

**RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S RESEARCH FOUNDATION
SINCE INCEPTION**



JANUARY 2019

**VINAYAKA MISSION'S RESEARCH FOUNDATION
NH 47, SANKARI MAIN ROAD, ARIYANOOOR,
SALEM, TAMIL NADU 636308**

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RESEARCH CONTRIBUTIONS OF VMRF SINCE INCEPTION

0.1. INTRODUCTION

Vinayaka Missions had its inception in the year 1981 with the establishment of the Thirumuruga Kirupananda Variyar Thavathiru Sundara Swamigal (TKVTSS) Medical Educational and Charitable Trust. Not far from then, in 1982, the Founder-Chairman, Dr. A Shanmugasundaram instituted the Vinayaka Mission's College of Pharmacy in Salem, the pioneer institution of Vinayaka Missions. In the year 2001 the "Deemed to be University" status was conferred on Vinayaka Missions by The Ministry of Human Resources Development, Government of India, Under Section 3 of the UGC Act, 1956 as an acknowledgement of its excellence, satisfaction of the highest level of academic standards and best infrastructural facilities provided to achieve preeminence in education and by virtue of this recognition Vinayaka Missions transcended to becoming Vinayaka Missions Research Foundation (VMRF) as the 48th University in India.

This University with institutions of 38 years of existence under its ambit has emerged as one of the largest privately funded Universities in the country, including the faculties of Science and Humanity, Engineering & Technology and Medical & Health Sciences. The Research activities of the University were accelerated from the year 2001 onwards. Extensive research facilities were created to promote innovative research. The students and Staff are encouraged to innovate through quality research in emerging areas. Each department has its own laboratories and facilities, equipped to handle high – end research. The Research activities in the University include Academic research and funded research projects in the Faculties of Engineering & Technology, Medical & Health Sciences and Science & Humanities. Details of each Institution are presented in the subsequent sections.

0.2. ACADEMIC RESEARCH

Scholars seeking to pursue a doctorate degree will find a variety of specializations to choose from and qualified researchers to guide them. Seven hundred and ninety four research scholars are currently pursuing their Ph. D. programs at the University in the Faculties of Engineering & Technology, Science & Humanities and Medical & Health Sciences.

The overall picture of Research Developments in all the Institutions of VMRF as of March 2019 is given in the table below:

Overall picture of Research Developments in all the Institutions of VMRF

Institutions	AVIT	VMKVEC	AVMC	VM-KVMC	VMMC	VMS-DC	VMHMC	VMCP	VMACN	VMCN, Pondy	VMCN, Karaikal	Total
Research Centers	11 (2 under Progress)	04	5 (2 under progress)	1	1	1 with 5 Thrust Areas	Nil	1	Nil	Nil	Nil	24
Research Scholars (PT + FT)	53 + 2	96+2	17+6	50+0	22+0	19+0	12+0	69+1	36+0	08+0	08+0	390 (111)
Guides	33	29	13	16	08	05	02	14	05	01	01	127
Papers Published Total (Indexed)	520 (307)	569 (334)	227 (166)	360 (223)	279 (154)	504 (250)	118 (09)	115 (50)	110 (15)	106 (06)	76 (02)	2984 (1516)
Patents Filed / Published (Awarded)	23	3 (1 design patent awarded)	Nil	Nil	Nil	Nil	Nil	16	Nil	Nil	Nil	42 (1)
Projects sanctioned No. (Amount in Rs. Lakhs)	14 (36.05)	19 (69.2)	0	3 (3.93)	0	54 (Funded by the Management)	0	5 (8.8)	Nil	Nil	Nil	95 (117.98)
Projects submitted No. (Amount in Rs. Lakhs)	80 (1850)	12 (350.51)	8 (257)	4 (77.5)	2 (86.86)	nil	0	15 (230)	Nil	Nil	Nil	121 (2851.87)

**1. RESEARCH CONTRIBUTIONS OF
AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOR,
SALEM, TAMIL NADU 636308**

1.1. INTRODUCTION

Aarupadai Veedu Institute of Technology (AVIT) was established in the year 1998 as an affiliated institution under the University of Madras. Later it was affiliated to Anna University, Chennai.

In 2004, the institution attained the status of university under the ambit of Vinayaka Mission's Research Foundation (VMRF) – Deemed to be University Salem under sec.3 of UGC act 1956. AVIT is approved by All India Council for Technical Education (AICTE).

1.2. RESOURCE MOBILIZATION FOR RESEARCH

- Funds received from funding agencies for Research Projects – Rs. 36,05,808/-
- Funds received from funding agencies to conduct seminars/ workshop/ conferences – Rs.18,57,035/-
- Funds received from University to establish research lab and facility –Rs. 3,00,00,000/-
- Consultancy Fund received – Rs.17,78,287 /-

1.3. CONSULTANCY - FACILITIES

- Department of Mechanical Engineering provided Alternative fuels testing & performance facility
- Department of Bio-technology provided food samples testing facility
- Department of Electrical and Electronics Engineering provided Solar PV panels testing facility
- Department of Management Studies provided HR solutions and training on Business English Communication
- Department of Civil Engineering provided survey total station and structural design.

- AVIT is the authorized nodal center of Tata Consultancy Services-iON(TCS-iON) for organizing various prestigious online-examinations like IBPS, IIT-JEE, Bank examinations, Entrance Examinations etc.,

1.4. RESEARCH FACILITIES

Research Centers as discussed in section 1.8. and other facilities like,

- Central Library with good number of latest journals.
- Subscription to number of national and International Journals and Magazines.
- Digital Library with 8702 e - journals in the area of science and Technology from IEEE,ASME, ASC and DELNET.
- A 24/7 Wi-Fi Broadband connectivity with a bandwidth of 200 Mbps.

1.5. RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate		No. of Guides	Thrust Areas
		Part Time	Full Time		
1	Bio Technology	0	0	4	Biotechnology and Microbiology, Plant Genetic Engineering, Cancer Biology, Biochemistry
2	Civil Engineering	8	0	2	Structural and Environmental Engineering
3	Computer Science and Engineering	6	2	4	Computer Networks, Network Security, Wireless Sensor Networks, Cloud Computing, Deep Learning, Image Processing
4	Electronics and Communication Engineering	5	0	2	Antennas, Microwave Communication, Cognitive Computing, Networking, Image Processing
5	Electrical and Electronics Engineering	7	0	3	Power System, Power Electronics, Renewable Energy, AI

S.No	Department	No. of Candidate		No. of Guides	Thrust Areas
		Part Time	Full Time		
6	Bio Medical Engineering	0	0	0	Medical Image Analysis, Image Processing
7	Mechanical Engineering	20	0	3	Alternative fuels, Composite Materials, Welding, WEDM
8	Mathematics	1	0	3	Graph theory-graph labeling Fluid dynamics Graph theory-crossing numbers
9	Physics	0	0	2	Fabrication of Electrodes Nanoporous materials Nanostructured materials Super-capacitors
10	Chemistry	0	0	3	Bio Chemistry
11	Biochemistry	2	0	0	Bio Chemistry
12	English	3	0	1	English Literature
13	Computer Science	1	0	0	Algorithms, Data Base Management Systems, Big Data
14	Commerce	0	0	2	Industrial Automation
Total		53	2	29	-

1.6. FUNDED PROJECTS – ONGOING

In AVIT, the research covers all the major academic disciplines like Biotechnology, Civil Engineering, Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering and Mechanical Engineering. Faculty and students are actively involved in research.

Department of Biotechnology, Govt. of India, New Delhi, Tamil Nadu State Council of Science and Technology, MNRES, Govt. of India, DRDO, CSIR, MHRD, Govt. of India, Ministry of Earth Science, Govt. of India. IEEE Madras Section, IEEE Power and Energy Society, IEEE Communication Society, Computer Society of India have funded AVIT

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
1	Structural Monitoring of building using IoT	Dr.S.Rajaprakash	Tamil Nadu State Council for Science and Technology	Feb-19	0.075
2	Sentiment analysis on twitter data to understand public opinion on NEET exam in India	Dr.R.Jaichandran	Tamil Nadu State Council for Science and Technology	Feb-19	0.050
3	Investigation of defects induced microstructural changes in three-dimensional topologically complex morphology in nanoporous Au-Pd (Under Materials Science)	Dr.R. N.Viswanath, Dr. P. Shankar	UGC-DAE CSR	Jan-19	10.5
4	A Comprehensive Study on Hardware Trojans- Challenges and Solutions	Dr. L.K.Hema	DRDO-SAG	Jan-19	9.9475
5	Dissemination of Innovative Technology -Eco friendly paper pens and seed balls for green villages	Dr. S. P. Sangeetha Mrs.Pa.Suriya	Tamil Nadu State Council for Science and Technology	Nov-18	0.49
6	Digital Marketing App for Rural People	Dr L K Hema	MHRD - Unnat Bharat Abhiyan	Nov-18	0.98
7	An Expert System to ensure safety during construction-	Dr. S. P. Sangeetha	Tamilnadu state council for science and technology.	Apr-18	0.10
8	Determining the students stress factors in Indian school using fuzzy analytical hierarchy process	Dr.S.Rajaprakash	Tamil Nadu State Council for Science and Technology	Apr-18	0.10
9	Prototype for effective utilization of available well water resource to irrigate multiple agriculture fields effectively	Dr.R.Jaichandran	Tamil Nadu State Council for Science and Technology	Apr-17	0.10

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
10	10 Meter Wind Monitoring Station	Dr.M.Venkatarman, Mr.L.Prabhu	MNRE, NewDelhi	Jul-16	5.0
11	Verification and validation of wireless sensor network data for environment monitoring using efficient fault detection methods	Jaichandran R	Computer Society of India	Mar- 15	0.30
12	50 Meter Wind Monitoring Station	Dr.M.Venkatarman, Mr.P.Prabhuraj	MNRE, NewDelhi	Jul-15	6.5
13	Wireless Sensor Network Prototype with GSM and GPRS for Remote Environment Monitoring using data faults detection techniques for filtering erroneous data samples	Jaichandran R	Tamil Nadu State Council of Science and Technology	Apr-14	0.075
14	Large scale production 4-ip- omeanol, an anti- cancer agent	Dr.R.Remya	Department of Biotechnology, Govt. of India, New Delhi	Jan-12	26.48

1.7. FUNDED PROJECTS - PROPOSAL SUBMITTED

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
1	Low Cost Eco Housing System Using Ferrocement	Civil	TNSCST	Feb-19	4.85
2	Film Farming - An Alternative Intensive Agriculture	Civil	TNSCST	Feb-19	4.7
3	Utilization Of E-Waste As Fine Aggregate In Flexible Pavements	Civil	TNSCST	Feb-19	4.8
4	AI based Automatic grading of Lung Cancer in Histo- pathological Image	ECE	TNSCST	Feb-19	4.7
5	Smart Manhole Sewer gas identification and alert system	ECE	TNSCST	Feb-19	4.9

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
6	Cloud enabled Energy Management Systems in Hospitals	EEE	TNSCST	Feb-19	4.95
7	Drone Operated Crop Monitoring And Agrochemical Spraying In Agriculture Fields	EEE	TNSCST	Feb-19	4.8
8	Integration of Solar PV Modules on the Top of a Wind Turbine Nacelle for Hybrid Power Generation	EEE	TNSCST	Feb-19	4.6
9	Development Of A Smart Dual PV Inverter For Low Power Application	EEE	TNSCST	Feb-19	4.88
10	Influence Of Nanoparticle In Refrigeration System	Mech.	TN-SCST	Feb-19	4.05
11	Condensate Recovery And Waste Heat Utilization In Split Air Conditioners	Mech.	TNSCST	Feb-19	4.00
12	Seed Balls Production Process	Mech.	TNSCST	Feb-19	3.5
13	Design and Fabrication of Nano Porous Ceramic Orthopedic HIP Implants	Mech.	TNSCST	Feb-19	5.0
14	Hybrid Surveillance Robotic Drone For Civil And Military Applications	Mech.	TNSCST	Feb-19	5.0
15	Experimental Investigation On Performance And Emission Control Of Modified GDI Engine With ECU	Mech.	TNSCST	Feb-19	4.793
16	Fabrication Of Solar Based Air Cooler	Mech.	TNSCST	Feb-19	4.75
17	Design, Analysis And Fabrication Of Surveillance Drone- LAW (Land, Air, Water)	Mech.	TNSCST	Feb-19	4.87
18	Determining stress factors among police forces in Tamilnadu using Intuition- istic fuzzy set with Delphi method	CSE	TNSCST	Feb-19	4.52986
19	A Board Maker Application for Multiple Disability Children Area	CSE	TNSCST	Feb-19	4.69979
20	Zno nanoparticles as a carrier: Nano fertilizer formulation for Barnyard millet	BTE	TNSCST	Feb-19	4.73

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
21	Therapeutic validation of allylated monocarbonyl curcumin analog CA10: Glu- tathione S-transferase PI as a potential molecular target against cervical cancer	BTE	TNSCST	Feb-19	4.98
22	In vitro assessment of anti urolithiatic activity of formu- lated herbal extracts	BTE	TN- SCST	Feb-19	3.77122
23	Early Detection of Parkin- son's Disease	BME	TNSCST	Feb-19	4.9
24	Smart garbage waste management system using load cell technology	BME	TNSCST	Feb-19	4.3
25	Identifying the soldiers trapped in Ice Glaciers through WSN	ECE	DRDO "Dare to Dream"	Feb.19	20
26	Detecting Terrain Surfaces through Self supervised Learning for Unmanned autonomous vehicle	ECE	DRDO "Dare to Dream"	Feb.19	13
27	Deep Learning Method- ologies for Detecting and Preventing Zero day attacks for Improving Information Security	CSE	DRDO "Dare to Dream"	Feb.19	40.48
28	Smart Fabric for Army Personnel for extreme weather conditions	BME	DRDO "Dare to Dream"	Feb.19	156.0
29	Stress Analysis of Soldiers in war field in day to day activity	BME	DRDO "Dare to Dream"	Feb.19	12.5
30	Herbal based Chitosan Hemostatic Dressing for Soldiers injured in the battle field.	BTE	DRDO "Dare to Dream"	Feb.19	12.43255
31	Healthcare recommendation system based on monitoring climate change using IoT	ECE	DBT/ GCE	Feb.19	10
32	Design and Development of a wearable device to mon- itor vital signs of pregnant women.	ECE	DBT/ GCE	Feb.19	30
33	Improved precision based Robot assisted Laparoscopic Surgery	BME	DBT/ GCE	Feb.19	51.1
34	Infant Health Monitoring	BME	DBT/ GCE	Feb. 19	6.95

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
35	Defluoridation of Water using Coir pith activated carbon as adsorbent.	Civil	DBT/ GCE	Feb. 19	40
36	Deep Learning based Video Analytics for improving security	CSE	DRDO-CAIR	Jan-19	60.95
37	Indigenously designed & Fabricated Trusted Platform Module ASIC for Strategic Applications	ECE	DR-DO-AN-URAG	Jan-19	335.63
38	Integrated Power Generation Using Bio-Gas with Vegetable Waste from Urban Markets.	EEE	MNRE	Jan-19	47.936
39	Analysis of Artificial Intelligent (AI) Controller based Maximum Power generation algorithm for PEM Fuel Cell System.	EEE	MNRE	Jan-19	41.646
40	Synthesis & Characterization of Metal nanoparticles decorated ZnO Nanorods Array for Nano-bio-Sensors in Detection of Different Diseases Using Bio-Analyte	BME	ICMR	Jan-19	93.343
41	Aloe Vera punch as cancer therapeutics	BTE	DBT-ATGC	Dec-18	25.00
42	Fabrication of silver nano composite to alleviate pelvic inflammatory disease for intra uterine device users	BTE	DBT-ATGC	Dec-18	22.16
43	Application of computer data analytics in agriculture for improved crop production	BTE	DBT-ATGC	Dec-18	16.45
44	Entrepreneurship skill development programme for rural women	BTE	TN-SCST	Dec- 18	0.48
45	Awareness program on rising infertility due to poly cystic ovarian syndrome (PCOS)	BTE	TNSCST	Dec-18	0.49
46	Bioethanol Production from Sugarcane Bagasse	BTE	DBT	Dec-18	6.0
47	A Short Term Training Program For Farmers And Fisherman On Aquaponics, An Integrated Fish And Plant Production System.	Civil	TNSCST	Dec-18	0.50
48	Hands - On Training For Converting Rural Agri Products To Metro Attractive Products.	Civil	TNSCST	Dec-18	0.50

