



தமிழ்நாடு தமில்நாடு TAMILNADU

20-9-2021

Sri Kaliswari College
Sivakasi

CN 327210

S. சந்திரசேகரன்
மாநில உயரகல்வியுறை அமைச்சர்
அலுவலர் அலுவலகம்
1922/0/9

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as "MOU") is made on
22.09.2021

Between



Department of Botany, Vivekananda College, Tiruvudakam West, Madurai
District, Tamil Nadu - 625234, an Autonomous College affiliated to Madurai
Kamaraj University, Madurai (hereinafter named as **first institution**).

And



Department of Biotechnology and Botany, Sri Kaliswari College (Autonomous),
Sivakasi (hereinafter named as **Second Institution**)

(**VIVEKANANDA COLLEGE** and **SRI KALISWARI COLLEGE (AUTONOMOUS)**) are
herein collectively referred to as "the Institutions" and individually as "Institution".

this, several field/industrial trips are arranged to expose the students to the nature and also to the industrial environs.

4. Students are studying zoology and chemistry as allied subjects. Non Major Elective courses are conducted for our college under graduate students. Apart from the core curriculum, the

ABOUT VIVEKANANDA COLLEGE:

1. Vivekananda College was started by Founder-President Swamiji Chidhbhavanandhaji Maharaj of Sri Ramakrishna Tapovanam, Tirupparaiturai, Trichy in 1971 on the bank of the river Vaigai which is blissfully free from the noise and hurry, the crowds and distractions of the city.
2. Vivekananda College is a residential college functioning under Gurukula pattern. It is Man-making education that is imparted in this institution. Culture, character and curriculum are the three facets of ideal education that make man a better man. This is possible only when the teacher and the taught live together. The Gurukula system of Training is therefore a humble and systematic attempt in reviving the age old GURUGRIHAVASA for wholesome education. Attention to physical culture, devotion to duty, obedience to teachers, hospitality to guests, zest for life, love for the nation, and above all, humility and faith in the presence of God etc. are the values sought to be inculcated. All steps are taken to ensure the required atmosphere for the ideal life training.
3. Vivekananda College is an aided college and affiliated to the Madurai Kamaraj University, Madurai. The College became Autonomous since 1987. The College was Accredited with A Grade (CGPA 3.59) by NAAC in the 3rd Cycle in 2015 valid upto 2022. The college was recognized as College with Potential for Excellence by UGC.

ABOUT DEPARTMENT OF BOTANY

1. The Department of Botany was started in the year 1982 with allied botany. Nearly 30 to 40 students were studying every academic year. This programme includes (a) Part I Tamil & Sanskrit (which can be chosen by the interest of the students) and Part II English (b) Core courses include Elective and Allied (c) Skill based courses (d) Value Education (e) Environmental studies and (f) Non Major Elective also. No course shall carry more than 5 credits. The student shall select any one of the Choice-based credit courses have offered by the department through their interest on studies.
2. The programme contains 43 courses in six semesters. The total credit of the programme is 140. The programme contains 3 core elective courses, allied courses and skill based courses from the relevant subjects for complementing the core of study. There should be 4 common courses that include the first and second language besides an environmental study and an extension activities course.
3. In order to provide hands on training to students, two separate well equipped laboratories with enough chemicals and sophisticated instruments such as Students microscope, Binocular microscope, Laminar Air Flow, tissue/bacterial Culture chambers, Autoclave, Environmental shaker with incubator, Hot air oven, Colorimeter, pH meter, Digital balance etc. The department has a good stock of herbarium and collection of digital resources for learning purposes. The department library has nearly 2220 books of national & international standard. Apart from this, several field/industrial trips are arranged to expose the students to the nature and also to the industrial environs.
4. Students are studying zoology and chemistry as allied subjects. Non Major Elective courses are conducted for our college under graduate students. Apart from the core curriculum, the

Department also offers a number of extra certificate courses such as Horticulture, Energy Resources, Mushroom Cultivation and Medicinal Botany etc.

5. An Association has been formed in the department in the name of Swamy Botanical Association (SBA) to organize students meet, expert lectures and various other student development programmes. Several experts from national/regional institutes are frequently invited to deliver lectures on leading topics in the emerging fields of Botany and interdisciplinary titles. SBA is also functioning with following objectives.

