

Request for Proposals (RFP)

**The provision of services for the installation of a
Computer Numeric Controlled (CNC) Simulation
System to assist with Development and Optimisation
of CNC Manufacturing Processes**

RFP No. 3279/29/03/2019

Date of Issue	Friday, 13 March 2019	
Closing Date	Friday, 29 March 2019	
Place	Tender box, CSIR Main Reception, Gate 3 (North Gate)	
Enquiries	Strategic Procurement Unit	E-mail: tender@csir.co.za
CSIR business hours	08h00 – 16h30	
Category	Professional Services	

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SECTION A – TECHNICAL INFORMATION

1 INTRODUCTION

The Council for Scientific and Industrial Research (CSIR) is one of the leading scientific research and technology development organisations in Africa. In partnership with national and international research and technology institutions, CSIR undertakes directed and multidisciplinary research and technology innovation that contributes to the improvement of the quality of life of South Africans. The CSIR's main site is in Pretoria while it is represented in other provinces of South Africa through regional offices.

2 INVITATION FOR PROPOSAL

Proposals are hereby invited for the installation of Computer Numeric Controlled (CNC) Simulation System incorporating the development and optimisation of CNC Manufacturing processes with an emphasis on software-based systems.

3 PROPOSAL SPECIFICATION

Proposals are hereby invited for the installation of Computer Numeric Controlled (CNC) Simulation and Optimisation Solution focusing on improving 'right first time" CNC manufacturing, eliminating machine / tool collision damage and optimisation of CNC code to reduce time to market for 5 Companies (1 X KZN, 1 X WC and 3 X Gauteng). The proposal must include the installation of a relevant system as well as training in the use of the system.

A CNC Manufacturing simulation or similar system must effectively ensure that CNC part programmes for manufacture will run "correctly" and will prevent accidental programming errors that could cause damage to expensive CNC machines. The CNC simulation will enable communication with programmers and the machine operators using controlled documents to define tooling criteria, set-up procedures and critical information. The simulation solution must also have the ability to optimise native CNC code to enable the CNC cycle time to run faster, but also to protect the tooling from untoward damage and improve surface finish where possible. The simulation must also detect if the CNC programme will create scrap or rework. Using applied / defined manufacturing tolerances the CNC simulation must be able to analyse whether a condition of "gouges" or "excess material" exists on the machined component. Any errors need to be displayed in a report so the programmer can apply remedies / fixes.

The goal of CNC simulation software is to be able to run the machining programme in the virtual environment in order to optimise the tool path movement in order to reduce cycle times and thereby enhance productivity. Further to this this software will enable a company to conduct capacity analysis of their machine and thereby plan resources more effectively.

Training and aftersales support is required for the abovementioned software.

Suppliers should specify their approach, duration and pricing per company, as well as an aggregate price for the whole project.

4 FUNCTIONAL EVALUATION CRITERIA

4.1 The evaluation of the functional / technical detail of the proposal will be based on the following criteria:

- Previous experience of installing, commissioning and supporting a CNC simulation solution or similar system implementation experience in years;
- CNC simulation solution must integrate with existing CAD/CAM systems used by the clients. The ability to simulate native code (post processed code) is highly recommended.
- The CNC simulation solution must be able to detect collisions or near “misses” and create reports to detail errors. Cutting conditions must also be analysed, such as, tool chip thickness per tooth, volume removed, spindle speed / direction.
- The CNC simulation solution must be able to optimise “native” CNC code, this should include reduction in CNC cycle time based on limits of the cutting tool.
- The CNC simulation solution must be able to simulate any kind of CNC cutting machine included but not limited to lathe turning, lathe turning with live tooling, milling machines including 3 axis, 4 axis and 5 axis, robotic trimming centres and mill/turn machines.
- The CNC simulation solution must create documents to assist with setting up a CNC machine; items to be included in the report include tool list, optimal tool lengths, description of work holding, position of work piece datums and graphical diagrams to assist with communication.

- 4.2 Proposals with functionality / technical points of less than the pre-determined minimum overall percentage of 80% and less than 50% on any of the individual criteria will be eliminated from further evaluation.
- 4.3 Refer to Annexure A for the scoring sheet that will be used to evaluate functionality.

5 ELIMINATION CRITERIA

Proposals will be eliminated under the following conditions:

- Submission after the deadline;
- Proposals submitted at incorrect location.

