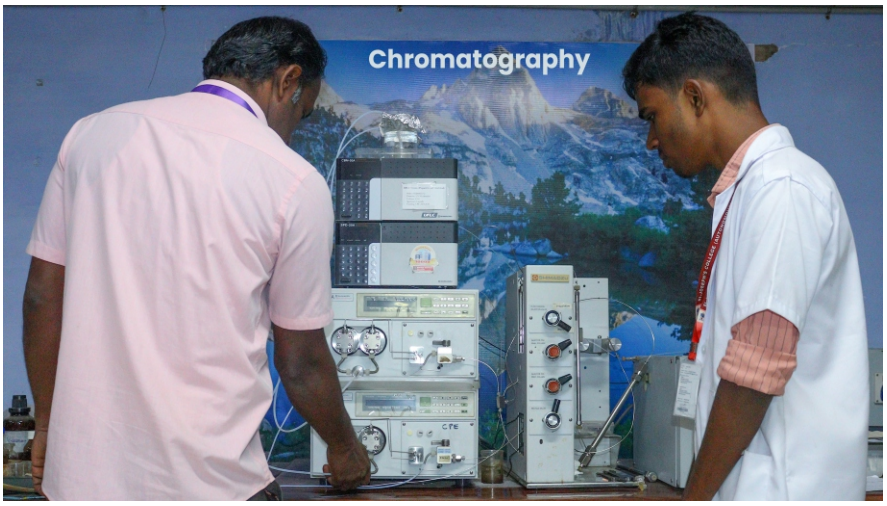
Impact over the years: Beneficiary Institutes

A.A. Govt. Arts College for Men, Namakkal
A.A. Govt. Arts College, Attur, Salem
A.V.S. College of Arts and Science, Salem
Annai Women's College, Karur
Arts College for Women, Namakkal
Ayya Nadar Janaki Ammal College, Virudhunagar
Bharathiyar Arts and Science College for Women, Salem
Dr. Kalaignar Government Arts College, Kulithalai
Erode Arts College (Autonomous), Erode
G. T. N. Arts College, Dindugal
Govt. Arts College for Women, Salem
Govt. Arts College, Karur
Govt. Arts College, Salem
J.K.K. Nataraja College of Arts and Science, Komarapalayam
Jairam Arts and Science College, Salem
K. S. R. College of Arts and Science, Tiruchengode
Kandaswami Kandar's College, Namakkal
Kongu Arts and Science College, Erode
Mahendra College of Arts and Science, Namakkal
Muthayammal College of Arts and Science, Rasipuram
Namakkal Kavignar Ramaligam Government
P.G.P. College of Arts and Science, Namakkal
Padmavani College of Arts and Science for Women, Omalur
Parvathy's Arts & Science College, Dindugal
Sacred Heart College of Arts & Science, Dindugal
Salem Sowdeswari College, Salem
Selvam Arts and Science College, Namakkal
Sri Krishnasamy Arts & Science College, Sattur
Sri Sakthi Kailash College of Women, Salem
Sri Sarada College for Women (Autonomous), Salem
Sri Sarada Niketan College of Science for Women, Karur
Thiruvalluvar Government Arts College, Rasipuram
Thiruvalluvar Govt. Arts College, Namakkal
Trinity College for Women, Namakkal
V. V. Vanniaperumal College for Women, Virudhunagar
Vellalar College for Women, Erode
Vivekanandha college of arts and sciences for women, Namakkal

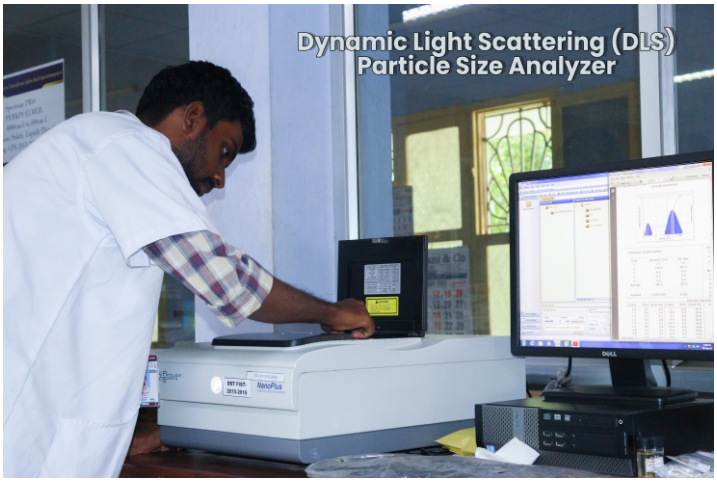
NOTABLE UNIVERSITIES

Alagappa University, Karaikudi
Amrita Vishwa Vidyapeetham,Coimbatore
Anna University, Chennai
Annamalai University, Chidambaram
B.S. Abdul Rahman Institute of Science &Technology, Chennai
Bharathiar University, Coimbatore
Bharathidasan University, Tiruchirappalli
Central university of Tamil Nadu, Tiruvarur
Chettinad Academy of Research & Education (CARE), Kancheepuram
Gandhigram Rural University, Dindigul
Kalasalingam Academy of Research and Higher Education, Virudhunagar
Karunya Institute of Technology and Sciences, Coimbatore
M.G.R. Educational and Research Institute, Chennai
Madras University, Chennai
Madurai Kamraj University, Madurai
Manonmaniam Sundarnar University, Thirunelveli
Mother Teresa Women's University, Kodaikanal
Periyar Maniammai Institute of Science & Technology,Thanjavur
Periyar University, Salem
Ponnaiyah Ramajayam Institute of Science & Technology, Thanjavur
S.R.M Institute of Science and Technology, Chennai
SASTRA University, Thanjavur
Sathyabama Institute of Science and Technology, Chennai
Tamil University, Thanjavur
Tamilnadu Agricultural University, Coimbatore
Thiruvalluvar University, Vellore
Vellore Institute of Technology,Vellore

Empowering Students:
Training programmes at ACIC


Chromatography


FT - Infrared
Spectrometer


Dynamic Light Scattering (DLS)
Particle Size Analyzer

"Learning gives Creativity,
Creativity leads to Thinking,
Thinking provides Knowledge,
Knowledge makes you great"!

- Dr. A.P.J. Abdul Kalam..!

ACIC TEAM

Principal	: Rev. Dr. S. Mariadoss SJ
Director	: Rev. Dr. A. Sebastin Thangadurai, SJ
Members	: Dr. S.MANGALARAJ
	Dr. S.ANUSUYA
	Mr. G.NOVIN SENETRA ROY
Technician	: Mr. Y. Vincent Sagayaraj

Working Hours: 9 am -4 pm

www. sjctni.edu/ACIC

0431- 4226468

+91 98654 86528

acicsjc@mail.sjctni.edu

St. Joseph's College (Autonomous)
Tiruchirappalli – 620 002
Tamilnadu
India

Designed by - ACIC