



CYBERSECURITY MANUFACTURING INNOVATION INSTITUTE

Cybersecurity in Energy Efficient Manufacturing

Trustworks-as a Service (Trustworks-aaS)

Request for Proposals (RFP) - OT Network Security for Manufacturing Environments

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Released by: The Cybersecurity Manufacturing Innovation Institute (CyManII)

| Key Dates for this Request for Proposal | |
|-----------------------------------------|----------------------------|
| RFP Release | 16 MAY 2022 |
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| Notification of Selection | 25 JULY 2022 |
| Anticipated Award Date | 09 SEPTEMBER 2022 |

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1 Request for Proposal

1.1 CyManII Background

The goal of the Cybersecurity Manufacturing Innovation Institute (CyManII, pronounced 'sī-man-ē) is to implement a national vision for manufacturing cybersecurity that unleashes American innovation for decades to come. The intelligent transformation of manufacturing enables dramatic increases in overall equipment energy efficiency, which maximizes energy efficiencies, reduces carbon and other emissions, reduces cost, and maximizes innovation. This transformation is critical if the U.S. is to be the global leader in manufacturing. The intelligent (combined physical, cyber, and energy layers in legacy & new) transformation of manufacturing creates new and larger cyber-attack surfaces that are challenging and expensive to secure. This is the moment for a revolution in intelligent manufacturing, which requires starting with an Energy-Efficient (ϵ) Pervasive, Un-obtrusive, Resilient, Economical (ϵ -PURE) secure manufacturing architecture that enables energy efficiency return on investment (ϵ -ROI) as the justification for a secure measurement and verification across the nation's integrated automation and supply chain. How we secure this transformation will determine the future of U.S. manufacturing. CyManII is run by the University of Texas at San Antonio.

1.2 Trustworks as a Service (Trustworks-aaS) Background and Goals

Trustworks-aaS is the CyManII program that will translate technical innovations to industrial applications and support a cultural shift towards cybersecurity in U.S. manufacturing. TrustWorks-aaS is a services-based organization that provides technical services and education to manufacturers in support of cyber-secure energy efficient solutions. TrustWorks-aaS will provide U.S. Manufacturers and stakeholders with resources to: (1) upskill their students and employees with relevant and meaningful content and experiences, (2) assess their systems for unique vulnerabilities and implement cyber-secure, energy-efficient solutions based on ϵ -PURE principles, and (3) explore localization of CyManII's methods, approaches, and solutions to improving cyber-secure and energy-efficient operations within their enterprise.

Through the educational directives of TrustWorks-aaS, CyManII has a bold goal to educate 1 million learners in IT/OT security by 2025. A dual-pronged approach has been adopted where a targeted learning strategy will address immediate upskilling needs of today's workers through online training, bootcamps, and workshops, while a long-range strategy will support continued education and upskilling at depth through degree programs, apprenticeships, and internships. In support of the targeted learning strategy, CyManII is soliciting proposals to develop scalable online learning programs focused on critical topics. The solicited training programs will be delivered under the CyberCRED initiative, which focuses on providing efficient cyber training for today's manufacturing workforce.

CyberCREDs are accessible, relevant, and applied training experiences aimed at upskilling today's manufacturing workforce with cybersecurity skills. They are designed to maximize scale and reach using asynchronous online delivery with the working professional in mind, but they can be modified for in-person and synchronous delivery. CyberCREDs will be hosted and delivered through the TrustWorks-aaS online learning management system, but may be adapted for delivery on other systems by other educational providers.

1.3 Request for Proposal (RFP)

A project will be awarded **only in the following technical objective area**. The projects must be executed in an agile manner, using CyManII's Technical Innovation Infrastructure (TII) and processes, by an interdisciplinary team. A team ideally includes a manufacturer, and one or more of the following: a systems integrator, an app vendor, a college or university, National Laboratory, a machine builder or Original Equipment Manufacturer (OEM), and other manufacturers, especially small- and medium-sized manufacturers.

