Dr. Vishwanath Karad
MIT WORLD PEACE UNIVERSITY | PUNE
TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

MIT-WPU

UNIVERSITY STUDENT INNOVATION GRANT (USIG) SCHEME

1. Proposal Introduction

The policy presents structured research and innovation framework for Innovators aimed at systematic idea development and technology maturation through a two-part implementation model. Part A is designed as a six-month research and proof-of-concept phase, supporting novel Innovator ideas through rigorous problem definition, feasibility analysis, design development, and experimental validation, culminating in a demonstrable proof-of-concept with documented technical outcomes. Part B functions as a three-month fast-track prototype enhancement phase, applicable to Innovators with existing trial products, and focuses on performance improvement, reliability enhancement, and technology readiness advancement through milestone-based execution and mandatory technical reviews. Together, Part A and Part B constitute a cohesive, outcome-oriented innovation pipeline, ensuring technical rigor, accountability, and measurable deliverables, while strengthening institutional research culture and supporting accreditation and quality assurance requirements.

PART A: IDEA TO PROOF OF CONCEPT (POC)

(STRUCTURED RESEARCH & INNOVATION TRACK – DURATION: 6 MONTHS)

UNIVERSITY INNOVATOR RESEARCH & INNOVATION GRANT (USRIG) SCHEME

A1. Purpose and Scope of Part A (6-Month Mode)

Part A, of the University Innovator Research & Innovation Grant (USRIG) scheme is intended to support novel, original Innovator ideas that are at the conceptual or early experimental stage and require systematic research, design, and validation to achieve a demonstrable proof-of-concept (PoC). This part operates as a six-month, milestone-driven research track, providing adequate time for problem definition, feasibility establishment, design iteration, experimental development, and validation. Part A focuses on idea maturation and technical feasibility demonstration, forming the foundational stage of the USRIG scheme.

A2. Eligibility and Entry Conditions (Strict)

Projects submitted under **Part A** must satisfy the following conditions:

- Applicant must be UG/PG Innovator of the University preferably supervised by faculty
- The proposal must address a clearly identified technical problem with academic, industrial, or societal relevance.
- The proposed idea must be original and not previously funded under any internal or external scheme.
- The expected entry maturity level shall correspond to:
    - **TRL-2:** Technology concept formulated/**NSRL-2** (Non-STEM Readiness Level 2): Concept & Theoretical Framework Stage (Pilot surveys/focus groups/Small-scale mock implementation /Prototype content sample campaign, curriculum, service blueprint/Feedback collection from target users/Iteration based on feedback)

- **TRL-3:** Experimental proof-of-concept planned or partially demonstrated/**NSRL-3 (**Non-STEM Readiness Level 3): Proof of Concept & Pilot Validation Stage (Pilot surveys/focus groups/Small-scale mock implementation/Prototype content (sample campaign, curriculum, service blueprint/Feedback collection from target users/Iteration based on feedback)

- The proposal must explicitly specify:
  - Problem definition
  - Proposed technical approach
  - Expected PoC outcome
  - Entry TRL and targeted TRL

Proposals lacking clarity, feasibility, or sufficient technical depth shall be rejected during the scrutiny stage.

A3. Technology Readiness Level (TRL) Requirement

Entry–Exit TRL Mapping (Mandatory)

Parameter	**Requirement**
Entry TRL	TRL-2 or TRL-3/ NSRL-2 or NSRL-3
Exit TRL	TRL-3 or TRL-4 / NSRL-3 or NSRL-4
Minimum Advancement	At least **one TRL/NSRL level**
Validation Method	Experimental results/PoC Demonstration/Service Model Design

A4. Objectives of Part A (6-Month Execution)

The objectives of Part A are to:

- Convert a novel idea into a technically feasible concept
- Establish scientific and engineering feasibility
- Design and develop a functional proof-of-concept
- Validate the concept through **experimental or simulation-based results or Service Model Design**

A5. Review & Monitoring Structure (Scheme-Level Control)

Part A follows a structured, multi-stage review mechanism to ensure technical rigor, progress monitoring, and accountability.