6 NATIONAL TREASURY CENTRAL SUPPLIER DATABASE (CSD) REGISTRATION

Before any negotiations will start with the winning bidder it will be required from the winning bidder to:

- be registered on National Treasury's Central Supplier Database (CSD). Registrations can be completed online at;
- provide the CSIR of their CSD registration number; and
- provide the CSIR with a certified copy of their B-BBEE certificate. If no certificate can be provided, no points will be scored during the evaluation process. (RSA suppliers only)

SECTION B – TERMS AND CONDITIONS

7 VENUE FOR PROPOSAL SUBMISSION

All proposals must be submitted at:

- **CSIR GATE 03 - Main Reception Area** (in the **Tender box**) at the following address
Council for Scientific and Industrial Research (CSIR)
Meiring Naudé Road
Brummeria
Pretoria

8 TENDER PROGRAMME

The tender program, as currently envisaged, incorporates the following key dates:

- Issue of tender documents: 13 March 2019
- Closing / submission Date: 29 March 2019

9 SUBMISSION OF PROPOSALS

- 9.1 All proposals are to be sealed. No open proposals will be accepted.
- 9.2 All proposals are to be clearly marked with the RFP number and the name of the tenderer on the outside of the main package. Proposals must consist of two parts, each of which is placed in a separate sealed package clearly marked:
- PART 1:** Technical Proposal: RFP No.: 3279/02/03/2019
 - PART 2:** Pricing Proposal, B-BBEE and other Mandatory Documentation:
RFP No.: 3279/02/03/2019
- 9.3 Proposals submitted by companies must be signed by a person or persons duly authorised.
- 9.4 The CSIR will award the contract to qualified tenderer(s) whose proposal is determined to be the most advantageous to the CSIR, taking into consideration the technical (functional) solution, price and B-BBEE.

10 DEADLINE FOR SUBMISSION

Proposals shall be submitted at the address mentioned above no later than the closing date of **Friday, 29 March 2019** during CSIR's business hours. The CSIR business hours are between 08h00 and 16h30.

Where a proposal is not received by the CSIR by the due date and stipulated place, it will be regarded as a late tender. Late tenders will not be considered.

11 AWARDING OF TENDERS

- 11.1 Awarding of tenders will be published on the National Treasury e-tender portal or the CSIR's tender website. No regret letters will be sent out.

12 EVALUATION PROCESS

12.1 Evaluation of proposals

All proposals will be evaluated by an evaluation team for functionality, price and B-BBEE. Based on the results of the evaluation process and upon successful negotiations, the CSIR will approve the awarding of the contract to successful tenderers.

A two-phase evaluation process will be followed.

- The first phase includes evaluation of **elimination** and **functionality criteria**.
- The second phase includes the evaluation of **price** and **B-BBEE** status.

Pricing Proposals will only be considered after functionality phase has been adjudicated and accepted. Only proposals that achieved the specified minimum qualification scores for functionality will be evaluated further using the preference points system.

12.2 Preference points system

The 80/20 preference point system will be used where 80 points will be dedicated to price and 20 points to B-BBEE status.

13 PRICING PROPOSAL

13.1 Pricing proposal must be cross-referenced to the sections in the Technical Proposal. Any options offered must be clearly labelled. Separate pricing must be provided for each option offered to ensure that pricing comparisons are clear and unambiguous.

13.2 Price needs to be provided in South African Rand (excl. VAT), with details on price elements that are subject to escalation and exchange rate fluctuations clearly indicated.

13.3 Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable.

13.4 Only firm prices* will be accepted during the tender validity period. Non-firm prices** (including prices subject to rates of exchange variations) will not be considered.

**Firm price is the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax which, in terms of a law or regulation is binding*

on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

***Non-firm price is all prices other than “firm” prices.*

13.5 Payment will be according to the CSIR Payment Terms and Conditions.

14 VALIDITY PERIOD OF PROPOSAL

Each **proposal** shall be valid for a minimum period of three (3) months calculated from the closing date.

15 APPOINTMENT OF SERVICE PROVIDER

15.1 The contract will be awarded to the tenderer who scores the highest total number of points during the evaluation process, except where the law permits otherwise.

15.2 Appointment as a successful service provider shall be subject to the parties agreeing to mutually acceptable contractual terms and conditions. In the event of the parties failing to reach such agreement CSIR reserves the right to appoint an alternative supplier.

15.3 Awarding of contracts will be announced on the National Treasury website and no regret letters will be sent to unsuccessful bidders.

16 ENQUIRIES AND CONTACT WITH THE CSIR

Any enquiry regarding this RFP shall be submitted in writing to CSIR at tender@csir.co.za with ***“RFP No xxxx/02/03/2019 - The provision of services for the installation of a Manufacturing Systems and the Development and Optimisation of Manufacturing Processes”*** as the subject.

Any other contact with CSIR personnel involved in this tender is not permitted during the RFP process other than as required through existing service arrangements or as requested by the CSIR as part of the RFP process.

17 MEDIUM OF COMMUNICATION

All documentation submitted in response to this RFP must be in English.

