# Expression of Interest (EOI) for selection of Technology Partner to setup a Centre of Excellence for imparting high-end skill training, Industrial Consultancy & Research works in the Field of Industry 4.0 & Digitalization

# Visvesvaraya National Institute of Technology, Nagpur

South Ambazari Road, Nagpur, Maharashtra 440010

Phone: +917122801364 Email: registrar@vnit.ac.in

#### RFP No. VNIT/EOI/01

- 1. Director, VNIT Nagpur invites proposals from eligible firms for "Selection of a Technology Partner to set up a Centre of Excellence for Research & Development and imparting high-end skill training in the **field of Industry 4.0 & Digitalization.**
- 2. Participating Agencies must fulfill the following pre-requisites:

S. No	Pre-Qualification Criteria
1	Technology Partner should be a company recognized for providing technological products in the technology areas listed in the technical Section 4. They may execute it through their Authorized Partner and thereby name the Authorized Partner as Execution Partner
2	Technology Partner (TP) and the Execution partner should be an entity registered in India under the Companies Act/ LLP Act/ Societies Registration Act or as a Trust.
3	Technology partner should have been in existence for at least 10 years
4	Technology partner or the Execution partner should not have been blacklisted by any Government/ Department/ Body.

- 3. The documents may be downloaded free of cost from the website <a href="www.vnit.ac.in">www.vnit.ac.in</a>
- 4. Interested firms shall submit the EOI and RFP in the prescribed format up to 5:00 pm on 17.10.2019.
- 5. The proposals shall be submitted to the Office of the Registrar, Visvesvaraya National Institute of Technology, Nagpur, in a sealed envelope.
- 6. The duly filled proposal in proper format should be submitted in person or sent by courier, registered/ speed post etc., to The Registrar, Visvesvaraya National Institute of Technology, Nagpur, South Ambazari Road, Nagpur, Maharashtra 440010. Each page of the proposal should be signed by the competent authority of the applicant.

Date: 03.10.2019

7. All amendments, time extension, clarifications etc. will be uploaded on the website only and will not be published in newspapers. The interested parties should regularly visit the website to keep themselves updated.

# **Key dates:**

Sl.	Description	Important Information
1.	Date of Invitation for proposals	03.10.2019
2.	Due date for downloading the documents	17.10.2019
3.	Due date & time for submission of proposals	17.10.2019 up to 5 p.m.
4.	Date of opening of response to RFP	17.10.2019 at 5.30 p.m.
5.	Declaration of Final shortlisted Agency	Will be notified to the selected party
6.	Tentative Date of MOA Signing	Will be notified to the selected party
7.	Release of PO and advance	Will be notified to the selected party

## Registrar

Visvesvaraya National Institute of Technology, Nagpur

# **SELECTION OF Technology Partner**

# **Expression of Interest and Request for Proposal**

EOI and RFP for selection of Technology Partner to set up an Center of Excellence for imparting high-end skill training in the Field of Industry 4.0 & Digitalization

Visvesvaraya National Institute of Technology, Nagpur South Ambazari Road, Nagpur, Maharashtra 440010 Phone: +917122801364 Email: registrar@vnit.ac.in

Issued on: 03.10.2019

# **TABLE OF CONTENT**

Sect	ion 1	. Introduction	6
Sco	ope of	the Project	6
Ob	jectiv	e	6
Sect	ion 2	2. Instructions to Technology Partner (ITL) and Data Sheet	8
Α.		neral Provisions	
	1.	Definitions	8
	2.	Introduction	
	3.	Conflict of Interest	9
	4.	Corrupt and Fraudulent Practices	9
	5.	Eligibility	9
B.	Prej	paration of Proposal	10
	6.	General Consideration	10
	7.	Cost of Preparation of Proposal.	10
	8.	Language	10
	9.	Documents Comprising the Proposal	10
	10.	Proposal Validity	10
	11.	Clarification and Amendment of RFP	10
	12.	Proposal Format and Content	11
	13.	Commercials	11
	14.	Revenue Sharing.	11
C.	Prej	paration of Proposal	11
	15.	Submission, Sealing, and Marking of Proposal	11
	16.	Confidentiality	12
	17.	Opening of Proposals	12
	18.	Proposals Evaluation	12
	19.	Evaluation of Proposals	12
D.	Neg	otiations and Award	13
	20.	Negotiations, if needed	13
	21.	Conclusion of Negotiations	13
	22.	Award of Contract	13
E.	Dat	a Sheet	14

Section 3. Proposal – Standard Forms	17
Section 4. Technical Scope	18
Concept	18
Role of the TP and their Execution Partner	18
Digital Manufacturing	19
Digital Twin	19
Supply of labs/Items:	20
Scope of Services:	24

## **Section 1. Introduction**

## **Scope of the Project**

VNIT Nagpur is inviting an expression of interest from Technology Providers to setup a Center of Excellence that focuses on upcoming manufacturing technologies related to industry 4.0 & Digitalization at VNIT Nagpur.

It is a turnkey project where the Technology Provider will be responsible for the supply of the technological product / lab Hardware and software, commissioning of it and should run the lab along with the institute faculty for a period of 3 Years. It must be state-of-the-art and industry relevant and should cater to the current and futuristic requirements of the industry.

VNIT Nagpur will provide infrastructure to setup the Center of Excellence. The Technology Provider (Technology Partner) should provide a grant of at least 80% on total project value and the balance will be provided as seed funding from the Institute. The Technology Partner once selected must sign a Memorandum of Agreement (MOA). The services proposed in the CoE can be provided directly by the Technology Partner or through their authorized partner

The Center of Excellence should be an interdisciplinary, industry backed center focused on developing skill excellence in the field of Design, Digitalization and Industry 4.0. Through the training and implementation of industry-relevant technology and processes, the center should facilitate a multi-disciplinary learning environment across Technology, Engineering, and Science and Management faculties. It should meet the demands of the industries' ever-changing processes and help build skills around collaboration and innovation. The center should leverage the Technology Partner's capability to draw upon the expertise from various areas of automotive, automotive suppliers, Aerospace, Defense and their suppliers, Industrial Engineering, Electrical and Process Industries such as Pharma, Food and Beverage, Chemical etc. and provide its partners with knowledge and tools.