- **TrustWorks:** CyManII will develop TrustWorks to enable market transformation by driving broad and deep adoption of SMA, CVA, and other innovations by companies to ensure that CyManII technical innovations are properly introduced to the workforce. This project will focus on development of training for the following topic.
 - OT Network Security for Manufacturing Environments.

2 Technical Project Topic - OT Network Security for Manufacturing Environments

The project includes the design, development and dissemination of a CyberCRED according to the design requirements and the project description below.

2.1 PROJECT DESIGN REQUIREMENTS

2.1.1 Functional Requirements

- The CyberCRED is compatible with the OpenEdX platform.
- The CyberCRED allows for learner measurement and tracking of progress and performance via xAPI.
- The CyberCRED is ADA compliant.

2.1.2 Curriculum Design

- The CyberCRED is designed using a modular format, with modules taking no longer than 10 minutes each.
- The CyberCRED allows for different levels of mastery (such as, Levels I – III).
- The CyberCRED leverages competency-based learning.
- The CyberCRED incorporates CyManII tools, concepts, and methods where appropriate.
- The CyberCRED will reflect a pre-test and a post-test to measure efficacy.
- The CyberCRED will map to CyManII's curriculum design guidelines and evaluation criteria (CyManII Curriculum Design Guidelines can be downloaded at http://www.cymanii.org/UTSA_RFP2).

2.1.3 Engagement Design

- The CyberCRED uses auditory and visual recordings to present information and content.
- The CyberCRED uses web-based interaction techniques to promote learner engagement.
- The CyberCRED uses available CyManII tools to promote learner engagement.
- The CyberCRED uses high-quality graphics and visual aids where appropriate.
- The CyberCRED is developed for asynchronous and self-paced delivery.

2.2 PROJECT DESCRIPTION

CyberCRED Title: OT Network Security for Manufacturing Environments

Summary: This program helps enable employees of small to medium manufacturers to protect their own OT equipment by understanding relevant threats to their company, their unique exposure levels, and methods for improving the network security architecture of their organization.

Learning Outcomes: Learners will be able to

- Design a secure OT Network
- Implement processes for securing and maintaining OT Networks
- Identify common flaws in OT Network Design
- Identify common attack tactics and techniques for OT Networks
- Understand different framework reviews (NIST, CISA, IEC, ISO, IMO, etc.)

Audience: This CyberCRED is designed for manufacturing professionals including but not limited to, technical and operational management, IT/OT technicians, OT asset managers, equipment developers, and OT maintenance technicians.

Time Commitment: This CyberCRED will require approximately 12 hours of learner engagement, with a minimum of 8 instructional-hours. The remaining 4-hours may be dedicated to assignments and assessments.

3 Award Information

3.1 Estimated Funding

CyManII intends to make one award for an amount between \$50,000 - \$350,000 from Texas State Legislative Appropriated Special Item funds. These funds will require a minimum 20% cost share commitment from awardee. CyManII is not obligated to make any awards under this RFP.

3.2 Period of Performance

Maximum of 12 months; executed between 8/1/2022 and 7/31/2023.

3.3 Subaward

All awardees will be required to sign a CyManII Master Sponsored Research Agreement (MSRA) and a project agreement. Drafts of the MSRA and project agreement can be requested at UTSA_RFP2@Cymanii.org.

3.4 Intellectual Property

At the time of execution of a Project Agreement under the MRSA, all parties will agree on specific IP terms.

4 Eligibility Information

4.1 Requirements to Receive Funding

- The Point of Contact (POC) is approved for access to the CyManII TII.

- Significant cost share is required to complement the funds provided directly by CyManII. 20% cost share of the total allowable cost of the project is required. Higher cost share percentages are strongly encouraged. (See section 5 for further detail on cost share.)

4.1.1 Teaming

Teaming is encouraged and will be considered during evaluation. A team may include one or more of the following: a training organization, an academic institution, a manufacturer, especially small- and medium-sized manufacturers, systems integrator, an app vendor, a machine builder or Original Equipment Manufacturer (OEM). For any teaming arrangement, a lead organization shall be identified.

4.1.2 Project Team Members

All team members must be domestic entities. To qualify as a domestic entity, the organization must be incorporated (or other-wise formed) under the laws of a State or territory of the United States with majority domestic ownership or control and have a physical place of business in the United States.