18 COST OF PROPOSAL

Tenderers are expected to fully acquaint themselves with the conditions, requirements and specifications of this RFP before submitting proposals. Each tenderer assumes all risks for resource commitment and expenses, direct or indirect, of proposal preparation and participation throughout the RFP process. The CSIR is not responsible directly or indirectly for any costs incurred by tenderers.

19 CORRECTNESS OF RESPONSES

19.1 The tenderer must confirm satisfaction regarding the correctness and validity of their proposal and that all prices and rates quoted cover all the work/items specified in the RFP. The prices and rates quoted must cover all obligations under any resulting contract.

19.2 The tenderer accepts that any mistakes regarding prices and calculations will be at their own risk.

20 VERIFICATION OF DOCUMENTS

20.1 Tenderers should check the numbers of the pages to satisfy themselves that none are missing or duplicated. No liability will be accepted by the CSIR in regard to anything arising from the fact that pages are missing or duplicated.

20.2 *One hard copy and one electronic copy (CD or USB memory key)* of each proposal must be submitted. In the event of a contradiction between the submitted copies, the hard copy shall take precedence.

20.3 Pricing schedule and B-BBEE credentials should be submitted with the proposal, but as a separate document and no such information should be available in the technical proposal.

20.4 If a courier service company is being used for delivery of the proposal document, the RFP description must be endorsed on the delivery note/courier packaging to ensure that documents are delivered to the tender box, by the stipulated due date.

21 SUB-CONTRACTING

- 21.1 A tenderer will not be awarded points for B-BBEE status level if it is indicated in the tender documents that such a tenderer intends sub-contracting more than **25%** of the value of the contract to any other enterprise that does not qualify for at least the points that such a tenderer qualifies for, unless the intended sub-contractor is an exempted micro enterprise that has the capability and ability to execute the sub-contract.
- 21.2 A tenderer awarded a contract may not sub-contract more than **25%** of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an exempted micro enterprise that has the capability and ability to execute the sub-contract.

22 ENGAGEMENT OF CONSULTANTS

The consultants will only be remunerated at the rates:

- 22.1 Determined in the "Guideline for fees", issued by the South African Institute of Chartered Accountants (SAICA); or
- 22.2 Set out in the "Guide on Hourly Fee Rates for Consultants", by the Department of Public Service and Administration (DPSA); or
- 22.3 Prescribed by the body - regulating the profession of the consultant.

23 TRAVEL EXPENSES

- 23.1 All travel expenses for the CSIR's account, be it directly via the CSIR's travel agent or indirectly via re-imburements, must be in line with the CSIR's travel policy. The following will apply:
- 23.1.1 Only economy class tickets will be used.
- 23.1.2 A maximum of R1300 per night for accommodation, dinner, breakfast and parking will be allowed.
- 23.1.3 No car rentals of more than a Group B will be accommodated.

24 ADDITIONAL TERMS AND CONDITIONS

- 24.1 A tenderer shall not assume that information and/or documents supplied to CSIR, at any time prior to this request, are still available to CSIR, and shall consequently not make any reference to such information document in its response to this request.

24.2 Copies of any affiliations, memberships and/or accreditations that support your submission must be included in the tender.

24.3 In case of proposal from a joint venture, the following must be submitted together with the proposal:

- Joint venture Agreement including split of work signed by both parties;
- The original or certified copy of the B-BBEE certificate of the joint venture;
- The Tax Clearance Certificate of each joint venture member;
- Proof of ownership/shareholder certificates/copies; and
- Company registration certificates.

24.4 An omission to disclose material information, a factual inaccuracy, and/or a misrepresentation of fact may result in the disqualification of a tender, or cancellation of any subsequent contract.

24.5 Failure to comply with any of the terms and conditions as set out in this document will invalidate the Proposal.

25 CSIR RESERVES THE RIGHT TO

25.1 Extend the closing date;

25.2 Verify any information contained in a proposal;

25.3 Request documentary proof regarding any tendering issue;

25.4 Give preference to locally manufactured goods;

25.5 Appoint one or more service providers, separately or jointly (whether or not they submitted a joint proposal);

25.6 Award this RFP as a whole or in part;

25.7 Cancel or withdraw this RFP as a whole or in part.

26 DISCLAIMER

This RFP is a request for proposals only and not an offer document. Answers to this RFP must not be construed as acceptance of an offer or imply the existence of a contract between the parties. By submission of its proposal, tenderers shall be deemed to have satisfied themselves with and to have accepted all Terms & Conditions of this RFP. The CSIR makes

no representation, warranty, assurance, guarantee or endorsements to tenderer concerning the RFP, whether with regard to its accuracy, completeness or otherwise and the CSIR shall have no liability towards the tenderer or any other party in connection therewith.

DECLARATION BY TENDERER

Only tenderers who completed the declaration below will be considered for evaluation.