The center should focus on Research and Development and bridge the skill gap of students' visà-vis Todays industry needs and impart state-of-the-art industry-oriented training. The mission of this Centre of Excellence should be to promote advancement and implementation of advanced digitalization in manufacturing concepts through research and education partnership with the industry.

# **Objective**

The COE should bridge the skill gap of students vis-à-vis industry needs and impart state-of-theart industry-oriented training to help foster significant innovation and learning in technical education. The mission of the Centre of Excellence should be to promote implementation & advancement of Product Lifecycle Management and advanced digital manufacturing-factory concepts through research and education partnership with the industry.

- 1. The center is aimed at Industry connected skill development programs and hence the proposal should also have a MOA with leading Technology Company.
- 2. This center should be on Build, Operate and Transfer Mode.
- 3. All the Hardware should be of industrial standards.
- 4. The software should not be restricted to educational limits. Should be provided with industrial features allowing the Client to offer Industrial consultancy and research as well, apart from the skill development.
- 5. The Technology Partner can depute their authorized partner for executing the COE in terms of supply and running the center. However the proposal should have a clear information on who is the Execution partner and who is the Technology Partner.

In this proposal, we invite Technology Partners to set up Centre of Excellence in Industry 4.0 and Digitalization with VNIT, Nagpur to address industrial needs of skill development and consultancy in the areas of engineering, product design & development and advanced manufacturing technologies towards the following domains:

- 1. Automotive passenger vehicles, commercial vehicles
- 2. Aerospace
- 3. Industrial machinery off highway vehicles, farm equipment and implements, electrical and mechanical machineries
- 4. Industry 4.0
- 5. Digital Factories.
- 6. Ship Building
- 7. Industrial Automation
- 8. Bio Medical Engineering

# Section 2. Instructions to Technology Partner (ITL) and Data Sheet

# A. General Provisions

Г	
1. Definitions	1.1. "Applicable Guidelines" means the policies of MHRD governing the selection and Contract award process as set forth in this RFP.
	1.2. "Applicable Law" means the laws and any other instruments having the force of law in India, as they may be issued and in force from time to
	time.
	1.3. "Client" means Visvesvaraya National Institute of Technology, Nagpur.
	1.4. "Technology Partner (TP)" means a legally- established firm or an entity that is contracted with under this Contract.
	1.5. "Contract" means a legally binding written agreement signed between the Client and the TP and includes all additional documents as may be specified by the Client.
	1.6. "Data Sheet" means an integral part of the Instructions to TPs (ITL) Section 2 that is used to reflect specific assignment conditions to supplement, but not to over- write, the provisions of the ITL.
	1.7. "Day" means a calendar day.
	1.8. "Experts" means, collectively, Key Experts, Non-Key Experts, or any other personnel of the TP, Sector Partner or Consortium member(s).
	1.9. "Government" means the Government of India.
	1.10. "Joint Venture (JV)" means an association with or without a legal personality distinct from that of its members, where one member has the
	authority to conduct all business for and on behalf of any and all the members of the JV, and where the members of the JV are jointly and severally liable to the Client for the performance of the Contract.
	1.11. "Key Expert(s)" means an individual professional whose skills, qualifications, knowledge and experience are critical to the performance of the Services under the Contract.
	1.12. "ITL" (this Section 2 of the RFP) means the Instructions to TPs that provides the TPs with all information needed to prepare their Proposals.
	1.13. "Non-Key Expert(s)" means an individual professional provided by the TP or its Sector Partner and who is assigned to perform the Services or any part thereof under the Contract.
	1.14. "Proposal" means the response to this Request for Proposal" submitted by the TP.
	1.15. "RFP" means the Request for Proposals to be prepared by the Client for the selection of TP.
	1.16. "Services" means the work to be performed by the TP pursuant to the Contract.
	1.17. "TOR" means the Terms of Reference that explain the objectives, scope of work, activities, and tasks to be performed, respective responsibilities of the Client and the TP, and expected outcomes.
2. Introduction	2.1. The Client named in the Data Sheet intends to select a TP in accordance with the method of selection specified in the Data Sheet.
	<ul><li>2.2. The TPs are invited to submit a Proposal for the Labs named in the Data</li></ul>
L	To see an incertain a proposal for the Europe named in the Bata

		1	Chart The Decreased will be the basis for prosticting and ultimately
			Sheet. The Proposal will be the basis for negotiating and ultimately
		2.2	signing the Contract with the selected TP.
		2.3.	The TPs should familiarize themselves with the local conditions and take
	C (1)	2 1	them into account in preparing their Proposals,
3.	Conflict of	3.1.	The TP is required to provide services, at all times holding the Client's
	Interest		interest paramount, strictly avoiding conflicts with other assignments or
			its own corporate interests and acting without any consideration for
			future work.
		3.2.	The TP has an obligation to disclose to the Client any situation of actual
			or potential conflict that impacts its capacity to serve the best interest of
			its Client. Failure to disclose such situations may lead to the
			disqualification of the TP or the termination of its Contract and/or
			sanctions by the Client.
		3.3.	Without limitation on the generality of the foregoing, the TP shall not be
			hired under the circumstances set forth below:
		3.4.	Conflict among projects: An TP will not setup similar COEs at a
			vicinity of 200KM of the client.
		3.5.	Conflicting Relationship: Relationship with the Client's staff: an TP
			(including its Experts) that has a close business or family relationship
			with a professional staff of the Client, who are directly or indirectly
			involved in any part of (i) the preparation of the Terms of Reference for
			the assignment, (ii) the selection process for the Contract, or (iii) the
			supervision of the Contract, may not be awarded a Contract, unless the
			conflict stemming from this relationship has been resolved in a manner
			acceptable to the Client throughout the selection process and the
			execution of the Contract.
4.	Corrupt and	4.1.	Client requires compliance with its policy with regard to corrupt and
	Fraudulent	4.0	fraudulent practices.
	<b>Practices</b>	4.2.	In further pursuance of this policy, TPs shall permit and shall cause their
			Experts, Partners, sub-contractors, services providers, or suppliers to
			permit the Client to inspect all accounts, records, and other documents
			relating to the submission of the Proposal and contract performance (in
			case of an award), and to have them audited by auditors appointed by the
			Client.
5.	Eligibility	5.1.	The Client permits TPs (individuals and firms, including Joint Ventures
			and their individual members) from all countries to offer services under
		5.0	this contract unless otherwise blacklisted
		5.2.	Furthermore, it is the TPs responsibility to ensure that its experts, joint
			venture members, partners, agents (declared or not), sub-contractors,
			service providers, suppliers and/or their employees meet the eligibility
		5.3	requirements as established in this document.
		5.3.	Government Government-owned enterprises or institutions in India shall
			be eligible only if they can establish that they (i) are legally and
			financially autonomous, (ii) operate under commercial law, and (iii) that
			they are not dependent agencies of the Client. To establish eligibility,
			the government-owned enterprise or institution should provide all
			relevant documents (including its charter) sufficient to demonstrate that
			it is a legal entity separate from the government; it does not currently
1			receive any substantial subsidies or budget support; it is not obligated to