- ✓ To maintain Herbal and ornamental garden in the College Campus.
- ✓ To train the students to prepare herbal formulations
- ✓ To exhibit the details of all plants in college campus

ABOUT SRI KALISWARI COLLEGE

Sri Kaliswari College, the fastest knowledge disseminating light house among the Arts and Science College in South India, is a Self Financing, Autonomous and Co-educational Institution affiliated to Madurai Kamaraj University, Madurai. The college was established by Kaliswari Trust, comprising a team of munificent philanthropists, in the industrial town of Sivaksi in 2000 A.D. to impart value-based quality higher education to the students in rural background. Since its inception, the college has crossed many milestones.

Sri Kaliswari College is recognized by the UGC under 2(f) (1 June, 2006) and 12(B) (16 April, 2014). It was conferred Autonomous status on 1 March, 2012. Sri Kaliswari College is the only Self Financing Institution to be approved by UGC under the Community College stream to start a Community College in 2015-2016. One more feather in its cap is A Grade with CGPA 3.11 in the 3rd Cycle of NAAC Re-accreditation under Revised Accreditation framework.

Sri Kaliswari College has carved a niche of its own in the realm of higher education. Right now, the College offers a record number of 17 Undergraduate Programmes, 9 Postgraduate Programmes and 5 M.Phil Programmes. A unique feature of the college is offering a host of 60 job oriented Certificate Courses in addition to the regular hours of the classes. It is the singular special credit of our college to conduct a Certificate Course titled 'Safety Matches and Fireworks' for the past Fifteen years. 6 certificate courses exclusively for qualifying National and State Level examination like NET and SET is offered for PG Students.

Steeled with new hopes and aspirations, Sri Kaliswari College has striven hard to deliver the best yields to students' community and embark them on the road of success.

ABOUT DEPARTMENT OF BIOTECHNOLOGY AND BOTANY

1. The Department of Biotechnology was established in the academic year 2002-2003 with a vision of imparting quality higher education in the area of Modern Biology.

The department offers following courses:

- B.Sc., Biotechnology -Year of establishment 2002-2003
- M.Sc., Biotechnology-Year of establishment 2004-2005
- M.Phil., Biotechnology- Year of establishment 2006-2007
- B.Sc., Botany- Year of establishment 2014-2015

- M.Sc., Botany- Year of establishment Botany 2017-2018

The department is equipped with state-of-the-art laboratories for providing effective training with a view to create skilled / trained manpower (human resource) who can cater the needs of industries and institutions.

2. The department apart from the facilities is having faculty who are experienced, highly motivated and dedicated to the course of higher education.

3. The Department of Botany is offering B.Sc. & M.Sc. degree in Botany and actively serves the society through dissemination of knowledge and training in frontier areas of Plant Sciences. The Department is also involved in consultancy service and extension activities. It has an excellent Botanical Garden, Herbal Garden, Star Garden and also involved in many activities, which are beneficial for students interested in research. The Department holds the unique distinction of having all-doctorate faculty who are having specialization in various areas of Plant Sciences.

I. Objectives:

The objectives of this Memorandum of Understanding (MoU) include:-

- ✓ To encourage and facilitate the development of collaborative and reciprocally valuable programs to improve the intellectual growth of both Department of Botany, Vivekananda College and Department of Biotechnology and Botany, Sri Kaliswari College
- ✓ To set out opportunities for teamwork and positive academic engagement for mutual benefit between the Department of Botany, Vivekananda College and Department of Biotechnology and Botany, Sri Kaliswari College
- ✓ To encourage the inter-department collaboration in the area of research and other departmental development activities.
- ✓ To build an effective network among the students involving in the research work on Life Sciences to achieve the target of the departments.

II. Memorandum of Understanding:

The MoU is made on 22nd September 2021, between **Department of Botany, Vivekananda College, Tiruvedakam West, Madurai District, Tamil Nadu - 625 234**, an Autonomous College affiliated to Madurai Kamaraj University, Madurai (**Party-1**) and **Department of Biotechnology and Botany, Sri Kaliswari College (Autonomous), Sivakasi - 626130 (Party - 2)** that the two parties mutually agree upon and sign this document with their full understanding and acceptance in the matters mentioned as below.