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
49	Upgradation and modernization of Electrical Machines lab through modeling and Digitization.	EEE	AICTE-MOD-ROBS	Dec-18	18
50	Modernization and Removal of Obsolescence - Concrete and Construction technology Laboratory	Civil	AICTE-MOD-ROBS	Dec-18	19.89
51	CNC Turning Machining by using a Feature based Methodology in a manufacturing Lab.	Mech.	AICTE-MOD-ROBS	Dec-18	19
52	Wireless Sensor Network for Process Control in Industrial Applications	ECE	AICTE-RPS	Nov-18	23.85
53	Design and development of Deep learning based information security system for improved security	CSE	AICTE-RPS	Nov-18	20.55
54	Abiotic stress tolerance transgenic banana plant production by expression of SiNAC transcription factor gene from Setaria italica L.	BTE	AICTE-RPS	Nov-18	20.60
55	Bio Energy – A Global Approach	BTE	AICTE-ISTE	Nov-18	2.95
56	ICT Enabled Teaching Methods	ECE	AICTE-ISTE	Nov-18	2.97
57	Wireless Sensor Networks- Security, Power management challenges & Solutions	ECE	AICTE-STTP	Nov-18	4.88
58	Application of artificial intelligent for power system management	EEE	AICTE-STTP	Nov-18	4.72
59	Structural health monitoring and life cycle assessment of buildings	Civil	AICTE-STTP	Nov-18	4.72
60	Exploration and Application Of Block Chain Technologies	CSE	AICTE-STTP	Nov-18	4.65
61	Advanced Materials and Manufacturing Techniques	Mech.	AICTE-STTP	Nov-18	4.94
62	Development Of Hybrid Nano Based BLDC Motor And Validation Of The Design By Using VLSI Technology	EEE	DRDO, RCI	Nov-18	20.12
63	Development Of A Transformer Less Inverter For A Photovoltaic Based Dynamic Voltage Restorer System	EEE	MNRE	Nov-18	15
64	Accomplishing The Plastic Waste To Develop Soil	Civil	DST	Nov-18	29.53

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
65	Treatment of Pharmaceutical waste water using anaerobic packed bed reactor	Civil	DST	Nov-18	27.18
66	Creating Teacher Walls In Schools For Better Learning	Civil	UBA	Nov-18	0.95
67	Business Entrepreneur In Mushroom Cultivation	Civil	UBA	Sep-18	0.40
68	Battery Less Ups System Using A Mechanical Fly Wheel As Energy Storage Device	EEE	CPRI	Aug-18	7.934
69	Development of novel method for utilizing red mud, micro silica and M-sand in concrete	Civil	SERB	Jul-18	27.66
70	Mechanization and energy in agriculture	Civil	National agricultural Science fund	Jul-18	0.36
71	Development of Streptomycin from Actinomycetes for defense and Biomedical applications	BTE	LSRB	Jul-18	23.81
72	Enhancing the fungal disease tolerance in Soybean (Glycine max) using Trichoderma copper nanobioformulations	BTE	DBT	Jun-18	31.34
73	Microbial production of PHA from biodiesel waste	BTE	DBT	Jun-18	24.71
74	Synthesis of triblocknanohydrogels for biofilm eradication	BTE	DBT	Jun-18	19.82
75	Development of Novel Hydrogen Sensor device for Engineering and Biomedical applications (Under Physical Sciences)	Physics	DST-SERB	Jun-18	74
76	Power Quality Improvement of Renewable Energy Management Based Micro grid via Smart Intelligent Controller	EEE	DST	Jun-18	119
77	Anaerobic co-digestion process for the production of biogas	BTE	DBT	May-18	465.93
78	Functional genome characterization and stress tolerant gene expression in Banana (Musa spp.)	BTE	DBT	May-18	32.72

S.No	Title of the Project	Department	Funding Agency	Applied in	Total outlay (in Lakhs)
79	ACZS/AZTS Solar Cell for Improved Power Conversion Efficiency	BME	DST	Apr-18	15
80	DST Development And Experimental Evaluation Of Laser Ignited Hydrogen Fueled Engine	Mech.	SERB	Apr-18	87.54
Total					1850.0

1.8. RESEARCH CENTRES AT AVIT

i. Centre for Nanotechnology



The vision of the Centre is to provide an interdisciplinary research platform by creating quality education, state of art infrastructure facilities and creating collaborative partners, both domestically and internationally, in all the emerging field of nano technology. Its research and development directed towards understanding the fundamental principles and developing smart functional devices, components and systems suitable for medical and domestic applications.

It will house the state-of-art facilities including AFM, FTIR, UV-Visspectrometer, XRD for Characterization and Electro spinning, Electro chemical, Wet Chemical, Sol-Gel and Corrosion techniques for the preparation of nanomaterial's and nanofibres.

ii. Centre for IoT



IoT is a research platform exploring the potential of multidisciplinary research with more end-user interactions. It gives the power to the crowd to be at the core of the research and innovation process. It gives power to change the world and the way we understand it. The center is equipped with Intel Edison boards and state of art sensors for developing real time IoT applications. The students are trained in

developing business model projects for entrepreneurship through UC Berkeley - FICE Innovation Lab & Micro Accelerator Program. Training to the students are provided through the experts of Intel FICE

iii. Centre for BOSCH Automotive Research

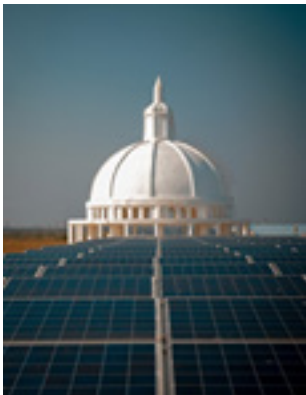


Aarupadaiveedu institute of Technology and BOSCH have come together to set up a state of the art Joint Certification centre at AVIT premises to provide automotive aftermarket Training. The centre has been equipped with the latest analyzers and Test/work Benches and Auto Electrical stands. This Joint Certification centre aims to provide hands on experience for all its trainees on current technologies that are in use in the industry.

Infrastructure Available in Training Centre:

- Vehicle air conditioning system and function
- Auto Electrical System
- Vehicle Diagnostics basics and system Diagnostics

iv. Centre for Renewable Energy Technology



Renewable Energy Technology mainly enhances research in the field of renewable energy. It mainly concentrates in solar and wind energy sources. It has the state of art facility in

- Solar PV panel characterization and testing for panels up to 200 Wp
- Solar PV on grid system virtual system for parameter analysis up to 500 Wp.
- Various types of solar thermal concentrators.
- Wind energy training system with a 75 W wind turbine run through tunneling effect

v. Centre for Alternate Fuel testing



The demand of the hour is to shift towards renewable energy sources because conventional energy sources are not long lasting and have many issues like Pollution, health problem, global warming. As far as automobile industry is concerned the new alternative fuels are being developed to replace conventional petroleum oils. Alternative Fuel testing research lab is used for conducting trials on various biofuels. Lab is equipped with Multi Fuel VCR Engine capable of running with different fuel blends. The engine is coupled with Smoke meter and 5 Gas Analyzer, Data Acquisition system with a facility of analyzing exhaust gases as well. The lab is also facilitated with Biodiesel Processor, Emission Gas Recirculation setup and Turbocharger.

vi. Cloud Enabled Central Research Facility for Siemens DCS, COMOS integrated Engineering Design and Simulation.



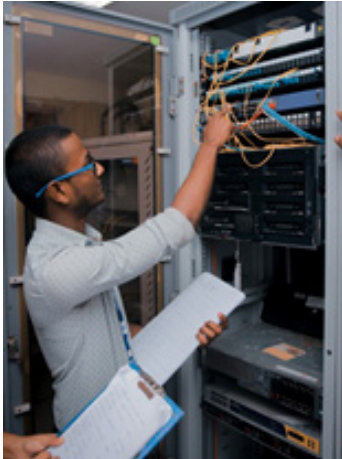
The integrated COMOS Software with DCS makes it possible to consolidate automation data from the control systems of different providers and make it available for re-engineering or for a new control system. Using the Automation digital twin of the COMOS software solution, automation data can be read out of the process control system and imported to COMOS to be graphically displayed, Consolidated, and made available for further Engineering. COMOS uses this data to support the creation of the plant's digital twin, a fast and reliable migration, and updates to the process control system all with one single solution.

It has the state of art facility in

- Low level and high level Process Engineering, Electrical and Instrumentation System Layout.
- Design and Validating Automation Systems.
- Plant Level Simulation.

- Virtual Commissioning with SIMIT Simulation.
- Certificate Training for Automation Products.
- Consultancy for Industrial Automation

vii. Centre for Cloud Computing



Consumers are engaged in more social networking, e-Learning and E-commerce activities and are increasingly storing their documents and media in cloud. Businesses are relying on Big Data analytic for business intelligence and are migrating their traditional IT infrastructure to the cloud. Cloud Computing is attracting everyone's attention, right from service providers to businesses and government, as a means of cost effective provisioning of IT resources. Cloud computing can provide broad capabilities and do much more than traditional infrastructure.

The objectives of the Centre include:

- Provide suitable cloud platform for a-Learning
- Prototype common centralized services to university curriculum
- Undertake studies on security and scalability in cloud
- Provide training on virtualization and cloud computing
- Build secure cloud storage, which provides storage space to users to store their data in cloud along with security.

viii. Centre for Plant Tissue Culture and Bioprocessing (DBT, Govt. of India Funded)

Plant tissue culture is a collection of techniques used to maintain or grow plant cells, tissues or organs under sterile conditions on a nutrient culture medium of known composition.



Plant tissue culture is widely used to produce clones of a plant. Bioprocessing is a broad term encompassing the research, development, manufacturing, and commercialization of products prepared from or used by biological systems, including food, feed, fuels, biopharmaceuticals, and

cosmetics

ix. Centre for Concrete Research and Testing



The primary purpose of the Concrete Laboratory is to conduct research to develop a better, more durable, cost-effective, and sustainable concrete infrastructure by:

- Investigating and characterizing concrete component materials used for highways including cement, aggregate, supplementary and alternative cementations materials, and admixtures.
- Assessing and improving durability aspects of concrete.
- Developing and evaluating new test methods or enhance existing testing procedures.
- Collaborating with academia and industry in advancing new emerging technologies.
- Performing forensic investigations requested within the Agency, by State Departments of Transportation (DOTs), and other governmental agencies.

x. Centre for Advanced Welding Methods



The AVIT-Fronius is being established with vision of creating a premier international training, certification, research and development center in the field of welding and allied areas. The aim of this research lab is to create a state of the art infrastructure for becoming a globally recognized

source of a competitive workforce and cost-effective, superior-performing welding technologies by conducting training, research and development in the field of welding science, engineering. Research Lab will include one Robotic GTAW, GMAW Machine and a Welding ROBOT along with Welding Accessories for training a batch students.

xi. Research center for Virtual Instrumentation and Medical Imaging through National Instruments, using Labview.

The center is under development

1.9. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	2019	Total
Mechanical Engineering	18	35	23	6	70	2	154
Electronics and Communication Engineering / BME	12	44	37	-	27	4	124
Science & Humanities	23	16	13	21	8	1	82
Bio Technology	10	7	7	8	6	4	42
Computer Science and Engineering	5	6	-	16	10	0	37
Electrical and Electronics Engineering	13	2	-	6	12	1	34
Civil Engineering	-	11	7	8	7	0	33
MBA	1	1	3	3	-	-	8
MCA	-	-	6	-	-	-	6
Total	82	122	96	68	140	12	520

1.10. PATENTS FILED :

Sl. No	Name of the department	Name of the Faculty	Patent title	Filed (Year)	Application No.	Status
1	Computer Science Engineering	Mrs. E. Srividhya	Smart Diagnosis System For Diabetes	Feb-18	201841004943	Application Published and Awaiting Examination
2	Mechanical Engineering	Dr.M. Venkatraman	Improved Performance And Reduction In Emission Running On Direct Injection Compression Ignition And Homogeneous Charge Compression Ignition Diesel Engine Using Pongamia Oil And Diesel	Jun-15	3018/CHE/2015	Application Published
3	Mechanical Engineering	Mr.Bubesh Kumar	Suface impact fatigue corrosion machine for biomedical implants and fixators	Jul-15	3401/CHE/2015	Application Published
4	Mechanical Engineering	Mr. Loganathan	Development Of Low NoxCidi Engine Fuelled With Biodiesel By Internal-Egr	Jul-15	3558/CHE/2015	Application Published
5	Mechanical Engineering	Mr.J.Senthil Dr.M. Venkatraman	Hybrid Technology Using In Two Stroke Engine	Aug-15	3761/CHE/2015	Application Published
6	Mechanical Engineering	Mr.Michael Dr.M.Venkatraman-	Technology Using In Eco - Friendly Vehicle	Aug-15	3760/CHE/2015	Application Published
7	Mechanical Engineering	Mr.Saravanan-kumar	Technology Using In Compressed Air Engine	Aug-15	3850/CHE/2015	Application Published
8	Mechanical Engineering	Mr. Bubesh Kumar	Intelligent Baby Warmer	Oct-15	5587/CHE/2015	Application Published and Awaiting Examination
9	Mechanical Engineering	M.Saravanan Kumar R.M.Vicky	The Lenid Engine	Apr-15	201641012222	Application Published

Sl. No	Name of the department	Name of the Faculty	Patent title	Filed (Year)	Application No.	Status
10	Mechanical Engineering	Mr.D.Bubesh Kumar	Compression and Interfragmentary Displacement Testing Equipment For Bone Fixators And Limb	Oct-2015	5586/CHE/2015	Application Published

1.11. DETAILS OF PATENTS FILED

S. No	Name of the department	Name of the Faculty	Patent title	Filed (Year)	Application No.	Status
1	Bio technology	Dr. B. Prabasheela	ECO friendly solid Mosquito Repellent	26.09.2018	201841036198	Filed
2	Civil Engineering	Dr.S.P. Sangeetha	An Expert system to Ensure safety during construction	26.09.2018	201841036212	Filed
3	Computer Science and Engineering	Dr.R. Jaichandran	Prototype to Monitor and Display Energy units consumed with period of consumption and Energy cost	26.09.2018	201841036209	Filed
4	Electronics and Communication Engineering	R.Karthikeyan	Wearable Technology for Blind People commutation using Ultrasonic Mapping	26.09.2018	201841036214	Filed
5	Electronics and Communication Engineering	Dr.L.K.Hema	Energy Scavenging using NIFTY Floor Tiles	26.09.2018	201841036193	Filed
6	Electrical and Electronics Engineering	Dr.S.M.Santhi Rekha	Portable Parabolic Solar Cooker with PCM storage Technology	26.09.2018	201841036197	Filed
7	Electrical and Electronics Engineering	Dr.S.M. SanthiRekha	Solar Powered Drone with Robotic Arm for Coconut cutting	26.09.2018	201841036211	Filed
8	Electrical and Electronics Engineering	P.Rajasekaran	Design of Hybrid wind Turbine using Magneto Resistive Technique	26.09.2018	201841036204	Filed

S. No	Name of the department	Name of the Faculty	Patent title	Filed (Year)	Application No.	Status
9	Electrical and Electronics Engineering	Dr.K. Boopathy	Self Power Generation in normal cycling system with out battery using Novel Converter	26.09.2018	201841036210	Filed
10	Mechanical Engineering	Dr.D.Bubesh Kumar	Hand Driven Car for the Differently abled and Elderly people	26.09.2018	201841036196	Filed
11	Mechanical Engineering	N.Fedal Castro	Speedballs Manufacturing Process	26.09.2018	201841036213	Filed
12	Science and Humanities	Dr.R.N. Viswanath	Nanocarbon Based Highly Flexible Electrodes for Energy storage devices	26.09.2018	201841036201	Filed
13	Mechanical Engineering	Dr.K.G. Muthurajan Mr.D.Bubesh Kumar	Pit Type Induction Powered Mega Stove	Aug-16	7275/ CHE/2016	Filed

**2. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S KIRUPANANDA VARIYAR
ENGINEERING COLLEGE**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOR,
SALEM, TAMIL NADU 636308**

2.1. INTRODUCTION

Vinayaka Mission's Kirupananda Variyar Engineering College (VMKVEC) was started in 1987 with 3 branches approved by AICTE, New Delhi. Initially it was affiliated to the University of Madras and then to Anna University. It became a Constituent college of Vinayaka Mission's Research Foundation (Deemed to be University) in 2004.

