



# UNION CHRISTIAN COLLEGE ALUVA-2



SSR 5<sup>th</sup> CYCLE 2023



Criterion 3

3.5.1 Activity Reports

## Report of Vidwan P.G. Nair Endowment Agreement with Department of Malayalam, Union Christian College, Aluva

P. Gopalan Nair Endowment was created by the four children of late P.G. Nair, with a determination to perpetuate the memory of his life by contributing to the development of succeeding generations. The agreement is made on 31<sup>st</sup> of March, 2000. The Endowment agreement consists of two parts namely a Fellowship known as the Vidwan P. G. Nair Memorial Fellowship and a Loan Scholarship. The fellowship is to support brilliant research scholars to work on proposals submitted to Research Centre at the department of Malayalam in Union Christian College and the loan scholarship is about providing scholarships to needy students of the department.

### Report of activities with Proof

Under agreement with Vidwan PG Nair Memorial endowment, the following activities are done by the department of Malayalam

- Conducting 2-3 days' seminars annually
- Publishing papers/ journals from the papers presented in seminars
- Resource mobilization for research up to ₹1,20,000 every year

The photos show the granting of research award and inauguration of a seminar under this endowment.





## Outcome of the activities

The endowment has given a big platform and foundation for the Malayalam department to conduct a three-day national seminar and make one publication from the papers presented. Further the research grant provided to deserving students promotes research and scholarship in Malayalam.

The Vidwan P.G. Nair Smaraka Gaveshana Kendram (Vidwan P.G. Nair Research Centre ) has made a profound impact in the sphere of higher research and knowledge-making in the state of Kerala. A total of 9 fellows had submitted thesis as part of Vidwan P.G. Nair Research Centre. Department has initiated research in critical areas and undertook the publication of books and journals. We ardently follow interdisciplinary research methods and practices.

## Bhoomi Malayalam Research Journal

Since 2007, every year the department selects a key theme for discussions and subsequent seminars in that year, and at the end of the year organize a three-day national seminar under Vidwan P.G. Nair Research Centre and publishes the documents in the form of a journal called 'Bhoomi Malayalam' which carries an ISSN number (ISSN 2394-9791). The quality of papers presented to exhibit the real academic spirit of the department. The journal has been accepted as a reference journal in many universities in Kerala. The outcome is that a key theme which requires academic attention will be examined in detail by scholars from various perspectives, and papers will be brought out for broader circulation and readership. 15 issues of the Journal published so far since its inception.

## **Bhoomi Malayalam Research Journal Issues published during 2018-2023**

Book 10/Issue 1/ February2018 Coloniyananthara vadam Editor : - Dr. Shimi Paul Baby; Book 11/Issue 1/ February2019 Malayala Novel Editor Dr. Saju Mathew; Book - 12/Issue - 1/ February2020 “Cinema Kalayum Rashtreeyavum” edited by Dr. Sibu M. Eapen; Book - 13/Issue - 1/ February2021 Lingapadavi- Editor Dr. Muse Mary George; Book - 14/Issue - 1/ March 2022 Bhashasasthram puthukalam puthuvazhikal Editors:-Dr. V.P.Markose & Dr. Vidhu Narayan; Book -15/Issue - 1/ November 2023 Gothrajeevitham, Editor: - Dr. M.I.Punnoose;





## Department of Physics

### MoU with HOPE College, USA

#### Report

The MoU was signed between the Department of Physics, Union Christian College, Aluva and the Department of Physics, Hope College, Michigan, USA for the development of cooperation in Research. Objectives are:

- 1) To promote joint research publications based on the results of collaborative research.
- 2) Cooperation in the exchange of information relating to activities in research.
- 3) To promote interaction of students and faculty for measurements and analysis.
- 4) To promote appropriate joint research proposals.

#### Activity

Faculties of both the Departments jointly published research papers.

## CrystEngComm

### PAPER



View Article Online

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Cite this: *CrystEngComm*, 2019, 21, 128

## Aluminium doping – a cost effective and super-fast method for low temperature crystallization of TiO<sub>2</sub> nanotubes

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[rsc.li/crystengcomm](http://rsc.li/crystengcomm)

In this paper, low-temperature crystallization of well aligned TiO<sub>2</sub> nanotubes within a record time of 20 seconds is reported. This new super-fast crystallization route with a tremendous technological impact due to its low energy budget and reproducibility involves the doping of TiO<sub>2</sub> nanotubes with aluminium at different temperatures from 2 °C to 60 °C by applying a negative voltage to amorphous nanotubes. The process offers formation of doped anatase TiO<sub>2</sub> nanotubes with a tuned band gap and improved conductivity.

### 1 Introduction

Titanium dioxide (TiO<sub>2</sub>) nanotubes (TONTs) have been mostly investigated because of their outstanding performance in many photoelectrochemical applications including dye-sensitized solar cells, sensors, and supercapacitors and in photocatalysis and water splitting due to their abundance and non-toxicity.<sup>1–4</sup> While TONTs with a narrow band gap and higher charge transfer efficiency are preferred for photocatalytic applications, a wider band gap and good electrical conductivity are suitable for their applications as electrodes in dye sensitized solar cells.<sup>5</sup> Hence the tuning of their optical and electrochemical properties is of prime importance while considering their employability in various device fabrication processes. In addition, since amorphous TONTs are not suitable for the above said applications, production of crystalline tubes and control of the nanotube-array morphology are very much important for their application in dye-sensitized solar cells and photocatalysis.<sup>6</sup> It is a major challenge to successfully convert the amorphous structure of as-fabricated TiO<sub>2</sub> nanotubes to crystalline, while maintaining the barrier layer at a minimal thickness. TONTs fabricated by an electrochemical anodization method are amorphous in nature and so an elevated temperature, typically greater than 450 °C, is required to induce crystallinity.<sup>7,8</sup> But the main drawback of this method is that a very high thermal energy budget is needed to attain crystallization. Also this produces a thick barrier layer at the bottom of the nanotubes and it separates nanotube arrays from the substrate resulting in the slowdown of electrons which causes poor performance of devices.<sup>9,10</sup>

Moreover, a high temperature annealing process is not favourable for the formation of nanotube arrays over temperature sensitive polymeric substrates.<sup>11</sup> Crystallization by hydrothermal treatment is not convenient as it results in structural damage.<sup>12</sup> Similarly, with sol-gel processes, TiO<sub>2</sub> nanoparticles usually exhibit a high tendency to aggregate.<sup>13</sup> Therefore recently, researchers have investigated low-temperature methods for crystallization of TONTs to achieve the full benefit of the material properties.<sup>14,15</sup>

In this decade, low-temperature water-assisted treatment to crystallize amorphous TiO<sub>2</sub> nanotubes has evoked enormous interest in the scientific community. It is reported that amorphous as-anodized TONTs are immersed in water for 3–4 days at room temperature or in hot water at a temperature near 90 °C for 20 hours to attain an anatase phase.<sup>16,17</sup> These methods have the disadvantages of requiring very long incubation time and also the nanotubular structure getting damaged.<sup>18–20</sup> Another method for crystallization of TONTs is by treating them with water vapour but in the crystallization process amorphous NTs are converted to nanorod-like structures.<sup>12</sup> Aijo *et al.*<sup>21</sup> has reported room temperature crystallization by applying square pulses where crystallization begins to appear within the first five minutes of pulse treatment, leading to high crystallinity of tubes within 15 minutes. A few attempts to attain crystallization by doping TONTs with metal ions are also reported.<sup>22,23</sup> Although the doped TONTs exhibit satisfactory properties, they usually suffer from multiple and tedious steps that limit their usage.<sup>24–28</sup>

Here, we report successful conversion of amorphous TONTs to an anatase phase by a facile and novel method of doping the former with Al in an Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> electrolyte. This method has the multiple advantages of i) ultrafast conversion of amorphous TONTs to an anatase phase within a record time of 20 seconds without any structural or morphological

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### Outcome of the activity

Collaborative research works are very much helpful in the attainment of the objectives such as cooperation in the exchange of information relating to activities in research and in promoting appropriate joint research proposals.



## Department of Physics

### MoU with UANL, Mexico

#### Report

The MoU was signed between the Department of Physics, Union Christian College, Aluva and Facultad De Ingenieria Electrica, Universidad Autonoma De Nuevo Leon, Mexico for the development of cooperation in Research. Objectives are:

- 1) To promote joint research publications based on the results of collaborative research.
- 2) Cooperation in the exchange of information relating to activities in research.
- 3) To promote interaction of students and faculty for measurements and analysis.
- 4) To promote appropriate joint research proposals.

#### Activity

Faculties of both the Departments jointly published research papers.



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journal homepage: [www.elsevier.com/locate/tsf](http://www.elsevier.com/locate/tsf)



## Room temperature ammonia sensing of $\alpha$ -MoO<sub>3</sub> nanorods grown on glass substrates

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### ARTICLE INFO

**Keywords:**  
Molybdenum trioxide nanorods  
Vacuum thermal evaporation  
Ammonia gas sensors

### ABSTRACT

We report the fabrication of ammonia gas sensors operating at room temperature using aligned one-dimensional orthorhombic molybdenum trioxide ( $\alpha$ -MoO<sub>3</sub>) nanorods.  $\alpha$ -MoO<sub>3</sub> nanorods were fabricated on glass substrates by thermal evaporation under vacuum condition and subsequent annealing at ambient air. The selectivity of fabricated sensors was performed with different test gases viz. ammonia, xylene, acetone, toluene, isopropanol, 2-methoxyethanol, n-butanol, methanol, and ethanol. Highest sensitivity for ammonia gas at room temperature (28 °C, 35% relative humidity) for a concentration of 100 ppm, was achieved. The sensors annealed at 400 °C showed response to lower concentrations of ammonia (1 ppm) with high repeatability. The sensing response dropped only less than 1% after one year of stable performance. The change in morphology and the structural modifications of  $\alpha$ -MoO<sub>3</sub> nanorods with annealing had improved the sensing response.

### 1. Introduction

Ammonia (NH<sub>3</sub>) gas is one of the commonly used coolants in chemical, automobile, textile, and fertilizer industries [1]. It also finds applications in the advanced selective catalytic reductive type automobile exhaust systems [2]. The leakage and miscarriage of ammonia gas cause serious environmental, and health problems for even lower concentrations. The proper monitoring of ammonia gas concentration is crucial for a healthy environment as 16–28% of its concentration in the atmosphere considered as fatal [3,4]. Hence, the development of efficient gas sensors capable of detecting NH<sub>3</sub> in lower concentration (<100 ppm) at room temperature has academic and industrial significance. The ammonia gas sensing were generally carried out using various methods including gas chromatography [5], optical spectroscopy [6], electrochemical method [7] and using semiconductors [8]. Among these, transition metal oxide semiconductor gas sensors were recognized more efficient and cheap compared to others because of their advanced sensing response towards various gases [9–11]. Sensors made of one dimensional (1-D) transition metal oxides are more efficient because of

their ease of fabrication, high stability, quick response, and recovery, compared to other existing sensors. Molybdenum trioxide [12], tungsten oxide [13], tin oxide [9], indium oxide [14] titanium dioxide [15], copper oxide [16], zinc oxide [3], and zinc oxide-nickel oxide [17] were identified as good candidates for the sensing application. Among these, a highly stable orthorhombic 1-D molybdenum trioxide ( $\alpha$ -MoO<sub>3</sub>) is known for its distinctive gas sensing performance due to its unique layered structure, the variable valence of molybdenum, and availability of plenty of active sites to trap targeted molecules during gas sensing [18].

Several groups have investigated the 1-D  $\alpha$ -MoO<sub>3</sub> nanostructures for gas sensing applications [19,20]. L. Chen *et al.* [21] synthesized  $\alpha$ -MoO<sub>3</sub> nanorods by ultrasonic synthesis and performed NO<sub>2</sub> gas sensing characterization at a working temperature of 290 °C and studied the effect of chlorination in sensing response. Yang *et al.* [22] synthesized  $\alpha$ -MoO<sub>3</sub> nanoribbons by hydrothermal method for hydrogen sensing with higher concentrations (1000 ppm) at room temperature and reported a good response time of 14 s. Yang *et al.* [18] synthesized  $\alpha$ -MoO<sub>3</sub> nanobelts by hydrothermal method for the sensing of the Tri-methyl Amine (TMA) at

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## Outcome of the activity

Collaborative research works are very much helpful in the attainment of the objectives such as cooperation in the exchange of information relating to activities in research and in promoting appropriate joint research proposals.

## **MoU Between Bellarmine University, Kentucky, USA and Department of Malayalam, Union Christian College, Aluva**

The MoU between Bellarmine University and department of Malayalam, Union Christian College was signed on 18/12/2017 with no restriction of time period. Bellarmine University is a private Catholic university in Louisville, Kentucky. It opened on October 3, 1950, as Bellarmine College, established by Archbishop John A. Floersch of the Archdiocese of Louisville and named after Saint Robert Bellarmine. In 2000, it became Bellarmine University. The MoU was signed with an objective of cultural exchange of two institutions with students, faculty and staff travelling at mutually agreed times to visit the campus and community to promote understanding and good will.

### **Report of the activity and Proof**

#### **Activity 1**

Cultural exchange took place between department of Malayalam and Bellarmine University, USA. The students of Bellarmine University visited Union Christian College and various Cultural programs was conducted on 18th Dec 2018.

#### **Activity 2**

As Part of the Cultural Exchange Programme an eight-member team from the Bellarmine University visited the Department of Malayalam, U.C. College on 18-12-2019. Various cultural events were performed both by the visiting team and our students.

Proof is photographs of cultural program as well as that of the students of both institutions.







## Outcome of the activities

Students of both Department of Malayalam and Bellarmine University benefitted from these academic visits from their mutual interaction and co-operation and the presentation of cultural activities.

## Collaboration Between Kerala Bhasha Institute and Department of Malayalam, Union Christian College

The Collaboration between Kerala Bhasha institute and department of Malayalam was signed on 14-07-2017 for four years with an objective of conducting joint seminars, workshops, book exhibitions and book releases. The **Kerala Bhasha Institute** is an academic publishing house in India that was established on 11 March 1968. It is located in Thiruvananthapuram in Kerala. It publishes books on science and technology, the arts, literature, folklore and information technology. In addition to book publication, the institute also runs translation camps, book festivals, computer training and seminars.

### Report of the activities and proof

#### Activity 1

Department of Malayalam in collaboration with Kerala Bhasha Institute organized a seminar in memory of K. Saraswathiyamma on 7th August 2019. Smt. Gracy (story writer) inaugurated the function and Shri. Kalpetta Narayanan(writer), Shri. N. Jayakrishnan (Asst. Director, Kerala Basha Institute) and Dr. Muse Mary George delivered lectures in this programme.





## Activity 2

Two Day Seminar named “Kuttipuzha Darsanavum Vimarsanavum” in memory of famous writer Kuttipuzha Krishnapilla was held in January 2020 in collaboration with Kerala Bhasha Institute. Dr. K.P. Mohanan (Secretary, Kerala Sahitya Akademi) inaugurated the Programme. Dr. C.J Roy (Rtd. Professor, Madura Kamaraj University), Dr. P. Geetha (Writer and social activist), Dr. P. Pavithran (Professor of Malayalam Dept. in Sanskrit University Kalady, Dr. K.M. Anil (Director, Thunchath Ezhuthachan Malayalam University), Shri N. Jayakrishnan (Asst. Director, Kerala Bhasha Institute), Dr. Mini Alice, Dr.V.P. Markose, Dr. Muse Mary George delivered lectures in this programme. Prof. M. N. Karasseri ((Rtd. Professor Calicut University, writer and critic) was the chief guest in the closing session.



## Outcome of the Activities

Students benefitted from day long seminars which saw the participation and speeches of acclaimed writers of Kerala.

## Department of Physics

### MoU regarding establishment and running of P.N. Gopalakrishnan Pillai Memorial Endowment

#### Report

The MoU was signed between the Department of Physics, Union Christian College, Aluva and the family of Late P.N. Gopalakrishnan Pillai intending to establish an Endowment in his name. Objective is to establish an endowment in the name of P.N. Gopalakrishnan Pillai in the Department of Physics and intended to provide merit cum means scholarship to one M.Sc. Physics student each year and to help build up a library in the Department.

#### Activity

##### 1. Endowment







Aiswarya A.S. receiving P.N. Gopalakrishnan Pillai scholarship in the year 2021-22 from the Head of the Department Dr. Manu Punnen John

2. Purchased books to the Department library under this agreement.



REFERENCE BOOK SHOP		INVOICE CREDIT						
<b>RBS</b> C.S.S. SHOPPING COMPLEX, CONVENT ROAD, Near Public Library, Cochin - 35, Email Id : rbsckm@gmail.com Phone : 9447510078, 9207030348 TIN No. 32A1DPA0137H124		Invoice No. 1418 Invoice Date 03/08/2018 Order No. Order Date / /						
Name & Address Of Purchasing Dealer : THE PRINCIPAL, U C COLLEGE, ALUVA.								
Sr. No.	Particulars	Cur.	Qty	Rate	Gross Amount	Dis. %	Discount Amount	Net Value
1	LEACH : DIGITAL PRINCIPLES AND APPLICATIONS	R	1	610.00	610.00	20.0	122.00	488.00
2	MITSER : CONCEPTS OF MODERN PHYSICS 7TH ED.	R	1	695.00	695.00	20.0	139.00	556.00
3	GROFFITHS : INTRODUCTION TO ELECTRODYNAMICS	R	1	469.00	469.00	20.0	93.80	375.20
4	SUBRAMANIAM : A TEXT BOOK OF OPTICS	R	1	599.00	599.00	20.0	119.80	479.20
5	GUPTA : UNIKAS CSIR-UOC NET/JRF/SET : PHYSICAL SCIENCES PB	R	1	550.00	550.00	20.0	110.00	440.00
6	SATYA PRAKASHI : MATHEMATICAL PHYSICS : WITH CLASSICAL MECHANICS	R	1	745.00	745.00	20.0	149.00	596.00
7	KRANE : INTRODUCTORY NUCLEAR PHYSICS	R	1	1495.00	1495.00	20.0	299.00	1196.00
8	MANO : DIGITAL LOGIC AND COMPUTER DESIGN : (PB)	R	1	749.00	749.00	20.0	149.80	599.20
<b>Total :</b>			<b>8</b>		<b>5912.00</b>		<b>1182.40</b>	<b>4729.60</b>
							<b>Round Off</b>	<b>+0.40</b>
							<b>Grand Total</b>	<b>4730.00</b>
Rupees Four Thousand Seven Hundred Thirty Only Dollar : 72.10      Pound : 94.40      Euro : 83.90								
<b>E&amp;OE</b> Certified that the rates at which the foreign currencies are converted in to Indian Rupees are as per the GOC in force as on the date of the invoices and if any excess found to be claimed later in the same will be adjusted in our subsequent bills or refunded by us. The prices charged in this bill are publisher's current price. Latest editions are supplied. Books supplied in this bill are not remainder titles.								
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## Outcome

This endowment is an encouragement to the PG students in the department. Collaborative research works are very much helpful in the attainment of the objectives such as cooperation in the exchange of information relating to activities in research and in promoting appropriate joint research proposals.

## Department of Physics

### MoU with CUSAT

#### Report

The MoU was signed between the Department of Physics, Union Christian College, Aluva and Centre of Excellence in Advanced Materials, Cochin University of Science and Technology to foster collaboration in research. Objectives are:

- 1) To promote joint research publications based on the results of collaborative research.
- 2) Cooperation in the exchange of information relating to activities in research.
- 3) To promote interaction of students and faculty for measurements and analysis.
- 4) To promote appropriate joint research proposals.

#### Activity

Faculties in both the Departments jointly published research papers.



## Room temperature intrinsic ferromagnetism in pulsed laser ablated few layers of 2D-WS<sub>2</sub> on Si/SiO<sub>2</sub> substrates

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### ARTICLE INFO

Article history:  
Available online 22 April 2022

Keywords:  
Pulsed laser deposition (PLD)  
Ferromagnetism  
Spintronic devices

### ABSTRACT

In this work we report the room temperature intrinsic ferromagnetism of pulsed laser deposited few layers of WS<sub>2</sub>. The ablation was carried out by employing the fourth harmonics of Q-switched Nd-YAG laser (266 nm) at a temperature of 700 °C on Si/SiO<sub>2</sub> substrates. Few layers of WS<sub>2</sub> were confirmed by Raman and AFM measurements. The photoluminescence spectrum reveals the defect free nature of few layers of WS<sub>2</sub> and exhibits intense emission near the band gap. VSM measurements have explored the room temperature intrinsic ferromagnetism in a few layers of WS<sub>2</sub> thin films with a saturation magnetisation of 20.1 μemu. This is the first report of intrinsic ferromagnetism in PLD grown few layers of WS<sub>2</sub>. The room temperature intrinsic ferromagnetic properties in a few layers of two dimensional WS<sub>2</sub> can be exploited to design atomically thin spintronic devices.

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Selection and peer-review under responsibility of the scientific committee of the International Conference on Emerging Trends in Material Science and Technology – 2022.

### 1. Introduction

Inspired by the discovery of graphene two dimensional (2D) transition metal dichalcogenides (TMDCs) received much interest in the field of material science [1,2]. These low dimensional materials with unique optical and electronic properties will be dominant in the upcoming generation of optoelectronic devices [3]. They exhibit X-M-X layered structure with a metal atomic layer sandwiched between the chalcogen layers [4,5]. This layered structure allows them to make a cross over from indirect band gap to direct band gap when they are scaled down from bulk to mono [few layers [6–8]. In the group of TMDCs WS<sub>2</sub> is a prominent member and the least investigated one compared to others. It possesses the highest carrier mobility due to its smallest effective electronic mass, strong thermal stability, more resistance to oxidation and larger spin–orbit coupling etc [9,10]. Some of the major application of WS<sub>2</sub> includes sensors[11], transistors[12], photovoltaics, hydrogen storage etc [13,14].

The optical and electrical properties of 2D materials are most investigated based on these applications. The magnetic features

of these layered materials remain unexplored to a great extent. The magnetic studies reveal the ferromagnetic behaviour of mono/few layer TMDCs rather than the diamagnetic character of the bulk TMDCs[15]. Tuning the magnetic properties in 2D layered materials can open up new perspectives in the future of spintronic and quantum information devices [16,17]. A ferromagnetic semiconductor allows the controlled generation and detection of spin currents, which facilitate the fabrication of low dimensional spintronic devices. There was many attempts performed to induce long-range ferromagnetism in 2D materials. Introduction of defects into the lattice, transition metal doping, applying tensile strain, modification in the edge structure and saturation rate etc are some of the methods to realize the ferromagnetic behaviour in these materials [18]. Lie et al [19] proposed the magnetic properties of MoS<sub>2</sub> nanoribbons with armchair and zigzag edges using first-principle calculations. Zhang et al examined the ferromagnetism in WS<sub>2</sub> nanoribbons with zigzag edges using the first principle calculation [20]. Most of the reported works on magnetic studies are restricted to the theoretical aspects of WS<sub>2</sub>. There are reports on experimental studies on the magnetic characteristics of WS<sub>2</sub>. Ding et al [21] reported the enhanced ferromagnetism induced by defects in WS<sub>2</sub>. In another report room temperature ferromagnetism exhibited by high quality vanadium doped WS<sub>2</sub> monolayers

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## PAPER

### Nano fibers of lead free perovskite Cesium Titanium Bromide (CsTiBr<sub>3</sub>) thin films by in-house deposition technique

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**Keywords:** Cesium Titanium Bromide, two stage deposition, lead free, grain boundary grooving

## Abstract

A novel lead free nano fibers of Cesium Titanium Bromide (CsTiBr<sub>3</sub>) perovskite is synthesized on commercial glass substrate by a two stage deposition method for the first time. Cesium Bromide thin film prepared by vacuum evaporation by resistive heating is the substrate for deposition of Titanium Bromide (TiBr<sub>4</sub>) vapor by an in-house deposition arrangement. The duration of deposition of TiBr<sub>4</sub> vapor on CsBr thin film plays a key role on the structural, compositional and morphological properties of CsTiBr<sub>3</sub>. The mechanism behind the formation of nano fibers of CsTiBr<sub>3</sub> from polygonal grains of CsBr is discussed in detail. The grain boundary grooving of CsBr polygonal grains influences the evolution and dimension of CsTiBr<sub>3</sub> nano fibers. The nano fiber structure and lead free nature makes this novel perovskite a promising candidate for sensors, nanolasers and for future nanoelectronics.

## 1. Introduction

Organic-inorganic halide perovskites and all-inorganic halide perovskites have received attention in various applications like solar cells [1–5], light emitting diodes [6–11], field effect transistors [12, 13], photo detectors [14–17] and sensors [18–20]. The combined advantages of flexibility and low cost of the organic part and high mobility and thermal stability of inorganic part make the hybrid organic-inorganic perovskites (HOIP) as a good choice for the above applications. Methyl Ammonium Lead Halide (MAPbX<sub>3</sub>) and Formamidinium Lead Halide (FAPbX<sub>3</sub>) perovskites are the pioneers among these HOIPs due to their remarkable properties of long charge diffusion length, band gap tunability and ambipolar charge transport. The intrinsic thermal instability of these compounds attributed to their organic part is a limitation for the fabrication of MAPbX<sub>3</sub> and FAPbX<sub>3</sub> based electronic devices. The inorganic part of these compounds is toxic too [21–24]. All-inorganic metal trihalide perovskites, on the other hand, show more electronic and thermal stability than the organic-inorganic metal halide perovskites and are remarkable for optoelectronic applications [25–28]. The first synthesized perovskite was all-inorganic metal trihalide CsPdX<sub>3</sub> (X = Cl, Br, I) [29]. The frequency dependent photoconductivity of these compounds was demonstrated in 1950's. Among the various all-inorganic perovskites, Cesium Lead Halides CsPdX<sub>3</sub> and Cesium Tin Halides CsSnX<sub>3</sub> are the mostly studied. All-inorganic perovskites are good as active layers of solar cell, photo detectors, light emitting diodes and sensors. These compounds are also used as flexible printable devices [30–37].

The chemical and physical properties of perovskite materials depend on the dimensionality and morphology. Lower dimensional (2D and 1D) perovskites are superior to their three dimensional structure, being potential building blocks for photo detectors, nano-lasers, mini-solar cells, sensors and nano-electronics [38–40]. 2D MAPbI<sub>3</sub> synthesized by solution process and CsPbX<sub>3</sub> prepared by lower temperature synthesis were good in functioning as Light Emitting Diodes, Solar cells, Photo-field effect transistors, cold converters and wave-guides. 1D perovskites have high crystalline quality, longer carrier diffusion length, superior carrier transportation and high quantum-efficiency. The photo-electronic performance is found to be enhanced in 1D

## Outcome of the activity

Collaborative research works are very much helpful in the attainment of the objectives such as cooperation in the exchange of information relating to activities in research and in promoting appropriate joint research proposals and publications.

## Report of the MOU with The Kerala Cricket Association and Union Christian College, Aluva (Physical Education Department)

The MOU between Union Christian College, Department of Physical Education and Kerala Cricket Association was signed on 5/6/ 2019 for a period of 1 year.

### Activity and Proof

As per the MoU, the activities include trainee selection, sharing sports facilities of the college to the students of the academy etc. Providing admission to outstanding women cricket players chosen by Kerala Cricket Association and providing food, boarding and lodging in college hostel along with the sports training facilities to promote cricket as a sport among young women. Such students have proved their mettle in certain interzone tournaments. So far 20 students have undergone training and have started representing college in various tournaments and have brought laurels to college, university and state

**KERALA CRICKET ASSOCIATION**  
(MEMBER, BOARD OF CONTROL FOR CRICKET IN INDIA)



KCA COMPLEX, T.C. 2413161,  
SASTHAMKOVIL ROAD, THYCAUD,  
THIRUVANANTHAPURAM - 695 014

TELE & FAX : 0471 2326522  
E-MAIL : [keralacricketon@gmail.com](mailto:keralacricketon@gmail.com)  
WEBSITE : [www.keralacricketaassociation.com](http://www.keralacricketaassociation.com)

The Principal  
Union Christian College  
Aluva

01-08-2017

Respected Sir,

At the outset Kerala Cricket Association take this opportunity to thank you and the college management for permitting us to start a women cricket academy and also for admitting five of our girls in the college and hostel. We are sure that this gesture will definitely bring a transformation in the women cricket scenario. We hope that the effort put in by you and KCA will bring out positive results in the performance of the girls.

With regard to the expenses regarding the five players studying and staying there, we understand that the payments are to be made in three installments as under

Item	Amount per installment
Room rent	970.00
Committee fee	90.00
Establishment fee	5430.00
<b>Total</b>	<b>4490.00</b>
Food charges per day per player	200.00

We request you to kindly raise an invoice along with your bank details every four months so that we can transfer the amount to your bank account.