	pass on its surplus to the government; it can acquire rights and liabilities,
	borrow funds, and can be liable for repayment of debts and be declared
	bankrupt; and it is not competing for a contract to be awarded by the
	government department or agency which, under the applicable laws or
	regulations, is its reporting or supervisory authority
5.4.	Government officials and civil servants in India are not eligible to be
	included as Experts in the TP's Proposal unless such engagement does
	not conflict with any of the provisions of this engagement or
	employment or other laws, regulations, or policies of India.

# **B.** Preparation of Proposal

(	Comorol	6.1.	In preparing the Proposal, the TP is expected to examine the RFP in
0.	General	0.1.	
	Consideration		detail. Material deficiencies in providing the information requested in
			the RFP may result in rejection of the Proposal.
7.	Cost of	7.1.	The TP shall bear all costs associated with the preparation and
	Preparation of		submission of its Proposal, and the Client shall not be responsible or
	Proposal		liable for those costs, regardless of the conduct or outcome of the
	Troposar		selection process. The Client is not bound to accept any proposal, and
			reserves the right to annul the selection process at any time prior to
			Contract award, without thereby incurring any liability to the TP.
R	Language	8.1.	The Proposal, as well as all correspondence and documents relating to
0.	Language	0.1.	the Proposal exchanged between the TP and the Client, shall be written
			in the English.
9.	<b>Documents</b>	9.1.	The Proposal shall comprise the documents and forms listed in the Data
	Comprising the		Sheet.
	Proposal		
10	D 1	10.1	
10.	. Proposal	10.1.	The Data Sheet indicates the period during which the TP's Proposal
	Validity		must remain valid after the Proposal submission deadline.
		10.2.	During this period, the TP shall maintain its original Proposal without
			any change.
		10.3.	If it is established that any Key Expert nominated in the TP's Proposal
			was not available at the time of Proposal submission or was included in
			the Proposal without his/her confirmation, such Proposal shall be
			disqualified and rejected for further evaluation.
9)	Extension of	10.4.	The Client will make its best effort to complete the negotiations within
aj	Validity Period		the proposal's validity period. However, should the need arise, the Client
	validity refloc		may request, in writing, all TPs who submitted Proposals prior to the
			submission deadline to extend their Proposals' validity.
		10.5.	If the TP agrees to extend the validity of its Proposal, it shall be done
			without any change in the original Proposal.
		10.6.	The TP has the right to refuse to extend the validity of its Proposal in
			which case such Proposal will not be further evaluated.
11.	. Clarification and	11.1.	The TP may request a clarification of any part of the RFP during the
	Amendment of		period indicated in the Data Sheet before the Proposal's submission
	RFP		deadline. Any request for clarification must be by standard electronic
	ILL L		means, to the Client's address indicated in the Data Sheet. The Client
			will respond by standard electronic means. If the Client deems it
			will respond by standard electronic ineans. If the Chefit deems it

12. Proposal Format and Content	11.2. 11.3. 11.4.	necessary to amend the RFP as a result of a clarification, it shall do so following the procedure described below:  At any time before the proposal submission deadline, the Client may amend the RFP by issuing an amendment by standard electronic means and the amendment will be posted in the website of VNIT Nagpur. If the amendment is substantial, the Client may extend the proposal submission deadline to give the TPs reasonable time to take an amendment into account in their Proposals.  The TP may submit a modified Proposal or a modification to any part of it at any time prior to the proposal submission deadline. No modifications to the Proposal shall be accepted after the deadline.  The proposal shall be as per the formats included in this RFP.
13. Commercials	13.1.	The minimum contribution from the Technology Partner should be 80% of the project value. The balance will be contributed from the Client. The project value will not include the infrastructure cost provided by the Client.
14. Revenue Sharing	14.1.	COE will be used to conduct different training program, Industry Consultancy and research work. Revenue sharing will be discussed at the time of Award of Contract.

# C. Preparation of Proposal

15. Submission,	15.1.	The TP may submit a signed and complete Proposal comprising the
Sealing, and		documents and forms in accordance with Clause 10 (Documents
Marking of		Comprising Proposal). The submission can be done by hand/ courier/
Proposal		registered post/ speed post.
	15.2.	The Technology Partner can also authorize their partner to submit a signed and complete proposal comprising of the documents and forms on their behalf.
	15.3.	An authorized representative of the Technology partner or the Execution partner shall sign the original submission letter in the required format for the Proposal and shall initial all pages of both the Submission letter and Proposal. The authorization shall be in the form of a written authorization letter specific to the Proposal.
	15.4.	Any modifications, revisions, interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the proposal.
	15.5.	The signed Proposal shall be marked "ORIGINAL", and its copies marked "COPY" as appropriate. The number of copies is indicated in the Data Sheet. All copies shall be made from the signed original. If there are discrepancies between the original and the copies, the original shall prevail.
	15.6.	The original and all the copies of the Proposal shall be placed inside of a sealed envelope clearly marked "PROPOSAL", "[Name of the Assignment]", RFP reference number, name and address of the TP, and with a warning "DO NOT OPEN UNTIL 17.10.2019, 5 pm."

