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STRATEGIC COMMUNICATION AND UNMANNED SYSTEMS SBU, BENGALURU COMPLEX.

Advertisement No.383/HR/SC&US/2021-22 Date: 17.11.2021

Bharat Electronics Limited a Navartna Company and India's premier professional electronics Company under the Ministry of Defence, requires the following personnel ***on permanent basis*** for its Strategic Communication and Unmanned Systems SBU, Bengaluru Complex.

Sl. No.	Post	Qualification / Discipline	Reservation	Upper Age Limit (as on 01.11.2021)	No. of Posts	Pay scale
1	**Senior Engineer E-III**	**BE / B. Tech/ ME/M.Tech in** a) Aerospace/Aeronautical Engineering -1 (UAV) b) E&C -**3** (1 UAV, 1 UUV, 1 USV) c) Computer Sc Eng – 2 (1- UAV, 1, UUV) d) Mechanical -2 (1- UAV & 1- UUV) e) Mechtronics -2 (UGV)	UR - 5 OBC - 2 SC - 1 ST - 2	32 years	10	50,000 - 3%- 1,60,000/- + other admissible allowances
2	**Deputy Manager E-IV**	BE / B.Tech/ME/M.Tech in a) Aerospace/Aeronautical Engineering – 1 (UAV) b) E&C -1 (1- UGV)	UR - 1 SC - 1	36 years	2	60,000 -3%- 1,80,000/- + other admissible allowances

NOTE FOR ABOVE TABLE – VERTICALS

A. Unmanned Aerial Vehicles – UAV
B. Unmanned Underwater Vehicles – UUV
C. Unmanned Surface Vehicles – USV
D. Unmanned Ground Vehicle – UGV

***Note:** Number of vacancies may be increased or decreased based on the actual requirement at the discretion of the Management.

Candidates who are desirous of applying for the post should be willing to relocate to the place mentioned above and should also be willing to travel extensively across the country.

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1.0 ESSENTIAL QUALIFICATION:

a) **E-III** - Full time B.E/B.Tech/M.E/M.Tech in Electronics/Electronics & Communication/Electronics & Telecommunication/ Telecommunication/ Communication/ Aerospace/ Aeronautical Engineering/Mechatronics/Computer Sc/Mechanical/Mechatronics.

b) **E-IV** - Full time B.E/B.Tech/M.E/M.Tech in Electronics/ Electronics & Communication/ Electronics & Telecommunication/ Telecommunication/ Communication/ Aerospace/ Aeronautical Engg.

2.0 PERCENTAGE OF MARKS/CLASS

First Class for General/OBC candidates and Pass Class for SC/ST/PWD (Person with Benchmark Disability) candidates from an AICTE approved College/Institute or a recognized University.

3.0 AGE:

The upper age limit indicated above in the table is for candidates belonging to General category. The upper age limit will be relaxed by 3 years for OBC candidates, 5 years for SC/ST and 10 years for PWD candidates (having minimum 40% disability, in addition to the relaxation applicable to OBC/SC/ST candidates).

4.0 RELEVANT POST QUALIFICATION EXPERIENCE (AS ON 01.11.2021) :

A) **E-III** - Minimum 4 years of relevant post-qualification experience for B.E/B.Tech & 2 years of relevant post qualification for M.E/M.Tech.

B) **E-IV** - Minimum 8 years of relevant post-qualification experience for B.E/B.Tech & 6 years of relevant post qualification for M.E/M.Tech

A- UNMANNED AERIAL VEHICLE – UAV

E-III - Minimum 4 years of relevant post-qualification experience for B.E/B.Tech & 2 years of relevant post qualification for M.E/M.Tech.