5 Cost Share

A minimum cost share of 20% of total project cost is required. Where teaming occurs, cost share will be considered in aggregate. The lead organization must ensure that the cost share requirement is met. Letters of cost share commitment, signed by a representative with approval to bind the organization, are required to be submitted with all proposals.

Any cost share provided through award of a selected proposal may be used to fulfill the cost share requirements of CyManII membership.

6 Proposal Submission Requirements

6.1 General

Proposals must be submitted via email at UTSA_RFP2@Cymanii.org. Proposals must be received by the due date specified in Section 8 of this document. Late proposals will not be accepted.

Please check http://www.cymanii.org/UTSA_RFP2 for any updates to this RFP.

Must be written in English Language

- All pages must be 8.5 x 11-inch with margins of no less than one inch on every side.
- Proposals must use Times New Roman or Calibri font, no smaller than 12 point, and at least 1.0 line spacing.
- Tables and figures may use not smaller than 10-point font and at least 1.0 line spacing.
- Proposals must be in a .pdf or .doc format.
- Do not include any proprietary information in proposals.
- RFP templates are located at http://www.cymanii.org/UTSA_RFP2.

6.2 Proposal

A project proposal may respond to more than one technical topic, or proposers may submit more than one project proposal.

Cover Page and Abstract – Limited to 1 page. See APPENDIX A

Proposal Narrative – Limited to 5 pages. Provide technical approach to solving the problem statement described in Paragraph 2 above. Title page is excluded from page count. Offerors shall provide substantiating data that is complete specific, and relevant only to the specific requirement to be achieved. Offerors shall identify any risks in meeting the requirements. A mitigation plan associated with each identified risk shall be provided. See APPENDIX B.

Management Volume – No page limit. Provide CV/resumes of team members, details on any special facilities or other resources available for effort, proposed schedule, and risk assessment and mitigation plan. See APPENDIX C.

CyManII Cost Summary Form – The CyManII cost summary form shall be completed detailing total project costs. One Budget Justification form from each organization expecting an agreement with CyManII shall be submitted. See APPENDIX D. Go to http://www.cymanii.org/UTSA_RFP2 to get a copy of this form, or request one via email at UTSA_RFP2@Cymanii.org.

Cost Share Letter of Commitment – Using the template provided in APPENDIX E, provide a cost share letter of commitment that details type, valuation, and benefit to CyManII signed by an authorized representative of the organization. Committed cost share for CyManII membership requirements may be utilized to fulfill this requirement.

7 Evaluation and Selection Criteria

7.1 Evaluation Criteria

These are the criteria by which each proposed project will be evaluated.

A. Technical Competency (Weight: 30%)

- The proposed project's objectives are clearly stated, well-conceived, and technically feasible.
- The proposed project fully addresses the technical topics and intended audience as described in Section 2.2 of this RFP.
- The proposed project has potential to make a valuable contribution to the competitiveness of U.S. manufacturing.
- The technical competency, industrial experience, and instructional design experience in the manufacturing IT/OT security field needed to complete this project.
- The extent to which the proposed project's plan, methods, analysis, and technology are described to be clear, complete, well integrated, and appropriate to the proposed project's technical objectives and project design requirements.
- The extent to which the proposed project material is original, innovative, and unique.

B. Dissemination (Weight: 40%)

- A network to support the dissemination of the content at scale to the intended audience.
- A history of designing workforce training that considers diversity and underserved communities, particularly in technical fields.

C. Production Capacity and Capabilities (Weight: 30%)

- Likelihood that the proposed work can be accomplished within the proposed performance period by the proposal team, given their organizational diversity, experience, expertise, past accomplishments, available resources, institutional commitment, and access to technologies.
- Clarity, completeness and appropriateness of the project plan and timeline.
- Clarity, logic, and effectiveness of the project organization, including team members to successfully complete the project. Credentials, capabilities, experience of the key personnel.
- Adequacy and availability of personnel, facilities, and equipment (both hardware and software) to perform the proposed project within proposed performance period.
- The production resources and tools to complete the project (instructional designers, videographers and graphics capabilities, SCORM/xAPI developers, subject matter experts).
- Experience with asynchronous online education, specifically with workforce development and curriculum design for an applied industrial/manufacturing audience.
- The ability to create and maintain interactive virtual educational experiences in support of the project objectives beyond passive engagement.