	1	
	15.7.	The sealed envelope containing the Proposal shall be placed into one outer envelope and sealed. This outer envelope shall bear the submission address, RFP reference number, the name of the assignment, TPs name and the address, and shall be clearly marked "DO NOT OPEN BEFORE 17.10.2019 up to 5 PM. If the envelopes and packages with the Proposal are not sealed and marked as required, the Client will assume no responsibility for the misplacement, loss, or premature opening of the Proposal.  The Proposal or its modifications must be sent to the address indicated in the Data Sheet and received by the Client no later than the deadline indicated in the Data Sheet, or any extension to this deadline. Any Proposal or its modification received by the Client after the deadline
16 Confidentiality	16.1	shall be declared late and rejected, and promptly returned unopened.
16. Confidentiality	16.1.	From the time the Proposals are opened to the time the Contract is awarded, the TP should not contact the Client on any matter related to its Proposal. Information relating to the evaluation of Proposals and award recommendations shall not be disclosed to the TPs who submitted the Proposals or to any other party not officially concerned with the process, until the publication of the Contract award information.
	16.2.	Any attempt by TPs or anyone on behalf of the TP to influence improperly the Client in the evaluation of the Proposals or Contract award decisions may result in the rejection of its Proposal and may be subject to the application of prevailing Client's sanctions procedures.
	16.3.	Notwithstanding the above provisions, from the time of the Proposal's opening to the time of Contract award publication, if a TP wishes to contact the Client on any matter related to the selection process, it should do so only in writing.
17. Opening of Proposals	17.1.	The Client's evaluation committee shall conduct the opening of the Proposals in the presence of the TPs' authorized representatives who choose to attend (in person). The opening date, time and the address are stated in the Data Sheet.
	17.2.	At the opening of the Proposals the following shall be read out: (i) the name and the country of the TP or, in case of a Joint Venture, the name of the Joint Venture, the name of the lead member and the names and the countries of all members; (ii) any modifications to the Proposal submitted prior to proposal submission deadline.
18. Proposals Evaluation	18.1.	The TP is not permitted to alter or modify its Proposal in any way after the proposal submission deadline. While evaluating the Proposals, the Client will conduct the evaluation solely on the basis of the submitted Proposals.
19. Evaluation of Proposals	19.1.	The Client's evaluation committee shall evaluate the Proposals based on their responsiveness to the Terms of Reference and the RFP, applying the pre-qualifying criteria, evaluation criteria, and point system specified in the Data Sheet. Each responsive Proposal will be given a technical score. A Proposal shall be rejected at this stage if it does not respond to important aspects of the RFP or if it fails to achieve the minimum technical score indicated in the Data Sheet.

# D. Negotiations and Award

20. Negotiations, needed	if	20.1.	The negotiations, if needed will be held at the date and address indicated in the Data Sheet with the TPs representative(s) who must have written
1100000			power of attorney to negotiate and sign a Contract on behalf of the TP.
		20.2.	The Client shall prepare minutes of negotiations that are signed by the
			Client and the TPs authorized representative.
a. Availability	of	20.3.	The invited TP shall confirm the availability of all Key Experts included
<b>Key Experts</b>			in the Proposal as a pre-requisite to the negotiations. Failure to confirm
			the Key Experts' availability may result in the rejection of the TPs
			Proposal and the Client proceeding to negotiate the Contract with the
		20.4	next-ranked TP.
		20.4.	Notwithstanding the above, the substitution of Key Experts at the
			negotiations may be considered if due solely to circumstances outside the reasonable control of and not foreseeable by the TP, including but
			not limited to death or medical incapacity. In such case, the TP shall
			offer a substitute Key Expert within the period of time specified in the
			letter of invitation to negotiate the Contract, who shall have equivalent
			or better qualifications and experience than the original candidate.
b. Technical		20.5.	The negotiations include discussions of the Terms of Reference (TOR),
negotiations			the proposed methodology, the Client's inputs, the special conditions of
			the Contract, and finalizing the "Description of Services" part of the
			Contract. These discussions shall not substantially alter the original
			scope of services under the TOR or the terms of the contract.
21. Conclusion	of	21.1.	The negotiations are concluded with a review of the finalized draft
Negotiations			Contract, which then shall be initialed by the Client and the TPs
		21.2	authorized representative.
		21.2.	If the negotiations fail, the Client shall inform the TP in writing of all pending issues and disagreements and provide a final opportunity to the
			TP to respond. If disagreement persists, the Client shall terminate the
			negotiations informing the TP of the reasons for doing so. The Client
			will invite the next-ranked TP to negotiate the Contract. Once the Client
			commences negotiations with the next-ranked TP, the Client shall not
			reopen the earlier negotiations.
22. Award	of	22.1.	After completing the negotiations, the Client shall sign a MoA with the
Contract			TP as per the instructions in the Data Sheet; and promptly notify the
			other shortlisted TPs.
		22.2.	The TP is expected to commence the next steps on the date and at the
			location specified in the Data Sheet.

# E. Data Sheet

A. Gene	eral		
ITL Clause			
1	Name of the Client: Visvesvara Method of selection: Quality Based Selection		
2	The name of the assignment is: Select	tion of a Technology Partner (TP) to set up a Centre of training, performing industry consultancy and research in	
B. Prepa	aration of Proposals		
3	English language.		
4	Proposals must remain valid for 90 (nin	nety) calendar days after the proposal submission deadline	
5	Clarifications may be requested no late	er than 4 (Four) days prior to the submission deadline.	
6	The contact information for requesting clare. To The Registrar Visvesvaraya National Institute of Technology. South Ambazari Road, Nagpur, Maharas. Phone: +917122801364 Email: registrar(contact).	ology, Nagpur htra 440010	
C. Subn	nission, Opening and Evaluation		
7	one (1) copy.	partner must submit :(a) Proposal: one (1) original and he Technology Partner should submit their authorization	
8	The Proposals must be submitted no later than: Date and Time 17.10.2019, 5pm.		
1	The Proposal submission address is:		
9	To The Registrar Visvesvaraya National Institute of Technology, Nagpur South Ambazari Road, Nagpur, Maharashtra 440010 Phone: +917122801364 Email: registrar@vnit.ac.in  The opening shall take place at: same as the Proposal submission		
	Date and Time 17.10.2019, 5.30 pm.		
10	Criteria, sub-criteria, and point system for	*	
	Sl. Evaluation Metric	Documentary Proof	
	1 Technology partner Authorizing their Executing partner	Authorization letter from the Technology partner	
	TP and Executing Partners should be such entities registered in India under the Companies Act/ LLP Act/ Societies Registration Act or as a Trust.	Certificate of Incorporation / registration Certificate	