Looking forward to a long standing relationship

With warm regards

  
Ronjit Thomas  
General Manager





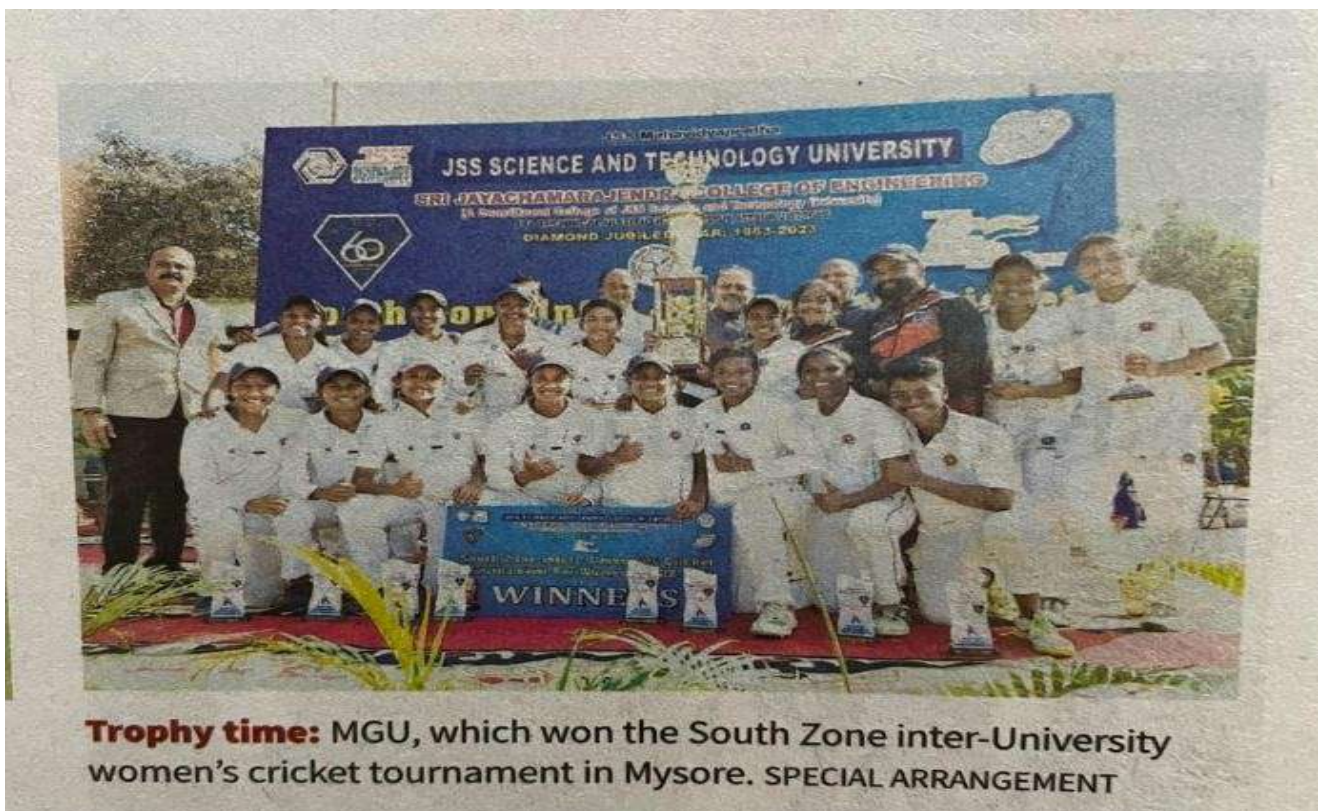


**KERALA CRICKET ASSOCIATION  
CRICKET ACADEMIES & SPORTS HOSTEL, KERALA  
KCA WOMENS COLLEGE ACADEMY (2018 - 19)**

Zone: Central  
Academy: KCA Womens College Academy, EKM  
District: Ernakulam  
Place: Aluva, EKM  
Category: Senior Girls  
Year: 2018 - 19

Sl No	Name	College	Class (2018 - 19)	D.O.B	Course	Home District	Skill Proficiency	Date of Joining (KCA Academy)	Contact No
<b>A. Following Players of KCA Womens College Academy, Aluva Ernakulam are selected / retained to continue for the year 2018 - 19.</b>									
1	Joathina P M	U C College, Aluva	2nd Year	20.01.2000		Kozhikode	RAMP / RHMOB	06.02.2013	9539906473
2	Maneesha C K	U C College, Aluva	2nd Year	20.08.1999		Kozhikode	WK / RHMOB	06.02.2013	9539252172
3	Darsana Mohanan	U C College, Aluva	2nd Year	30/12/1999		Wayanad	RAOS / RHTOB	06/02/2013	9562449380
4	Anjana N R	U C College, Aluva	2nd Year	18.11.1997		Thrissur	RAMP / RHMOB		9556562771
5	Elizabeth Abraham	U C College, Aluva	3rd Year	13.07.1998		Ernakulam	RHTOB		9961871553
<b>Following KCA Zonal Academy players are selected to join the KCA Womens College Academy, Aluva (EKM) for the year 2018 - 19.</b>									
1	Ansu Sunil	North Zonal Girls CA, WYND	Degree 1st Yr	23.11.2020		Pathanamthitta	RHTOB	01.06.2014	6262337398
2	Aleena Surendran	North Zonal Girls CA, WYND	Degree 1st Yr	29.11.2000		Idukki	LHTOB / RAMP	01.06.2014	7559875939
3	Sandra Suran	North Zonal Girls CA, WYND	Degree 1st Yr	20.09.1999		Pathanamthitta	RHMOB / RAOS	05.06.2013	9526940019
4	Sourabhya P	North Zonal Girls CA, WYND	Degree 1st Yr	21.04.2001		Kannur	RAMP / RHMOB	01.06.2013	9544385596
5	Sayoojya K S	North Zonal Girls CA, WYND	Degree 1st Yr	28.06.2001		Thrissur	RHTOB	01.06.2016	8921766364
<b>Details of Coaching / Supporting Staff</b>									
Name	Designation	Sex	Date of Birth	Level of Coaching	Home District	E - Mail	Date of Joining (KCA)	Contact No	
Umesh N K	Coach	M	31.05.1982	A	Ernakulam	umesh.nk1@gmail.com	01.06.2009	9745201688	
<b>Summary</b>									
No of College Academy trainees continuing next year									5
No of Zonal Academy trainees selected to KCA College Academy at U C College, Aluva (EKM)									5
No of trainees who are weeded out									0
No of trainees who are leaving after successful completion of course / time at the Academy									0
<b>Total Strength (Present)</b>									10















### Outcome of the activity

Academy nominated 20 students have undergone training and have started representing college, district and state tournaments.

## MoU Between Kunnukara Panchayat and Union Christian College (Malayalam Department)

MOU between Kunnukara Panchayat and Union Christian college (Malayalam Department) is signed on 22/03/2018 with no restriction of time period and an objective of disseminating knowledge and cultural understanding of students and faculty of the department among the rural population of Kunnukara Panchayat, thereby meeting the larger goal of education as a social good. This MOU is signed in the honour of Kuttipusha Krishna Pilla, a well acclaimed Professor of department of Malayalam. The activities under this MOU involves, essay or paper writing competitions and best paper to be given the Kuttipusha Krishna Pilla award. It also includes other activities like joint exhibitions and library visits.

### Report of the activity and proof

#### Activity 1

Inauguration of Kuttipuzha krishnapilla smaraka library and research centre by faculty of department of Malayalam. Brochure and photo of the inauguration is presented as proof.





## Activity 2

The Department of Malayalam in association with Kunnukara Panchayath, and Sashtra Sahitya Parishath conducted an Eco friendly products exhibition 'Koodu Bhoomikkai Nalekkai on 17th February 2021. Shri. Asha Menon famous writer and reviewer inaugurated the exhibition. Students from nearby



schools visited the exhibition.



### Outcome of the Programs

Students were active participants in these cultural programs and they gained knowledge, displayed creativity as well as organisational skills in doing these programs.



## Report of the linkage with Coral Business Solutions, Kochi and Union Christian College, Aluva (School of Computer Applications)

The linkage between Union Christian College, School of Computer Applications and Coral Business Solutions, Kochi was signed on 01/03/2018 for a period of 3 years.

### Activity and Proof

The linkage agreement was signed to associate with Coral Business Solutions, Kochi to provide Workshops, Recruitment drives and sessions on industry practices to the students. The photos of the recruitment drive conducted is attached herewith.









## Sample of offer letter issued to students



Management & Software Solution Providers

Ref. No: OFR/CBS/IND/160

22/12/2020

### OFFER LETTER

(Private & Confidential)

Mr. Jibin Jacob  
India

Dear Mr. Jibin,

We are pleased to offer employment in the position of Junior Technical Support Engineer(Trainee). Your employment with the firm will commence from the date on which you join the firm.

This Offer is subject to the following terms and conditions:-

**1. REMUNERATION**

Your total remuneration will be Rs. 10,000/- per month including all allowances.

**2. DATE OF JOINING**

You have to join on 28-12-2020.

**3. PROBATION**

You are required to serve a probationary period of 6 months after which your employment will be confirmed subject to satisfactory performance. The probationary period may be extended or shortened at the absolute discretion of the Company.

**4. BOND at the employment**

During the employment, you will be entering to a compulsory bond of two years. During the period of bond you are not able to break your contract and in case of any failure, you have to refund the money you have received from the company. The details of this claim will be settled by the arbitrator appointed by the court.

**5. NOTICE PERIOD**

A notice period of 1 month is required to relieve you from your responsibilities.

**6. WORKING HOURS**

Your regular office timing will be 9.00AM to 6.00 PM from Monday to Saturday (including lunch and tea break). Time schedule may change as per the requirement of the company.

**7. RULES, REGULATIONS & CONFIDENTIALITY**

You shall at all times, devote your full attention and skill to the affairs of the Company and will endeavor to your utmost ability to promote and advance the interests of the Company.

**8. DUTIES AND RESPONSIBILITIES**

[www.coralbm.com](http://www.coralbm.com)

UAE: P.O. Box 232086, Tel: +971 4 2978010, Fax: +971 4 2978010, Dubai - United Arab Emirates, Email: [sales@coralbm.com](mailto:sales@coralbm.com)  
INDIA: Tel: +91 484 2524991, Kottampalam Road, Kottayam, India



Management & Software Solution Providers

You are required to perform the duties and responsibilities related to your position at any division, department or section in the Company or within the Group of Companies

Accordingly, you undertake that:

1. You will under no circumstances make available your services to any undertaking, or have any interest directly or indirectly in any other undertaking or activity which might interfere with the proper performance of your duties without first obtaining the written permission of the Company.
2. You will not at any time during the continuance or after the termination of your services with the Company irrespective of any reason for such termination, make use or disclose to any party either for your own benefit or for the benefit of any party (individual, firm, company, any trade or business), the affairs and confidential information of the Company or any of its related companies of which you have knowledge or become aware during the course of your service with the Company.
3. You will obey and comply with all reasonable orders and instructions given to you by the Company or its authorized agents and observe all standing and other rules and/or regulations now in force or from time to time approved by the Company.

Thanking you.

Sincerely yours,



Princy Shibu

HR Manager

Mob:9745230228

Coral Business Solutions

I hereby confirm my acceptance of the foregoing terms and conditions of employment and confirm that I am medically fit to perform my duties and responsibilities of my designation.

(Name & Signature)

Date: .....

[www.coralbss.com](http://www.coralbss.com)

UAE: P.O. Box 232806, Tel. +971 4 2678010, Fax +971 4 2678010, Dubai - United Arab Emirates. Email: [sales@coralbss.com](mailto:sales@coralbss.com)  
INDIA: Tel. +91 484 2624001, [hr@coralbss.com](mailto:hr@coralbss.com) Kochi, India

## Outcome of the Activity

The students got placed in the drive conducted by Coral Business Solutions, Kochi.

## Report of the MOU with EXPRESSbase Systems Pvt.Ltd., Kochi and Union Christian College, Aluva (School of Computer Applications)

The linkage between Union Christian College, School of Computer Applications and EXPRESSbase Systems Pvt.Ltd. Kochi was signed on 01/3/2018 for a period of 3 years.

### Activity and Proof

The linkage was signed to associate with EXPRESSbase Systems Pvt.Ltd. Kochi to provide Workshops, Recruitment drives and sessions on industry practices to the students. The photos of the recruitment drive are attached herewith.



The poster is for a 'Pooled Campus Recruitment Drive' organized by the Training & Placement Cell, MCA, Union Christian College, Aluva. It features a yellow banner at the top with the title in black text. Below the banner, the text 'By EXPRESSbase Systems Pvt Ltd, Kochi' is displayed in white. The date 'Date : November 26, 2018' and venue 'Venue : MCA Block' are written in yellow. The target audience is '2018 passout MCA & B Tech students'. The bottom section, separated by a white line, states 'Organized by TRAINING & PLACEMENT CELL, MCA UNION CHRISTIAN COLLEGE, ALUVA' in white text. The Union Christian College logo is in the bottom left corner.

**Pooled Campus Recruitment Drive**

By  
**EXPRESSbase Systems Pvt Ltd, Kochi**

*Date : November 26, 2018*  *Venue : MCA Block*

*2018 passout MCA & B Tech students*

---

Est. in 1921  **Organized by**  
**TRAINING & PLACEMENT CELL, MCA**  
**UNION CHRISTIAN COLLEGE, ALUVA**







### Outcome of the activity

The students got placed in the drive conducted by EXPRESSbase Systems Pvt.Ltd, Kochi.

കേരളം കേരള KERALA

F 879323

### DEED OF AGREEMENT

THIS DEED OF AGREEMENT executed on this Twelfth day of March, 2019 between PAUL K. MATHEW, aged 47 years, S/o. K.P. Mathew, Kulangara Thekke Puthenveedu, Convent Road, North Paravur P.O., Paravur Village, Paravur Taluk, Ernakulam District- 683513 (hereinafter called "the First Party") of the one part AND Union Christian College, Aluva, (hereinafter called "the Second Party") represented by its Principal, Dr. Thara K Simon, aged 53 years, W/o. Jacob Elias, U.C. College P.O, Aluva, of the other part.

Whereas the first party, the absolute owner in possession of the entire items mentioned in the scheduled list here to the annex, is desirous to donate his entire items in the list by way of gift in favour of the second party. The deed of gift witness as follows

1. The items received from the first party will be kept as a single collection.



P1

Dr. THARA K. SIMON  
Principal  
Union Christian College  
Aluva-2



തയ്യാർ ചെയ്ത തീയതി 11/3/19 മുഖ  
The Principal Union Christian College  
Aluva - 683102

രമണി വി.കെ.  
സാക്ഷി വെണ്ടർ അലുവ



2. The collection of items received from the first party will be named as Paul Mathew Kulangara Gallery and has to be displayed by the second party in the U C College museum.

The original deed shall be kept in the custody of the first party and the photocopy of the same shall be taken by the second party.

In witness whereof the First Party and Second Party have put their respective hands on this on the date month and year first above written.

First Party : PAUL K. MATHEW

Second Party : Dr. THARA K. SIMON

Witness :

1. Seena M. Mathai
2. Jense Peter

First Party : PAUL K. MATHEW

Second Party : Dr. THARA K. SIMON

**List of objects in Kulangara Collection, Paul Mathew Kulangara Gallery, Union Christian College, Aluva**

Sl. No	Name of Object	Quantity	Remarks
1.	Gramophone	01	Gift
2.	Small gramophone discs	09	Gift
3.	Big gramophone discs	22	Gift
4.	Kindi	1	Gift
5.	Lamp	1	Gift



Dr. THARA K. SIMON  
Principal  
Union Christian College  
Aluva-2



6.	Oar of a boat	1	Gift
7.	Glass bottle	1	Gift Green with stopper
8.	Butter churning pot with lid	1	Gift
9.	Chain with rod	1	Gift, Broken
10.	Oval ceramic plate white	1	Gift, Made in London
11.	Bengal Potteries ceramic plate	1	Gift
12.	Glass tumbler and glass set	1	Gift
13.	Parker Ink pot	1	Gift
14.	Century calculator disc	1	Gift
15.	Small Portable scale with wooden case	1	Gift
16.	Palm leaf grantha	1	Gift
17.	Rasipalaka	1	Gift
18.	Wall hanging wooden	1	Gift
19.	Palm leaves from Chottanikara	1	Gift, Loose 56 leaves
20.	Stamps in one collection	374	Gift
21.	Stamp in an album	768	Gift
22.	Victory Stamp Album 1937 pre-World War	1	Countries that do not exist today are printed on each page
23.	Elephant tooth	1	Gift
24.	Leather handmade bag	1	Gift
25.	Blue container with wooden lid	1	Gift
26.	Tea pot	1	Gift
27.	Coconut shell spoon	1	Gift
28.	Bottle with olive oil from London made in 1918	1	Gift
29.	Textile items used ceremonially by men during functions	2	Gift
30.	Inkpot open type	1	Gift
31.	Small carved brass dish	1	Gift
32.	Paper made Victory seal	1	Gift
33.	Blue on white milk kettle	1	Gift
34.	Wooden case for medicines	1	Gift



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Dr. THARA K. SIMON  
Principal  
Union Christian College  
Aluva-2

35.	Tray made of silver and glass	1	Gift
36.	Champagne bottle	1	Gift
37.	Ceramic plate made in Holland	1	Gift
38.	Ceramic by Adam and Co England	1	Gift
39.	Ceramic plate by Kerala Potteries	1	Gift
40.	Peacock blue wine bottle 20 ounce	1	Gift
41.	Peacock blue wine bottle 10 ounce	1	Gift
42.	Peacock blue wine bottle 5 ounce	1	Gift
43.	Dark blue on white small pot	1	Gift
44.	Wooden box	1	Gift
45.	Colander and tiffin carrier Aluminum	1	Gift
46.	Glass lamp	1	Gift
47.	Square ink pot	1	Gift
48.	Vettila Box brass small	1	Gift
49.	Vettila Box brass medium	1	Gift
50.	Poothalika	1	Gift
51.	Menthol cone	1	Gift
52.	Cigar case wood	1	Gift
53.	Painted wooden case	1	Gift
54.	Cup with stand	1	Gift
55.	A wooden chest with cufflinks, keys and buttons	1	Gift
56.	Petromax lamp part	1	Gift
57.	Crochet set plastic	1	Gift
58.	Chinese ceramic pot with broken lid	1	Gift
59.	Wooden model elephants	2	Gift
60.	Sieve with handle	1	Gift
61.	Wooden chest	1	Gift
62.	Umikarikotta hanging type made of a single piece of wood	1	Gift
63.	Murphy radio	1	Gift
64.	Ceramic swan	1	Gift
65.	Czechoslovakian violin	1	Gift
66.	Blue tin with sieve inside	1	Gift
67.	Manicheppu	1	Gift
68.	Perfume glass bottle	1	Gift
69.	Small brass chest	1	Gift
70.	Brass arathi lamp	1	Gift



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Dr. THARA K. SIMON  
Principal  
Union Christian College



110.	Vedapusthaka Nighantu 1937	1	Gift
111.	Christian Directory 1910	1	Gift
112.	Kerala Directory 1966	1	Gift
113.	Madras State Directory 1929	1	Gift
114.	1930 Book	1	Gift
115.	New Testament in Tamil 1860	1	Gift
116.	Book by K KKuruville --	1	Gift
117.	Swamikal 1962	1	Gift
118.	Letter from G Sankara kurup 1961	1	Gift
119.	Bible in Sanskrit sloka	1	Gift
120.	Photos in albums	3 albu ms 621 photo s	Gift
121.	Telegram 1964	3	Gift
122.	Vellikol	1	Gift
123.	Montha	1	Gift
124.	Chellam	1	Gift
125.	Idangazhi	1	Gift
126.	Thalika	1	Gift
127.	Kuzhal Pathram	1	Gift
128.	Survey maps published in 1956	30	Gift
129.	Egg beater iron	1	Gift
130.	St George statue	1	Gift
131.	Ceramic plates	7	Gift
132.	Iron casserole green	1	Gift
133.	Iron kettle brown	1	Gift
134.	Water jar	1	Gift
135.	Iron spoon	1	Gift
136.	Glass kitchen utensil	1	Gift
137.	Ceramic incense burner	1	Gift
138.	Seal	1	Gift
139.	Horn of an animal	1	Gift
140.	Parrot made of wood	1	Gift
141.	Gramophone discs	1	Gift
142.	Knife	1	Gift
143.	Old type of keys	1	Gift
144.	Dishes metal	3	Gift



21



Dr. THARA K. SIMON  
Principal  
Union Christian College  
Aluva-2

145.	Roof tiles 1865 Basel mission patent	2	Gift
146.	Adakkavetti/ Pakkuvetti metal	1	Gift
147.	Pen knife	1	Gift
148.	Old lemon squeezer glass	1	Gift
149.	Horn of an animal	1	Gift
150.	Bharani	1	Gift
151.	Rasi coins	30	Gift
152.	Coins	191	Gift
153.	Adharam Original	1	Gift
154.	Adharam photocopies	2	Gift
155.	Document related to church in English and Syriac photocopies whose originals are kept in Parur Marthoma church	3	Gift
156.	Original Document of land	1	Gift
157.	Original document of the boat	1	Gift
158.	Silver plates	2	Gift
159.	Silver spoons	14	Gift
160.	Box Rosewood	1	Gift
161.	Silver plate	2	Gift
162.	Silver photo frame	2	Gift
163.	Small kindi with lid brass	1	Gift
164.	Cigarette case wood	1	Gift
165.	Silver spoon large	1	Gift
166.	Small wooden box	1	Gift
167.	Laminated photo of the Paravur Synagogue	1	Gift



Dr. THARA K. SIMON  
Principal  
Union Christian College  
Aluva-2



## Department of English

### Linkage with Mar Thoma College for Women, Perumbavoor

#### Report

The Department of English, Mar Thoma College for Women, Perumbavoor, Ernakulum District, Kerala, and the Department of English, Union Christian College, Aluva Ernakulum District, Kerala established this Linkage Document on 05.06.2019 to foster cooperation in professional development of students and faculty. Objectives include:

1. To encourage the following activities, particular to promote academic collaboration, collaboration in sharing of expertise, exchange of materials in education, publication and academic information for professional development. and other technical assistance.
2. To discuss the problems involved to the satisfaction of each party and enter into specific agreements based on the mutually agreed objectives and outcomes of the relationships.

#### Activities

The Department of English, Mar Thoma College for Women, Perumbavoor organized an invited talk on "Film Studies" by Prof. Cheri Jacob K., Head of the Department of English, U.C. College, Aluva, on 25 June 2019. Students enthusiastically engaged with the speaker in discussions about recent trends in film criticism.

Inauguration of the activities of the English Association of Mar Thoma College, Perumbavoor for the academic year 2019-20 was conducted on 25 June 2019 by Prof. Cheri Jacob K., Head of the Dept. of English, U. C. College, Aluva. Students who secured University Ranks in the previous year's examination were felicitated during this occasion.



### Invited Talk on "Film Studies"

An invited talk on "Film Studies" by Prof. Cheri Jacob K., Head of the Department of English, U. C. College, Aluva, was organized on 25 June 2019 in the College Auditorium. Students enthusiastically engaged with the speaker in discussions about recent trends in film criticism.

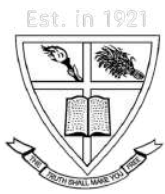


## Outcome of the activity

Inauguration of the activities of the English Association for the academic year 2019-20 was conducted on 25 June 2019 by Prof. Cheri Jacob K., Head of the Dept. of English, U. C. College, Aluva. Students who secured University Ranks in the previous year's examination were felicitated during this occasion.



Familiarize students with the open course on 'Film Appreciation'.



# UNION CHRISTIAN COLLEGE, ALUVA

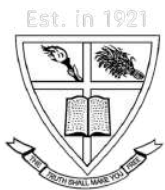
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SSR  
5<sup>th</sup> CYCLE  
2023





## Department of Physics MoU with UANL, Mexico Report

The MoU was signed between the Department of Physics, Union Christian College, Aluva and Facultad De Ingenieria Electrica, Universidad Autonoma De Nuevo Leon, Mexico for the development of cooperation in Research. Objectives are:

- 1) To promote joint research publications based on the results of collaborative research.
- 2) Cooperation in the exchange of information relating to activities in research.
- 3) To promote interaction of students and faculty for measurements and analysis.
- 4) To promote appropriate joint research proposals.

### Activity

Faculties of both the Departments jointly published research papers.

Applied Physics A (2022) 128:1089  
<https://doi.org/10.1007/s00339-022-06246-w>

Applied Physics A  
Materials Science & Processing



## Band gap engineering of TiO<sub>2</sub> by Mn doping and the effect of p-TNT: Mn/n-MnO<sub>2</sub> heterojunction on photocatalytic applications

Priya S. Nair<sup>1,2</sup> · Hiba Rahman<sup>1</sup> · Julie Ann Joseph<sup>1</sup> · Aleena Norbert<sup>1</sup> · Sadasivan Shaji<sup>3</sup> · S. Tripathi<sup>4,5</sup> · S. N. Jha<sup>4,5</sup> · Rachel Reena Philip<sup>1</sup>

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### Abstract

The present study reports the achievement of improved photocatalytic performance of Titanium dioxide nanotubes (TNTs) by manganese doping and the subsequent formation of a p-TNT: Mn/n-MnO<sub>2</sub> heterojunction. The nanotubes and junctions are prepared by simple and cost-effective electrochemical anodization and doping techniques. The influence of doping and junction formation on the structural, optical, morphological and electrical properties of TNTs are analysed in detail. Energy dispersive x-ray mapping together with X-ray photoelectron spectroscopy is used to confirm the composition of the samples, while atomic force microscopy, field emission scanning electron microscopy and transmission electron microscopy are used for morphological assessment. The TNT/MnO<sub>2</sub> junction shows a photocatalytic degradation efficiency of ~98.6% with good cyclic stability for Rhodamine B dye. Manganese doping tailors the optical band gap of TNT from ~3.04 eV to ~2.73 eV enabling the absorption of visible photons for carrier production and induces p-type conductivity in the sample. While valence band photoemission spectra give insight into the Fermi level positions of doped and undoped samples and confirm the p type conductivity of the latter, the photoluminescence measurements give an idea regarding the defect states. The reduction in the band gap of TNT on Mn doping along with the formation of an n-MnO<sub>2</sub> layer with a band gap ~1.50 eV on its top play a crucial role in the improvement of the photocatalytic performance of the pn- heterojunction device.

**Keywords** TiO<sub>2</sub> · Heterojunction · Mn doping · Photocatalysis · Band gap tailoring

### 1 Introduction

The wide usage of dyes in many textile and cosmetic industries and their unethical discharge into water bodies have resulted in water pollution which has a serious impact on

the ecological balance [1–3]. The release of pharmaceuticals into aquatic environment is also a serious threat to the quality of water [4]. Researches are being conducted to arrive at economical and eco-friendly ways to remove unwanted organic and inorganic pollutants from water [5–7]. Investigations on photocatalysts that can degrade the contaminants in water to non-toxic products in the presence of sunlight stand out top on this list [8–11]. Scientists encounter several challenges, including the fact that often the fabrication processes are quite expensive, or it is challenging to remove the photocatalysts themselves from water to reuse them. Worse yet, the by-products that remain after degradation are toxic [12–16].

Semiconducting metal oxides like TiO<sub>2</sub> and ZnO, have caught considerable attention as effective photocatalysts due to their non-toxicity and good photochemical stability [17–21]. But the band gap of pure TiO<sub>2</sub> around 3.2 eV [22, 23] allows absorption only in the UV region and extension of the band gap to the visible range of the solar spectrum is one of the greatest challenges faced by researchers on TiO<sub>2</sub>. Doping with

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<sup>3</sup> Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, Cd. Universitaria, Av. Universidad S/N, 66455 San Nicolás de los Garza, Nuevo León, Mexico

<sup>4</sup> Beamline Development & Application Section, Bhabha Atomic Research Centre, Mumbai 400085, India

<sup>5</sup> Homi Bhabha National Institute, Anushaktinagar, Mumbai 400094, India

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 Springer

### Outcome of the Activity

Collaborative research works are very much helpful in the attainment of the objectives such as cooperation in the exchange of information relating to activities in research and in promoting appropriate joint research proposals.