At present, the institution offers 8 UG Programmes and 5 PG programs along with MBA under various specializations offering higher education to over 1000 students, pursuing higher education in Engineering, Technology & Management. Experienced and Dedicated faculty.

This institution was accredited by National Board of Accreditation - All India Council for Technical Education (NBA - AICTE), New Delhi from 2009 to 2012. The Institution is approved by All India Council for Technical Education, New Delhi.

VMKV Engineering College is having rich experience in incubating, developing and commercializing innovative ideas received from students technocrats and industrialists etc. The Institution is duly recognized as a Business incubator by the Ministry of MSME, GoI and New Delhi under their scheme "Support for Entrepreneurial and Managerial Development of SMEs through incubator".

Accordingly "Prof. Dr. A. P. J. Abdul Kalam Business Incubator" of our college is incubating 9 innovative ideas by securing financial grant to the tune of 53.5 Lakhs from the Ministry and initiated the process of commercialization of the innovative ideas. VMKVEC has developed the following products / process from this Incubator.

S. No.	Product	Beneficiary
1	Mileage Promoter Gear	General public who are riding two wheelers. Increases mileage efficiency.
2	Edible Water Bubble	Alternate for using plastic water bottle. Technology ready for commercialization
3	Gleegy – Mobile application	All public can be benefitted to find family and friends locator through mobile.
4	High Frequency Induction Heater	Developed for Defense Food Research Laboratory, Mysore, An Unit of DRDO

S. No.	Product	Beneficiary
5	Effective bio-degradation of waste polyethylene using potent microbial strains and its methodology based applications.	Process is ready for commercialization
6	Cryogenic grinding with unaltered qualities of spices	Developed for Defense Food Research Laboratory, Mysore, An Unit of DRDO
7	Design and fabrication of leg holder for supporting rural woman in labor process.	Product is ready for commercialization.
8	Design of textile effluent treatment plant and implementation of aquaponics.	Process is ready for commercialization
9	Application of Enzyme extracted from Aloe Vera plant in textile, leather and paper industries.	Process is ready for commercialization
10	Intelligent Helmet	Product is ready for commercialization, approved and funded by MSME-Centre of Excellence, IISc, Bangalore.
11	Smart Vision for Visually impaired per- sons.	Product is ready for commercialization, approved and funded by MSME-Centre of Excellence, IISc, Bangalore.

Further the Incubation Centre “Prof.Dr.A.P.J.Abdul Kalam Business Incubator” has also collaborating with MSME – Centre of Excellence, IISc, Bangalore and submitted 11 proposals for financial support. Out of which 4 projects has been financially sanctioned to the tune of 4.41 lakhs by the centre and remaining proposals are in pipeline.

In addition to the above, “Prof. Dr. A.P.J. Abdul Kalam Business Incubator” is also recognized by the Ministry of Commerce and Industries, GoI, New Delhi as an authorized Incubator to visit the new ventures promoted by entrepreneurs for issuing recommendation letter to secure the status of “Startups” for availing financial and other benefits under the scheme of Honorable Prime Minister “startup India”. In pursuance to the recognition accorded by the Ministry, two units have been visited by the Institution and duly recommended to the Ministry for according the status of “startup” for availing benefits under the scheme.

Both the start-ups namely Knovonat Industries, Salem and Blackswan Infotech Private Limited, Chennai have been selected under Start-up Scheme. The significant benefit under “startup India” scheme is that the venture / unit are exempted from Income tax for the period of three years besides funding benefits.

VMKVEC has been shortlisted for the empanelment under the Pradhan Mantri YUVA Yojana (formerly known as UDYAMITA). Under this Scheme, Two faculties have been trained by the Ministry of Skill Development and Entrepreneurship, Government of India. We have trained 114 students for the Entrepreneurship Development Course and they will be certified by the Ministry of Skill Development and Entrepreneurship, Government of India.

2.2. THRUST AREAS OF RESEARCH

- Food processing and equipment fabrication
- Renewable Energy Sources
- Development of Electronic Gadgets
- Automotive Research

2.3. RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate	No. of Guides	Thrust Areas
1	Biotechnology / Informatics	1	1	Phytochemistry, Cancer Biology, Diabetes
2	Bio Medical Engineering	0	2	Biomedical Imaging, Applied Electronics, Artificial Intelligence, Biometrics, Image Processing, Machine Learning
3	Civil Engineering	3	1	Structural and concrete Engineering
4	Computer Science and Engineering	11	3	Security, Grid Computing, Networks, Cloud Computing, Stochastic Processes, Wireless Networks, IoT
5	Electronics and Communication Engineering	14	3	Digital Image Processing, Medical Imaging, IoT
6	Electrical and Electronics Engineering	8	3	High Voltage Engineering, Nano Technology, Embedded Systems
7	Management Studies	25	4	Economics & Management, Human Resource Management & Marketing, Commerce

S.No	Department	No. of Candidate	No. of Guides	Thrust Areas
8	Mechanical Engineering	13	2	Production design, Composites, Material Science, Welding Metallurgy, Metal Joining
9	Commerce	02	1	Industrial Commerce
10	Biochemistry	02	1	Biochemistry
11	Chemistry	06	2	Chemistry
12	Computer Science	12	1	Algorithms
13	Mathematics	1	3	Graph theory
14	Physics	0	2	Medical physics
Total		98	29	-

2.4. FUNDED PROJECTS – ONGOING

S.No	Name of the Dept / Faculty	Year	No of Projects	Amount Sanctions in Rs.	Amount received in Rs.	Funding Agency
1	MBA	2016-18	1	10,00,000	10,00,000	Indian Council for Social Science Research
2	VMKVEC	2016-17	4	4,41,000	4,41,000	MSME- Centre of Excellence, Indian Institute of Science, Bangalore
3	VMKVEC	2016-17	7	43,51,600	30,00,000	Ministry of MSME, GoI, New Delhi
4	VMKVEC	2017-18	2	10,75,000	-	Ministry of MSME, GoI, New Delhi

S.No	Name of the Dept / Faculty	Year	No of Projects	Amount Sanctions in Rs.	Amount received in Rs.	Funding Agency
5	ECE	2017-18	5	52,000	52,000	Department of Science and Technology & Texas Instruments
Total			19	69,19,600	42,93,000	

2.5. FUNDED PROJECTS - COMPLETED

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total out-lay(in Lakhs)
1	Pulse oximetry in the external auditory canal with alarm and GPS	Mrs. S. Vaishnodevi	TNSCST	Jan- 18	0.10
2	Extraction of High Value Biomolecules from Food Wastes	Mrs. C. Nirmala	MSME–CoE	Apr- 17	0.89
3	Development of Ac And Refrigeration Using Exhaust Heat From 4 Stroke Engine	Mr. R. Chandrasekar	MSME-CoE	Apr- 17	1.42
4	Development of Probiotics from Mysore Raspberry	Mr. Sambhasan Banerjee	BI-RAC-SRI-STI BMU	May-16	1.00
5	Grid Interactive Inverter – Wind Mill	Mr. S. Mathan Kumar	TNSCST	Jul-10	0.06
6	In Vitro Antimicrobial Activity and Cytotoxic Evaluation of Andrographolide, A phytochemical compound from Andrographic Paniculata Nees	Dr. S. Ananda Kumar	TNSCST	Feb-10	0.10
7	Evaluation of Biological Decolorization of textile Dye Contaminated Water Sources of Thirumanimutharu River, Salem District (TN)	Dr. S. Ananda Kumar	TNSCST	Feb-10	0.10
8	25 Projects through Innovation and Entrepreneurship Development Cell (IEDC)	Dr. A. Nagappan	DST	Jul-09	43.13
Total					46.8

2.6. FUNDED PROJECTS - PROPOSAL SUBMITTED

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
1	Some Investigations On Friction Stir Welding (FSW) Of Dissimilar Az31b Magnesium and Aa 6061 Aluminum Alloys	Dr.S. Venkatesan	DST – Core Re- search Grant	Jul-18	27.36
2	Optimization and Fabrication of Solid-State Perovskite sensitized Solar Cells with mesoporous metal oxide materials	Dr. V. Anbazhagan	DST-Early Career Re- search Grant	Aug- 18	33.86
3	IoT Based Enhanced Pain Reliever	Dr. T. Muthumanickam	DST-Em- power- ment & Equity Opportunities for Excellence in Science	Oct- 18	49.28
4	An Integrated Computational Approach To Understand The Immunopathogenic Mechanism In Symptomatic Versus Asymptomatic Dengue	Dr.S.Anusuya (PI) Dr.M.Michael Gromiha (Co-PI)	ICMR-Den- gue Viral Disease	Nov-18	39
5	Entrepreneurship Awareness Camp (EAC)	Dr. P. Marishkumar	Department of Science & Tech- nology - National S&T Entre- preneur- ship Development Board (NST- EDB)	Nov-18	0.20
6	Design and Fabrication of Low cost Freeze Drying Equipment	Dr.K.G. Muthurajan Prof. N.Rajan	DRDO-LSRB	Nov-18	26.52

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
7	Synthesis Structural Characterization And Efficacy Of Silver Nanoparticles from Endophytic Microorganisms Loaded with Morin for Skin Cancer Treatment	Dr.M.Sridevi (PI) Mrs.C.Nirmala (Co-PI),	IC-MR-Nanomedicine Taskforce scheme	Nov-18	27.59
8	Production of Multifunctional Bacterial Cellulose Nano crystals for Wound Healing and Regenerative Medicine	Mrs.G.Arthi (PI)	IC-MR-Nanomedicine Taskforce scheme	Nov-18	30.00
9	Targeted Delivery of Doxorubicin to Overcome Multidrug Resistance in Breast Cancer by Loading Doxorubicin With Flavanoid Genistein In The Biotin Labelled Nanoparticles	Dr.S.Anusuya (PI) Dr.V.Anbazhagan(Co- PI)	IC-MR-Nanomedicine Taskforce scheme	Nov-18	50.00
10	Modernization and Removal of obsolescence in Metallurgy Lab	Dr.K.G. Muthurajan	AICTE - MOD-ROBS	Dec- 18	19.41
11	Modernization of VLSI Design Lab	Dr. T. Muthumanickam	AICTE - MOD-ROBS	Dec- 18	19.90
12	Indigenous Design and Development of Secure Gateway for IoT devices	Dr. M. Nithya	DRDO-CAIR	Dec- 18	27.39
Total					350.51

2.7. RESEARCH CENTERS

- Food processing and equipment fabrication
- Renewable Energy Sources
- Development of Electronic Gadgets
- Automotive Research

2.7.1. MAJOR EQUIPMENTS WITH DESCRIPTION

S.No.	Name of the Equipment	Actual Amount in Rs.	Supplier Name
1	Fluorescence Spectrophotometer	18,50,000	Anatek Services PVT. LTD., Mumbai
2	Rotary Vacuum Evaporator Diagonal with Oil free Pump	1,05,669	Mercury's Scientific Chemicals Industries, Salem
3	Hygene Fermentor (Bench scalereactor)	3,77,600	Lark Innovative Fine Teknowledge, Chennai
4	UV-Visible Spectrophotometer(Model V750)	11,50,000	Anatek Services PVT. LTD., Mumbai
5	Computerized cum Analogue Universal Testing Machine of 1000KN (100T) capacity	13,45,200	Prabha Engineering Corporation, Coimbatore
6	Digital Rebound Hammer	1,41,600	Prabha Engineering Corporation, Coimbatore
7	Loading Frame (100 tonnes capacity)	12,44,605	Prabha Engineering Corporation, Coimbatore
8	Desktop (HP Pro G1) Intel Core i7 7th Gen 7700 Processor / 16GBRAM / 1TB Hard Drive / None / No Monitor/ 2GB Graphics / Keyboard & Mouse / Windows 10 Professional / 3 Yrs Onsite Service	16,90,000 (20 Nos.)	Computer Waves, Chennai
9	Laptop (HP- Pavilion15) Core i7-8550U/ 8 GB RAM / 2 TB / 15.6" Display/ WIN10SL+ MS Office 2016 Home & Student / 4GB Graphics /WiFi / BT / 1 Year Warranty / Bag	1,79,400 (2 Nos.)	Computer Waves, Chennai

S.No.	Name of the Equipment	Actual Amount in Rs.	Supplier Name
10	UPS with Battery i. MICROCHIP ONLINE UPS 25KVA / 3-phase Input / 3-phase Output / 360V DC System / Pure Sine Wave Output with Digital Display	1,52,000	Hidel Power Products Pvt. Ltd, Erode
11	Exide Tubular Battery (Industrial) Model : 6EL40 12v/40Ah	1,89,000	Hidel Power Products Pvt. Ltd, Erode
12	Real Time EEG PC based 16 Channels with PC Reporting Software	1,50,000	Pamtrons Healthcare Devices,
13	Diagnostics and Therapeutic Equipments Recording of peripheral Blood Flow, Diathermy, EOG, Optical Isolation Amplifier, Galvanic Skin Resistance, Haemo Dialysis, Heart Lung Machine, Pacemaker, Defibrillator, pH Meter	4,48,000	Pamtrons Healthcare Devices, Mumbai
14	Solar PV Training and Research System	2,43,228	Ecosense Sustainable Solutions PVT. LTD., New Delhi
15	Solar PV Tied Training System	3,89,577	Ecosense Sustainable Solutions PVT. LTD.,
16	Pyranometer Model No: LP PYRA 03	95,462	SMIS Instrumentation, Bangaluru
17	VCR Engine With Data Acquisitions System	6,37,200	Avalors Advanced Systems Pvt. Ltd. Sangli,MS
18	Exhaust Gas Analyser	3,42,200	Avalors Advanced Systems Pvt. Ltd. Sangli,MS
19	Smoke meter	2,30,100	Avalors Advanced Systems Pvt. Ltd. Sangli,MS
20	Muffle Furnace (Industrial type)	70,782	Apex Service and Instruments, Chennai
21	Vertical Microscope Part No. MV001 Vertimet – I with Accessories	2,37,086	Chennai Metco, Chennai
22	Envision 6.0- Metallography Image Analysis Software	1,96,895	Chennai Metco, Chennai
23	BOSCH Equipment's with Accessories	9,57,263	Shivani Enterprises, Chennai
24	Installation of BOSCH Equipment & Training Center	5,49,644	Aishwarya Lakshmi Constructions, Salem
25	MATLAB (Unlimited users with 20 Tool box)	9,14,500	Design Tech Systems Ltd, Pune

Description of the Equipment:

A pacemaker is a medical device that generates electrical impulses delivered by electrodes to contract the heart muscles and regulate the electrical conduction system of the heart. It is a small device that's placed in the chest to control abnormal heart rhythms. It used to treat arrhythmias.