III. Contents of Memorandum of Understanding:

The Memorandum of Understanding between these two academic research institutions includes the below activities, which are mutually agreed by both the parties.

- 1) To achieve a broad balance in the area of contributions and the benefits of collaboration, which is subjected to periodic review by both institutes.
- 2) To exchange the information in the form of publications, articles, reference materials and other areas of teaching and research.

- 3) To exchange faculty to give special lectures in their field of specialization.
- 4) To exchange the students and staff for workshops, seminars and conferences and symposia.
- 5) To permit to share library facilities by the research scholars and faculty members. The related index list of journals and books may also be shared upon request.
- 6) To conduct joint research activities and publications.
- 7) To own Intellectual Property rights developed jointly by both the institutions.
- 8) To make use of academic materials and other information mutually.
- 9) To facilitate on the job training by way of willingness to intake students and provide them practical knowledge and guidance as required for the on the job training programme.
- 10) To seek external funding sources to facilitate joint research activities.
- 11) To implement any specific co-operative programs considering mutual financial obligations.
- 12) The instruments facilities available in the campus of both institutions are listed below in Table 1 & 2 and it will be utilized for the projects and research work of both institutions.
- 13) To share the information regarding new instruments purchased.
- 14) To jointly organize seminars, conferences, workshops on the topics of mutual interest and to invite each other's faculty to participate there in.

Table 1: Equipment facilities in Department of Botany, Vivekananda College, Tiruvedakam

S. No.	Name of Equipment	Application
1.	Laminar air flow Chamber	Provides sterile environment for handling microbial cultures
2.	Environmental shaker	Used to make suspension culture of plant cells for extraction method and other plant biotechnology applications.
3.	Research Microscope	Used to visualize the cells clearly with dark background contrast.
4.	Ultra Centrifuge	Separation of small particles such as viruses, viral particles, proteins and/or protein complexes, lipoproteins, RNA, and plasmid DNA.
5.	Incubator	To grow microbial culture or cell cultures. Incubators can also be used to maintain the culture of organisms to be used later.
6.	Computers with Internet connectivity	For Bioinformatics study
7.	Electronic Balance	Used to find accurate measurements of weight. It is used very commonly in laboratories for weighing chemicals to ensure a precise measurement of those chemicals for use in various experiments.
8.	Autoclave	It provide a physical method for disinfection and sterilization
9.	Hot air oven	A hot air oven is a laboratory instrument that uses dry heat to sterilize laboratory equipment and other materials.
10.	Binocular microscope	Used to visualize the cells clearly with dark background contrast.

11.	Colony Counter	It used to estimate a liquid culture's density of microorganisms by counting individual colonies on an agar plate, slide, mini gel, or Petri dish.
LAB FACILITIES		
1.	Tissue Culture Research Lab	
2.	Microbiology Research Lab	
3.	Siddha and Plant products Preparatory Lab	
4.	Herbarium Unit	
GARDENS		
1.	Vegetables Garden	
2.	Herbal Garden	
DEPARTMENT LIBRARY (2220 Books)		

Table 2: Equipment facilities in Department of Biotechnology and Botany, Sri Kaliswari College (Autonomous), Sivakasi		
S. No.	Name of Equipment	Application
1.	Fermentor	A fermentor or fermentation chamber is a type of bioreactor for containing and controlling fermenter microorganisms. Fermentation is an economical route to important raw materials (ethanol, lactic acid) and fermented foods.
2.	Cold Room (Walk In)	Used to preserve the microbial culture and thermolabile Chemicals at low temperature around 4°C. Researchers could permits sensitive molecular biological work inside the chamber.
3.	Biosafety Cabinet	Biosafety is an important element of quality management systems in laboratory practice as it is a measuring tool for compliance with accreditation and certification standards.
4.	Transilluminator	Used to visualize the bands of nucleic acids resolved by Agarose Gel Electrophoresis, by illuminating the gel under UV after staining it with Ethidium Bromide.
5.	Elisa reader	Quantitative tool to study immune reactions and serves for diagnostic purpose too.
6.	Shaker	Used to make suspension culture of plant cells for extraction method and other plant biotechnology applications.
7.	Laminar Air Flow	Provides sterile environment for handling microbial cultures
8.	UV-Visible Spectrophotometer	Used to measure the optical density (OD) for biological samples at the appropriate wavelength in the visible and UV range.
9.	Water bath	It gives an environment of specific temperature to carry out biochemical/molecular biological reactions/manipulations.
10.	Hot plate	Used to heat, melt and boil the samples.
11.	Vortex Mixer	Used to ensure uniform mixing of particles or substances in solutions