Review-0: Proposal Screening & Sanction (Pre-Implementation)

Purpose:

To assess the originality, relevance, and feasibility of the proposed idea.

Submission Requirements:

- Problem statement
- Literature gap analysis
- Proposed methodology
- Entry TRL/NSRL justification

Outcome: Approved → Project sanctioned under USRIG
Not Approved → Proposal closed

A6. Detailed Month-Wise Execution Plan (06 Months)

Month 1: Problem Definition & Literature Consolidation

Focus: Problem clarity and gap identification.

Activities include literature survey, problem refinement, performance parameter definition, Stakeholder mapping, Initial feasibility thinking (economic, social, cultural) and initial TRL/NSRL validation.

Deliverables:

- Problem definition document
- Literature review summary
- Gap analysis report
- Preliminary impact hypothesis

Review-1: Problem relevance and feasibility approval

Month 2: Conceptual Design & Feasibility Analysis/ Concept Design & Feasibility Validation Stage

Focus: Technical concept development/Feasibility Analysis

Activities include system architecture development, modelling/simulation, and feasibility assessment/ Social & Cultural Feasibility/ Economic /

Financial Feasibility/ Operational Feasibility/ Institutional / Policy Feasibility/ Impact Feasibility

Deliverables:

- Conceptual design document
- Feasibility analysis report
- Feasibility Report
- Stakeholder Validation Evidence
- Impact Framework

Review-2: Concept freeze for PoC development

Month 3: Detailed Design & Planning/ Detailed Service Design & Implementation Planning Stage

Focus: Preparation for PoC realization

Activities include detailed design calculations, component selection, implementation planning Service blueprints, Process workflows, Content systems, Execution roadmaps

Deliverables:

- Detailed design document
- PoC development plan
- Prototype Assets / Deliverables
- Pilot Implementation Plan

Review-3: Approval to initiate PoC development

Month 4: Proof-of-Concept Development/ Pilot Validation Stage

Focus: PoC realization

Activities include fabrication/coding, experimental setup development, and initial functional testing, User Interaction & Experience Testing, Initial Impact Measurement

Deliverables:

- Working PoC (partial or complete)
- Initial test results
- Survey results/interview summaries
- User satisfaction/engagement levels

- Before–after comparison

Month 5: Testing, Validation & Optimization/ Iterative Testing, Validation & Optimization Stage

Focus: Performance validation

Activities include testing, optimization, and corrective actions.

Deliverables:

- Validated PoC
- Performance comparison with objectives
- Filed based Iterative Testing
- User Experience Optimization
- Content / Model Refinement

Review-4: PoC performance validation

Month 6: Final Validation & TRL Demonstration/ Field Validation, Demonstration & Scale-Readiness Stage

Focus: Technical maturity demonstration

Activities include final testing, TRL/NSRL validation, report preparation, and demonstration.

Deliverables:

- Final PoC
- Expanded Field Implementation
- Stakeholder Endorsement
- Scalability & Sustainability Assessment
- TRL/NSRL validation document
- Final technical report

Final Review: Project completion under Part A

- Achieve **documented TRL/NSRL advancement**

A7. Budget Utilization Plan (₹1,00,000 in 06 Months)

FOR STEM INNOVATIONS

Head	Amount (₹)	Description
Consumables & Materials	35,000	Lab & raw materials
Components / Tools	25,000	Sensors, modules
Software / Simulation	15,000	Analysis & design
Testing & Validation	15,000	Experiments
Documentation / Dissemination	5,000	Reports, publications
Travel	5,000	Local
Total	**1,00,000**	

FOR NON-STEM INNOVATIONS

Budget Head	Allocated Amount (₹)
Research & Fieldwork	15,000
Content Development	15,000
Digital Tools & Software	10,000
Training & Capacity Building	10,000
Events & Outreach	15,000
Prototyping (Service Model)	10,000
Documentation & Reporting	5,000
Legal & Compliance	5,000
Collaboration & Networking	5,000
Miscellaneous (Contingency)	10,000
Total	**100000**

A8. Rules & Regulations (Part A)

- The 06 month duration can be extended further for 02 months.
- Demonstration of PoC is mandatory.
- Compliance with review milestones is compulsory.
- No personal expenses or stipends permitted.