Technical Specification:

- Power supply : 230 V, 50 Hz
- Rate range : 50 to 150+ 5 BPM
- Rate calibration accuracy : + 5 %
- Output current range : 0 to 20 MA app. continuously adjustable
- Output current accuracy : + 20 %
- Pulse-width : 2 ms + 10%
- Pacing pulse indicator : 5 mm Red / Yellow LED
- ECG sync pulse indicator : 5 mm Green LED
- Sync input socket : EP Jack type
- Output socket : 4 mm sockets
- Heart rate control : Continuously variable.
- Current Control : Continuously variable.
- Internal/External : Through switch selection

Heart Lung Machine

Description of the Equipment:



A machine that temporarily takes over the functions of the heart and lungs, especially during heart surgery. A heart lung machine in a coronary artery by-

pass surgery. Cardiopulmonary bypass is a technique that temporarily takes over the function of the heart and lungs during surgery, maintaining the circulation of blood and the oxygen content of the patient's body.

Technical Specification:

- Power supply : 230 Volt, 50 Hz.
- Oxygenator : H₂O In / Out, O₂ In Blood In / Out
- Tube Connections : Oxygen Inlet.Venous Inlet.Cardiotomy Return. Arterial Outlet. Heat Exchanger Inlet. Heat Exchanger Outlet.
- Materials. Clear Compounds : Polycarbonate / Luar loks : Polycarbonat. Defoamer Filters. : Nylon. /Defoamer Substrate : Reticulated Poyurethane Foam. Sealent. : Poyurethene Adhesive. / Connector Covers. : Poyvinyl Chloride.
- Reservoir : Venous in & out /
- Blood Flow : 0.5 to 6.5 Liters / Minute. +
- Heart Pump : Parastaltic Pump Head. /
- Drive : D.C motor with gear box
- Motor Control : Run Control. /
- Speed : 0-120 R.P.M. +
- Position : Horizontal. /
- Rollers : PVC
- Body : Aluminum /
- Inffulant Pump : Water pump
- Heater : 500 WATT , Alumenum material In / Out Nozzles. Switch for On/ Off Heater Pt 100 sensor
- Display : LCD Indication -temp. 0 to 99.9 & Speed of Heart Pump Set temp. Key Set, Enter

Hemodialysis Unit



Description of the Equipment:

A dialysis machine and a special filter called an artificial kidney, or a dialyzer, are used to clean your blood. Dialysis is a type of renal replacement therapy which is used to provide an artificial replacement for lost kidney functions.

Technical Specification:

- System : Demo. Hemodialysis Machine
- Power supply : 230 Volt, 50 Hz.
- Microcontroller : 89C51
- Key : Set, UP, Down & Enter
- Display : 16 X2 LCD Display
- Parameter on Display : Temp & BPM
- Indication : Temp High & low BPM High & Low Blood leak & Bubble
- Heart Pump : Peristaltic Pump Head.
- Position : Horizontal.
- Motor : PMDC D.C motor with gear box
- Motor Control : Manual Control, SCR Control.
- Speed : 0-200 R.P.M. +
- Rollers : PVC
- Pump Material : Aluminum
- Heater Switch : Toggle type On OFF switch

Research carried out using the equipment

- To develop the projects using Simulation software's (3D, 3D max), Designing Software's (Illustrator, animation), MATLAB.
- To develop an IoT Project – Chip based wireless web server project is built around using Arduino kit in Intel i7 Processor.

Consultancy Assignments which can be done using the equipment.

- Training to School students and Rural people about Adobe creative Cloud and packages and e-resources.
- Skill Development programme on Installation of Latest Software's.
- To conduct an external On- Line test for private and Government Agencies.

Testing of Water and Waste Water Sample



Complete Water Test Kit



TDS Meter

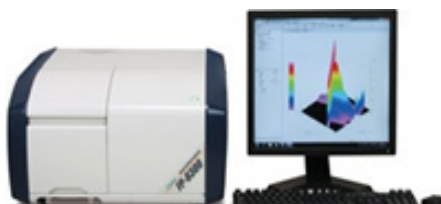


Fluoride Meter

Department of Physics

1. Spectrofluorometer

Description of the Equipment:



The FP-8300 is a user friendly spectrofluorometer with a wide range of accessories that are well suited to biological research. The standard automatic band-pass filters obtain spectra without the artificial peaks due to second order diffracted light. The Auto-Gain and Auto-SCS functions optimize the S/N for samples with large differences in signal intensity and concentration. Temperature control accessories can be used for thermal melting studies, providing researchers with fluorescence and thermodynamic data for conformational and folding studies. FRET measurements offer insight on binding and folding dynamics. The FP-8300's automatic polarizers can perform fluorescence anisotropy measurements to provide information regarding fluorophore mobility. Kinetic and titration measurements can also be performed with the dedicated stopped-flow and autotitrator systems.

Features

- High sensitivity S/N > 2,800 (RMS)
- High resolution of 1.0 nm
- Wavelength range: 200 to 750 nm (900 nm optional)

Research carried out using the Instrument:

- Structure elucidation of organic compounds.
- Quantitative analysis
- Qualitative analysis
- Dissociation constants of acids and bases.
- Chemical kinetics
- Quantitative analysis of pharmaceutical substances
- Molecular weight determination

Department of Mechanical Engineering

S. No	Equipments	Description	Consultancy work / Research work
1	AVL – Exhaust Gas Analyzer	Exhaust Gas Analyzer - five gas analyser - CO, CO ₂ , NOX, O ₂ , HC	Exhaust Gas Analyzer CO, CO ₂ , NOX, O ₂ , HC Emission Test – for research purpose
2	AVL – Smoke Meter	To Analyze Smoke density	To Analyze Smoke density
3	VCR Engine – Test Rig	To test the performance of various fuels like Bio Diesels	Engine Performance, Emission Test and Combustion Analysis – for research purpose
4	Muffle Furnace	To fabricate composites with low melting temperature	Fabricate composite - low melting temperature
5	Optical Microscope with Data Acquisition System	To measure the materials properties	To study material properties
6	BOSCH – VMKVEC Joint Training Center a. Auto Electrical Systems Vehicle Diagnostics b. Basis(Obd) & System Diagnostics c. Vehicle Air Conditioning Systems	Bosch Training - Certification programme	<ul style="list-style-type: none"> • Training of the students form our college and outside college students • Training of the industrial persons in and around Salem
7	BOSCH – VMKVEC Joint Training Center Basis (Obd) & System Diagnostics	ESI (tronic) 2.0	Diagnostic report of the vehicle
8	BOSCH – VMKVEC Joint Training Center Vehicle Air Conditioning Systems	Robinair ACS 261	Vehicle Air Conditioning gas refilling



AVL – Exhaust Gas Analyzer



AVL – Smoke Meter



Muffle Furnace



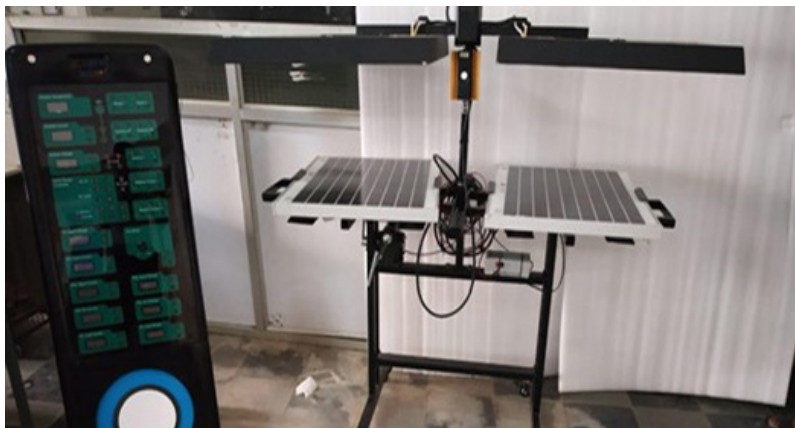
Optical Microscope with Data Acquisition System

EEE Department

S.No.	Name of the Equipment	Department	Actual Amount in Rs.	Supplier Name
1	Solar PV Training and Research System	EEE	2,43,228	Ecosense Sustainable Solutions PVT. LTD., New Delhi
2	Solar PV Grid Tied Training System	EEE	3,89,577	Ecosense Sustainable Solutions PVT. LTD., New Delhi
3	Pyranometer Model No: LP PYRA 03	EEE	95,462	SMIS Instrumentation, Bangaluru

i. PV Training and Research System

Equipment – Photo



Description of the equipment.

The solar PV Training and research system consisting of two solar panel module I & II with 6 halogen lamps of 150 W each ($2*6*150=1800$ W). Portable charger is used to run the fan for providing enough cooling to solar panels and charging the battery in metering unit. Each Solar panel capacity is 40 W, Open circuit voltage is 21.7V and short circuit current is 2A. Model- PVTR123

Research carried out using the equipment

The system is used to find the VI Characteristics and PV Characteristics of Solar Panel with artificial Lighting. This system is highly useful in the research areas like Maximum Power point tracking, standalone applications, Agricultural and cooling systems.

ii. PV Grid Tied System

Equipment – Photo



Description of the equipment

Solar PV tied training system consist of two solar panels having the capacity of 500W ($2*250=500$ W) along with the control systems having two batteries of 12V each, inverter, power analyzer I & II and auto transformer. Model-PVGTS123

Research carried out using the equipment

The system is used to find impact of transmission line inductance, Power factor correction by using capacitor bank in grid connected solar system. This system is also used in the research areas like grid system, total harmonic distortion in grid connected solar panel and solar photovoltaic system design.

iii. Pyranometer

Equipment – Photo



Description of the equipment

Model -LP PYRA03, consisting of radiation sensor and paper less recorder with pen drive.

Research carried out using the equipment

Pyranometer is used in the research areas like solar radiation at earth surface, solar spectrum and schott filter glass hemisphere

iv. UV-VISIBLE Spectrophotometer

Specifications : Model (V 750), Wavelength range: 190 to 900 nm Wave-length ac- curacy: +/-0.2 nm (at 656.1 nm)



Description of the Equipment:

Ultraviolet-visible spectrophotometry (UV-Vis or UV/Vis) refers to absorption spectroscopy in the ultraviolet-visible spectral region. This means it uses light in the visible and adjacent (near-UV and near-infrared (NIR)) ranges. UV/Vis spectrophotometer is used in the quantitative determination of concentrations of the absorber in the solutions of transition metal ions and highly conjugated organic compounds.

Research carried out using the Instrument:

- Structure elucidation of organic compounds.
- Quantitative analysis
- Qualitative analysis
- Dissociation constants of acids and bases.
- Chemical kinetics
- Quantitative analysis of pharmaceutical substances
- Molecular weight determination

v. Rotary Vacuum Evaporator Diagonal with oil free pump



Description of the Equipment:

Rotary vacuum evaporators employ rotational speeds of up to 280rpm with vacuum conditions of < 1 mm Hg to vaporize, condense, and ultimately distill solvents. Rotary evaporators can accommodate samples sizes of up to 1 litre. A rotary evaporator is commonly vertically-oriented to save bench-top space, and utilizes efficient flask or vapor tube ejection systems to expedite the process

Research carried out using the Instrument:

- Concentration of solutions and suspensions
- Solvent distillation and recycling
- Chemical synthesis

vi. Hygene Fermentor Specifications:

3 Liter total volume, 2.5L maximum and 1L minimum working volume



Description of the Equipment:

A fermentor is a closed cylindrical vessel with enough arrangement for aeration, agitation, temperature and pH control, and drain or overflow vent to remove the waste biomass of cultured microorganisms along-with their products. Fermentor are used to grow organisms in large volumes, thereby enabling the production of mass quantities of the target product. These reactors can be batch reactors, which contain all of the components needed for cell growth, or continuous reactors, which have inlet and outlet ports allowing for the addition of fresh growth media and the removal of cell waste. A fermentor is used for production of commercially important product in fermentation industries.

Research carried out using the Instrument:

- Enzyme production
- Production of primary and secondary metabolites
- Design process control of instrumentation systems by various parameters such as temperature, aeration, agitation, pH.

2.8. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	2019	Total
Civil Engineering	55	34	28	37	43	0	197
Mechanical Engineering	9	22	12	5	19	4	71
Electronics and Communication Engineering	12	20	7	12	17	0	68
MBA	7	6	7	23	6	0	49
Electrical and Electronics Engineering	6	8	15	2	11	0	42
Computer Science and Engineering	14	9	3	3	5	0	34
BioMedical Engineering	1	11	3	5	2	0	22
Mathematics	4	5	4	3	6	0	22
Bio Technology	9	2	4	2	4	0	21
Physics	3	2	5	2	2	1	15
Chemical Engineering	0	1	2	2	3	0	8
English	1	1	0	0	2	0	4
Library	0	0	0	0	1	0	1
Total	121	121	90	96	121	5	554

2.9. PATENTS PUBLISHED / FILED DETAILS:

2.9.1. Patents Awarded

S. No.	Patent details	Name of Inventors / Department	File Number
1.	Railed Stretcher Table for Hospitals/12-12 (Design Patent)	Dr. A. Nagappan, Principal	313534-001

2.9.2. Patents Published

S. No.	Patent details	Name of Inventors / Department	File Number
1.	Generation of Power from speed breakers by using a Hydraulic Circuit (Published)	Dr. S. Natarajan, Mechanical	4286/CHE/2015

2.9.3. Patents Filed

S. No.	Patent details	Name of Inventors / Department	File Number
1.	Stretcher Bed/12-12 (Design Patent)	Dr. A. Nagappan, Principal	313534-002
2.	New and Efficient patient de- pendant breast density normalization	Dr. A. Nagappan, Principal	E-101/31558/2018- CHE

**3. RESEARCH CONTRIBUTIONS OF
AARUPADAI VEEDU MEDICAL COLLEGE AND
HOSPITAL**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF MEDICINE

**AARUPADAI VEEDU MEDICAL COLLEGE AND HOSPITAL,
PUDUCHERRY**

3.1. INTRODUCTION

The Aarupadai Veedu Medical College and Hospital, was established at Puducherry in the year 2000, with due approval from the Government of India and Medical Council of India. The first batch of 100 Medical students was admitted successfully for the academic year 2000-2001. The Aarupadai Veedu Medical College was brought under the ambit of the Deemed to be University in 2004.

The hospital which caters to patients for more than 50 villages around the southern part of Puducherry state has 560 teaching beds, well equipped ICUs, NICU, PICU, RICU, Surgical and Obstetric ICU; operation theatre complex with 11 theatres, post-operative wards and emergency OP beds totaling 750 beds.

The Emergency medical services available in the hospital is augmented by a well-equipped Central Laboratory as well as several pathology, 24 hours biochemistry and microbiology services.