7.2 Project Selection Criteria

CyManII will select projects that are complementary and support the accomplishment of CyManII’s goals and objectives. This will include the following criteria:

- A. Meets strategic goals of the Institute
- B. Fit with current Budget Period (BP) funding profiles
- C. Cost-efficient use of CyManII funds and degree of technical amplification/acceleration/innovation with cost share resources
- D. Cross-industry applicability and broad-based relevance and impact
- E. Commitment to use of the CyManII Technical Innovation Infrastructure
- F. Full compliance with CyManII requirements
- G. High-level fit to create balance in the Institute’s portfolio of work
- H. Whether the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty
- I. Makes available new/unique capabilities and resources that are relevant to CyManII’s mission

8 Proposal Due Date and Award Timeline

| | |
|---------------------------|----------------------------|
| RFP Release | 16 MAY 2022 |
| Proposal Due Date | 20 JUNE 2022, by 5:00pm CT |
| Notification of Selection | 11 JULY 2022 |
| Anticipated Award Date | 25 AUGUST 2022 |

9 Other Information

Please send all questions regarding this RFP to UTSA_RFP2@Cymanii.org

10 Appendices

Proposal Cover Page and Abstract

| | |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Title | |
| Technical Project Topics | <input type="checkbox"/> 2.1 <input type="checkbox"/> 2.2 <input type="checkbox"/> 2.3 <input type="checkbox"/> 2.4 <input type="checkbox"/> 2.5 |
| Period of Performance | |
| Project Cost Summary (all team members combined) | Total Project cost share provided: \$ Total CyManII funding requested: \$ Total project cost: (Cost Share + CyManII) |
| Member 1 Cost Summary Organization: _____ | Cost share provided: \$ CyManII funding requested: \$ |
| Member 2 Cost Summary Organization: _____ | Cost share provided: \$ CyManII funding requested: \$ |
| Member 3 Cost Summary Organization: _____ | Cost share provided: \$ CyManII funding requested: \$ |
| Project Executive Summary/Abstract: | |
| | |
| Project Team Members: | <i>Please list all organizations on team and their locations.</i> |
| Lead Organization: | |
| Technical POC: Name: Title: Organization: Phone: Email: | Administrative POC: Name: Title: Organization: Phone: Email: |

Proposal Narrative (maximum 5 pages)

A. Project Goals and Objectives:

Describe the primary goals and objectives of the proposed project.

B. Approach:

Describe the technical approach for addressing the challenges and delivering the results needed as described in the technical project topics(s) in Section 2.

C. Tasks:

Provide a structured narrative of the tasks, subtasks, and associated milestones and deliverable.

D. Deliverables:

Required Deliverables (in addition reporting requirements in the corresponding CyManII Master Sponsored Research Agreement (MSRA)).

- Project briefing for the kickoff meeting
- Detailed Project Plan
- Course Plan
- Mid-point draft of the product to-date including a demonstration narrative and briefing.
- Final product that includes fully detailed demonstration narrative, briefing, and underlying technical artifacts. All xAPI compliant files. All original project files from the content management system (CMS) as well as any original multimedia files to include xAPI, video content, native image files, e-book, textbook, etc.
- Condensed demonstration narrative and briefing for CyManII members and potential learners
- Other deliverables as the proposer deems appropriate such as i.e. implementation guides. This can include scenarios, activities, exercises, and job aides to be used in conjunction with the CyberCRED.

E. Summary Schedule and Milestones Table (not part of the page limit for the Proposal Narrative):

Provide a summary schedule with dates/ranges for key milestones and tasks.

