



Name of Work: Renovation Work at Quarter No. D-19, MNIT Jaipur

NIT No. MNIT/NIT/E/17-18/08

TENDER DOCUMENT

Malaviya National Institute of Technology, Jaipur (Raj)

Malaviya National Institute of Technology Jaipur

PRESS NOTE

The Registrar, Malaviya National Institute of Technology, Jaipur, invites sealed item rate tenders from the reputed contractors registered in CPWD, PWD, MES, PSUs and other Govt. / semi govt organizations under valid category for the following work:

1.	Name of work	Renovation Work at Quarter No. D-19, MNIT Jaipur
2.	Estimated cost	Rs.1,85,704.00
3.	Earnest Money	Rs.3,714.00
4.	Cost of tender Documents	Rs.500.00 to be deposited in the form of separate DD with EMD. Document is available on institute web site www.mnit.ac.in
5.	Period for completion	60 Days
6.	Last Date & time for submission of tender	20.07.2017 Up to 2:00 PM
7.	Opening of tender	20.07.2017 at 3:30 PM

The contractors registered in CPWD, PWD, MES, PSUs, other Government and semi Government organization under appropriate category to participate in the tender of above description may apply. The registration / enlistment of the contractors shall be valid on the last date of submission of tender. In case the last date of submission is extended, the enlistment/registration of contractor shall also be valid upto extended date of submission.

The tenderer shall submit self attested copied of their registration/enlistment certificate along with tender document. The original copies of registration/enlistment certificate might be called upon by the Registrar, MNIT at any time after the opening of tender. The Registrar reserves the right to verify the documents for his full satisfaction including sending of the same to respective issuing department for verification of authenticity. Any information furnished by tenderer found incorrect will attract stringent legal action against him upto the extent to debar him from tendering in future and forfeiture of entire EMD and performance security.

Earnest money shall be deposited at the time of submission of tender documents. The earnest money shall be in the form of Demand Draft/ Banker's cheque of a scheduled bank issued in favour of Registrar, MNIT, Jaipur.

The successful tenderer shall have to submit a performance guarantee of 5% (Five percent) of the composite tendered amount in the appropriate form as given in PWD-6 attached with tender document within 7 days of issue of letter of acceptance.

The complete set of tender documents is available at MNIT's website www.mnit.ac.in and may be downloaded from there.

1. ELIGIBILITY OF BIDDERS

This invitation for tender is open to authorized contractors of CPWD, PWD, MES, PSUs, other Government and semi Government organization under appropriate category to participate in the tender of above description.

The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid.

The attested copies of the following documents must be submitted by the tenderer along with his tender document:

- (A) Sales Tax clearance certificate upto 2016 with TIN number.
- (B) Firm should attach valid registration certificate.
- (C) Enlistment letter of CPWD, PWD, MES, PSUs, other Government and semi Government organization under appropriate category.
- (D) Permanent Account Number of the Firm.
- (E) List of works of similar nature having completed satisfactorily during last three years with supporting documents.

2. LANGUAGE OF BID:

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid and exchanged by the Bidder and the client, shall be written in English language.

3. DOCUMENTS COMPRISING BID:

The bid is required to be submitted in two parts with the bid letter. The registration/enlistment certificates, DD/Bankers' cheque of tender fee and the earnest money shall be kept in an envelope and marked as "EMD & Registration". The tender document shall be placed in another envelope marked as "TENDER". Tenders received not marked as above shall not be opened and summarily rejected without assigning any reason.

Both of these two envelopes shall be submitted together in another sealed envelope marked with name of work, date & time of opening and shall be submitted to Registrar, MNIT addressing "The Registrar, Malaviya National Institute of Technology, JLN marg, Jaipur (Raj.)-302017". Upto 2:00 pm on 20.07.2017 and will be opened by him or his authorized representative in his office on the same day at 3:30 PM.

The envelope marked as "TENDER" of only those tenderers shall be opened, whose earnest money and registration certificates, placed in other envelope, is found correct.

The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. All pages of the bid,

except for un-amended printed literature, shall be initiated by the person or persons signing the bid with their firm's seal. Any interlineations, erasures or overwriting shall be valid only if the persons or persons signing the bid initial them.