The class rooms are designed as smart class rooms and the college has comfortable students' hostels separately for the girls and the boys and a multistoried staff quarters for the teaching staff, nursing staff and non-teaching staff

This institution is tele-linked with other members of VMRF for telemedicine purposes and the campus is wifi enabled

3.2. RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate		No. of Guides	Thrust Areas
		Part Time	Full Time		
1	Anatomy	8	0	1	
2	OBG	1	0	0	Molecular approachon infectious disease
3	Pathology	1	0	0	Molecular diagnostics
4	Microbiology	0	2	2	Tuberculosis, Microbiome
5	Biochemistry	0	4	1	Pharmacogenomics,genetic Biomarker development, Microbiome
6	Surgery	2	0	2	Diabetic Ulcer
7	Pharmacology	5	0	2	Genetic Polymorphism
8	SKIN & STD	0	0	1	
9	Orthopedics	0	0	1	
10	General Medicine	0	0	1	
11	Pediatrics	0	0	1	
12	ENT	0	0	1	
Total		17	6	13	

3.3. FUNDED PROJECTS - PROPOSAL SUBMITTED

S.No	Title of the Project	Funding Agency	Total outlay (in Rs)
1	Construction of 4-apolycopene over-producing microorganism employing synthetic protein scaffolds	INNOVATIVE YOUNG BIOTECHNOLOGISTS AWARD , DBT	3399000
2	Metabolic Engineering in Corynebacterium glutamicum for C35 and C45 carotenoid production and its application to therapeutics	Early Career Research Award-SERB, DST	5287000
3	Study and analyses of telomere biology in long-term Yoga practitioners at Puducherry – A prospective case control study.	(SCIENCE AND TECHNOLOGY OF YOGA AND MEDITATION -DST) - Dr. S. Ravikumar	1800000
4	A Prospective, Comparative Study on the Evaluation of A Novel Polymerase Spiral Reaction Method for Rapid Detection of Extra-Pulmonary Pelvic Tuberculosis on Clinical Samples.	(ICMR-Extramural Research Funding) Dr. Vijaya K and Dr. S. Ravikumar	2584800
5	Detection Of Mycobacterium Tuberculosis Based On Anti-Mycolic Antibody Using Surface- Functionalized Magnetic Nanoparticle.	(ICMR-Extramural Research Funding) - Dr. S.Ravikumar	1757700
6	Clinical And Molecular Characterization Of Panton-Valentine Leukocidin-Positive Staphylococcus Aureus From Skin And Soft Tissue Infections From A Tertiary Care Hospital In Pondicherry.	(ICMR-Extramural Research Funding) - Dr. Latha	2235086
7	Construction of 4-apolycopene over-producing microorganism employing synthetic protein scaffolds	(INNOVATIVE YOUNG BIOTECHNOLOGISTS AWARD , DBT) - Dr. S. Ravikumar	3399000
8	Metabolic Engineering in Corynebacterium glutamicum for C35 and C45 carotenoid production and its application to therapeutics	(Early Career Research Award-SERB, DST). - Dr. S. Ravikumar	5287000

3.4. RESEARCH CENTERS AND LABORATORIES AT AVMC

- Central Research Lab for Biomedical Research
- Center for Clinical Physiology
- Center for Plastination
- Center for Medical Thermography
- Center for Audiology and Speech Research

3.4.1. Central research laboratory for Biomedical research

The center of excellence in Biomedical Research has been established at Aarupadaiveedu Medical College and hospital, Vinayaka Missions Research foundation (VMRF) with a mission to undertake front line research in the field of genomic medicine, Biomarker development, Synthesis of Nano-molecules for drug delivery as a part of initiative in advance Biomedical Research.



Thrust Areas of Research

- Molecular Approach to Infectious Diseases
- Molecular Diagnostics
- Cytogenetics and Molecular Genetics
- Molecular Approach to Metabolic Syndrome
- Molecular Approach to Yoga and Meditation Therapy
- Nanotechnology and Nano Biosensors
- Bioinformatics

The projects in which focused areas of research are being carried out are:

- A Prospective, Comparative Study on the Evaluation of A Novel Polymerase Spiral Reaction Method for Rapid Detection of Extra-Pulmonary Pelvic Tuberculosis on Clinical Samples.
- Detection of Mycobacterium Tuberculosis Based On Anti-Mycolic Antibody Using Surface-Functionalized Magnetic Nanoparticle.
- Study and analyses of telomere biology in long-term Yoga practitioners at Puducherry – A prospective case control study.

- Clinical and Molecular Characterization of Panton-Valentine Leukocidin-Positive Staphylococcus Aureus from Skin and Soft Tissue Infections from A Tertiary Care Hospital in Puducherry.

The following equipment have been installed for the above research initiatives

- Applied Biosystems Quant studio 5 Real-time PCR - Thermofisher Scientific
- Verti PCR from Thermo Fisher Scientific
- Biosafety cabinet from TECH
- Mini Protean Tetra cell from BIORAD
- Mini Sub Cell GT system from BIORAD
- Trans-Bolt SD semi-Dry Electrophoretic Transfer cell from BIORAD
- Gel Doc EZ system from BIORAD
- Fluorescent Microscope from COSLAB
- Laminar flow hood from TECH
- Mini spin centrifuge and Non-refrigerated centrifuge from REMI

3.4.2. Clinical Physiology Research Center

This research center was created as a research center in clinical physiology serving for research, patient care and teaching using best practices.:

On setting up the Electrophysiology laboratory, Physiology, more than 200 Nerve conduction studies had been conducted as a part of research activity and patient care. During the conduct of these projects the art of handling and overcoming several technological challenges was fine tuned.

This expertise in handling the autonomic physiology related software and hardware, resulted in several papers being published in many reputed indexed International and national journals.

Equipment

- NDD EASY ON-PC Spirometer
- Biopac 2 Channel digital polygraph with ECG and respiration transducers & Software for cyclical measurements
- RMS EP/EMG/NCS Mark II machine with computer
- Analogue to Digital Converter:

The focused areas of research are:

- Respiratory physiology: Pulmonary function testing parameters are assessed and correlated with yoga and postural techniques which has wide variety of clinical applications
- Cardiovascular Autonomic Physiology: Cardiovascular autonomic function testing (CAFTs) and heart rate variability parameters are early and sensitive marker to assess all Non communicable diseases.
- Nerve Physiology: Nerve conduction and EMG studies are done and focused on anatomical and clinical correlation. Peripheral neuropathy is a common complication in Diabetes Mellitus. NCS is used for assessment in these areas
- Assessment of autonomic imbalance in alcoholic patients as pre and post withdrawal phases

Post changes after behavioral therapies is assessed by using CAFTs in some psychiatric illness and neuro -degenerative conditions

Ongoing research:

- Chrono biological analysis of Cardio vascular autonomic milieu in relation to menstrual cycle by quotidian recordings.
- Effect of menstrual cycle on Cardiovascular autonomicmilieu ascertained by daily heart rate variability recordings in young healthy females correlated with anthropometry, reaction time and hormonal profile.

- Assessment of pulmonary function and its effects on sleep pattern among adolescent obese and non-obese students in a private medical college, Puducherry- a comparative study

3.4.3. Center for plastination

Plastination has become an important means of preservation of organs, for well dissected specimens or for body plastination has become an important means of preservation of organs, for well dissected specimens or for body slices. The proposed center focus on several critical points regarding body donation with legal and ethical considerations for long-term preservation, the use of cadavers in teaching and the preparation of palatinates as an additional teaching tool.

3.4.4. Center for medical thermography

Center is under development

3.4.5. Center for audiology and speech

Center was established with the aim of working in clinical audiology, speech science and therapy, and electrophysiology, as well as facilities for video graphing for child language development research.

List of Equipment

- Computerized Speech Lab
- Fiberoptic Endoscopic Evaluation of Swallowing (FEES)
- Vestibular Head Impulse Test (VHIT) with ENG
- Neonatal Screener

EQUIPMENT AVAILABLE FOR RESEARCH AT AVMC

S.No	Equipment Details	Model	Value in Rs.
1	Ventilator	Inventa	18582640
2	CT Scan	BRIVO 36	13089134
3	Cath and DSA	Allura FC	12500000
4	Operating microscopes	Opmipico	7767565
5	X ray machines	DX 525,GE500mA	4817870
6	Defibrilators	DF-2509	3770426

S.No	Equipment Details	Model	Value in Rs.
7	Laproscope unit	karl store	2600000
8	Radio frequency unit	Mega surg gold	2500000
9	USGs	Voluson s6	8400000
10	C arms	Surgical 60'6"	2235000
11	Mammography	Alpha ST	1800000
12	BERA DUET	DUET HIS,PC	1700000
13	Bronchoscopes	Adult,2.3mm-Storez	1600000
14	Auto Biochemistry Analyser	Chemwell	1475000
15	Immitance Audiometer	MT 10	1390000
16	Harmonic Scalpel	GEN11	1225000
17	Auto Biochemistry Analyser	BS-380	1200000
18	MRI	Hitachi,Airis-I	1112000
19	Xion- EGG machine	PC Based	1100000
20	Horizontal FLASH	P79	1060000
21	BERA	Neuro audio	1000000
22	Phaco Unit	GlaxyPro	730000
23	Auto immuno Analyser	Minividas	650000
24	ABG Analysers	Epoc host	620000
25	BMD	Furuno cm 200	600000
26	Pressure injector	Illumina	551000
27	CT film Printer	Konica 873	500000
28	Diagnostic-Audio Meter	GSI 68	500000
29	Pressure injector	Illumina	551000
30	Audio Meter-PC based	Astera 2,PC	456750
31	Nasal endoscope	Scope- 0,Adult2.3mm	290000
32	TMT	Dynatrae 900xl	278250
33	Holter monitor	HDM1-USB	230000
34	Nasal endoscope	Scope- 0,Adult2.3mm	290000
35	Holter monitor	HDM1-USB	230000
36	Horizontal autoclave	Rectangularp432	180000
37	Coloposcope	SLC 2000A	170000
38	Slit lamp	A1A-11	125000

3.5. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Com. Medicine	3	3	5	8	8	27
Gen. Surgery	5	3	12	2	4	26
Pharmacology	2	3	3	6	11	25
Gen. Medicine	2	4	8	7	4	25
Biochemistry	4	2	3	4	5	18
O & G	4	1	4	3	5	17
SKIN & STD	5	0	2	5	0	12
For. Medicine	2	2	4	1	2	11
Physiology	3	0	0	3	4	10
Microbiology	3	3	1	1	0	8
Anatomy	1	2	1	0	3	7
ENT	0	0	3	2	2	7
Orthopedics	1	1	4	1	0	7
Pediatrics	0	1	2	2	1	6
Radiology	1	2	1	0	1	5
Psychiatry	3	0	0	1	0	4
Ophthalmic	0	0	0	0	4	4
Pathology	0	1	1	1	0	3
Dental	1	0	0	2	0	3
Chest & TB	0	0	0	0	1	1
Yoga	0	0	0	0	1	1
Total						227

**4. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S KIRUPANANDA VARIYAR
MEDICAL COLLEGE, SALEM**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF MEDICINE

VINAYAKA MISSION'S KIRUPANANDA VARIYAR MEDICAL COLLEGE, SALEM

4.1. INTRODUCTION

Vinayaka Mission's Kirupananda Variyar Medical College, Salem was started in 1995 and became a constituent college of Vinayaka Mission's Research Foundation in 2004. The institution is located in the rural area of Salem, in a vast area of 51 acres. The institution is running UG and PG programmes with 23 well established departments recognized by Medical Council of India.

The institution's vision of providing service with excellent health care to the local community is through its 560 beds with best of world class facilities made available at an affordable cost to all innovative and sophisticated state-of-the-art equipment and teaching facilities.

The institution encourages faculty to perform research activities both National and International level providing incentives and funds as per research guidelines of Vinayaka Missions Research Foundation. The institutions has two medical journals NJBMS and Rural Medicine. There are four conferences (national & international) conducted in last five years. Our faculties have published more than 400 publications in national and international journals with high impact factor. The faculty development programme conducted by Medical Education Unit as per the Medical Council of India norms, to train the young medical faculty periodically

4.2. RESEARCH FACILITIES

Thrust Areas of Research – Clinical and Community setup

- Diabetes mellitus
- Hypertension
- Coronary artery disease
- Chronic Kidney Disease

- Cataract
- Reproductive Tract Infections
- Nutritional disorders
- Antimicrobial resistance
- Epidemic outbreaks
- Hospital acquired infections

4.3. RESEARCH SCHOLARS PURSUING Ph.D.

S. No	Department	No. of Candidate	No. of Guides	Thrust Areas
1	Anatomy	15	4	Down's Syndrome Anthropometric measurements Gestational Age measurements Dominance Pattern of Coronary Arteries
2	Community Medicine	3	1	Occupational Health Hazards Type 2 Diabetes Maternal and Child Health Non-communicable diseases
3	Physiology	8	2	Asthma, Anisocytosis, Prediabetes Medicinal Plants, Animals study on Hepatic Cancer, Cardiovascular Autonomic Millieu
4	Biochemistry	7	3	Inflammatory Biomarkers gene Polymorphism in Fibroid Thyroid Disorders
5	Pharmacology	10	2	Experimental Pharmacological and toxicological studies on Medicinal Plants
6	Microbiology	4	1	Enzymes and Drug resistance Secondary infections
7	Nursing	3	0	Community Nursing
8	ENT	0	1	General ENT
9	Pathology	0	2	Pathology
Total		50	16	-

4.4. FUNDED PROJECTS

4.4.1. Funded Projects – Ongoing

S.No.	Title	Name of the Funding Agency	Duration (Period)	Amount in Rs.	Ref. No.
1.	Prevalence of fungal infections among pulmonary tuberculosis patients in Salem district	RNTCP	2014	93000	STO Tamilnadu email dt. 02/11/14 12:15 PM
2.	Assessment of Compliance to Directly Observed Treatment Short Course(DOTS) among the TB patients of selected TB unit in Salem District	RNTCP	2014	1,00,000	STO Tamilnadu email dt. Feb 7, 2014 at 3:04 PM
3.	Long term outcome beyond the programme: is recurrence high in patients successfully treated by RNTCP DOTS?	RNTCP	2014	2,00,000	STO Tamilnadu email dt. Feb 7, 2014 at 3:04 PM

4.4.2. Central Research Lab - Ongoing Research

S.No	Department	Topic	Author
1.	Anatomy	A study on the factors affecting development of coronary collaterals in hypertensive and non-hypertensive patients during obstructive coronary artery disease	Dr.B. Senthil Kumar
2.	Anatomy	Genetical basis of male infertility	Dr.B. Senthil Kumar
3.	Anatomy	Micronucleus assay as an indicator of DNA damage due to formaldehyde exposure in anatomy dissection labs	Dr.B. Senthil Kumar
4.	Physiology	Analysis of antioxidant and anti tumour properties of some selected medicinal plants	Mrs.Pratima.V. Bhutkar
5.	Physiology	Study of correlation between haemoglobin level and cognitive function in females of reproductive age group	Dr.Suganthi
6.	Bio chemistry	Oxidative status and Blood lipids in vegetarians and non-vegetarians.	Dr.Ponnudhali
7.	Bio chemistry	Evaluation of serum uric acid and metabolic risk factors in Type 2 Diabetes Mellitus.	Dr.Vijaya Samundeeswari
8.	Bio chemistry	Association between vegetarian diet and carotid Intima- media thickness in Type 2 Diabetes Mellitus patients.	Dr.R.Sudha

S.No	Department	Topic	Author
9.	Pathology	Comparison of three manual platelet count estimation methodologies for peripheral blood smear and their correlation with automated platelet count	Dr.B.Saranya
10.	Micro biology	Role of molecular methods in diagnosis of bacterial vaginosis.	Dr.S.Mathavi
11.	Micro biology	Comparative evaluation of microbiological techniques ,cytology and PCR in diagnosis of tuberculous lymphadinitis	Dr.S.Mathavi
12.	Micro biology	Aerobic bacteriological profile of surgical site infection and their antimicrobial pattern at a tertiary care hospital	Dr.A.V.Raghavendra Rao
13.	Micro biology	A study on bacteriological profile on wound infection with special references to diabetic foot ulcers and their antibiotic resistance pattern	Dr.A.V.Raghavendra Rao
14.	Pharma cology	Ethno pharmacological review of termanalia chebula	Dr.E.Manivannan
15.	Pharma cology	Hepato protective activity of portulaca pilosa Linn against CCl4 induced hepatotoxicity in rats	Dr.E.Manivannan
16.	Pharma cology	Antibiotic sensitivity pattern of E.Coli isolated from clinical samples in a tertiary care center Salem, Tamilnadu	Dr.E.Manivannan

4.4.3. Funded Projects - Proposal Submitted

S.No	Title	Name of the Funding Agency	Duration (Period)	Amount in Rs.
1.	Fertility effect of Cycas Circinalis in male	DST	2 years	5,00,000
2.	Analysis of antioxidant and antitumor properties of Sphaeranthusindicus and Blepharismaderaspatensis	DST	4 years	60,00,000
3.	A study on prevalence, epidemiological determinants, morbidity and preventive measures of type 2 diabetes in selected south Indian Population	DST	2years	10,00,000
4.	Antidiabetic activity of ethanol extract of Nymphaea alba flower	DST	2 years	2,50,000

