



# **T.K.M. COLLEGE OF ARTS & SCIENCE**

Kollam – 691 005

Phone: 0474 2711817, 2712240, Mob:9446641817

[www.tkmcas.ac.in](http://www.tkmcas.ac.in)

E-mail: tkmarts@gmail.com

NAAC Re-accredited with A++ Grade

## **Revised**

## **DETAILED PROJECT REPORT**

## **For Purchase Component**

Submitted to  
**THE STATE PROJECT DIRECTORATE,  
RUSA  
THIRUVANANTHAPURAM**

**July, 2023**



Phone : 0474 - 2712240  
Fax : 0474 - 2711817  
E-mail : tkmarts@gmail.com  
P.B.No. : 1300  
Website : www.tkmcas.ac.in

# T.K.M. COLLEGE OF ARTS & SCIENCE

KOLLAM - 691005 (Kerala State)

REACCREDITED BY NAAC with A++ GRADE (CGPA-3.67)

Ref: A3/53/2023/TKMCAS.

09.08.2023  
Date .....

To,

The State Coordinator  
RUSA - State Project Directorate,  
Govt. Sanskrit College Campus,  
Palayam PO,  
Thiruvananthapuram - 695 034

Sub: Request for Administrative Sanction - Revised Detailed Project Report for  
Purchase Component (RUSA 2.0 Project)

Ref: 1. No. 159/RUSA-SPD/2017 Dated 13.06.2018  
2. No. 149/2019/RUSA-SPD Dated 01.10.2019

Dear Coordinator,

I am submitting the Revised DPR for the Purchase Component in RUSA 2.0. We've carefully updated it to match current needs and priorities, enhancing our institution's resources.

I would like to take this opportunity to apprise you of our recent accomplishments. The construction and renovation components of the project were successfully completed in March 2022. Subsequently, we have duly submitted the utilization certificate to the RUSA-SPD, as per the stipulated guidelines. Furthermore, I would like to inform you that the physical verification and audit of the construction and renovation activities took place on the 4th of August, 2023.

In light of the progress made and the evolving needs of our institution, I kindly request the issuance of a fresh Administrative Sanction for the revised DPR of the purchase component.

Thank you for your time and consideration. I am at your disposal for any further information or clarification you may require regarding the revised project report.

Enclosed: Copy of the Revised DPR

Sincerely,

Dr. Chithra Gopinath  
(Principal -in-Charge)



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## CERTIFICATE

This is to certify that the revised DPR for purchase component submitted to the State Project Directorate, RUSA, Thiruvananthapuram, has been prepared by the Project Monitoring Unit (PMU) of the College, after discussing with all the stakeholders and assessing the future development needs in terms of the Master Plan of the College, in accordance with the allocation for purchase with a total outlay of Rs. 80 Lakh.

Dr. Chithra Gopinath  
Principal

Kollam  
14.07.2023



## **DECLARATION**

We, the Project Monitoring Unit (PMU) members of RUSA, T.K.M. College of Arts and Science, Kollam, hereby declare that the Revised Detailed Project Report (DPR) for purchase is prepared strictly in accordance with the guidelines prescribed by RUSA for the utilization of development grant for Colleges.

| <b>Sl</b> | <b>Name</b>             | <b>Designation</b>  | <b>Position</b> |
|-----------|-------------------------|---|-----------------|
| 1         | Dr. Chithra Gopinath    | Principal   | Chairperson     |
| 2         | Dr. Mohamed Musthafa. K | Institution level<br>Coordinator, RUSA                    | Convener        |
| 3         | Dr. Sumalekshmy         | IQAC, Coordinator   | Member          |
| 4         | Dr. Anas .S             | HoD, Chemistry  | Member          |
| 5         | Mr. Adersh VK           | Secretary, PTA  | Member          |
| 6         | Mr. M. Kabeer Kutty     | Academic coordinator,<br>TKM College Trust                | Member          |
| 7         | Mr. Naseer H.B          | Administrative Officer -II,<br>TKM College Trust          | Member          |
| 8         | Mr. M.R. Sadique        | Office Superintendent                                     | Member          |
| 9         | Mr. Muhammed Shafeek    | Infrastructure<br>coordinator, TKM College<br>Trust       | Member          |
| 10        | Mr. Navas. M            | Instructor (HG) - Civil,<br>TKM College of<br>Engineering | Member          |
| 11        | College Union Chairman  | Student Representative                                    | Member          |

## **1. PROFILE OF T.K.M. COLLEGE OF ARTS & SCIENCE**

T.K.M. College of Arts & Science, located in Kollam, is a renowned institution known for its excellence in the field of education. It holds the prestigious reaccreditation of 'A++' Grade (CGPA 3.67) by the NAAC, solidifying its position as a premier establishment.

Our esteemed Founder, Thangal Kunju Musaliar, was a legendary figure in Kerala, often referred to as the cashew king. He possessed exceptional business acumen and a strong passion for education, making him an extraordinary visionary.

The inauguration of T.K.M. College of Arts and Science took place on June 24, 1965, with Prof. Samuel Mathai, the then Vice-Chancellor of the University of Kerala, gracing the occasion. The 1970s witnessed significant developments as the college underwent upgrades and introduced various degree courses. Botany was introduced in 1977, followed by Chemistry and Commerce in 1978 and 1979, respectively. In 1980, the Mathematics, Physics, and Islamic History departments were established. During the 1980s, the college expanded to offer post-graduate programs, including the introduction of M.Com in 1981. In the same year, the degree course in Zoology commenced, and in 2020, B.A. Economics with Mathematics was added to the curriculum.

