

**Science and Heritage Research Initiative (SHRI) Cell**

**Call for Proposals (2025)**

**Last Date of Submission: 20th May 2025**

**Government of India**

**Ministry of Science and Technology**

**Department of Science and Technology**

**Technology Bhavan, New Delhi-110 016**

#### Background

#### India is one of the oldest civilizations, rich in heritage and traditional knowledge systems in diversified areas. The Science and Heritage Research Initiative (SHRI) Cell, Department of Science and Technology (DST), Government of India, intends to utilize modern S&T tools to preserve, protect, and present ancient scientific and technological heritage of India at global platform. In last five years, DST has created an extensive ecosystem of Heritage Science in the country connecting interdisciplinary themes, state-of-the-art technologies and diversified researchers.

#### SHRI Cell has following Objectives:

#### To promote research activities on evolution & development of civilization.

#### To explore new methods, state-of-the-art technologies to preserve and conserve heritage objects, monuments, artwork, and practices.

#### To document & scientifically validate Indigenous Knowledge System (IKS).

#### To strengthen the ecosystem through capacity building of human resources, engaging & encouraging researchers in this upcoming area of Heritage Science.

#### DST invites proposals on the following indicative areas to establish Centre of Excellence (CoE) for Traditional Indian Science and Technology in Academic Institutions and Universities with proven record to work in the area of Heritage Science.

#### Following indicative thematic research areas have been identified for establishment of CoE:

**1.** **Ancient Astronomy and Mathematics**

1. **Astrophysical Simulations**: Computational models to simulate historical celestial events illustrated in ancient Indian texts (e.g., solar and lunar eclipses) and its validation.
2. **Navigation and Space Exploration:** Validation of ancient celestial navigation techniques with reference to modern GPS. Use insights of ancient planetary models to refine orbital mechanics.
3. **Cultural Preservation:** Highlight ancient Indian contributions to global astronomy, foster awareness its integration into heritage tourism.
4. **Computational Modelling and Simulation in Ancient Mathematics:** Creating models and simulations to explore and analyze ancient mathematical texts/concepts, posing new interactive insights and properties.
5. **Translation and Digitization:** Digitize, decode and develop database of ancient manuscripts for modern interdisciplinary research linking historical records with modern astronomical phenomenon.
6. **Sustainable Practices:** Application of ancient calendar systems and knowledge of celestial cycles to modern agriculture and water management.
7. **Archaeological and Historical Studies:** Analyze ancient observatories and temple alignments, using tools like LiDAR and radiocarbon dating. Assess its scientific rigor in architectural precision to capture celestial events.

**2. Ancient Materials and Metallurgy**

1. **Metallurgical Processes:** Assessment of grain structure, process parameters, and condition monitoring of artifacts using simulation, computational modelling, or other advanced material characterization techniques for modern applications
2. **Heritage Materials:** Identification and validation of traditional preservation/restoration practices/techniques i.e. coatings, paints etc. develop advanced techniques for tangible heritage. Exploring ancient materials for designing energy-efficient buildings as per the geo-ecological location in modern world.

**3. Traditional Practices for Preventive Health and Well-Being**

1. Ergonomically designed and tested personalized yoga modules/digital platforms/tools for, mental health, cognitive performance and wellness at workplace.
2. Yoga and meditation for chronic disease management including cancer care & prevention, aging & longevity.
3. Traditional medicines and healing practices

**4. Ancient Building Architecture and Water Management Systems**

1. Structural environment of historic buildings and other structures, using survey techniques, seismic behavior, and non-destructive testing.
2. Studies on traditional water management systems, to provide solutions for modern water management practices, particularly in areas facing water scarcity or environmental challenges.