- (i) The rate (s) shall be quoted in decimal coinage. Contractor must ensure to quote rate of each item clearly. If the column / space specified to quote the rate found blank and no rate is quoted by the bidder, the rate of such item shall be treated as "0" (Zero).
- (i) The price should be inclusive of all taxes and duties which will be payable after successful completion of work insurance and other local costs incidental to delivery, installation/demonstration and onsite preparation of the goods to their final destination. Under no circumstances shall claim for any additional taxes, levies, etc., be entertained once the final contract is awarded on the basis of the rates quoted. Prices will remain firm till complete execution of the order.
- (ii) Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the bidder does not accept the correction of the errors, its bid will be rejected, and its EMD shall be forfeited.

4. REJECTION OF BID:

The Registrar reserves the rights to reject any bid or to disqualify any or all the bidders, without assigning any reasons at any stage.

The Registrar, MNIT, Jaipur does not bind himself to accept the lowest or any other tender and reserves to himself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

- (i) If Bid is not accompanied with the requisite documents mentioned in bid document or is not in accordance with procedure specified in para 3 above, or is not accompanied with Bid Security & registration of contractor in required category, it would be liable for rejection.
- (ii) Furnishing of incorrect or incomplete or concealment of any information required in the bid documents would render the bid liable for rejection.
- (iii) If all the copies enclosed in support or affidavit is not duly attested then bid of the bidder is to be rejected.

5. BID VALIDITY:

Bids shall remain valid for a period of not less than 90 days after opening of the Tender. A bid valid for a shorter period shall be rejected by the Registrar as non-responsive.

6. PERFORMANCE SECURITY:

- (i) The Contractor, whose bid is accepted, will be required to furnish performance guarantee of 5% (Five Percent) of the composite tendered amount within the period specified in "Letter of

Acceptance” valid for a period of three months initially, that may be extended by the Registrar if seems necessary to keep the contract valid till the time of actual completion of work.

- (ii) This guarantee shall be in any form from banker's cheque, Demand Draft, Pay order, Bank Guarantee / Performance Guarantee of any scheduled in accordance with the prescribed form. In case the contractor fails to deposit the said Bank Guarantee / performance guarantee within the period as indicated in Letter of Acceptance, including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.

7. SECURITY DEPOSIT:

- (i) Security Deposit @5% (five percent) of the gross amount of bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money amounts to security deposits @5% of accepted composite tendered amount of the work.
- (ii) The Security deposit so deducted shall be refundable to contractor on successful completion of defect liability period of six months that will be commenced from the date of completion as recorded by the Registrar or his representative after the satisfactory completion & commissioning of work.

8. COMPUTERIZED MEASUREMENT BOOK:

All measurement of all items having financial value shall be entered by the contractor and complied in the shape of the Computerized Measurement Book having pages of A-4 size as per the format of the department so that a complete record is obtained of all the items of works performed under the contract.

All such measurement and levels recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor from the Engineer-in-Charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorized representative. After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in-Charge for the dated signatures by the Engineer-in-Charge and the contractor or their representatives in token of their acceptance.

The final fair computerized measurement book given by the contractor, duly bound with its pages machine numbered should be 100% correct and no cutting or over-writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly machine numbered and bound the Divisional Office records, and allotted a number as per the Register of Computerized MBs. This should be done before the corresponding bill is submitted to the Division Office for payment. The contractor shall submit two spare copies of such computerized MB's for the purpose of reference and record by the various officers of the department.

The contractor shall also submit to the department separately his computerized Abstract of Cost and the bill based on these measurements, duly bound, and its pages machine numbered along with two spare copies of the bill. Thereafter this bill will be processed by the Division Office and

allotted a number as per the computerized record in the same way as done for the measurement book meant for measurements.

The contractor shall without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements/levels by the Engineer-in-Charge or his representative.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded by contractor and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

It is also a term of this contract that checking and / or test checking the measurements of any item of work in the measurement book and / or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

9. TIME FOR COMPLETION:

- (i) The time allowed for carrying out the work will be 60(SIXTY) Days from the date of start to be intimated vide "Letter of Acceptance" or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
- (ii) The site for the work is available.