From 1992 onwards, students were offered B.A. English Language and Literature. Subsequently, in 1999, the college introduced the English PG program, followed by the Biochemistry UG program in 2001. Today, the college offers a wide range of courses across various disciplines, including 11 undergraduate and 6 post-graduate programs. Since 1986, our academic achievements have earned us inclusion in the UGC scheme. The college takes pride in its numerous ranks and esteemed position in the University of Kerala's honor rolls. In 2001, semesterization was implemented for PG courses, and in 2010, the same structure was adopted for UG courses.

The college's unwavering dedication to improving infrastructure and upholding academic excellence yielded remarkable results when it received accreditation as a B+ institution by the NAAC in 2004. In 2013, the college pursued re-accreditation and was proudly awarded an 'A' Grade, recognizing its continuous progress. During the third cycle of accreditation in 2022, the institution achieved an even higher milestone, being reaccredited with an impressive A++ Grade and a higher CGPA of 3.67. This outstanding achievement further reaffirms the college's steadfast commitment to providing quality education.

We take immense pride in being a beacon of hope for deserving students facing economic challenges, a policy close to the heart of our beloved Founder. The college's contributions to society are evident through the countless individuals who have passed through its doors and achieved positions of authority. Today, T.K.M. College of Arts and Science stands fully equipped and dedicated to empowering students, equipping them with the skills necessary to tackle the challenges of our rapidly evolving world.

## 1.1 Courses Offered

Following courses are offered in the college under UG and PG level.

### UG Programmes

- B.Sc. Mathematics
- B.Sc. Physics
- B.Sc. Chemistry
- B.Sc. Biochemistry
- B.Sc. Botany
- B.Sc. Zoology
- B.A. English Language & literature
- B.A. Islamic History
- BA Economics with Mathematics

- B.Com. Finance
- B.Com. Computer Application

### PG Programmes

- M.Sc. Mathematics
- M.Sc. Physics
- M.Sc. Chemistry
- M.Sc. Biochemistry
- M.A. English Language & Literature
- M.Com. Finance

- **Ph.D. Programme**

- Physics
- Chemistry
- English

## Courses offered under Centre for Adult Continuing Education and Extension (CACEE)

- Certificate in Library and Information Science (CLISc)
- Post Graduate Diploma in Counselling Psychology (PGDCP)

## 1.2 Name of Head of Institution and Nodal Officers

| Name                    | Designation                  | Contact No.  | Mobile No. | email             |
|-------------------------|------------------------------|--------------|------------|-------------------|
| Dr. Chithra Gopinath    | Principal                    | 0474-2711817 | 8281828383 | tkmarts@gmail.com |
| Dr. Mohamed Musthafa. K | Institutional Co-coordinator | 0474-2711817 | 9446647024 | tkmrusa@gmail.com |

### 1.3 Base Line Data of the College

|   | <b>Indicator</b>   |
|---|--|
| Name of the College                     | T.K.M. College of Arts and Science   |
| Year of Establishment                   | 1965   |
| Category                                | Aided  |
| NAAC Accreditation                      | A++ Grade (CGPA 3.37)  |
| Year of Accreditation & Cycle           | 2022, 3 <sup>rd</sup> Cycle  |
| NIRF rank 2018                          | 45 <sup>th</sup> Among Colleges  |
| Whether included under 12 B of UGC Act  | Yes  |
| Area of the proposed college fall under | Tier 2   |
| Number of students enrolled             |  |
| SC                                      |  |
| ST                                      |  |
| OBC                                     |  |
| Women students                          |  |
| Special Attributes, if any              | <ul style="list-style-type: none"> <li>• DST-FIST Funded college</li> <li>• Located in Rural Area</li> <li>• Minority status college</li> <li>• Extensive research consultancy and outreach activities</li> <li>• Research collaborations with foreign universities</li> </ul> |
| No. of UG Courses                       | 11   |
| No. of PG Courses                       | 6  |
| No. of Research Departments             | 3  |

## **2. RUSA 2.0 PROJECT**

Under the RUSA 2.0 project, TKM College of Arts and Science, Kollam was sanctioned a total of Rupees Two crore. Presently, 1.5 crore has been received and wisely allocated, with 60% of the funds utilized for construction and renovation purposes, while the remaining 40% has been earmarked for the purchase component. A revised proposal for the purchase component has been attached for the approval of RUSA-SPD.

The construction and renovation works were successfully completed in March 2022. On this auspicious occasion, the inauguration of the RUSA Research blocks, as well as the renovated seminar hall and classrooms, was graced by the esteemed presence of Dr. R. Bindu, the Hon'ble Minister for Higher Education, Kerala. The function was presided over by Sri. PC Vishnunath *MLA*, with a warm welcome extended to the gathering by Dr. Shahal Hassan Musaliar.

During the event, Sri NK Premachandran, *MP*, delivered the keynote address, and the guests were honored by T.K. Jalaluddin Musaliar. The audience was privileged to hear inspiring speeches from Sri. R. Devadas, Sri. H. Husain, and Smt. Sheeja Sajeev. A comprehensive report on the project was presented by the Principal, Dr. Chitra Gopinath, and the vote of thanks was expressed by the RUSA Coordinator, Dr. Mohamed Musthafa. K.

The program was meticulously organized and achieved tremendous success, witnessing active participation from government officials, invited guests, parents, alumni, teachers, students, and well-wishers. The newly constructed research block and renovated classrooms are operational since its inauguration.