**5. Indian Heritage for Digital Space**

1. **Digital Heritage Preservation:** To safeguard tangible and intangible heritage using advanced computer-based tools such as Artificial Intelligence (AI), Augmented Reality (AR), Virtual Reality (VR), Image Processing, Character Recognition, etc.
2. **Generative AI for Indian Heritage:** Digital restoration and recreation of damaged cultural artefacts, historical environments, lost elements, using advanced algorithms to analyze and synthesize data from various sources like photographs, 3D scans, manuscripts, heritage structures, etc.

Or any other suitable area of Heritage Science may be considered**.**

|  |  |
| --- | --- |
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Contact Details:

**Guidelines for Submission**

Submission of proposal is through ONLINE portal (<https://onlinedst.gov.in/>) by registration as a PI. Registered PIs may get an option to “submit proposal”, under calls that are open and may submit the proposal under the SHRI Cell following the guidelines given below:

1. Applicant(s) should be an Academician/Scientist working in Public/Private Academic Institute/University.
2. A single proposal for 3 years may be submitted, this could be extended further based on performance evaluation and recommendation of the Expert Advisory Committee.
3. The proposed budget should be realistic and in line with the proposed objectives.
4. Indicate quarterly deliverables in the form of a Gantt chart.
5. A dedicated area minimum of approx. 5000 sq ft is expected to be allocated for CoE by the Host Institute/Organization.
6. In case of traditional practices and products participation of stakeholders is desired.
7. The proposed CoE should specify the problems that are being addressed and clearly mention the following:

* S&T Interventions
* Process optimization if any
* Application potential viz. Design Intervention, Entrepreneurship Intervention etc.
* Quantified outputs in each year/ phase of the Centre should be specify in the proposal
* Any other

**Please Note:**

1. Institutes/PIs with excellent record of successfully completed/towards completion project (s) under SHRI or Indian Knowledge Systems (IKS) Division of Ministry of Education will be preferred.
2. Multiple submissions from one organization will not be considered. Head of the organizations must ensure single submission.
3. Institutes/PIs can select multiple sub-themes from mentioned themes/sub-themes or even propose any other relevant theme/sub-theme and can launch academic program through the proposed Centre.
4. DST will not support basic infrastructure, buildings, and international travel under the proposal. However, expenses towards furnishing the Centre may be supported.
5. DST will not give support towards the salary of permanent/regular employees and will only support temporary project staff.
6. Non-recurring grants for equipment(s) to be considered only if same/similar facility is not available in the Institution.
7. The Scientific Advisory Committee (SAC) constituted by DST will consider all received proposals for budgetary support. The group may seek expert opinion, wherever required and guide during the review of progress to achieve maximum outcomes.
8. All the assets including equipment acquired and prototypes fabricated from the grant will be the property of Government of India and should not be disposed of, or utilized for purposes other than those for which the grant has been sanctioned, without the prior approval of DST.
9. DST can terminate financial support at any stage of the project implementation, if grant is found to utilize inappropriately or progress of the project is not in line with the submitted objectives/deliverables.

### DOCUMENTS/ENCLOSURES REQUIRED WITH THE PROPOSAL:

1. Endorsement from the Head of the Institution (on letter head) and Certificate from Investigator(s)
2. Details of the proposal
3. Declaration of Conflict of Interest
4. Registration Certificate, Memorandum of Association, and Rules and Regulations of the Institution/Organization.

# FORMAT FOR SUBMISSION OF PROPOSALS

**“Science and Heritage Research Initiative (SHRI)”**

(To be filled by Project Investigator, all fields are necessary to be filled)

## IDENTIFICATION

* 1. **Project title**

………………………………………………………………………………

……………………………….……………………………………………

**Key Words**

………………………………………………………………………………

* 1. **Broad Area:** - (Please tick mark (√)
     1. Ancient Astronomy and Mathematics ( )
     2. Ancient Materials and Metallurgy ( )
     3. Traditional Practices for Preventive Health and Well-Being ( )
     4. Ancient Building Architecture and Water Management Systems ( )
     5. Indian Heritage for Digital Space ( )
     6. Other Areas ( ) (give the details below)
  2. **Duration (in months):**
  3. **Total Cost (in Rs.):**