10. LIQUIDATED DAMAGES:

- (i) If the contractor fails to complete the work as per time schedule specified in the bid, the Registrar shall, without prejudice to its other remedies under the contract, deduct from the contract Price, as liquidated damages, a sum equivalent to 1.00% percent of the delivered price of the delayed goods for each week of delay upto maximum 10% of contract value until actual delivery or performance up to a maximum is reached, Registrar may consider termination of the contract also.
- (ii) The contractor shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.
- (iii) For purposes of this clause, "Force Majeure" means an event beyond the control of the contractor and not involving the client's fault or negligence. Such events may include, but are not restricted to, acts of MNIT either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- (iv) If a Force Majeure situation arises, the contractor shall promptly notify Registrar in writing of such condition and the cause thereof. Unless otherwise directed by Registrar in writing, the contractor shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

11. OTHER CONDITIONS OF CONTRACT:

- (i) Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
- (ii) Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
- (iii) The Registrar, MNIT, Jaipur reserves the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
- (iv) The contractor shall not be permitted to bid for works in the MNIT responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the MNIT or in the Ministry of Human Recourses & Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of MNIT.
- (v) The bid for the works shall remain open for acceptance for a period of Ninety (90) days from the date of opening of eligibility bid. If any bidders withdraws his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.
- (vi) Registrar may waive any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder.
- (vii) The Registrar as per the requirement will call the contractor to get the material tested at any time, before or during the execution time from any reputed laboratory as deemed suitable to carry out such test. Samples of materials required for testing shall be provided free of cost by the contractor. Testing charges, if any, shall be borne by the MNIT in case the test results are satisfactory, and shall be borne by the contractor if the results are not satisfactory, except where-ever specifically mentioned otherwise in the Bid. All other expenditure to be incurred for taking samples, conveyance, packing etc. shall be borne by the contractor.
- (viii) The contractor shall submit a detailed program of work within 5 days of the date of issue of letter of intent. Detailed program should include all the mile stones, cash flow, material

procurement, manpower deployment. Program must show clearly the critical path to complete the project in time.

- (ix) The Registrar can modify the program and the contractor shall have to work accordingly. During review of work progress, Registrar can ask to modify the program. Contractor shall resubmit the modified program in 2 days.
- (x) Statutory deductions on account of VAT, income tax, Labour CESS and surcharge as applicable shall be made from the gross amount of the bill. All taxes which are applicable will be borne by the contractor
- (xi) The contractor shall make his own arrangements for obtaining electric connection, if required and make necessary payments directly to the department concerned.
- (xii) The contractor shall make his own arrangement of water for construction and drinking purpose as well for electricity and its distribution at his own cost. The department will render only assistance to the contractor for making application to authorized Electric supply agency, if required. All the fees and charges including consumption charges shall be borne by the contractor.
- (xiii) Water Charges @ 1% shall be deducted from the contractor's bill payments on pro rata basis on account of supply of water from the institute.
- (xiv) No payment shall be made to the contractor for any damage caused by rain, snow fall, floods or any other natural causes whatsoever during the execution of work. The damage caused to work shall have to be made good by the contractor at his own cost and no claim on this account shall be entertained.
- (xv) Other agencies may also simultaneously be executing the work of painting, wood work, electrification, Horticulture or external services and other building works for the same building along with this work. The contractor shall afford necessary facilities for the same and no claim in the matter shall be entertained. The contractor shall especially co-ordinate with the other agency carrying out his work.
- (xvi) The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of the work by storing materials on the road.
- (xvii) The malba /garbage generated at site due to construction activities shall be removed from the site immediately & shall be disposed off by the contractor to the approved dumping site identified by the Engineer-in-charge. The surplus soil/earth shall be disposed of as per the directions of Registrar separately.

12. LIST OF APPROVED PRODUCTIS FOR WORKS

S.No.	Description	Approved Manufacturer / Brand Name
1	Ceramic / Glazed Tiles	Somani, Kajaria, Orient, Johnson, Nitco
2	TMT Bars	Major producers like SAIL, Rashtriya Ispat Nigam Ltd., TISCO and reputed secondary producers having Thermox or Temp Core system of treatment and valid BIS license.
3	OPC/PPC	Ultra Tech, ACC, JK, JP, Birla, Shree, Ambuja,
4	White Cement	Birla White, J.K. white or equivalent
5	Primers, Paints (i/c water proofing cement paint) etc	Nerolac, Asian, Bergar, Jenson & Nicholson, ICI Dulux, Snowcem