- Assets created remains as University property.
- Intellectual property will be governed by University IP Policy
- Failure in final review → project closure under Part A

A9. Expected Outcomes

- Validated proof of concept
- Documented TRL/NSRL advancement
- Technical readiness for Part B of the USRIG scheme
- Scope for publication, patenting, or further development

PART B: PROTOTYPE IMPROVEMENT & TECHNOLOGY READINESS LEVEL (TRL/NSRL) ENHANCEMENT

(FAST-TRACK PROJECT – DURATION: 3 MONTHS)

B1. Purpose and Scope of Part B (03 Months Mode)

Part B of the University Innovator Research & Innovation Grant (USRIG) is a fast-track, outcome-oriented funding component intended exclusively for Innovators who have already developed a functional prototype or trial product. Unlike exploratory research, Part B focuses on engineering refinement, performance improvement, validation, and technology maturity enhancement within a strict three-month timeframe. The primary intent of this part is to enable TRL/NSRL advancement by addressing technical gaps, improving reliability, and demonstrating the prototype in a relevant or simulated operational environment.

B2. Mandatory Eligibility

- Projects submitted under Part B (03 months) must satisfy all of the following conditions:
  1. The Innovator must possess a **working prototype or subsystem**, not merely a design or simulation.
  2. The prototype must correspond to **TRL-4 or TRL-5**, **NSRL-4 or NSRl-5** defined as:
     - **TRL-4:** Technology validated in laboratory environment/ Prototype/Model Development
     - **TRL-5:** Technology validated in a relevant environment/ Pilot implementation
  3. Documentary evidence such as:
     - Prototype photographs
     - Test data
     - Demonstration video

- Prior project report

  must be submitted along with the proposal.

4. The proposal must clearly specify:
   - Current TRL/NSRL
   - Target TRL/NSRL after 3 months
   - Identified technical limitations
   - Planned improvement strategy

B3. TRL/NSRL Assessment

Innovators must clearly specify current TRL/NSRL with evidence and define target TRL/NSRL.

Entry and Exit TRL/NSRL Mapping

Parameter	Requirement
Entry TRL/NSRL	TRL-4 or TRL-5/NSRL-4 or NSRl-5
Target TRL/NSRL	TRL-5/TRL-6/TRL-7/NSRL-5, NSRL-6/NSRL-7
Minimum TRL/NSRL Advancement	**One full TRL/NSRL level (mandatory)**
Validation Method	Test results, demo, committee verification

The success of the project will be judged primarily on TRL advancement, not merely task completion.

B4. Objectives of Part B (3-Month Execution)

The objectives of Part B are to:

- Improve functional performance, accuracy, efficiency, or robustness of the existing prototype
- Eliminate design bottlenecks, component limitations, and failure points
- Enhance reliability, repeatability, and stability

- Validate the system under relevant or simulated operational conditions
- Demonstrate measurable TRL upgradation supported by quantitative evidence.

B5. Mandatory Review & Control Structure

Part B operates under strict milestone-linked control

Review-0: Entry Screening & Sanction Approval (Before Start)

Purpose:

To verify the authenticity and maturity of the existing prototype.

Innovator must submit:

- Physical prototype/Video Demo/Model Development
- TRL/NSRL justification note
- 3-month improvement plan

Outcome:

✓ Approval → funds released

✗ Rejection → proposal closed

B6. Detailed Month-Wise Execution Plan (3 Months)

MONTH 1: Baseline Assessment & Design Finalization

Technical Focus:

Understanding current limitations and freezing the improvement strategy.