3	TP should have been in existence for at least 10 years.	The Certificate of Incorporation of the TP should be submitted. The Technology Partner must have a Turnover of at least Rs. 100 cr. Per year in India in the each of the last 3 years.  The Technology Partner must have registered office in India and must have global presence in at least 50 countries.
4	TP and Executing partner should not have been blacklisted by any Government/ Department/ Body.	Self-declaration to be provided by TP and the Executing partner.
5	Existing COE Setups	The Technology Partner must have similar experience of setting up COE's for at least 5 years. The Technology Partner should have executed minimum 20 such COE's within India. Minimum 3 CoEs should be with central government institutions or bodies and at least 15 CoEs with state Government institutions. A copy of agreement/MOU must be submitted. Please note that the technology partner under which the executing partner is participating must be the same as mentioned in the copies of agreement submitted. Technology partner must have a R&D Facility in India and have their direct and own training centers for some of the proposed labs. The Technology Partner must be globally implementing such COE through direct programs
6	Domain Expertise	The Technology Partner should be in the domain, in at least 50% of the mentioned labs as per the technical scope and offering proprietary items in these labs completely manufactured by them. Barring utilities such as computer, compressor, stabilizer, the primary equipment / software in 50% of the labs must be a product owned by the Technology Partner. Out of the balance labs in at least 4 labs the Technology Partner must offer components that are used in the equipment. This ensuring that they are part of all the labs and thus are defined truly as a Technology provider in the industry and thus a Technology Partner for the CoE.
7	Training Expertise of Executing Partner (if Any)	The Executing Partner should be in the area of skill development and training at least for a period of 5 Years
8	Certification	The MoA should also allow the client to use the Technology partner's Logo to award training certificates to the trainees. Technology partner or the Executing Partner should be certified as a Sector Skill Partner from NSDC or an equivalent in India.

9	e-Learning (Courseware)	The e-Learning (Courseware) materials should be a solution/product developed and owned by either the Technology partner or the executing partner.
10	Customer Feedback	Customer feedback on the COE in the format of appreciation letters or public domain information such as website/published report on similar COE should be submitted. If Website is being provided, then please provide the link to the site in the covering letter along with snapshots of different pages of the website. By similar CoE, it means that the CoE being shown should have established at least 50% of the labs listed in the scope of supply.

The proposals submitted by the interested parties who clear the pre-qualification round only will be evaluated as per the criteria provided below:

### **Evaluation Criteria (100 Points)**

#### A. Profile of the TP (10 points)

#### • Profile of the TP (maximum two pages).

- An additional one-page profile for the Execution partner to be attached.
- Details about the business clients (national and international) that the TP is closely engaged with in various capacities in the different sector.
- The TP / Execution partner should be able to show a continuous and on-going effort to use state of the art equipment/ machines/ tools as part of routine business activities.
  - Details about the existing training infrastructure available with the TP or their Execution partner.
  - Details of curriculum of its 3 best-in-class training programs with a clear indication of modules that are taught practically. Should include details such as the job profile, number of trainees trained, employed and relevance of the courses.

## B. Technical Proposal of TP/Execution partner (60 points)

- The technical proposal will be evaluated on the basis of Section 4 requirement.
- The entire scope must be offered by one party Technology Partner and their Authorized Execution Partner
- Additional scope will not be considered in the evaluation

# C. Past Performance of TP and Execution Partner (if Any) (30 Points) Section details the selection criteria for the Technical partner

- All the conditions must be met for the Technical Partner
- All the conditions must be met for the Execution Partner (if any)
- If there is an Execution Partner, 5 points will be allotted to the Execution Partner out of the 30 Points

<sup>\*</sup>Note: Wherever the technology partner / Execution partner has relevant experience in training and skill development, this can be highlighted.

The interested parties who secure at least 75% of the points in the Evaluation Criteria A+B+C above will be shortlisted. One Interested Party will be chosen as the TP at the end of the evaluation. D. Award of Contract after Evaluation and with due approvals of authorities. **Expected date for award of contract:** Date: To be informed by the Client. Address: To The Registrar Visvesvaraya National Institute of Technology, Nagpur South Ambazari Road, Nagpur, Maharashtra 440010 Phone: +917122801364 Email: registrar@vnit.ac.in 12 Expected date for the signing of the MoA: It will be notified to the Selected TP Address: To The Registrar Visvesvaraya National Institute of Technology, Nagpur South Ambazari Road, Nagpur, Maharashtra 440010 Phone: +9171222801364 Email: registrar@vnit.ac.in

# **Section 3. Proposal – Standard Forms**

All pages of the original Proposal shall be initialed by the same authorized representative of the interested party who signs the Proposal.

# **Section 4. Technical Scope**

## Concept

The overall plan, as part of this program is to encourage a TP to setup a Centre of Excellence (CoE). The CoE is being setup to offer an interrelated high technology, modular, skilling facility and offer demand driven courses.

The CoE, to be designed by the TP, is envisioned to be setup as a State of the Art Centre of Excellence (CoE) in which the TP brings in their best in class equipment/ tools/ machines/ simulators (commonly referred to as equipment) to be used for training purposes. The COE will be located in an appropriate space offered by the client. The CoE will be managed professionally by the TP. The infrastructure for the CoE will be made ready by the client as per the specifications given by the TP and the Execution Partner.