6	Lime	Santa, Dehradun, Gotan
7	Glass Putty	Shalimar or equivalent
8	Sanitary ware and fittings	Parryware (India) Ltd., hindware, CERA.
9	Clear Glass	Modiguard, Saint Gobain, ASAHI
10	GI Pipes and accessories	Tata, Jindal, BST, GST
11	Centrifugally Cast Spun Pipes & Fittings	NECO, Kesoram, or any ISI marked brand
12	Brass / CP Brass Fittings	L&K, Parko, Kingsston.
13	Aluminum sections (Anodising by approved anodizing firm)	Hindalco, Jindal, Indian Aluminum Co.
14	Water proofing compound	CICO, FOSROC, PIDILITE
15	Stainless steel sink	Neelkanth, Nirali, Jayna
16	Particle board i/c laminated	NOVAPAN. DECO, BHUTAN, CEO BOARD
17	Plastic W.C. seat Cover	Commander, Diplomat, Coral
18	Stoneware Pipes & Guilty traps	Perfect, Taya, ISI marked
19	Factory made paneled door shutters	Any factory with written approval
20	Flush doors	Any ISI marked door.
21	RCC Pipes	ISI Marked
22	PVC tanks	Euro-II or equivalent. or any other factory with written approval of EIC.
23	Mirrors	Golden Fish, Jolly, Saint Gobain, Modi Float
24	CP waste & Flush pipes	Oriental, Parko, Gem
25	PVC flushing cistern	Parryware, Cera, Commander
26	PVC Rigid Form	M/s Padmavati marketing, Jaipur, M/s Artworks, Udaipur, M/s ENGCO industries Jaipur.
27	PE-Al-PE pipes	As per IS 15450-2004, Jindal, Kitec Industries
28	Water proofing agency	As approved by EIC, MNIT.
29	False ceiling	Armstrong, Durlum, Anutone or equivalent as approved by EIC.

Malaviya National Institute of Technology Jaipur

Estate Section

G-Schedule

NIT No. MNIT/NIT/E/17-18/08

Name of Work :- Renovation work of D-19

S. NO.	DESCRIPTION	UNITS	QTY	RATES IN Rs.	AMOUNT IN Rs.
1	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor, etc., up to floor five level, excluding the cost of centering, shuttering and finishing :				
	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	Cum	0.50		
2	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level upto floor V level.				
	Cement mortar 1:4 (1 cement : 4 coarse sand)	Sqm	1.00		
3	Providing and fixing 18mm thick gang saw cut mirror polished (premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing moulding and polishing to edge to give high gloss finish etc. complete at all levels.				
	Granite of any colour and shade				
	Area of slab over 0.50 sqm	sqm	1.00		

4	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete.				
	Size of Tile 600x600 mm	sqm	90.00		
5	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), including grouting the joint with white cement & matching pigments etc. complete.				
	Size of Tile 600x600 mm	sqm	10.00		
6	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	sqm	45.00		
7	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigment etc, complete.	sqm	12.00		

8	12 mm cement plaster of mix :				
	1:6 (1 cement: 6 fine sand)	sqm	45.00		
9.00	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.	cum	1.00		
10	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
	In cement mortar	cum	0.50		
11	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	each	1.00		
12	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps, i/c making good the walls etc. concealed pipe, including painting with anti corrosive bitumastic paint, cutting chases and making good the wall :				
	15 mm dia nominal bore	metre	25.00		
13	P&F rigid <i>PVC Pipe</i> (IS:4985 mark) class II/ (4 Kg. /Cm ² .) approved quality /make including joining the pipe with solvent cement rubber ring and lubricant.				
a	75 mm dia	Mtr	5.00		
b	110 mm dia	Mtr	5.00		

14	P&F rigid <i>PVC pipe fittings</i> (IS: 4985 mark) of approved quality /make including joining the pipe with solvent cement rubber ring and lubricant:				
	Coupler (socket)				
(i)	75mm dia	Each	2.00		
(ii)	110mm dia	Each	2.00		
15	Bend 87 .5				
(i)	75mm dia	Each	1.00		
(ii)	110mm dia	Each	1.00		
16	Plain floor trap				
	110mm dia	Each	2.00		
17	P- Trap				
	110mm dia	Each	1.00		
18	Dismantling stone slab/ terrazo chip flooring and dado on wall laid in cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 meters lead.	Sqm	45.00		
19	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required:				
	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests	each	1.00		

20	P & F Grating of approved quality/make:				
	Stainless Steel Sheet size 125mm dia.	Each	6.00		
		TOTAL			

I / We hereby agree to execute the work on the above mentioned rates and term condition, total amounting to Rs _____ for the entire work and on the enclosed terms and conditions of contract of the Institute.

Signature of the contractor with seal

Address _____

Mobile No _____

Opened by us on _____

Tender Stands total amounting to Rs _____ for the entire work

Executive Engineer