



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008 (ODISHA)**

An Institute of National Importance under Ministry of Education, GOI

NOTICE INVITING TENDER

Tender Notification No: NITR/PW/CE/2021/238 **Dated: 03/02/2021**

The National Institute of Technology, Rourkela invites bids from the eligible bidders for procurement of **Geomechanics Module, Structural Mechanics Module and Heat Transfer Module along with Integration Platform** at NIT Rourkela.

Last date of Submission of Bid : **24/02/2021 by 03:00 PM**

Opening date of Techno-commercial Bid : **25/02/2021 at 03:00 PM**

For Details: http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx

Contact: Dr. Rabi Narayan Behera
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Bidding through: <https://eprocure.gov.in/eprocure/app>.

**Sd/-
REGISTRAR**



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008, ODISHA**

(OPEN TENDER NOTICE NO.: NITR/PW/CE/2021/238

Dated: 03/02/2021)

Procurement of Geomechanics Module, Structural Mechanics Module and Heat Transfer Module along with Integration Platform at NIT Rourkela

SL.NO	Description of Goods/Service	Quantity
1.	Geomechanics Module, Structural Mechanics Module and Heat Transfer Module along with Integration Platform	1 unit

1. Quantity required: **As mentioned above (All information regarding technical specification provided in the Annexure-II)**
2. Delivery : Within **30 days** from the date of purchase order
3. Last Date of submission of Bid : **24/02/2021 by 03:00 PM**
4. Date of opening of techno-commercial bid : **25/02/2021 at 03:00 PM**
5. The firm should not have been black listed at any time.
6. The submission of following bids by the tenderer should be through <https://eprocure.gov.in/eprocure/app>. Please follow the guidelines as per the portal.

Procurement of Geomechanics Module, Structural Mechanics Module and Heat Transfer Module along with Integration Platform

(Open Tender Notice No.: NITR/PW/CE/2021/238 Dated: 03/02/2021)

Due on 24/02/2021 by 03:00 PM

7. **Liquidated damage clause** will be charged for any delay in supply of goods.
8. The validity of the tender shall be **90 days** from the date of opening of the bids.
9. Detailed advertisement including all tender documents is also available in our website at http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx.
10. NIT reserves the right to qualify or deny prequalification of any or all applicants without assigning any reasons.

(REGISTRAR)
NIT, Rourkela
Fax No- 0661-2462022
Ph. No -0661-2462021

DETAILED TECHNICAL SPECIFICATION

Specifications for Geomechanics Module, Structural Mechanics Module and Heat Transfer Module along with Integration Platform

Sealed tender bids are invited from reputed/authorized vendors/companies for Geomechanics Module, Structural Mechanics Module and Heat Transfer Module along with Integration Platform with following tender specifications.

1. Geomechanics Module

The structures like tunnels, excavations, slope stability, and retaining structures requires nonlinear material models tailored for geotechnical applications. It shall be capable of including built-in material models for modeling deformation, plasticity, creep, and failure in soils, concrete, and rock.

Apart from built-in material models, user-defined yield functions and mathematical expressions of the field variables, stress and strain invariants, and derived quantities using equation-based modeling shall be possible. Also, there shall be provision to incorporate in-situ stresses and define material properties that are dependent on another variable, such as a computed temperature field or water pressure.

The following material models shall be available in the Geomechanics Module

- *Soil Plasticity*: Mohr–Coulomb; Dilation angle; Drucker–Prager; Elliptic cap; Tension cutoff; Dilation angle; Matsuoka–Nakai; Lade–Duncan
- *Elastoplastic Soil*: Modified Cam–Clay; Modified structured Cam–Clay; Extended Barcelona basic; Hardening soil
- *Concrete*: Ottosen; Bresler–Pister; William–Warnke; Tension cutoff
- *Rock*: Original Hoek–Brown; Generalized Hoek–Brown; Tension cutoff
- *Plasticity*: Von Mises; Tresca
- *Creep*: Volumetric; Deviatoric; Potential; User defined
- *Damage*: Mazars damage for concrete; Phase-field damage; Equivalent strain criterion; Rankine; Smooth Rankine; Norm of elastic strain tensor; User defined; Crack band regularization; Implicit gradient regularization; Viscous regularization
- *Nonlinear Elasticity*: Ramberg–Osgood; Hyperbolic Law; Hardin–Drnevich; Duncan–Chang; Duncan–Selig; User defined

2. Structural Mechanics Module

Application areas shall include civil engineering, geomechanics, mechanical engineering, biomechanics, and MEMS devices. Using the Structural Mechanics Module, analyzing mechanical behavior of solid structures such as stress, strain, stiffness, natural frequencies, response to dynamic loads and buckling instability etc. shall be possible.

The following types of analyses shall be run with the Structural Mechanics Module:

- *Stationary*
- *Eigen frequency*: Undamped; Damped; Prestressed
- *Transient*: Direct or mode superposition
- *Frequency response*: Direct or mode superposition; Prestressed
- *Parametric*
- *Quasistatic*
- *Linear buckling*
- *Mode analysis*
- *Modal reduced order*
- *Response spectrum*
- *Random vibration*

3. Heat Transfer Module

The Heat Transfer Module shall include a comprehensive set of features for investigating thermal designs and effects of heat loads. It shall have the facility to model the temperature fields and heat fluxes throughout devices, components, and buildings.

It should include the following analyses

- *Conjugate Heat Transfer and Nonisothermal Flow*
- *Thin Layers and Shells*
- *Surface-to-Surface Radiation*
- *Phase Change*
- *Conduction*
- *Convection*
- *Radiation*

4. Integration Platform

It shall have the capability to couple above mentioned three modules and simulate it.

Other Requirements	
Installation	Enclose pre-installation guide for installation of software.
Manuals	1 set of detailed manual should be provided in both soft form as well as Hard copy. Language should be English only.
Warranty	01 Year Standard Warranty