Discipline	Essential	Desirable
Aerospace/ Aeronautical	• Design and development of new products/processes • Design of UAVs and CFD, Structural Analysis of Air frames • BOM Preparation & Product / Process flow chart knowledge • Experience in New Product Transition & Good customer centric competency • System Engineering of Aerial vehicles • Design of Control systems for Aerial vehicles • Hands on experience in performing constraint analysis, sizing the external geometry and estimating performance characteristics for Aerial Vehicle.	• Design & Analysis of Guidance systems • Design of Autopilot for Aerial vehicles • Hands on experience on UAV Simulator for Terrains generations/Path Planning • Knowledge of Communication System • Programming experience in C/C++, Python, ROS, ML & AI

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	• Ability to comprehend the effects of design choices on aircraft performance and stability. • Selection of material for Aerospace Structure • Testing of Air vehicle modules & System Integration	• Hands on experience pertaining to activities involving wind tunnel testing of an aircraft. • Experience in flying UAV
Electronics & Communication	• Design and development of electronics and communication systems for UAV/Aerospace related industry. • Implementation of various communication interfaces like USB, RS232, Ethernet, etc. • Basic circuit design, schematic analysis, Interface, verification, testing and performance evaluation • Software development, hardware design and hardware/software integration • Signal Processing, Image/Video processing • Data link/ Wireless Communication for LOS & long range • Integration with command interfaces with Avionics sub-modules	• Working knowledge of the following: ✓ FPGA Tools, ✓ Avionics used in UAV. ✓ Mavlink protocol, Drone kit, Mavproxy,Qground Control Station ✓ Sensors like Lidar, Cameras • Programming with Python, OpenCV and softwares used for Video Analytics • Hands on experience of using debugging instruments like CRO, Spectrum Analyzer etc. • Test software development
Computer Sc	• Majority of the following environments like Python, C/C++, ML, AI, OpenCV, Database, GUI development, Embedded Programming, MATLAB - Simulink, Interface Programming • Tweaking of existing source code base.	• Implementation of softwares for command & control of Electronics & Mechanical Systems • Development of diverse engineering solutions for integrated avionics software. • Developing visualization tools, Automation and optimization of systems
Mechanical	• GD&T (Geometric Dimensioning & Tolerance) Drawings • Knowledge on operation of ✓ IC/Turbine Engines ✓ DC Motors • Knowledge of any of the one software in 3D modeling ✓ SOLID WORKS ✓ CATIA ✓ AUTOCAD • Knowledge of any of the one software in Structural analysis ✓ ANSYS ✓ HYPER MESH ✓ ABACUS	• Designing of vehicle with surface modelling and complex mechanisms (Solid works & CATIA) • Working knowledge of 3D ICEM meshing of the designed model and CFD, structural analysis (ANSYS & HYPERMESH) • Analysis of composite structure using ABACUS tool. • Knowledge of ✓ Control systems ✓ Composite materials • Rectifying faults in IC/Turbine Engines

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E-IV - Minimum 8 years of relevant post-qualification experience for B.E/B.Tech & 6 years of relevant post qualification for M.E/M.Tech

Discipline	Essential	Desirable
Aerospace/ Aeronautical	• Design of UAVs and CFD, Structural Analysis of Air frames • System Engineering of Aerial vehicles • Design and manufacturing process of composite & metal structures and testing, etc. • Design of Control systems for Aerial vehicles • Experience in carrying out various analysis/methods to meet performance requirement of the Air Vehicle • Address evolving product requirements, and realizing airframe design revisions • Experience in Aero-modelling/ UAV development projects • Knowledge of various tests to be conducted on Air vehicle modules before Flight Testing • System Integration of Air vehicle	• Experience in working on end to end solution from understanding of high level systems requirement • Experience in planning design activities, and meeting functionalities of products through multi-staged processes • Reviewing design documents • Design & Analysis of Guidance systems, autopilot for aerial vehicles • Knowledge of Communication System • Programming experience in C/C++, Python, ROS, ML & AI • Hands on experience on UAV Simulator for Terrains generations/Path Planning • Experience in flying UAV

B- UNMANNED UNDERWATER VEHICLES - UUV

E-III - Minimum 4 years of relevant post-qualification experience for B.E/B.Tech & 2 years of relevant post qualification for M.E/M.Tech.