Below are the details of the fund utilization:

## 2.1 Fund utilization

|   | <b>Components</b> | <b>Amount Sanctioned</b> | <b>Amount Received</b> | <b>Amount utilized</b> | <b>Percentage</b> |
|---|-------------------|--------------------------|------------------------|------------------------|-------------------|
| 1 | Construction      | 1,00,00,000<br>(50%)     | 1,00,00,000            | 99,99,072              | 99.99 %           |
| 2 | Renovation        | 20,00,000<br>(10%)       | 20,00,000              | 19,99,978              | 99.99 %           |
| 3 | Purchase          | 80,00,000<br>(40%)       | 30,00,000              | 00                     | 00 %              |
|   | <b>Total</b>      | <b>2,00,00,000</b>       | <b>1,50,00,000</b>     | <b>1,19,99,050</b>     | <b>80 %</b>       |

## **2.2 BOARD OF GOVERNORS (BOG)**

### **For implementing RUSA 2.0 project**

|    |                             |  |          |
|----|-----------------------------|--|----------|
| 1  | Dr. Shahal Hassan Musaliar  | President, TKM College Trust & Chairman, Governing Body        | Chairman |
| 2  | Jb. Jalaluddin Musaliar     | Treasurer, TKM College Trust                                   | Member   |
| 3  | Dr. M. Haroon               | Member, TKM College Trust                                      | Member   |
| 4  | Jb. Khalid Hussain Musaliar | Member, TKM College Trust                                      | Member   |
| 5  | Prof. K. A Hashim           | Former Registrar, University of Kerala                         | Member   |
| 6  | Dr. Chithra Gopinath        | Principal, TKM College of Arts and Science                     | Member   |
| 7  | Dr. Geetha Pillai EK        | Project Manager, Nirmithi Kendra                               | Member   |
| 8  | Dr. Shahul Hameed           | Principal, TKM College of Engineering, Kollam                  | Member   |
| 9  | Dr. Mohamed Musthafa. K     | Coordinator, RUSA 2.0 Project, TKM College of Arts and Science | Member   |
| 10 | Dr. Sumalekshmy S           | IQAC Coordinator, TKM College of Arts and Science              | Member   |

## 2.3 PROJECT MONITORING UNIT (RUSA 2.0)

| <b>Sl</b> | <b>Name</b>             | <b>Designation</b>  | <b>Position</b> |
|-----------|-------------------------|---|-----------------|
| 1         | Dr. Chithra Gopinath    | Principal   | Chairperson     |
| 2         | Dr. Mohamed Musthafa. K | Institution level<br>Coordinator, RUSA                    | Convener        |
| 3         | Dr. Sumalekshmy         | IQAC, Coordinator   | Member          |
| 4         | Dr. Anas .S             | HoD, Chemistry  | Member          |
| 5         | Mr. Adersh VK           | Secretary, PTA  | Member          |
| 6         | Mr. M. Kabeer Kutty     | Academic coordinator,<br>TKM College Trust                | Member          |
| 7         | Mr. Naseer H.B          | Administrative Officer -II,<br>TKM College Trust          | Member          |
| 8         | Mr. M.R. Sadique        | Office Superintendent                                     | Member          |
| 9         | Mr. Muhammed Shafeek    | Infrastructure coordinator,<br>TKM College Trust          | Member          |
| 10        | Mr. Navas. M            | Instructor (HG) - Civil,<br>TKM College of<br>Engineering | Member          |
| 11        | College Union Chairman  | Student Representative                                    | Member          |

## 2.4 PURCHASE COMMITTEE (RUSA 2.0)

| <b>Sl</b> | <b>Name</b>             | <b>Designation</b>                               | <b>Position</b>                    |
|-----------|-------------------------|--|------------------------------------|
| 1         | Jb. Jalaluddin Musaliar | Treasurer,<br>TKM College Trust                  | Chairman,<br>Purchase<br>committee |
| 2         | Dr. Chithra Gopinath    | Principal, TKM College of<br>Arts and Science    | Convener                           |
| 3         | Dr. Mohamed Musthafa. K | RUSA Coordinator                                 | Co-convener                        |
| 4         | Dr. sumalekshmy. S      | IQAC Coordinator                                 | Member                             |
| 5         | Dr. Anas. S             | HoD, Chemistry                                   | Member                             |
| 6         | Ms. Aparna              | HoD, Physics                                     | Member                             |
| 7         | Dr. Letha B             | HoD, Biochemistry                                | Member                             |
| 8         | Dr. Bobby T Edwin       | HoD, Botany                                      | Member                             |
| 9         | Dr. Jasin Rahman V.K.   | HoD, Zoology                                     | Member                             |
| 10        | Mr. Nazer               | Administrative Officer -II,<br>TKM College Trust | Member                             |
| 11        | Mr. Kabeer Kutty        | Academic coordinator,<br>TKM College Trust       | Member                             |
| 12        | Mr. Sadique             | Office Superintendent                            | Member                             |
| 13        | Ms Shamla. P            | Section Clerk                                    | Member                             |
|           |                         |  |                                    |

### **3. REVISED PROPOSAL FOR PURCHASE COMPONENT**

(Revised 2023)

This revised proposal focuses on the procurement of various resources, including library books, computers, UPS, photocopier, LED TVs for smart classrooms, a lift for physically challenged, and laboratory equipment.

Currently, our college library houses 37,000 books and 116 periodicals. However, with recent changes in the curriculum, it is necessary to incorporate new textbooks to align with the updated courses. Additionally, due to an increase in student enrollment, there is a need to expand the range of titles available to meet the growing demand.

The acquisition of equipment is intended to enhance the UG and PG science laboratories, as well as the Central Research Laboratories, in order to facilitate research activities for students, research scholars, and faculty members. With the revamping of the Choice-Based Credit System (CBCSS) curriculum, it becomes imperative to procure new equipment to conduct practical experiments effectively. The attached document provides a detailed list of the required equipment from each department, along with their estimated prices.

Moreover, it is essential to replace the existing computers in both the departments and the labs, as they are no longer compatible for day-to-day use. Additionally, LCD/LED TVs are crucial components of our smart classrooms, facilitating effective presentations and enhancing the learning experience for students.