## Research Collaboration Between Department of Chemistry, Union Christian College, Aluva and Department of Applied Chemistry, Cochin University of Science and Technology

The research collaboration agreement between Department of Chemistry, Union Christian College, Aluva and Department of Applied Chemistry, Cochin University of Science and Technology (CUSAT), was signed on 06/01/2019 with an objective to engage in an effort to promote collaborative research activities in the following areas: Faculty exchange, Student exchange, Collaborative Seminars/Workshops, sharing of resources, Collaborative research, Consultancy development, Faculty development, Curriculum development, Innovative teaching practice and Joined extension activities. The collaboration was for one year.

### Report of activity and proof

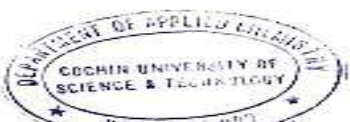

The collaboration with Research Department of Applied Chemistry, CUSAT and Department of Chemistry, UCC was for the promotion of the project titled Porphyrin based Fluorescent Sensor Purine Nucleotides. Ms. Agnes Divya Jose from Department of Chemistry, UCC carried out the study. A letter of certificate issued to this student is provided as the proof of the activity.

**COLLABORATION BETWEEN DEPARTMENT OF APPLIED CHEMISTRY, COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT) AND DEPARTMENT OF CHEMISTRY, UNION CHRISTIAN COLLEGE, ALUVA.**

Name of Activity: Project Work  
Year: 2019-2020

Brief Report:  
The collaboration with Research Department of Applied Chemistry, CUSAT and Department of Chemistry, Union Christian College, Aluva was for the promotion of project.

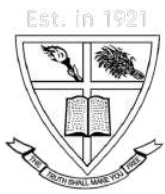
Sl. No	Project Title	Student name	Register number	Name of institution where project was done	Name of project supervisors
1.	Porphyrin based Fluorescent Sensor for Purine Base Nucleotides	Ms. Agnes Divya Jose	180011011110	CUSAT	Dr. Leena R and Dr. Ajalesh B Nair

### Outcome of the activity

Ms. Agnes Divya Jose from Department of Chemistry, UCC benefitted from exposure to latest technology and expert guidance from CUSAT, a nationally reputed institution





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SSR  
5<sup>th</sup> CYCLE  
2023

## Report of the activities based on the linkage with Plan@Earth, Aluva and Union Christian College, Aluva (School of Computer Applications)

The linkage between Union Christian College, School of Computer Applications and Plan@Earth, Aluva was signed on 30/4/2019 for a period of 3 years.

### Activity and Proof

The linkage was signed to associate with the company to provide Internships and Sessions on Industry Practices to students. The Department arranges various sessions for the students to improve their communication skill and industry practices.





Phone: 0484 3202 006  
Mobile: 97464741 85/81/80  
[info@planatearth.org](mailto:info@planatearth.org)  
[fb.com/planatearth.kochi](https://fb.com/planatearth.kochi)  
[planatearth.org](http://planatearth.org)

August 21, 2020

To The Project Coordinator

Department of Computer Application

Union Christian College, Aluva

Dear Sir / Madam,

This letter serves to confirm that Mr. Jibin Jacob (Reg. No: 900120), student of MCA in Union Christian College, Aluva joined in our firm for his main project, as a part of her MCA curriculum.

Thanking You

For PLANATEARTH



Authorized Signatory

Authorised Signatory

Name: Mr. Mujeeb Muhammed

Designation: President





Phone: 0484 3202 006  
Mobile: 97464741 85/81/88  
info@planatearth.org  
fb.com/planatearth.kochi  
planatearth.org

August 21, 2020

To The Project Coordinator

Department of Computer Application

Union Christian College, Aluva

Dear Sir / Madam,

This letter serves to confirm that Mr. Shibin George (Reg. No: 900130), student of MCA in Union Christian College, Aluva joined in our firm for his main project, as a part of her MCA curriculum.

Thanking You

For PLANATEARTH



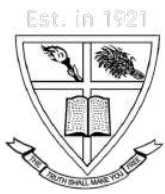
Authorised Signatory

Name: Mr.MujeebMuhammed

Designation: President

### Outcome of the activity

Sessions on industry practices help the students to enhance their skills during the period of study.



## **Report of the activities based on the linkage with RoadE Labs Pvt. Ltd, Kochi and Union Christian College, Aluva (School of Computer Applications)**

The linkage between Union Christian College, School of Computer Applications and RoadE Labs Pvt.Ltd. Kochi was signed on 1/5/2019 for a period of 2 years. Further it was renewed for 2 more years from 1/5/2021 onwards.

### **Activity and Proof**

The linkage was signed to associate with the company to provide industry exposure through workshops, sessions on industry practices and internships to students.



[www.roadelabs.com](http://www.roadelabs.com)  
[reachus@roadelabs.com](mailto:reachus@roadelabs.com)

## DETAILS OF INTERNS AND SUCCESSFUL HIRING SINCE 2021

I am writing on behalf of Road Labs Pvt Ltd to formally submit the details of interns and successful hires who have been associated with our organization from the year 2021 to 2023.

### 2021

#### Interns:

1. Sreejith T
2. Nidhuna

#### Hired:

1. Sreejith T

### 2022

#### Interns:

1. Aiswarya S
2. Joel P Jacob

#### Hired:

1. Aiswarya S
2. Joel P Jacob

### 2023

#### Interns:

1. Ajay Raj A R
2. Athira Sajikumar
3. Ebin Remilson
4. Jerin Joy





[www.roadelabs.com](http://www.roadelabs.com)  
[reachus@roadelabs.com](mailto:reachus@roadelabs.com)

5. Jojo Eldhose
6. Karthika Ramachandran

**Hired:**

1. Ajay Raj A R
2. Athira Sajikumar
3. Ebin Remilson
4. Jerin Joy
5. Jojo Eldhose
6. Karthika Ramachandran

Sincerely,

For ROADE LABS PVT LTD.

*Anoop*  
DIRECTOR

Anoop Parambath Ramakrishnan

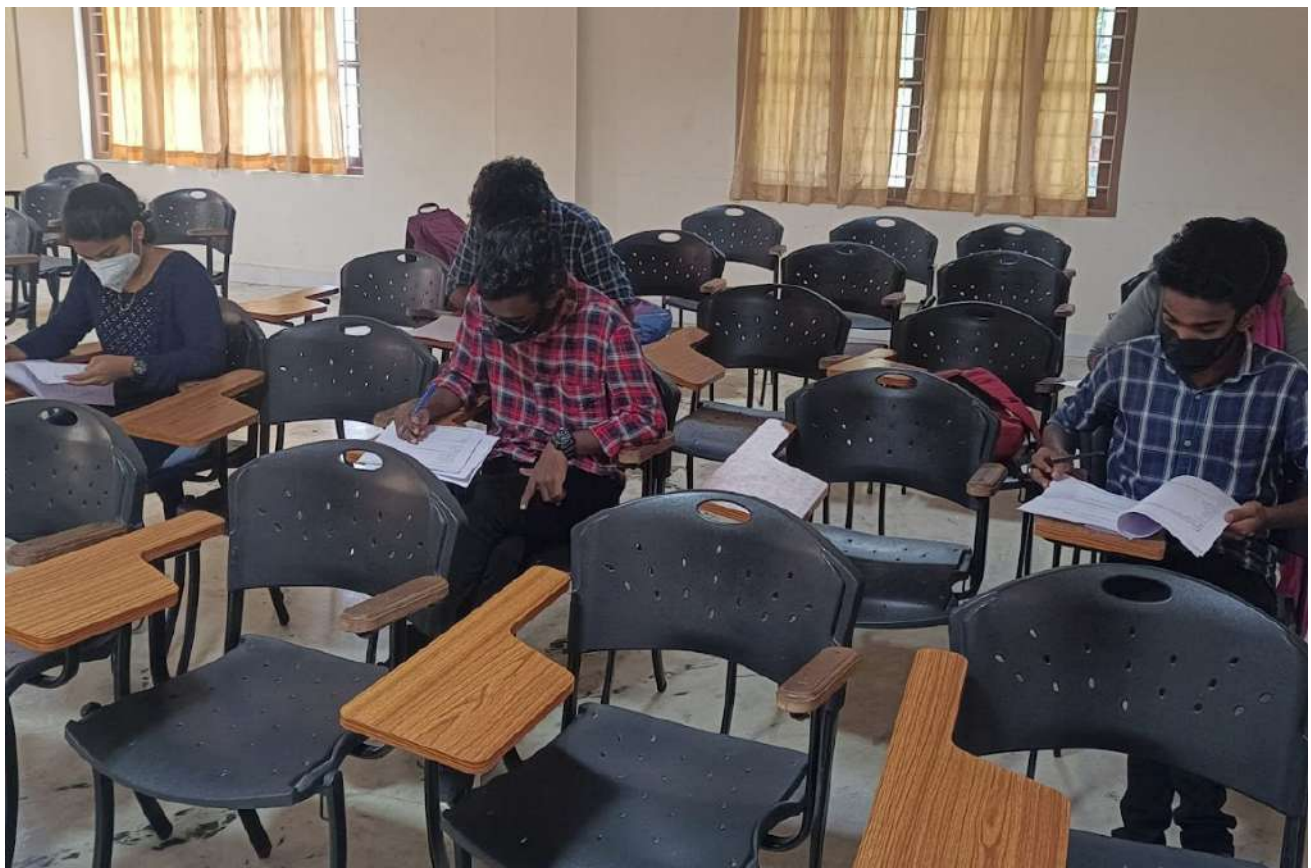
Chief Operating Officer

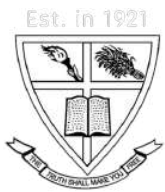
Road Labs Pvt Ltd

Email: [anoop@roadelabs.com](mailto:anoop@roadelabs.com)

Ph: +919900690059

27/2088, 2<sup>nd</sup> Floor, Adam star Building, near Onam Park, Mavelipuram, Kakkanad -682030 | CIN: U72900KL2017PTC051450





## List For Internship - Roade Labs

External

Inbox x

✕ 🖨️ 🔗



**Renjith Viswanath** [renjith@roadelabs.com](mailto:renjith@roadelabs.com) via [gmail.com](#)

Tue, May 14, 2019, 2:26 PM

☆ ↩️ ⋮

to veenasureshv ▾

Below are the list of students we have picked based on exam conducted.

we currently have only 6 projects so we may have to choose 6 from this list.

R02

R04

R05

R12

L36

L48

L50

L51

If you can help us pick 6 from this list it will be great. else we will do a round of interview to choose.

### Outcome of the Activity

Sessions for the career opportunities and startup made the students to be more realistic about the software industry and students got an opportunity to work in the organization.



## Research Collaboration Between International School of Photonics, Cochin University of Science and Technology and Department of Chemistry, Union Christian College

The research collaboration between International School of Photonics, Cochin University of Science and Technology and Department of Chemistry, Union Christian College was signed on 07/02/2020 with an objective of promoting academic partnership and research activities in the following areas: Faculty exchange, Student exchange, Collaborative Seminars/Workshops, Sharing of resources, Collaborative research. The collaboration has an initial duration of one year.

### Report of the activity and Proof

The activity carried out under this collaboration was for the promotion of the Project titled Synthesis of Graphene Quantum Dot and Investigating its Concentration Dependent Thermal Diffusivity Using Thermal Lens Technique. Two students carried out the project. As proof, the certificate of the activity issued by the School of Photonics is attached.

**Collaboration between International School of Photonics, Cochin University of Science and Technology, Kochi and Department of Chemistry, Union Christian College, Aluva**

Name of Activity: Project work  
Year: 2020-2021

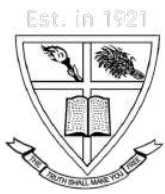
**Brief Report**  
The Collaboration with Department of Chemistry, Union Christian College, Aluva and International School of Photonics, Cochin University of Science and Technology, Kochi was for the promotion of Project.

Sl. No	Project Title	Student Name	Register Number	Name of Institution where project was done
1	Synthesis of Graphene Quantum Dot and Investigating its Concentration Dependent Thermal Diffusivity Using Thermal Lens Technique	Ms. Divya Benny	190011010435	International School of Photonics, Cochin University of Science and Technology, Kochi
2	Synthesis of Graphene Quantum Dot and Investigating its Solvent Dependent Thermal Diffusivity Using Thermal Lens Technique	Ms. Manasa K.P	190011010438	International School of Photonics, Cochin University of Science and Technology, Kochi

  
 Dr. M. Kailasnath  
 Professor  
 International School of Photonics  
 Cochin University of Science and Technology  
 Kochi

### Outcome of the Activity

Two students who carried out the project received research training and exposure from a nationally reputed research organization.



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SSR  
5<sup>th</sup> CYCLE  
2023

## Report of the MOU with Aster Medcity, Kochi and Union Christian College, Aluva (Psychology Department)

The MOU between Union Christian College, Department of Psychology and Aster Medcity, Kochi was signed on 25/1/ 2020. The MOU is functional based on yearly renewal.

### Activity and Proof

On 29 September 2021, a meeting was held for planning a community outreach center at Union Christian College that will enable Aster Medcity to coordinate its activities with the college and its surrounding panchayats. It was decided that the U C College extension activities cell will coordinate these efforts. Aster Medcity has appointed social workers with duty assigned to coordinate the Union Christian College-alangad-Karumalloor panchayats related work.

Psychology Department in association with Aster Medcity organised a Breast Cancer Awareness Camp On 29 October 2021 at VM Hall. The programme began at 11 am with a talk on Breast Cancer and its early detection. Thereafter there was a training session for breast self-examination for early detection of breast cancer, teaching staff, non-teaching staff and students benefited from the programme. Doubts that were raised by the audience were cleared by the hospital staff members.

Awareness programme for girl's students on 'Menstrual hygiene and use of menstrual cups' was conducted on November 10,2021 at 3 pm. The session was lead by a team from Aster Medcity and organized by the Department of Psychology. Menstrual cups were distributed to around 250 students.

The Psychology Department arranged 'A training session for trainers' led by mental health professionals from Aster Medcity on 10th October 2022, with the objective of equipping students with skills needed to bring mental health awareness among the public. The session was led by Ms. Gaana P C, Clinical Psychologist, Aster Medcity. The programme was conducted as part of observance of World Mental Health Day.





### Outcome of the Activity

Students of the community got awareness about breast cancer, menstrual hygiene and use of menstrual cups after the sessions. Students were trained to equip other students to spread the awareness of uplifting the mental health aspects among the public.

## Report of the MOU with Exalture Software Labs Pvt.Ltd., Kochi and Union Christian College, Aluva (School of Computer Applications)

The MOU between Union Christian College, School of Computer Applications and Exalture Software Labs Pvt.Ltd. Kochi was signed on 7/8/2020 for a period of 3 years.

### Activity and Proof

The MoU was signed to associate with the company to provide Internships and Sessions on Industry Practices to students. The sample certificates of students who have completed their internships is attached herewith



The poster for the Induction Programme MCA 2021 Batch features a yellow header with the School of Computer Applications logo and name. It includes a circular logo for Union Christian College Aluva's 100th anniversary (1921-2021). The main title 'INDUCTION PROGRAMME MCA 2021 BATCH' is in large pink letters. Two speakers are highlighted in hexagonal frames: Mr. Azeez Chollampat, President & CEO of Exalture Software Labs Inc., and Ms. Sheethal V. R., Placement Officer of U C College, Aluva. A central black hexagon displays 'DAY 10 NOV 17, 2021'. The topics for each session are listed below their names.

**SCHOOL OF COMPUTER APPLICATIONS**  
**UNION CHRISTIAN COLLEGE, ALUVA**

**INDUCTION PROGRAMME**  
**MCA 2021 BATCH**

**Mr. Azeez Chollampat**  
President & CEO, Exalture Software Labs Inc.  
Topic :  
What Current IT Market Holds For You

**DAY 10**  
**NOV 17, 2021**

**Ms. Sheethal V. R.**  
Placement Officer, U C College, Aluva  
Topic :  
Business Communications



## An Online Workshop on Mobile app Development

JULY 12, 2021  
11.30 AM

### TRAINERS

**MS. JOTHY S**

Software Engineer  
Exalture Software Labs Pvt Ltd

**MR. SANOOP C**

Senior Software Engineer  
Exalture Software Labs Pvt Ltd



School of Computer Applications  
Union Christian College, Aluva

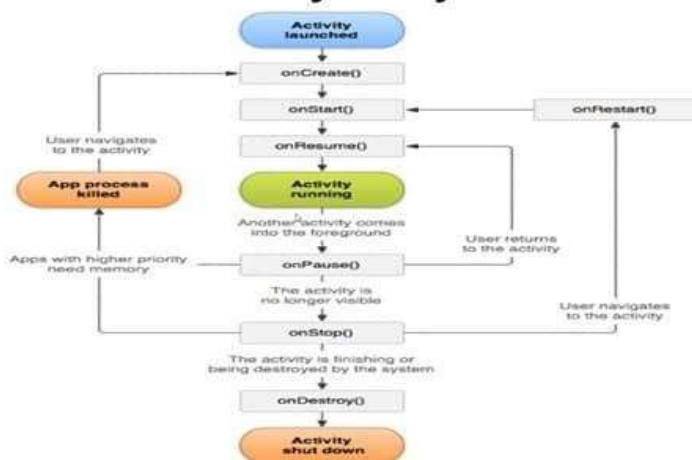


Faculty coordinator :  
Ms. Divya P B (HoD, MCA)

Student Coordinators :  
Ms Neeshma M S, Mr. Sreekanth Sasi ( Semester 2, MCA )

Jothy S is presenting

### Activity life cycle



Online Workshop on " Mobile App Development"







## Certificate of Completion

This is to certify that

# Nasrin M A

is hereby awarded this certificate in  
recognition of his Internship at

**Exalture Software Labs Pvt Ltd**

in

## Flutter Mobile App Development

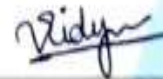
Internship Period: 26 August 2020 - 19 January 2021



Jyothish J

Director

Internship Programme Manager



Vidya R

Software Engineer

Internship Programme Guide



### Outcome of the Activity

The students got an opportunity to do internships in the company and attend informative talks during the course.



## Report of the MOU with SparXs Lifeskills Unlimited, Aluva and Union Christian College, Aluva (School of Computer Applications)

The MOU between Union Christian College, School of Computer Applications and SparXs Lifeskills Unlimited, Aluva was signed on 25.2.2020 for a period of 2 years.

### Activity and Proof

The MoU was signed to associate with the company to provide Internships and Sessions on Industry Practices to students. A programme was arranged for the 2020 batch during their induction period. The poster of the programme is given below.



### Outcome of the Activity

The students got an idea regarding the power of language while they are in the industry.



## Report of the MOU with Strategist, Kochi and Union Christian College, Aluva (School of Management Studies)

The MOU between Union Christian College, School of Management Studies and Strategist, Kochi was signed on 5/1/2022 for a period of 1 year. To foster technological proficiency and enhance the employability skills of the students at the School of Management Studies, UC College, a series of Microsoft Office -Excel (MOS) classes were conducted. The initiative was a collaborative effort between the School of Management Studies and The Strategist, a renowned organization specializing in skill development programs in Kochi, Kerala.

### Activity and Proof

The MoU was signed to provide Hands-on Training on Microsoft Office



UNION CHRISTIAN COLLEGE, ALUVA.  
SCHOOL OF MANAGEMENT STUDIES



Value Added Courses in  
association with Placement Cell

## MICROSOFT EXCEL

2023 - 2025  
MBA BATCH



**Sept 18 - 23**  
**@MCA computer**  
**Lab**

Mr. Jomon Joseph  
Consultant  
The Strategist  
Consultancy



Attendance

## List of Students 2022 admn (Microsoft Excel)

Sl no	Name	20.06.23	
		FN	AN
1	Aadithya R Krishna		
2	Abdul Fahad O K		
3	Abhishek V D		
4	Ajimi F	<i>[Signature]</i>	
5	Ajmal Panikkaveettil Basheer		
6	Alshifa Shereef		
7	Anagha V A		
8	Anandha Padmanabhan V A		
9	Ananthakrishnan M R	<i>[Signature]</i>	<i>[Signature]</i>
10	Anju M	<i>[Signature]</i>	
11	Anusree K S		
12	Aparna K	<i>[Signature]</i>	
13	Aparna T S	<i>[Signature]</i>	
14	Arathy Rajesh		
15	Arathy V Gopakumar	<i>[Signature]</i>	
16	Ardhra Domanson		
17	Arjun M R		
18	Arya Jayaprakash		
19	Arya Maglin		
20	Aslaha Farhath P A		
21	Asna Mol C M		
22	Aswinnath T V	<i>[Signature]</i>	<i>[Signature]</i>
23	Athila Ashraf	<i>[Signature]</i>	
24	Athira V S	<i>[Signature]</i>	
25	Collin D Rose		
26	Diya Jaimon	<i>[Signature]</i>	
27	Farha T A	<i>[Signature]</i>	
28	Farzana C S		
29	Firos Muhammed K A		
30	Fousia S		
31	Hafees A A		
32	Hudha Abdul Karim	<i>[Signature]</i>	<i>[Signature]</i>
33	Jannath Ismail	<i>[Signature]</i>	<i>[Signature]</i>



Attendance

List of Students 2022 admn (Microsoft Excel)

Sl no	Name	12.6.23		13.6.23		14.6.23		15.6.23		16.6.23	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Aadithya R Krishna										
2	Abdul Fahad O K										
3	Abhishek V D										
4	Ajimi F										
5	Ajmal Panikkaveettil Basheer										
6	Alshifa Shereef										
7	Anagha V A										
8	Anandha Padmanabhan V A										
9	Ananthakrishnan M R										
10	Anju M										
11	Anusree K S										
12	Aparna K										
13	Aparna T S										
14	Arathy Rajesh										
15	Arathy V Gopakumar										
16	Ardhra Domanson										
17	Arjun M R										
18	Arya Jayaprakash										
19	Arya Maglin										
20	Aslaha Farhath P A										
21	Asna Mol C M										
22	Aswinnath T V										
23	Athila Ashraf										
24	Athira V S										
25	Collin D Rose										
26	Diya Jaimon										
27	Farha T A										
28	Farzana C S										
29	Firos Muhammed K A										
30	Fousia S										
31	Hafees A A										
32	Hudha Abdul Karim										
33	Jannath Ismail										
34	Jillet Joseph										
35	Juwairiya T S										
36	Kareena Jinson										
37	Krishnapriya K										
38	Litty sunny Mathew										
39	Marwa Abdul Jaleel										
40	Milan										
41	Mohammed Shibil T P										
42	Muhammad Shabab K S										
43	Muhammed Badusha O N										
44	Nandana K S										
45	Nidina Soofi										
46	R Sreehari										
47	Reshmi Vijayan										
48	Rinsa Mol A R										
49	Sagha Harish										





34	Jillet Joseph	<i>Jillet Joseph</i>	<i>Kareena</i>
35	Juwairiya T S	<i>Juwairiya</i>	
36	Kareena Jinson	<i>Kareena</i>	
37	Krishnapriya K	<i>Krishnapriya</i>	
38	Litty sunny Mathew	<i>Litty</i>	
39	Marwa Abdul Jaleel	<i>Marwa</i>	
40	Milan		
41	Mohammed Shibil T P	<i>Mohammed Shibil</i>	
42	Muhammad Shabab K S	<i>Muhammad Shabab</i>	<i>Muhammad Shabab</i>
43	Muhammed Badusha O N		
44	Nandana K S		
45	Nidina Soofi	<i>Nidina</i>	
46	R Sreehari	<i>R Sreehari</i>	
47	Reshmi Vijayan		
48	Rinsa Mol A R		
49	Sagha Harish		
50	Sal Harish		
51	Samina K S		
52	Shelna Judy	<i>Shelna</i>	<i>Shelna</i>
53	Sona Mary Thomas P	<i>Sona</i>	
54	Tiya Shabu		
55	V S Krishnadas	<i>V S Krishnadas</i>	<i>V S Krishnadas</i>
56	Varsha Vijay		
57	Vishak Shaji C C		
58	Vishnu sathyan		
59	Vismaya T V		
60	Vismaya Vijay		

[illegible]

### Outcome of the Activity

The students got an opportunity to be recognized as Microsoft Office Specialists. The MS Office Specialist classes spanned a comprehensive duration of 42 hours. This extensive timeframe allowed for an in-depth exploration of various MS Office applications, ensuring that students gained a profound understanding of essential tools for professional and academic success.



## Report of the MoU Between Department of Malayalam, Union Christian College and Aby Paul for Establishing Sinu Varghese Endowment Award

The MOU between Department of Malayalam, Union Christian College and Aby Paul was signed on 14.01.2022, with no restriction of time period. This award was established in the memory of Sinu Varghese, a research scholar.

Under this MOU, every year, the best Ph.D. thesis in Malayalam language and literature would be given a cash award of Rs. 10,000. The Malayalam department would be coordinating the selection of the Ph.D. thesis as well as the award distribution.

### Report of the activity and Proof

A cash prize of Rs. 10,000 was handed over to Dr. Krishna Aravind for her Ph.D. research on 'Rasachintha padana sankalpanangale adisthanamkiyulla vishakalanam'. The award was distributed by famous writer T.D. Ramakrishnan and was distributed on Malayala Pournami 2022, an alumni meet program. As Proof, a newspaper report of the Sinu Varghese award for the year 2022 is presented.



### Outcome of the Activity

The award gives motivation to research scholars to pursue quality research and reach excellence in their respective fields.

## Department of English

### Linkage with Sree Sankara College, Kalady

#### Report

The Department of English, Sree Sankara College, Kalady, Ernakulum District, Kerala, and the Department of English, Union Christian College, Aluva Ernakulum District, Kerala established this Linkage Document on 25.08 .2021 to foster cooperation in professional development of students and faculty. Objectives include:

- 1.To encourage the following activities, particular to promote academic collaboration, collaboration in sharing of expertise, exchange of materials in education, publication and academic information for professional development and other technical assistance.
- 2.To discuss the problems involved to the satisfaction of each party and enter into specific agreements based on the mutually agreed objectives and outcomes of the relationships.

#### Activities

1. Organized a commemorative conference on the centennial birthday of Raymond Williams “Raymond Williams @100” on 31.08.2021 in association with PG and Research Department of English, Sree Sankara College, Kalady.
2. Conducted a lecture series on Fiction “A walk through the fictional woods” from 13 to 15 March 2023 in association with PG and Research Department of English, Sree Sankara College, Kalady and PG and Research Department of English, St. Xavier’s College, Aluva.





The Research and Postgraduate Department of English invites you to  
**Raymond Williams @ 100**  
**A Commemorative Conference**

On 31<sup>st</sup> August 2021, esteemed Cultural Critic and Litterateur, Raymond Williams turns 100. On his Centennial birthday, this Commemorative conference seeks to contextualize Williams' body of work for the present generation. Known variously as a Marxist literary theoretician, one of the founding figures of Cultural Studies and also a regional novelist, this "Umberto Eco of United Kingdom" indeed has a legacy - politically, socially, ethically and academically, as relevant as ever.

The conference- deliberation is three-fold: Williams and Cultural Studies, Williams and Literary Criticism/Theory & Williams' Fiction.

The schedule is as follows:

1. Dr. Josy Joseph  
Associate Professor, English Department  
St Berchmans College (Autonomous),  
Changanassery.

2. Dr. Appu Jacob John  
Assistant Professor,  
Institute of English,  
University of Kerala

3. Sri. Cheri Jacob K  
Assistant Professor,  
Department of English  
Union Christian College, Aluva

4. Dr. K Jeevan Kumar  
Associate Professor & HOD,  
Dept. of English  
Henry Baker College, Melukavu.



"The Long Revolution of  
Raymond Williams: Marxism,  
Materialism, and the Cultural  
Turn"

"The Literary- Critical Oeuvre of  
Raymond Williams"

"Theory as Fiction/Fiction as  
Theory: Raymond Williams, The  
Fabulist"

"Critical Response"

31<sup>st</sup> August 2021

Time:- 11.00 am - 1.00pm, Platform - Microsoft Teams

Dr. Anjana Sankar S  
Associate Professor & HOD  
Department of English

Convener: - Dr. Rose Mary Palatty 953 971 9506  
Co-conveners:- Sri. Rajeesh K P 978 692 7846  
Smt. Saumya A P

To get the conference link,  
please contact



Student Conveners:- Lathika M 858 9886023  
Arun M 7994724781





The English Association  
of  
The Research and Postgraduate Department of English  
SREE SANKARA COLLEGE, Kalady

in  
Association with The Research & Postgraduate Department of English,  
St.Xavier's College for Women, Aluva  
&

The Department of English, U.C.College, Aluva

**A WALK THROUGH THE FICTIONAL WOODS**  
**A LECTURE SERIES ON FICTION**



March 13, 2023

Venue: Seminar Hall

First Talk : 11 AM

**The Cultural Politics of the English Novel**

**Dr.Priya.K.Nair**, Research Supervisor, St.Teresa's College for Women( Autonomous)

Second Talk : 1.30 PM

**Centre/ Periphery in Post Colonial Fiction**

**Dr.Liss Marie Das**, Research Supervisor, St.Xavier's College for Women, Aluva.



Third Talk :

Wednesday: March, 15      10.30 am

Talk Title - 'Ethical Fictions / Fictional Ethics: Tell-tale Signs'

**Dr.Cheri Jacob**, Assistant Professor U.C.College, Aluva

For enquiries contact:

**Dr.Anjana Sankar.S.** HOD, Department of English, Sree Sankara College, Kalady, Mob: 9947688910

**Manu Prakash**, Faculty, Sree Sankara College, Kalady, Mob:9995041026

### Outcomes of the activity

Introduced literary theory via Williams to MA students and Ph.D. Scholars and familiarized MA and BA students the link between literature and ethics.