MAJOR EQUIPMENT AVAILABLE FOR RESEARCH

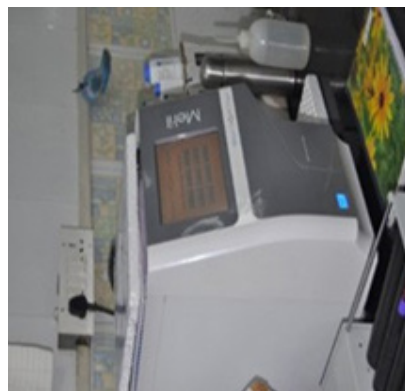
Sl.No	Name of the Equipment	Cost in INR
1	Semi auto Biochemistry analyzer-Photometer 5010 v5+	247800
2	pH meter – Hanna	8201
3	Spectrophotometer-371-Deepvision UV,VIS	194700
4	Colorimeter- Deep vision	15045
5	Vortex mixer- Remi	8850
6	Online UPS 1KV	21700
7	Micropipettes – Biohit Variable – 100-1000 µl, 20-200 µl, 10-100 µl, 0.5-10 µl Fixed - 1000 µl, 500 µl, 200 µl, 100 µl, 50 µl, 10 µl, 5 µl.	58764
8	RO Water plant – AQUA GRAND	9900
9	Laminar flow	73160
8	RO Water plant – AQUA GRAND	9900
9	Laminar flow	73160
10	Autoclave	33040
11	Flourescent Microscope	270367
12	Binocular Microscope (Olympus)	44521
13	Metabolic cage – 4 Small Animal Dissection Table - 2 size 61x32 cm Tissue Homogeniser 1/20 HP motor speed controlled. Capacity 50ml	85314
14	Heart Rate Variability apparatus	7500
15	Computerized AV reaction time	4000
16	Critical flicker fusion frequency measuring device	3500
17	Skin temperature Thresh hold measuring device	10800
18	Vibro Tactile Thresh hold measuring device	5000
19	Digital finger pulse plethsmography	3000
20	Digital peak flow meter	7080
21	Computerized spirometer	33600
22	Multichannel Physiograph	118000
23	Nerve conduction apparatus with EMG	177000
24	Hot air oven	56640

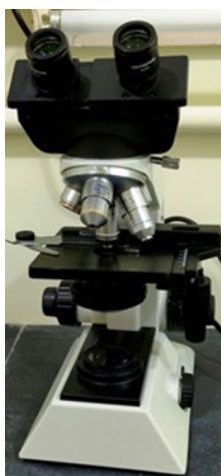
4.5. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Anatomy	15	7	15	14	7	58
Physiology	9	13	14	2	2	40
Biochemistry	6	7	14	6	3	36
Community Medicine	9	3	17	3	4	36
Pathology	9	6	5	3	0	23
Pharmacology	4	3	9	5	0	21
Com. Medicine Pharmacology	0	11	0	3	3	17
Skin & STD	4	0	6	5	0	15
Surgery	2	0	5	6	2	15
ENT	6	8	1	0	0	15
Anesthesia	2	3	6	2	1	14
Microbiology	5	2	3	3	0	13
OBG	0	1	5	4	3	13
Radiodiagnostics	1	9	2	0	0	12
Ophthalmology	3	2	2	3	2	12
Transfusion Medicine	0	3	6	0	0	9
Paediatrics	2	1	2	1	0	6
Forensic Medicine	4	0	0	0	0	4
Psychiatry	0	0	1	0	0	1
Library	0	0	0	0	0	0
Total	81	79	113	60	27	360

Research Lab Facilities

The Central Research Laboratory is a premier R&D Lab of Vinayaka Mission's Kirupananda Variyar Medical College and Hospital, Salem which was established in 2010 to address the futuristic research in medicine





Binocular Microscope
(Olympus)



Fluorescent Microscope



Spectrophotometer-371-Deepvision UV,VIS

**5. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S MEDICAL COLLEGE AND
HOSPITAL - KARAIKAL**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOR,
SALEM, TAMIL NADU 636308**

**VINAYAKA MISSION'S RESEARCH FOUNDATION
FACULTY OF MEDICINE**

**VINAYAKA MISSION'S MEDICAL COLLEGE AND HOSPITAL
KARAIKAL**

5.1. INTRODUCTION

Vinayaka Mission's Medical College and Hospitals - Karaikal was approved by the Government of India and the Government of Puducherry, with the approval from the Medical Council of India and from the Ministry of Health, Government of India. VMMC is a constituent College of Vinayaka Mission's Research Foundation, brought under the ambit of the VMRF Deemed to be university in 2004. It is Listed in WHO list of World Medical Schools. It is offering Post- Graduate programs from 2006 - 2007 session, approved by the University Grants Commission (UGC).

Vinayaka Mission's Medical College in Karaikal is set along the beautiful coastal line of Puducherry coast and serves more than 100 villages through the medical college. This was the first private medical college started in Puducherry in this area and was brought under the ambit of the VMRF Deemed to be university in 2004.

The college educates 500 undergraduate and 125 postgraduate medical students.

5.2. RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate	No. of Guides	Thrust Areas
1	Anatomy	2	0	Anthropometric Analysis Cytogenetics Molecular Genetics Stereology Cancer Genetics Neuroanatomy Immunogenetics Cardiovascular
2	Microbiology	7	1	Respiratory Viral Infections Ocular Infection In Fishermen Pyroxia Of Unknown Origin Helicobacter Pylori Infection Candidia Infections Dermatophytic Infections Enterococcal Infections

S.No	Department	No. of Candidate	No. of Guides	Thrust Areas
3	Biochemistry	1	1	Uterine Fibroid Inborn Errors Of Metabolism Thyroid Analysis Tumor Markers
4	Physiology	1	1	Obesity Insulin Resistance Metabolic Syndrome Exercise Physiology
5	Ophthalmology	1	0	Diabetic Retinopathy Amblyopia
6	Nursing	13	0	
7	Anesthesia	0	1	
8	General Surgery	0	1	
9	General Medicine	0	1	
10	Pediatrics	0	1	
11	Pharmacology	0	1	
Total		25	8	

5.3. FUNDED PROJECTS - PROPOSAL SUBMITTED

S.No	Title	Name of the Funding Agency	Duration (Period)	Amount in Rs.
1	Construction of 4-apolycopene overproducing microorganism employing synthetic protein scaffolds	Innovative Young Biotechnologists Award , DBT	3 YEARS	33,99,000
2	Metabolic Engineering in <i>Corynebacterium glutamicum</i> for C35 and C45 carotenoid production and its application to therapeutics	Early Career Research Award-SERB, DST	3 YEARS	52,87,000

5.4. RESEARCH CENTRE AT VMCC

5.4.1. Central research laboratory for biomedical research

The main objective of this research centre is to promote the medical research to the molecular level and to upgrade the standard of research

Area of Research

- Molecular biology
- Immunology
- Biochemistry.

Molecular biology:



The Central Research Laboratory has Real Time Polymerase Chain Reaction (RT-PCR) also called as qPCR, which is an essential equipment for the molecular biology work, with which various molecular work with rapid, reliable, highly sensitive and specificity, can be performed such as,

- Quantification of Genetic Materials
 - Quantification of gene expression
 - Rapid detection of various infectious diseases
- Detection of cancers
 - Detection of genetically modified organisms
 - Genotyping of various microorganisms



Nucleic acid amplification can be done by a Real time PCR. With this equipment, the following work can be performed

- Amplification of Genetic material
- Detection of Genetic Mutations
- Genetic Recombination
- Genotyping
- Gradient PCR for primer optimization
- DNA based phylogeny



Biosafety cabinet is of class III type and is an essential equipment present in the Central Research Laboratory. Mainly it plays a main role during the molecular biology works.

- Provides the aseptic atmosphere for molecular work
 - Helps to avoid contaminations during processing
 - Filter and destroys the pathogens evolved as aerosols during the processing
- Mainly it give protection to the researcher form pathogens.

Immunology:



An important section in the central research laboratory is Immunology. The ELISA Reader and washer are major equipment used for various immunology methods. The followings are the works can be performed in this section,

- Qualitative and quantitative analysis of Immunoglobulins
 - Quantification of various proteins
 - Sero diagnosis of various infectious diseases
-
- Detection of various auto immune disorders
 - Detection of potential food allergens

Biochemistry:



Our research centre is having the Maglumi Hormone Analyser, with which we can perform the qualitative and antitative analysis of hormones from the blood.

- Thyroid Hormone profile
- Follicle Stimulating Hormone
- Prolactin Hormone, etc



Vec 200 is a fully automated analyzer in our research centre. It works under the principle of photometry method. With this equipment we can determine multiple biochemical parameters in about 40 samples at one loading. Various parameters are as follows

- Blood Sugar Level
- Lipid Profile
- Liver Function Test

- Renal Function test
- Serum Electrolytes
- Enzymes

MAJOR EQUIPMENT AVAILABLE FOR RESEARCH

S. No	Equipment Details	Model	Value in Rs.
1	CT	CTS BRIO	15300000
2	LAPROSCOPES	VISERA ELTE	11077000
3	ECHO DOPPLERS	HD XE-7	10600000
4	C-ARMS		9800000
5	VENTILLATORS	ORION 1000	8000000
6	ULTRASOUND MA- CHINES	VOLUSON S6	7450000
7	BLOOD BANK RE- FRIDGERATORS	HAEMOGUARD	6590740
8	MRI	.3 TESLA	5500000
9	RT PCR SYSTEM, TRAN- SILLUMI- NATOR , THER- MOCYCLER ETC	QUANSTUDIO5	4500000
10	FIBEROPTIC BRONCHO- SCOPES - 8NO	ABF 6,BF TYPE PE2	4350000
11	RIGID PAEDIATREIC BRONCHO- SCOPE SET	BHJ	175000
12	DSAS	HF 59R	2350000
13	ARTHOSCOPE	AARTHOSCOPE	2040000
14	HYSTERASCOPE HD 3CCD	CH-S190-XZ-E	1800000
15	FUNDUS CAMERA	CF1	1600000
16	ENDOSCOPE	UPPER GI ENDOSCOPE	1475000
17	MULTIPARA MONITORS WITH ETCO2	ULTIMA PRIME	1461904
18	ELECTROPHOROSIS	NA	1407460
19	COMPUTERRADIOGRAPHY	CLASSIC CR	1300000
20	PHOCOMUSIFER	LAUREATE	1214285
21	OPERATINGMICROSCOPE	TROWGLOW	1167390
22	DARKFIELD MICROSCOPE	DRF M	60000
23	MAMMOGRAPHY	MAMO VENUS	1150000
24	FULLY AUTOMATED ANALYZER	VEC 200 PLUS	1061000
25	SEMI AUTO ANALYZERS	STATFAX 3000 PLUS	320000
26	X-RAY MACHINES	INTELIX	990000
27	HAEMATOLOGY ANA- LYZER (5 PART)	PENTRA ES60	971250
28	CYSTOSCOPE	GTH	930000

S. No	Equipment Details	Model	Value in Rs.
29	ELISA READER	RFCL ER2007	871460
30	ND YAG LASER	307	847316
31	ENDOSCOPE	EYECARE	840000
32	BIOLOGICAL SAFETY CABINETS	CLASS III	818600
33	FRACTIONAL CO2 LASER	FUTURA TT	775000
34	ABG ANALYZER S	ABL FLEX 80	720000
35	B SCAN	NA	675000
36	HARMONIC ANALYZER	MAGLUMI 600 CLIAANA- LYZER	600000
37	FESS INSTRUMENTS	KIK	540000
38	A SCAN	NA	500000
39	CENTRIFUGE REFRIG- ERATED	ROTANTA 460R	500000
40	COOLING CENTRIFUGE	C24BL	225000
41	CENTRIFUGES ELECTRICAL HIGH POWER-2 NOS	8 BUCKETS	80000
42	CARDIART PACING	RELIFE 700	430000
43	LASER IMAGER	DRYPIX6000	375000
44	HAEMATOLOGY ANALYZER (3 PART)	MICROS ES60	330000
45	CRYOSTAT MICROTOME	MCM1030	300000
46	PROTEIN ANALYZER	MISPA I2	300000
47	ETCO2 MONITORS	SCURE	258000
48	CTG MACHINE	BD 400XS	250000
49	SLIT LAMPS WITH MOTORISED TA- BLE&IMAGER	T3 MODEL HAWK	248000
50	AUTOMATIC TISSUE PROCESSOR	ATP INC	225000
51	ELECTROLYTE ANA- LYZER	RAPIDCHEM 700	225000
52	COGULATION ANALYZ- ER	CA51	142382
53	BINOCULAR MICRO- SCOPES	VISION 2000	130000
54	DIGITAL CALORIMETER	2006	120000
55	DIGITAL SPECTROMETER		72000
56	ROTARY MICROTOME	MANUAL	67260
57	CONTIONOUS PASSIVE MA- CHINE	TECH CPM	45000
58	PH DETERMINATION APPARATUS	NA	45000
59	DIGITAL PHOTOMETER		40000
60	URINE ANALYZER	URITE 500	40000
61	INDIRECT OPHTHALMASCOPE	AAIO	35000
62	CRYO	AA3	20000

5.5. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Pharmacology	8	2	13	10	2	35
Com. Medicine	7	13	5	6	2	33
Gen. Medicine	1	5	4	6	17	33
Microbiology	8	1	7	6	5	27
Biochemistry	3	5	9	1	3	21
Physiology	2	6	6	2	1	17
Gen. Surgery	0	0	3	9	4	16
Anatomy	0	1	11	0	2	14
Anaesthesia	3	2	2	5	2	14
Dental	1	1	5	2	5	14
Paediatrics	0	2	6	3	1	12
Orthopedics	0	3	6	0	0	9
O & G	1	5	0	0	3	9
ENT	5	3	1	0	0	9
Pathology	0	0	0	4	2	6
Ophthalmology	0	0	0	3	0	3
Forensic Medicine	0	1	0	1	0	2
Chest and TB	0	0	0	0	2	2
Radiology	0	0	0	2	0	2
Skin &STD	0	0	0	1	0	1
Total	39	50	78	61	51	279

**6. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S SANKARACHARIYAR
DENTAL COLLEGE, SALEM**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF DENTISTRY

**VINAYAKA MISSION'S SANKARACHARIYAR DENTAL COLLEGE,
SALEM**

6.1. INTRODUCTION

The Vinayaka Mission's Sankarachariyar Dental College, Salem was instituted in the year 1986 as an affiliated institution under the University of Madras and later on affiliated to the Tamilnadu Dr. MGR Medical University, Chennai with three courses viz., Bachelor of Dental Surgery (BDS), Diploma in Dental Mechanic and Diploma in Dental Hygienist and Master of Dental Surgery (MDS). The Vinayaka Mission's Sankarachariyar Dental College was brought under the ambit of Vinayaka Mission's Research Foundation [Deemed To Be University] in 2006.

The services offered to the community ranges from – Management of pain, restoration of the dentition for function and esthetics, management of the dental problems of pediatric and geriatric patients, investigations, diagnosis and management of orofacial diseases which require surgeries. All these services have been given free of cost or at a very subsidized rate. Hence, we have been an institution of great use to the community.

6.2. THRUST AREAS / CENTRES OF EXCELLENCE

- Oral Cancer
- Fluorosis
- Forensic Odontology
- Dental Caries
- Dental And Maxillofacial Implants

6.2.1. STRENGTHS OF THE INSTITUTION

- Patients are the population that is essential for Research and we have more than enough for Research.
- Faculty needed to guide research work in this field is available.
- There are Undergraduate , Postgraduate and PhD Research scholars at present working on Research projects at the institution.
- In terms of infrastructure, there are department labs with basic facilities which conform to the DCI regulations and can support short studies by undergraduate students and select studies of Postgraduate students.