The CoE will run under the overall operational management of the Execution Partner. The Execution Partner, under the Guidance of the TP, will be responsible for devising and implementing a three-year rolling plan and ensuring that the CoE is constantly upgraded and provides a high technology ecosystem for skilling/ up- skilling/ re-skilling/ cross-skilling and multi-skilling. The Execution Partner, under the Guidance of the TP, will be expected to assist the client to mobilize students for training which will help generate revenues at the CoE which can help offset the overall costs of the CoE.

Overall administrative, quality and financial responsibilities including the management of the CoE, marketing, branding, placement, costing of courses, management of hostels, course content, pedagogy, funding etc. will be the responsibility of the Client. The Client may engage with, invite and sign MoUs with industries (such as equipment manufacturers, tool and device manufacturers that service the sector) and continuously engage with the industries to ensure that the CoE remains relevant at all times.

#### **Role of the TP and their Execution Partner**

The role of this TP and their Execution Partner shall include the following:

- 1. To design the CoE and to develop a three years strategic rolling plan for the CoE along with the client and be responsible for implementing the plan.
- 2. Identify and formulate training programs to develop skills in futuristic/ disruptive technologies and associated skill sets required for industry ready.
- 3. To develop courses, course content, course work, manuals, standard operating procedures and standards, disseminate the same with the overall intent of improving the skill sets of individuals
- 4. To impart high-end skills (and not generic skills) to Students, unemployed individuals and employed individuals (looking to up skill/ re-skill themselves).
- 5. To conduct train the trainer programs.
- 6. To conduct need based/ on-request training programs to cater to specialized requirements of corporate, and to generate revenues through these programs.
- 7. To carry out assessment, certification of trainees.

# **Digital Manufacturing**

The proposed Center of excellence focuses at Digital manufacturing. Digitalization is changing our daily lives and revolutionizing the world economy. Successful companies are seizing the opportunities offered by digitalization for lower costs, improved quality, support individualized production, and provide flexibility and faster response to customer/market demands and new business models. We are in the midst of the digital industrial revolution.

# **Digital Twin**

Industries are upgrading phase to Industry 4.0, which originates from the concept of Digital twin. Digital Twin is an accurate virtual representation of products, processes, operations, and performance. For products and assets, a digital twin flows from a geometric model. But it's not a single representation — it's a twin for each product sold, each piece of equipment in a factory, or every item in an installed base. The goal is to provide DVR-like capability — I can rewind to see what happened, play to see what is happening, and fast-forward to see what might happen (a simulation).

The value of the digital twin in manufacturing offers a unique opportunity to virtually simulate, validate and optimize the entire production system. It also lets you test how the product with all its primary parts and sub-assemblies will be built using the manufacturing processes, production lines and automation. Hence in the center of excellence there should be advanced product design and process design software that can connect to the hardware provided in the other labs to form Digital twin / Digital manufacturing. The proposed list of labs in this Center of Excellence should encompass upcoming manufacturing technologies related to industry 4.0 (Digitalization).

Note: The Digital twin for at least 4 of the hardware labs should be recorded in a video format and submitted along with the proposal in a USB Drive (Mandatory labs for which the Digital Twin should be provided are industry 4.0 Lab, Mechatronics Lab).

# **Supply of labs/Items:**

S. No	List of labs	
1	Product Design lab	
	The Design Lab should consist of advanced Computer Aided Design (CAD), Computer Aided Engineering (CAE) and Computer Aided Manufacturing (CAM) software. These Solutions assist the students to understand engineering design and analysis. The Product Design Lab would cater to the following areas	
	Industrial Design & Styling	
	Package Design	
	Mechanical Design	
	Electromechanical Design	
	Mechatronics concept Designer	
	Mechanical Simulation	
	Electromechanical Simulation	
	Tooling, Die & Fixture Design	
	Machining	
	Quality Inspection	
	Design for Additive Manufacturing	
2	Reverse engineering lab	
	3D scanning is one of the latest technologies used extensively in application like virtual reality, industrial design, orthotics and prosthetics, reverse engineering and prototyping, etc. Hence this lab should be equipped with a scanner, fixtures, and other accessories capable of analyzing a real-world object or environment to collect data on its shape and possibly its appearance. The collected data should then be used to construct digital 3D models.  The 3D scanner and the software provided in the Product design Lab should be able to interface and take the data points from the hardware and reverse engineering into a relevant CAD format file for further processing using the software in the product design lab. This file should then be made compatible to transfer to the Rapid prototyping machine or CNC Machining center.	
3	Industry 4.0 - Smart Manufacturing lab	
	Industry 4.0 / Smart manufacturing should have equipment with automated way of controlling and managing the manufacturing process in a factory. It should consist of many processes involved in manufacturing such as  • Manufacturing (Machining process)  • Inspection & Quality Control	
	<ul> <li>Assembly</li> <li>Raw Material &amp; Finished Good Storage</li> <li>Material handling &amp; Transfer Systems</li> </ul>	

- Digitalization of manufacturing
- Data Management and RFID communication system

The concept should bring together manufacturing, automation and data management leading to intelligent collaboration, monitoring and process management in real-time. It should be a modular setup enabling the training to be conducted in increasing order of complexity: modules, stations and complete system.

The Industry 4.0 setup and the software provided in the Manufacturing process lab should be able to interface for the Digital Twin, which should emulate and simulate the physical system with identical properties and possible to transfer the program from the manufacturing Process lab to the Industry 4.0 lab – for control and operation of the hardware.

It should be possible for the digital twin to be scaled up and shown as a complete factory in the Manufacturing Process Lab. The Product should be IoT ready and possible for an IoT system to be connected to the hardware and collect data and monitor performance, in the future.

#### 4 PLC and SCADA automation lab

This Lab should consist of Hardware and software allowing students to understand the requirement and functioning of Programmable Logic Controllers (PLCs). Here the students should learn how to Program Industrial PLCs, work with Industrial Human Machine Interface (HMI), Industrial SCADA (Supervisory Control & Distributed Acquisition) and PLC networking using profibus and profinet.

The PLC and SCADA system should be able to connect to the software provided in the Product design lab. The Mechatronics setup built/designed in the product design lab should be able to simulate the PLC Program written in the PLC Software. The PLC program should be transferred to the software in the product design lab via Profinet/Ethernet or any latest protocol for communication.