## **Report of the MOU with T.C. Yohannan Sports Foundation and Union Christian College, Aluva (Physical Education Department)**

### ***Union Christian College Cricket Academy: Fostering Excellence in Cricket***

At Union Christian College, cricket has been an integral part of our sporting legacy since its inception. With a strong commitment to nurturing talent and promoting sportsmanship, our Men's and Women's cricket teams actively participate in various district, university, and state level championships. The collaboration with KCA Women's Cricket Academy at Union Christian College has proven.

to be instrumental in empowering aspiring cricketers and elevating the standard of cricketing excellence. The abstract highlights the college's commitment to providing a nurturing environment for cricket enthusiasts, fostering growth, and producing exceptional sporting talent. One of the cornerstones of our success in cricket has been our strategic associations with professional academies. We have had the privilege of partnering with esteemed institutions like T.C. Yohannan Sports Foundation Cricket Academy, an initiative by Redeem Sports Pvt. Ltd., headed by Mr. Tinu Yohannan, a former Indian Cricket player. This partnership, which commenced in August 2021 for a period of 5 years, was established to revive the cricketing culture at Union Christian College. Through this alliance, our cricket infrastructure has been upgraded, providing our students access to professional coaches and innovative training methods. At Union Christian College Cricket Academy, we continue to believe in the power of sports to inspire, transform, and create future leaders. We are committed to nurturing the spirit of cricket among our students, and our partnerships with reputed organizations further reinforce our mission to achieve excellence in the world of Cricket.

**Class Timings:** We have sessions available in the evening, ensuring flexibility and accessibility for all.

**Saturday & Sundays – 7.00AM to 5.00PM**

**Coach: Mr. Anson Antony**



# UNION CHRISTIAN COLLEGE, ALUVA

Affiliated to Mahatma Gandhi University, Kottayam, India

NAAC Re-Accredited with A Grade in 4<sup>th</sup> Cycle (CGPA 3.45)

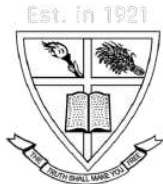
[www.uccollege.edu.in](http://www.uccollege.edu.in)

SSR  
5<sup>th</sup> CYCLE  
2023

SS  
5<sup>th</sup> C

**Activity and Proof:** The MoU was signed for reviving Sports & empowering youngsters through trainer service to Union Christian College team, coaching etc.





# UNION CHRISTIAN COLLEGE, ALUVA

Affiliated to Mahatma Gandhi University, Kottayam, India

NAAC Re-Accredited with A Grade in 4<sup>th</sup> Cycle (CGPA 3.45)

[www.uccollege.edu.in](http://www.uccollege.edu.in)

SSR  
5<sup>th</sup> CYCLE  
2023

SSR  
5<sup>th</sup> C



**TC YOHANNAN SPORTS FOUNDATION**

## CRICKET SUMMER COACHING CAMP

**2k23**

**FROM  
APRIL 1**

**VENUE:  
UC COLLEGE ALUVA**

**FOR REGISTRATION  
9387 8787 84**

- ★ **FREE FOR GIRLS**
- ★ **BASICS OF THE GAME**
- ★ **EMPHASIS ON MATCHES**
- ★ **PHYSICAL & MENTAL CONDITIONING SESSIONS**





## REPORT OF THE MOU WITH INDIANA UNIVERSITY OF PENNSYLVANIA AND UNION CHRISTIAN COLLEGE, ALUVA (BIOSCIENCES DEPARTMENT)

The MOU between Union Christian College, Department of Bioscience and Indiana University of Pennsylvania (IUP) was signed in the fall of April 2021.

### Activity and Proof

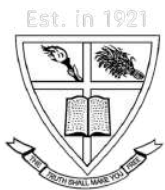
The MoU was signed to formalize the cooperative activities that exist between IUP and Union Christian College in the areas of reciprocal welcome of students, faculty and scholars.

#### 1. Lecture on “Significance on Genomic and Proteomic Studies in Plant Microbe Interactions”

As part of the MOU with Indiana University of Pennsylvania (IUP) USA, Department of Biosciences organized a lecture on “Significance on Genomic and Proteomic Studies in Plant Microbe Interactions” on 18<sup>th</sup> January 2023 at 10.30 AM in the TB Ninan Hall, Union Christian College, Aluva. Dr. N. Bharathan, Chair and Professor, Biology Dept., Indiana University of Pennsylvania, USA delivered the talk on the subject.







## Outcome of the activity

The Post Graduate students of Biotechnology, Bioinformatics, Botany, and Zoology got a deeper understanding about the concepts of plant genomics and proteomics.

## 2. Meeting with IUP delegates

In continuation with the MOU signed between Indiana University of Pennsylvania and Department of Biosciences, Union Christian College, a high level discussion was held on 12<sup>th</sup> January, 2023 at Hotel Taj West End, Bengaluru for exploring opportunities for further association and Global partnership. Dr Lara Luetkehans, Provost and VP of Academic Affairs, Dr Michele Petrucci, Associate Provost, Dr N Bharathan, Chair and Professor Biology Dept. represented Indiana University of Pennsylvania and Dr. Susan Eapen Former Scientist BARC & Adjunct Professor, Dr. Sareen Sarah John, Head & Assistant Professor, Department of Biosciences represented Union Christian College in the discussion.



## Outcome of the activity

Established further association with Indiana University of Pennsylvania, USA and Union Christian College, Aluva, Kerala.

### 3. Exchange Visitor Scholar Program- Indiana University of Pennsylvania (IUP), USA.

Dr. Sareen Sarah John , Assistant Professor, Department of Biosciences, Union Christian College, Aluva visited Indiana University of Pennsylvania, USA as Exchange Visitor Scholar and took 5-week Advanced Training/research program on *Molecular Characterization of Double Stranded (ds)RNA and Protein Signatures Development in the Fungus Rhizoctonia solani* from 12<sup>th</sup> March 2022 to 30<sup>th</sup> April 2022. This training program was accomplished as part of the MOU between the Department of Biosciences, Union Christian College, Aluva,



India and the College of Natural Sciences & Mathematics and Department of Biology, Indiana University of Pennsylvania (IUP), PA 15705, USA for academic collaboration and faculty and student exchange.



### Outcome of the activity

Academic collaboration and faculty exchange between the two institutions.

### 4. Valedictory function of Online Certificate Course on “Gene Editing Tools in Medicine & Biotechnology

The valedictory function of the **Online Certificate Course on “Gene Editing Tools in Medicine & Biotechnology** was conducted on March 7<sup>th</sup> 2022 at T.B Ninan Hall Union Christian College, Aluva. Faculty, Research scholars and students were presented with a Certificate jointly signed by Faculty Instructor from Indiana University of Pennsylvania



(IUP) USA and Union Christian College, Aluva, Kerala upon completion of the certificate course.

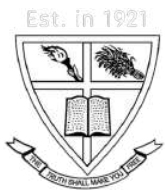


## Outcome of the activity

Participants shared specific details about what they found valuable in the course, how it has impacted their skills or knowledge, and the tangible results they've achieved.

## 5. Online Certificate Course on “Gene Editing Tools in Medicine & Biotechnology

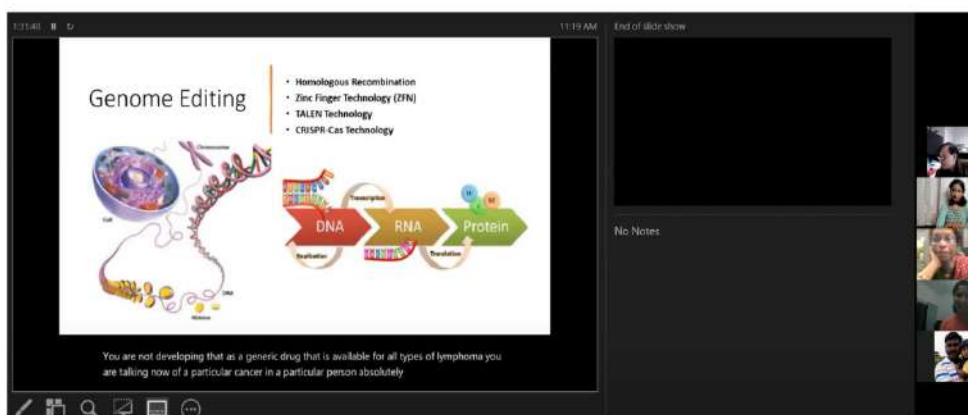
As a part of the academic collaboration with the College of Natural Sciences & Mathematics and Department of Biology, Indiana University of Pennsylvania, the



Department of Biosciences offered an “Online Certificate Course on “Gene Editing Tools in Medicine & Biotechnology” under the mentorship of Dr. N. Bharathan, Chair & Professor, Biology Department for the Post Graduate students, Faculty and Research Scholars of Biosciences, Botany & Zoology Departments of Union Christian College and a limited number of outside students and faculty.

The virtual classes were held from October 2021 to February 2022. Dr. N. Bharathan, Chair, Biology (IUP) took classes for 3 hours every Saturday & Sunday through Zoom platform. Classroom lectures included types of gene editing tools, principles of CRISPR-Cas9 gene editing and its application in agriculture, vector-borne diseases,

viruses, drug therapeutics, drug development, and cancer immunotherapy.



## Outcome of the activity

Two exams, written assignments and discussion forums were conducted to assess the knowledge gained by each participant during the course and also could complete the certificate programme in association with IUP.

## 6. Genomics and Proteomics based approach to identify Biological Agents

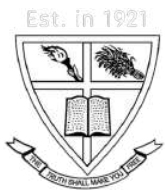


To initiate the MOU with Indiana University of Pennsylvania (IUP) USA, Department of Biosciences Union Christian College, Aluva, Kerala conducted a lecture on Genomics and Proteomics based approach to identify Biological Agents on 27<sup>th</sup> March, 2021 at TB Ninan Hall, Union Christian College, Aluva. Prof. Dr. N. Bharathan PhD, Professor & Chair, Biology, Indiana University of Pennsylvania, Pennsylvania, USA served as the resource person.



### Outcome of the activity

Union Christian College started the discussion about the possibilities of a MOU between with Indiana University of Pennsylvania (IUP) USA, Department of Biosciences Union Christian



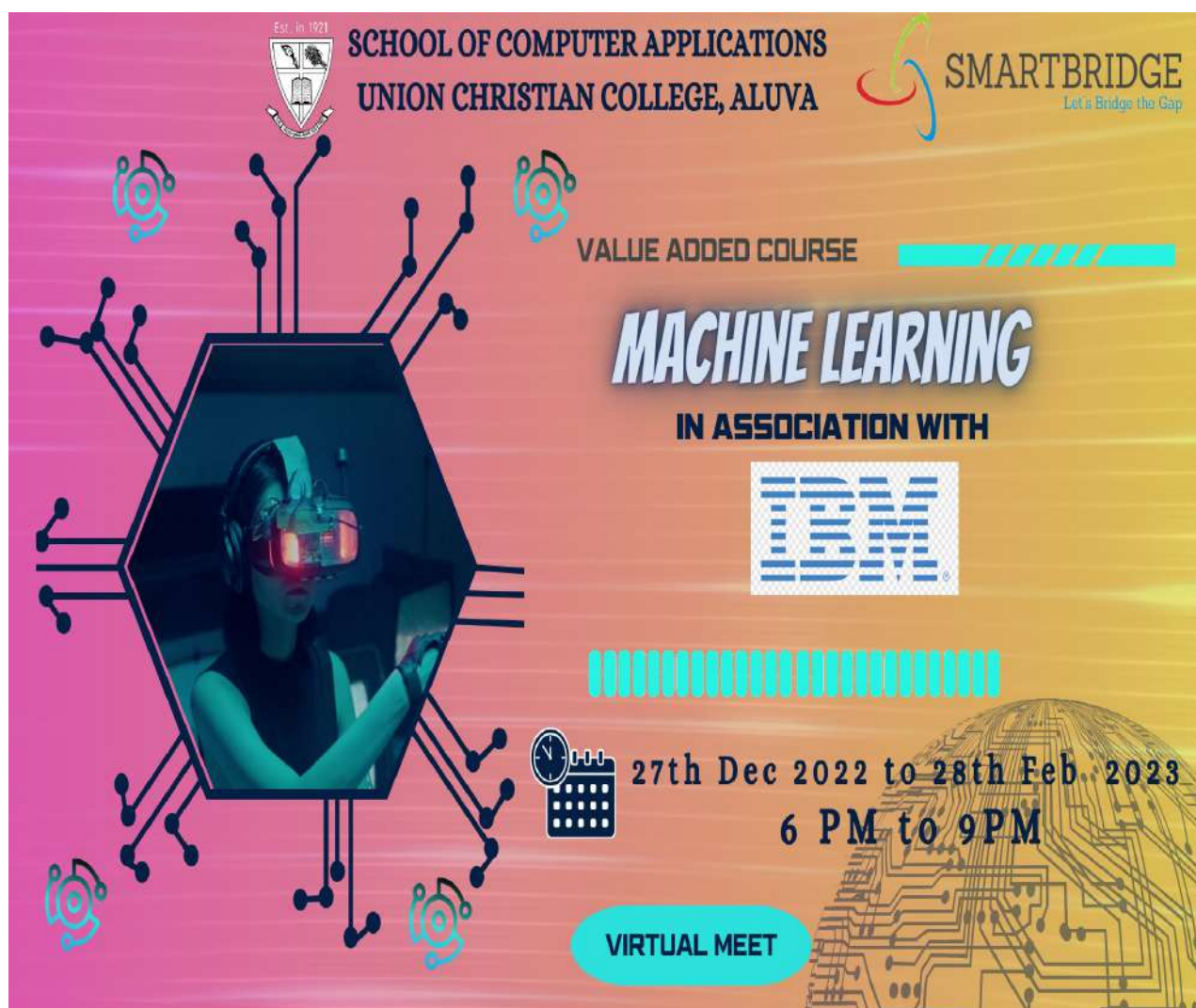
College, Aluva, Kerala. Students of Biosciences, Zoology departments got a deeper understanding about the concepts of genomics and proteomics in medicine.

## Report of the MOU with Smartbridge Educational Services Pvt. Ltd. Hyderabad and Union Christian College, Aluva (School of Computer Applications)

The MOU between Union Christian College, School of Computer Applications and Smartbridge Educational Services Pvt.Ltd. Hyderabad powered by IBM Developer Skills Network was signed on 26/11/ 2021. The contract is renewed yearly.

### Activity and Proof

The MoU was signed to associate with the company to provide an Externship program for the students to build practical skills through Hands-on Projects. The organization provides online training sessions in the evening and the students are assigned a project based on the course with a deadline to complete the project. The students who complete both the course and project will be provided an externship certificate by the organization. The students who complete only the course will be awarded a course completion certificate. The sample copy of the certificate received by a student of 2021-2023 batch is attached herewith.



The poster features a central image of a person wearing VR goggles, surrounded by circuit-like lines. The background is a gradient of pink and orange. Logos for the School of Computer Applications, Union Christian College, Aluva, SmartBridge, and IBM are prominently displayed. The text 'MACHINE LEARNING IN ASSOCIATION WITH IBM' is written in large, bold letters. The course is identified as a 'VALUE ADDED COURSE'. The duration is specified as '27th Dec 2022 to 28th Feb. 2023' from '6 PM to 9PM'. A 'VIRTUAL MEET' button is at the bottom.

Est. in 1921  
SCHOOL OF COMPUTER APPLICATIONS  
UNION CHRISTIAN COLLEGE, ALUVA

SMARTBRIDGE  
Let's Bridge the Gap

VALUE ADDED COURSE

**MACHINE LEARNING**  
IN ASSOCIATION WITH

IBM

27th Dec 2022 to 28th Feb. 2023  
6 PM to 9PM

VIRTUAL MEET





Date: 29<sup>th</sup> March 2023

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Devinarayanan K** pursuing Masters in Computer Applications from Union Christian College, Aluva has successfully completed his/her Externship with SmartBridge Educational Services Private Limited from 27<sup>th</sup> December, 2022 to 11<sup>th</sup> March, 2023.

During the period of Externship we found he/she had learned the concepts of **Machine Learning (ML)** and successfully completed a project.

We wish him/her all the best for his/her future endeavors.

Sincerely



**Ch. Jayaprakash**  
Lead Academia Initiative  
SmartBridge Educational Services Pvt. Ltd.

## Outcome of the activity

The students have completed the externship program by completing the course and developing a project based on the course.

# PLANatEarth

Phone: 0484 2604181  
Mobile: 9746474185/81/88  
info@planatearth.org  
fb.com/planatearth.kochi  
planatearth.org

23/09/2023

To  
UC COLLEGE  
ALUVA

We have collected Carton and white paper from UC College Aluva details mentioned below.  
Collected carton sent for recycling, in return Planatearth is giving A4 size paper

DATE	Weight
05/09/2023	220.45
Total	220.45

In return 4 packets of fresh A4 size paper given to the company ON 23.09.23, Please Acknowledge

For  
Planatearth

Akshay Raveendran



PlanatEarth, XII/457 A, PO No 622, UC College PO Near Kolbe Ashram,  
Aluva, Kochi - 683 102.

Registration Number: ER-313/09

Registered as a charitable society under the Travancore-Cochin

Charitable Societies Act - 1955

Kerala State Pollution Control Board approved Establishment.





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INDIA

Near Kolbe Ashram, XII/457A,  
U.C.College P.O, ALUVA,  
Kerala, 683102  
9746474181  
[www.planatearth.org](http://www.planatearth.org)

To

The Principal

UC College, Aluva

Dear Sir,

**Sub: Recycling of Paper Waste from Departments of the College**

Plan@Earth is a non-rpofit that has been working in the field of waste management and recycling for the past 13 years. We help intitutions aim for zero waste and certify recycling activities.

The paper that is collected from institutions goes straight for recycling. Confidential papers can be securely budled in the presence of our officer and we can issue a Confidentiality Certificate stating that the paper is being sent for pulping upon our guarantee.

The transaction system we follow is as follows.

When paper accumulates, and we are informed, we will send our vehicle for pick up. Paper is weighed using an electronic balance and the wieght is given as a record to the institution. The institution is compensated with value of A4 size paper of value as given below (whch can vary according to market rates)

White Paper : Rs 16per kilo

Newspaper : Rs 15 per kilo

Magazine : Rs 8 per kilo

The department may handover plastic waste (if any) for recycling but it has to be clean and free from food residue. For removal of plastic waste, there is a removal fee of Rs 50 oer sack payable to Plan@Earth as the amount approved by the government.

Regards,

Sooraj Abraham Secretary, Planatearth

9846144806



UC COLLEGE PAPER COLLECTION REPORT 10.03.23				
SL NO	DEPARTMENT	QUANTITY	AMOUNT	NO OF PACKETS
1	OFFICE	288.9	2574	9 packets
2	EXAM ROOM	0	0	
3	H QUARTERS	0	0	
4	HOSTEL	0	0	
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
	Total	288.9	2574	0

Note: we will deliver 42 packts of a4 Size paper inreturn , Per packet rate is Rs 295/-



Received *[Signature]*

Ruamol.KC  
plm @ Earth

UC COLLEGE PAPER COLLECTION REPORT 10.03.23				
SL NO	DEPARTMENT	QUANTITY	AMOUNT	NO OF PACKETS
1	OFFICE	288.9	2574	9 packets
2	EXAM ROOM	0	0	
3	H QUARTERS	0	0	
4	HOSTEL	0	0	
5				
6				
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8				
9				
10				
11				
12				
13				
14				
	Total	288.9	2574	0

Note: we will deliver 42 packts of a4 Size paper inreturn , Per packet rate is Rs 295/-



Received RF  
 RUDAMOL.KC  
 plus @ Earth

UC COLLEGE PAPERCOLLECTION DETAILS

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
OFFICE	PAPER	628	12	7536
	CARTON	0	8	0
	PLASTIC	0	0	0
<b>TOTAL</b>		<b>628</b>		<b>7536</b>

536/295= 26 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
EXAM ROOM	PAPER	343	12	4116
	CARTON	71.6	6	429.6
	PLASTIC	34.75	0	0
<b>TOTAL</b>		<b>449.35</b>		<b>4545.6</b>

1545/295=16 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
H QUARTERS	PAPER	0	12	0
	CARTON	0	8	0
	PLASTIC	41	0	0
	E WASTE	26	0	0
	GLASS	8	0	0
<b>TOTAL</b>		<b>75</b>		<b>0</b>

0/295= 0 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
HOSTEL	PAPER	0	12	0
	CARTON	27	8	216
	PLASTIC	82	0	0
PLASTIC REMOVAL CHARGE BALANCED				
<b>TOTAL</b>		<b>109</b>		<b>216</b>

216/295= 0 packet

Plar@Eath

23/02/2023

10081



UC COLLEGE PAPER COLLECTION REPORT 12TH & 24TH JANUARY 2023				
SL NO	DEPARTMENT	QUANTITY	AMOUNT	NO OF PACKETS
1	OFFICE	628	7536	26
2	EXAM ROOM	449	4545	16
3	H QUARTERS	75	0	0
4	HOSTEL	109	216	0
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
	<b>Total</b>	<b>1261</b>	<b>12297</b>	<b>42</b>

Note: we will deliver 42 packts of a4 Size paper inreturn , Per packet rate is Rs 295/-

Plan@Earth

23/02/2023

Nofu

UC COLLEGE PAPER COLLECTION REPORT 23RD & 24TH AUGUST 2022				
SL NO	DEPARTMENT	QUANTITY	AMOUNT	NO OF PACKETS
1	Examination	118	1184	4 ✓
2	Hindi	101	1616	6 - 3 ✓
3	English	80	1280	5 ✓
4	Chemistry	20	320	1 ✓
5	Bio Science	330	5264	19 - 14 (5) ✓
6	Physics	82	1296	5 ✓
7	Dtp	15	240	1 ✓
8	Maths	21	336	1 ✓
9	Malayalam	0.65	10	0
10	NCC	0.65	0	0
11	computer	3	48	0
12	B com	57	912	3 ✓
13	zoology	3	48	0
14	Psychology	175	2800	10 - 5 ✓
	Total	1006.3	15354	55

Note: we will deliver 55 packts of a4 Size paper inreturn , Per packet rate is Rs 275/-

*Received  
for  
payment of 55 packets*



Dr. M. I. Punnoose  
Principal in Charge  
U. C. College Aluva

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
EXAMINATION	PAPER	31	16	496
	CARTON	86	8	688
	PLASTIC	1.4	0	0
TOTAL		118.4		1184

1184/275= 4 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
HINDI	PAPER	101	16	1616
	CARTON	0	8	0
	PLASTIC	0	0	0
TOTAL		101		1616

1616/275=6 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
ENGLISH	PAPER	80	16	1280
	CARTON	0	8	0
	PLASTIC	0.5	0	0
TOTAL		80.5		1280

1280/275= 5 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
CHEMISTRY	PAPER	20	16	320
	CARTON	0	8	0
	PLASTIC	0	0	0
TOTAL		20		320

320/ 275= 1 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
BIO SCIENCE	PAPER	329	16	5264
	CARTON	0	8	0
	PLASTIC	1.15	0	0
TOTAL		330.15		5264

5264/275= 19 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
PHYSICS	PAPER	80	16	1280
	CARTON	2	8	16
	PLASTIC	0	0	0
TOTAL		82		1296

1296/275= 5 packet

DEPARTMENT	ITEM	QUANTITY	RATE	AMOUNT
DTP	PAPER	15	16	240
	CARTON	0	8	0
	PLASTIC	0	0	0
TOTAL		15		240

240/275= 1 packet



*Received  
for  
Plan @ Earth*

Dr. M. K. P. P. P.  
Principal in Charge  
Mission Christian College



## **Report of the MoU with Centre for Socio-Economic and Environmental Studies and Union Christian College (Department of Economics)**

MOU of Union Christian College, Department of Economics with Centre for socio-economic and environment studies, Kochi was signed on 26<sup>th</sup> October 2022, for academic, social research and extension activities for a period of 5 years. Centre for socio-economic and environment studies, Kochi is a leading think tank/ research organisation on socio-economic topics in Kerala located in Kochi. The MOU was signed with the objective of guiding and training students for carrying out research and extension activity.

### **Report and Proof of Activity**

Round table discussion of scholars of CSES was held with students of Economics for an extension activity on 25<sup>th</sup> February 2023. The extension activity was a study on Shut down of shops and enterprises in Aluva Municipality. Students were given guidance by CSES faculty on how to carry out the study. Four students present for the discussion are:

- 1) Aravind Krishnan (2020-23 batch)
- 2) Saniya V S (2020-23 batch)
- 3) Georgy Jose Cherian (2020-23 batch)
- 4) Lakshmi Ashokan (2020-23 batch)

The questionnaire prepared by the students were modified based on the expert guidance given by staff at CSES. Proof is attached below.



## Outcome of the activity

Four students who took part in the round table discussion received advice and guidance on questionnaire framing and improvement from experts who have more than twenty-five years of research experience on various topics related to Kerala. Following this, the students carried out an extensive survey on shops and establishments in Aluva to find out the extent of shut down of shops due to Covid pandemic.

## Department of Commerce

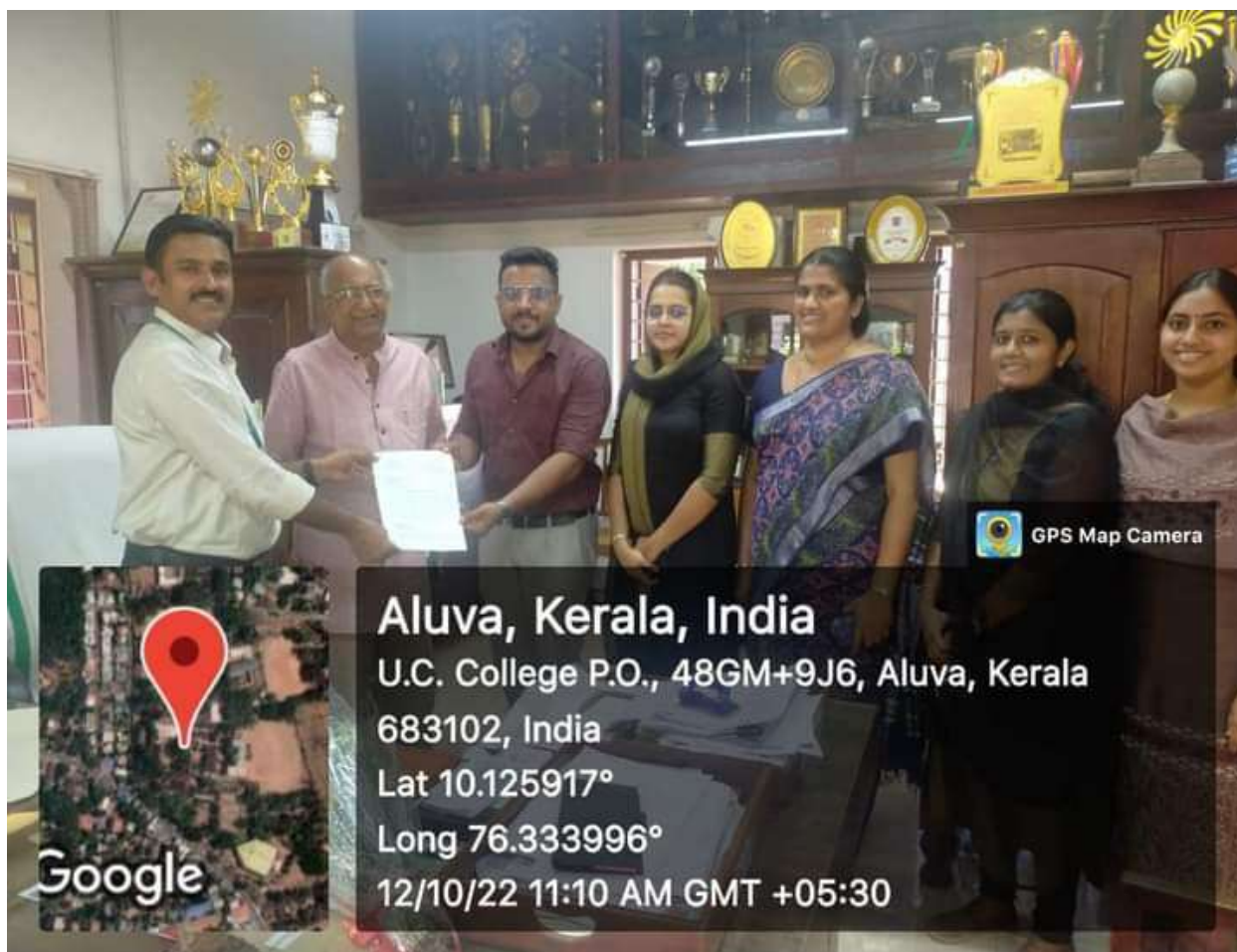
### MoU with Vintage Info Solutions

#### Report

The MoU was signed on 12 October 2022 to provide the students with a course on basic financial accounting and Tally. Furthermore, this agreement brings with an additional benefit of a license in tally being issued for the college. Objectives includes imparting knowledge regarding concepts of Financial Accounting, knowing more about company accounts and financial statements and getting placements in companies and accounting firms.