Provide a milestone summary table. Below, is an initial/minimum milestone table.

| Milestone Summary Table | | | | |
|--------------------------------|-------------|-----------------------|----------------------------------------------------------------------------|-----------|
| (Sub)Task#, Name | Milestone # | Milestone Name | Acceptance Criteria | Due |
| 1.0 Preparation | MS-1.1 | Kick-off Meeting | Project technical leadership and management attend joint project kick-off. | Week 1 |
| 1.0 Preparation | MS-1.2 | Detailed Project Plan | A detailed project plan and schedule is developed. | Week 2 |
| x.x Design | MS-n.n | Training Outline | A course plan is presented and approved. | |
| x.x Development | MS-n.n | Draft | Demonstration of work to date to CyManII technical leadership. | Mid-point |
| x.x Development | MS-n.n | Final Product | CyManii accepts a final demonstration and materials on all work completed. | |
| x.x Deployment | MS-n.n | Integration | Digital product is successfully offered on CyManII LMS | Last week |

Management Volume

Project Title:

Submitting Organization & Teaming Organizations:

Special Resources:

Please provide details on any special facilities or other resources available for effort.

Risk Assessment & Mitigation Plan:

Please identify any anticipated risk and provide a plan to mitigate the effects of such risk.

CyManII Cost Summary Form

(A fillable Excel version of this form is available at http://www.cymanii.org/UTSA_RFP2)

CYMANII COST SUMMARY FORM

| | | | | | | |
|-----------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|-----------------------------------|---------------------|------------|------------|
| Organization Name | | | Total Period of Performance | | | |
| Organization Address | | | Proposal Title | | | |
| Administrative Contact: Phone Number: Email Address: | | | Total Amount of Proposal USD\$ | | | |
| Cost Data provided by Participant will be treated as Proprietary to Participant. | | | | | | |
| | | | | Funding Requirement | Cost Share | Total Cost |
| 1 Direct Labor | | | | | | |
| <u>Position Title</u> | <u>Hours</u> | <u>Pay Rate</u> | | | | |
| a. Position Title | | | | | | \$ - |
| b. Position Title | | | | | | \$ - |
| c. Position Title | | | | | | \$ - |
| d. Position Title | | | | | | \$ - |
| TOTAL DIRECT LABOR | | | | \$ - | | \$ - |
| 2 Indirect Costs - See * note below for further requirements | | | | | | |
| <i>Fill out as applicable</i> | | <u>Rate</u> | | | | |
| a. Fringe Benefits | | | | | | \$ - |
| b. Material Overhead | | | | | | \$ - |
| c. Labor Overhead | | | | | | \$ - |
| d. General & Administrative | | | | | | \$ - |
| e. Other | | | | | | \$ - |
| TOTAL INDIRECT COSTS | | | | \$ - | \$ - | \$ - |
| 3 Direct Costs - Insert rows as necessary | | | | | | |
| | <u>Item Description</u> | <u>Qty</u> | | | | |
| a. Equipment | | | | | | \$ - |
| b. Supplies | | | | | | \$ - |
| c. Contractual | | | | | | \$ - |
| d. Meetings & Conferences | | | | | | \$ - |
| e. Other | | | | | | \$ - |
| TOTAL DIRECT MATERIAL | | | | \$ - | \$ - | \$ - |
| 4 Project Related Travel - Only include travel necessary for project proposed | | | | | | |
| a. Domestic | | | | | | \$ - |
| b. Foreign | | | | | | \$ - |
| TOTAL TRAVEL COSTS | | | | \$ - | \$ - | \$ - |
| 5 Total Estimated Cost | | | | \$ - | \$ - | \$ - |
| This proposal reflects our best estimates as of this date, in accordance with the instructions to participants. | | | | | | |
| Typed Name and Title | | | Signature | | Date | |

Cost Share Letter of Commitment

Date

Entity Name
Entity Point of Contact
Entity Address

Subject: Entity Name Cost Share Commitment for Proposal No. _____

Description

Please describe the type of cost share committed and how it applies to the proposal and/or benefits CyManII. Include a note if utilizing committed membership fee cost share.

Valuation

Please detail the valuation method used to determine the amount of cost share. Include any quotes or additional documentation as needed.

Signature of Entity Authorized Representative

Name
Title