6.3. RESEARCH SCHOLARS PURSUING Ph.D.

S. No	Department	No. of Candidate	No. of Guides	Thrust Areas
1	Prosthodontics	8	1	Oral Mucosal Lesions Sub Mucosal Vital Root Tention Maxillo-Facial Prosthesis Immunohistochemistry Malocclusion Impacted teeth
2	Oral Medicine & Radiology	4	1	Stereomicroscopy Plasma C - Reactive Protein studies Responsiveness of Dental Pulp Dentition Space Analysis study
3	Periodontics	6	2	Angiogenesis Markers Oral Squamous Cell Carcinoma Study on Completely Edentulous patients
4	Periodontia	1	1	Periodontics
Total		19	5	

6.4. FUNDED PROJECTS – ONGOING

Sl.No	Title of the Project	Month & Year	Total out-lay (INR)
1	Comparative study of salivary proliferative markers in patients with oral squamous cell carcinoma and potentially malignant disorders of the oral cavity.	2015-16	Rs.215000/
2	Study of genetic polymorphisms of co12a1 gene microscopic features and serum calcitonin and osteocalcin levels in dental and skeletal fluorosis.	2015-16	Rs.132000/
3	Impact of maxillofacial prosthesis on oral health related quality of life.	2015-16	Rs.92500/
4	Responsiveness of dental plup and salivary glucose levels in type II diabetes.	2015-16	Rs.12600/
5	Stereomicroscopy in gross examination and histological diagnosis.	2015-16	Rs.22300/
6	Expression of vsrioustumour microenvironment markers in primary oral squamous cell carcinoma of regional lymphatic metastatic and non metastatic tumours.	2015-16	Rs.2500/
7	Expression of angiogenesis markers in oral dysplastic epithelium, verrucous carcinoma and oral squamous cell carcinoma – A comparative study.	2015-16	Rs.2500/
8	The effects of dietary habits on the presence of immobile over retained primary teeth.	2015-16	Rs.2500/
9	Survivin as a prognostic marker in tumour progression and recurrence in OSCC.	2015-16	Rs.2500/
10	Immunohisto chemical expression of surviving in Ameloblastic variants and its recurrence.	2015-16	Rs.2500/
11	Expression of barr bodies in pulp at varying temperature.	2015-16	Rs.2500/
12	Evaluation of the role of tissue eosinophils in OSCC by using a special stain.	2015-16	Rs.2500/
13	The occupational hazards and diseases among dentists in salem city – a cross sectional study.	2015-16	Rs.2500/
14	Correlation between basal metabolic index and dental caries – study of Out patients of our dental college.	2015-16	Rs.2500/
15	Oral mucosal cells in tobacco users – A cytomorhometric analysis.	2015-16	Rs.2400/
16	Toluidine blue staining tool for biopsy site selection in oral premalignant and malignant lesions.	2015-16	Rs.2500/
17	A study of salivary and serum lactate dehydrogenase levels in tobacco users and potentially malignant disorders.	2015-16	Rs.2400/
18	To compare the salivary bifidbacterium level in ECC and S-ECC children.	2015-16	Rs.2500/

Sl.No	Title of the Project	Month & Year	Total out-lay (INR)
19	A comparative evaluation of salivary IgA levels in normal healthy children and children with Autism.	2015-16	Rs.2500/
20	Correlation of ICDAS-LAA and mutans strip test for caries risk assessment.	2015-16	Rs.1000/
21	Comparative study of effects of diferent routes of administration of corticosteroids on post-operative pain and swelling	2015-16	Rs.1500/
22	Effect of use of tablet septelin as an immunomodulatory.	2015-16	Rs.2500/
23	Knowledge, Attitude and practice of Antibiotics among VMU students.	2015-16	Rs.2500/
24	Comparative study of salivary proliferative markers in patients with oral squamous cell carcinoma and potentially malignant disorders of the oral cavity.	2016-17	Rs.1,40,000/
25	Study of genetic polymorphisms of co12a1 gene microscopic features and serum calcitonin and osteocalcin levels in dental and skeletal fluorosis.	2016-17	Rs. 1,46,000/
26	Impact of maxillofacial prosthesis on oral health related quality of life.	2016-17	Rs. 1,00,000/
27	Responsiveness of dental plup and salivary glucose levels in type II diabetes.	2016-17	Rs. 30,240/
28	Stereomicroscopy in gross examination and histological diagnosis.	2016-17	Rs. 35,600/
29	Expression of vsrioustumour microenvironment markers in primary oral squamous cell carcinoma of regional lymphatic metastatic and non metastatic tumours.	2016-17	Rs. 1,50,000/
30	Expression of angiogenesis markers in oral dysplastic epithelium, verrucous carcinoma and oral squamous cell carcinoma – A comparative study.	2016-17	Rs. 1,50,000/
31	Comparison of two types of Hematoxylin stain in decalcified normal mandibular bone sections using different decalcifying agents.	2016-17	Rs.2500/
32	EGFR as a prognostic marker in Oral Squamous Cell Carcinoma.	2016-17	Rs.2500/
33	Comparison of Chelioscopy, Odontometric and Facial Index: A important tool for sex determination in forensic dentistry.	2016-17	Rs.2500/
34	Effect of chair side sterilization on cyclic fatigue resistance of two different Nickel Titanium rotary retreatment files - An In vitro comparative study.	2016-17	Rs.2500/
35	An In vitro comparative evaluation of compressive strength of three different perforation repair materials.	2016-17	Rs.2500/
36	Efficacy of a new retreatment system in root canals obturated with Gutta-Percha using two different Eugenol free sealers – An In vitro comparative study.	2016-17	Rs.2500/

Sl.No	Title of the Project	Month & Year	Total out-lay (INR)
37	Early orthodontics assessment and treatment in primary dentition using Baby - ROMA	2016-17	Rs.2500/
38	Incidence of maxillofacial trauma cases coming directly to the dental college.	2016-17	Rs.2500/
39	Prevalence of 2nd molar decay among different types of impactions.	2016-17	Rs.2500/
40	Tooth carving as a modality to learn tooth morphology – outcome to improve manual dexterity prior to clinical practice among dental students.	2016-17	Rs.2500/
41	A study of genetic changes and micronucleus assay in buccal smear and peripheral blood among tobacco chewers and oral cancer patients.	2016-17	Rs.2500/
42	A study of maxillary and mandibular arch forms in edentulous patients in salem district.	2016-17	Rs.2500/
43	Antimicrobial efficacy of cassia fistula bark extract and candida albicans – An in vitro study.	2016-17	Rs.2500/
44	An in-vitro comparative study on the effect of red wine on color stability of three different esthetic restorative materials.	2016-17	Rs.2500/
45	An in-vitro study on endogeneous Ph and titratable acidity of apple cidar vinegar garlic combination mouth wash.	2016-17	Rs.2500/
46	Comparision of single dose pre operative vs post operative antibiotics in the surgical removal of impacted 3rd molars.	2016-17	Rs.2500/
47	Assessment of masticatory function using bite force among fractures of mandible.	2016-17	Rs.2500/
48	An evaluation of functional eccentric occlusion in natural dentition of young adults.	2016-17	Rs.2500/
49	Determination of inclination of maxillary occlusal plane in completely edentulous patients with reference to F-H plane in Dravidian population.	2016-17	Rs.2500/
50	Reusability of healing abutment – how safe are our patient?	2016-17	Rs.2500/
51	Use of plain betadine scrub vs pre eptive antibiotics in infection control following extraction.	2016-17	Rs.2500/
52	Assessment of awareness of the speciality of maxillofacial surgery among medical practitioners.	2016-17	Rs.2500/
53	Assessment of efficiency of women oral surgerons and maxillofacial surgeons among dental professionals.	2016-17	Rs.2500/

6.5. RESEARCH FACILITY AT VMSDC

MAJOR EQUIPMENT AVAILABLE FOR RESEARCH

S.no	Name of the Instrument	Cost in Rs
1	Digital OPG	22 Lakhs
2	Wipro GE Health care	6.5 Lakhs
3	Villa	7.5 Lakhs
4	Induction casting machine with vacuum pump, capable of casting titanium chrome cobalt precision metal	585000
5	Microscope	5.25 lakhs
6	OPG Printer	4.25 Lakhs
7	Operating Micro loupe	22,000/
8	Piezo Surgical unit	2.2 Lac
9	Spindle grinder 24,000 ROM with vacuum suction	135000
10	Fully programmable porcelain furnace with vacuum pump	295000
11	Trinocular microscope – KYOUUA GETNER , Model no.65512 with samsung digital color camera SDC – 242	1,40,000
12	Sedation unit	3,51,000
13	Piezo Surgery Kit (Piezomed)/W&H	2,35,000

CENTRAL RESEARCH LABORATORY FACILITIES



6.6. RESEARCH PAPER PUBLICATIONS

Departments	2014	2015	2016	2017	2018	Total
Oral Medicine & Radiology	5	5	40	34	22	106
Periodontics	12	37	17	23	11	100
Oral Pathology	19	19	12	16	31	97
Pedodontics	15	25	14	12	2	68
Prosthodontics and Crown and Bridge	11	6	9	11	8	45
Oral Maxillofacial Surgery	14	6	7	6	2	35
Conservative Dentistry and Endodontics	2	1	5	13	3	24
Orthodontics and Dentofacial Orthopaedics	1	9	6	2	0	18
Public Health Dentistry	4	1	6	0	0	11
Total	83	109	116	117	79	504

**7. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S HOMEOPATHY MEDICAL
COLLEGE - SALEM**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF HOMEOPATHY

VINAYAKA MISSION'S HOMEOPATHY MEDICAL COLLEGE, SALEM

7.1. INTRODUCTION

Vinayaka Mission's Homoeopathic Medical College and Hospital, a Pioneer institution in the field of Quality based Homoeopathic Medical education was the vision of the Philanthropist, Dr. A. Shanmugasundaram, the seeds of which were sown in the months of June 1988 at the foothills of Yercaud, Salem. The college took its initiative in the Undergraduate education and wholistic patient care under the Tamilnadu Dr.MGR Medical University, Chennai. It was brought under the ambit of Vinayaka Mission's Research Foundation (Deemed to be University), Salem (declared under Sec.3 of the UGC Act,1956) in the year 2001. It was the first college in South India to provide Post graduate programme in all the 7 specialities of Homoeopathy and to provide undergraduate programme with the approval of 100 students per academic year in the year 2002.

7.2. RESEARCH FACILITIES

Vinayaka Mission's Homoeopathic Medical College and Hospital is having an established Clinical Laboratory. This laboratory is specially meant for Postgraduates and Research Scholars. It offers estimation of all the Basic blood examinations, Blood Lipid profile, Serum Urea levels, Serum Uric acid levels, Rheumatoid Factor, Blood grouping, etc., using computerized Semi-auto analyzer. Also this college offers all these facilities at free of cost to the patients.



The Clinical laboratory is equipped with modern Ultra sonogram, X-ray and Electro cardiogram facilities which are also offered at free of cost. The collegiate hospital offers free consultation and treatment both in In-patient Wards and Out-patient Departments. By providing all the above said facilities the college is promoting the Clinical Research. Thus the college is promoting the Faculty members, Research scholars, Postgraduate and Undergraduate students in carrying out both Basic Research and Clinical Research.

7.3. RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate		No. of Guides	Thrust Areas
		Part Time	Full Time		
1	HOMEOPATHY	-	12	2	Type-2 Diabetes Mellites Hepatic damage Geriatric Depression Hyperlipidemia Uterine Fibroids Academic skill poor school achievers with difficulty in learning Glaucoma studies in rabbits Review of Homoeopathic Clinical trials

7.4. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Practice of Medicine	24	18	16	13	16	87
Repertory	2	2	1	3	7	15
Organon of Medicine	1	2	4	3	2	12
Homeopathy Pharmacy	0	0	0	0	2	2
Pediatrics	0	0	0	0	1	1
Surgery	0	0	0	0	1	1
Total	27	22	21	19	29	118

**8. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S ANNAPOORANA COLLEGE
OF NURSING
SALEM**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF NURSING

VINAYAKA MISSION'S ANNAPOORANA COLLEGE OF NURSING SALEM

8.1. INTRODUCTION

As an outcome of the missionary spirit, dedication and vision that “Service to humanity is service to God”, the Thirumuruga Kirupananda Variyar Thavathiru Sundara Swamigal (TKVTSS) Medical Educational and Charitable Trust, Salem, started Vinayaka Mission's Annapoorana College of Nursing in the year 1991. The college which was the first of its kind in Salem started with an intake of 50 Basic B.Sc (N) students. It was affiliated to the Tamil Nadu Dr. M.G.R Medical University, Chennai and recognized by the Tamil Nadu Nursing Council and Indian Nursing Council. With effect from 2001, it was brought under the ambit of Vinayaka Mission's Research Foundation (Deemed to be University).

The institution is located in the rural area of Salem, South India in a vast area of 51 acres. The institution is running UG and PG programmes. The medium of instruction is English, with 23 well established departments recognized by Medical Council of India.

8.2 PROGRAMMES OFFERED

UG :

- B.Sc.(Nursing)

PG :

- M.Sc. (Medical Surgical Nursing)
- M.Sc. (Obstetrics and Gynaecology Nursing)
- M.Sc. (Child Health Nursing)
- M.Sc. (Community Health Nursing)
- M.Sc. (Psychiatric Nursing)

8.3. RESEARCH THRUST AREAS

- Community Health Nursing
- Paediatric Nursing
- Psychiatric Nursing
- Medical Surgical Nursing
- Obstetrics & Gynecology Nursing

8.4. RESEARCH SCHOLARS PURSUING Ph.D.

College	No. of Candidate	No. of Guides	Thrust Areas
Vinayaka Mission Annapoorna College Of Nursing, Salem	36	5	Foot care intervention package on knowl- edge and practice among clients with type II Diabetes Mellitus, Trataka exercises and Nutritional supplementation on re- fractive errors among children, Nursing strategies Nursing Interventional package Integrated yoga asanas Stress Management

8.5. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Obstetrics and gynecological Nursing	2	11	2	7	8	30
Community Health Nursing	2	11	3	4	9	29
Medical Surgical Nursing	0	7	1	6	6	20
Psychiatric Nursing	4	4	1	6	3	18
Paediatric Nursing	0	7	0	3	3	13
Total	8	40	7	26	29	110

**9. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S COLLEGE OF NURSING
PUDUCHERRY**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF NURSING

VINAYAKA MISSION'S COLLEGE OF NURSING, PUDUCHERRY

9.1. INTRODUCTION

Vinayaka Mission's College of Nursing, Puducherry is located in Aarupadai Veedu Medical College campus, Puducherry a municipality around 12 km from Puducherry, established in the year of 2002 under the Puducherry University. This institution was brought under the ambit of Vinayaka Mission's Research Foundation in 2004, vide notification number F9-7/2002/U-3 of the Govt of India.

9.2 PROGRAMMES OFFERED

UG :

- B.Sc.(Nursing)
- Post B.Sc.(Nursing)

PG :

- M.Sc. (Medical Surgical Nursing)
- M.Sc. (Obstetrics and Gynaecology Nursing)
- M.Sc. (Child Health Nursing)
- M.Sc. (Community Health Nursing)
- M.Sc. (Psychiatric Nursing)

9.3. RESEARCH THRUST AREAS

- Community Health Nursing
- Paediatric Nursing
- Psychiatric Nursing
- Medical Surgical Nursing
- Obstetrics & Gynecology Nursing

9.4. RESEARCH SCHOLARS PURSUING Ph.D.

College	No. of Candidate	No. of Guides	Thrust Areas
Vinayaka Mission's College of Nursing, Puducherry	8	1	Vitamin – A deficiency Arthritis pain Foot care nursing Video assisted teaching module Iron deficiency anemia Obesity Cardiac rehabilitation (CR) pro- gram Infection control measures Stress reduction programmes Reflexology Psychotherapy Nutritional counseling and obese children Quality of life among HIV children

9.5. RESEARCH PAPER PUBLICATIONS

Department	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	Total
Obstetrics and gynecological Nursing	6	4	4	5	8	27
Medical Surgical Nursing	4	2	0	2	13	21
Psychiatry	1	3	0	3	4	11
Nursing and Nutrition	6	0	0	0	1	7
Community Health Nursing	3	3	1	2	6	15
Paediatric Nursing	9	1	2	7	6	25
Total	29	13	7	19	38	106

**10. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S COLLEGE OF NURSING
KARAIKKAL**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF NURSING

VINAYAKA MISSION'S COLLEGE OF NURSING, KARAIKKAL

10.1. INTRODUCTION

Vinayaka Mission's College of Nursing, Karaikkal is located in Vinayaka Mission's Medical College campus, Karaikkal, established in the year of 2002 under the Puducherry University. This institution was brought under the ambit of Vinayaka Missions Research Foundation in 2004.