#### Activity

Tally ERP class to first year B. Com students was started on 21<sup>st</sup> February 2023. Classes were conducted by the faculty from Vintage Info Solutions.







### Outcome of the Activity

The course helped the students to record business transactions instantly and easily and also got an idea to manage accounting operations in their profession. The course also offered better career opportunities to the students in companies and accounting firms.

## Report of the MOU with GX Archery Academy and Union Christian College, Aluva (Physical Education Department)

The MOU between Union Christian College, Department of Physical Education and GX Archery Academy was signed on 27/6/2022. The MOU is renewed every year. At the Union Christian College Archery Academy, our mission is to foster a passion for archery, promote physical fitness, and develop skilled archers within our college community. We strive to provide comprehensive training, state-of-the-art facilities, and a supportive environment that encourages personal growth, discipline, and sportsmanship. Our aim is to empower individuals to excel in archery and contribute to India's continued success in the sport.

### Activity and Proof

In addition to regular coaching, the Union Christian College Archery Academy organizes various camps throughout the year. These camps serve as intensive training programs, where archers can hone their skills, learn from experts in the field, and engage in friendly competitions. The academy also conducts summer camps, allowing participants to explore archery during their vacation period.

By offering comprehensive training programs and creating opportunities for archery enthusiasts, the Union Christian College Archery Academy aims to popularize the sport, not only within the college but also in the surrounding community. The academy believes in the holistic development of its students, fostering discipline, teamwork, and sportsmanship along with archery skills.

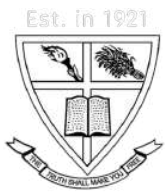
**Class Timings:** The Union College Archery Academy offers convenient class timings to accommodate the busy schedules of our students. We have sessions available in both the morning and evening, ensuring flexibility and accessibility for all.

Tuesday, Thursday: 4.30 to 6.00 PM

Saturday, Sunday : 3.00 to 5.00 PM

Coach: Mr. Gokulnath.P & Ms.Sandra Benny ( National Medalists)

Total athletes in the Academy:40



# UNION CHRISTIAN COLLEGE, ALUVA

Affiliated to Mahatma Gandhi University, Kottayam, India

NAAC Re-Accredited with A Grade in 4<sup>th</sup> Cycle (CGPA 3.45)

[www.uccollege.edu.in](http://www.uccollege.edu.in)

SSR  
5<sup>th</sup> CYCLE  
2023








## ARCHERY SUMMER CAMP

ADMISSIONS OPEN

**Venue:** Archery Feild  
(Near MCA block),  
UC College Campus, Aluva.

Training lead by well experienced  
certified coaches by Archery  
Association of India and SAI

**GX ARCHERY ACADEMY**  
In association with  
**UC COLLEGE PHYSICAL EDUCATION DEPT.**

Note: Minimum Age 7 Years





+91 999 58 28 698

+91 999 51 03 698




## അവധിക്കാല അമ്പെയ്ത്ത് പരിശീലനം

ADMISSIONS OPEN

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(Near MCA block),  
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Note: Minimum Age 7 Years

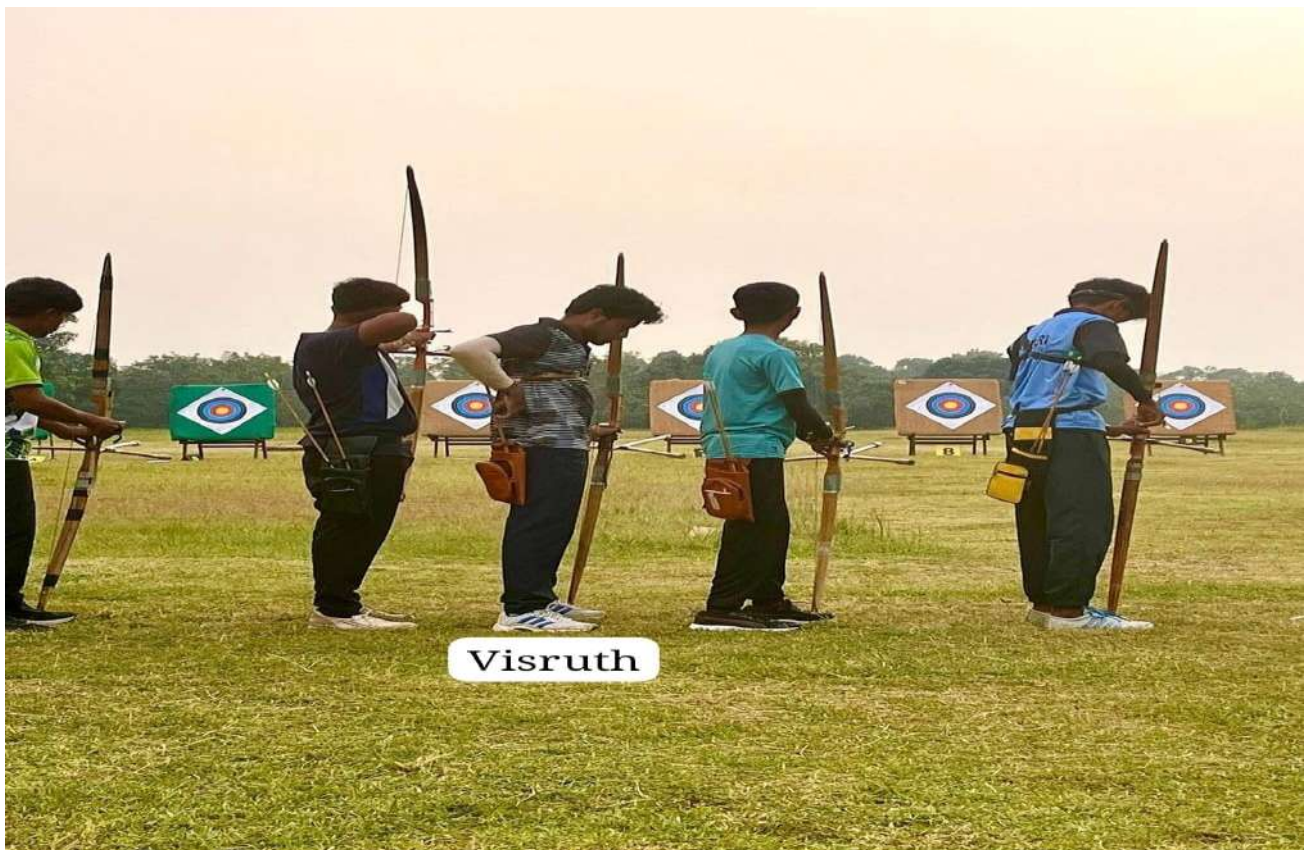




+91 999 58 28 698

+91 999 51 03 698











## Report of the MOU with KVJ Analytics, Kochi and Union Christian College, Aluva (School of Management Studies)

The MOU between Union Christian College, School of Management Studies and KVJ Analytics, Kochi was signed on 6/1/2022 for a period of 1 year.

For 2021 admission batch the classes were conducted on 06<sup>th</sup> and 07<sup>th</sup> February and 23<sup>rd</sup>, 24<sup>th</sup>, and 25<sup>th</sup> 2023 March

### Activity and Proof

The MoU was signed to conduct Hands-on Training on Python and other Programming Software for students. They have trained over 60 students during the period.



## CERTIFICATE OF COMPLETION

THIS CERTIFICATE IS PROUDLY PRESENTED TO

**Athira P S**

Has Successfully Completed Training On **Data Analytics & Data Visualization**  
Using **SPSS , Excel, Power BI**

Date - **19-06-2023**



Jomon Joseph  
Head Of Learning  
& Development

### Outcome of the activity

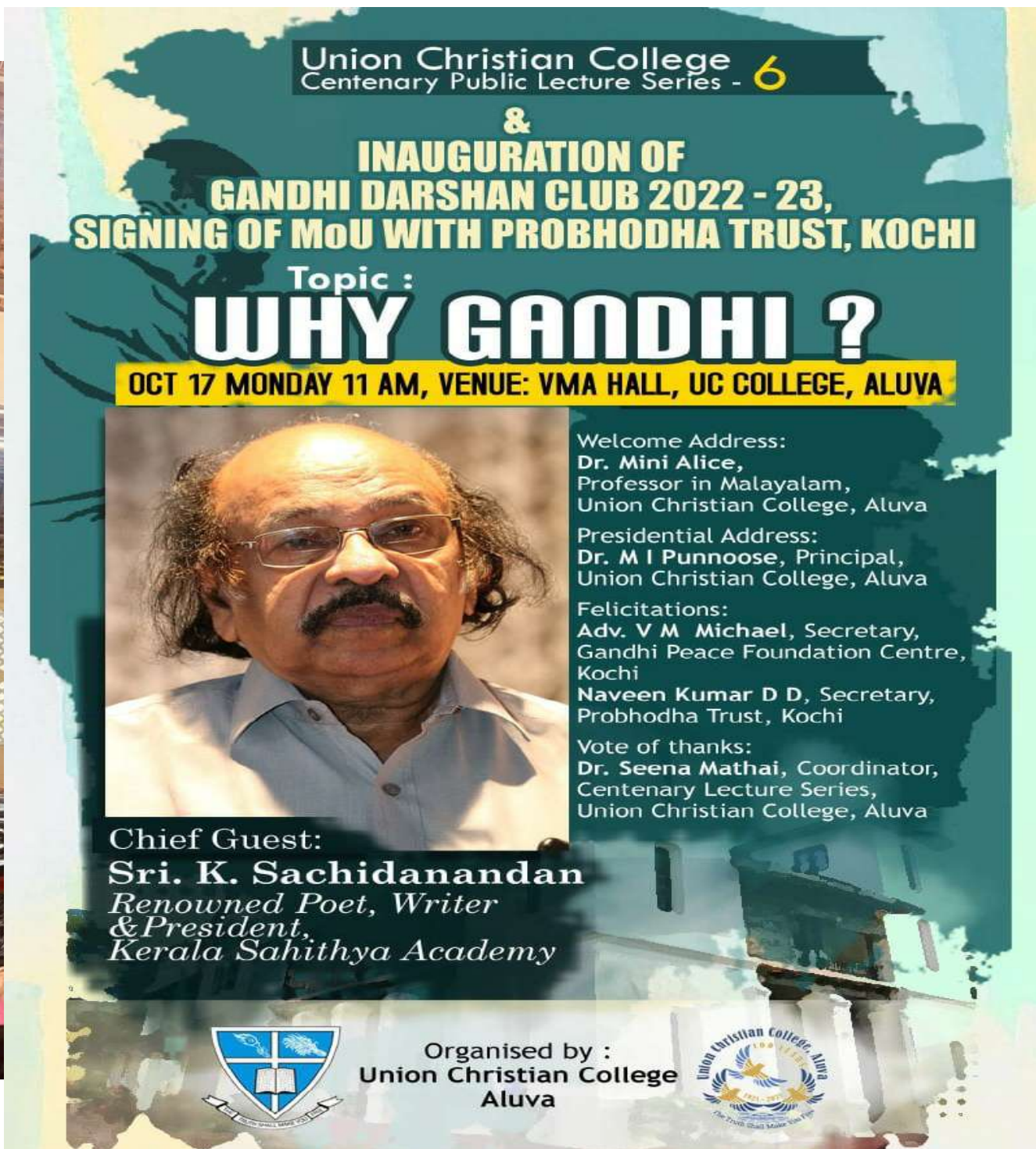
The students are certified in Data Analytics and Data Visualization using SPSS, Excel and Power BI.

**On October 17, 2022, Union Christian College, Aluva signed an MoU with Probhodha Trust, Kochi, an organisation registered under Charities Act functioning for the promotion of Gandhian thought and global peace.**





As part of signing the MoU, Sri. K. Satchidanandan, renowned writer and President of Kerala Sahitya Akademi officially inaugurated the 2022-23 activities of Gandhi Darshan Club and spoke on the topic, “Why Gandhi?”. The Club has been associating with the Trust since 2020.

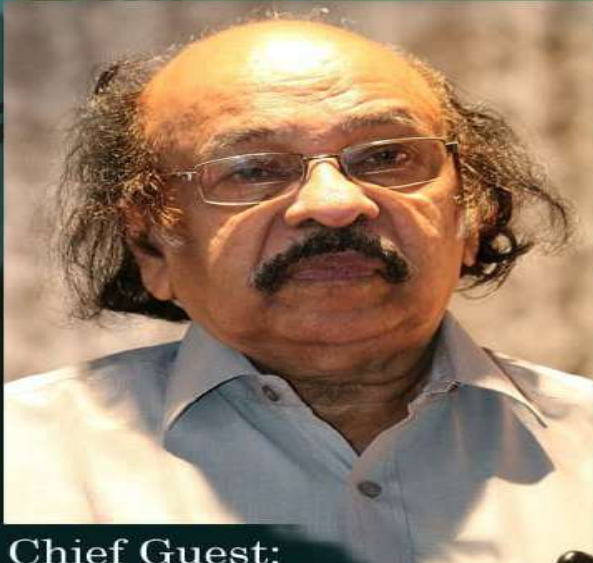


**Union Christian College**  
Centenary Public Lecture Series - **6**

**&  
INAUGURATION OF  
GANDHI DARSHAN CLUB 2022 - 23,  
SIGNING OF MoU WITH PROBHODHA TRUST, KOCHI**

Topic :  
**WHY GANDHI ?**

**OCT 17 MONDAY 11 AM, VENUE: VMA HALL, UC COLLEGE, ALUVA**



**Chief Guest:**  
**Sri. K. Sachidanandan**  
*Renowned Poet, Writer  
& President,  
Kerala Sahithya Academy*



**Welcome Address:**  
Dr. Mini Alice,  
Professor in Malayalam,  
Union Christian College, Aluva

**Presidential Address:**  
Dr. M I Punnoose, Principal,  
Union Christian College, Aluva

**Felicitations:**  
Adv. V M Michael, Secretary,  
Gandhi Peace Foundation Centre,  
Kochi  
Naveen Kumar D D, Secretary,  
Probhodha Trust, Kochi

**Vote of thanks:**  
Dr. Seena Mathai, Coordinator,  
Centenary Lecture Series,  
Union Christian College, Aluva

Organised by :  
**Union Christian College  
Aluva**

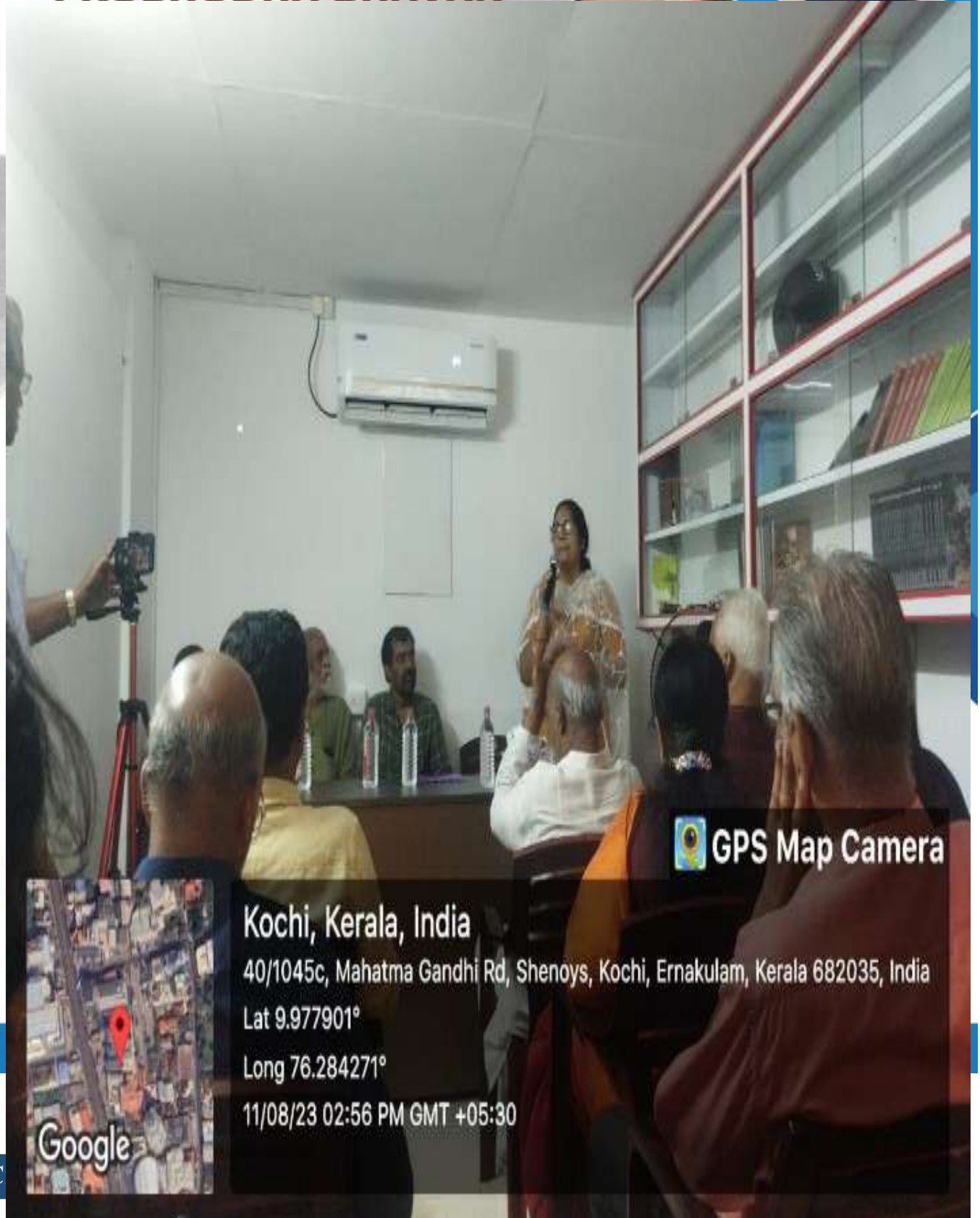
In association with the Trust, the Club participated in the “Centennial Vista” Centenary Mega Exhibition of the College by putting up an impressive exhibition of posters and books on Gandhi.






Gandhi Darshan Club associated with Probhodha Trust, Kochi, to conduct the book release function of “The Murder of Gandhi” authored by Mr. PS Joseph and published by Probhodha Publications. The programme was held on 11 August 2023 at Probhodha Bhavan, Ernakulum.

## PROBHODHA BHAVAN



 GPS Map Camera



Kochi, Kerala, India

40/1045c, Mahatma Gandhi Rd, Shenoyo, Kochi, Ernakulam, Kerala 682035, India

Lat 9.977901°

Long 76.284271°

11/08/23 02:56 PM GMT +05:30



## Report of the MOU with Hedge School of Applied Economics and Union Christian College, Aluva (School of Management Studies)

The MOU between Union Christian College, School of Management Studies and Hedge School of Applied Economics was signed on 31/12/2022 for a period of 1 year.

### Activity and Proof

The MoU was signed to associate with the company to provide Internship, Placement Assistance, Project Work, Industry Practices etc. to the students. A certification course in Financial Services was provided to the 60 students.

30 hours training session were conducted which included an industrial visit to the Hedge School of Applied Economics to understand the practical application. Classes were conducted in two batches in the month of February 2023. (13<sup>th</sup> Feb-17<sup>th</sup> Feb 2023 and 21<sup>st</sup> Feb to 25<sup>th</sup> Feb 2023. Sample Certificates for each batch is given below.







## Outcome of the activity

60 students got certified in the Financial Services Management to enhance their career prospects and acquired practical skills in financial analysis budgeting, risk management and strategic financial planning.

## Report of the MOU with Kallen Pokkudan Mangrove Tree Trust and Kandal Club, Union Christian College, Aluva

### Activity:

Kandal Club UCC was started with an initiative for ecosystem restoration and mangrove conservation. The club focuses on raising awareness among college students about the importance of mangroves, their ecological significance, and the threats they face. The club plan to organize field visits, seminars, and educational campaigns to inform students about the role of mangroves in climate change mitigation, biodiversity conservation, and coastal protection.

UC College entered a Memorandum of Understanding (MoU) with the Kallen Pokkudan Mangrove Tee Trust, to establish a partnership for the creation and management of a Mangrove Club on 08/05/2023. The MOU solidifies their commitment to environmental conservation and sustainable practices, particularly in the preservation of mangrove ecosystems. By joining forces, Union Christian College and the Kallen Trust aim to raise awareness about the importance of mangroves, organize educational initiatives, and implement conservation projects to safeguard these unique habitats for future generations.

Event: “Oru Kalalayam Kandal Nattu Thudangunnu” (Meaning: A campus starting to plant Mangroves via Mangrove seed collection and nursery development)

Date: 12th May 2023

Location: T B Ninan Hall, UC College, Aluva

Mangrove forests are vital coastal ecosystems that provide numerous ecological benefits. To actively engage college students in mangrove conservation, a seed collection activity and nursery development initiative was undertaken at Union Christian College Aluva by the Kandal Club UCC. This initiative aimed to raise awareness about mangroves, promote hands-on involvement, and contribute to the restoration of degraded mangrove habitats.

Prior to the seed collection activity, a planning phase was conducted involving faculty members, environmental experts, and student volunteers. Guidelines and protocols for seed collection were established, ensuring ethical and sustainable practices.

Student volunteers embarked on field excursions to nearby mangrove areas, guided by faculty members Mr. Hanu G Das and Ms. Femi Anna Thomas along with experienced mentor Mr. Anandan Pokkuden and a Research Scholar from CUSAT, Ms. Ardra Appukuttan. These excursions allowed participants to observe and learn about various mangrove species, their adaptations, and their ecological significance. During the excursions, students actively collected mature and healthy mangrove seeds while adhering to ethical collection practices that ensure minimal impact on the natural environment. Seeds were collected from the Mangrove species *Avicennia marina*, and *Rhizophora mucronata*, and plant saplings of *Acanthus ilicifolius*, a mangrove associate was also collected.

After the collection, students gathered to process the collected seeds. This involved cleaning, sorting, and categorizing the seeds based on species and viability. Seeds were carefully examined, discarding any damaged or immature ones to ensure the best chances of successful germination. The seeds were further transferred to grow bags with mud and compost to ensure the germination.

The Nursery Development activities are in progress wherein a dedicated space within the college campus will be allocated for the establishment of a mangrove nursery. The area will be prepared with appropriate soil, containers, and irrigation facilities to provide optimal growing conditions.

Students will be actively involved in setting up the nursery infrastructure, including constructing shade structures, arranging seedbeds and bamboo pots, and organizing labeling systems for different mangrove species. The processed seeds will be sown in suitable bamboo containers or seedbeds within the nursery. Adequate watering, monitoring of temperature and humidity, and protection from pests and diseases will be ensured to facilitate successful germination and healthy growth.

The nursery served as a learning hub, providing opportunities for students to observe and understand the growth stages of mangroves firsthand.

Workshops, lectures, and interactive sessions will be conducted to educate students about the ecological importance of mangroves, the challenges they face, and the role of nurseries in restoration efforts. Further, the college will actively engage with local communities, inviting them to visit the nursery and learn about mangroves. Awareness campaigns will be organized, emphasizing the significance of mangroves for the community's well-being and encouraging their involvement in conservation initiatives.

## Field Trip Photos





## Mangrove seedlings transferred to Grow Bags







Mangrove seedlings transferring to growbags carried out along with the help of NCC cadets





## A Mangrove Seedling Handed Over to Major K.S. Narayanan Sir, NCC Officer (SD Boys), UC College





## Department of Mathematics

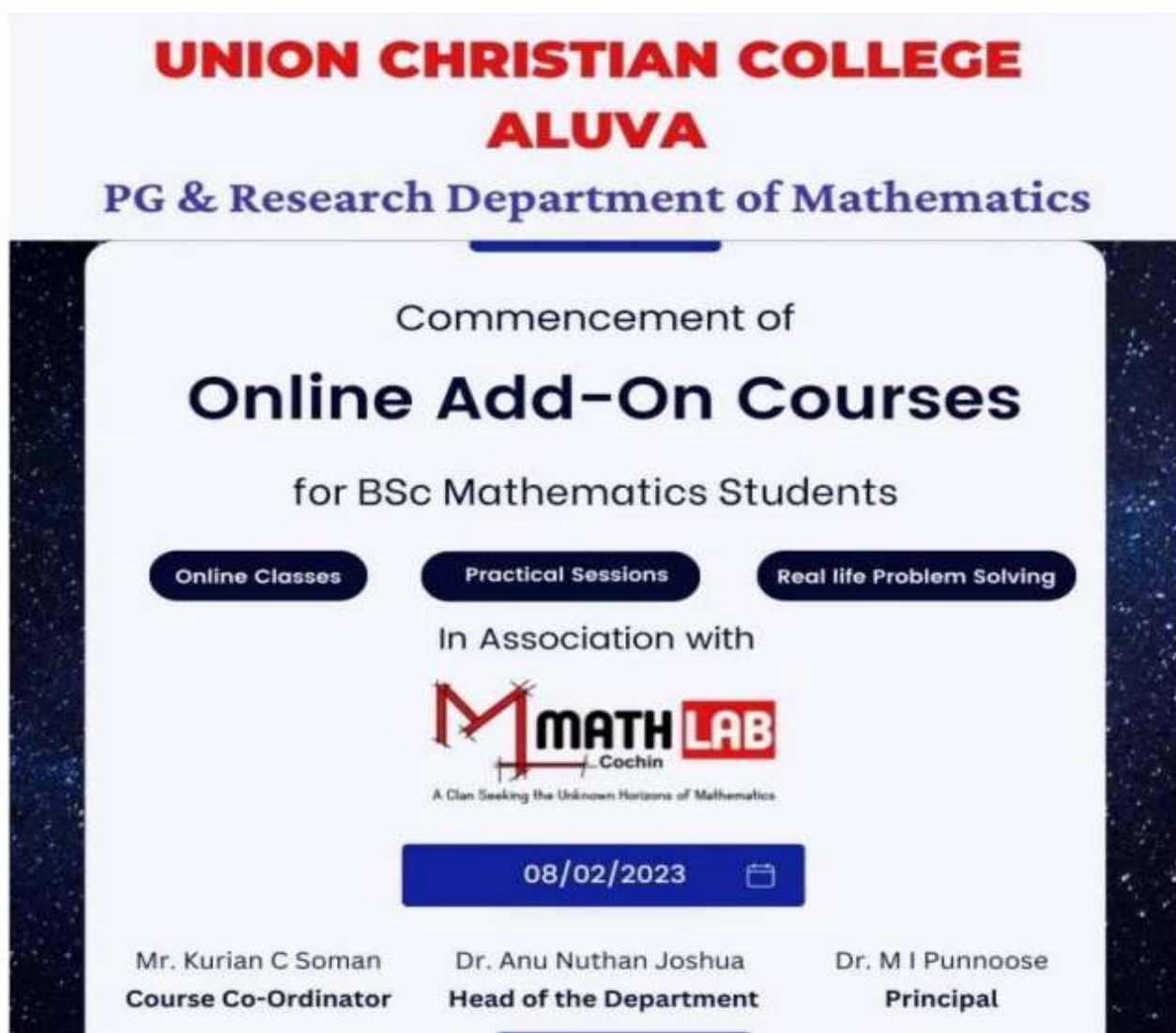
### MoU with Mathlab Research Pvt. Ltd.