### 3.1 DEPARTMENTS WISE FUND ALLOCATION

|                         | <b>Departments</b>            | <b>Fund Allotted</b> |
|-------------------------|-------------------------------|----------------------|
| 1                       | Administrative office         | 2,50,000.00          |
| 2                       | Central Library               | 25,00,000.00         |
| 3                       | Central Research Lab          | 13,67,376.00         |
| 4                       | Common facility - Lift        | 10,00,000.00         |
| 5                       | Computers for the departments | 4,83,000.00          |
| 6                       | Dept. of Biochemistry         | 5,00,000.00          |
| 7                       | Dept. of Botany               | 3,57,000.00          |
| 8                       | Dept. of Chemistry            | 5,00,000.00          |
| 9                       | Dept. of Commerce             | 49,000.00            |
| 10                      | Dept. of Economics            | 16,800.00            |
| 11                      | Dept. of English              | 98,000.00            |
| 12                      | Dept. of Islamic History      | 16,800.00            |
| 13                      | Dept. of Physics              | 5,00,084.00          |
| 14                      | Dept. of Zoology              | 3,45,140.00          |
| 15                      | Training & Placement cell     | 16,800.00            |
|                         | <b>Total</b>                  | <b>80,00,000.00</b>  |
| Rupees Eighty Lakh only |                               |                      |

### 3.2 ITEM-WISE FUND ALLOCATION

|    | <b>Items</b>                     | <b>Fund Allotted</b> |
|----|----------------------------------|----------------------|
| 1  | Computers                        | 10,74,500.00         |
| 2  | Printer                          | 50,400.00            |
| 3  | UPS – Power backup               | 2,50,000.00          |
| 4  | Photo copier                     | 99,500.00            |
| 5  | Smart TV for digital class rooms | 1,47,000.00          |
| 6  | Library Books                    | 10,00,000.00         |
| 7  | Library Book Shelves             | 3,55,352.00          |
| 8  | Library Automation – RFID        | 9,55,148.00          |
| 9  | Lab Equipments for Research Lab  | 8,65,817.00          |
| 10 | Lab equipments for UG & PG Labs  | 21,80,344.00         |
| 11 | Common facility – LIFT           | 10,00,000.00         |

## **4. DETAILED ESTIMATE FOR PURCHASE**

Below, you will find the details of the items proposed for purchase, along with the cost of each item, including taxes. These details are organized under the respective headings of each department.

### **4.1 Central Research Lab**

The Central Research Block, which was constructed using the RUSA 2.0 fund, has been operational since March 2022. This state-of-the-art facility is equipped with several advanced amenities designed to support scientific exploration. Among its offerings are an Advanced Scientific Research Lab, High Temperature Equipment Lab, Research Scholars' Room, Computational Research Lab, Central Instrumentation Lab, Processing and Fabrication Lab, Chemical Store, Power Back-up Room, and Washrooms. During the NAAC visit in August 2022, the peer team thoroughly examined all the research equipment and laboratories. They also interacted with research scholars and guides. The efforts made by the institution in promoting scientific research were highly appreciated by the peer teams.

We are proud to have opened our research facility to other institutions as well. So far, 13 colleges, including TKM College of Engineering, have utilized our laboratory facilities for testing a total of 268 samples.

Looking ahead, we hope for continued support to further enrich our research labs and enhance research facilities in the college. With such backing, we are confident in making even greater strides in scientific research and innovation. The following research equipments are proposed to be added to the central research lab.

| <b>Sl. No</b> | <b>Items</b>                             | <b>Description</b>   | <b>Qty</b>    | <b>Price</b> | <b>Amount</b> |
|---------------|--|--|---------------|--------------|---------------|
| 1             | Fume hood                                | Fume hood with gas cylinders (N <sub>2</sub> , Ar, CH <sub>4</sub> ), anticorrosive reaction chamber and cabinet   | 1 set         | 400000       | 400000.00     |
| 2             | Electronic balance                       | 5-decimal place precision digital electronic balance   | 1             | 130000       | 130000.00     |
| 3             | Double distillation unit                 | Double distillation unit-Automatic with sensor   | 1             | 100000       | 100000.00     |
| 4             | 4 - probe conductivity meter/ multimeter | 4 - probe conductivity meter/ multimeter   | 1             | 75000        | 75000.00      |
| 5             | Refrigerator                             | Laboratory Refrigerator with freezer   | 1 (400 Litre) | 50000        | 50000.00      |
| 6             | Benchtop Digital pH meter                | Benchtop Digital pH meter  | 1             | 50000        | 50000.00      |
| 7             | Ultrasonic Cleaner                       | Ultrasonic Cleaner   | 1             | 25000        | 25000.00      |
| 8             | Microwave Oven                           | Microwave Oven   | 1             | 20000        | 20000.00      |
| 9             | Gas cylinder with regulator              | Gas cylinder with regulator (Argon, Nitrogen, Methane)   | 1             | 15876        | 15876.00      |
| 10            | WorkStation                              | WorkStation:<br>Specifications Processor: Quad Core Intel Xeon Processor, 3.3GHz 64 Gig Ram Wireless Keyboard 2 - 24" Wide Flat Panel Monitors w/USB ports 512 Meg Graphics Video card 2 TB SSD Hard Drive Windows 10 Professional | 1             | 395000       | 395000.00     |

|    |                   |  |   |              |                   |
|----|-------------------|--|---|--------------|-------------------|
|    |                   | 64 Bit with upgrade to Windows 11 Pro Wireless Optical mouse with scroll DVD +/- RW - with Burning Software Sound Bar for Monitor 8 USB 3.0 Ports 1 Gigabit Ethernet NIC 4 Year Maintenance HD WebCam Delivery Charges   |   |              |                   |
| 11 | Desktop Computer: | Specifications Processor: Intel Core i7 32 Gig Ram Keyboard Mouse with scroll 24" Widescreen Flat Screen Monitor 2 TB SSD Hard Drive Windows 10 Professional 64 Bit with upgrade to Windows 11 Pro 1 Gigabit Ethernet NIC Sound Bar for Monitor 8 USB 3.0 Ports DVD +/- RW - with Burning Software HD WebCam 4 Year Maintenance Delivery Charges | 1 | 106500       | 106500.00         |
|    |                   |  |   | <b>Total</b> | <b>1367376.00</b> |

