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| Introduction and location | The Einstein Telescope (Einstein Telescope, or just ET) is a future third-generation gravitational wave detector currently being studied by various scientific bodies in the European Union. Like current detectors, the Einstein Telescope will use the principle of interference of two light beams to detect the passage of a gravitational wave: the entire structure will be built underground to mitigate disturbances caused by environmental seismic noise; the size of the interferometer will go from the 3-4 km of the current detectors to 10 km; the optics will be cooled to a temperature of 10-20 K to reduce thermal noise; new quantum technologies will be adopted to reduce light fluctuations; and a series of infrastructures will be built to further reduce other environmental disturbances.The activity covered by this call will take place in INFN's Rome 1 Section. |
| Competition type | Competition for titles and examinations |
| Number of positions | 1 |
| Profile | TECNOLOGO/ENGINEER |
| Level | III |
| Retained successful candidates | 2 |
| Planned Activity | The activity will be carried out within the ET Engineering Department in the following two areas: 1. the study, the design and the definition of the technical specifications of the infrastructure systems (ventilation, cooling, electricity distribution, handling and transport) supporting the Einstein Telescope, located both above and underground. This activity involves close collaboration with the scientific units responsible for the detector components and its subsystems.2. the study for the integration and optimisation of the experimental equipment, detector and its subsystems on the surface and underground. This involves the integration of machines, piping, cables and transport systems including the construction and installation sequence. This activity involves close collaboration with Civil Engineering in the Engineering Department.  |
| Admission requirements | The general requirements for admission to the civil service. |
| Requirements for access to the profile | Master's degree (five years) in Mechanical or Aerospace Engineering,  |
| Deadlines and submission procedures | The application must be completed in Italian or English and sent by registered letter with acknowledgement of receipt or, alternatively, by certified electronic mail (PEC). |
| Assessable qualifications and maximum score | 1. Technological activities (45 points)
2. Coordination and/or service activities (40 points)
3. Publications, printed works, projects and technical papers (no more than 10) (15 points)
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| Evaluation criteria | Qualifications:* Congruence of the training course and/or engineering research activity with the areas defined in the vacancy notice;
* Consistency, intensity, temporal continuity and relevance of the overall engineering activity as well as its updating with respect to the activity envisaged in the vacancy notice;
* Responsibility for technological activity in national or international groups or collaborations;
* Skills and use of CAD systems, Catia or other numerical modelling software

Coordination activities:* Participation in scientific-technological steering committees;

Publications, printed works, projects and technical papers* Congruence of each publication with the technological activity envisaged in the call;
* Individual contribution in the collaborative work presented, which can be deduced from the CV.
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| Number of tests | 3 |
| Types of examination tests | 2 written  |
| 1 oral |
| Marks available to the selection board | Titles | 100 points | Total 500 points |
| Written tests | 200 points per test |
| Oral examination | 200 points |
| Minimum score for admission | 140/200 |
| Overall score | Average score for written tests + oral test score + score for qualifications |
| Composition of the selection board | 1 chairman - 2 members - 1 secretary |
| Examination programme | First written test | The written test will cover the following topics1. Industrial ventilation and air handling systems
2. Industrial hydraulic systems such as cooling rings and fire-fighting systems
3. Medium and low voltage electrical distribution systems
4. Special transport systems
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| Second written test | 1. Commenting on a systems integration design
2. Highlighting problems to be solved or anticipated
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| Oral test | The oral test will consist of an interview on the topics indicated for the written tests as well as a discussion on the test papers, the qualifications possessed and the products, printed works, projects and technical papers submitted. |
| Italian language proficiency test | The test will consist of reading and translating a technical-scientific text in Italian. |
| The selection procedure | The assessment of qualifications, on the basis of the criteria laid down in the notice, is carried out by the selection board only for those candidates who have taken the written tests, before the tests themselves are assessed.Candidates who score at least 140 points in both written tests are admitted to the interview.Candidates who have obtained a mark of at least 140 in the interview are placed on the merit list.At the end of its work, the selection board will formulate a final mark for each candidate, which will be the sum of the mark obtained in the assessment of qualifications, the average mark obtained in the written tests and the mark obtained in the interview. |
| Winners (eligible if present) | The merit list for the competition will be drawn up by the board of examiners according to the decreasing order of the final marks obtained by the candidates who score at least 140 points in the examination/interview assessment.The merit list of the competition will be approved by resolution of the Executive Board of INFN once the regularity of the competition procedure has been ascertained and in compliance with the provisions in force regarding priority or preference in appointments.The candidate who is placed first in the merit list will be declared the winner of the competition.The candidate who is placed second in the merit list will be declared eligible for the competition.  |