#### Report

The MoU was signed on 08.02.2023 between the Department of Mathematics, Union Christian College, Aluva and Mathlab research Pvt. Ltd. to provide technical assistance to the Department for conducting Add-on courses for the students for acquiring soft skills. Objectives is to provide training and technical support to the Department. Mathlab will provide training content and technical support to the Department to enhance the soft skills of the ongoing students.

#### Activity

Started an Add-on course for first year and second year UG students.



**UNION CHRISTIAN COLLEGE  
ALUVA**

**PG & Research Department of Mathematics**

Commencement of  
**Online Add-On Courses**  
for BSc Mathematics Students

Online Classes   Practical Sessions   Real life Problem Solving

In Association with

**M MATH LAB**  
Cochin  
A Clan Seeking the Unknown Horizons of Mathematics

08/02/2023

Mr. Kurian C Soman  
Course Co-Ordinator

Dr. Anu Nuthan Joshua  
Head of the Department

Dr. M I Punnoose  
Principal



## Union Christian College, Aluva

### Department of Mathematics

#### Notice

The Department of Mathematics shall start online Value added courses on

1. Mathematical Typesetting Using LaTeX
2. Basics of Statistics Using Microsoft Excel.

in association with Math Lab, Cochin

It shall be a 30 hours course including Online/Offline classes and Practical sessions. Students from the Department are requested to enrol themselves for the courses and participate actively to make it a grand success.

Registration forms are available from the Department.



*Anu Nuthan Joshua*  
Dr. Anu Nuthan Joshua  
Head of the Department  
**HEAD OF DEPARTMENT OF MATHEMATICS**  
**UNION CHRISTIAN COLLEGE**  
**ALUVA - 683 102**

### Outcome of the activity

The students are developing their skills on using MS Excel, LateX, geogebra software, R programming etc.

## Department of Mathematics

### MoU with Kerala Mathematical Association

### Report

The MoU was signed on 14 February 2023 to conduct faculty development programmes, to carry on collaborative research projects, to publish research articles in the journals published by KMA and to conduct seminars and workshops. Objectives are to conduct faculty development programs, to carry on collaborative research projects to publish research articles in the journals published by KMA and to conduct seminars and workshops

### Activity

Department conducted a National seminar on 'Number Theory and Discrete Mathematics' in association with KMA on 7<sup>th</sup> March 2023.

#### ABOUT THE DEPARTMENT

The Department of Mathematics, Union Christian College was started in 1923. It was upgraded into a Postgraduate Department in 1965. For the past hundred years, the Department is functioning as a center of quality education in Mathematics. Department regularly conducts seminars/workshops that enhance the mathematical abilities of students.

#### INVITED SPEAKERS

**Dr. Satyavolu Srinivasa Rau**  
Associate Professor  
The ICFAI Foundation For Higher Education

**Dr. K Pravas**  
Assistant Professor  
Department Of Mathematics  
Maharajas  
College, Ernakulam

**Dr. Seethu Varghese**  
Assistant Professor  
Department Of Mathematics  
Bharata Mata College, Thrikkakara

Sir/Madam,

The Department of Mathematics, Union Christian College, Aluva organizes a National Seminar on 'Number Theory & Discrete Mathematics' on 7th March 2023 in association with Kerala Mathematical Association (KMA). We solicit the esteemed presence and active participation from your institution.

#### DETAILS OF THE LECTURES

Lecture 1 : Hardy - Ramanujan's Round Numbers  
Lecture 2 : Some Problems in Graph Theory  
Lecture 3 : From Seven Bridges To Power Domination

With Warm Regards,

**Dr. M.I Punnoose**  
Principal

**Dr. Anu Nuthan Joshua**  
Head Of The Department

For details contact:  
**Mr. Kurian C. Soman**  
Faculty Co-ordinator  
Ph. No : 99616 94351



## National Seminar On Number Theory & Discrete Mathematics

March 07, 2023

Organised By  
Department of Mathematics,  
Union Christian College, Aluva

In collaboration with  
Kerala Mathematical  
Association





### Outcome of the Activity

The students enthusiastically interacted with the resource persons and they were able to understand recent developments in the branch of Discrete Mathematics. The session also helped in bringing up research interests in students.

## Report of The MoU with Greater Cochin Development Authority (GCDA) and Union Christian College (Department of Economics)

The MOU with GCDA was signed on 20<sup>th</sup> April 2023 for a period of three years. Greater Cochin Development Authority is the statutory body overseeing the development of the city of Kochi in the state of Kerala, India. The MOU was signed by Union Christian College for students to gain experience of research and extension. The Department of Economics will be co-ordinating the activities under this MOU. This MOU was signed following a collaborative activity conducted by Department of Economics with GCDA in January 2023.

### Report and Proof of the activity

A survey was carried out by GCDA in January 2023 with the objective of constructing a 'Happiness Index' of the city of Kochi. This survey was conducted with the help of students of different colleges. The students of department of Economics, Union Christian College took part in this survey. As proof of this activity a letter of appreciation from GCDA and photo of participants is pasted below.

### Letter of Appreciation



**GREATER COCHIN DEVELOPMENT AUTHORITY**  
P.U.No.2012 Phone : 2344261, 2344122 Fax: 01 484 226234 Kochi - 682 020  
website: [www.gcdakerala.gov.in](http://www.gcdakerala.gov.in) E-mail: [gcdaonline@gmail.com](mailto:gcdaonline@gmail.com)

No. 4244/PL.1/2022/GCDA Date: 09.03.2023

From,  
The Secretary,  
GCDA,

Sir,  
Sub: - GCDA – Planning Section – Letter of appreciation – Happiness Index Report

I take this opportunity on behalf of Greater Cochin Development Authority to appreciate the students of your college who had participated in the survey work for the preparation of Happiness report, a study by the Authority. I hope that your institution will be able to co-ordinate with GCDA for further such innovative projects in the future.

Yours faithfully,  
  
Secretary

To,

1. The Head of the Department,  
Departments of Economics,  
Maharajas College, Ernakulam.
2. The Head of the Department,  
Departments of Economics,  
Morning Star Home Science College, Angamaly.
3. The Head of the Department,  
Departments of Economics,  
St Teresa's College, Ernakulam.



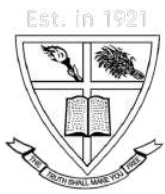
4. The Head of the Department,  
Departments of Economics,  
SH College, Thevara.
5. The Head of the Department,  
Departments of Economics,  
St Paul's College, Kalamassery.
6. The Head of the Department,  
Departments of Economics,  
Government Arts College, Thrippunithura.
7. The Head of the Department,  
Departments of Economics,  
Bharath Mata College, Thrikkakara.
8. The Head of the Department,  
Departments of Economics,  
UC College, Aluva.



### Outcome of the Activity

Fifteen students who participated in the survey received rigorous training for empirical data collection using survey method. They also gained an understanding of the construction of happiness index, an index which is gaining much popularity in the development circles.





# UNION CHRISTIAN COLLEGE, ALUVA

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SSR  
5<sup>th</sup> CYCLE  
2023

## Collaboration of Union Christian College (Department of Economics) With St. Peters College (Department of Political Science)

A letter of collaboration was signed between St Peter's College, Kolenchery and Union Christian College, Department of Economics on 24-04-2023 to foster co-operation towards achieving knowledge enhancement and capacity building. In association with the Department of Political Science, the Department of Economics will be conducting mutually beneficial training programs and short term courses.

### Report of the activity and Proof

The activity carried out under this collaboration is the conducting of a certificate course on **Intellectual Property Rights: An overview**. The MOODLE platform of Department of Political Science, St. Peters College, Kolenchery was used to carry out the course. The course introduced the students to the basics of IPR and its problems and prospects. As proof,

## UNION CHRISTIAN COLLEGE, ALUVA

DEPARTMENT OF ECONOMICS



### OFFERS CERTIFICATE COURSES ON

- 1. Young Entrepreneurship**  
*(Learn to change fundamental business concepts to thriving businesses)*  
 Faculty coordinators- Ms. Liji Lawrence - 9633380851 &  
 Ms. Rajalakshmi R - 9497187060
- 2. Indian Constitution & Citizen's Rights**  
*(Know your Constitution to know your Rights)*  
 Faculty coordinator- Dr. Geethika G - 9846943943
- 3. Intellectual Property Rights: An Overview**  
*(Learn the basics of IPR, it's problems and prospects)*  
 Faculty coordinators- Dr. Basil B Mathew (St. Peter's College, Kolenchery),  
 Dr. Geethika G - 9846943943



**Eligibility:** All PG & UG students

**Course Duration:** 25 April 2023 to 15 May 2023 (30 hours)

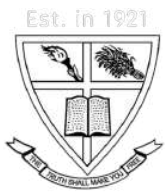
**Course delivery mode:** Hybrid (online lectures and field visits/interactions)

**Certificate fee:** Rs. 100/-



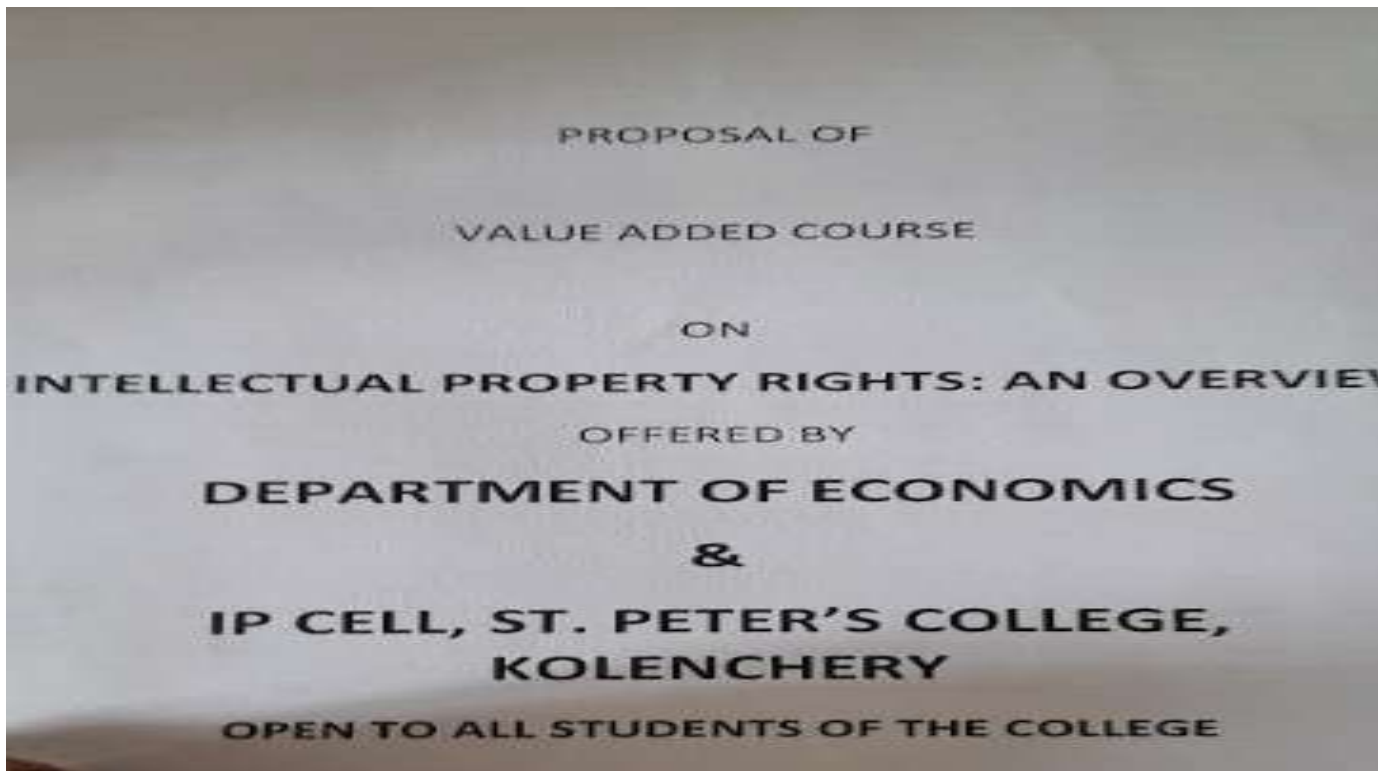
**Last date of registration: 24 April 2023**

For more details on the courses please visit  
<https://economics.uccollege.edu.in/>



the brochure of the program, list of students who studied the certificate course and the certificate given to the students are presented.







## I. Introduction

The new IPR regime established by the WTO TRIPS Agreement has generated immense interest among academic and industrial circles. Central to the debates and discourses on the intellectual property protection mechanism and its implications on various aspects of life, has been the level of protection sought/contested on the rights rendered in recognition of the intellectual input/creativity underlying and invention or an artistic expression. The increasing significance of the subject has made it imperative to encourage the Under-graduate and Post-graduate students to acquire knowledge about it. With this view, this Short term Certificate Course on Intellectual Property Rights aims to help students understand the nature, scope and implications of patents, copyrights, trademarks and geographical indications.

## II. Objectives

- To bring innovation and excellence in teaching and research, promote interdisciplinary approach.
- To generate critical awareness among students, teachers and the younger generation on the correlation between technology and society.
- To promote a high degree of awareness on intellectual property rights in general and in particular patents, trademarks, copyright, traditional knowledge and geographical indications which have become crucial concerns to society at the local, regional, national and international milieu.
- To give a direction to identify issues and concerns at local/regional/global problems vis-à-vis IP management, through training of the required human resources.

## III. Syllabus

### Module 1- History of Intellectual Property Rights (10 Hours)

Genesis and growth- Theoretical framework of IPR- Early conventions- WTO, TRIPS and new global Regimes

### Module 2- Types of Intellectual Property Rights (10 Hours)

Copyrights- Patents- Geographical indications- Trademarks- Industrial designs

### Module 3- IPR and India: Historical overview (10 Hours)

IPR Regulations in India- India and its Patent Act- India and TRIPS

## IV. Course Details

**Eligibility:** The course is open to all Undergraduate and Postgraduate students of the College


**Duration:** 30 Hours (3 weeks)

**Method of Instruction & Assessment:** Hybrid mode-Enrolled students can access the video lectures in the course page on MOODLE LMS Platform. Contact classes via online or offline mode will be arranged once a week to clear doubts. Students are expected to participate in the discussion forum and submit simple assignments/quizzes every week to complete the course. Students will be eligible to receive the course certificate upon successfully clearing the final examination.

The College will provide the 'Course Completion Certificate' to students who successfully complete the course. A fee of Rs. 100 will be charged for certificates.

**VI. Faculty-in-charge:** Dr. G. Geethika, Assistant Professor in Political Science, Dept of Economics, Union Christian College, Aluva. And

Dr. Basil B. Mathew, Assistant Professor, Dept of Political Science, St. Peter's College, Kolenchery

  
Head of the Department

Dr. Anna George  
Head of the Department  
Department of Economics  
Union Christian College, Aluva, Kerala



## Attendance

Sl.No.	Name of Student	Attendance %
1.	Akshaya A	100
2.	Alfred Mathews P Reji	100
3.	Amala Baby	83
4.	Anamika Salm	100
5.	Aneetta Roy	69
6.	Angel Thomas	73
7.	Angelene Mathew	87
8.	Aparna A	87
9.	Brigit Benny	73
10.	Chithranjali.E	75
11.	Dhanasree K J	100
12.	Fathima mehjabin	63
13.	FATHIMA SAJMI	76
14.	Irine Mariam Mani	96.43
15.	ISRA MI	100
16.	Jibin Joy	100
17.	K G Jills	84
18.	Misna.V.M	100
19.	Nandana Reji	100
20.	Priyadatha MK	79





21.	Risvi Chatterji	64
22.	ROJA P V	77
23.	S Silpa Das	87
24.	Sneha Dixon	100
25.	Sreedurga.A	100
26.	Sreejaya pc	69

### Outcome of the Activity

The Course was attended by 26 students. The course gave them a good understanding of Intellectual Property Rights, which is a very important subject in the current times. Also the students pass out with an additional value added course as they complete their graduation.

## Report of the Collaboration of Union Christian College, (Department of Economics) With IEDC, St. Peters College.

A letter of collaboration was signed by Union Christian College, Department of Economics with IEDC St Peter's College, Kolenchery on 24-04-2023 to foster co-operation towards achieving knowledge enhancement and capacity building. The Innovation and Entrepreneurship Development Centres (IEDC) are platforms set up in Engineering, Management, Arts & Science Colleges, Medical Institutions, Polytechnics and Universities with an aim to provide students with an opportunity to experiment and innovate. A letter of Collaboration was signed with IEDC, St. Peters College for carrying out joint seminars and other academic activities.

### Report and Proof of the activity

As part of the collaboration, four webinars were organised. The following was the talks conducted under the collaboration

1. Meet the Entrepreneurs- The key speakers were Smt. Priya Girish and Smt. Deepa Surendrakumar, CEO and Managers of Zita Collections on 11<sup>th</sup> May 2023
2. Journey of an Entrepreneur- A webinar by Dr. Biju Kumar R was organised on May 2, 2023.
3. Legal and Ethical steps in entrepreneurship by Dr. P. Prasanth, was conducted on 28.04. 2023.
4. The department of Economics, Union Christian College launched a Value added course on Young Entrepreneurship with a lecture by Dr Renu Susan Samuel, Professor at St Peters College and IIC President, Nodal officer of IEDC on 25 April 2023.

### Session on 28.05.2023



**Union Christian College, Aluva, India**  
Affiliated to Mahatma Gandhi University, Kottayam, India  
NAAC Re-Accredited with A Grade in 4<sup>th</sup> Cycle (CGPA 3.45)

**ST. PETER'S COLLEGE KOLENCHERY**  
Affiliated to MG University, Kottayam

**DEPARTMENT OF ECONOMICS**

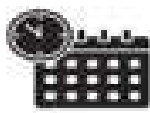
**INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE**

**JOINTLY ORGANISES A SESSION ON**

## HOW TO PLAN FOR STARTUP- LEGAL & ETHICAL STEPS



**Dr. P. Prasant** (Honorary Doctorate)  
Deputy Dean (I & A)  
IIC President, Assistant Professor  
Mentor of Change, Atal Innovation Mission  
Khalsa College of Engineering and  
Technology, Amritsar



28.04.2023

at 6.30 p.m.

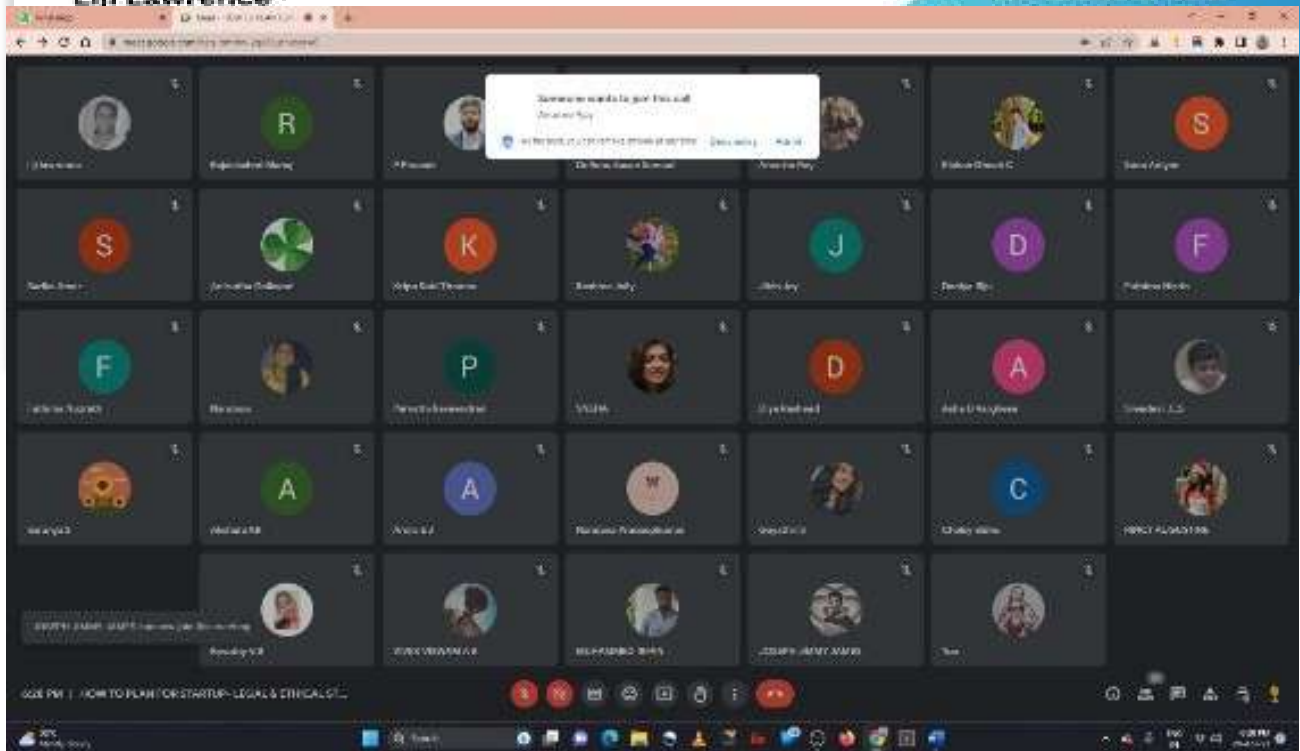


via Google Meet

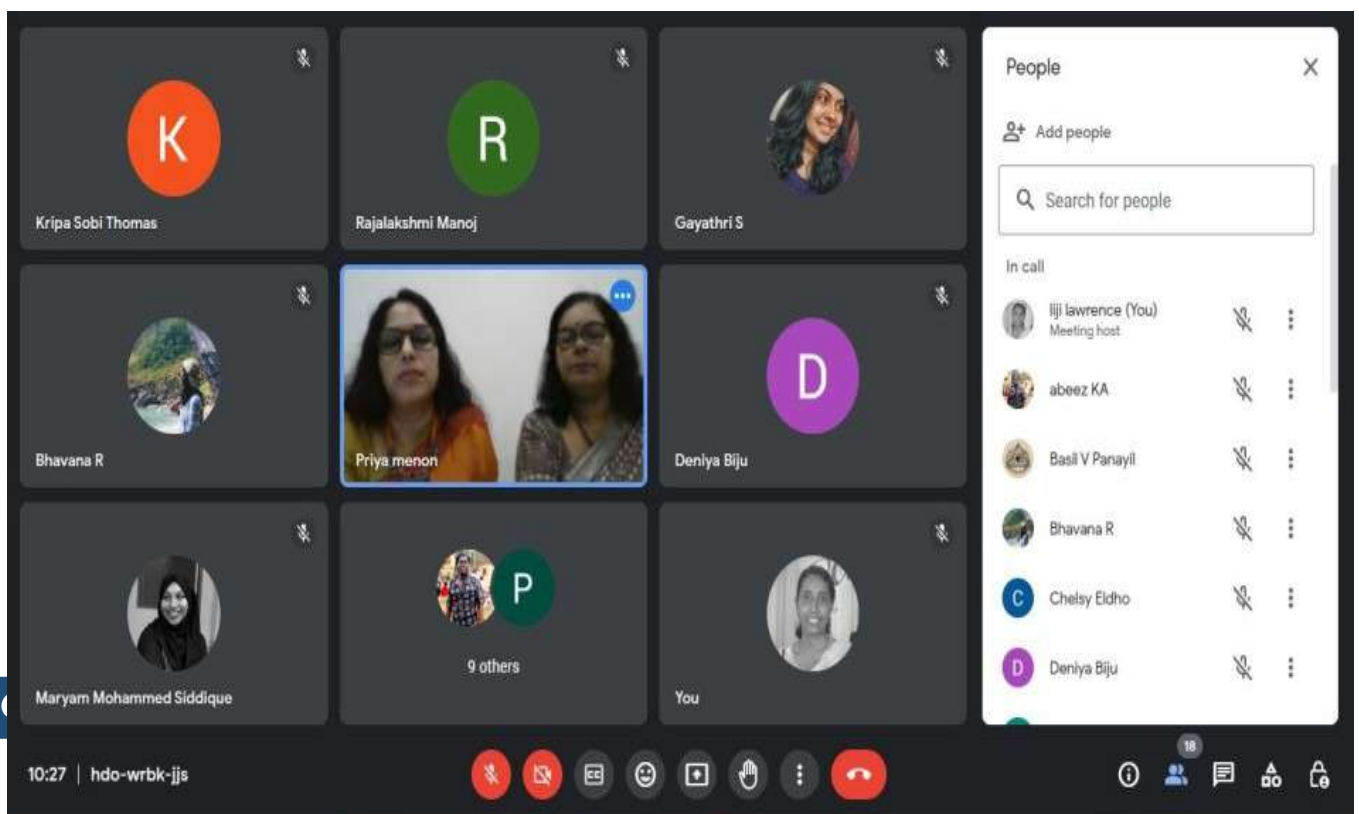
Co-ordinators

Liji Lawrence

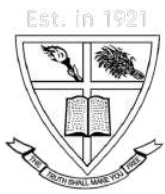
Dr. Sona S Dev



Session on 11<sup>th</sup> May 2023







Session on 25<sup>th</sup> April 2023

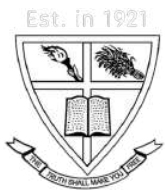
UNION CHRISTIAN COLLEGE, ALUVA  
DEPARTMENT OF ECONOMICS  
PRESENTS

SEMINAR ON:  
**YOUNG  
ENTREPRENEURSHIP**

 Resource person :  
Dr. Renu Susan Samuel  
Assistant Professor, Dept of Economics,  
IEDC Assistant Nodal Officer &  
SPC-UC President  
St. Peter's College, Kalarachery, Ernakulam.

Via Google Meet 

 25 April, 2023  
 6:30 pm



## Outcome of the Activities

The department organised various seminars on Entrepreneurship to stimulate entrepreneurial skills among students. The talks introduced the students to legal and ethical issues in entrepreneurship and first-hand experience sharing by successful entrepreneurs. The motto of 'be a job maker rather than a job seeker' was an idea which was disseminated through these talks.

## Department of History

### Letter of Collaboration with St. Peter's College, Kolenchery

#### Report

Union Christian College's Department of History, Aluva, Ernakulum District, Kerala, India and St. Peters College, Kolenchery's Department of History, Ernakulum District, Kerala, India entered into this letter of Collaboration on 12.04.2023 to foster cooperation in educational activities. The objective is to conduct the following activities, in relation to the certificate course in History and Museology in India and future training or internship programmes in Archaeology, Museology, Heritage, History and allied fields in particular to promote academic cooperation, exchange of materials in education, publications and academic information, exchange of faculty, exchange of students, field visit, internship, other Technical Assistance and Training programmes.

#### Activities

##### 1. Inorganic Conservation Workshop

Objectives of the workshop were gaining familiarity with basic terms of chemical and mechanical conservation, identify agents of deterioration of organic objects in museum and preparing reports. Workshop on 20.04.2023 was inaugurated by the Principal, introduction to agents of deterioration and basic field level organic conservation was given by Jenee Peter. One practical sessions was arranged in the Conservation Lab in the afternoon. This one-day workshop started at 10.00 AM and ended at 4.30 PM.

##### 2. Organic Conservation Workshop

Another workshop on organic conservation was conducted on 21.04.2023.





Archaeology is the study of past cultures using material remains left behind by the people. The preservation of past material culture depends on the type of materials (organic, which decay more quickly, or inorganic) and the environmental conditions to which they have been exposed. Materials deposited in the open are affected by factors such as rain, sun, snow, wind, and other natural phenomena. Conservation is usually done in a lab, but sometimes inorganic objects like metal, ceramics and stone are so fragile that some work to save or stabilize them must be attempted in the field.

## Workshop on Inorganic Conservation



U C College  
Archaeology  
Museum

Conservation Lab



20 April 2023



TB Ninan Hall  
History Dept. Reading Room,

## Outcome

- Gaining familiarity with basic terms of chemical and mechanical conservation
- Identify agents of deterioration
- Preparing reports.

## PREPARATION

You will be handling ancient materials and chemicals and mechanical devices and notebooks to record.