*All estimates are including service taxes*

## 4.2 Central Library

The TKM College of Arts and Science boasts an exceptional library that has embraced modern technology for its operations and services. By implementing a standard Integrated Library Management Software, KOHA, the library's functions have been computerized, streamlining its efficiency. The Online Public Access Catalogue (OPAC) empowers users to search for books and other materials using various criteria like author, title, subject, publisher, keyword, call number, and accession number.

In terms of its collection, the library is home to over 37,000 volumes covering diverse subjects in English, Hindi, Arabic, and Malayalam. Additionally, it subscribes to 115 printed periodicals, encompassing research journals and magazines.

To address the current demands and keep pace with the evolving needs, the library must undergo enhancements by incorporating additional learning resources and adopting new technologies, such as RFID implementation. Below, we present a list of proposed requirements for further developing the library:

| Sl. No | Items                   | Description   | Qty | Price      | Amount     |
|--------|-------------------------|---|-----|------------|------------|
| 1      | Books on all subjects   | Text books for various departments  |     | 1000000.00 | 1000000.00 |
| 2      | Book Stack              | Dimensions: 45 × 27 × 215 cm<br>3 bays in a row.<br>Material : Cold rolled steel.<br><br>Add on structure,<br>Electrostatic powder coated,<br>rust-proof, | 6   | 46020.00   | 276120.00  |
| 3      | Periodical display rack | Dimensions: 100 × 40 × 198 cm   | 2   | 39616.00   | 79232.00   |

|   |             |  |       |              |                     |
|---|-------------|--|-------|--------------|---------------------|
| 4 | RFID        | Gate System UHF passive RFID   | 1     | 221579.00    | 221579.00           |
|   |             | Shelf Management Reader/Portable Reader Inventory, Search, Read/Write  | 1     | 102268.00    | 102268.00           |
|   |             | KOHA-RFID Integration Charge   | 1     | 59000.00     | 59000.00            |
|   |             | UHF Staff Station/Table Top Reader For Books Issue/Return/Read/Write   | 1     | 34090.00     | 34090.00            |
|   |             | UHF Passive RFID Books Tags For Pasting on Each Book   | 35000 | 10.62        | 371700.00           |
|   |             | Hardware Installation Charge   | 1     | 13111.00     | 13111.00            |
|   |             | ID Card Printer  | 1     | 70800.00     | 70800.00            |
|   |             | RFID ID Card   | 2000  | 41.30        | 82600.00            |
| 5 | KOHA Server | Desktop Specifications Processor: Intel Core i7 32 Gig Ram Keyboard Mouse with scroll 24" Widescreen Flat Screen Monitor, 2 TB SSD Hard Drive, Windows 10 Professional 64 Bit with upgrade to Windows 11, Pro 1 Gigabit Ethernet NIC Sound Bar for Monitor 8 USB 3.0 Ports | 1     | 90000.00     | 90000.00            |
| 6 | Photocopier | Canon duplex printer, copier   | 1     | 99500.00     | 99500.00            |
|   |             |  |       | <b>Total</b> | <b>25,00,000.00</b> |

*All estimates are including service taxes*

### 4.3 Department of Chemistry

The department commenced offering post-graduate courses in 1995. The staff members are unparalleled in their subject expertise and exhibit great enthusiasm in establishing connections with prominent chemical industries. They also provide valuable guidance to students undertaking research projects. In light of the updated curriculum, which incorporates new experiments, there is a pressing need for modern laboratory equipment to facilitate effective learning and practical application.

Additionally, the department maintains research collaborations with esteemed institutions both within India and abroad. To address the issues of replacing non-functioning equipment and expanding the existing facilities, funding support is sought. This will enable the department to ensure a conducive and state-of-the-art learning environment for its students, promoting their research endeavors and fostering valuable industry connections.

| Sl. No | Items              | Description  | Qty | Price    | Amount      |
|--------|--------------------|--|-----|----------|-------------|
| 1      | Electronic Balance | 1.Capacity : 220g<br>2. Readability : 0.0001g (0.1mg)<br>3. Tare Range : 220g<br>4. Repeatability : $< \pm 0.0001g$<br>5. Display : LED<br>6. Pan Diameter : 90mm<br>7. Dimensions : 340mm x 212mm x 340mm (slight variation is permissible)<br>8. Minimum weight: $\leq 100mg$<br>9. Warranty- at least 2 years | 1   | 1,00,000 | 1,00,000.00 |