# 5 CAD/CAM Manufacturing lab

The CAD/CAM Manufacturing lab should involve some advance CNC Machining center with more than 3 Axis. This should be an industrial grade CNC Machines with a 5 Axis rotary table and suitable controller. The setup should involve other accessories like cutting tools, maintenance tools, Raw Materials etc.

The CNC Machine should be able to interface with the Computer Aided Manufacturing (CAM) module of the product design lab to learn & create CNC Programs and validate the Machine Tool cutting operations and parameters.

#### 6 Internet of things

The Internet of Things, or IoT should cover the following topics for the students in the Internet of Things (IOT) Lab:

- Connecting Things Appropriate Gateway should be provided to connect different sensors and collect Data.
- Data Analytics Students should be able to write their own algorithm to analyze the kind of data needs to be filtered.
- Application Development Students should be able to develop their own application to display the right Data.
- Enterprise Deployment Application deployment in the cloud

The IoT lab should be able to connect to the Smart Factory Lab, mechatronics lab, CNC Machine lab for Data collection and analysis. If there are additional labs that can be connected to the IoT, Kindly list it out with details.

## 7 Manufacturing Process lab

The Manufacturing process Lab should consist of Digital Manufacturing Solutions which assist the students to understand manufacturing planning and validation. The lab should also consist of the Product Lifecycle Management Solution which allows students to learn the enterprise solutions of product development from end to end. It should cater to the following areas:

- Process Planning, Electronic Work Instructions and BOM Management
- Dimensional Quality
- Layout and Plant Simulation with integration to Design of Experiments
- Design for Assembly, Design for Manufacturing, Design for Maintenance
- Ergonomic Analysis
- Robotic Simulation, Offline Programming and Realistic Robot Simulation (RRS)
- Virtual Commissioning
- Build Quality Tracking & Shop Floor Integration

#### 8 Mechatronics lab

The Mechatronic lab should have equipment that will bring together different technologies and departments of engineering like Mechanical, Electrical, Electronics & Communication and Computer Science. The equipment should allow students to work on a mini factory setup that consist of various items working on areas such as Pneumatics & Hydraulics, Sensors, Communication Protocol, PLC programming, PLC Networking using profibus and profinet.

The mechatronics kit should be able to interface with the software in the Product design lab for digital twin. It should be possible for the digital twin to be scaled up and shown as a complete factory in the Manufacturing Process Lab. The Product should be IoT Ready and able to communicate to IoT system to collect data and monitor performance, in the future.

## 9 **Automatic welding using Robots**

In this lab there should be different types of welding which is controlled and programmed by robotics. We would be teaching the students to understand the working principals of a Robot, how to program it and apply it to an application. There would be two (2) robotics cells catering different applications, they are:

- 1. Spot Welding
- 2. Pulse MIG Welding

The robot should be provided with the complete cell consisting of the below items.

- Articulated robot
- Welding system, Welding fixtures & accessories
- Wire feeder

- Robotic Welding Torch
- Electrical panel and accessories
- Safety equipment like glass partition or Curtain
- Welding machine consumables
- Raw materials for testing.

The robots should be able to interface with the software provided in the Manufacturing process lab for Offline programming & Digital Twin. It should be possible for the digital twin to be scaled up and shown as a complete factory in the Manufacturing Process Lab. The Product should be IoT Ready and able to communicate to IoT system to collect data and monitor performance, in the future.

#### 10 Sensors and Instrumentation lab

The Process Instrumentation Lab should enable students and industries to work on Advance Automation using Distributed Control Systems (DCS) and understanding the working of the following equipment's in a plant. The types of sensors offered should include Temperature, Flow, Level, Pressure, Sensors/Measurements & Communications

## 11 Computer Aided Engineering (CAE) and analysis lab

The CAE Lab should allow testing and mechanical simulation to model-based systems engineering. It should enable engineers to understand the functional performance engineering of mechatronic systems to solve noise, vibration and harshness (NVH), acoustics, durability, dynamics, performance, fuel economy and controls development issues.

The 3D CAE should help students and industry predict performance across all critical attributes earlier and throughout the entire product lifecycle. The computational fluid dynamics solution should allow students & industry to simulate almost any engineering problem that involves the flow of liquids, gases (or a combination of both), together with all of the associated physics.

It should also consist of a Physical Test Bed for carrying out analysis such as NVH, Acoustics, etc. on products such as a scaled down plane model and a two wheeler (2/4 Stroke IC Engine and Electric), along with appropriate sensors and SCADA Systems.

# **Scope of Services:**

Scope of Services:				
S. No	Description			
1	Project Management			
	Once when the MoA is signed and PO is released, the Partners should work closely with VNIT Nagpur in planning and execution of the COE.  - Should define the delivery timelines.  - Should work closely with the VNIT Nagpur for the site readiness  - Responsible for commissioning of all the items and ensure the entire lab is up and running.  - Conduct Train the Trainer  - Conduct One Industry Seminar every Semester			
2	E-learning courseware			
	E-learning courseware  A complete list of interactive E-Learning covering the below topics should be also provided along with the entire setup. The courses should be clearly broken down into Number of hours, designed it in a structural way allowing the trainees to pick courses at different levels. These courses should be compatible to the NSDC aligned programs as well.  All the courses should be online version. An evaluation login or access should be submitted along with the Proposal for evaluation for CNC and Robotics Technology.  The Digital library should be a collection of Reference, Learning and Training material in Advanced Manufacturing Technology. The technologies covered are CNC, Robotics, Automaton and Mechatronics. This library should be applicable to all engineering levels – Universities, Institutions, Polytechnics, Training Centers and Corporate learning centers. Many institutions have already begun the task of converting their traditional collections of books and educational materials to electronic format: HTML, PDF formats or eBooks. Features of the Digital Library should be:			
	Comprehensive Coverage			
	Comprehensive Coverage  The Digital Library should offer a wide range of content in Advanced Manufacturing Technology. The content should align with current industry demands and oriented to build skills while enhancing learning. Students can access the content across different branches of engineering and application.			
	Access at Fingertips			
	It should give access to multiple contents accessible from any computer in our VNIT Nagpur and access must be though the internet. Students should be able to learn at their pace. Multiple students should be able access the same content from a Digital Library unlike a book which will have limited number of copies.			
	Interactive Content			
	The content should be highly interactive and interesting. Using this Multimedia Digital Library students should be able to understand various concepts with the help of rich			

Graphics, Animations, Videos and Voice over.