To Register:  
[Click here](#)

## Programme Schedule

### ➤ 10.00 AM - 11.30 AM Session 1

- Basics of Inorganic Conservation: Abu Joseph
- Respondent: Arun P Malat

### ➤ 11.30AM - 11.45AM

- Tea

### ➤ 11.45 AM - 12.30 PM Practical Session 2

- Conservation of Metal objects: Abu Joseph
- Respondent: Lekshmy Venugopal

### ➤ 1.30 - 3.00 PM Practical Session 3

- Conservation of Ceramics: Abu Joseph
- Respondent: Gracy K S

### ➤ 3.00 PM - 4.00 PM

- Team Report Presentations

### ➤ 4.00 PM - 4.30 PM Valedictory Programme

- Chair: Dr Gracy K S
- Reviews: Participants
- Distribution of Certificates



### Resource Person

Abu Joseph is an alumnus of CCES, CHS and received training in conservation at NRLC, Lucknow. He is/was a conservation consultant with Muziris Heritage Project, Department of Archaeology, Govt of Kerala and various private museums.



### Coordinators

Dr Jenée Peter  
Arun P. Malat - 9567774422  
Lekshmy Venugopal

Participants need not have a background in Chemistry rather should have a passion for material culture and preservation.



Archaeology is the study of past cultures using material remains left behind by the people. The preservation of past material culture depends on the type of materials (organic, which decay more quickly, or inorganic) and the environmental conditions to which they have been exposed. Materials deposited in the open are affected by rain, sun, snow, wind, and other natural phenomena. Conservation is usually done in a lab, but sometimes organic objects are so fragile that some work to save or stabilize them must be attempted in the field.

## Workshop on Organic Conservation



U C College  
Archaeology  
Museum

Conservation Lab



19 April 2023



TB Ninan Hall  
History Dept. Reading Room,

## Outcome

- Gaining familiarity with basic terms of chemical and mechanical conservation
- Identify agents of deterioration
- Preparing reports.

## PREPARATION

Participants will be handling ancient materials, chemicals, mechanical devices and recording observations.

To Register:  
[Click here](#)

## Programme Schedule

- 10.00AM - 11.30AM Inauguration
- Welcome: Lekshmy Venugopal, UC College
  - Inauguration of the workshop: Dr M I Punnoose, Principal, UC College
  - On the Workshop: Dr Jenee Peter, Coordinator of Archaeology, UC College
  - Felicitation:
  - Dr. Gracy K S, Course Coordinator, 'Museology in India' Dept. of History, St. Peter's College, Kolenchery
  - Ms. Tresa Divya T J, HoD, Dept. of History, UC College
  - Dr. Suji KV, Dept. of History, Sree Sankara College, Kalady

### ➤ 11.30 AM - 11.45 AM

- Tea

### ➤ 11.45 AM - 12.30 PM: Session 1

- Basics of Conservation: Abu Joseph
- Respondent: Arun P Malat

### ➤ 1.30 PM - 3.00 PM: Session 2

- Practical Session in Museum: Arun P Malat
- Respondent: Dr. Gracy K S

### ➤ 3.00 PM - 4.00 PM

- Report Preparation and presentation



### Resource Person

Abu Joseph is an alumnus of CCES, CHS and received training in conservation at NRHC, Lucknow. He is/was a conservation consultant with Muziris Heritage Project, Department of Archaeology, Govt of Kerala and various private museums.



### Coordinators

Dr Jenee Peter  
Arun P Malat - 9567774422  
Lekshmy Venugopal

Participants need not have a background in Chemistry, but should have a passion for material culture and preservation.





### Outcome of the Activity

Helped in gaining familiarity with basic terms of chemical and mechanical conservation and identifying agents of deterioration, preparing reports.



## Department of History

### MOU with Karumalloor Grama Panchayat

#### Report

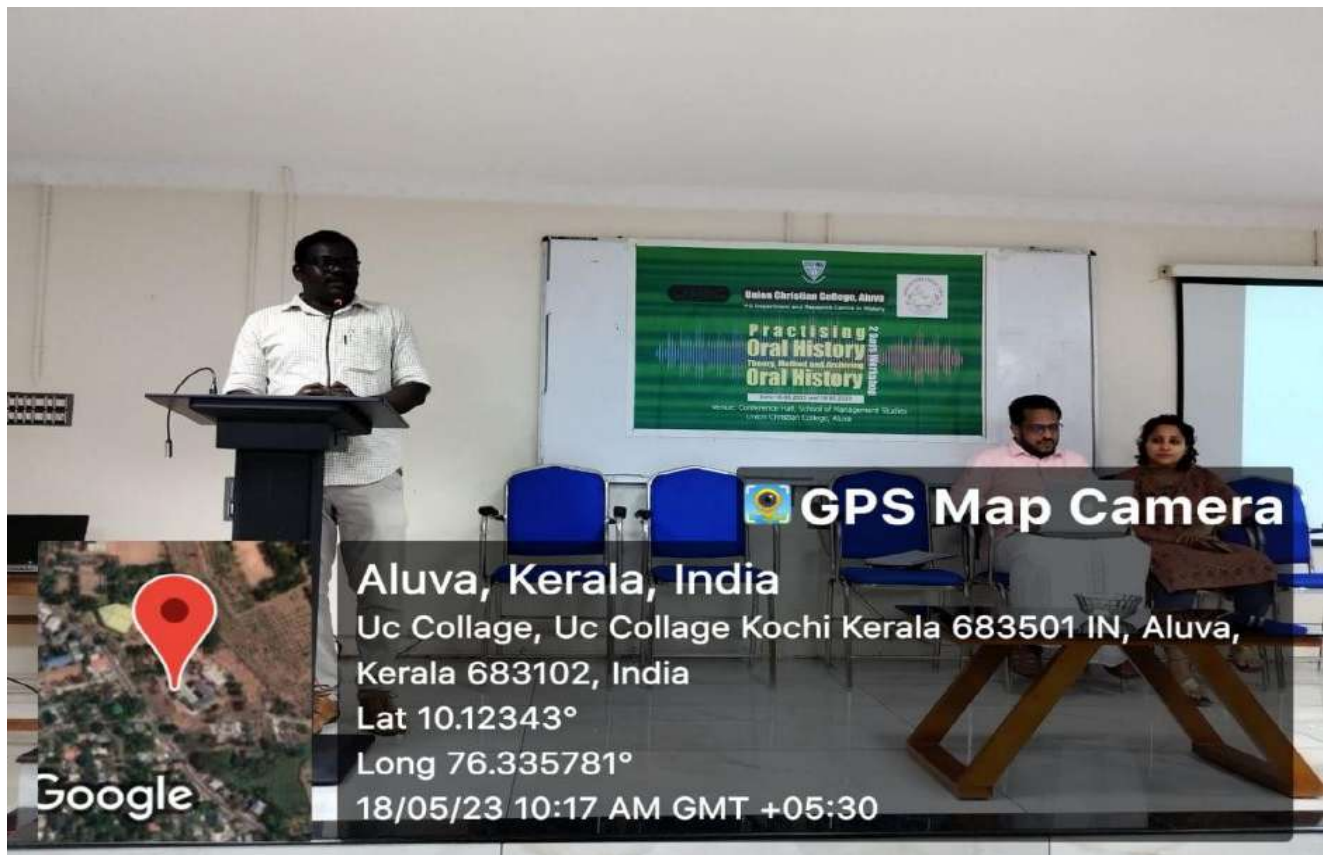
MoU was signed on 22.05.2023 between Union Christian College, Aluva and Karumalloor Grama Panchayat, a local self-government body under the Panchayat Raj Act of Indian constitution. The Grama Panchayat will help in conducting data collection and related help. Objective is to collect, digitize, preserve and make available memories about the region Aluva, but in the long term, to do the same for memories related to themes such as migration, environment, gender, caste, religious and cultural practices, social and political movements, traditional knowledge, public institutions, etc. The spoken memories shared during an interview are from witnesses or participants in an event or a time period, hence, they can be counted as primary material through which history is known and understood. The objective is to develop a pool of such primary historical accounts, first hand, preserved and made available, and eventually, pave the way for establishing one of the pioneering centres of oral history in South Asia.

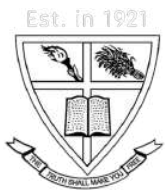
#### Activity : The Oral History Archives and Research Centre (OHARC)

The primary objectives of this project is as follows:

1. To put in place a system that would record, preserve and disseminate voices from the past and about the past, and therein create an organic resource base for studying and understanding the past.
2. To recognize and acknowledge unheard memories and voices that would otherwise remain invisible or marginalized in a world where the written or the printed word is prioritized.
3. To document histories with all its emotional content.
4. To develop a resource base for research students of history and other disciplines.
5. To train students in oral history.
6. To democratize historical knowledge, wherein, anyone can contribute their memories and access those memories.
7. Towards Total history

The inauguration ceremony of OHARC materialized on 18.05.2023 9.30 am at Conference Hall, School of Management Studies. U C College Aluva. It was an esteemed occasion attended by esteemed guests, faculty members, students, and community representatives. The event commenced with an introduction to OHARC's vision and objectives, emphasizing its commitment to preserving and promoting oral history.





## Outcome of the Activity

In the long term, this project hopes to digitize the entire written documents, testimonies, and photographs on the region, Aluva, and therein, convert it into a virtual archives with provisions for online access and consultation, so that it may be yet another addition to the rich history of Aluva and the times gone by; to collaborate with national and international centres, and begin short term courses on oral history; to develop the archive into a premier Centre for Oral history research in the country; and to offer consultancy services to other institutions in opening oral history archives in their own institutional settings thus making it one of our **Best Practices**.



## Department of Physics

### MoU with James Cook University

### Report

The MoU was signed between James Cook University (JCU) (College of Science and Engineering), Australia and Mahatma Gandhi University, Kottayam, Kerala, India [Union Christian College, Aluva, Kerala, India). The objectives include research collaboration and student exchange.



### Activity

As part of the MoU, Ms. Aleena Norbert, Research student of Dr. Rachel Reena Philip enrolled at JCU for her research degree.

DETAILS OF SCHEDULE	
<b>1. STUDENT DETAILS</b>	
Surname: Norbert	Student ID (JCU): Student ID ([Partner institution]) 91/2020
Given Names: Aleena	Title (Dr/Mr/Ms/Mrs): Ms
Date of Birth: 01-04-1992	Country of Residence: India
Email Address: aleenanobo@gmail.com	Gender: Female
Title of research topic: <b>Phytosynthesis and characterization of cerium oxide nanoparticles for visible li driven photocatalytic and antimicrobial applications.</b>	
Name of degree applied for at JCU: PhD	
<b>2. CANDIDATURE DETAILS</b>	
Intended start date at JCU:	10 January 2022
Intended Thesis Submission Date at JCU:	June 2025
Intended start date at Collaborating University (or start date if already enrolled):	01-09-2021
Intended thesis submission date at Collaborating University:	June 2025
Language of Thesis (if other than English):	English
Total budget required for the project:	\$4000 (JCU Minimum Resource)
<b>2.a. Time spent at each institution</b>	
The candidate will spend 3 months at JCU, Australia and 42 months at Union Christian College, Aluva affiliated to Mahatma Gandhi university.	

15:26 PhD 110102 cotutelle External  
(Enquiry: 230321-000378)

**G** Graduate Research School 21 Mar  
to aleena.norbert, me, cse.postgradser...

Dear Aleena,

Thanks for contacting **JCU**, below is our response.

If you would like to update your enquiry it's easy. All you have to do is reply to this email.

Current Students can review a history of their enquiries by logging into [Ask Us](#).

The Team at **JCU**  
Ready today for tomorrow

**Response from Jodie on 21/03/2023 04:02 PM**

Dear Aleena,

We are pleased to inform you that you are now enrolled in your research degree at **James Cook University**. The details of your enrolment are as follows:

Degree: Doctor of Philosophy (Natural and Physical Sciences)  
 Campus: Townsville Bebegu Yumba  
 Attendance mode: External Fulltime  
 Primary Advisor: Professor Mohan Jacob  
 Secondary Advisor/s: A/Professor Michael Oelgemoeiler  
 External Advisor Dr Rachel Reena Philip

Start Date: 21 March 2023  
 Candidate and advisor check in due: 12 May 2023  
 Confirmation of Candidature due: 21 September 2023  
 Mid-Candidature Review due: 21 March 2025  
 Pre-Completion Seminar due: 21 June 2026  
 Thesis Submission due\*: 21 September 2026  
 Expected degree completion date: 21 March 2027

Your research plan should be designed to enable you to complete your work within 3.5 years (full-time Doctorate). Planning for a shorter candidature period provides both an incentive for timely completion and a buffer against the unexpected. Further information is available in the Handbook for HDR Candidates:

- [Handbook for HDR Candidates](#)

**Getting Started**  
 Please note that email is the official communication method with HDR Candidates, emails will ONLY be sent to your **JCU** student email address. Therefore, please ensure that you check your **JCU** student email account regularly.

## Outcome of the Activity

The Intended Thesis Submission Date is June 2025

## Department of Physics

### MoU with Maharaja's College, Ernakulum

#### Report

This memorandum of understanding (MoU) agreement was executed on 15.03.2023 to establish relation between the two educational institutions in enhancing the scientific cooperation between the researchers of the selected projects in both the colleges and to cooperate with each other in the process of inculcating higher level knowledge. Also aiming to sharing resource and experience in the areas of research for the benefit of students of both institutions at free of cost.

1. The purpose of this MoU is to develop academic and scientific cooperation and to promote mutual understanding between the two educational institutions.
2. Both institutions agree and shall endeavor to promote collaborative activities in academic and research area of mutual interest on a basis of equality and reciprocity.
3. Utilise the services and expertise of the teachers and researchers of the respective colleges for mutual benefit.
4. Exchange of student graduate and undergraduate to attend classes, seminars, workshops conducted by the two institutions to do project.
5. The terms of cooperation for each specific activity implemented under MoU be mutually discussed and agreed upon by both the party.

#### Activity

Conducted two-day workshop on material characterization techniques (WMCT 2023) from 22-23 March 2023 to provide a broad overview of the theoretical and experimental techniques which are generally used for characterizing materials.





## WORKSHOP ON MATERIAL CHARACTERIZATION TECHNIQUES (WMCT 2023)

22-23 March 2023



Department of Physics  
Union Christian College Aluva



सत्यमेव जयते



under the Scientific Social Responsibility Policy of  
Department of Science and Technology

### ABOUT

The Physics Department of Union Christian College, established in 1926, has scaled new heights in the last decade. It has now five full-fledged research labs in Thin Films, Nanomaterials, Optics, Optoelectronics and Theoretical Research which have national and international research collaborations. The development has been made possible through the support of various research funding agencies like DST, DAE, UGC, BRNS and KSCSTE in the form of major and minor projects sanctioned to faculty members of the department and the KSCSTE SARD scheme.

The Department of Physics is organizing a two day workshop as part of the SSR policy in a DST project (Ref No: CRG/2020/000448) sanctioned by Govt. of India. This workshop on Material Characterization techniques is to provide a broad overview of the experimental and theoretical techniques which are generally used for characterizing materials. This program will include introductory lectures on structural and optical characterization of materials, overview of instrumentation and data analysis. This workshop is aimed at fostering research culture among faculty members, research scholars, postgraduate students and aspiring undergraduate students. All are cordially invited. Please follow the link provided to register.

### Convenors

Prof. Rachel Reena Philip

Dr. M.J Punnoose

Dr. Reshmi R., Dr. Shinoj V. K.

Principal

Dr. Manu Punnen John

Head, Department of Physics

### Organizing Committee

Ms. Rakhy Raphael

Dr. Alex Mathew

Dr. Pramod Dominic

Dr. Madhu K.



## TECHNICAL SESSION

TB Ninan Hall

22-03-2023 Wednesday

10.00 am: Inauguration

10.30 am: Prof. Reji Philip, RRI Bengaluru

*Linear Optical Characterization Techniques*

1.30 pm: Dr. Manoj R, Maharajas College

*UV-Vis Spectrophotometry:*

*Instrumentation & Data Analysis*

3.00 pm: Poster Presentation - Session 1

23-03-2023 Thursday

10.00 am: Dr. Shibu M Eapen, SAIF-STIC

*X-ray Diffraction: Basic Principles,*

*Instrumentation & Data Analysis*

1.30 pm: Dr. Santhi A, St. Teresa's College

*Photothermal Lens*

3.00 pm: Poster Presentation - Session 2

Abstracts (limited to 300 words) are invited for poster presentation from faculty members, researchers and PG students.

**Last Date: 17 March 2023**

Shortlisted full papers will be published in proceedings with ISBN.

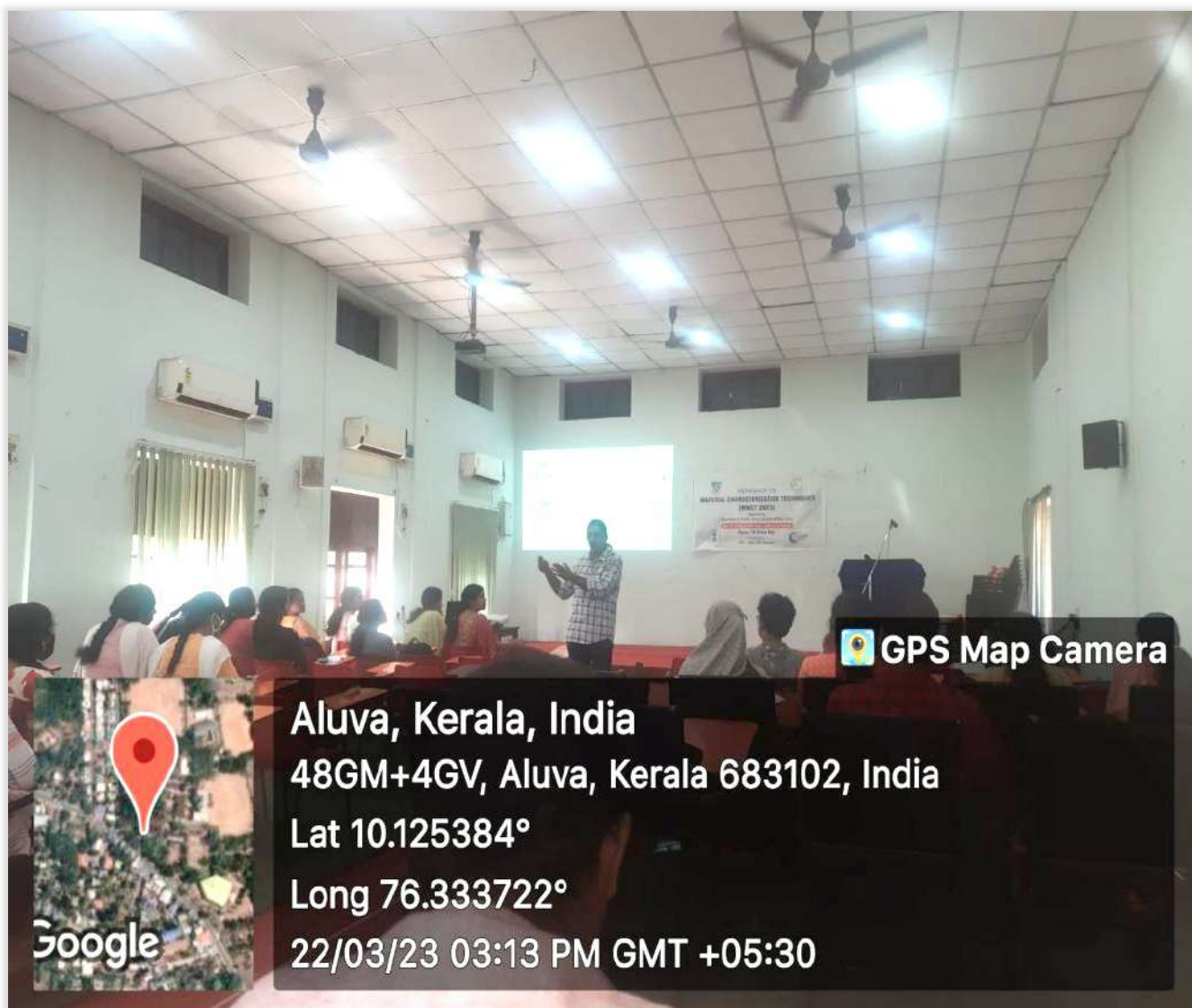
Registration charges: **Rs. 200/-**. (Lunch will be provided for registered participants.)

<https://forms.gle/xR9Uxt8QYfTL7aAM6>



9744187825

Contact: [shinojv@uccollege.edu.in](mailto:shinojv@uccollege.edu.in)



## Outcome of the Activity

Provided a broad overview of the theoretical and experimental techniques which are generally used for characterizing materials.



## Department of Physics

### MoU with Al- Ameen College, Edathala

#### Report

This MoU agreement was executed on 09.03.2023 to establish relation between the two educational institutions in enhancing the scientific cooperation between the researchers of the selected projects in both the colleges and to cooperate with each other in the process of inculcating higher level knowledge. Also aiming to sharing resource and experience in the areas of research for the benefit of students of both institutions at free of cost. Objectives include:

- 1.To develop academic and scientific cooperation and to promote mutual understanding between the two educational institutions.
- 2.Both institutions agree and shall endeavor to promote collaborative activities in academic and research area of mutual interest on a basis of equality and reciprocity.
- 3.Utilise the services and expertise of the teachers and researchers of the respective colleges for mutual benefit.

#### Activity

Research Collaboration between both the institutes. Dr. Sreeja S. joined the Department as a Research intern at the Department of Physics Union Christian College, Aluva on 10/04/2023.







To

**Dr. Manu Punnen John**  
Assistant Professor & HoD  
Dept of Physics  
U C College, Aluva

**Sub:** Joining Letter for the short term Collaborative Research Work

Dr. Manu Punnen John,

Thank you for accepting my Proposal for the short term Collaborative Research Work.

With reference to your acceptance letter dated on 3/04/2023, I am joining as a Research intern at the Optoelectronics and Nanoelectronics lab, Department of Physics, Union Christian College, Aluva, affiliated to Mahatma Gandhi University, Kottayam, Kerala. I assure you to abide all the rules and regulations of your institution during my tenure of work in the lab.

Thanking you

Dr Sreeja.S

Place: Aluva

Date: 10/4/2023

### Outcome of the Activity

Helped in developing academic and scientific cooperation between the two institutes.

## Department of Physics

### MOU with Malabar Christian College, Kozhikode

#### Report

This MoU was signed on 19.03.2023 between the Department of Physics, Malabar Christian College, Calicut and the Department of Physics, Union Christian College, Aluva. Its objective is to establish a partnership between the two departments for conducting online courses and sharing knowledge and faculties for the joint programs.

#### Activity

Made an academic collaboration with Malabar Christian College.

Value added course was offered to students of the Malabar Christian College by the faculty of department of Physics, Union Christian college, Aluva.



**Add-on Course**  
**Research Methodology**  
**- For Under Graduate Science Students**

**FEATURED SPEAKER**  
**Dr. Shinoj V K**  
Assistant Professor  
Department of Physics  
U.C. College, Aluva

As part of MoU between  
Department of Physics  
Union Christian College, Aluva  
&  
Department of Physics  
Malabar Christian College, Calicut

**Outline**

- Importance of research in various fields
- What is Research?
- Types of Research
- Research Design
- Research Method vs. Methodology
- Selecting a Research Problem
- How to Conduct Research
- Structure of research reports
- Guidelines for effective presentation
- Avoiding unethical practices in research reporting

For registration :  
<https://forms.gle/uYMRUZZj2X5D7qQy9>

Share  
Click Here



## Research Methodology - for Undergraduate Science Students

Home / My courses / Research Methodology-4-2023 / Participants

### Participants

Enrol users

Invite users

Match

Any

Select

+ Add condition

Clear filters

Apply filters

114 participants found



























First name  All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Surname  All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

<input type="checkbox"/> First name / Surname	Department	Institution	Roles	Groups	Last access to course	Status
<input type="checkbox"/>  <a href="#">ADHIL ABDULLA M A</a>	Department of Physics	Government Brennen College, Thalassery	Student 	No groups	162 days 23 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">Alina Ajith</a>	Department of Physics	Sree Narayana College, Kannur	Student 	No groups	Never	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">Sonu George Alex</a>	Department of Physics	Mar Ivanios College, Thiruvananthapuram	Student 	No groups	39 days 12 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">RASMIN AM</a>	Department of Physics	Mar Dionysius College, Pazhanji	Student 	No groups	159 days	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">ABOOBACKER ARSHAD</a>	Department of Physics	Malabar Christian College, Calicut	Student 	No groups	51 days 13 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">KV AYSHA</a>	Department of Physics	Krishna Menon Memorial Government Women's College, Kannur	Student 	No groups	Never	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">FAIZ BADER</a>	Department of Physics	Union Christian College, Aluva	Student 	No groups	Never	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">Faiz Bader</a>			Student 	No groups	35 days 3 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">Abhijith C B</a>	Department of Physics	UC College, Aluva	Student 	No groups	Never	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">JOSH SHAJI CHERIAN</a>	Department of Physics	Malabar Christian College, Calicut	Student 	No groups	154 days 13 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">VYSHNA CV</a>	Department of Physics	Sree Narayana College, Kannur	Student 	No groups	36 days 22 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">Anul Devadas</a>			Student 	No groups	191 days 8 hours	<a href="#">Active</a> 
<input type="checkbox"/>  <a href="#">DARSHAN EP</a>	Department of Physics	Sree Narayana College, Kannur	Student 	No groups	Never	<a href="#">Active</a> 





First name / Surname	Department	Institution	Roles	Groups	Last access to course	Status
<input type="checkbox"/>  <a href="#">Rinsha Fathima</a>			Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">FATHIMA FEMIN</a>	Department of Chemistry	Government Arts and Science College, Calicut	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">NAVAMI G</a>	Department of Physics	University of Kerala, Kariavattom Campus	Student	No groups	172 days 1 hour	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">MEENU G</a>	Department of Physics	University of Kerala, Kariavattom Campus	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ROHITH RAJEEV H0609</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">DEVIKA SAJEEVAN H0672</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">RAHMATH K S H0692</a>	Department of Physics	UC College, Aluva	Student	No groups	93 days 5 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">SWATHY S NAIR H0780</a>	Department of Physics	UC College, Aluva	Student	No groups	4 days 2 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ANUGRAHA MATHEW H0828</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">DILNAMOL SUNIL H0831</a>	Department of Physics	UC College, Aluva	Student	No groups	12 days 2 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">BERYL CHERIAN H0844</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ANUSREE S M H0893</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ANAGHA KV H0894</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">LAKSHMI PRIYA P H0895</a>	Department of Physics	UC College, Aluva	Student	No groups	22 days 3 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ADARSH P S H0896</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ANJITHA ARAVIND H0897</a>	Department of Physics	UC College, Aluva	Student	No groups	35 days 2 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">HARIKRISHNA MB H0898</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ABIRAMI AJI H0985</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">GOPIKA T S H0986</a>	Department of Physics	UC College, Aluva	Student	No groups	35 days 16 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">AJU GEORGE H0990</a>	Department of Physics	UC College, Aluva	Student	No groups	33 days 23 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ASWAL UNNIKRISHNAN H1045</a>	Department of Physics	UC College, Aluva	Student	No groups	35 days 4 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">FAZEEL YOOSAF H1111</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">RAHUL V H1112</a>	Department of Physics	UC College, Aluva	Student	No groups	35 days 4 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ANUGRAHA VINOD H1138</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">SANDRA S NAIR H1214</a>	Department of Physics	UC College, Aluva	Student	No groups	4 days 2 hours	<a href="#">Active</a>
<input type="checkbox"/>  <a href="#">ARJUN K M H1217</a>	Department of Physics	UC College, Aluva	Student	No groups	Never	<a href="#">Active</a>

## Outcome of the activity

Introduced and made the students aware about the various aspects of research, how to select a research problem, guidelines for effective presentation etc.

## Report of the MoU with Indian Rubber Manufacturers Research Association (IRMRA), Maharashtra and Union Christian College (Department of Chemistry)

The MOU between Union Christian College, Department of Chemistry and Indian Rubber Manufacturers Research Association (IRMRA), was signed on 24<sup>th</sup> April 2023 for a period of three years. IRMRA is an autonomous body under The Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Government of India, New Delhi, is a premier research organization established in 1958 to serve Rubber and allied industries. IRMRA has state of art scientific and analytical instruments and is fully equipped with facilities for design and development, validation and testing of rubber and allied materials. This MOU was signed with the objective of furthering academic collaboration and research between the two parties. The proposed objective includes internship program and industrial visits of students, joint training programs etc.

### Report and Proof of the activity

As part of the MOU, five students have so far done internship at IRMRA for seven days, from 08/05/2023 to 16/05/2023 where they received exposure to state of art technology and



Date: 06/06/2023

### To whomsoever it may concern

This is to certify that **Gopika Saseendran** (Register No: 210021025537) B.Sc Chemistry student of Department of Chemistry, Union Christian College, Aluva has successfully completed her seven days internship. The training was carried out at Indian Rubber Manufacturers and Research Association (IRMRA), Thane during May 8<sup>th</sup> to May 16<sup>th</sup> 2023.