**Recurring Cost (in Rs.):**

**Non-recurring Cost (in Rs.):**

* 1. **Principal Investigator:**
     1. Name:
     2. Designation:
     3. Department:
     4. Organization/ Institution Name:
     5. Address (Including Telephone (Off & Res), E-mail, Fax) Pin:
     6. Date of Birth:
     7. Sex (M/F):
     8. Category (GEN/SC/ST):
  2. **Co-Investigator:**
  3. Name:
  4. Designation:
  5. Department:
  6. Organization/Inst. Name:
  7. Address: (Including Telephone (Off &Res), E-mail, Fax), Pin:
  8. Date of Birth:
  9. Sex (M/F):
  10. Category (GEN/SC/ST):
  11. **Capability of the Organization:**

1. Expertise available:
2. List of ongoing and completed projects by the PI/organization in the area of Heritage Science/Traditional Knowledge System or related area (Since 2020), giving the following details:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Project Title** | **Start Date** | **Completion Date** | **Project cost** | **Sponsoring organization** | **Rating/Outcomes** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## TECHNICAL DETAILS

* 1. **Background**
     1. Description of problem
     2. Relevance to Heritage Science.
     3. Review of work already done
     4. Rationale for taking up the project
     5. Status of the proposed or similar work (National & International)
     6. Financial resources committed at Host Institute/Industry (if any)
  2. **Challenge & Constraints**

(Please identify strengths and weaknesses of the implementers vis-à- vis current project in terms of technical expertise, team building, past record etc. Also list the perceived opportunities and threats and describe how PI/Organization proposes to capitalize on them or avert them.)

* 1. **Description of Proposal**
     1. *Objectives of the project*. (in 3-5 bulleted points, brief and to the point)
     2. Preliminary Investigations done by the PI. (if any)
     3. S&T component in the project.
     4. Linkage with S&T Institutes/NGO, s/resource persons/ R&D organization/Industry for technical backup.
     5. Other organizations working in this area
     6. *Methodology* detailing stepwise activities and sub-activities (in detail).
  2. **Work Plan**

(Phase-wise plan of action up to post-project activities detailing schedule, Milestones, etc. Quarter-wise PERT/GANTT chart must be attached.)

* 1. **Output and Outcomes of the Project** (Please attempt to quantify output in measurable parameters.)
  2. **Likely Impact** (Please attempt to quantify in terms of Social & Economical)
  3. **Parameters for Monitoring the effectiveness of the project**
  4. **Detailed Plan of Post-Project Activities for the way forward**

## BUDGET ESTIMATES: SUMMARY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **BUDGET** | | | | | |
| S. No | Item | 1st Year | 2nd Year | 3rd Year | Total |
| **A.** | **Recurring** |  |  |  |  |
|  | Salaries/ Wages |  |  |  |  |
|  | Consumables |  |  |  |  |
|  | Travel |  |  |  |  |
|  | Other Costs (if any) |  |  |  |  |
|  | Overhead |  |  |  |  |
| **B.** | **Non-Recurring (Permanent Equipment)** |  |  |  |  |
| **Grand Total (A+B)** | |  |  |  |  |

**Please note:**

* Financial Year: April to March.
* Salaries of temporary staff should be as per latest guidelines for emoluments of DST.
* Count six months from submission of the proposal to arrive at the expected time point for commencement of the project.
* ***Please provide brief justification for each head (100 words for each).***

## BUDGET FOR SALARIES/WAGES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Designation (number of  persons) | Monthly Emoluments -------------------------------  -------------- | | | Total |
|  | 1st yr. | 2nd yr | 3rd yr. | (m.m.)\* |
| Full time |  |  |  |  |
| i) |  |  |  |  |
| ii) |  |  |  |  |
| Part time i) |  |  |  |  |
| ii) |  |  |  |  |
| Total |  |  |  |  |

* + m.m. man months to be given within brackets before the budget amount.