Discipline	Essential	Desirable
Electronics & Communication	• C/C++, Python, Java • Artificial Intelligence/Machine Learning (AI/ML) • Industrial Automation PLC/Matlab-Simulink/Embedded Programming • Single board Computer/Embedded/Robotic System Design / Programming / Testing / Troubleshooting • Integration of Sensor like LIDAR/SONAR/Doppler Velocity Logs / GPS / IMU / INS / GYROS / CTD / Acoustic Positioning or Systems / Propellers / Thrusters etc. • Control system Simulation/design for Unmanned Vehicles • Interface Programming for I2C / CAN / LIN / Modbus / EtherCAT / SPI / UART / USART / USB etc.	• Experience in Marine Vehicles
Mechanical	• 3D Modelling with Autocad/Solid Works/Catia/Unigraphics etc., • Structural Analysis with Ansys/Hyperworks/Solid Works etc., • Control System Simulation/design for Unmanned Vehicles • Actuators like DC/BLDC/PMSM Motor	• Experience in Marine Vehicles

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Computer Sc	• C/C++, Python, Java • Artificial Intelligence/Machine Learning (AI/ML) • Industrial Automation PLC/Matlab-Simulink/Embedded Programming • Single board Computer/Embedded/Robotic System Design/Programming/Testing/Troubleshooting • Interface Programming for I2C/CAN/ MODBUS/ EtherCAT /SPI/UART/USART/USB etc., • Control systems Simulation/design for Unmanned Vehicles	• Experience in Marine Vehicles

C- UNMANNED SURFACE VEHICLES - USV

E-III - Minimum 4 years of relevant post-qualification experience for B.E/B.Tech & 2 years of relevant post qualification for M.E/M.Tech.

Discipline	Essential	Desirable
Electronics & Communication	• Single board Computer/Embedded/Robotic System Design/Programming/Testing/Troubleshooting • Integration of Sensor like LIDAR/SONAR/Doppler Velocity Logs/GPS/IMU/INS/GYROS/CTD/Propellers etc • Industrial Automation PLC/Matlab-Simulink/Embedded Programming • Control system Simulation/design for Unmanned Vehicles • Interface Programming for I2C/CAN/MODBUS / EtherCAT /SPI/UART/USART/USB etc., • Integration of 4G/VHF/UHF/Satellite based Communication systems • Signal processing, Image / Video processing	• Experience in Marine Vehicles

D- UNMANNED GROUND VEHICLES – UGV

E-III - Minimum 4 years of relevant post-qualification experience for B.E/B.Tech & 2 years of relevant post qualification for M.E/M.Tech.

Discipline	Essential	Desirable
Mechatronics	• Industrial Automation PLC/Matlab-Simulink/Embedded Programming • Single board Computer/Embedded/Robotic System Design/Testing/Troubleshooting • Integration of Sensors like LIDAR/GPS/IMU/INS/GYROS/Ultrasounds/Camera/LRF etc., • 3D Modelling with Autocad/Solid Works/Catia/Unigraphics etc., • Structural Analysis with Ansys/Hyperworks/Solid Works etc., • System Engineering related to Unmanned Ground Vehicles • Actuators like DC/BLDC/PMSM Motor • Control systems Simulation/design for Unmanned Vehicles • Robotic platform/On-board Computing platform/ROS	• Experience of working in Unmanned Ground Vehicles

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E-IV - Minimum 8 years of relevant post-qualification experience for B.E/B.Tech & 6 years of relevant post qualification for M.E/M.Tech

Discipline	Essential	Desirable
Electronics & Communication	• C/C++/Python/Java • Industrial Automation PLC/Matlab-Simulink/Embedded Programming • Embedded/Robotic System Design/Testing/Troubleshooting • Integration of Sensors like LIDAR/GPS/IMU/INS/GYROS/Ultrasounds/Camera/LRF etc., • Interface Programming I2C/CAN/Modbus/SPI/UART/USART/USB etc., • System Engineering related to Unmanned Ground Vehicles • Control systems Simulation/design for Unmanned Vehicles • Robotic platform/On-board Computing platform/ROS • Integration of 4G/VHF/UHF/Satellite based Communication systems • Electronic Design Automation like Eagle/KiCAD/ OrCAD/ Allegro etc.,	• Experience of working in Unmanned Ground Vehicles

5.0 METHOD OF SELECTION:

Selection will be through a Written Test for shortlisted candidates, followed by an Interview, **The details of the Written Test/Interview will be intimated in due course.** The written test Centre will be in Bangalore.

6.0 FEE PAYMENT

Candidates are required to remit an amount of Rs. 750/- towards application fee through SBI Collect (through online mode or through SBI Branch). SC/ST/PWD candidates are exempted to pay the application fees.