While completing her training we have found her to be very sincere and hardworking.

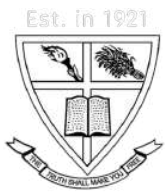
We wish all the best for her career.

भारतीय रबड़ निर्माता अनुसंधान संघ  
Indian Rubber Manufacturers Research Association

*Sachin Sahoo*  
Sachin Sahoo  
Senior Assistant Director  
Sr. Assistant Director, IRMRA



Recognized By: Department of Scientific & Industrial Research, Ministry of Science & Technology, New Delhi.  
Accredited By: NABL at par with Certificate No. TC-7733  
Recognized By: Bureau of Indian Standards  
Accredited By: Centre for MSME Accreditation & Certification (CEMELAC) Bangalore.



expertise of professional scientists. As proof, the certificates of internship as well as a photo is attached.





## भारतीय रबर निर्माता अनुसंधान संघ

राष्ट्रीय कार्बोम और औद्योगिक अन्वेषण विभाग के तहत स्वतंत्र संस्थान, राष्ट्रीय और राज्य मंत्रालय, भारत सरकार

INDIAN RUBBER MANUFACTURERS RESEARCH ASSOCIATION

An Autonomous Institute under DSIR, Ministry of Commerce & Industry, Govt. of India

Date: 06/06/2023

### To whomsoever it may concern

This is to certify that Adithya Lala (Register No : 210021025541) B.Sc Chemistry student of Department of Chemistry, Union Christian College, Aluva has successfully completed her seven days internship. The internship was carried out at Indian Rubber Manufacturers and Research Association (IRMRA), Thane during May 8<sup>th</sup> to May 16<sup>th</sup> 2023.

While completing her training we have found her to be very sincere and hardworking.

We wish all the best for her career.

भारतीय रबर निर्माता अनुसंधान संघ  
Indian Rubber Manufacturers Research Association

सुचिमीता साहू  
Suchimita Sahoo

सीनियर सहायक निदेशक  
Senior Assistant Director

Sr. Assistant Director, IRMRA



Recognised By  
Accredited By

Department of Scientific & Industrial Research, Ministry of Science & Technology, New Delhi.  
NABL as per vide Certificate No. TC-7733



## भारतीय रबर निर्माता अनुसंधान संघ

राष्ट्रीय स्तर पर और आंतराष्ट्रीय स्तर पर विभिन्न क्षेत्रों में रबर उत्पादन, प्रसिद्धि और प्रयोग के विकास, भारत सरकार

INDIAN RUBBER MANUFACTURERS RESEARCH ASSOCIATION

An Autonomous Institute under DPIIT, Ministry of Commerce & Industry, Govt. of India

Date: 06/06/2023

### To whomsoever it may concern

This is to certify that Arwin Kunjachan (Register No : 210021025532) B.Sc Chemistry student of Department of Chemistry, Union Christian College, Aluva has successfully completed his seven days internship. The training was carried out at Indian Rubber Manufacturers and Research Association (IRMRA), Thane during May 8<sup>th</sup> to May 16<sup>th</sup> 2023.

While completing his training we have found him to be very sincere and hardworking.

We wish him all the best for his career.

भारतीय रबर निर्माता अनुसंधान संघ  
Indian Rubber Manufacturers Research Association

सुचिमाता साहू  
Suchimata Sahoo

ज्येष्ठ सहायक निदेशक  
Senior Assistant Director

Sr Assistant Director, IRMRA



signed by : Department of Scientific & Industrial Research, Ministry of Science & Technology, New Delhi.  
verified by : MSIL as per vide Certificate No. SC-3718  
signed by : Bureau of Indian Standards



## भारतीय रबर निर्माता अनुसंधान संघ

प्रयोग संवर्धन और आंतरिक व्यापार विभाग के तहत स्वायत्त संस्थान, वाणिज्य और उद्योग मंत्रालय, भारत सरकार

INDIAN RUBBER MANUFACTURERS RESEARCH ASSOCIATION

An Autonomous Institute under DPIIT, Ministry of Commerce & Industry, Govt. of India

Date: 06/06/2023

### To whomsoever it may concern

This is to certify that Devika Santhosh (Register No : 210021025533) B.Sc Chemistry student of Department of Chemistry, Union Christian College, Aluva has successfully completed her seven days internship. The training was carried out at Indian Rubber Manufacturers and Research Association (IRMRA), Thane during May 8<sup>th</sup> to May 16<sup>th</sup> 2023.

While completing her training we have found her to be very sincere and hardworking.

We wish all the best for her career.

भारतीय रबर निर्माता अनुसंधान संघ  
Indian Rubber Manufacturers Research Association

सुचित्रा कृष्ण सहू  
Suchitra K. Sahoo

सीनियर सहायक निदेशक  
Senior Assistant Director

Sr. Assistant Director, IRMRA



Recognized By  
Certified By

Department of Scientific & Industrial Research, Ministry of Science & Technology, New Delhi.  
NAAC as per vide Certificate No. TC-37319





## भारतीय रबर निर्माता अनुसंधान संघ

राष्ट्रीय संशोधन और औद्योगिक आधार विभाग के तहत स्थापित संस्थान, वाणिज्य और उद्योग मंत्रालय, भारत सरकार

INDIAN RUBBER MANUFACTURERS RESEARCH ASSOCIATION

An Autonomous Institute under DPIIT, Ministry of Commerce & Industry, Govt. of India

Date: 06/06/2023

### To whomsoever it may concern

This is to certify that Anumod C. A (Register No : 210021025545) B.Sc Chemistry student of Department of Chemistry, Union Christian College, Aluva has successfully completed his seven days internship. The training was carried out at Indian Rubber Manufacturers and Research Association (IRMRA), Thane during May 8<sup>th</sup> to May 16<sup>th</sup> 2023.

While completing his training we have found him to be very sincere and hardworking.

We wish him all the best for his career.

भारतीय रबर निर्माता अनुसंधान संघ  
Indian Rubber Manufacturers Research Association

सुचिमा साहू  
Suchima Sahoo

ज्येष्ठ सहायक निदेशक  
Senior Assistant Director

St. Assistant Director, IRMRA



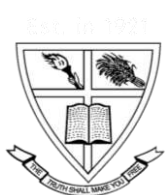
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Recognized By  
Recognized By  
Recognized By

Department of Scientific & Industrial Research, Ministry of Science & Technology, New Delhi.  
NABL as per vide Certificate No. TC-7723  
Bureau of Indian Standards  
Power for 2019-2023 Accreditation & Certification (NABL 2019)



### Outcome of the activity

Five students who attended the internship program received training and exposure from a nationally reputed research organization. They got firsthand knowledge on the design, validation and testing of rubber and allied materials.



## **A Talk on Language – Learning in educational institutions on the outset of the NEP**

**Department : Hindi Date : 29.05.2023 Time : 10 AM**

**Duration : 1.5 Hrs. Venue : History Seminar Hall**

Resource Person : Mr . K N Sunil Kumar

Instructor & Mentor ; Block Resource Centre ; Kodungallor

### **Report :**

Assessing the impact on language education and its relevance in shaping well – rounded individuals by understanding the key principles and goals outlined in the NEP were the objectives of the talk .

The National Education Policy [ NEP ] is a significant milestone in India’s education system aiming to transform the landscape of teaching and learning. The talk focuses on the aspect of language learning in educational institutions and explores the implications of NEP on this crucial area.


The NEP emphasizes the promotion of multilingualism as a fundamental aspect of education. By recognising the rich linguistic diversity of India , the NEP aims to preserve and nurture regional languages while ensuring proficiency in Hindi and English. The NEP encourages a holistic approach to language education , moving beyond rote memorization and focusing on communication , critical thinking and creative expression .

In the discussion which followed students expressed that promoting regional languages helps to preserve cultural heritage which fosters a sense of identity and strengthens bonds within communities . Learning multiple languages enhances cognitive abilities such as critical thinking , problem solving and creativity .

By implementing NEP’s principles in language education , educational institutions can shape well – rounded individuals who are proficient in multiple languages appreciative of diverse cultures and equipped with the necessary skills for effective communication in the globalized world.








## UNION CHRISTIAN COLLEGE, ALUVA

ESTD IN 1921



### INVITED TALK ON


# LANGUAGE-LEARNING IN EDUCATIONAL INSTITUTIONS ON THE OUTSET OF NEP


( शिक्षा संस्थानों में भाषा अध्ययन : नई शिक्षा नीति के संदर्भ में )


**(RESOURCE PERSON)**


**K N SUNIL KUMAR**


Instructor & Mentor  
Block Resource Centre Kodungalloor  
( Former Principal, Kendriya Hindi Mahavidhyalay, Alangad, Ernakulam )



 28 MAY 2023

 10.00 AM

 HISTORY SEMINAR HALL



Jointly Organised by  
Department of Hindi, Ashiyana Club  
& IQAC

DR. RUBY ELSA JACOB DR. R S RADHIKA	DR. MANJU M GEORGE	DR. M I PUNNOOSE
FACULTY COORDINATORS	IQAC CO ORDINATOR	PRINCIPAL



## Department of Commerce

### MoU with LBS Centre for Science and Technology

#### Report

The MoU was signed on 21 August 2023 to provide the students with a course on special training program on computerized financial accounting using Tally with GST & MS Office. Furthermore, this agreement brings with an additional benefit of a license in tally being issued for the college. Overall course duration will be 90 hrs. The main objectives are to impart knowledge regarding concepts of Financial Accounting, to know more about company accounts and documentation, to facilitate training on GST related accounting practices and to get placements in companies and accounting firms.

#### Activity

Tally ERP class to first year B. Com students was started on 25<sup>th</sup> September 2023. Classes were conducted by the faculty from LBS center.







## Outcome of the Activity

The course helped the students to impart clear knowledge regarding concepts of accounting and GST practices. It also facilitates students with placements in different offices as well as companies in accounts departments.

## Letter of Collaboration Between Centre for Integrative Omics Data Science (CIODS), Mangalore with Union Christian College (Department of Botany)

Letter of collaboration between Centre for Integrative Omics Data Science (CIODS), Mangalore with Union Christian College (Department of Botany) was signed in May 2023 with the objective of promoting collaboration in mutually beneficial training programs in the application of bio informatics tools in botanical research through talks, workshops etc. Centre for Integrative Omics Data Science (CIODS) is a research centre for undertaking the next-generation integrative omics research on various fields of biological sciences and also its integration to Artificial Intelligence platforms for translational research. Supported under the YenVision-2025 of the Yenepoya University, the CIODS is envisioned towards assembly of global datasets and development of tools for analysis of integrated omics datasets in multiple themes including carcinogenesis, cancer drug resistance, infections, and signal transduction mechanisms.

### Report of the activity and proof

The students of both PG and research in the Department of Botany are given exposure to the use of various bioinformatics software for the analysis and interpretation of their research data. The major area under analysis includes metagenome data obtained from sequencing of endophytes. Functional annotation of genes involved in various metabolic pathways were undertaken and the work is under process. Proof is a photo of a student using the bioinformatics software for the analysis and interpretation of his research data



### Outcome of the Programme

The program has only been initiated only recently. This MoU enables the students of the department of Botany with the latest software and technology which would enhance their academic and research potential.

## Report of the MOU with Cottolengo Educational and Charitable Society and Union Christian College, Aluva (Psychology Department)

The MOU between Union Christian College, Department of Psychology and Cottolengo Educational and Charitable Society was signed on 17 /2/2023 for a period of 1 year.

### Activity and Proof

In collaboration with Cottolengo Educational Institution, UG and PG students of Psychology Department volunteered for the Job fair and the convocation ceremony for persons with disabilities. 5 M.Sc. students and 6 BSc students of our department participated in the Job fair on 11th March 2023 at 10:00 am. 7 BSc Students participated in the Convocation Ceremony on 18<sup>th</sup> April 2023 at 10:00 am.







### Outcome of the activity

PG & UG students were actively associated with the Job Fair program intended to provide opportunities for the candidates with locomotor disabilities.

## Report of the MOU with Athma -My Mind My Care Kollam and Union Christian College, Aluva (Psychology Department)

The MOU between Union Christian College, Department of Psychology and Athma-My Mind My Care was signed on 20/2/ 2023 for a period of 1 year.

### Activity and Proof



### Outcome of the Activity

Research & PG department of Psychology conducted Dr.V. K. Alexander National seminar on 15th & 16th March,2023 in Association with Athma-my mind My Care after signing MOU



## Report of the MOU with Greater Cochin Development Authority and Union Christian College, Aluva (Physical Education Department)

The MOU between Union Christian College, Department of Physical Education and GCDA was signed on 26/04/2023 for a period of 3 years.

### Activity and Proof

The activities planned as per the MoU include preparing the Sports Master Plan for GCDA region, partnering for action research on mutually agreed themes and jointly identifying the Specific Sporting facilities required in a particular region. Bachelor of Sports Management Students under the Department of Physical Education, Union Christian College, Aluva, is supporting GCDA in this mega project.





## TIMES CIT

THE TIMES OF INDIA, ERNAKULAM / KOCHI | MONDAY, FEBRUARY 13, 2023

**WATER LEVELS IN 72% WELLS SHOW A DECLINING TREND DUE TO DEFICIENT RAINFALL | P4**

**CM INAUGURATES AT MAR BASELIOS**

# GCDA in push for bolstering sports infrastructure in city

**Sports Complex To Be Set Up In Each Civic Body Under The Agency**

AnanthaNarayanan.K  
@timesgroup.com

**Kochi:** In line with the state government's sports policy, Greater Cochin Development Authority (GCDA) is preparing a master plan for promoting sporting culture and infrastructure in Kochi. Named Greater Kochi Sports Master Plan, the aim is to set up at least one sports complex in each civic body under GCDA's jurisdiction.

### MASTER PLAN UNDER PREPARATION

The agency has roped in the students of sports management at Union Christian College, Aluva, to conduct a survey to identify the specific sporting facilities required in a particular region and to locate suitable land for the pro-



**GCDA said the master plan will be ready by March-end and that it can be replicated to expand sports infrastructure and training centres across the state**

ject in each locality. GCDA officials said the master plan — claimed as the first of its kind in the state — will be ready by March-end and that it can be replicated to expand the sports infrastructure and training centres across Kerala.

Football, cricket, badminton, swimming, volleyball, basketball, taekwondo, archery, shooting, physical fitness, etc. are among the sporting activities that will get priority in the plan, which will be drafted in association with the state government, civic body, national and international sports personalities, various

sports organizations and local clubs.

"At present, there are no proper infrastructure facilities for several sporting activities. For instance, we don't have a good shooting range in Kochi and there are many who are interested in shooting. Funds will be raised through the coordinated efforts of GCDA, state and central governmental agencies, sports associations, private persons, and CSR initiatives of private companies. We are planning to submit the master plan to the government at the earliest," said a senior GCDA official.

The agency will hold discussions and workshops with civic bodies, sports teachers, coaches, students, sports persons, etc to inculcate their suggestions in the master plan. For this, GCDA has signed an MoU with UC College.

Bindu M, head of the physical education department, at UC College, who leads the survey, said they have already collected enough data for the master plan by studying sports policies of various countries and foreign cities like Melbourne, Manchester, etc. They are also considering case studies, and opinions from stakeholders and experts, she said.

"The survey questionnaires have been prepared and it will be conducted among students aged between 10 and 14, 14 and 18, and those aged above 18. The survey will also be held among the various stakeholders, Bindu said.



### Outcome of the activity

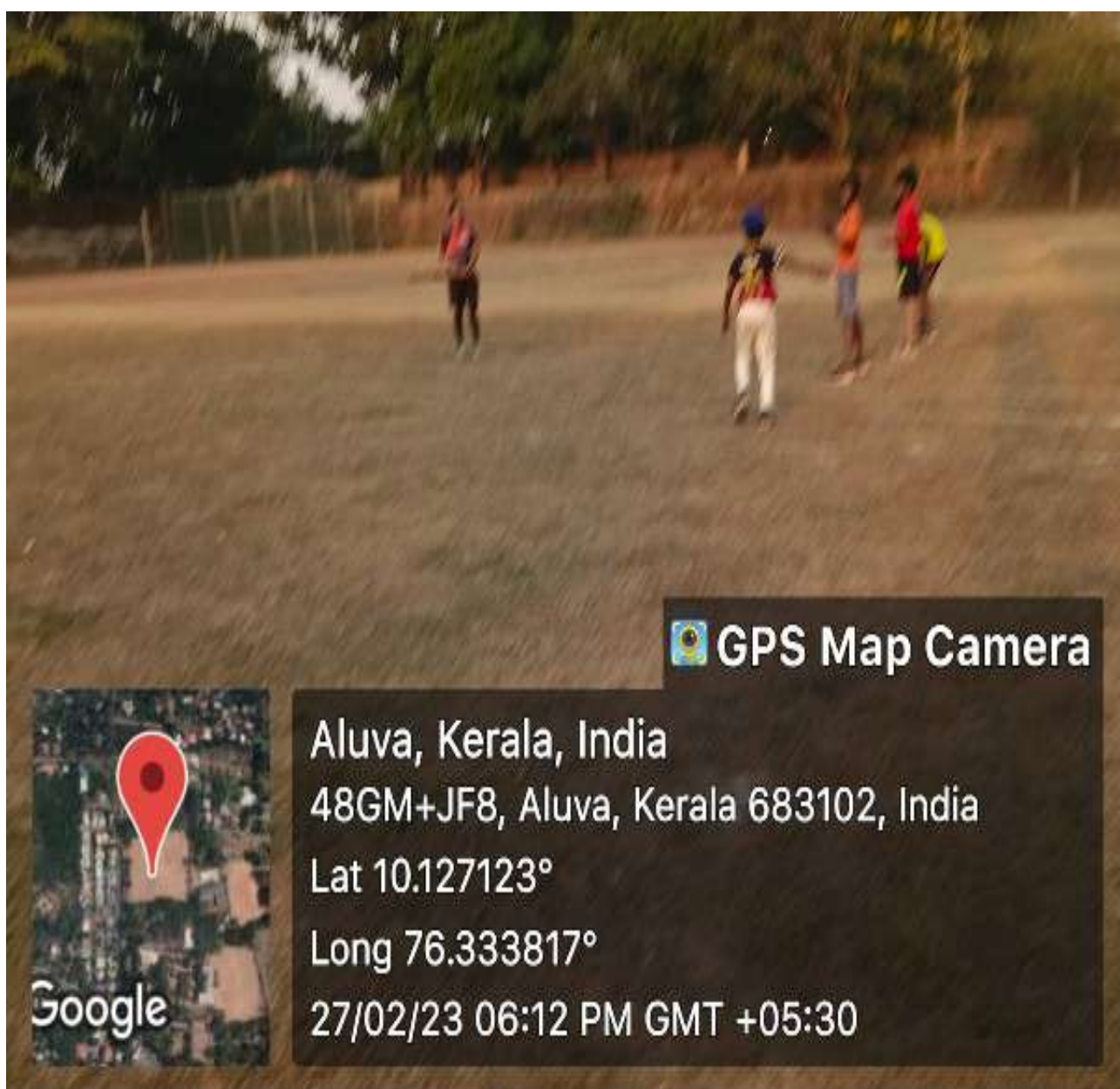
Started an initiative for promoting sporting culture and infrastructure. Sports Master Plan' for Greater Ccochin Development Authority (GCDA): 40 Students from BSM course has participated in preparing Sports Master plan and sports aspiration survey of 31 local units coming under the jurisdiction of GCDA.

## Report of the MOU with Redeem Sports Pvt. Ltd and Union Christian College, Aluva (Physical Education Department)

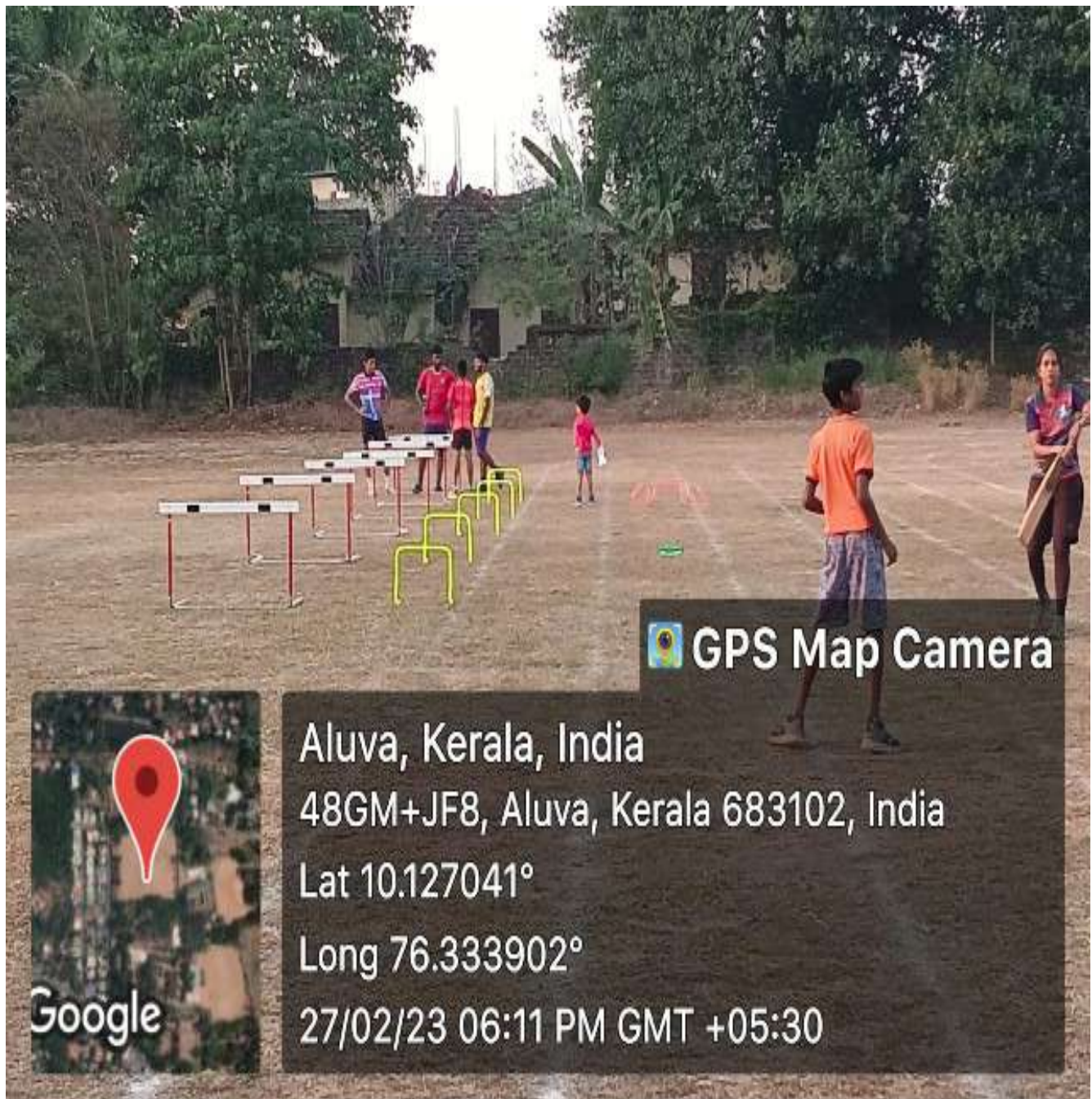
The MOU between Union Christian College, Department of Physical Education and Redeem Sports Pvt.Ltd was signed on 20/5/2023

### Activity and Proof

Free coaching to the college football team is provided in the morning session and the players can join the company's academy players in the evening.







### Outcome of the activity

The trainees are practicing regularly.

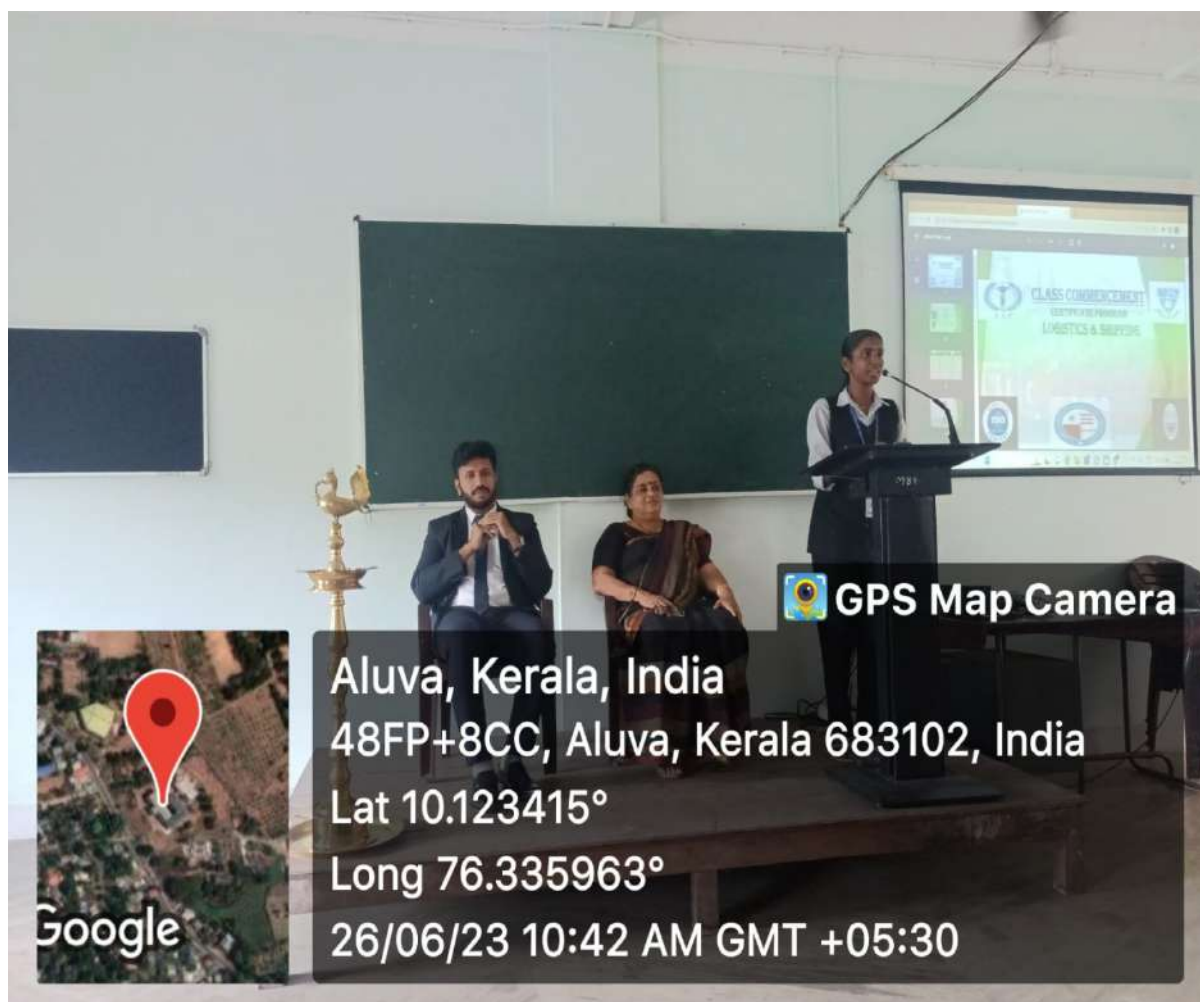


## Report of the MoU with JAC Academy Bangalore and Union Christian College, Aluva (School of Management Studies)

The MOU between Union Christian College, School of Management Studies and JAC Academy Bangalore was signed on 16/3/2023.

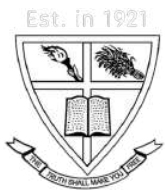
### Activity and Proof

The MoU was signed to provide Internships and Certificate programme in Logistics and Shipping to the students. The classes commenced from 26<sup>th</sup> June 2023. 30 hours' classroom training session were given to students and an industrial visit has been scheduled for the them in the Mid of January 2024.



### Outcome of the activity

The students will be certified with Logistic and Supply Chain Management Course, thereby they will be enriched with Industry- Relevant Knowledge and to navigate International trade and distribution network.



## **Report of the MOU with SMS Phoenix and Union Christian College, Aluva (School of Management Studies)**

The MOU between Union Christian College, School of Management Studies and SMS Phoenix was signed on 16/3/2023 for a period of 5 years.

### **Activity and Proof**

The MoU was signed to promote international collaboration that includes summer camp or immersion for a collegial relationship between the two institutions on the international platform. The objectives include faculty exchange, collaborative research and training, participation in conferences. No activity was conducted during the period of assessment.