The courses should be to be managed by a Learning Management System (LMS).

## Learning Management System – Features required are

- Friendly and attractive user interface with a 3-tier architecture for managing clients
- Dashboard for viewing all relevant information on the platform in one glance (for each tier above)
- Comprehensive reports, based on users, courses, and enrolments
- Ability to add varied types of content, including PPT, PDF, videos, assignments, etc.
- Availability on mobile and tablet devices
- Batch user import (for adding a large number of users to the LMS in one go)
- Support for learning best practices such as spaced retrieval

It should be possible to generate the following reports from the MIS:

- MIS on number of courses conducted.
- Course wise enrolment.
- Preferred Courses
- Enrollment Vs Successful Completion
- Categorization of trainees students/ faculty / industry / specialization

eLearning Content to be offered for the following technologies:

- Industry 4.0 Smart Manufacturing
- PLC, Automation
- CNC
- Robotics
- Mechatronics
- Sensors and instrumentation
- CAD
- CAM

### 3 Lab Management

- The COE should work in the BOT Model (Build, Operate and Transfer Mode) for a period of 3 years.
- Atleast 12 Engineers with mix of experience must be deputed for this period for individual labs who will be the technical resource for the respective labs.
- The Engineer's activities are to conduct training activities, support our faculties technically in the research and industrial consultancy.
- The engineers should have good written & oral communication, domain expertise, flair for teaching & conversant with engineering software.
- Senior Trainers should have minimum graduate or post graduate qualification in engineering and minimum 3-4 years of experience.
- Trainers should have minimum Diploma or Graduate qualification in engineering and 2-3 years of experience.
- There should also be a center manager deputed by the technology partner or executing partner who would be supervising the activities like enrollment of students, certification for students, Seminars and conferences being conducted, Maintenance of reports of the center Activity.
- The center Manager should have minimum a graduate or Post graduate

qualification in Engineering with minimum 6-8 years of experience and 2-3 years of experience in Project management.

#### **SCOPE OF WORK-**

TP and their Execution Partner (if any) should provide the following –

- Managing the equipment in the lab and conducting the skill training programs
- Ensuring trainer availability for the training programs
- Provide update course material.
- Maintain the equipment for the duration of the BOT period

TP and their Execution Partner (if any) will manage the labs assigned by performing the following activities -

#### COURSES SCHEDULING AND IMPLEMENTATION OF TRAINING PLAN

The TP and their Execution Partner (if any) shall be responsible for scheduling, conducting Training. TP and their Execution Partner (if any) will present the schedule to the Project Manager of the institute and get it approved and declare it.

The Technology Partner and the Execution Partner (if any), with the assistance of VNIT NAGPUR, will market the course and enroll the participants and schedule participants and other activities essential to training.

Training plan, including procedures for course enrolment, reporting of course progress, course completion and certification, monitoring of the training program, training records.

#### TRAINING METHODOLOGY

TP and their Execution Partner (if any) should use digital material to teach theory, to make the understanding easy. TP and their Execution Partner (if any) will follow theory in learning and simulation for practical and usage of equipment to complete the effective learning and completion of the course. Knowledge checks will be used effectively to monitor the process during the training.

#### **EVALUATION PROCESS & CERTIFICATION**

There should be pre and post course test will be conducted for the participant to monitor the learning and understand the knowledge level prior to the course.

The eligible participant should be given certificates. The evaluation process can be determined by the TP and their Execution Partner (if any) and process it accordingly. The certification should be a tripartite agreement between VNIT Nagpur, the technology

Partner and the execution partner (if any).

#### **AUDITING**

VNIT Nagpur may conduct periodical audit of the center.

The audit includes both academic, and general, one senior executive (from the Institute) will be visiting the center and go through the activities carried out in terms of courses conducted, performance of the students and feedback given by the participants. The process also involves collecting the feedback on faculty, course, course ware and suggestions separately, so that clear complete relevant data is collected to work towards improvement. This information will be analyzed, and suggestions will be given to the tenderer to work towards improvement of the center. The suggestion should be documented and implemented within a mutually agreed timeframe. This will not include replacement of any hardware / software / content.

The senior executive will also involve a team from VNIT Nagpur to market the courses in the region to enable the successful functioning of the center.

#### **REPORTS**

Supplier will provide the following reports every quarter. The below reports are not exhaustive.

MIS on number of courses conducted.

Course wise students' enrolment.

Course wise skills gained

List of successful students.

Footfall to the Centre.

Note: Utilities like Stabilizer, compressor and computers required to run the labs will also be in the scope of the Technology Partner.

#### **FORM TECH-1**

#### A. PROPOSAL SUBMISSION FORM

[Location, Date]
To,
The Director,
Visvesvaraya National Institute of Technology, Nagpur
South Ambazari Road, Nagpur, Maharashtra 440010

Dear Sir/ Madam,

We, the undersigned, intend to participate as a Technology Partner (TP) for setting up of Center of Excellence in accordance with your Request for Proposal dated [Insert Date].

Our execution Partner will submit proposal and execute it. {Insert a list with full name and the legal address}.

We have attached a copy {insert: "Authorization letter"} authorizing our Channel partner to execute the project.

We hereby declare that we have read the Instructions to TP included in the RFP, and abide by the same, and specifically to conditions mentioned in Instruction to interested parties. [In case of any declaration, reference to concerned document attached must be made]. We hereby declare that all the information and statements made in this Proposal are true and we accept that any misleading information contained in it may lead to our disqualification.

We undertake, if our Proposal is accepted, to sign the MoA and initiate the project as per the timelines prescribed.

Yours faithfully,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

- B. Authorization letter from the technology partner to the Execution partner
- C. Certificate of registration/incorporation of the Technology Partner and execution partner
- D. Self-Declaration against blacklisting of TP and the Execution partner