- The application fee should be remitted through SBI Collect (through online mode or through SBI Branch).
- Candidates are requested to read the details and screenshots for making the payment.
- Candidates can also make the payment by approaching SBI branch. You have to select SBI branch in the payment option and download pre-printed challan generated through SBI Collect and deposit the application fee (as applicable) plus applicable bank charges in any SBI Branch. The candidate should ensure to obtain the seal and signature of the bank official.
- Candidates have to enter the "**SBI Collect reference No.**" generated after payment, in the online Application Form.
- Candidates may go through all instructions and eligibility criteria carefully before remitting Application Fee and submitting the application. Fee once paid will not be refunded.

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7.0 GENERAL INSTRUCTIONS:

The Cut-off date for deciding the maximum permissible age and experience (Post Qualification Experience) shall be 01.11.2021. In order to compute post-qualification work experience, the period of work experience starting from the month immediately succeeding the month of final examination in which candidate acquire the essential educational qualification shall be considered.

Candidates working in PSUs/Government/Quasi Government organizations shall produce No Objection Certificate at the time of the interview. Such candidates, who are unable to produce NOC at the time of interview, will not be interviewed.

Candidates are required to travel extensively anywhere in India.

In addition to Basic Pay, other allowances like Dearness Allowance, House Rent Allowance, 35% of the Basic Pay as perquisites, Performance Related Pay (PRP), Group Insurance, Medical facilities and Provident Fund as per the Company's rules will be part of the remuneration package.

Request for change of category once declared in the application will not be entertained.

The exact date and time shall be communicated in the Admit Card for Written Test. Candidates are required to possess at least one valid e-mail id which is to be entered in the application form. Information pertaining to the Written Test/Interview will be sent by e-mail to the id that is furnished and also will be published in the BEL Website. BEL will not be responsible for bouncing of any e-mail sent to the candidate.

In the event any applicant has litigated with his/her employer in the past, the same should be clearly mentioned in brief.

The SC/ST/OBC/Disability Certificates should be strictly in the format available on the BEL website.

Canvassing in any form will result in disqualification.

Only Indian nationals need to apply.

Merely fulfilling the minimum requirement of qualification and experience will not vest any right on the candidates to be called for the Interview/Written Test. BEL reserves the right to debar/disqualify any candidate at any stage of the selection process for any reason whatsoever and also reserves the right to cancel / restrict / enlarge / modify or alter the recruitment or selection process, if need so arise without issuing any further notice or assigning any reason thereafter.

Interested candidates meeting all the criteria mentioned aloft, should submit the application in the format appended to this advertisement and send the applications through post, super scribing on the envelope the post applied for. The following documents should compulsorily be enclosed:

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i) 10th Standard/SSLC marks card/passing certificate (as proof of date of birth).

ii) All certificates (starting from Matriculation/Class 10th/SSLC) in support of educational qualifications.

iii) B.E/ B.Tech./M.E/M.Tech Degree certificate (as applicable). **In case of CGPA or credits system of assessments, the candidates are required to attach the formula for conversion of CGPA/ Credits to percentage in accordance with the respective University norms.**

iv) All semester Marks Sheets/Final consolidated marks sheet.

v) Caste/Community/Disability/Income certificate in case of candidates belonging to SC/ST/OBC/PWD respectively. Candidates claiming reservation under any of the above categories are required to submit the certificate in the prescribed format. **The formats of various certificates are provided as link to the advertisement.** Candidates belonging to OBC category should possess the certificate issued on or after 01.09.2020.

vi) Post qualification experience certificate/s from previous/current employer/ appointment letter and relieving letter (wherever applicable) needs to be attached to determine the number of years of post qualification experience.

vii) Candidates if working in PSUs/ Govt. organizations should compulsorily submit 'No Objection Certificate' at the time of application or interview.

viii) Copy of the SBI receipt.

Failure to forward the indicated enclosures will result in disqualification, even if the candidates have remitted the application fee. Applications complete in all respects should be sent by post to **Manager (HR/SC&US/HLS&SCB), Bharat Electronics Ltd, Jalahalli post, Bengaluru - 560013, latest by 08.12.2021**. Applications that are incomplete, not in the prescribed format, not eligible, without the required enclosures will be summarily rejected without assigning reasons and no correspondence in this regard will be entertained.

There will be no separate communication to any candidates on their non-selection at any stage. You may write to hrtbs@bel.co.in or contact on phone number 080-22195629 for any clarifications.

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