|    |                                   |  |   |        |           |
|----|-----------------------------------|--|---|--------|-----------|
| 2. | Vacuum Pump                       | 1. Phase- Single<br>2. Material-Cast iron<br>3. Mounting-Bench Top<br>4. Voltage-220V<br>5. Max Vacuum-710mm of Hg<br>6. Sealing water temp- 30 °C<br>7. Warranty-minimum 2 years  | 1 | 30,000 | 30,000.00 |
| 3  | Conductometer                     | 1. 7 digit-7segment LED<br>2. 4 digit display for conductivity/TDS with automatic decimal point selection<br>3. conductivity range: 0.1micro S to 100 mS, Accuracy: +/-1% of FS, 4. digit minimum Resolution: 0.1µS<br>5. TDS Range - 0-20 ppm to 100 ppt<br>6. Temp: 0-100° (Auto with PT 100 sensor)/ 0-60° (Manual-user selectable)- printer -optional<br>Standard set with conductivity cells of 10.1 and 1.0, temp probe(PT 100 sensor), 7. clamp and stand | 3 | 20,000 | 60,000.00 |
| 4  | Digital Photoelectric Colorimeter | 1. Display- 3 digit LED<br>2. Capacity - 1ml<br>3. Size- 1 ml<br>4. Light source- white LED  | 2 | 12,000 | 24,000.00 |
| 5  | Digital Potentiometer             | 1. Display- 3 half digit with digital display<br>2. Accuracy-±0.1%<br>3. Material-Stainless Steel<br>4. Resolution-1mV   | 3 | 14,000 | 42,000.00 |
| 6  | Water Deionizer                   | Type- Automatic, Or semi-automatic, Horizontal<br>Flow rate- 100m3/hr or   | 2 | 20,000 | 40,000.00 |

|    |                                    |   |    |              |                    |
|----|------------------------------------|---|----|--------------|--------------------|
|    |                                    | more<br>Bed- Double Bed Deionizer   |    |              |                    |
| 7  | Water<br>Distillation<br>Unit      | Type- Automatic,<br>Horizontal<br>Capacity-<br>4 Ltrs/hr or more<br>Heater-<br>Ceramic Heater   | 1  | 30,000       | 30,000.00          |
| 8  | Two-Digit<br>Analytical<br>Balance | 1. Pan Diameter : Min.<br>90mm<br>2. Digital<br>3. Readability-0.01g<br>4. Capacity- ≥320g  | 2  | 22,000       | 44,000.00          |
| 9  | Magnetic<br>stirrer                | 1. Hot Plate with digital<br>speed indicator<br>2. Capacity : 2 L<br>3. Height- 3 inches<br>4. Weighing weight-Round<br>(preferred)<br>5. Width- 6 inches | 2  | 15,000       | 30,000.00          |
| 10 | Laboratory<br>Gas Burner           | 1.Brand- Standard Brass<br>2. Material- with the<br>Regulator<br>3. Shape-Vertical  | 24 | 1,000        | 24,000.00          |
| 11 | Calibrated<br>Burette              | 1.Calibrated Automatically<br>2.Borosil<br>3. Supplied with PTFE<br>stopcock  | 20 | 3,000        | 60,000.00          |
| 12 | Kipps<br>Apparatus                 | 1.Material-Borosilicate<br>Glass<br>2.Min Capacity-250 ml<br>3.Max Capacity-1000 ml<br>4.Color-Transparent  | 2  | 3,000        | 6,000.00           |
| 13 | IR Lamp                            | Brand-Generic<br>Light Colour -Red<br>Voltage-110/220 Volts<br>Design-Adjustable using<br>remote control  | 2  | 5,000        | 10,000.00          |
|    |                                    |   |    | <b>Total</b> | <b>5,00,000.00</b> |

*All estimates are including service taxes*

#### 4.4 Department of Biochemistry

Established in 2001, the department has emerged to cater to students with a keen interest in biochemistry. Currently, the department offers postgraduate programs, providing advanced education in biochemistry. The postgraduate practical papers encompass microbiology experiments, which involve the cultivation of microbes. To ensure the safe and effective cultivation of microbes, the establishment of a dedicated microbiology laboratory was undertaken. The necessary infrastructure for the microbiology lab has been constructed, and now the focus shifts to the installation of laboratory instruments to support the practical experiments.

In light of this requirement, the allocated funds, as per the provided estimate, are essential to acquire and install the necessary instruments for the microbiology lab. This funding will enable the department to provide students with a well-equipped and conducive environment for their practical studies in microbiology.

| Sl. No | Items                       | Description   | Qty | Price     | Amount      |
|--------|-----------------------------|---|-----|-----------|-------------|
| 1      | Colorimeter                 | Sysrtonics-photoelectric colorimeter-113 400-700nm  | 4   | 22000.00  | 88,000.00   |
| 2      | Cooling centrifuge + Rotors | REMI CPR30 Plus Refrigerated centrifuge R-239 M (36 x 15 ML) R-248 M (24 x 1.5 ML)  | 1   | 350000.00 | 3,52,000.00 |
| 3      | Water bath                  | 5-99 Degree Celsius Rectangular Constant Temperature Water Bath, 230V, Double walled with glass window, Dimension-18"X14"X12" | 1   | 25000.00  | 25,000.00   |
| 4      | Weighing balance (3 digit)  | Everight Fully Automatic Digital High Precision Balance, Capacity: 320g,  | 1   | 20000.00  | 20,000.00   |

|   |                                |                    |   |              |                    |
|---|--------------------------------|--------------------|---|--------------|--------------------|
|   |                                | Accuracy: 1mg      |   |              |                    |
| 5 | Cyclomixers /<br>Vortex Mixers | Remi – CM-101 PLUS | 1 | 15000.00     | 15,000.00          |
|   |                                |                    |   | <b>Total</b> | <b>5,00,000.00</b> |

*All estimates are including service taxes*

#### **4.5 Department of Physics**

Established in 1980, the Department of Physics expanded its offerings to include post-graduate courses starting from 1998. The faculty members have demonstrated remarkable enthusiasm in enhancing their professional skills, ensuring they are well-equipped to meet the challenges of introducing new courses and papers. Their expertise in computers and electronics has played a pivotal role in assisting students with their projects.

However, it is worth noting that the equipment utilized for undergraduate and post-graduate experiments is outdated, with many of them no longer functioning. With the recent curriculum updates, incorporating new experiments into the coursework, there arises a need for modern laboratory equipment. Furthermore, the significant increase in student enrollment over the past decade necessitates a larger quantity of equipment to accommodate the growing number of learners.