10.2 PROGRAMMES OFFERED

UG :

- B.Sc.(Nursing)
- Post B.Sc.(Nursing)

PG :

- M.Sc. (Medical Surgical Nursing)
- M.Sc. (Obstetrics and Gynaecology Nursing)
- M.Sc. (Child Health Nursing)
- M.Sc. (Community Health Nursing)
- M.Sc. (Psychiatric Nursing)

10.3. RESEARCH THRUST AREAS

- Community Health Nursing
- Paediatric Nursing
- Psychiatric Nursing
- Medical Surgical Nursing
- Obstetrics & Gynecology Nursing

10.4. RESEARCH SCHOLARS PURSUING Ph.D.

College	No. of Candidate	No. of Guides	Thrust Areas
Vinayaka Mission College Of Nursing Karaikal	8	1	Quality of life among elderly, Basic life support factors among college teachers, Smart Phone addiction among School children, Quality of life in menopausal women, Bio-psychosocial problem among infertile women Occupational safety measure for sanitary workers

10.5. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Pediatric Nursing	2	4	4	3	11	24
Obstetrics and Gynecological Nursing	2	1	2	6	7	18
Medical Surgical Nursing	2	2	1	3	5	13
Community Health Nursing	0	0	1	5	7	13
Psychiatric Nursing	0	1	1	2	6	10
Total	6	8	9	19	36	78

**11. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S COLLEGE OF PHARMACY
SALEM**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOOR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF PHARMACY

VINAYAKA MISSION'S COLLEGE OF PHARMACY, SALEM

11.1. INTRODUCTION

The Vinayaka Mission's College of Pharmacy (VMCP), Salem, established in the year 1982 is the pioneer institution of the Thirumuruga Kirupananda Variyar Thavathiru Sundara Swamigal (TKVTSS) Medical Educational and Charitable Trust. It plays a vital role in the field of Pharmacy education and caters to the needs of society by meeting the ever-increasing demand for pharmacists in India and abroad. The college that started with the Diploma in Pharmacy program now also offers B.Pharm (from 1993), M.Pharm (from 2003) in 7 specializations, Pharm.D, Pharm.D (PB) (from 2009) and the Doctoral Program in Pharmacy (from 2004). The college is a constituent college of Vinayaka Missions University, Salem and is approved by the Pharmacy Council of India (PCI) and All India Council for Technical Education (AICTE), New Delhi. Several hundreds of students have graduated from the college successfully and are practicing the profession of Pharmacy across the globe and serving the community at large.

11.2. RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate		No. of Guides	Thrust Areas
		Part Time	Full Time		
1	Pharmacy	69	01	14	Novel drug delivery System, Modifications of drug release, Pharmacognostical and Pharmacological screening Methods, Analytical, Bio analytical Method development and Validation, Standardization of Herbal Drugs, Synthesis, Characterization, evaluations of medicinal compounds.

11.3. FUNDED PROJECTS – ONGOING

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
1	Formulation and Evaluation of Anticancer Drug Loaded Niosomes	Dr.B.Jaykar	VMRF	2015-2016	2.3 Lakh
2	Isolation, Evaluation and Standardization of the Active Constituents from selected Medicinal Plants	Dr.B.Jaykar	VMRF	2015-2016	2 Lakh
3	Nano Oncology: Formulation and Evaluation of Anticancer Drug Loaded Nanoparticles	Dr.B.Jaykar	VMRF	2016-2017	1.9Lakh
4	Formulation and Evaluation of Controlled Release Solid Lipid Microparticles of Antihypertensive Drug	Dr.B.Jaykar	VMRF	2016-2017	1.6Lakh
5	AChE1From Brassica nigra, MenthaSpicata & Myristicafragrans against A β 42 & MAPT mutant induced toxicity in Zebrafish Alzheimer's model	Dr.B.Jaykar	VMRF	2017-2018	1Lakh

11.4. FUNDED PROJECTS - PROPOSAL SUBMITTED

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
1	Evaluation of Anti Neuro-inflammatory activity of extracts of Homalanium Zeylanium and Marseliaquadri foliallinn.	Dr. V.Gomathi	DBT – Letter of Intent for Research Grant Opportunity (RGO) Biotechnology Career Advancement and Reorientation (BioCARE) Programme for Women Scientists	August & 2018	25,25,000

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
2	Neuroprotective effect of plant extracts on chronic haloperidol induced Parkinson Disease in Animal Model	Mrs. S.Ruby	DBT – Letter of Intent for Research Grant Opportunity (RGO) Biotechnology Career Advancement and Reorientation (BioCARE) Programme for Women Scientists	August & 2018	18,75,000
3	Formulation and Evaluation of Anti-cancer Drug Loaded Maltodextrin Based Proniosomes	Mrs. J. Gomathi	DBT – Letter of Intent for Research Grant Opportunity (RGO) Biotechnology Career Advancement and Reorientation (BioCARE) Programme for Women Scientists	August & 2018	33,00,000
4	AChE1 From Brassica nigra, MenthaSpicata & Myristica fragrans against A β 42 & MAPT mutant induced toxicity in Zebrafish Alzheimer's model	Mrs. S.Baby-Vanitha	DBT – Letter of Intent for Research Grant Opportunity (RGO) Biotechnology Career Advancement and Reorientation (BioCARE) Programme for Women Scientists	August & 2018	42,95,000
5	Design and Development of Niosomal Drug Loaded Capecitabine for Effective Colon Cancer Treatment	Dr. B.S. Venkateswarlu	AICTE (Modrobs)	2017	20,60,000
6	Formulation and Evaluation of Controlled Release Solid Lipid Microparticles of Antihypertensive Drug	Dr. B.S. Venkateswarlu	AICTE – RPS	2017	20,18,750

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
7	Modification of Pharmacokinetic and Pharmacodynamic parameters of New Anti-Hypertensive Drug by Fabricating into Solid Lipid Microparticles	Dr. B.S. Venkateswarlu	Life Science Research Board (LSRB)	2017	16,75,000
8	Preparation and characterization of Fucoidan loaded PLGA Nanoparticles against DENV 2	Dr. B.Arul	DST (Nanotechnology)	2017	36,13,000
9	Formulation And Evaluation of Nanoparticles Containing Anticataract Agents	Dr. B.Arul	DBT	2017	4,98,000
10	Formulation And Evaluation of Nanoparticulate Implants Containing Antiangiogenic Agents	Dr. B.Arul	DBT	2017	48,60,000
11	Anti-Dengue virus activity of <i>Stoechospermum marginatum</i> (AG) Kuetz from South east coast of India	Dr. R.Kothai	AICTE (RPS)	2017	81,28,020
12	Upgradation of Facilities for Analysis of Drugs on New Chemical Entities from Natural and synthetic Origin	Dr. M.V. Kumudhavalli	AICTE (MOD-ROBS)	2017	18,02,468
13	Quantification of some new drug molecules by HPTLC.	Dr. D.Umaheshwari	AICTE (RPS)	2017	10,62,423
14	Pharmacokinetic Studies of Selected Racemic Anticholinergic Drugs	Dr. S.Alexander	SERB (Early Career Research Award)	2017	31,26,000

S.No	Title of the Project	Name(s) of the Investigators	Funding Agency	Month & Year	Total outlay (in Lakhs)
15	Pharmacokinetic Studies of Selected Racemic Anticholin-ergic Drugs	Dr. S. Alexander	DST (SwarnaJayanti Fellowship)	2017	18,00,000

11.5. RESEARCH CENTRES

Pharmaceutical science research lab

The Pharma academic, research and development, industry (MSME) needs creative quality aspects to inculcate Pharma related knowledge. The various fields of pharmaceutical sciences required global perspectives, patient oriented and to solve new or existing problems and develop new areas of interest. The Pharma education needs strong, sustainable and value added programmes to reach the society. Novel Drug Delivery System, Drug Design Modifications of drug release, Pharmacognostical and Pharmacological Screening Methods, Analytical, Bio analytical Method development and Validation, Standardization of Herbal Drugs and Synthesis, Characterization, evaluations of medicinal compounds are the thrust areas to enhance the quality of life. The main purpose to establish the centralized pharmaceutical research lab to provide infrastructure facilities, exchange of intra departmental research and creating research conducive Atmosphere for better and qualitative research work. The laboratory comprises of functional devices and multiple equipment's.





RESEARCH FACILITY AT VINAYAKA MISSION'S COLLEGE OF PHARMACY

MAJOR EQUIPMENT AVAILABLE FOR RESEARCH

S.No	Name of the Instrument
1	Dissolution Apparatus
2	HPLC
3	UV visible spectrophotometer
4	Electronic Balance
5	Hot air oven
6	Digital PH Meter
7	Polyacrylamide gel Electrophoresis
8	Auto KarlFischerTitrimeter
9	BOD Incubator
10	Microwave oven
11	Ultrasonic bath sonicator
12	Cook's Pole Climbing Apparatus
13	Kheymograph
14	Micro tom
15	Compound microscope

11.6. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Pharmaceutics	10	9	3	6	2	30
Pharaceutical Chemistry	6	3	1	5	3	18
Pharmacology	3	5	3	7	1	19
Pharmacognosy	10	1	5	1	0	17
Pharmacy Practice	0	7	6	15	3	31
Total	29	25	18	34	9	115

11.7. PATENTS FILLED

S.No	Title	Inventor Name and Department	Date of Filing	Publica- tion Date	If under process - the Date of Last Commu- ni- cation	Status	Refer- ence
1	A New Ap- proach for the Preparation Of Bioadhesive Controlled Release Tablets of Rab- eprazole Sodium	Dr.B.S.Ven- kateswarlu & Phar- maceu- tics	16.10.2015	21.04.2017	21.04.2017	Appli- ca- tion Published	5547/ CHE/2015
2	A New Ap- proach for the Preparation of Sustained Release tab- lets of Clarithromy- cin by Porous Osmotic Tech- nology	Dr.R.Mar- getChan- dira & Phar- maceu- tics	16.10.2015	07.07.2017	07.07.2017	Appli- ca- tion Published	5551/ CHE/2015
3	Synthesis of various trioxane derivatives for malaria by molecular modi- fication	Dr.M.Ku- mar & Phar- ma- ceutical Chemistry	16.10.2015	21.04.2017	21.04.2017	Appli- ca- tion Published	5550/ CHE/2015

S.No	Title	Inventor Name and Department	Date of Filing	Publication Date	If under process - the Date of Last Communication	Status	Reference
4	A Novel Approach To Optimize And Formulate Controlled Release Spheroid Formulation Of Bosentan	Dr.M.V. Ku-muthavalli & Pharmaceutical Chemistry	16.10.2015	07.07.2017	07.07.2017	Application Published	5549/CHE/2015
5	A novel approach to optimize and formulate extended release formulation of Ranolazine	Dr.Alexander & Pharmaceutical Chemistry	16.10.2015	21.04.2017	21.04.2017	Application Published	5553/CHE/2015
6	A novel approach for the formulation of gastric oral floating drug delivery system containing Glipizide	Dr.R.Kothai & Pharmacology	16.10.2015	21.04.2017	21.04.2017	Application Published	5545/CHE/2015
7	A Novel Approach to Formulate Controlled Release Floating Microspheres of Pentoxifylline	Dr.B.Arul & Pharmacy Practice	16.10.2015	07.07.2017	07.07.2017	Application Published	5552/CHE/2015

**12. RESEARCH CONTRIBUTIONS OF
VINAYAKA MISSION'S
COLLEGE OF PHYSIOTHERAPY SALEM**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOUR,
SALEM, TAMIL NADU 636308**

VINAYAKA MISSION'S RESEARCH FOUNDATION

FACULTY OF PHYSIOTHERAPY

VINAYAKA MISSION'S COLLEGE OF PHYSIOTHERAPY, SALEM

12.1. INTRODUCTION

The Vinayaka Mission's college of Physiotherapy was established in the year 1993 for offering Bachelor of Physiotherapy course and was affiliated to the T.N Dr. M.G.R. Medical University, Chennai. It was brought under the ambit of Vinayaka Mission's Research Foundation (Deemed to be University) in August 2004.

The college was upgraded to offer post graduate courses in the year 2004 and doctoral program in the year 2017 and has become a research institute for the practice of physiotherapy.

12.2. RESEARCH FACILITIES

Research is a significant activity of this institution. The institution promotes faculty participation in research by making it mandatory for the entire teaching faculty to involve in research and make at least one publication every year.

There is an exclusive Research lab with necessary facilities to conduct research. Doctoral program in Physiotherapy was started in the year 2017 and 8 research scholars are enrolled and carrying out research.

Research projects of the faculty are being funded by the university as a means to promote Research culture.

MAJOR EQUIPMENT AVAILABLE FOR RESEARCH

S No	List of Equipment's	Year of Purchase
1.	Vaccum Therapy	04.11.2013
2.	Skin Fold Caliper	28.04.2015
3.	Sony Handy Cam	13.06.2015
4.	Hand Held Dynamometer	20.07.2015
5.	Continuous Passive Motion	15.10.2015
6.	Commercial Treadmill	26.10.2015
7.	Recumbent Bike	26.10.2015
8.	Eliptical Trainer	26.10.2015
9.	Trampoline	12.02.2016
10.	Hi-Low Treatment Table	21.02.2017
11.	Matrix Rhythm Therapy	18.02.2019
12.	Wireless Chattanooga	13.02.2019
13.	Intellect Mobile Combo	13.02.2019

12.3. RESEARCH PAPER PUBLICATIONS

Department	2014	2015	2016	2017	2018	Total
Physiotherapy	1	2	5	2	8	18
Total	1	2	5	2	8	18

**13. VMKV ARTS & SCIENCE COLLEGE, SALEM /
FACULTY OF ARTS & SCIENCE AV CAMPUS,
CHENNAI.**



VINAYAKA MISSION'S RESEARCH FOUNDATION

**NH 47, SANKARI MAIN ROAD, ARIYANOUR,
SALEM, TAMIL NADU 636308**

**VMKV ARTS & SCIENCE COLLEGE, SALEM /
FACULTY OF ARTS & SCIENCE AV CAMPUS, CHENNAI.**

13.1 INTRODUCTION

VMKV Arts and Science college, Salem was started in 1995, affiliated to Madras University and then affiliated to Periyar University in 1996. It was brought under Vinayaka Mission's Research Foundation Deemed to be University in 2001. Faculty of Arts and Science AV Campus, Chennai was started as a constituent institute of VMRF in 2017.

13.2 ACADEMIC PROGRAMMES OFFERED

- **UG Programmes** in Tamil, English, Mathematics, Physics, Chemistry, Computer Science, Commerce,
- **PG Programmes** in Tamil, English, Mathematics, Physics, Chemistry, Computer Science, Commerce

13.3 RESEARCH SCHOLARS PURSUING Ph.D.

S.No	Department	No. of Candidate		No. of Guides	Thrust Areas
		Part Time	Full Time		
1	Tamil	0	0	1	-
2	English	1	0	1	Literature
3	Computer Sc.	6	0	1	Computer architecture, Software Engg. Cloud computing, IOT
4	Commerce	0	0	2	-
5	Mathematics	0	0	1	-
6	Chemistry	1	0	1	Organic Chemistry

13.4 RESEARCH PAPER PUBLICATIONS

Department	Papers published
All Departments from 2013	117