12.	Distillation Unit	To purify water by vapouring and condensing. Distilled water is a very basic requirement in laboratories.
13.	Phase Contrast Microscope	Used to visualize the cells clearly with dark background contrast.
14.	Gel Documentation	Used to visualize the bands of nucleic acids and proteins resolved by agarose gel electrophoresis and SDS-PAGE respectively.
15.	PCR	Used to perform rapid amplification of specific sequence of nucleic acids. It is a wonderful tool to detect pathogens, fix culprits etc.,
16.	Colorimeter	Used to read the absorbance of the samples at appropriate wavelengths.
17.	Shaker (PTC)	Used to make suspension culture of plant cells for extraction method and other plant biotechnology applications
18.	Gel Documentation	Used to visualize the bands of nucleic acids and proteins resolved by agarose gel electrophoresis and SDS-PAGE respectively.
19.	Haemocytometer	Used to count the RBC and WBC.
20.	Cryocan	To preserve biological specimens like tissue, cells etc., for a long time.
21.	Ultrasonic cleaner	Ultrasonic cleaner is optimized for fast and uniform ultrasonic cleaning results required in various applications including Cleaning of laboratory and pharmaceutical instruments.
22.	Clevenger apparatus (Essential oil extraction)	Clevenger Apparatus is a tool used for essential oil extraction using steam. This technique uses temperature to separate the aromatic oil from an organic source.
23.	Microtome	Microtome is a tool used to cut extremely thin sections of material for microscopic examination and used in clinical, research and industrial applications for cutting uniform sections of tissue of appropriate thickness.

LAB FACILITIES

1.	Microbiology Lab
2.	Plant Tissue Culture Lab
3.	Instrumentation Lab
4.	Phytochemistry Lab
5.	Botany Lab (Plant Taxonomy and Plant Anatomy study)
6.	Animal House
7.	Mushroom farm

GARDENS

1.	Botanical Garden
2.	Star Garden (Nakshatravanam)
3.	Herbal Garden
4.	Terrace Garden

DEPARTMENT LIBRARY (2193 books; 5 Magazines; 16 Journals)

IV. MoU Implementation & Tenure:

The tenure of this MoU shall be in force for a period of three (3) years from the date of signing and is subject to further renewal by giving prior notice by the First Party to the Second Party on mutual terms and conditions.

This MoU is subject to foreclosure by serving 60 days discussions notice on either side.

V. Coordination

Both the parties constitute coordination committee which consists of the members from both the institutions. This coordinating committee will periodically review the workings of the MoU and suggest ways to strengthen the co-operation between two institutions.

VI. Signatures:

The Memorandum of Understanding is based on good faith and support extended by both parties to conduct various programmes. Hence, such terms which are spelt herein could be discussed mutually and agreed thereupon benefiting both the parties herein.

Signed for and on behalf of

Department of Botany, Vivekananda College, Tiruvedakam West, Madurai District

In the presence of:

1.  22/9/2021

Dr. T. Venkatesan
Principal
Vivekananda College
Tiruvedakam West
Madurai-625 234.



2. 

Dr. V. Ramesh
Head, Department of Botany
Vivekananda College
Tiruvedakam West
Madurai-625 234.

Signed for and on behalf of

Department of Biotechnology and Botany, Sri Kaliswari College (Autonomous), Sivakasi

In the presence of

1. 

Dr. S. Krishnamurthy
Principal
Sri Kaliswari College (Autonomous),
Sivakasi.



2. 

Dr. M. Sujatha
Head, Department of Biotechnology & Botany
Sri Kaliswari College (Autonomous),
Sivakasi.