To address these requirements, the estimated budget for procuring the necessary laboratory equipment is provided below:

| <b>Sl. No.</b> | <b>Item</b>  | <b>Description</b>                            | <b>Qty.</b> | <b>Price</b> | <b>Amount</b> |
|----------------|--------------|---|-------------|--------------|---------------|
| 1              | Power Supply | Power Supply for Potentiometer 5V             | 4           | 2950         | 11,800.00     |
| 2              | Power Supply | Power Supply DC Regulated Variable 2-12V/2Amp | 3           | 5310         | 15,930.00     |
| 3              | Power Supply | Power Supply                                  | 1           | 6490         | 6,490.00      |

|    |  |   |    |       |           |
|----|--|---|----|-------|-----------|
|    |  | Battery(tubular)40AH<br>2V                  |    |       |           |
| 4  | Diode characteristics Experiment                   | Diode characteristics Kit                   | 2  | 7080  | 14,160.00 |
| 5  | Zener Diode characteristics Experiment             | Zener Diode characteristics Kit             | 2  | 7080  | 14,160.00 |
| 6  | Transistor Characteristics - Experiment            | Transistor Characteristics - Kit            | 2  | 14750 | 29,500.00 |
| 7  | Opamp-Non inverting/inverting Amplifier Experiment | Opamp-Non inverting/inverting Amplifier Kit | 2  | 7080  | 14,160.00 |
| 8  | Op Amp- Integrator/differentiator- Experiment      | Op Amp- Integrator/differentiator-Kit       | 2  | 7080  | 14,160.00 |
| 9  | Logic Gates- Experiment                            | Logic Gates-Kit                             | 2  | 10030 | 20,060.00 |
| 10 | Spectrometer                                       | Spectrometer A grade                        | 2  | 21830 | 43,660.00 |
| 11 | Spectrometer                                       | Spectrometer B grade                        | 2  | 16520 | 33,040.00 |
| 12 | Carey Foster Bridge Experiment setup               | Carey Foster Bridge                         | 2  | 10620 | 21,240.00 |
| 13 | Searle's Magnetometer                              | Searle's Magnetometer                       | 2  | 1062  | 2,124.00  |
| 14 | Stop watch   | Stopwatch Digital                           | 5  | 1652  | 8,260.00  |
| 15 | Stop clock   | Stop clock Mechanical                       | 10 | 885   | 8,850.00  |
| 16 | Kater's Pendulum Experiment                        | Kater's Pendulum setup                      | 2  | 7611  | 15,222.00 |
| 17 | Travelling Microscope                              | Travelling Microscope                       | 2  | 13570 | 27,140.00 |

|    |  |   |   |              |                    |
|----|--|---|---|--------------|--------------------|
| 18 | Scale and Telescope  | Scale and Telescope   | 2 | 8024         | 16,048.00          |
| 19 | Compass box  | Compass box   | 5 | 531          | 2,655.00           |
| 20 | Determination of elastic constants by Cornu's Method Experiment      | Determination of elastic constants by Cornu's Method setup      | 1 | 30680        | 30,680.00          |
| 21 | Young's modulus of different materials using Strain Gauge experiment | Young's modulus of different materials using Strain Gauge setup | 1 | 10030        | 10,030.00          |
| 22 | Surface tension of a liquid using Jaeger's method experiment         | Surface tension of a liquid using Jaeger's method set up        | 1 | 4661         | 4,661.00           |
| 23 | CRO  | CRO 30 MHz. Dual Channel  | 2 | 33040        | 66,080.00          |
| 24 | Function generator   | Function generator- 3 MHz.                                      | 2 | 17582        | 35,164.00          |
| 25 | Determination of Fermi energy of Copper Experiment                   | Determination of Fermi energy of Copper set up                  | 1 | 16520        | 16,520.00          |
| 26 | Study of variation of resistance of a semiconductor Experiment       | Study of variation of resistance of a semiconductor - set u     | 1 | 14750        | 14,750.00          |
| 27 | Rectifier Experiment   | Rectifier Kit   | 2 | 1770         | 3,540.00           |
|    |  |   |   | <b>Total</b> | <b>5,00,084.00</b> |

*All estimates are including service taxes*

#### 4.6 Department of Zoology

Ever since its establishment in 1981, the department has consistently delivered exceptional performance. It is renowned for its extensively stocked zoology museum and the faculty's expertise in conducting practicals. However, with the recent updates to the curriculum, the inclusion of new experiments necessitates the acquisition of modern laboratory equipment.

The department places a particular emphasis on entomology, with a focus on biopesticides for the project work of graduate students. Additionally, aquaculture and aquaponics have recently been introduced into the syllabus. In light of these developments, certain animal specimens, which have become considerably outdated, require replacement to ensure accurate and relevant study materials.

The revised estimate for acquiring the necessary laboratory equipment and replacing the outdated animal specimens is summarized in the accompanying table. This allocation of funds will enable the department to enhance the quality of practical education and provide students with up-to-date resources for their studies in entomology, biopesticides, aquaculture, and aquaponics.