**BUDGET FOR CONSUMABLES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items  Name & Quantity | 1st yr. | 2nd yr | 3rd yr. | Total Budget  (In Rupees) | Justification |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Total |  |  |  |  |  |

**BUDGET FOR TRAVEL**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items  Name & Quantity | 1st yr. | 2nd yr | 3rd yr. | Total Budget  (In Rupees) | Justification |
| a. Local Travel |  |  |  |  |  |
| b. Outstation |  |  |  |  |  |
|  |  | . |  |  |  |
|  |  |  |  |  |  |
| Total |  |  |  |  |  |

**BUDGET FOR OTHER COSTS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items  Name & Quantity | 1s yr. | 2nd yr | 3rd yr. | Total Budget  (In Rupees) | Justification |
| a. Contingencies |  |  |  |  |  |
| b. Others |  |  |  |  |  |
|  |  | . |  |  |  |
|  |  |  |  |  |  |
| Total |  |  |  |  |  |

**BUDGET FOR PERMANENT EQUIPMENT**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items  Name of Equipment | 1st yr. | 2nd yr | 3rd yr. | Total Budget  (In Rupees) | Justification |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Total |  |  |  |  |  |

## PROFORMA FOR BIODATA OF INVESTIGATORS

1. Name:
2. Date of Birth:
3. Institution:
4. Whether belongs to SC/ST:
5. Academic career: Professional career:
6. Award/prize/ certificate, etc., won by the investigator:
7. Publication (Numbers only):

Books Research Paper, report General articles Patents Others (please specify)

1. List of completed and ongoing projects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Title of project | Duration  (From - to) | Total cost | Funding Agency | Present status |

1. Projects submitted

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Title of project | Duration  (From - to) | Total cost | Funding Agency | Present status |

(Name & Signature)

Date…………………….. Place…………………….

## Annexure-I

**ENDORSEMENT FROM THE HEAD OF INSTITUTION**

(TO BE GIVEN ON LETTER HEAD)

**PROJECT TITLE:**

* 1. Certified that the Institute welcomes participation of Dr./Shri/Smt/Km. as the Principal Investigator and Dr./Shri/Smt/Km.------------------- as the Co-Investigator for the **Centre of Excellence (CoE) for Traditional Indian Science and Technology**. In the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility towards successful completion of the project (with due intimation to DST, GOI).
  2. Certified that the Institute/University will provide 5000 sq ft. dedicated area for establishment of the CoE with basic facilities and other administrative facilities as per the terms and conditions of the grant and would undertake financial and other management responsibilities of the project.
  3. Certified that the organization has never been blacklisted by any Department of State/Central Government.

Name and Signature of Head of Institutions

Date: ………………………….. Place: ………………………….

**REMARKS**

(In regard to research proposals emanating from scientific institutions/ laboratories under various scientific departments the Head of the institution is required to provide a justification indicating clearly whether the research proposal falls in line with the normal research activities of the institution or not and if not, the scientific reasons which merit its consideration by Department of Science & Technology.)

**Certificate from the Investigator (s)**

**Project Title:**

1. I/We agree to abide by the terms and conditions of the DST.
2. I/We did not submit the project proposal elsewhere for financial support.
3. I/We have explored and ensured that equipment and basic facilities will actually be available as and when required for the purpose of the projects.
4. I/We undertake that spare time on permanent equipment will be made available to other users.

**Date:**

**Place:**

**Name and Signature of Principal Investigator/s**

**DEPARTMENT OF SCIENCE AND TECHNOLOGY**

**POLICY ON CONFLICT OF INTEREST**

**FOR REVIEWER & COMMITTEE MEMBER or APPLICANT or DST OFFICER**

**ASSOCIATED/ DEALING WITH THE SCHEME/ PROGRAM OF DST**

Conflict of Interest document may be downloaded from the e-PMS portal of DST and a signed copy should be submitted along with the proposal.

Link is as follows: <https://onlinedst.gov.in/>