Activities:

- Detailed inspection of existing prototype/model
- Baseline performance testing and data recording
- Identification of:
    - Design inefficiencies
    - Component mismatches
    - Control or process limitations

- Root-cause analysis of performance gaps
- Finalization of upgraded design architecture

Deliverables:

- Baseline performance report
- Verified TRL-4/TRL-5/NSRL-4/NSRl-5 assessment
- Approved design modification plan

Review-1 (End of Month 1):

- Validation of baseline TRL
- Approval of finalized improvement plan
- Authorization to proceed further

MONTH 2: Prototype Modification, Integration & Interim Testing/ Model Refinement, Integration & Pre-Pilot Testing Stage

Technical Focus:

Implementation of approved improvements.

Activities:

- Procurement of upgraded components/materials
- Fabrication or modification of subsystems
- Integration of improved components
- Functional testing and debugging
- Interim performance comparison with baseline
- Adjust service flow based on initial feedback
- Fix usability gaps or confusion points

Deliverables:

- Modified / upgraded prototype
- Interim test results
- Partial evidence of TRL/NSRL movement
- Integrated System / Service Blueprint
- Updated SOPs
- Pilot Readiness Confirmation

Review-2 (End of Month 2):

- Verification of improvement trajectory
- Decision on scope correction (if required)

MONTH 3: Validation, Optimization & TRL Demonstration

Technical Focus:

Demonstrating maturity and readiness.

Activities:

- Performance optimization
- Reliability, stress, and repeatability testing
- Validation in relevant or simulated environment
- Multi-site/multi-group implementation
- Demonstration across diverse contexts
- Documentation of achieved TRL
- Preparation of final technical report

Deliverables:

- Final improved prototype
- Quantitative performance metrics
- Comprehensive Validation Report
- Impact Assessment Report
- Optimized & Finalized Model
- Replication/Scale Toolkit
- Scalability & Sustainability Plan
- Performance Benchmarks
- TRL-5/TRL-6/TRL-7/NSRl-5/NSRl-6/NSRL-7 validation document
- Final project report

Final Review (End of Month 3):

✓ TRL advancement verified → project successful

✗ TRL not achieved → project declared unsuccessful

B7. Budget Utilization Plan (₹1,00,000 – 3 Months)

Head	Amount (₹)	Description
Advanced Components	40,000	Sensors, controllers, actuators
Fabrication & Machining	30,000	Structural / mechanical upgrades
Testing & Validation	15,000	Performance & reliability testing
Software/Simulation	10,000	Optimization & analysis
Documentation/Local Travel	5,000	Final report, disclosure
Total	**1,00,000**	

B8. Rules & Regulations (Non-Negotiable)

1. 03-month duration is non-extendable
2. TRL/NSRL advancement is mandatory
3. No personal expenses or stipends allowed
4. Funds strictly for approved technical heads
5. Assets created remain University property
6. IP governed by University IP Policy
7. Failure at final review → funding closed

B9. Final Expected Outcomes

- Technically improved and validated prototype
- Documented TRL/NSRL upgradation
- Readiness for industry/defence translation
- Scope for patent, startup, or external funding

TRL Level	STEM Meaning	NSRL Level	Non-STEM Equivalent
TRL-1	Basic principles observed	NSRL-1	Problem identification
TRL-2	Concept formulated	NSRL-2	Concept & theoretical foundation
TRL-3	Proof of concept	NSRL-3	Controlled validation / PoC
TRL-4	Lab validation	NSRL-4	Prototype/model development
TRL-5	Validation in relevant environment	NSRL-5	Pilot implementation
TRL-6	Prototype demonstrated	NSRL-6	Validation & refinement
TRL-7	System prototype in operation	NSRL-7	Scale readiness
TRL-8	System complete & qualified	NSRL-8	Large-scale deployment
TRL-9	Proven in real-world	NSRL-9	Sustainable impact & institutionalization

Proposed By

Prof. Dr. Ganesh Kakandikar
Dean-Innovation, Startup and Collaboration

Approved By

Dr. Prasad Khandekar
Chief Academic Officer

Approved By

Mr. Ganesh Pokale
Registrar

Approved By

Dr. R. M. Chitnis
Vice-Chancellor