



**STRATEGIC COMMUNICATION AND UNMANNED SYSTEMS SBU,
BENGALURU COMPLEX.**

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

Date: 17.11.2021

Bharat Electronics Limited a Navarna 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) Mechatronics -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.



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

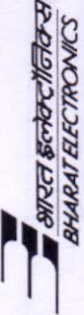
A- UNMANNED AERIAL VEHICLE – UAV

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 Aerospace/Aeronautical	Essential	Desirable
	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Design & Analysis of Guidance systems Design of Autopilot for Aerial vehicles Hands on experience on UAV Simulator for Terrains Knowledge of Communication generations/Path Planning System Knowledge of Communication Programming experience in C/C++, Python, ROS, ML & AI



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



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

<p>Discipline Aerospace/Aeronautical</p>	<p>Essential</p> <ul style="list-style-type: none"> • 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 	<p>Desirable</p> <ul style="list-style-type: none"> • 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
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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.

<p>Discipline Electronics & Communication</p>	<p>Essential</p> <ul style="list-style-type: none"> • 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 / GYROSCOPE / 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 / USB etc. 	<p>Desirable</p> <ul style="list-style-type: none"> • Experience in Marine Vehicles
<p>Mechanical</p>	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Experience in Marine Vehicles