| <b>Sl. No</b> | <b>Items</b>                             | <b>Description</b>   | <b>Qty</b> | <b>Price</b> | <b>Amount</b> |
|---------------|--|--|------------|--------------|---------------|
| 1             | Biological Compound monocular microscope | Optical system: Finite Mechanical Tube length: 160 mm<br>System Optical Magnification: 40-640 X<br>Total Magnification: 40-640 X<br>Standard Eye Piece: 10X, | 9          | 19500        | 175,500.00    |

|   |   |   |              |         |                    |
|---|---|---|--------------|---------|--------------------|
|   |   | 16X<br>Standard Objectives: 4X,<br>10X, 40X Achromatic<br>System Field view: Dia:<br>0.325-3.25 mm<br>System Working Distance:<br>0.53-36.6 mm  |              |         |                    |
| 2 | Trinocular<br>Stereo Zoom<br>Microscope +<br>Attachable<br>digital camera | Viewing Body : Integrated<br>Trinocular head with 45°<br>Eye-piece : 10x paired<br>eye-piece with 22mm field<br>of view<br>Magnification Range<br>: 0.65x to 6.5x continuous<br>Built-in illumination<br>system & Power supply<br>Attachable digital camera | 1            | 115,640 | 1,15,640.00        |
| 3 | Student<br>Microscope<br>400x with<br>Illuminator                         | Built-in incandescent<br>lamp 6V/15W with on/off<br>switch.   | 2            | 27,000  | 54,000.00          |
|   |   |   | <b>Total</b> |         | <b>3,45,140.00</b> |

*All estimates are including service taxes*

#### **4.7 Department of Botany**

In 1977, the college introduced its very first degree course, Botany, which has since flourished into a fully established department. The department boasts a remarkable botanical garden that serves as a sanctuary for numerous rare plant species, functioning as a biodiversity park. A comprehensive survey and identification of the flora across the entire campus have been conducted collaboratively by the department's faculty and students.

The department actively engages in both minor and major research projects, funded by various agencies. Notably, the department successfully completed a project on tissue engineering funded by DST (Department of Science and

Technology), along with two minor projects supported by UGC (University Grants Commission). To align with the syllabus revision, the practical components of Enzymology and microbiology have been incorporated. However, to facilitate these new practical experiments, an additional major equipment is required to supplement the existing infrastructure. Accordingly, the estimated amount for this acquisition is presented in the table below.

| <b>Sl. No</b> | <b>Items</b>       | <b>Description</b>  | <b>Qty</b> | <b>Price</b> | <b>Amount</b> |
|---------------|--------------------|---|------------|--------------|---------------|
| 1             | Cooling Centrifuge | Remi Microprocessor Research Cooling Centrifuge without rotor Model C 24 Plus<br><br>Maximum Speed: 20000 RPM<br>Maximum RCF: 37750 g<br>Maximum Capacity: 400 ml<br>Lowest Temperature: -8°C<br><br>LED Display, Digital Control communication, Feather touch keys, Brushless motor with frequency drive, Inverter fault detection with auto shut down, CFC free refrigeration system, last set parameter recall, choice of RPM/RCF setting, Digital Count down timer 0-99 min and continuous run, Automatic door opening, Automatic rotor | 1          | 263376       | 2,63,376.00   |

|  |                    |  |   |              |                    |
|--|--------------------|--|---|--------------|--------------------|
|  |                    | identification, Motor overload protection, Emergency lid lock release, imbalance detection with centrifugation cutoff, Gas hinges to prevent door falling. |   |              |                    |
|  | Angle Rotor        | Angle Rotor suitable for C 24 Plus Centrifuge<br>8 x 50 ml Polypropylene Tube 16000 RPM<br>Model R 247 M   | 1 | 29736        | 29,736.00          |
|  | Polypropylene Tube | 12 x 15ml Polypropylene Tube 18000 RPM<br>Model R 244 M  | 1 | 25488        | 25,488.00          |
|  | Voltage Stabilizer | Voltage Stabilizer   | 1 | 16520        | 16,520.00          |
|  |                    |  |   | <b>Total</b> | <b>3,35,120.00</b> |

*All estimates are including service taxes*

#### 4.8 Other Departments

Additional improvements are required for the administrative office, placement cell, and teaching departments outside the science discipline. To enhance these areas, the following provisions are necessary: New computers, UPS for power backup, Smart TVs, laser printers, and a lift to ensure accessibility for physically challenged students. Below are the specific details of these requirements:

| Sl. No | Depts.                                     | Items         | Description   | Qty | Price   | Amount       |
|--------|--|---------------|---|-----|---------|--------------|
| 1      | Administrative Office                      | UPS           | 6KVA UPS with tubular battery, 1 hour backup, Hykon   | 1   | 250000  | 2,50,000.00  |
| 2      | Common facility                            | Lift          | 10 Passenger Lift/ 680Kgs / 1.25 Speed / 3 Floors / 3 Stops / Stainless Steel Car Cabin   | 1   | 1000000 | 10,00,000.00 |
| 3      | Placement cell, Islamic History, Economics | Laser Printer | HP LaserJet 208DW Function: Print only Print Speed: 29ppm Memory: 64MB Paper size: A4 Input capacity: Up to 150 sheets Interface: 1 Hi-Speed USB 2.0; 1 Fast Ethernet 10/100BaseTX; 1 Dual-band (2.4/5.0GHz) Wireless 802.11b/g/n with Bluetooth® | 3   | 16800   | 50,400.00    |

|   |  |                                  | Low Energy  |   |              |                     |
|---|--|----------------------------------|---|---|--------------|---------------------|
| 4 | Dept. of English and Commerce  | Smart TV for digital class rooms | LG<br>Screen Size: 55",<br>Resolution: Full HD, Category: Sart,<br>Typical<br>Brightness:300-399,<br>Speakers:10wx2,<br>No. of HDMI<br>Ports:2, Wifi,<br>Warranty:3 years | 3 | 49000        | 1,47,000.00         |
| 5 | Dept. of Chemistry, Physics, English, Physical Education, Mathematics, Islamic History, Placement cell | Desktop Computers                | 12th Gen Intel® Core™ i5-12400,<br>Win10/11,<br>8 GB RAM,<br>512 GB SSD,<br>MONITOR: 19.5"/21"  | 7 | 69000        | 4,83,000.00         |
|   |  |                                  |   |   | <b>Total</b> | <b>14,47,400.00</b> |

*All estimates are including service taxes*