RFP No:

I hereby undertake to render services described in the attached tendering documents to CSIR in accordance with the requirements and task directives / proposal specifications stipulated in RFP No..... at the price/s quoted. My offer/s remains binding upon me and open for acceptance by the CSIR during the validity period indicated and calculated from the closing date of the proposal.

I confirm that I am satisfied with regards to the correctness and validity of my proposal; that the price(s) and rate(s) quoted cover all the services specified in the proposal documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this proposal as the principal liable for the due fulfilment of this proposal.

I declare that I have no participation in any collusive practices with any tenderer or any other person regarding this or any other proposal.

I accept that the CSIR may take appropriate actions, deemed necessary, should there be a conflict of interest or if this declaration proves to be false.

I confirm that I am duly authorised to sign this proposal.

NAME (PRINT)
CAPACITY
SIGNATURE
NAME OF FIRM
DATE

WITNESSES	
1
2
DATE:	

27 ANNEXURE A

Functional Factors	Criteria Description	Weighting	1	5	7	10
Previous CNC simulation implementation experience in years and local support structure.	Track record of CNC simulation implementation in years.	20	Report reflects a complete misunderstanding of the requirements.	Has at least two years of experience in CNC simulation implementation.	Has at least five years of experience in CNC simulation implementation.	Has at least ten years of experience in CNC simulation implementation.
The CNC simulation solution must integrate with major CAD/CAM systems	The CNC simulation solution can integrate with MasterCam, EdgeCam, GibbsCam & SolidWorks.	10	The proposal offered can only integrate with a single CAD/CAM system.	The proposal offered can only integrate with two identified CAD/CAM systems.	The proposal offered can only integrate with three identified CAD/CAM systems.	The proposal offered complies 100% with requirements.
The CNC simulation solution must simulate native CNC ISO code.	The proposed offering can simulate native ISO code including Fanuc, Heidenhain, Siemens, Haas, and Mazak.	10	The proposal offered can only simulate internal cutter paths.	The proposal offered can reverse post code to simulate machining process.	The proposal offered can only simulate most CNC machine controllers.	The proposal offered can simulate any kind of CNC machine control.
The CNC simulation solution must be able to show kinematic motion of all axis' and collision detection of all components (including near misses).	The solution must be able to demonstrate kinematic motions, over-travel limits and detect actual and potential collisions.	10	Response reflects a complete misunderstanding of the requirements.	Service offering covers 30% of key functional areas.	Service offering covers 70% of key functional areas.	Service offering covers 100% of key functional areas.
The CNC simulation solution must be able to analyse cutting conditions including chip thickness, volume removal, spindle speed and spindle direction.	The proposed solution must be able to analyse cutter paths and determine key measures.	10	Response reflects a complete misunderstanding of the requirements.	Service offering covers 30% of key measures of cutter path analyse.	Service offering covers 70% of key measures of cutter path analyse.	Service offering covers 100% of key measures of cutter path analyse.
The CNC simulation solution should be able to optimise ISO code to reduce cycle time and improve tool wear.	CNC code optimisation must be able to protect tool from damage, but also be able to reduce CNC cycle times.	10	Response reflects a complete misunderstanding of the requirements.	Service offering covers 30% of key measures of CNC cycle time optimisation.	Service offering covers 70% of key measures of CNC cycle time optimisation.	Service offering covers 100% of key measures of CNC cycle time optimisation.
The CNC simulation solution should be able to detect "gouges" or "excess material", including use of manufacturing tolerance.	CNC simulation solution to demonstrate "right first time" principles thru scrap detect (simulation)	10	Response reflects a complete misunderstanding of the requirements.	Service offering covers 30% of key measures of detection of manufacturing / programming errors.	Service offering covers 70% of key measures of detection of manufacturing / programming errors.	Service offering covers 100% of key measures of detection of manufacturing / programming errors.
The CNC simulation solution must simulate lathe, 3-axis milling, live tooling and multi-axis machining.	The simulation solution must be able to simulate any kind of CNC controlled application, turning, milling, pick 'n' place, etc.	10	Response reflects a complete misunderstanding of the requirements.	Service offering covers 30% of key measures of CNC machine types and availability / customisation.	Service offering covers 70% of key measures of CNC machine types and availability / customisation.	Service offering covers 100% of key measures of CNC machine types and availability / customisation.
The CNC simulation solution able to create manufacturing set-up documents, tool list, etc...	The simulation solution to demonstrate optimised tool list, set-up documentation, work-offset datums	10	Response reflects a complete misunderstanding of the requirements.	Service offering covers 30% of key measures of manufacturing set-up documents.	Service offering covers 70% of key measures of manufacturing set-up documents.	Service offering covers 100% of key measures of manufacturing set-up documents.